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CODIB-D-85/2
16 June 1961

UNITED STATES INTELLIGENCE BOARD

COMMITTEE ON DOCUMENTATION

MEMORANDUM FOR: Chairman, United States Intelligence Board

SUBJECT: Machine-Language Producing Typewriter for Overseas Installations

REFERENCES:
- (a) USIB-D-39.5, 1 Mar 61; subject: CODIB Progress Report
- (b) USIB-M-144, 7 Mar 61, item 9
- (c) IBSEC-PR/2, 5 May 61 to USIB; subject: Report of the Security Committee in Implementing Recommendation No. 42 of the Joint Study Group Report re "Foreign Intelligence Activities of the United States Government" dated 15 December 1960

1. Your Committee on Documentation (CODIB) reported in reference (b)

the steps it was taking to coordinate Service and departmental plans for using

flexowriter-type equipment (i.e., typewriters producing a machine-language

by-product) in overseas posts. The USIB endorsed these steps (reference (a))

and conveyed its sense of urgency for resolution of the flexowriter security

problem (viz., line and air radiation) to the Communications Security Board

in a memorandum from the Executive Secretary, USIB to the Executive Secretary,

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USCSB dated 13 March 1961. The security problem was also considered by

the USIB Security Committee as reflected in reference (c), which states that

the problem now rests with the USCSB's Committee on Compromising Emanations.

2. CODIB has proceeded as far as it can in developing compatible second-

generation equipment requirements (the first generation being the Flexowriter

machines now in use or on order). A statement of Intelligence Community

requirements has been formulated by a CODIB working group and is enclosed

as Attachment 1. The basic issue to be resolved is the identification of the

authority in the U. S. Government best able to act in the interest of the

Intelligence Community as a whole in contracting for the development of a

secure remote systems input device (typewriter) which meets agreed

Community requirements as stipulated in Attachment 1.

3. CODIB feels that the USIB is the proper authority and, with the NSA

member abstaining, that the National Security Agency is the Community member

best qualified to serve as the contract agency on USIB's behalf, to negotiate

with industry for development of a secure device which also meets the systems

requirements specified. CODIB recognizes that such common concern

activity in the information processing field may be considered to be outside

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NSA's charter, but suggests USIB designation of NSA for this role in view of

that agency's special competence.

Recommendations

4. It is, therefore, recommended that

(a) the USIB approve the CODIB-developed statement of "USIB

Equipment Requirements for Remote Systems Input Device" (Attachment 1);

(b) in view of the urgency and interest to the Intelligence Community

as a whole, the USIB accept the central authority role in promoting

development of the required device;

(c) the USIB designate NSA as the contract agency to negotiate with

industry for development work for a secure device which meets the

Community requirements, and direct NSA to keep CODIB and USIB

advised on progress at frequent intervals;

(d) appropriate research and development funds be made available for

the work involved;

(e) the USIB direct that work commence as soon as general security

specifications can be developed in adequate depth;

(f) when this device becomes available, meeting as closely as possible

the statement of Community requirements, no other new typewriter be

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procured for typing classified information at diplomatic or jointly used

installations abroad.

(g) the USIB acknowledge and reiterate its concern with USCSB

efforts to resolve the security problems of the presently held Flexowriters.

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PAUL A. BOREL
Chairman

Attachment 1
USIB Equipment Requirements for Remote Systems Input Device

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Attachment 1

USIB EQUIPMENT REQUIREMENTS FOR REMOTE SYSTEMS INPUT DEVICE

1. This is a statement of USIB requirements for an input device to be used in typing classified information at diplomatic establishments and other jointly used installations abroad. The statement has been formulated by the USIB/CODIB Working Group on Remote Systems Input. The requirements listed include those common to all participating agencies, as well as those of major significance to one or more agencies. They will be the basis for developing agreed engineering specifications for a common use machine which will be operable by 1965.

2. Objectives:

    a. To produce reports in a machine processable language and medium as a byproduct of the original typing by the reporting activity.

    b. To transmit this information to the processing centers concerned for further dissemination, the mode of communication depending on the urgency of the information contained in the report.

    c. To put the reports into EDP systems with a minimum of human intervention.

    d. To use the same equipment to prepare information for transmission to the reporting activities.

3. Requirements for Input/Output Typewriter:

    a. The typewriter should be able to produce a machine processable language on a medium such as paper or magnetic tape as a byproduct of typing, and should be able to automatically type when reading this byproduct at a speed of 120 words per minute or faster.

    b. Standard four-bank keyboard with upper and lower case letters, digits, and those typing and programing functions, and special characters, which are determined during the preparation of engineering specifications to be needed by each agency. See example of keyboard layout attached.

    c. Provision for programing; that is, the capability for automatically controlling the functioning of the typewriter, including the automatic typing of repetitive and control data, to insure formating of records to be processed into an EDP system. The typewriter should be designed to require the minimum exercise of operator judgment.

d. Equipment easy for average typist to use, including provision for a simple and easy method for correcting the machine language byproduct of typing.

e. Safeguards against interception of information.

f. Safeguards against accidental or deliberate erasure of reports in transit, if magnetic storage is involved.

4. Coding Requirements:

A coding structure is required which can carry the full range of information typed through both the telecommunications and the data processing systems while retaining the capability for reconstituting the original language, including the distinction between upper and lower case, at the output terminal. This must be accomplished without exceeding the internal limitation of 64 code combinations imposed by the computer systems now planned by member agencies. This includes provision for the direct acceptance of the machine byproduct into then-standard communications equipment. For planning purposes it is assumed that 5-channel communications equipment will still be in general use at diplomatic and other jointly used installations abroad in 1965. Communications coding requirements include:

a. A 5-channel code which does not lengthen teletype message significantly.

b. A 5-channel code which is sufficiently compatible with the Baudot code to make possible the monitoring of messages during handling by communications personnel.

5. Other Considerations:

Features which should be weighed in evaluating the merits of competing devices include:

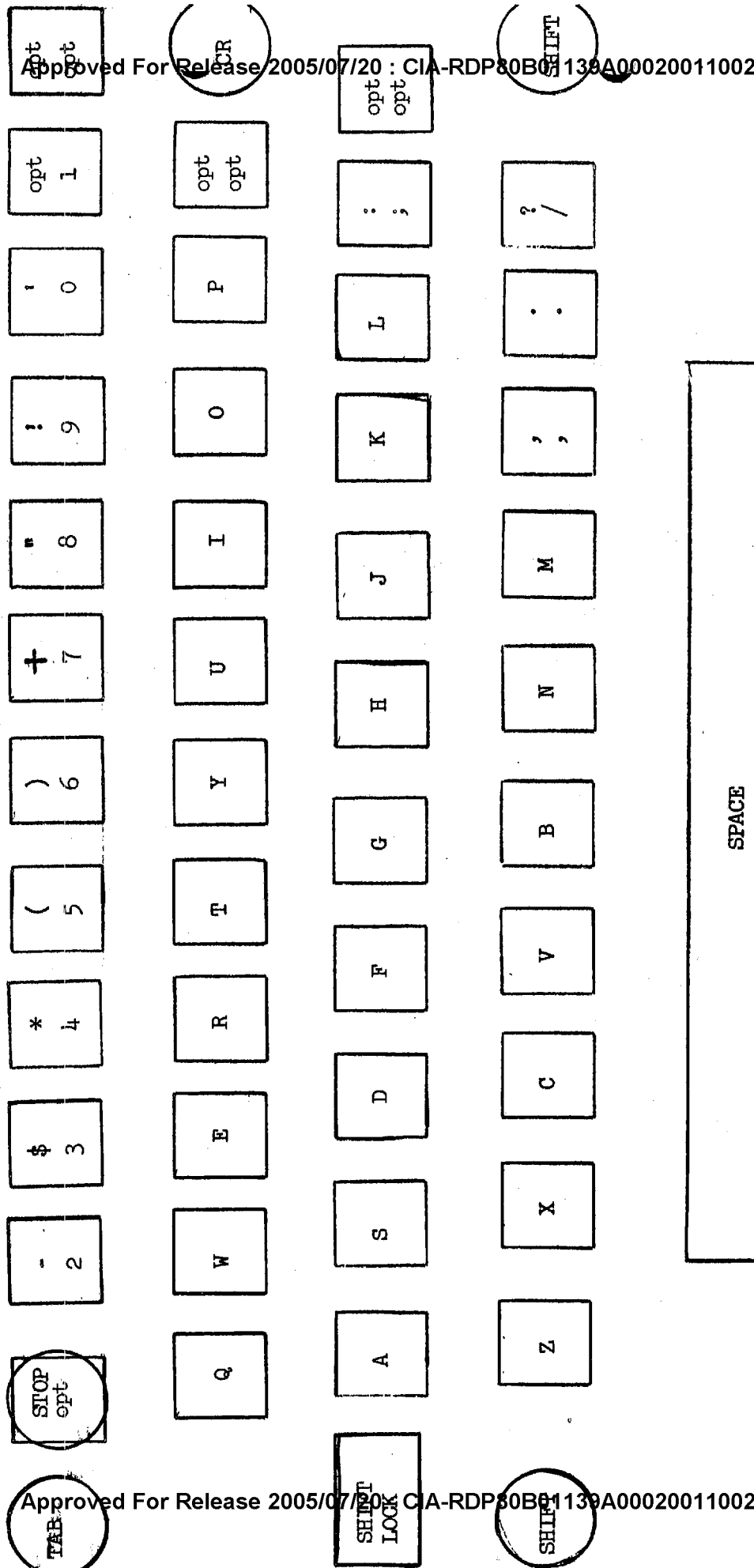a. Office Use - equipment should be quiet, compact and durable.

b. Maintenance - telecommunications wire technicians, or their equivalent in technical skill, should be able to maintain the equipment with a few weeks' special training.

KEYBOARD LAYOUT - 4 BANK, 44 KEYS

1. Special Characters: The 15 shown common to Defense Fieldata and CIA. 8 Optional Characters Available.

2. Functional Codes: TAB, SHIFTS, CR, STOP and SPACE Shown.

3. Coding Combinations: With 64 Code Combinations, 28 Special Characters and Functional Codes Possible.