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NATIONAL SECURITY AGENCY
FORT GEORGE G. MEADE, MARYLAND

Serial: N 4877
14 DEC 1960

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MEMORANDUM FOR THE SECRETARY OF DEFENSE
(ATTN: General G. B. Erskine, USMC-Ret,
Assistant to the Secretary of Defense,
Special Operations)

SUBJECT: Automatic Electronic Binary Information Exchange (BIX) (U)

1. The modified BIX Contract, formerly known as APOGEE, is rapidly nearing completion. Decisions must now be made for its future employment. A meeting was held in the Pentagon on 14 November 1960, sponsored by DDR&E (ADDR&E COMM), to consider this problem. Members of OSD S&L, R&E, and OSO attended, as well as representatives of the Military Departments, the Joint Staff, DCA, and NSA.

2. The three Services will submit to the Joint Staff (J-6) their separate proposals for future employment of BIX. It is expected that J-6 will consider these proposals and forward a recommendation to OSD. It was the consensus of OSD members that NSA also should submit a proposal. The purpose of this memorandum is to comply with this wish.

3. We believe that test and evaluation of this equipment is properly a function of the three Services under general direction of DDR&E. However, as an Agency of the DOD and original sponsors of this development, we feel an obligation to support the Test and Evaluation Program provided that personnel and budgetary problems can be satisfactorily resolved. We could not willingly undertake this task at the risk of degrading execution of this Agency's mission by diversion of funds or personnel.

4. The single, most labor- and time-consuming activity in the CRITICOMM System is the processing of multiple-addressed messages, both where originated and in relay centers. This is an especially severe and intractable problem in the NSA Communications Center because of its position in the System and the volume of traffic handled. It does not yield to manual solutions. We see no alternative to automation of this function if we are to make progress. This function can be executed at electronic data-handling speeds by BIX; that is indeed its basic purpose.

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5. BIX is now operational in the contractor's plant. We have conducted an extensive test program on the operating equipment over a continuous period of four weeks. In our opinion, BIX meets all requirements of the contract and of CRITICOMM operations. We cannot know how it will perform in extended operation without actually using it in an operational environment. Although the equipment to be delivered has only six lines, it can be integrated into CRITICOMM operations without great difficulty and should provide a great deal of information concerning the validity of its logic and design. The application of these findings to future Service-wide communication developments is obvious.

6. We believe the equipment can be installed in the present Communications Center without significant disruption to operations. We estimate the cost of re-erection of the equipment by the contractor to be $100,000. The cost of contract maintenance and provision of spare parts for one year is estimated at $300,000. An additional $100,000 is required for incidental alterations such as paneling, power wiring, and air conditioning; and for modifications to the existing communication plant to permit installation.

7. NSA proposes that BIX be installed in the NSA Communications Center at Fort Meade for the purpose of conducting a test and evaluation program for a continuous period of one year under actual operating conditions. Near the end of that time consideration can be given to future disposition of the equipment. NSA is unable to support this program from its own resources; therefore, this proposal is contingent upon allocation of $500,000 for this purpose.

L. H. FROST
Vice Admiral, USN
Director

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ADDR&E (COMM)
OSD (S&L)
JCS (J-6)
DCA

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cc: DIR
AG
Reading File
D/DIR
SERV
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COMP
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M/R: BIX, formerly known as APOGEE, is an Automatic Electronic Binary Information Exchange. It is a major development in the electronic switching field. Physically, BIX is almost completed; it is installed and operating at the contractor's plant in Nutley, N. J. The project was initiated as an applied engineering task by NSA about five years ago. About two years ago it became apparent that it had become an R&D project, because of the many advanced concepts requiring logical solutions. The contractor was faced with the necessity for asking for more than the $5 million allotted to the task; NSA was faced with the necessity for decision. At this stage, OSD was brought into the problem. Consequently, the decision was made by DDR&E that the project should be continued to its logical conclusion, eliminating duplicative hardware. A series of meetings have been held to determine future applications of BIX. These culminated in a meeting, sponsored by DDR&E, on 14 November 60, in the Pentagon. The following were represented: NSA, CNO, OCSIGO, AFOAC, OSD (DDR&E), DCA, OSD (S&L), OSD (ADDR&E, COMM), J-6, JS. At this meeting it was decided:

a. The three Services and NSA would make recommendations, among other things, to J-6 for disposition of the equipment,prior to 9 December 60 (This has been done by NSA Serial N 4821, dated 8 December 1960.).

b. NSA was specifically requested to submit to OSD/OSO a proposal for future employment of the equipment. This request was a consensus of all OSD members at the meeting, representing OSO, S&L, and DDR&E. This letter responds to this request.

This letter has been circulated in DRAFT to the BIX Advisory Group, headed by Mr. Rowlett, S/ASST, for comment. Subsequently it was approved in DRAFT by Mr. Rowlett, approved in principle by D/DIR NSA, and approved, subject to minor changes, by the Director, NSA.

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Captain Arthur Enderlin, USN, DIR/TCOM, 3736S, 9 Dec 60, vad

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