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15 March 1966
SG-66/147

MEMORANDUM FOR THE RECORD

SUBJECT : Upgrading of the RID 360/30 Computer

REFERENCE: Memo for the Record, subject, Need for Additional ADP Equipment in the Clandestine Services, dtd. 15 Oct 1965

1. A series of recent reviews of the status of present and projected plans for the continued use of computers in the Clandestine Services indicates that if we are to achieve our objectives within a reasonable time frame, additional computer capacity is necessary.

2. It is proposed to provide this capacity by upgrading the present 360/30. Basically, this would be done as follows (and as detailed in Attachment A):

a. Increase the core storage of the main frame from 8,000 (8K) to 32,000 (32K).

b. Add a second 1100 lpm printer.

c. Add two Disk Storage Drives.

d. Add one Magnetic Tape Unit.

e. Add Printer-keyboard

f. Exchange the present Card Read Punch for a new one with increased speed and capability.

g. Exchange the present off-line Paper Tape-to-Magnetic Converter for an on-line Paper Tape Reader.

3. This action follows the original plan (see reference) for installation of IBM Systems /360 in RID which calls for gradual increases in 360 capability as hardware, software, training, new programs and conversion of programs are available. When the present system was ordered, we did not consider that adequate software packages were available to support a larger system along with the level of programmer training on hand. Therefore, the minimum configuration was installed to relieve some of the I/O load on the two 1410's.

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4. A number of programers, both RED and IRM, have now been training on the 360 concepts over the past months and this training continues. Basic software packages have been tested and improved so that we now believe that the 8K Basic Operating System (BOS) is perfected to the point whereby we can use it without considerable debugging. The Multi-Task Program developed in-house by OSD-RD/SSF will allow us to transfer many programs to this new configuration with a minimal amount of programer time.

5. Increasing demands on the 1410's to process records in preparation for the automation of the CS Main Index and the increase of the Special Index System (SIS) make it imperative that more relief be granted these computers now. This will be done by moving large print programs entirely to the 360/30 instead of printer-to-tape (PSU) on the 1410 and then listing on the 30. Some sorts will also be switched to disk sorts on the Disk Packs. Tape-to-card and card-to-tape operations will be speeded due to the increased capacity of the Card Read Punch.

6. The proposed changes will yield the following advantages:

a. (1) The increase from 8K to 32K will allow us to make more efficient use of the 360/30 and it will allow for programs that cannot be used with the smaller core.

(2) The selector channel allows for the addition of the Disk Packs and provides for overlap between the Magnetic Tape Units (MTU) and the Printer and the Card Read Punch.

b. The Printer Keyboard (which is controlled by the 1052 Control Unit and requires a 1052 Adapter in the processor) provides for communication between computer and operator. Not having a Printer Keyboard has hampered us with present operations - under the BOS it is almost an absolute necessity. A Paper Tape Punch will be installed for a short period of time to support OSA for an on-going program which is not economically feasible on the next step of 360 expansion.

c. The two 2311 Disk Storage Drives will provide up to 14.5 million characters of on-line random access storage with a very fast access rate. Programs and the BOS along with data will reside on the 2311's and can be rapidly called in to core. The removable packs of the 1316 Disk Packs will provide large off-line storage. We will retain the 1405's for the time we expect to be using them since under present they are amortized over 33 months and we expect that they will be used for a shorter period. A Storage Control Unit is required for these Disk Drives.

d. The second Printer is necessary to provide flexibility in printing the results of batch searches from the Document Control System and the SIS. Under the T/P Monitor, the on-line printer will be reserved for output of the inquiry program of SIS and the background programs will print to tape. It will then be necessary to provide priority listing of these tapes on one of the 360/30 printers.

e. The new 2540 Card Read Punch will up the card reading speed from a maximum of 400 /minute to 1,000 and the punch speed of 80 columns from a maximum of 91 to 300. The Punch Feed Read feature is required for one program and we have not found an acceptable substitute way of processing these cards. The present card reader will not accept aperture cards as it is an optical reader and the light passes through the film in the card. The reading of this complete area generates illegal codes and the processor will not accept the card reading. The 2540 will accept aperture cards since it uses brushes to read the card and the film serves as an insulator between the brushes and the contact roller. A new 2821 Control Unit is required for this machine and the additional printer (6d. above).

f. The new 2671 Paper Tape Reader and its associated 2822 Control Unit with a total rental of $445 will replace the 7765 off-line converter ($1475) now in use.

7. These changes to the 360 System have other important advantages:

a. It will provide the ability to start the conversion of 1410 programs to the 360. Many of the smaller programs can be converted in an orderly manner without undue pressure, overtime, and hopefully, without fighting for debug time.

b. With the background of 1410 programs now available in both RID and IDM, new programers need only be trained on the 360 System.

c. Operators will have a chance to progress with the increase in System 360 capabilities.

8. This increase is part of a planned expansion of the new third generation of computer hardware. With the lead time for 360 equipment, it is recommended that this order be placed immediately. Delivery of this equipment should be requested before 1 July 1966 in order to be effective before the start of the SIS System scheduled for August 1966.

9. The total increase in monthly rental amounts to $6,750 per month. There are funds in both the FY 1966 and FY 1967 budgets to cover the increase.

10. Attachment B shows the 360/30 as presently configured and Attachment C shows the new configuration as outlined above.

11. It is recommended that the attached request for a Letter of Intent based on Attachment A be forwarded to Procurement Division, OL/PD for Priority Action.

SIGNED

[redacted]

DDP/CS

25X1A

cc - CCS/DD&T
C/RID

ATTACHMENT A

CHANGES TO IBM SYSTEM 360/30

1. Processor 2030-10360:

Change from MDL C to MDL E

	Increase			$1400
Add:	DECIMAL ARITHMETIC	FC 3237	25	
	INTERVAL TIMER	FC 4700	50	
	SELECTOR CHANNEL - 1ST	FC 6900	215	
	STORAGE PROTECTION	FC 7520	150	
	1051 ATTACHMENT	FC 7915	75	
	Net Increase:			$1915

2. Add the following:

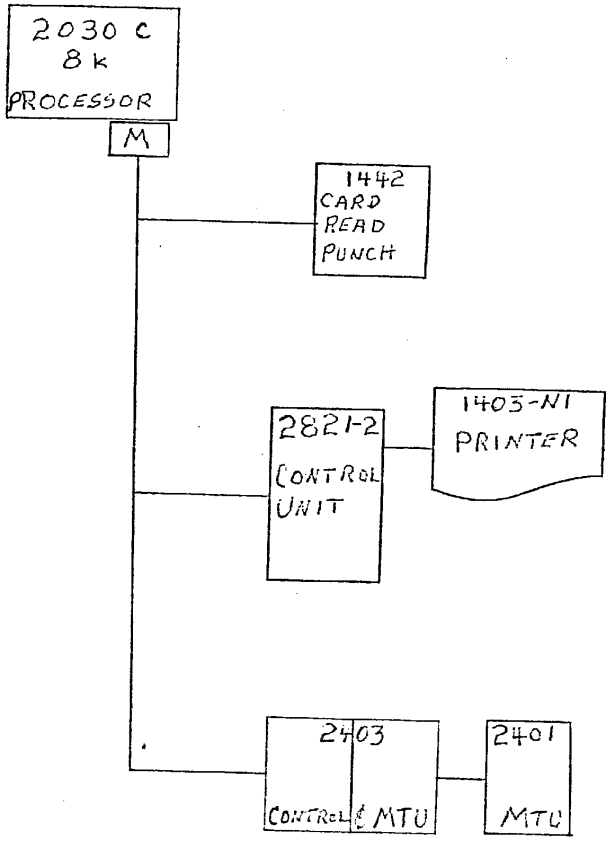
a.	Control Unit MDL N1	1051	60	
	CPU ATTACHMENT	FC 3130	10	
	ATTACHMENT, 1ST PRINTER, MDL N1	FC 4409	NC	
	ATTACHMENT, FIRST PUNCH	FC 4410	5	
	ATTACHMENT, FIRST READER	FC 4411	10	
	ATTACHMENT, SECOND PUNCH	FC 6383	5	
				$ 90
b.	PRINTER-KEYBOARD MDL 5	1052		$ 65
c.	PAPER TAPE PUNCH MDL 1	1055	40	
	REEL, TAKE-UP	FC 6121	3	
				$ 43
d.	STORAGE CONTROL MDL 1	2841		$ 565
e.	DISK STORAGE DRIVE MDL 1	2311	575 Ea.	$1150
f.	DISK PACK MDL 1	1316	15 Ea.	$ 90
g.	CARD READ PUNCH MDL 1	2540	600	
	PUNCH FEED READ	FC 5890	25	
				$ 625

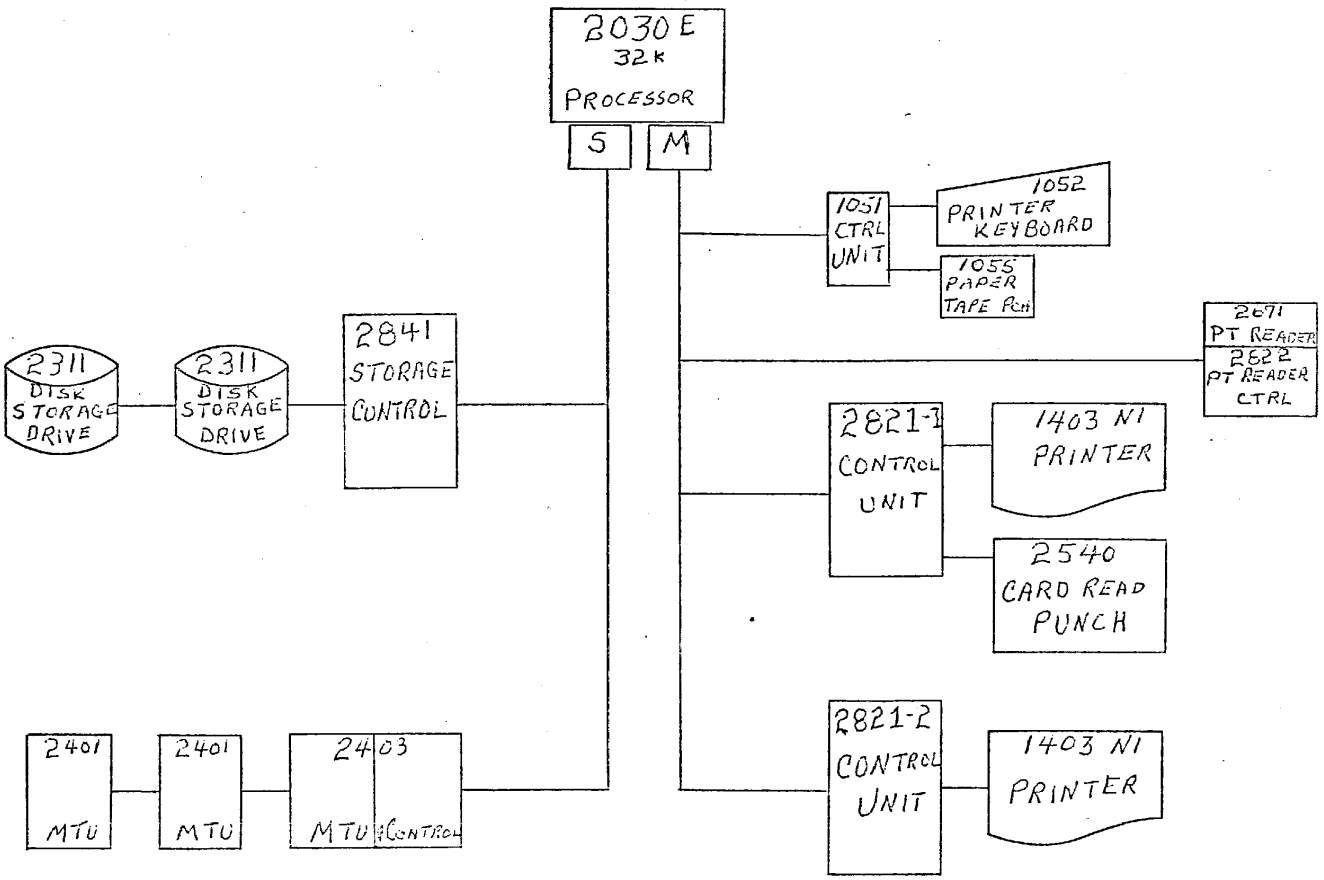
h.	CONTROL UNIT MDL 1	2821	970	
	1100 LPM PRNTR ADAPTER	FC 3615	75	
	PUNCH FD RD CONTROL	FC 5895	55	
	UNIV CHAR SET ADPTR, CTRL #1	FC 8637	15	
				$1115
i.	MAGNETIC TAPE UNIT MDL 1	2401		$ 335
j.	PRINTER MDL N1	1403	900	
	UNIVERSAL CHAR SET, MDL 3 & N1	FC 8640	10	
				$ 910
k.	INTERCHBLE TRAIN CARTRIDGE MDL 1	1416		$ 100
	(ON TRAIN ARRANGEMENT)			
l.	PAPER TAPE READER MDL 1	2671	140	
	CENTER ROLL FEEDING	FC 1842	25	
	SUPPLY OPTION	FC 7580	35	
	TAKE-UP OPTION	FC 7812	35	
				$ 235
m.	PAPER TAPE READER CNTRL MDL 1	2822		$ 710

3. Delete the following:

a.	CARD READ PUNCH MDL 1	1442-40139	$ 525
b.	PAPER TAPE TO MAG TAPE CONV	7765-11001	$1475

4. Delivery as soon as possible but no later than 1 June 1966.





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7 May 1965
SG-65/308

MEMORANDUM FOR THE RECORD

SUBJECT: Upgrading of RID Computer Facilities

1. Increasing demand on the RID computers clearly indicates that an improvement in capability is required. This increase in demand has been occasioned by the following:

a. New opportunities to effectively enhance the performance of the Document Control System by the introduction of the 1050 terminals.

b. New and increased capabilities to perform operational support to the CS by the transfer of card programs to the computers.

c. Proving of the General Information Collation System as a valuable operational tool; increased reliance on this facility and demands for its extension to new applications.

d. The decision to proceed with the [redacted] using the 1410's and disk files, as a pilot system for the automation of the much larger Main Index. 25X1A

e. The decision to switch the mechanization of the CS Main Index and all other applications to the IBM 360 system because of the many advantages offered by this new generation of equipment.

2. The features of this upgrading are:

a. increase core storage on both processors from 80K to 100K.

b. increase Disk storage capacity by replacing two 1301 MDL 2's with two 2302 MDL 2 (1301 not compatible with 360).

c. increase processor time available by dumping on line printing to tape and printing "off line" on a small 360/30 system.

d. increase processor time available by doing card-to-tape operations on the 360/30.

3. The general need for this upgrading is detailed as follows:

a. Increased core storage provides that the additional track capacity of the 2302 can be read into core storage.

b. The additional disk storage provides that the DCS and Operating System, with necessary expansion, can be maintained in a single module of 2302; the [redacted] System with its [redacted] Tables, Group Tables, Index records and a duplicate of the Operating System can be maintained in the other three modules of the disk storage.

25X1A 25X1A

c. With the change to the 1050 system and the inclusion of the [redacted] on the computer it becomes imperative that a larger Tele-Processing monitor remain in core for remote inquiries. In the past, due to the size of the foreground programs, it has been necessary for the sections to batch remote requests, on inquiries between 1700 and 2400 hours or often do without information that should have been available. Contrarily, it has been impossible to take full advantage of available prime shift computer time owing to core limitations.

25X1A

d. The demands of the CS and the related computer systems require that numbers of listings (often in two formats - one for headquarters and one for sterile overseas use) be produced. This has placed a heavy printing load on the present 1410 computers. It is therefore necessary to move this printing requirement to a computerized sub-system (360/30) which can perform this task with maximum efficiency, (to include some adjustments to standard features such as the special "QN" print chain to print at a total maximum efficiency). This system will also allow OCS to discontinue the Punch Feed Read feature installed on their 1401 for the DDP. It will also provide the care-to-tape operation to accelerate the loading of index conversion cards. These operations should free an appreciable amount of 1410 main frame time (N.B. We will use standard IBM package programs on the 360/30 system. The capability of this system will be augmented within the next 9-12 months to handle two printers and 3-4 tape drives.)

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e. The mechanization of the [redacted] system requires that we maintain on-line printing capabilities for large outputs from the remote inquiry background program and maintain the printing capability of the foreground program by "printing" on magnetic tape. It is therefore necessary to increase our tape drives by two (one for each system), since practically all printing for main line programs will be accomplished by "tape dump." 25X1A

f. The pilot [redacted] system is to be programed by simulation on disk of the Data Cell Drive bucket approach which we will use in the Main Index system. We are, therefore, committing two read-time operational applications to equipment which must be backed up to the fullest extent. For this reason the 1410/7010 Operating System will be backed up in both units of the 2302 Disk Storage Files. 25X1A

g. For the [redacted] system it will be necessary to add three 1050 remote inquiry stations and an additional buffer in each 1414 to handle these remotes. Each station will consist of a Printer-Keyboard, Card Reader, Printing Card Punch and Control Unit. These stations will also be used for DCS inquiries. 25X1A

4. It is therefore recommended that the following changes (for which funds are available in approved budgets), be implemented:

a. Increase core storage of each processor by 20K - a net increase of $2,600 per month.

b. Replace 1301's with 2302's - a net increase of $8,800. per month.

c. Add 3-1050 Remote Inquiry Stations and two buffers (one on each system) a net increase of $1,970 per month.

d. Add two additional 729-5 tape drives - an addition of $1500 per month.

e. Install a 360/30 system - an addition of $4,770 per month.

19,640
-1140
18,500

SIGNED

[redacted]

DDP/SG 25X1A

Distribution:
Orig. RID General File
1-C/RID
1-AD/OAS

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