CONFIDENTIAL

22 January 1965

MEMORANDUM FOR: Assistant for Plans and Development

ATTENTION: [redacted] 25X1A

THROUGH: Chief, Information Processing Division

SUBJECT: External Interrupt for [redacted] 25X1A

25X1A

1. It is requested that the capability to generate an external interrupt signal be added to the [redacted] plotter to indicate that a contingency condition has occurred. This change can either be done at the factory or after installation as a field change. The status word that some peripheral devices set up on the output lines (referred to in [redacted] need not be considered.

25X1A 25X1A

2. An external interrupt is required because the computer has no other means of being informed that the plotter is unable to execute any further commands. The operation of the [redacted] plotter from the 490 is controlled by a routine existing within the executive control routine. This routine, called a handler, activates the channel hardware to send a buffer of commands to the plotter. The plotter accepts the buffer, one word at a time, and performs the commands contained in the buffer. When the 490 has no more words to send, the handler marks the operation complete and informs the plotting program of this fact. While the plotter is functioning normally, this scheme is entirely adequate. When a contingency condition occurs (e.g. power failure) the executive routine and the associated handler must recover to allow continuation of other programs which may be in progress. The usual recovery procedure with respect to other peripheral equipment is initiated by receiving an external interrupt. Certain software alternatives may exist to "get around" the lack of an external interrupt, but these are unsatisfactory at best. It is my feeling that an external interrupt is a necessary addition to the plotter in view of our programming environment.

25X1A

3. [redacted] discussed this specific problem with some of his engineers. The consensus was that the change can be readily accomplished. We did not discuss whether this could be an on site change or whether it had to be done at the factory. However, [redacted] did not specifically rule out the possibility of making it an on site change. It should

25X1A

CONFIDENTIAL

CONFIDENTIAL

25X1A

SUBJECT: External Interrupt fo[redacted] Plotter

be noted that the handler cannot be written until the Programming Branch/IPD is informed as to whether we will have an external interrupt or not. Further, if a field change is to be done the REX handler and the on-line operation of the plotter cannot be completely checked out until the change has been made.

25X1A

[redacted]

Chief, Programming Branch/IPD

Distribution:
Original & 1 - Asst for Plans & Dev
1 - C/IPD
2 - C/PRB/IPD

CONFIDENTIAL

NPIC ROUTING SLIP

File - 997404

FROM: C/Programming Branch/IPD

DATE: 22 Jan 1965

	TO	INITIALS	DATE
DIR			
DEP/DIR			
EXEC/DIR			
ASST FOR ADMIN			
ASST FOR OPS			
A FOR PA			
ASST FOR P&D	X		
CH/CSD			
CH/IPD			
CH/PD			
CH/PSD			
CH/TID			
IA/PID			
CH/DIA/XX-4			
CH/DIA/AP-IP			
CH/SPAD			
LO/CGS/CIA			
LO/NSA			

REMARKS

617/AL 45106

Interrupt lines to computer will not signal on of these. One line ~~only~~ activates.

Discussed w/ [redacted] 25X1A

[redacted] on 25 Jan. This will meet their requirements (one line activator & this a fwd 12 bit signal) 4N4111

ATTN: Mr. [redacted] 25X1A

If future requirements dictate it can be added at some later date. PBS

P.S. Will be on unit when delivered.

NPIC-FM 30 (REV 5-64)