SECRET

PID/OSS - 58/65
27 April 1965

MEMORANDUM FOR: Assistant for Plans & Development

ATTENTION : Chief, Development Branch

FROM : Chief, Photographic Intelligence Division, CIA

25X1 SUBJECT : Comments on [redacted] proposal No. 635 for advanced light table for [redacted] Versatile Stereoscope 25X1

25X1 1. As requested by [redacted] of your Staff, the Operations Support Staff, PID has reviewed the proposal submitted by the 25X1 [redacted] for an advanced light table and mount for the Versatile Interchangeable Rhomboid Stereoscope. The Photographic Intelligence Division is extremely interested in achieving the most useable mount for this microscope since this instrument promises to be one of the most versatile tools available to the P.I. in the near future. We currently have eight of these stereoscopes on order and believe that their effective utilization requires a specially designed mount and light source.

2. The various proposals submitted by the bidders on this contract have been discussed in detail with [redacted] and PID concurs 25X1
25X1 with his belief that the [redacted] proposal represents the best solution to the problem. In particular we feel that the high intensity tracking light sources, the spool loading and holding mechanism, and the film transport drive system represent sound and imaginative solutions to the requirements set forth in the design specifications. PID would like to express a preference for the servo electric power amplifier
25X1 option offered by [redacted] since it is felt that this would be an important factor in operator comfort and acceptance of the instrument.

3. The Operations Support Staff, PID will be available at any time for discussions on this instrument, and will follow it with close interest through the development stage.

[redacted] 25X1

Distribution:
Orig. - Addressee
25X1 1 - [redacted]
2 - OSS/PID

NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER

TECHNICAL
PUBLICATION

SUPPLEMENTARY TEST AND EVALUATION REPORT

ADVANCED 918 LIGHT TABLE

[redacted]

25X1

CONFIDENTIAL

NPIC-56/70
OCTOBER 1970

GROUP 1: EXCLUDED FROM
AUTOMATIC DOWNGRADING
AND DECLASSIFICATION

WARNING

This document contains information affecting the national defense of the United States, within the meaning of Title 18, Sections 793 and 794, of the U.S. Code, as amended. Its transmission or revelation of its contents to or receipt by an unauthorized person is prohibited by law.

Approved For Release 2004/07/29 : CIA-RDP78B04770A000300010006-3

TECHNICAL PUBLICATION

SUPPLEMENTARY TEST AND EVALUATION REPORT

ADVANCED 918 LIGHT TABLE

[redacted] 25X1

OCTOBER 1970

T & E Report No. 69-04
Supplement

[redacted] 25X1

Test and Evaluation Branch
Engineering Support Division
Technical Services Group

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

CONTENTS

LIST OF ILLUSTRATIONS

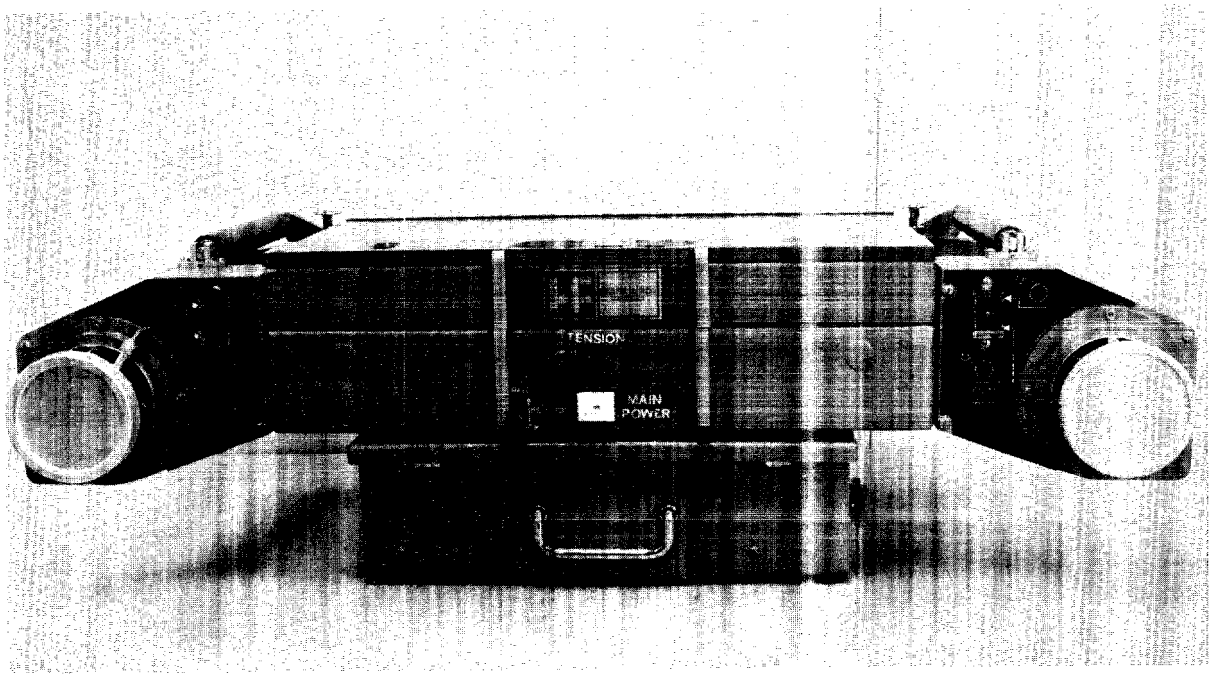

FIGURE 1. Advanced 918 Light Table Mod fied Prototype

ABSTRACT

25X1

The [redacted] Advanced 918 Light Table prototype was tested and evaluated and then returned to the contractor for rework. Test and Evaluation Report NPIC/R-05/70 presented the results of the first evaluation.

This report supplements the earlier report (NPIC/R-05/70) and describes changes made in the prototype. An evaluation made by operational components is included. After all tests and evaluations were made the prototype light table was transferred to an operational component for routine use. Further procurement of 918 Light Tables is not planned.

1. SUMMARY

25X1

The [redacted] Advanced 918 Light Table is a bench supported viewing light table used for photointerpretation. It accommodates single spools of 70mm, 5, 6.6, or 9½ inch wide film with its 9 by 18 inch viewing surface either horizontal or tilted. In April 1969 the engineering prototype table was received by the Center and subsequently tested and evaluated.

Test and Evaluation Report NPIC/R-05/70 of March 1970 gives a detailed description of the equipment, design requirements, test results, observations, and test procedures used at the time of the first evaluation.

The contractor did not meet several design requirements and the table was returned for modifications. At that time, the Center reviewed and revised the original specifications and presented to the contractor a list of items requiring modification or repair.

The viewing light table was reworked according to the revised specifications and passed acceptance tests in September 1969. The equipment subsequently received an operational suitability evaluation by one of the Center's operational components.

This report supplements the earlier report (NPIC/R-05/70). Statements of required changes as given to the contractor are cited and changes made in the accepted prototype model are described. Operational suitability test results are also included.

The reworked 918 Light Table Prototype was found to satisfy all requirements of the revised specifications.

Due to the versatility of a newly developed model 1540 Light Table no procurement of 918 tables is planned at this time, but the prototype has been accepted by the NPIC operational component for routine use.

2. TEST DETAILS

2.1 Acceptance and Performance Tests

2.1.1 Manual Drive System

Revised Specification - "The bidirectional manual drive system, consisting of handwheels, chain drives, electric clutches, slip clutch, direction switching microswitches, etc., must be removed as well as the manual tension controls. Openings left in the shell must be covered."

"Handwheels must be added to the outboard ends of the motor shafts. These handwheels are to be without handles and should be designed as shown on the accompanying drawing." (Drawing supplied was for a knurled edge, $3\frac{1}{2}$ to 4 inch handwheel.)

Changes Made By Contractor - The manual film drive mechanism of the original design has been removed. It consisted of three handcranks all connected by chain through a series of sprockets, idlers and shafts. Before removal this produced excessive tension, and manual transport was rough and extremely difficult. The Light Table now has three and three-quarter inch diameter knurled edge handwheels on the outboard ends of the motor shafts. See Figures 1-3. These wheels turn during power transport. Since the motor drive will move film fast or slow across the viewing stage the handwheels are needed only for transporting film short distances or for rewinding film in case of electric power failure.

2.1.2 Film Spool Brackets

Revised Specification - "A detent must be added to the movable bracket support bar which contains the other detents for locking the bracket in various positions. The added detent will allow the movable bracket to be locked all the way open."

"A rubber bumper should be added to the movable bracket support bar on each side to reduce the shock caused by the inadvertant release of the movable bracket."

Changes Made By Contractor - An additional locking position has been added to the film spool bracket support rods. This allows $9\frac{1}{2}$ inch film spools to be placed in position without manually holding open the spring loaded brackets. In addition, a rubber bumper was added to each rod to reduce the shock caused by an inadvertant release of the brackets.

2.1.3 Illumination

Revised Specification - "The illumination system must provide a maximum illumination of at least 2,000 ft. lamberts within a 2 inch radius of the geometric center of the illuminated area. The maximum linear brightness gradient must not exceed 15% between any two measurements taken within the shaded area shown on the diagram below, nor 25% anywhere within the illuminated area." (Diagram showed a shaded area covering the entire format except for a one inch wide band around the format perimeter.)

Changes Made By Contractor - The system provides maximum illumination of 2,200 ft. lamberts within the central area with a minimum of 1,840 ft. lamberts anywhere on the viewing surface. This gives a maximum brightness gradient of 16% over the surface. Illumination is somewhat blotchy in appearance.

2.1.4 Motor Noise

To Be Modified Or Repaired - "The cause for the squeal in the left motor and the cause for the knocking in the left movable bracket assembly must be eliminated."

Changes Made By Contractor - The original tests conducted on the prototype table revealed a high frequency squeal when the left motor was rotated counterclockwise. This noise, in the range of 5 to 7 KH, was very disturbing to operators and nearby personnel. When the reworked model was delivered this condition had not been eliminated so the contractor was notified that the table was not acceptable. In September 1969 a representative from [redacted] visited NPIC to correct this situation. It was found that the squeal was due to a high frequency vibration in the motor brush springs. By coating these springs with a silicone rubber material the noise was eliminated. Two of the coated flat springs appear inside the narrow plastic ring in the center of Figure 4.

25X1

2.1.5 Electrical Leakage

To Be Modified Or Repaired - "The source of the electrical leakage (causing the 45 volt potential between the table and ground) must be found and proper insulation added to prevent leakage."

Change Made By Contractor - The contractor did not eliminate the electrical leakage considered by the contractor to be caused by induced transformer voltage. This was measured as approximately 0.5 milliamperes. Since this is below the 2.5 milliamperes limit stated in the [redacted] Human Engineering Design Guide the condition is considered acceptable.

25X1

2.1.6 Erratic Film Transport

Whenever the tilt motor is operated, film will transport several inches even though the film transport switch is off. This condition was not noticed during the first test period and possibly was created by the contractor's modifications to the light table. The contractor stated that the condition most likely was due to induced voltage. This condition was not fixed.

2.2 Operational Evaluation

Subjective comments received from photointerpreters who operated the table indicate a favorable impression of the Advanced 918 Light Table over the 918 tables presently in use. The spring tensioned film spool holder was highlighted as a very desirable feature and the knurled handwheel for manual precise positioning of film was favorably received. In addition, it was reported that the motorized film transport is somewhat jerky and imprecise at slow speeds and a flicker in the light source is evident at all except the higher intensities.

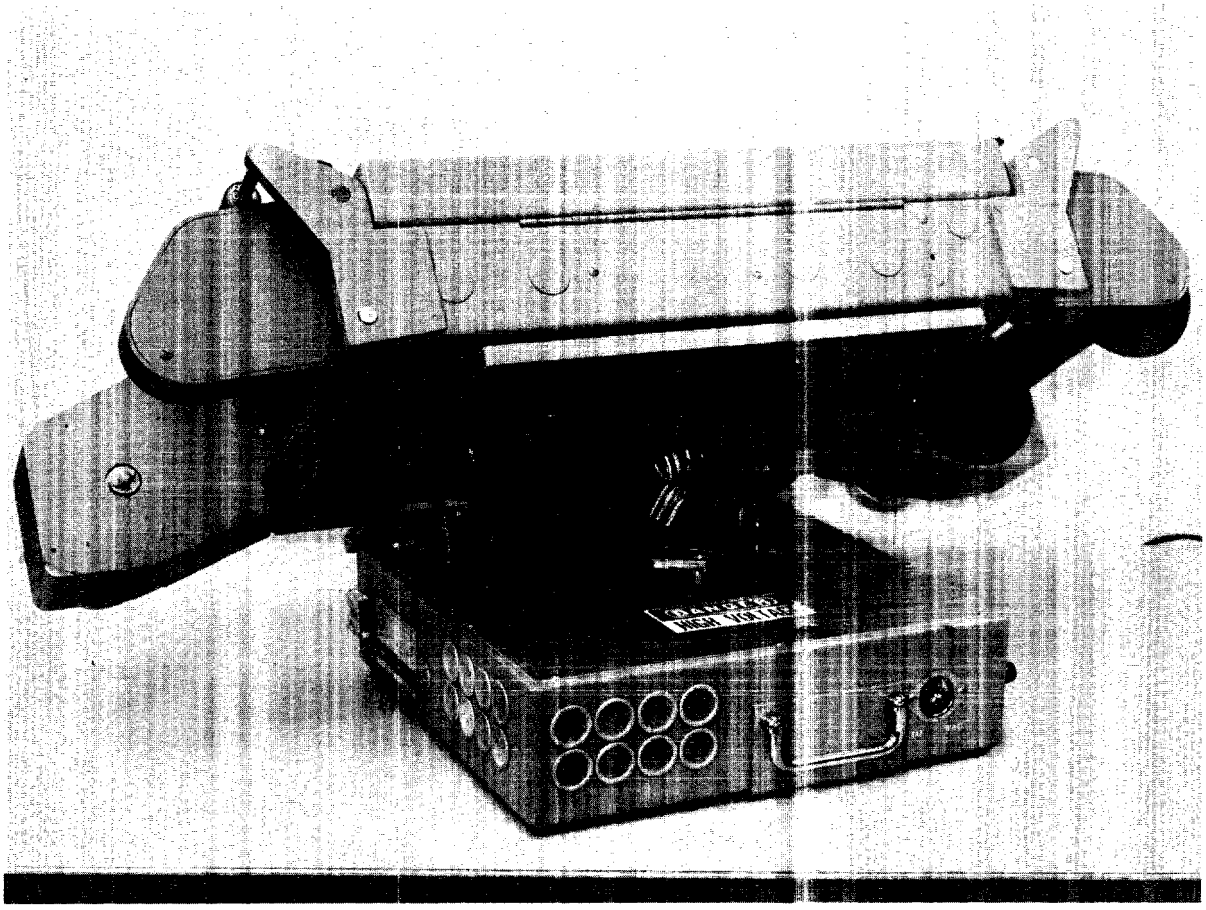

FIGURE 2. Rear View - All Handwheels with Handles Removed

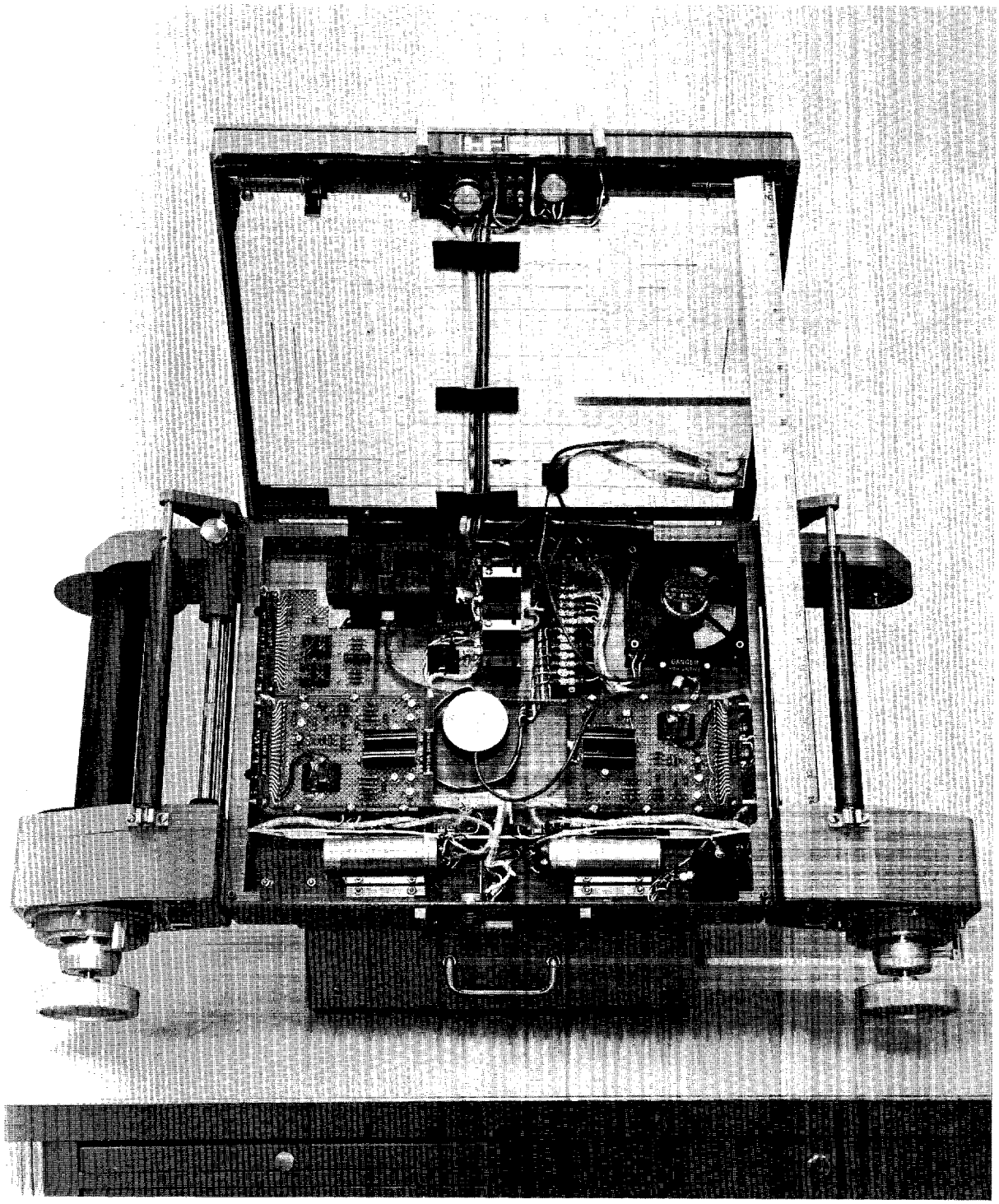

FIGURE 3. Electronic Compartment.
Original Manual Chain Drive Mechanism Removed

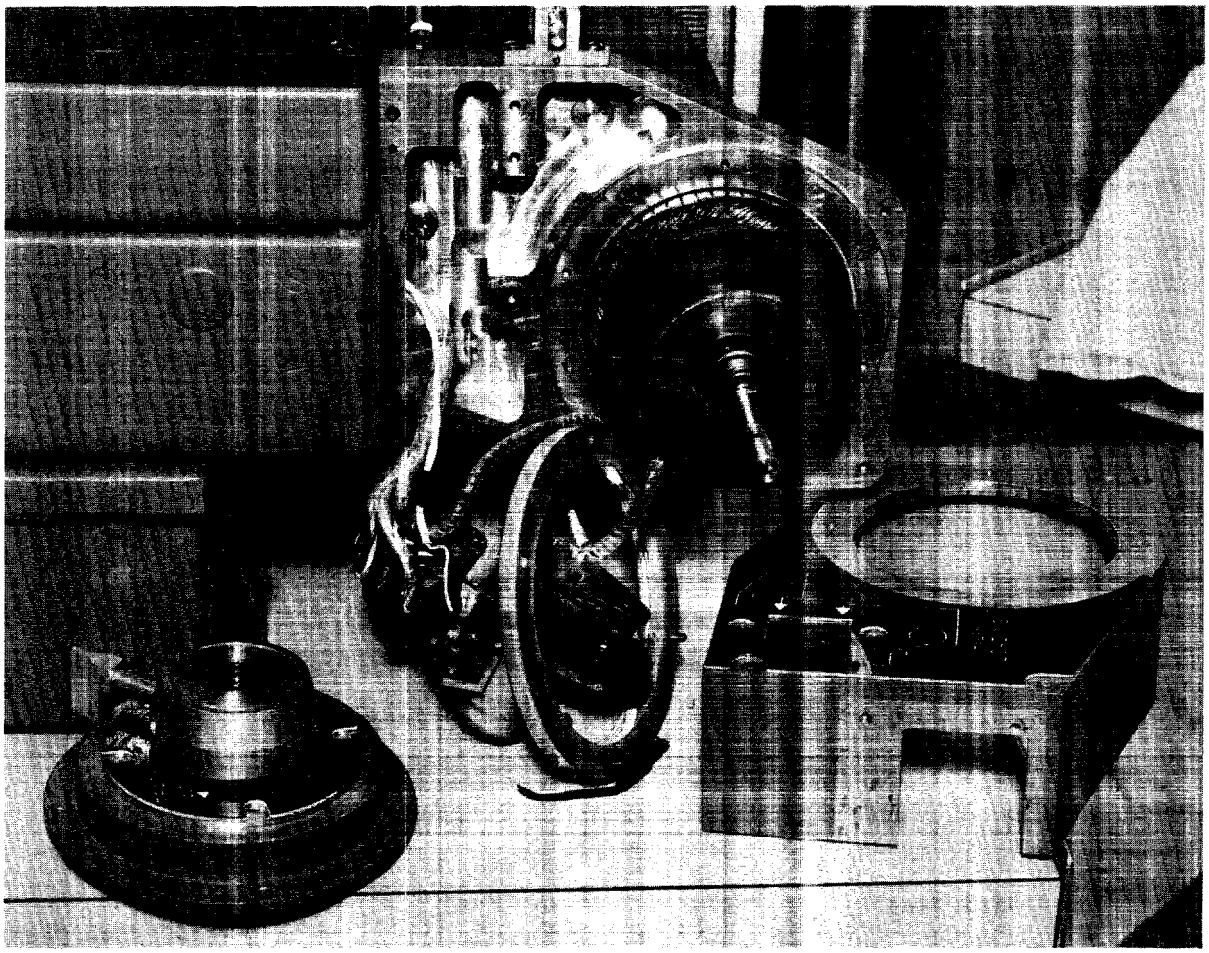

FIGURE 4. Disassembled Motor.
White Silicone Rubber Placed on Brush Springs to Eliminate Noise

DISTRIBUTION LIST

Activity	No. Copies
NPIC/PSG/RRD/DB	3
NPIC/TSG/PPS (through Ch/TSG)	1
NPIC/TSG/RED/Ch	1
NPIC/TSG/RED/Project Officer	1
NPIC/IEG/OD	1
DDI/IAS/Tech. Adv.	1
DIA/DIAAP-9/Tech & Dev Br.	1
ARMY/SPAD/PSO	1
EXRAND (through NPIC member)	8
NPIC/TSG/ESD	10
NPIC/PSG/Library	2

CONFIDENTIAL

Approved For Release 2004/07/29 : CIA-RDP78B04770A000300010006-3

GENERAL SERVICES ADMINISTRATION

ROUTING SLIP

TO	CO	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10

	NAME AND/OR SYMBOL	BUILDING, ROOM, ETC.
1.	DDI/TSSG/DED	
2.		
3.		
4.		
5.		

- ☐ ALLOTMENT SYMBOL
- ☐ APPROVAL
- ☐ AS REQUESTED
- ☐ CONCURRENCE
- ☐ CORRECTION
- ☐ FILING
- ☐ FULL REPORT
- ☐ HANDLE DIRECT
- ☐ IMMEDIATE ACTION
- ☐ INITIALS
- ☐ NECESSARY ACTION
- ☐ NOTE AND RETURN
- ☐ PER OUR CONVERSATION
- ☐ PER TELEPHONE CONVERSATION
- ☐ READ AND DESTROY
- ☐ RECOMMENDATION
- ☐ SEE ME
- ☐ SIGNATURE
- ☐ YOUR COMMENT
- ☐ YOUR INFORMATION
- ☐ ANSWER OR ACKNOWLEDGE ON OR BEFORE _____
- ☐ PREPARE REPLY FOR THE SIGNATURE OF _____

REMARKS

ATTN:

25X1

For your info.

Thanks

Tom B

FROM	CO	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10

NAME AND/OR SYMBOL	BUILDING, ROOM, ETC.	
OL/PD/WCPO	TELEPHONE	DATE

☆ GPO : 1962 O—655346

GSA FORM 14
FEB 62