IPO/OSB/M-143-66
6 May 1966

MEMORANDUM FOR: Assistant for Plans and Development, NPIC

25X1 ATTENTION : [redacted]

25X1 SUBJECT : Evaluation of [redacted] Rear Projection Viewer Proposal

1. The following comments are forwarded for your review. Pages and paragraphs have been listed for referral to the proposal text and are as follows:

Page 3-3 Para 2 - Is there an auxiliary set of controls available for this operation?

Para 4 - Would request that the service light be on when loading film also.

Para 6 - Request cover panel on base also to prevent any oil or water collecting on floor.

Para 7 - Sentence 3 - It would be better designed if the screen were to remain stationary. Sufficient room, it seems, is available for film loading without moving the screen. Cant of the screen could result from this arrangement.

Para 8 & 9 Page 3-5 - Pneumatic mounts? How are they inflated? Life expectancy? Although separate module may be desired for electric circuits and cooling mechanisms, present viewers [redacted] enclose these in a compact housing. Would it be possible to design an individual module that could be included in, but separate from, the cabinet design? This should not radically alter the structural rigidity of the unit. Overall dimemsions of this viewer are comparable to [redacted] Viewers. 25X1 25X1

Page 3-6 Can changeover time be made in less than five (5) seconds? Would prefer 8-10 l/mm at 70X and other magnifications not rated at 10 l/mm. Would prefer a slight forward tilt and viewing screen, first to help reduce glare and secondly to present the image in a plane that is more perpendicular to the individual's line of vision.

Page 3-11 Alinement of moving lens element is critical when magnification of image is changed. Instead of a footage counter as contemplated, it would be more advantageous if there could be a reticule and mm counter with zero reset incorporated for X & Y coordinate measurements of imagery. Accuracy of counter should be ± 0.5 mm over 40 inches or better.

Page 3-13 It is best that the reel sensor arm also be removed since this is a cause of film scratching. Motors for film drive are available to maintain slew under varying load conditions.

Page 3-14 & 15 Experience with knob and "toggle" switch focus adjustments has resulted in the preference of "toggle" (joystick) operation. Immediate, positive response to a small deflection of the toggle is required especially at high magnification. End of reel indicator not necessary.

Page 4-4 & 5 Looks like there is a great deal of I R radiation (7000A$^{0}$) that will present a problem of heat dissapation. If I have incorrectly interpreted the graph, let me know. How is "radiator" referred to on Page 3-9 this effective? Can you produce 20 ft/L thru 1.5 ND film at screen under these conditions?

Page 4-7 It is hoped that no dark "rings" appear on the screen as result of the "Mosiac Rack".

Page 4-8 There are cold mirrors and filters to eliminate IR. Please clarify page 4-4 & 5.

Page 4-17 LS-60 at this time seems to be a wise choice. May change our opinion however by the time you receive comments.

Page 4-21 Sandwiching film between two pieces of glass at various clearances has not to date solved focus problems. Edge guiding has proven its ability to keep film flat on platen, also it is not supposed to contribute to film scratching to any extent - at least not in the image area. Submit that this approach be investigated. Two [redacted] viewers and one [redacted] have proved this. 25X1

Page 4-22 2% of what?

Page 4-26 We'll settle for separate magnification control.

Page 4-29 If the drive speed is scaled to the magnification, how can the rate or apparent motion of image be independent of magnification? It this means what I think it does, it isn't necessary. Scan speed should be determined by deflection of joystick. Don't agree with reel diameter sensor concept.

Page 4-33 Suggest strongly that there be a clockwise and counter-clockwise switch on the film drive motors to accomodate film wound emulsion up or emulsion down.

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Page 4-35 Same comments as before. 2 glass plates will not provide for flattening film required for high magnification. Edge holddown techniques have proven to be better. Are glass flats "readily" or "easily" removable (without tools, etc.)?

Page 4-37 What does the r-f pulse do to other equipment in the immediate area? Is this shielded to prevent transmittal of signal (pulse) to other equipment?

Page 6-3 Item C - Add - Upon approval, customer will retain engineering drawings or an acceptable copy thereof.

Deliverable Items

B. Spare Parts

For the first instrument only there should be included the operating spare parts for a 6-months period as listed under the next topic (C-Documentation, item 3).

2. The Photographic Analysis Group is of the opinion that coordination of this project has been well implimented and we will support it to the fullest extent possible. Although at present, there seems to be a lag in the use of rear projection viewers that is no criterion to apply to possible operational procedures in the near future. Your cooperation is appreciated and if we can be of further assistance please contact [redacted] 25X1

25X1

[redacted]

Assistant for Photographic Analysis, NPIC

Distribution:
Orig & 1 - Addressee
25X1 1 - [redacted]
1 - Asst Pa
1 - IPO/OSB/PAG

VISIT 27 JUNE 64

1. PRELIMINARY DESIGN INDICATES 4000 CPI/MM O.A.
2. S.A.C. NOV DELIVERY.

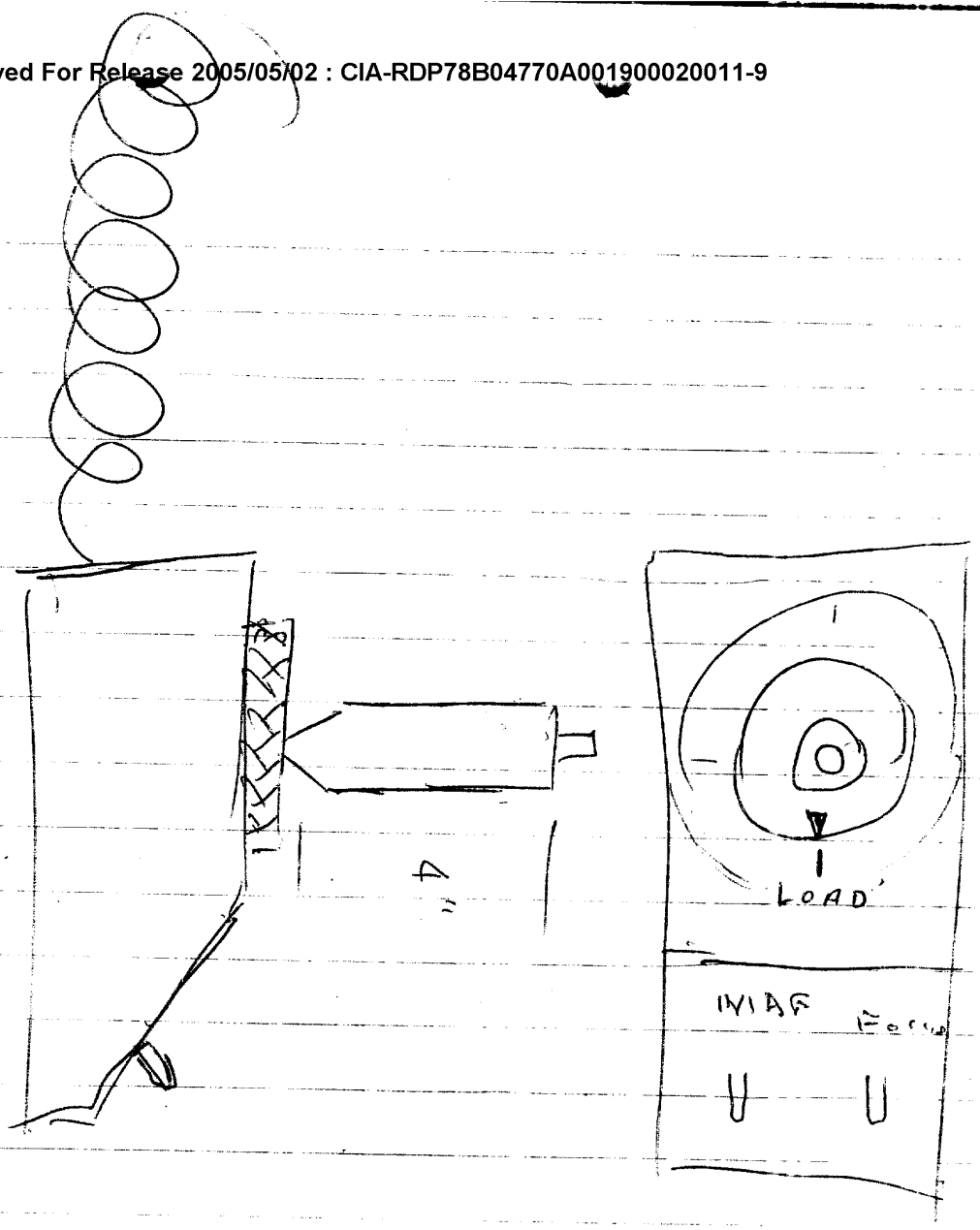


[redacted] VT.

1. TRANSPORT
   a. 1000-1 TOTAL FILM TRANSPORT RANGE 40:1 W/1 MAKE SET.
   b. INDIVIDUAL MASKS
   c. USE 250' SPOOL OR CARGER
   d. FILM TENSION SENSOR ADJUSTMENT FOR EACH WIDTH FOR 9½" ± 2# BASE THICKNESS COULD BE ACCOMODATED BY EXTRA SETTINGS INDIVIDUALLY SET FOR EACH REEL & BASE THICKNESS
   e. GATE OPENING .007 → .25" BOTH PLAT. MOVE LOOKING AT DUR-A-COAT FOR ELIMINATING SCRATCHING
   f.

2. COOLING
   a. W/1 SPEC.
3. MOVING SCREEN
   b. LONG CONJ.

4



LIGHT SOURCE

a. ~~#~~ 500/LAMP

b. WILL SUPPLY LAMP BRIGHT. v TIME (NO RESTART).

c. RESTART MINIMUM

| | #1 | #2 | #3 |
|---|---|---|---|
| SCREEN | POLACOAT LS 60 (ORBITAL MOTION) | FIBER OPTICS "DITHERED" (DEV.) | POLACOAT TR 50 (SCREEN MASK) |
| ILLUM. | 5 K. WATT XENON ARC | 25K XENON ARC (GRANNINI) | 2.2 K WATT XENON (80 K LUMENS TOTAL) |
| OPTICS. | TWO - 6:1 X ZOOM (DEV.) | TWO OR THREE LENSES RANGES ? (DEV.) | 3 RANGES (DEV) "GOERZ" |
| TEMP. FILM GATE | DICHROIC MIRRORS HEAT PILTERS TETRACHLOROETHYLENE | DICHROIC MIRRORS HEAT FILTERS LIQUID GATE (FREON 113) | HEAT FILTERS THERMOELECTRIC COOLER 2.5% Cupric Chloride COOLING SOLUTION WATER |
| AUTO. FOCUS | OPTICAL BEAM SPLITTER & PHASE DETECTION | INVESTIGATE | |
| AUTO FILM LOADING | NO MENTION | | SEMI-AUTOMATIC (THREADING & GUIDING) |
| FILM DRIVE (TRANSPORT) | AIR BEARINGS!! | ROLLERS | AIR BEARING ROLLERS |
| RESOLUTION | R+D | R+D | R+D |
| SIZE | 112" X 78" X 36" | X 80" X 38.5" | 70 X 80 X 34 |
| 25X1 COST | | | |

Note — has anyone considered using the vent viewer? Might solve vibration problems (from

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| #4 | #5 | #6 |
|---|---|---|
| POLACOAT LS 60 | POLACOAT LS 60 | POLACOAT LS 60 |
| 2.5-5 K WATT XENON ARC | 450 WATT XENON 18,000 LUMENS TOTAL | DEVEL. SPECIAL XENON ARC + COND. OPTICS. |
| 2 RANGES 5:1 X ZOOM (DEV.) | 3 RANGES ZOOM (DEV.) | 2 RANGES ZOOM (DEV) |
| AIR COOLING POSSIBLE WATER COOL | FREON 113 | NO MENTION OF USE |
| AIR PLATTEN | | GLASS PLATTEN |
| SEMI AUTOMATIC THREADING & GUIDING | FILM PLANG ON CASSETTE - MANUAL LOAD AND UNLOAD CASSETTE | NONE |
| ROLLERS | | ROLLERS |
| LOOK INTO | | 10 l/mm AT 3X<br>6 " " 70X<br>(420 l/mm) |
| | .90 X 72 X 33 | 74 X 84 X 36 |

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system & power an "air cushion" for the building) would facilitate moving and would keep underside clean