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Declass Review
by NIMA/DOD

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D R A F T

552A Control Cabinet

MECHANICAL

Control P[illegible]

Magnifica[illegible] ok

Color code to objective head ok

Interlock feature switch ok

Correct marking (color code) ok

Function smoothly ok

Scanning Motion:

Proper direction ok Right ok LEFT

Channel coupling [illegible]

Channel selector ok

Speed proper [illegible]

Smoothness - Stop-Sta[illegible]

~~Speed ranges - Left~~

Zoom Control:

Proper head ok Right OK LEFT.

Correct direction ok Right OK LEFT

Excessive coast

Manual [illegible]

BACKLASH SYSTEM
OK RIGHT OK LEFT

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ILLUMINATION

General:

ON-OFF switch Ok L+R

Dimming control OK L+R

Light levels

High Intensity:

Left Right OK L+R

Dimming OK L+R

Light level

COUNTERS

Operation Ok Right OK LEFT

Zero Set-Reset OK ALL FOUR

Proper count for movement - measure

FILM CONTROLS

Looping check switch position

Return - Manual withdraw and lock

Loop forming left-right #

Film holddown

Time

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OPTICAL TRAIN CHECKOUT

Check control of eyepiece assembly for function and operation.

Eyestations	Normal OK Reversed OK
Image Enhancer switch operation ON - OFF	OK
Channel Selector	Stereo OK Superimpose OK
Left Image Selector	Off OK Normal OK Reversion OK
Right Image Selector	Off OK Normal OK Reversion OK
Image Rotation Dials 0° to 360°	Operation OK Stops OK

0° Set Up Check

Eyepiece optics in superimposed mode normal image selector straight edge set up on platen X axis both channels within .001 in 6 inches (use carriage travel and dot to run out straight edge). In turn dial normal to reversion mode an image of offset straight edges should remain parallel within 1 for any combinations of normal or reversion modes in either channel. OK

Interpupillary Adjustment OK
52mm to 73mm
53mm 75mm

With Image Enhancer off, focus eyepiece to obtain sharpest image of fiber bundle pattern on end of fiber cable for both eyepieces. Turn Image Enhancer on. Check fine phasing control for center position with sharpest image of Air Force Resolution Chart at midposition of fine phasing control rotation. Introduce dot reticle. Check size (1 millifiber

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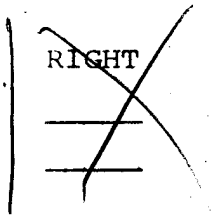
approximately 4 arc minutes).

		LEFT	RIGHT
1-4 arc minutes required at all system magnifications	Zoom Maximum	28" 4"	
	Zoom Minimum	10"-1"	



DOT CENTERING CHECK

Turn on Image Enhancer. Set up 4 arc minute dia. dot (1 multifiber) and cross hair reticles at field stops. Is dot on center? Estimate center error in the following modes with center reticles at field stops. Maximum allowable error is to be 4 arc minutes with any combination.

		ERROR (ARC MINUTES) Normal Eye Sta.	Reversed Eye Sta.
Run zoom magnification through range	Left	4"	12"
	Right	10"	4"
Rotate Image	Left	7"	8"
	Right	9"	8"
With image selectors Normal to Reversal rotate image in four 90° steps between trial for test.	Left		
	Right		
With channel selector Stereo to Superimpose, judge center distance on dots, in Normal to Reversion, in rotation and at zoom extremes, each channel, 4 arc minutes error maximum any combination.	Left		
	Right		

Check intensity control of reticle OK

Can dot be seen relative to open gate high intensity maximum setting?	Left	OK	OK
	Right		

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Check centering of each objective lens by indexing turret. Use highest magnification objective lens for centering. ± 2 minutes maximum error for other lenses (line width cross hair reticle set up in field stop).

	ERROR (ARC MINUTES)	
lens	Left	Right
1.6-6.8X	_____	_____
29X-12X	~~_____~~ OK	_____
101-43X	_____	_____
30X-128X	_____	_____

Check zoom control for each magnification.

Image to remain on center and in focus throughout full range of zoom without changing objective focus. See resolution optical system below.

Zoom shall not coast after power cut off. OK

Zoom shall be capable of manual control. yes

Zoom dials properly oriented for correct indication of zoom limits. yes.

Check system magnification at low and high ends of each range.

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OBJECTIVE LENS RANGE		LEFT		RIGHT	
Low	High	Low	High	Low	High
1.6	6.8X				
2.9	12X				
10.1	43X				
30	128X				

Overlap of magnifications for each range

LEFT	RIGHT

Independent focus control for each objective _____

Resolution of optical system using Air Force Resolution Charts

Focus objective at high end only. Do not refocus at low end

OBJECTIVE LENS RANGE		LEFT				RIGHT			
Low	High	Low	Req.	High	Req.	Low	Req.	High	Req.
1.6	6.8X	14.3	13(3/5)	57	54(5/6)	14.3	13(3/5)	45.6+	54(
2.9	12X	28.5	24(4/5)	91.1	93(6/4)	22.8	24(4/5)	81.3+	93(
10.1	43X	102.2	80(2/5)	318	300(0/5)	79.2+	80(2/5)	282+	300(
30	128X	256	224(0/2)	566+ 640	640(1/5)	282 280T	224(0/2)	566+ 640*	640(

Std. A.F. Target

280X Reduced A. F. Target

Eye station capable of adjustment of ± 3 inches in vertical and horizontal planes with lock.

Eye station capable of rotation of ½ degrees about "X" axis with lock.

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US AIR FORCE RESOLUTION TARGET

Lines Per Millimeter

Group No.	-2	-1	0	+1	+2	+3	+4	+5	+6	+7
1	.250	.500	1.00	2.00	4.00	8.00	16.0	32.0	64.0	128
2			1.12	2.24	4.49	8.98	18.0	36.0	71.8	144
3			1.26	2.52	5.04	10.1	20.1	40.3	80.6	161
4			1.41	2.83	5.65	11.3	22.6	45.2	90.4	181
5			1.58	3.17	6.34	12.7	25.4	50.7	101.4	203
6			1.78	3.56	7.11	14.2	28.5	56.9	113.8	228

Multiply lines/mm value given in above table by magnification ratio of system to obtain true value of resolution.

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CHART OF RESOLVING POWER VALUES WHEN ORIGINAL TARGET, U.S.A.F. 1951 IS OPTICALLY REDUCED 200 TIMES

Group No.	Target No.	Resolving Power (Lines/mm)
-2	1	50.0
	2	56.2
	3	63.0
	4	70.6
	5	79.2
	6	89.0
-1	1	100
	2	112
	3	126
	4	141
	5	158
	6	178
0	1	200
	2	224
	3	256
	4	282
	5	318
	6	356
1	1	400
	2	450
	3	504
	4	566
	5	636
	6	712

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ILLUMINATION CHECKS

General illumination levels (ft.-lamberts) measured at film plane

	Low	High
Left	___	___
Right	___	1205

High Intensity illumination (maximum brightness) measured at film plane.

	Left	Right
Color Temperature	___	___

High Intensity illumination level (foot-lamberts) measured at eyelens

Left ___ Right ___

Color temperature at 50% level measured at film plane

Left ___ Right ___

Temperature above ambient for film with average density of 2 left in high intensity light path for 30 minutes. Use 30-128X range at maximum brightness setting and with new lamps in light source

Left _____ degrees F above ambient

Right _____

	LEFT	RIGHT
1.6	1530	1180
2.9	4750	5800
10	3570	7400
30	5250	5100
6.8	~~4750~~	600
12.0	2930	1360
43	475	610
123	470	627

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FILM HOLDDOWN AND TRANSPORT

		70mm	5"	9 1/2"
Vacuum pull down time	Left	10 Sec		
	Right	10 Sec.		
Across both formats		10 sec.		

Torque required to operate film transport OK

Two independent systems of film spooling. OK

Looping capability single film 17 ft

Loop holding capability. Advance film with fixed loop.

		LEFT	RIGHT
Operation of film brakes after high speed film advance with fully loaded 500 ft. spools	Inboard		
	Outboard		

Operation of looping mechanisms to thread film OK
bunqup in one position

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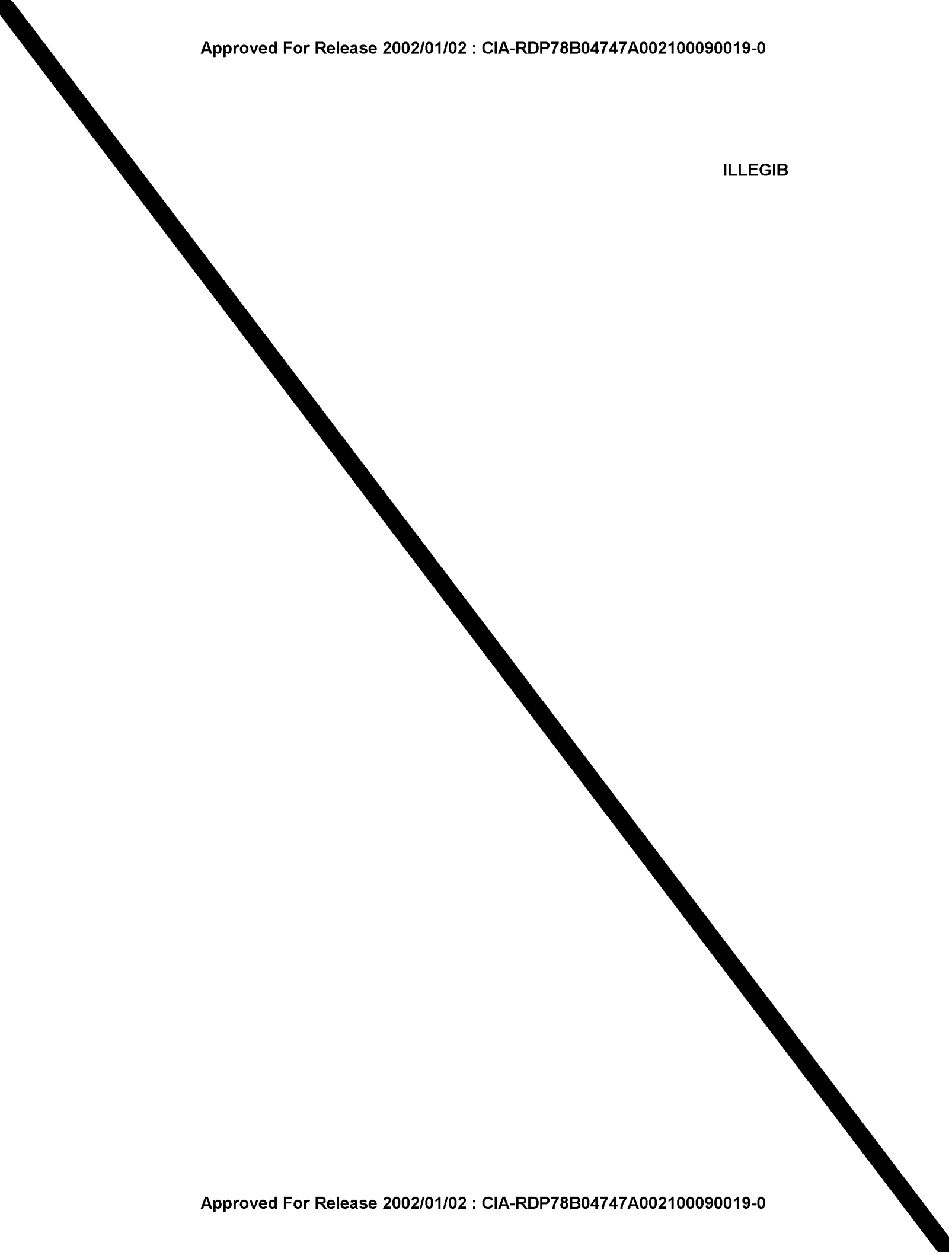

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