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50138

Rec'd 21 Oct 71

MLT-3171-L-6210
15 October 1971

Officer-In-Charge
USA Communication-Service Group
Post Office Box 72
NAS Moffett Field, California 94035

STAT Subject:

Gentlemen:

Pursuant to Amendment No. 12 to the subject contract, STAT
STAT is pleased to provide Revision E to Document No. ATP 600000, Acceptance Test Procedure for Light Table MLT 1540 and Document 6084, Quality Control Instructions Part 1540-4, applicable to Item 1b, MLT 1540-4. In further reference to Amendment No. 12, the Contracting Officer's Technical Representative was given a sample x-y direction lever for review on 23 September 1971. Your concurrence with this selection is requested as soon as practicable.

Should further information be required, kindly contact STAT or the undersigned.

Very truly yours,

STAT

Declass review by NGA/DoD

Supervisor, Contract Administration

WGB:hl

Enclosures: ATP 600000, Rev. E
QCI 1540-4

Copy furnished: Contracting Officer's Technical Representative ✓

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	Part Title: QUALITY CONTROL INSTRUCTIONS		Part 1540-4
	Subject: CHECKING FOR FREE PLAY IN THE MLT 1540-4 BRIDGE ASSEMBLY		Section
	Document No: 6084	Effective: 12 OCTOBER 71	Page 1

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1. GENERAL REQUIREMENTS

1.1 Table must be in level position.

2. EQUIPMENT REQUIRED

2.1 Force Gauge (0 to 30 lb. range, .25 lb. increments or equivalent).

2.2 Dial Indicator (2 inch travel, .001" graduations, dial reading of 0-100 or equivalent).

3. PROCEDURE

3.1 Lock bridge in axis to be checked.

3.2 When measuring "Y" axis, mount dial indicator on bridge support rail (approximately mid-range of its travel) so that the tip contacts the beam support.

3.3 Using the force gauge, pre-load bridge with 2 lbs. at mid-point of beam in one direction of "Y" travel.

3.4 Zero indicator.

3.5 Load bridge with 2 lbs. in opposite direction of step 3.3.

3.6 Take reading of indicator.

3.7 The reading must be less than .010".

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3.8 Repeat steps 3.3 through 3.6 using 4 lbs. force.

3.9 The reading shall be less than .020".

3.10 When measuring in the "X" axis, mount the dial indicator on the beam (approximately mid-range of its travel) with the tip contacting the microscope carriage.

3.11 Repeat steps 3.3 through 3.9 for "X" axis.

QUALITY CONTROL			MANUFACTURING		
Rev. No.	Date	Appvd	Rev. No.	Date	Appvd.
N/C	13 OCT 71	[illegible]		10/13/71	J.G.

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CLASSIFICATION

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SHEET 1 OF 8

USED ON
MLT-1540

DATE
11 October 1971

REVISION
(See last sheet for record) E

TITLE

ACCEPTANCE TEST PROCEDURE FOR LIGHT TABLE MLT-1540

STAT

SERIAL NUMBER _____

TEST BY _____

DATE _____

TIME _____

This item has successfully performed to all of the requirements as itemized and checked in the body of this procedure.

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SHEET NO. 2 of 8

1.0 PURPOSE

The purpose of the Acceptance Test Procedure is to verify that the Modular Light Table, MLT-1540, meets its functional and performance requirements.

2.0 EQUIPMENT REQUIRED

2.1 MLT-1540 complete per [redacted] Drawing No. 600300 and 600100.

2.2 Test film as follows:

9.5 inch wide, 4 mil base, 1,000 foot, 1 roll

5 inch film, 1,000 foot, 2 rolls

70mm film, 1,000 foot, 2 rolls

2.3 Empty take-up spools.
(This should be commensurate with the number of films required as listed above.)

2.4 Stop watch

2.5 GFE foot lambert meter (Weston Model 759)

3.0 ACCEPTANCE TEST

Completion and verification of each of the following items shall be noted by the inspector's stamp or initials in the space provided.

3.1 Mechanical and visual inspection

The MLT shall be carefully examined to determine conformance to the requirements of [redacted] Drawings 600300 and 600100; Outline Drawing. Moving parts such as covers, latches and gear mechanisms shall be checked to assure proper fit and operation without sticking or binding. Quality of workmanship, proper materials and finishes, nameplate installation, etc. shall be verified.

3.2 Connect table to 117 VAC, 25 amp power source. (220 VAC for --5 configuration)

3.3 Turn lights on to maximum intensity, both sides.

a) Record time turned on.

Time on _____

3.4 Operate the elevating mechanism.
(Not applicable to -1 configuration)

a) Note max. and min. distance from floor.
(Max. = 40" ± 1", Min. = 22" ± 1")

3.5 Check operation of manual hand crank elevation for smoothness of operation.

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3.6A Operate carriage motion system with table horizontal, and weight of optics (~ 15 lbs). (Omit 3.6A for -4 tables).

a) Using QCI 6083 check bridge for free play and record measured amounts.

X_____ Y_____

b) Note force required to move carriage with motors disengaged in X and Y direction (≤ 4 lbs both axis)

c) With motors powered in X and Y axis and speed control set at 0, verify that 15 lbs will not move bridge. (Not applicable to -1 configuration)

d) Determine min consistant speed, X axis. (3" travel ≥ 60 seconds without stalling) (Not applicable to -1 and -3 configuration)

e) Determine min consistant speed, Y axis. (3" travel ≥ 60 seconds without stalling) (Not applicable -1 and -3 configuration)

f) Note that at horizontal table is level ± 1°.

3.6B Operate carriage motion system with table horizontal (± 1°) and weight of optics (~ 15 lbs). (Omit 3.6B for -1, -2 and -3 tables)

a) Using QCI 6084 check bridge for free play and record measured amounts.

	2 lb	4 lb
X	_____	_____
Y	_____	_____

b) Note force required to move carriage in X direction with X motor disengaged (≤ 2 lbs)

In Y direction with Y motor disengaged (≤ 4 lbs)

and in Y direction with Y bridge drive disconnect mechanism in the disconnected mode (right & left levers pointed down). (≤ 2 lbs)

c) With motors engaged and Y bridge drive disconnect mechanism engaged (right & left levers parallel with table top) verify that 15 lbs will not move bridge.

d) Determine X and Y minimum running speed. Verify time to traverse .1". (5 mils per second ± 10%)

Minimum	18.0 sec	X_____
Nominal	20.0 sec	
Maximum	22.0 sec	Y_____

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e) Determine maximum running speed. Verify that time to traverse 4" is less than 16 sec. (> .250 inches per second)

X _____ Y _____ _____

f) Using a Bausch and Lomb microscope and grid paper verify that set speed is attained in less than 1.0 sec. after control actuation without noticable carriage jerk and stops within .1 sec. of control release for the following conditions

Machine set for min. speed

Precondition - Stop - Restart		SPEED		
		MIN	MED	HIGH
Direction	Direction	5 mils/sec (200 sec/in)	20 mils/sec (50 sec/in)	100 mils/sec (10 sec/in)
left	left	_____	_____	_____
left	right	_____	_____	_____
right	right	_____	_____	_____
right	left	_____	_____	_____
to rear	to rear	_____	_____	_____
to rear	to front	_____	_____	_____
to front	to front	_____	_____	_____
to front	to rear	_____	_____	_____

g) Verify that X and Y speeds are equal within 10% over control speed range. (Min. speed previously checked in 3.6B, Section d.)

MED SPEED at approximately 20 mils/sec (~ 50 sec/inch) Time to traverse 1 inch

X _____ Y _____ _____

HIGH SPEED at approximately 100 mils/sec (~20 sec/2 inches) Time to traverse 2 inches.

X _____ Y _____ _____

MAX SPEED at approximately 250 mils/sec (~ 16 sec/4 inches) Time to traverse 4 inches

X _____ Y _____ _____

h) Verify smooth operation over entire speed control range for each direction of travel

right _____ left _____ to rear _____ to front _____

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3.7 Operation of tilt mechanism

a) Release Y bridge drive disconnect mechanism and verify that table tilt mechanism is inoperable. (Applies to -4 only) _____

b) Engage Y bridge drive disconnect mechanism and operate tilt mechanism. Note that full tilt provides 15° ± 1° _____

3.8A Operate carriage motion system with table tilted, and weight of optics on carriage. (Not applicable -1 & -4 configuration)

a) Check operation of "Fail-Safe" system for Y axis movement. _____

b) Determine min. consistant speed, X axis. (3" travel ≥ 60 sec. without stalling). (Not applicable to -3 configuration). _____

c) Determine min. consistant speed, Y axis. (3" travel ≥ 60 sec. without stalling). (Not applicable to -3 configuration). _____

3.8B Operate carriage motion system with table tilted and weight of optics on carriage. (-4 only).

a) Check operation of "Fail-Safe" system _____

b) Determine X and Y minimum running speed. Verify time to traverse .1 inch. (5 mils per second ± 10%)

Minimum	18.0 sec	X _____
Nominal	20.0 sec	Y _____
Maximum	22.0 sec	

_____

c) Determine maximum running speed. Verify that time to traverse 4" is less than 16 sec. (> .250 inches per second)

X _____ Y _____ _____

d) Using a Bausch and Lomb macroscope or equivalent and grid paper verify that set speed is attained in less than 1.0 sec. without noticable carriage jerk for following conditions.

Precondition - Stop - Restart		SPEED		
Direction	Direction	MIN 5 mils/sec	MED 20 mils/sec	HIGH 100 mils/sec
left	left	_____	_____	_____
left	right	_____	_____	_____
right	right	_____	_____	_____
right	left	_____	_____	_____
to rear	to rear	_____	_____	_____
to rear	to front	_____	_____	_____
to front	to front	_____	_____	_____
to front	to rear	_____	_____	_____

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3.9 Return table to level position. Mount dial indicator on optics holder with weight of optics attached. Check for carriage drift. (No visible movement of dial)

3.10 Check parallelism of optics carriage to format surfaces with dial indicator.

a) Note max. deviation. (within .015 inches)

3.11 Mount two 1,000 ft. rolls of 70mm film, normal mode, emulsion up and emulsion down.

a) Note time to rewind, both rolls at same time, in opposite direction. (≤ 3 min.)

b) Note tracking characteristics

c) Note effect on stationary web when other moves and stops rapidly. Check both webs. (No interraction)

d) Verify min. speed on front roll only. (Insure smooth control from 0 to 1 inch/sec.)

3.12 Mount 1,000 ft. roll 9.5-inch film, normal mode, emulsion up.

a) Note time to completely rewind. (≤ 3 min.)

b) Start and stop rapidly from full speed (no take-up loop). No slack loops or excessive tension.

c) Operate take-up loop. Note max. capability. (≥ 76 inches)

d) Scan slowly with take-up loop. Note tracking stability.

3.13 Mount two 1,000 ft. rolls 5-inch film, split vertical mode, emulsion up and emulsion down.

a) Operate to insure split vertical capability.

3.14 Maximum illumination

Mark off table surfaces with china markers to show restricted area using the plastic template.

a) Note time. Check that 30 minutes min. have elapsed since 3.3a).

b) Note illumination at left format center. (≥ 3,000 F.L.)

Max. illumination ____

c) Note illumination at right format center. (≥ 3,000 F.L.)

Max. illumination ____

d) Note difference between 3.14 b) and 3.4 c). (≥ 150 F.L.)

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3.15 Illumination left format.

a) Set center of left format to 3,000 F.L. Verify _____

Set right format to minimum.

b) Note deviation from previous reading. (± 150 F.L.) Ref. 3.15 a)

deviation _____

Return right format to maximum

c) Note min. illumination over entire area

entire area _____

d) Note min. illumination in restricted area

res. area _____

Set left illumination at minimum.

e) Note reading at format center. (≤ 200 F.L.)

min. illum. _____

Set right illumination at minimum.

f) Note deviation from previous min. (≤ 150 F.L.) Ref. 3.15 d)

deviation _____

Return illumination, both sides, to maximum.

3.16 Illumination on right format surface.

a) Set center of right format to 3,000 F.L. Verify _____

Set left format to minimum

b) Note deviation from previous reeding. (± 150 F.L.) Ref. 3.16 a)

deviation _____

Return left format to maximum

c) Note minimum illumination over entire surface

ent. surf _____

d) Note minimum illumination over restricted area.

res. area _____

Set illumination at minimum.

e) Note reading at format center (≤200 F.L.)

min. illum. _____

Set left illumination at minimum.

f) Note deviation from previous min. (≤ 150 F.L.) Ref. 3.16 e).

deviation _____

3.17 Observe light sources for evidence of flicker

a) Set both at max. Verify no objectionable flicker. _____

b) Set both at min. Verify no objectionable flicker. _____

3.18 Film masking system.

a) Insure lamps extinguish in proper sequence. _____

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AUTHORITY

REV	SH	DESCRIPTION	DATE	AUTHORITY
A		Deleted paragraphs 3.10, 3.14 a) through d), 3.15 a), c), e). Revised paragraph 3.16 a) Reason: To eliminate destructive tests, reduce test time and for clarification.		
B		Revised entire test sequence to facilitate more efficient testing. Deleted paragraphs 3.6, 3.7, 3.8 Reason: Items are covered in 3.1 Paragraph 3.4 Added $\pm$ 1" tolerance Paragraph 3.9 Added "No visable movement of dial."		
C		Added provisions for -1, -3, -4 & -5 configurations.		
D		Paragraph 3.6 Change 10 lbs to 15 lbs Paragraph 3.6 b) Change 10 lbs to 15 lbs		
E		Added Para. 3.6B for MLT 1540-4 only		

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