TEST PROCEDURE - T7411 AND T7411-402 CATHODE RAY TUBE

R **1.0 FRONT PANEL CONTROLS**

ECO,
Vert Pos - GND
TIME BASE - AUTO-AC-INT-CONV.
TIME B @ AMPL.
INTENS - CCW
E_{co} for cut off

SPECIFICATION LIMIT

Turn intensity CCW
Grid bias CCW
~~Gun~~ to normal
Select Non-Store Mode
Connect line raster generator
Turn on P-690 Test Unit

R **2.0 CUTOFF, CATHODE CURRENT, BEAM CURRENT, FOCUS UNIFORMITY, GEOMETRY, ALIGNMENT & SENSITIVITIES:**

Selector to HT - op poly. for some background Watch write through + set E_{co} use portion sine wave - focus I_K - AUT-AC-int. ampl. for col V-position AC

2.1 Depress E_{co} button. Increase intensity so a spot is just visible.

2.2 Adjust spot for best focus and astigmatism at the tube center.

2.3 Switch to halftone and increase/decrease operating level until some background is observed.

2.4 Turn intensity CCW and increase grid bias until a spot begins to store. Reduce grid bias so that the spot will no longer store. Record as cutoff voltage on test form. (May need to erase to determine if spot is storing.) — 75 - 105 VDC

X 2.5 Check electrical center. (Reference to graticule line.) — ±2.5 Minor Div.

X 2.6 Switch gun to gearshift. Check that tube is cutoff. If not, readjust bias so that it will no longer store.

2.7 Return to conventional mode and gun to normal.

2.8 Set intensity for 50V drive. Center vertically and and measure beam current. Record on test form. — 25μA Min.

2.9 Switch gun to gearshift and note that current is greater than normal mode current. If not, notify LEAD OPERATOR. Switch gun back to normal mode.

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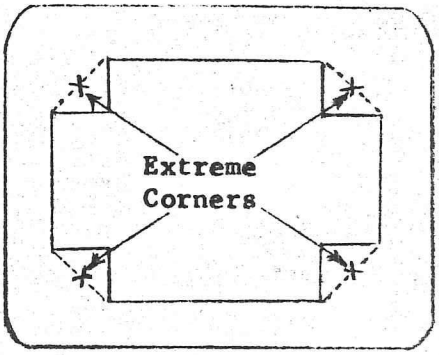
Total-16.

R 2.0 CUTOFF, CATHODE CURRENT, BEAM CURRENT, FOCUS UNIFORMITY, GEOMETRY, ALIGNMENT & SENSITIVITIES: (Cont.)

	SPECIFICATION LIMIT
2.10 Measure cathode current as set-up in Sec.2.8 and record as I_k @ 50V drive on test form.	V_{co} / I_k 75 - 79 .48 mA Min. 80 - 84 .44 mA Min. 85 - 89 .40 mA Min. 90 - 94 .38 mA Min. 95 - 99 .34 mA Min. 100 -105 .32 mA Min.
2.11 Set intensity for a I_k reading of .4ma and measure beam current. Record as I_b @ I_k = .4ma.	26μA Min.
2.12 Switch gun to gearshift. Note if beam current is greater than recorded value. If not, notify LEAD OPERATOR. Switch gun back to normal.	
2.13 Reduce intensity and position spot to center of graticule. Measure the major axis of the smallest focused spot and compare with the major axis when the spot is positioned to corner extremes (See Fig.)	≤ 2.6.:1
2.14 Select horizontal lines. Set time base to 10μS/Div. Slowly increase intensity until lines are visible. Check rotational alignment, using center graticule line.	±2.5 Minor Div. (±0.5 Major Div.)
2.15 Set geometry for straight horizontal lines. Switch to vertical lines. NOTE straightness of vertical lines. If not within specifications, adjust vertical lines until within specification. Check horizontal lines for straightness.	0.5 Minor Div. Total
2.16 Select vertical lines. Using center graticule line, check orthogonality of trace (horizontal lines should be aligned).	±0.7 Minor Div. (± 1°)

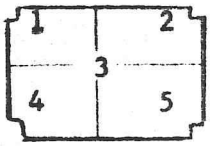


2.0 CUTOFF, CATHODE CURRENT, BEAM CURRENT, FOCUS UNIFORMITY, GEOMETRY, ALIGNMENT & SENSITIVITIES: (Cont.)

		SPECIFICATION LIMIT
2.17	Ground vertical input. Switch horizontal to Amplifier with external trigger source (should have spot).	
2.18	Depress Horizontal Button on P.T.U. meter and position horizontally to graticule extremes, noting meter readings. Add absolute value of two readings.	99 - 117V Total (10.8 ±.9 V/Div.)
2.19	Depress vertical button and P.T.U. meter and position vertically to graticule extremes, noting meter readings. Add absolute value of, two readings.	28 - 32.8V Total (3.8 ±.3V/Div)

R 3.0 HALFTONE SETUP

3.1	Select halftone mode and erase. Measure flood gun cathode current.	.22 mA Min.
3.2	Set operating level to ≃5 volts and prep voltage fully CCW.	
3.3	Erase target and adjust operating level until target just starts to drop from saturation after erasure. Increase this operating level by three (3) volts and record on data form as halftone operating point.	
3.4	Measure luminance at the five (5) points shown; record the average reading as saturation luminance.	≥100 fL.
3.5	Erase and vary Prep Voltage until a small area of the target just drops from saturation. Record. Lower operating level and erase; continue to do so until first area just dark (1 Div. Sq.). Record as first dark O.L.	
3.6	Vary operating level until the full 8 x 10 quality area is dark after erasure. Record this O.L. as last dark.	



R 4.0 HALFTONE WRITING SPEED & TARGET DEFECTS

	SPECIFICATION LIMIT
4.1 Set Drive for 50 volts. set gun mode to Drive	
4.2 Connect low-frequency sine wave generator to vertical, set for 100KHz, and adjust gain for 6.4 Div.	
4.3 Adjust horizontal for a minimum display of seven (7) complete cycles.	
4.4 Store the sine wave in different locations of the 6 x 8 Div. quality area to determine the limiting areas for writing speed and view time. NORM-ext 10 adj. spare location Target must be triggered NOTE: Writing speed may be limited by some area other than the area which is darkest.	
4.5 Position the midpoint of the sine wave on the slowest area.	
4.6 A. WRITING SPEED: i op level control Vary the frequency and operating level until the trace just stores or until trace breaks .040". Measure time for the display to fade-up (signal no longer visible above background). If the view time (fade-up time) is different from 15 seconds, readjust the operating level and frequency until the view time is just 15 seconds. Record as 15 sec. writing speed.	0.5 Div/μs Min.
4.7 A. TARGET DEFECTS: (Bright Spots) Erase the target. Measure questionable bright spot defects. If defects out of specification, set frequency to 25 KHz. Erase and write target, varying O.P. level until written trace is just visible. Erase and measure defects. If above limits, reject.	See P.S.8-2011, Table I
4.8 Switch gun to gearshift. Repeat Sec.4.6.A for gearshift writing speed with 3.2 Div. Sine wave on center 4 x 5 Div. area. Use about 1MHz initially. Switch gun to normal mode.	1.5 Div/μs Min. Record
4.9 Repeat Sec.4.6.A, using a view time of one (1) minute.	Record Data - Q.A. Only
4.10 TARGET DEFECTS: (Dark Spots) Increase the operating level until the screen is saturated. Measure questionable dark defects.	See P.S.8-2011, Table I

[Emission]

1. Set 40 ma Ib - HT

2. 7B70 (TIME BASE) 10 μs = Be sure red knob is pushed in Calibrated

3. CONNECT Mega H sine w. gen. to Vert SET TO 100 MHz

4. Push top 3 Buttons = P-P, Ac, Int.

~~Conv~~ NU - X1

Check to see that it doesn't over-scan HORIZ. - if it does - shorten up screen X1 drives adjust - (on side of CRT) behind Ib switch - blue screw -

MONI. Scope S.S. AC. LINE 1 or 2 sec.

VT has to be at 5 MV + cal. V/DIV

XFR S. HTXFR when doing HTXF → HT

NORM
AC
EXT ÷
HT
erase

just to see if it all works

6. S. Sweep - & Int - triggered - (blue lite is on) about 9 o'clock + XFR

HTXFR EMISSION return VT to Vt found for W.S.

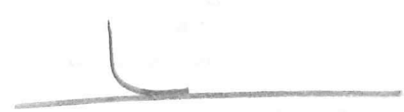
7. Erase

8. Integrate (HS in HTXFR Em.)

9. to S.M - S.S. - to start trace

10. on mon. scope - across,

11. single - shot on 7B70 -



12. Should have a spike

13. Measure amp. of spike

14. plug-in on scope must be on 5 mV.

return to normal + off

5.0 TARGET SENSITIVITY & SECONDARY EMISSION FOR STORAGE MESH

SPECIFICATION LIMIT

5.1 Set I_b = 40μA with gun in normal mode. Focus trace.

5.2 Select 50KHz sinewave and set for 6.4 Div. Select halftone mode and set operating level to value recorded as last dark (Sec.3.6).

5.3 Erase. Confirm that at last dark condition. Decrease operating level one (1) volt below the last dark.

5.4 Erase. Single sweep sinewave over last dark area (midpoint of sinewave over area). Vary frequency and erase until trace is just visible. Record 20X as target sensitivity for storage mesh.

Sample Data & Engineering Test only

5.5 Set timebase to 10μs/Div, and 1X. Select 100MHz sinewave. Set for 5 Div. amplitude. Switch to single sweep and external trigger.

5.6 Erase. Select storage mesh position on secondary emission selector. Depress internal trigger noting amplitude at spike on output signal. Record value in millivolts.

Sample Data & Engineering Test Only

R 6.0 HALFTONE RESOLUTION

6.1 Adjust intensity for 1μA beam current.

6.2 Select vertical lines and non-store mode. Focus trace. (Switch between vertical and horizontal line looking for best trace in both directions.)

6.3 Adjust vertical gain for 8 Div. Select Halftone Mode. Erase target for target condition corresponding to just dark.

6.4 Adjust line speed so that every line is written above just visible condition. Shrink spacing between lines increasing number of lines until lines are just discernible over 8 x 10 Div. area.

6.5 Count the number of vertical lines stored over two (2) divisions. Record 1/2 of this number as resolution.

10 line/Div Min.

7.0 VARIABLE PERSISTENCE UNIFORMITY

		SPECIFICATION LIMIT
7.1	Set persistence duty factor to 3%.	
7.2	Inhibit persistence pulses. Erase for just dark and write total 8 x 10 divisions to saturation (increase drive and single sweep).	
7.3	Initiate pulsing and note first and last areas to decay.	
7.4	Repeat Sec.7.2. Place luminance probe at first area to decay away as noted in Sec.7.3. Initiate pulsing. Record decay time as first decay.	
7.5	Repeat Sec.7.4 for last area to decay. Record.	
7.6	Divide decay time of Sec.7.5 by Sec.7.4.	≤ 3:1

R 8.0 RESIDUAL IMAGE - STORAGE MESH

8.1 Set beam current for 40μA in gearshift. Focus trace. Select single sweep.

8.2 Select halftone. Erase. Set operating level for just dark condition.

8.3 Select non-store mode. Set timebase at 10μs/Div. and ground vertical input signal.

8.4 Switch timebase to Auto and Ext. Trigger. Let horizontal line run for one (1) minute, then switch to single sweep. Turn intansity full CCW.

8.5 Erase twice. Record difference in operating levels needed to make the area written and the adjacent area dark. If area written blacker than background, then record as negative.

R 9.0 HALFTONE TRANSFER WRITING SPEED

9.1 Select halftone fast mode. Set operating level for near all dark condition (i.e., some visible background. Turn intensity full CCW. Preset V_p for five (5V) volts and V_t for two (2V) volts.

9.2 Set timebase to single sweep and internal triggering. Erase. Note condition of display.

9.0 HALFTONE TRANSFER WRITING SPEED (Cont.)

SPECIFICATION LIMIT

9.3 Erase and wait for fifteen (15 Sec.) seconds. Trigger sweep. NOTE condition of background. If different than that of Sec.9.2 or immediate transfer, then need to change stability setting. If background higher after fifteen (15 sec.) seconds, then increase stability voltage (i.e., stability knob CW). If background lower, then decrease stability voltage.

9.4 Repeat Sec.9.3 until display appears nearly the same. Now check for 60 Sec.by erase and waiting 60 Sec. Adjust stability until display after 60 Sec. wait is same as initial transfer.

9.5 Set drive to fifty (50V.) volts. Connect 7.5MHz sinewave to input. Adjust for 6.4 Div. amplitude. Focus trace in Non-Store.

9.6 Choose halftone fast mode. Erase and note condition of written signal. Adjust V_t after each transfer until background begins to change.

9.7 Erase and wait fifteen (15 Sec.) seconds. Trigger sweep and note condition of transferred signal and background. If background or signal is transferred better after 15 second wait, then decrease V_p. If background or signal is transferred worse after 15 seconds waiting, then increase V_p. Readjust V_t.

9.8 Repeat Sec.9.7 until condition at initial transfer and fifteen (15 Sec.) second stability check are nearly the same.

9.9 Repeat Sec.9.7 through Sec.9.8 for stability check time of sixty (60 Sec.) seconds.

9.10 Recheck front mesh stability per Sec.9.3 through Sec.9.4.

9.11 Erase. Record V_p , V_t, and stability level as hi-speed prep, XFR voltage and hold level-storage mesh, respectively.

9.12 Erase. Measure viewtime of display with 7.5MHz 6.4 Div sinewave positioned over slowest area and written to just visible or .040 break in transferred trace. Record viewtime as viewtime at 150 Div/μs.

≥15 Sec.

HTXFR / SENSITIVITY

1/ I_b = 40ma
2. Focused
3. LEAVE MHz sine at W.S setting used to get HTXFR W.S.
4. Vary O.L UNTIL ONE SMALL AREA HAS just A little Bkgd. (from off screen)
5. Position TR. over that area.
6. Lower Vt until TRACE just stares. (Watch VT on DVM)
7. Then Lower Vt (one) volt. Below where it just stares
8. NOW VARY FREQ - (it will need To be a lot lower (usually to .75 - 1.6 range or 1.6 - 3.6 range) also reduce T.M have control 1 or 2 clicks
   (eg. negative INITIAL - .4 go to - 1.4
9. STORE IN the same area to About the same W.S. as found initially in step 6 above. record
10. Return V_T to W_S V_T used do later sheet
11. Do Emission same way as done in HT —

R 9.0 HALFTONE TRANSFER WRITING SPEED (Cont.)

	SPECIFICATION LIMIT
9.13 Varying frequency determine transferred writing speed yielding fifteen (15 Sec.) seconds of viewtime. Record 20X frequency as writing speed at fifteen (15 Sec.) seconds without gearshift.	
9.14 Switch gun to gearshift. Select 100MHz and set at 3.2 Div. Position over center 4 x 5 Div. looking for slowest writing area.	
9.15 Adjust operating level until trace transfers to just visible and/or breaks in trace is less than .040". Measure viewtime. Record as viewtime for 1000 Div/μs.	≥15 Sec.

R 10.0 TARGET SENSITIVITY & SECONDARY EMISSION FOR HI-SPEED MESH

10.1 Set I_b = 40μA with gun in normal mode. Focus the trace.	
10.2 Select ~~1MHz~~ at HTXFR WS 6.4 Div. sinewave. Select halftone fast mode. Set operating level for condition of barely visible background in a 1 Div. area on target. Decrease V_t until trace is just transferring in that area.	
10.3 Note V_t reading. Decrease by one (1) volt.	
10.4 Erase. Vary frequency until trace transferred to condition same as that of Sec. 10.2. Record 20X as sensitivity-hi-speed.	Sample Data & Engineering Test Only
10.5 Set timebase to 10 μs/Div and 1X. Select 100MHz sinewave set for five (5) Div. amplitude. Switch to single sweep external trigger.	
10.6 Erase. Select hi-speed mesh position on secondary emission selector. Depress internal trigger noting amplitude of spike on output signal. Record value in millivolts as Emission: hi-speed.	Sample Data & Engineering Test Only

R **11.0 RESIDUAL IMAGE -HI-SPEED MESH**

	SPECIFICATION LIMIT
11.1 Set beam current for 40μA in gearshift. Focus the trace. Select single sweep.	
11.2 Select halftone fast. Erase. Set operating level for same background. Set V_p and V_t at values recorded in Sec.9.11.	
11.3 Select non-store mode. Set timebase at 10μs/Div and ground vertical input.	
11.4 Switch timebase to auto and set trigger. Allow horizontal line to run for one (1) minute. Switch to single sweep. Turn intensity full CCW. Set trigger at internal.	Sample Data & Engineering Test Only
11.5 Erase and transfer twice. Record difference in V_t needed to suppress the transfer of the background and the residual.	

R **12.0 BISTABLE OPERATING POINT**

12.1 Set beam current to 15μa.	
12.2 Set focus and astigmatism on a 45° line from triangle.	
12.3 Switch to bistable and erase.	
12.4 Single sweep a raster of lines and vary operating level erasing and rewriting until lines begin to break up. Raster must remain one (1) minute with no more than two (2) breaks .025" in a single line. Record as writing threshold.	
12.5 Increase the operating level, erasing and rewriting until the trace begins to fade up. Trace should store one (1) minute without fading up over .025". Record as upper writing limit.	
12.6 Set operation level midway between writing threshold and upper writing limit. Record as bistable operating point.	O.R. 10V Min. O.P. 125V. Max.
12.7 BISTABLE TARGET DEFECTS	See P.S.8-2011, Table I
a. Erase the target and measure any questionable defects.	
b. Fully write the bistable target and measure any questionable defects.	

BSXFR

AFTER ALL V_{is} are set: CONNECT to MH2 Sine w. gen. set at 50Vd FOCUS sinewave set 6.4 div ampl.

Target Stability

$V_p \cong 15V$

$V_T \cong -1.5$

Set MH2 S. wave gen. at 5 on 3.6 To 8

Store This speed to see if it writes —
Vary VT for ≅ 5% transfer of 1 div (looks like buttermilk)
If it doesn't write in most of 8x10 —
raise Up — & vary VT to maintain 5% Xfr.
may have to vary W.S. (slower or faster) to where it stores.

S.S. AC INT

ERASE

wait ≅ 15 sec, Hit S.S to store TRACE -
If it looks about as it did initially
go back to S.S. AC. INT, erase
a time for 60 sec.

Target has to look the same after 60 sec. as it did initially.

If it loses W.S. (breaks in trace) or less bkgrd is Xfrd up lower Vp (go back to NORM, AC, EXT 10)
go thru a complete erase & vary VT if needed

If it fades up — raise Up)

V_T - candles +

V_p - stability (writes better)

13.0 BISTABLE WRITING SPEED

SPECIFICATION LIMIT

13.1 Set Drive to 50 volts.

13.2 Connect a 5 KHz sinewave to vertical and adjust gain for a 6.4 Div. display.

Horiz 7870
time base

13.3 Set focus and astigmatism on a 45° centered line.

13.4 Store a series of sinewaves to determine the slowest area of the 6 x 8 Div. quality area. (Adjust horizontal sweep for a minimum of one (1) cycle per Div.)

single swp AC. INT.
Triglet on X1

13.5 Position the center of the sinewave over the slowest writing area.

NOTE:
WS has to be hand-stored - use S.S, AC Int. S.S. Sinewave to determine WS.

13.6 Erase and single sweep, varying the sinewave frequency until the slowest area just stores the trace with no breaks > .040", or is just visible above the background.

13.7 Record twenty (20) times the sinewave frequency as bistable writing speed. — 30 Div/ms Min.

13.8 Switch gun to gearshift. Repeat Sec.13.4 through 13.6 on center 4 x 5 Div. (.9cm/Div graticule) area using a 3.2 Div. amplitude sinewave.

13.9 Record ten (10) times the sinewave frequency as gearshift bistable writing speed. — 100 Div/ms Min.

R 14.0 BISTABLE TRANSFER WRITING SPEED

14.1 Connect 5MHz sinewave to vertical input. Switch gun to normal. Preset V_p for fifteen (15V) volts. Signal height to 6.4 Div.

start @ 4 MHz scale
erase
write @ 4T ÷ 10 norm-AC

14.2 Adjust V_t for 5% fade-up of any single division.

6 x 8 div

14.3 Evaluate stability for fifteen (15) seconds by using timer and/or single sweep with external trigger. If there is a loss in writing speed and/or less background transferred, then decrease V_p. If more background transfer, then increase V_p.

To any V_T norm-AC ÷ 10

V_p - SS - INT & Trig

R 14.0 BISTABLE TRANSFER WRITING SPEED (Cont.)

		SPECIFICATION LIMIT
14.4	Continue repeating Sec.14.3 until no detectable change in % background transferred or loss in writing speed.	
14.5	Repeat Sec.14.3 and 14.4 for sixty (60 Sec.) seconds waiting period.	
14.6	Record V_p and V_t as bistable hi-speed prep and XFR voltage, respectively.	
14.7	Store sinewave in different areas of 6 x 8 Div. to determine writing speed by setting midpoint of sinewave at slowest writing area. Writing speed limit when there are no breaks in signal greater than .040 or trace is just visible above background.	
14.8	Record 20X frequency as bistable transfer writing speed w/o gearshift.	$\geq$ 30 Div/μs
14.9	Switch gun to gearshift. Repeat Sec.14.7 for center 4 x 5 Div. area using a 3.2 Div. amplitude sinewave. (May vary V_t to increase writing speed.)	
14.10	Record 10X frequency as bistable transfer writing speed gearshifted.	$\geq$ 200 Div/μs
14.11	Switch gun to normal.	

SEC. II - CONTROL PROCEDURE

CONTROL PROCEDURE FOR T7411 TESTING

A. INTRODUCTION

T7411 testing is under control if electrode voltages, and erase, prep, and transfer waveforms are within specifications. Monitoring of these voltage and waveforms must be done with calibrated equipment at various prescribed intervals. Test control evaluation is provided by periodic testing of "standard" tubes.

B. PARAMETERS TO BE MONITORED

Parameter	Sample Rate	Specification Limit		Control Limit
		W/O Gearshift	Gearshift	
1. Test set monitoring calibration.	twice/period			
a. DVM				
Current		<1%		<1%
Voltage		<1%		<1%
2. Operating Voltages: (DC) (Respect to Gnd.)				
WG-Htr	twice/period	6.3V ± 10% across heaters	-3000	Same as Spec.
WG-K	twice/period	-1475 ± 15V	-3000 ± 30V	Same as Spec.
WG-Grid	twice/period	-1580 to -1500V	-3105 to -3025V	Same as Spec.
Tetrode Wafer	twice/period	+25 ± 1V	-1500 ± 15V	Same as Spec.
WG-Anode, D3D4 Shield	twice/period	25 ± 1V	25 ± 1V	Same as Spec.
WG-Focus	twice/period	-825 to -1235V	-2150 to -2450V	Same as Spec.
D3D4 Plate Ave.	twice/period	25 ± 2V	25 ± 2V	Same as Spec.
D1D2 Plate Ave.	twice/period	42 ± 2V	42 ± 2V	Same as Spec.
Isolation Shield	twice/period	-40 ± 1V	-130 ± 25V	Same as Spec.
Astigmatism (2nd Anode)	twice/period	-15 to 100V	45 to 130V	Same as Spec.
Geometry (D1D2 Shield)	twice/period	-15 to 95V	-15 to 95V	Same as Spec.
FG-Htr	twice/period	12.6V across heaters	12.6V across heaters	Same as Spec.
FGK	daily	0 ± .1V (store) 50V ± 2V (modes) (Non-store)	0 ± .1V (store) 50V ± 2V (modes) (Non-store)	0V Same as Spec.

SEC. II - CONTROL PROCEDURES (Cont.)

CONTROL PROCEDURE FOR T7411 TESTING (Cont.)

B. PARAMETERS TO BE MONITORED (Cont.)

Parameter	Sample Rate	Specification Limit		Control Limit
		W/O Gearshift	Gearshift	
2. Operating Voltages: (DC) (Respect to Gnd.)				
Screen	twice/period	7000 ± 70V (Non-store)	7000 ± 70V (Non-store)	Same as Spec.
3. Waveforms		Specification Limit		
I. Bistable Mode	Weekly	± 2%		± 1%
II. Transfer Mode	Weekly	± 2%		± 1%
III Halftone Mode	Weekly	± 2%		± 1%
IV. Non-Store Mode	Weekly	± 2%		± 1%
4. Standard Tubes	1 tube/wk/shift	Ea. perform. parameter within control limits on tube card.		Same as Spec. Limit

C. SAMPLING PLAN

During the first and third week of each period, the test set should be calibrated for current and voltage monitoring. At the same time, the electrode voltages, except storage, should be checked and reset. First tube to be tested each day should be used in checking Storage and High-Speed electrode voltages. Erase and prep waveforms, and non-store waveforms need to be evaluated once each week (at the beginning of the week).

Standard tubes should be checked at a rate of one (1) per week/shift (at the beginning of the week). Standard tube test results should be within the control limits on the tube card. If not, check test set before testing tubes.

All control criteria need evaluation after a major test-set breakdown and repair.

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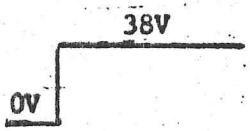
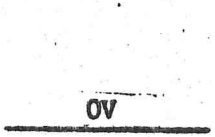
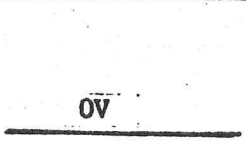
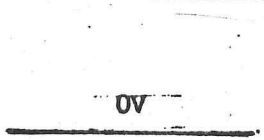
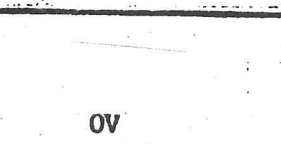
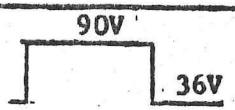
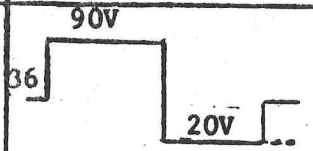
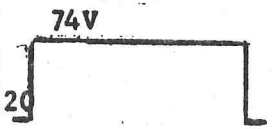
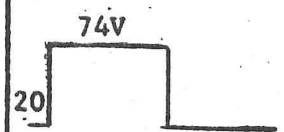
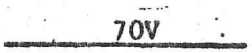
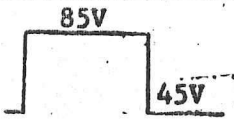
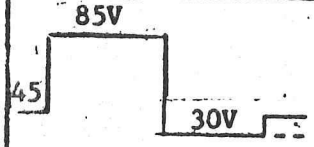
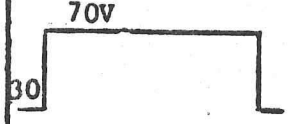
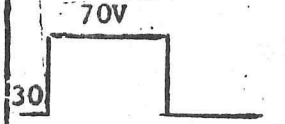
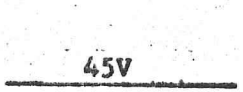
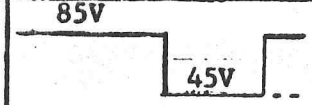
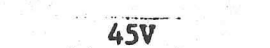
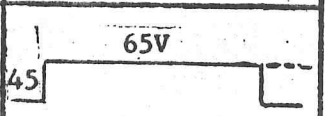
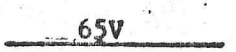
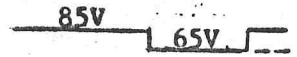
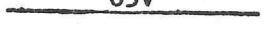
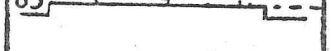
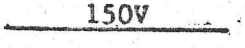
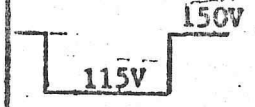
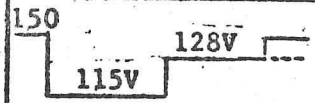
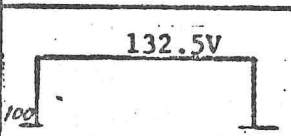
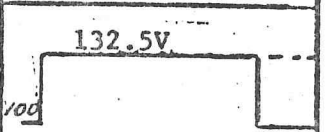
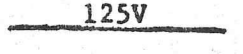
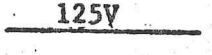
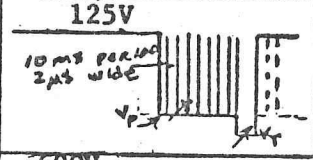
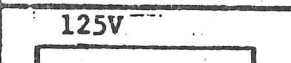
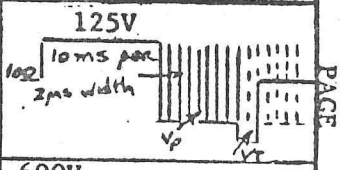
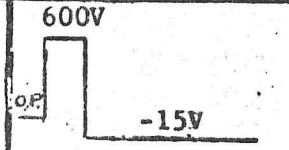
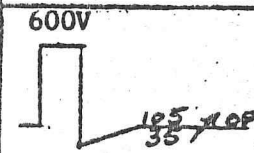
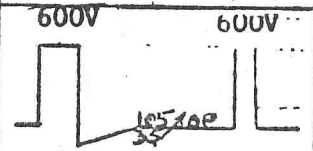
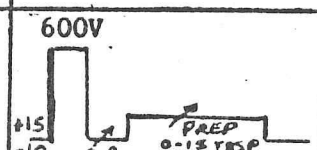
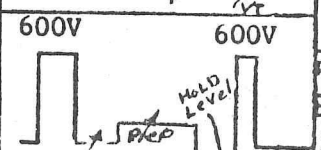
T7411 STORAGE WAVEFORMS

ELEMENT \ MODE	NON-STORE	BISTABLE	BISTABLE TRANSFER	HALFTONE	HALFTONE TRANSFER
FLOOD GUN CATHODE					
FLOOD GUN ANODE					
CE1					
CE2					
CE3					
COLLECTOR MESH					
HI-SPEED MESH					
STORAGE MESH					
TIME (ms)					

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D. CORRECTIVE ACTION

	PARAMETER	PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
	BISTABLE MODE			
	1. Storage	No storage	Open leads or improper connections	Re-solder all leads and check connections.
			Open internal leads.	Reject tube.
			Storage circuitry failure	Check test set; repair if necessary.
	2. Erase	No erase	Same as no storage	Same as no storage
		Poor erase	Waveforms out of calibration	Calibrate; repair if necessary.
	TRANSFER MODE			
	1. Storage	No storage	Same as Bistable Mode	Same as Bistable Mode.
	2. Prep	No prep	No prep pulse; storage circuitry malfunction.	Check test set; repair if necessary.
	3. Waiting	Hangs up in prep	Equipment malfunction	Check test set; repair if necessary.
R			Timebase not triggered.	Rotate trigger knob.
R	4. Transfer	No transfer or 100% transfer	V_t and V_p not correct	Re-adjust and try again.
			Sweep too fast or too slow.	Re-adjust and try again.
			Equipment malfunction	Check test set; repair.
	5. Erase	No erase	Same as Bistable Mode	Same as Bistable Mode
		Poor erase	Same as Bistable Mode	Same as Bistable Mode
R	6. Stability	Target not stable	V_p not correct.	Adjust and try again.
			Equipment malfunction	Check test set; repair if necessary.