FACTORY CALIBRATION PROCEDURE

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INTRODUCTION:

This isn't a field recalibration procedure as is the procedure in your instruction manual. This is a guide in calibrating brand-new instruments, just assembled instruments that have never been turned on before. Therefore it calls out many procedures and adjustments that are rarely required for subsequent recalibration.

Even though we wrote this procedure primarily for our own factory test department, it's valuable to others also if used with some caution:

1. **Special test equipment,** if mentioned, is not available from Tektronix unless it's listed also in our current catalog. This special equipment is used in our test department to speed calibration. Usually you can either duplicate its function with standard equipment in your facility, devise alternate approaches, or build the special test equipment yourself.

2. **Factory circuit specifications** are not guaranteed unless they also appear as catalog or instruction manual specifications. Factory circuit specs usually are tighter than advertised specs. This helps insure the instrument will meet or exceed advertised specs after shipment and during subsequent field recalibrations over several years of use. Your instrument may not meet factory circuit specs but should meet catalog or instruction manual specs.

3. **Presetting internal adjustments,** if mentioned, usually is unnecessary. This is helpful for "first-time" calibration only. If internal adjustments are preset, you'll have to perform a 100% recalibration. So don't preset them unless you're certain a "start-from-scratch" policy is the best.

In this procedure, all front panel controls for the instrument under test are in capital letters (SENSITIVITY) and internal adjustments are capitalized only (Gain Adj).

570

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For all serial numbers

ABBREVIATIONS:

a	amp
ac	alternating current
approx	approximately
b	base
bulb	light, lamp, etc.
c	collector
ccw	counterclockwise or full counterclockwise
cer	ceramic
cm	centimeter
comp	composition (resistor)
cps	cycles per second
crt	cathode ray tube
cw	clockwise or full clockwise
db	decibel
dc	direct current
div	division
e	emitter
emc	electrolytic, metal cased (capacitor)
emt	electrolytic, metal tubular
fil	filament
freq	frequency
gmv	guaranteed minimum value (capacitor)
gnd	chassis ground
h	henry
hv	high voltage
inf	infinity
int	internal
k	kilo (10^3)
k	kilohm
m	milli (10^{-3})
ma	milliamp
max	maximum
mc	megacycle
meg	megohm
mh	millihenry
midr	midrange or centered
min	minimum
mm	millimeter
mpt	metalized, paper tubular (capacitor)
msec	millisecond
mt	mylar, tubular (capacitor)
mv	millivolt
μ	micro (10^{-6})
μf	microfarad
μh	microhenry
μsec	microsecond
n	nano (10^{-9})
nsec	nanosecond
Ω	ohm
p	pico (10^{-12})
pbt	paper, "bathtub" (capacitor)
pcc	paper covered can (capacitor)
pf	picofarad ($\mu\mu$f)
piv	peak inverse voltage
pmc	paper, metal cased (capacitor)
poly	polystyrene
pot	potentiometer
prec	precision (resistor)
pt	paper, tubular (capacitor)
ptm	paper, tubular molded (capacitor)
ptp	peak-to-peak
sec	second
sn	serial number
term	terminal
tub	tubular (capacitor)
unreg	unregulated
v	volt
var	variable
w	watt
WW	wire wound
x-former	transformer

SPEC QUALIFICATION

Factory circuit specifications are qualified by the conditions specified in the main body of the calibration procedure. The numbers listed beside the specs correspond to the factory calibration procedure steps where the check or adjustment is made. Instruments may not meet factory circuit specs if calibration or check-out methods and test equipment differ substantially from those in this procedure.

NOT INTENDED FOR INCOMING INSPECTION

We initially calibrate the instrument to factory circuit specifications. These specs usually are tighter than advertised specs, thus helping to insure the instrument will meet or be within advertised specs after shipment and during subsequent recalibrations. Instruments that have left our factory may not meet factory circuit specs but should meet catalog or instruction manual specs.

1. EQUIPMENT REQUIRED

2. PRELIMINARY INSPECTION

2d. Crt face plate tilt: 1/32", max
2d. Crt face plate concavity: 1/32", max
2d. Crt face plate convexity: 1/32", max

3. 570 PRESETS

4. RESISTANCE CHECKS

4b. -150 27 k resistance error: ±10%, max.
4c. SERIES LOAD resistor error: ±5%, max.

5. POWER SUPPLIES

5b. +100 v at DC + jack: ±.5%, max.
5d. -1700: ±2%, max.
5e., h.
Regulation: 105 to 125 v ac

supply	error, max	ptp ripple, max
-150 v	±2%	5 mv
+100 v	±2%	5 mv
+300 v	±2%	30 mv

5h. HV regulation at max intensity: 105 to 125 v ac.

6. GRID A, GRID B, -150 27 K

7. METER

7b. Meter error: ±2%, max.

8. RANGE DC VOLTS, +DC

8a. +DC operating voltage error:
300, 200, 50, and 20: ±2%, max
100: ±.5%, max
8a. RANGE DC VOLTS error (read on 570 meter): ±2%, max

9. -DC

9a. Range: 0 to -100 v.

10. ALIGN TRACE

11. VERTICAL POSITIONING

11a. Range: off screen at crt bottom to at least 2 cm up from graticule center.

12. PHASE A AND B

13. GEOMETRY

13a. Bowing: 5/8 minor div, max in 6 major div.

14. VERTICAL GAIN

15. VERTICAL MA/DIV

15b. Error: ±3%, max

16. VOLTS/DIV BALANCE

17. VOLTS/STEP ZERO ADJ

18. HORIZONTAL GAIN

19. VOLTS/STEP ADJ

20. VOLTS/DIV, VOLTS/STEP

20d. VOLTS/STEP-VOLTS/DIV comparison. Difference: ±3%, max.

21. START ADJUST

21b. Range: When ccw, the first dot must be to the left of graticule center; when cw, there must be at least 7 dots to the right of graticule center.

22. MINIMUM NO OF CURVES

2 b. STEPS/FAMILY range: 4 to 12 steps

23. SINGLE FAMILY

24. HEATER

24c. Error: ±5%, max.

25. PEAK VOLTS

26. PLATE SWEEP AND TRANS CURRENT BALANCE

27. GRID AND SCREEN TRANSFORMERS

28. 6U8 DISPLAY

29. RETRACE

30. ACCESSORIES

31. THE END

CALIBRATION

NOTES

1. EQUIPMENT REQUIRED

a. Test scope

1	530 series	Tektronix type scope
1	K	Tektronix type type fast-rise dc plug-in unit
1	1X probe	Tektronix probe

b. Test accessories

1	016-006	9 pin adapter plate
5	012-029	Patch cords, banana plug both ends
4	012-024	Patch cords, banana plug and jack combination both ends
1	154-033	6U8

c. Miscellaneous equipment

1	630	Triplett meter; 20,000 Ω/v dc
or	262	Simpson meter; 20,000 Ω/v dc
1	--	Variable line voltage source with meter
1	special	570 MA/DIV switch checker
1	803	John Fluke differential voltmeter

NOTES

2. PRELIMINARY INSPECTION

a. General

Check for unsoldered joints, rosin joints, lead dress and long leads. Check for loose hardware and protruding parts. Check controls for smooth mechanical operation, proper indexing, and knob spacing from front panel.

b. 234 v ac wiring

Assure that the ac lead from T401 term 2 is connected to T340 term 3.

c. Fuses

F402 117 v 50-60 cps operation

159-006	5a	3 ag	slo-blo

F402 234 v 50-60 cps operation

159-005	3a	3 ag	slo-blo

F255

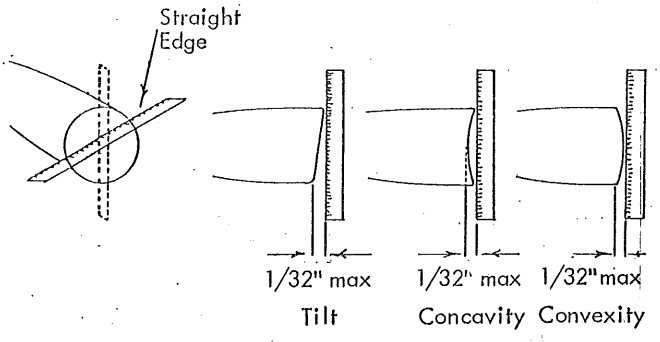
159-024	1/16a	3 ag	fast-blo

F310

159-025	1/2a	3 ag	fast-blo

d. Crt

Check that crt neck pin connections are tight. Loosen crt clamp, remove graticule, push crt forward and check crt face plate tilt relative to front panel; keep black light shield in place. Push crt forward to a straight edge firmly placed against the front panel, across any diameter of the crt. Check gap within phosphor area with special crt face tilt checker: 1/32", max.



Tighten crt clamp.

2a. WARNING

(1) C505 and C506 (in power supply) normally hold a high charge for some time after instrument turn off.

2d. NOTE

(1) These crt specifications are simplified. Do not reject crt without the authorization of a trained crt checker, or without reference to crt data.

e. Graticule lights

Place green filter then graticule on 570. Check that graticule lights are properly positioned.

f. Meter

Examine meter for major cracks around mounting studs.

3. 570 PRESETS

a. External controls

FOCUS	ccw
INTENSITY	ccw
ASTIGMATISM	ccw
SCALE ILLUM	ccw

Voltmeter

RANGE DC VOLTS	140
INDICATION	+DC

Grid-step generator

STEPS/FAMILY	mid r
STEPS/SEC	ccw, 120
START ADJUST	mid r
VOLTS/STEP	1

Crt display

VERTICAL	PLATE
VERTICAL MA/DIV	1
HORIZONTAL	PLATE
HORIZONTAL VOLTS/DIV	1

Plate-sweep generator

PEAK VOLTS	100
SERIES LOAD, RESISTANCE OHMS	10K

Operating voltages

HEATER	6.3
VARIABLE heater	full ccw
+DC	100
VARIABLE +DC	CALIBRATED
-DC	full ccw
MAIN power	off
TEST power	ON
TEST POSITION	OFF

b. Internal adjustments

All internal adjustments mid r

3b. Presetting internal adjustments

(1) Presetting internal adjustments is helpful for "first-time" calibration but is usually unnecessary for recalibration. If you preset, you'll have to perform a 100% recalibration. Don't preset them unless you're certain a "start-from-scratch" policy is the best.

c. Leave controls and adjustments, for any step as they were in the step preceding unless noted otherwise.

3c. Control presets

(1) Any time a trouble is noted on crt or meter, check control settings.

(2) Mis-set controls may give wrong indications of circuit problems.

4. RESISTANCE CHECKS

a. Check supply resistances to ground.

supply	check point	approx resistance
-150 v	cs below T310	9 k
+100 v	cs below T310	15 k
+300 v	V495 pin 1	25 k
+400 v	C484	25 k
-300 v	T401 term 6	100 k
+400 v floating	V505 pin 8	over 100 k
-300 v floating	T501 term 10	over 100 k
117 v ac	T401; term 1,4	inf

b. -150 27 K jack error: ±10%, max

Check the -150 27 K jack on the test panel for 27 k; ±2.7 k, max, resistance between the jack and the -150 v supply.

c. SERIES LOAD resistors error: ±5%, max

Measure resistance between V315 pin 3 and test panel P jack. Check as follows:

SERIES LOAD RESISTANCE OHMS	resistance error: ±5%, max
300	0Ω
1K	750Ω
2K	1750Ω
5K	4750Ω
10K	10k
20K	20k
50K	50k
100K	100k
200K	200k
500K	500k
1M	1m

5. POWER SUPPLY

a. Apply power

Connect 570 to variable line voltage source, set source to 117 v, and turn MAIN power ON. Note both power indicator lights are on.

b. -150 Adj (R413) +100 v at DC+ jack: ±.5%, max

Connect Fluke meter between test panel DC+ jack and gnd. Adjust -150 Adj for +100 v; ±.5%, max.

c. -150 v error: ±2%, max

Check -150 v supply value. If error is greater than ±2% install test mod M5264.

Repeat adjustment of -150 Adj for +100 v at DC+ jack Recheck -150 v value.

d. HV Adj -1700 v: ±2%, max

Adjust HV Adj for -1700 v at T401 term 24 or 25.

e. Check low voltage power supply values

supply	error, max
-150 v	±3 v
+100 v	±2 v
+300 v	±6 v

supply	error, approx
+400 v unreg	±32 v
-3002v unreg	±24 v
+400 v floating unreg	±32 v
-300 v floating unreg	±24 v

f. Elevated filaments

T401 term 12 and 13	approx +300 v
T501 term 18	approx +100 v

g. Phase inverter input

Measure 35 v ac across T401 term 29 and 30.

NOTES

5b. Calibration accuracy

(1) Accurate calibration of this instrument is very dependent upon the accuracy of DC+ jack +100 v.

5c. Mod 5264

(1) Add R537 across R536 300 k. R537 will generally be some value between 10 and 22 m (higher resistance = higher -150 v). R536 is located near V540 in floating power supply.

(2) Use this mod only when needed.

h. Ripple, regulation

Check ripple and regulation between 105 and 125 v ac as follows:

supply	ptp ripple, max
-150 v	5 mv
+100 v	5 mv
+300 v	30 mv

supply	ptp ripple, approx
+400 v unreg	4.5 v
-300 v unreg	4.5 v
-300 v floating unreg	.5 v
+400 v floating unreg	.5 v

-1700 v....Check for no trace blooming at max intensity.

6. GRID A, GRID B, -150 27 K

Check voltages as follows:

check point	TEST POSITION	meter reading
GRID A	OFF	-125 v*
GRID A	GRID B	-125 v*
GRID B	OFF	-125 v*
GRID B	GRID A	-125 v*
-150 27 K	OFF	-150 v

*These readings will vary with the type of meter used. Simpson 262 reads approx -75 v and meters with 250 v range will read approx -110 v.

NOTES

7. METER

a. Meter zero

Set TEST power to off and INDICATION to HTR. Adjust meter zero adjustment for an indicated zero.

Reset INDICATION to +DC.

b. Meter accuracy error: ±2%, max

Connect voltmeter between test panel DC+ jack and gnd. Check 570 meter for proper dc voltage reading (±2%) by comparing against test meter as follows:

(1) Set VARIABLE +DC fully ccw.
(2) Set +DC to 200
(3) Set TEST power to ON.
(4) Adjust VARIABLE +DC for +140 v as read on test meter.
(5) Read 570 meter: 140 v, ±2%, max.
(6) Set +DC to 100 and VARIABLE +DC to CALIBRATED.
(7) Read 570 meter: 100 v, ±2%, max.

NOTES

8. RANGE DC VOLTS, +DC

a. RANGE DC VOLTS, +DC error: ±2%, max

Check RANGE DC VOLTS accuracy as indicated on 570 meter. Check +DC accuracy on test meter at DC+ test jack.

RANGE DC VOLTS	+DC operating voltage	570 meter indication error: ±2%, max
700	300; ±2%, max	300
350	300; ±2%, max	300
350	200; ±2%, max	200
350	100; ±.5%, max	100
140	100; ±.5%, max	100
140	100	

Adjust VARIABLE +dc for 70 v test meter reading.

70	100	70
70	50	

Adjust VARIABLE +dc for 35 v test meter reading.

35	50	35
35	20	

Adjust VARIABLE +dc for 14 v test meter reading.

14	20	14

Adjust VARIABLE +dc for 7 v test meter reading.

7	20	7

Set VARIABLE +dc to CALIBRATED

140	50; ±2%, max
140	20; ±2%, max

9. -DC

a. -DC range 0 to -100 v

Set INDICATION to -DC. Vary -DC thru it's range and note indication from 0 v to at least -100 v on test meter and 570 meter.

8a. 570 meter indicates more than ±2% error

(1) Trouble may be either a bad meter or meter series resistor

8a. 7 v can't be made when VARIABLE +dc full ccw

(1) Pick V525 6AN8.
(2) Change V540 12AT7
(3) Recheck DC+ for exactly +100 v.
(4) Recheck -150 v.

NOTES

10. ALIGN TRACE

a. FOCUS and ASTIGMATISM

Advance INTENSITY and position the trace to crt center. Check FOCUS and ASTIGMATISM for proper operation.

b. Align trace

Obtain a longer horiz trace by setting HORIZONTAL VOLTS/DIV to .2. Adjust crt vernier adjustment to align trace with a horizontal line.

c. SCALE ILLUM

Advance SCALE ILLUM and check for proper operation.

11. VERTICAL POSITIONING

a. Range 2 cm up

Set VERTICAL POSITIONING ccw. Trace must be off screen at crt bottom.

Set VERTICAL POSITIONING cw. Trace must be at least 2 cm up from graticule center.

12. PHASE A AND B

a. Setup

Obtain a vertical bar pattern by setting HORIZONTAL to GRID.

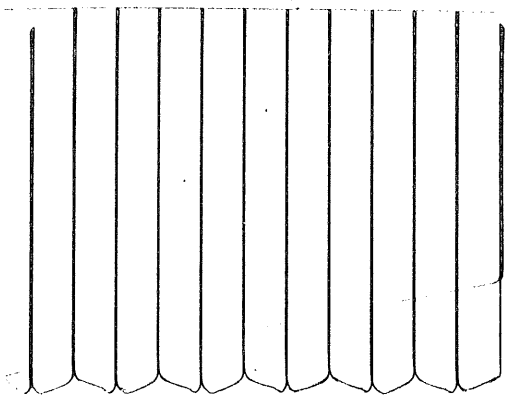
Connect P jack to K jack on test panel.

Adjust STEPS/FAMILY for 6 to 10 steps (bars).

b. Phase A

With STEPS/SEC at 120 (ccw) position, adjust Phase A for best flatness at display bottom.

12b.



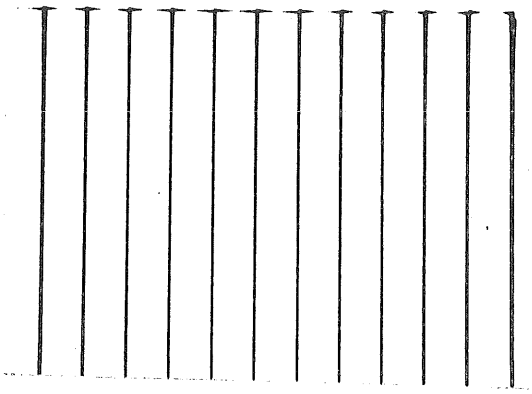
Phase A

c. Phase B

Turn STEPS/SEC to 120 (cw) position. Adjust Phase B for best flatness at display top.

Check 240 position for alternate switching.

12c.



Phase B

13. GEOMETRY

a. Geom Adj 5/8 minor div

Adjust Geom Adj for min curvature of vertical bars: 5/8 minor div bow, max.

Increase PEAK VOLTS for more vertical amplitude, if desired.

13a. NOTE

(1) These crt specifications are simplified. Do not reject crt without the authorization of a trained crt checker, or without reference to crt data.

14. VERTICAL GAIN

a. Setup

VERTICAL	SCREEN
VERTICAL MA/DIV	.1
INDICATION	+DC
HORIZONTAL	GRID
HORIZONTAL VOLTS/DIV	1
range dc volts	140

Adjust VARIABLE +dc for 570 meter indication of exactly 140 v. Take into account meter error previously noted.

b. Vert Gain

Set INDICATION to HTR and position the spot to bottom graticule line.

Set INDICATION to +DC and adjust Vert Gain for deflection of 10 major div.

Move INDICATION back and forth between +DC and HTR until all interaction has been compensated for.

NOTES

15. VERTICAL MA/DIV

a. Setup

Adjust VARIABLE +dc for exactly 100 v on 570 meter.

Set INDICATION to HTR and VERTICAL MA/DIV to 50. Position the spot to the bottom graticule line.

Plug the special 570 MA/DIV switch checker into the DC+ and K jacks on the test panel.

b. VERTICAL MA/DIV error: ±3%, max

Check VERTICAL MA/DIV accuracy as follows:

VERTICAL MA/DIV	switch checker	deflection major div
50	10	2; ±.3 minor div, max
20	10	5; ±.75 minor div, max
10	10	10; ±1.5 minor div, max
5	5	10; ±1.5 minor div, max
2	2	10; ±1.5 minor div, max
1	1	10; ±1.5 minor div, max
.5	.5	10; ±1.5 minor div, max
.2	.2	10; ±1.5 minor div, max
.1	.1	10; ±1.5 minor div, max
.05	.05	10; ±1.5 minor div, max
.02	.02	10; ±1.5 minor div, max

16. VOLTS/DIV BALANCE

a. Setup

VERTICAL	SCREEN
VERTICAL MA/DIV	1
HORIZONTAL	PLATE

Connect P jack to K jack on test panel.

b. Volts/Div Bal

Move HORIZONTAL VOLTS/DIV back and forth between .5 and .1 while adjusting Volts/Div Bal (scope bottom) for no horiz shifting of the spot.

Rotate HORIZONTAL VOLTS/DIV thru its range and note approx 1 minor div, max shift.

16a. Dot drift

(1) If dot drifts after P and K jacks are connected together, check for gassy V210 or V215.

NOTES

17. VOLTS/STEP ZERO ADJ

a. Setup

HORIZONTAL	GRID
HORIZONTAL VOLTS/DIV	1
START ADJUST	ccw

Ground V115 pin 8.

b. Volts/Step Zero Adj

Depress ZERO BIAS button and position the dot to graticule center.

Release ZERO BIAS button and adjust Volts/Step Zero Adj to return the dot to graticule center.

Remove V115 pin 8 ground.

18. HORIZONTAL GAIN

a. Setup

+DC	100
VARIABLE +dc	CALIBRATED
HORIZONTAL	PLATE
HORIZONTAL VOLTS/DIV	10
SERIES LOAD	1 M

b. Hor Gain

By alternately connecting the P jack on the test panel to K and DC+ the dot will switch from the left to the right edge of the graticule. Adjust Hor Gain for exactly 10 div of deflection.

19. VOLTS/STEP ADJ

a. Setup

HORIZONTAL	GRID
HORIZONTAL VOLTS/DIV	.1
VOLTS/STEP	.1

b. Volts/Step Adj

Adjust Volts/Step Adj for one dot per major graticule division.

20. VOLTS/DIV, VOLTS/STEP

a. Setup

VOLTS/STEP	10
HORIZONTAL VOLTS/DIV	10

b. R227

Adjust R227 (HORIZONTAL VOLTS/DIV switch) for one dot per major graticule division.

c. Interaction

Hor Gain, Volts/Step Adj, and R227 adjustments interact; repeat as necessary.

d. VOLTS/STEP-VOLTS/DIV comparison
diff: ±3%, max

Check all positions of VOLTS/STEP against HORIZONTAL VOLTS/DIV as follows:

VOLTS/STEP	HORIZONTAL VOLTS/DIV	dots/div ±3%, max
.1	.1	1
.2	.2	1
.5	.5	1
1	1	1
2	2	1
5	5	1
10	10	1
10	20	2
10	50	5

21. START ADJUST

a. Setup

HORIZONTAL	GRID
HORIZONTAL VOLTS/DIV	1
START ADJUST	ccw
VOLTS/STEP	1

b. START ADJUST range: 7 dots

With START ADJUST full ccw, the first dot must be to the left of graticule center.

With START ADJUST full cw, there must be at least 6 steps (7 dots) to the right of graticule center.

Adjust the START ADJUST knob so it's index points to "0" on the front panel when the first dot is at graticule center.

22. MINIMUM NUMBER OF CURVES

a. Setup

HORIZONTAL	GRID
HORIZONTAL VOLTS/DIV	10
VERTICAL	PLATE
VERTICAL MA/DIV	1

b. Min No. Curves range: 4 to 12 steps

Turn STEPS/FAMILY full ccw. Adjust Min No. Curves for four steps (5 dots).

Turn STEPS/FAMILY full cw. Note at least 12 steps (13 dots) on crt before the generator drops out.

23. SINGLE FAMILY

a. Single display

Set STEPS/FAMILY full cw. Depress SINGLE FAMILY button and note a single display of at least 13 dots.

NOTES

24. HEATER

a. Setup

HORIZONTAL	PLATE
HORIZONTAL VOLTS/DIV	1
INDICATION	HTR
HEATER	6.3

b. R350

Connect P jack to K jack on test panel. Position the spot to the left hand graticule line.

Connect the P jack to a HTR jack and observe a horizontal deflection.

Adjust VARIABLE heater for exactly 8.9 major div deflection.

Adjust R350 (INDICATION switch) for a reading of 100% on the meter.

c. HEATER error: ±5%, max

Check HEATER ranges (keep VARIABLE heater at 100%, ±5%) as follows:

HEATER	HORIZONTAL VOLTS/DIV	deflection; approx max error
1.25	.2	8.8; ±2.2 minor div
1.4	.2	9.9; ±2.5 minor div
2.0	.5	5.6; ±1.4 minor div
2.35	.5	6.6; ±1.7 minor div
2.5	.5	7.0; ±1.8 minor div
3.15	.5	8.9; ±2.2 minor div
4.2	1	5.9; ±3.0 minor div
4.7	1	6.6; ±1.7 minor div
5.0	1	7.0; ±1.8 minor div
6.3	1	8.9; ±2.2 minor div
7.5	2	5.3; ±1.3 minor div
12.6	2	8.9; ±2.2 minor div
18.9	5	5.3; ±1.3 minor div
25	5	7.0; ±1.9 minor div
35	5	9.9; ±2.5 minor div
50	10	7.0; ±1.9 minor div
117	20	8.3; ±2.0 minor div

Return HEATER to 6.3 and set VARIABLE heater to 100%. Remove jumper between P and HTR jacks.

25. PEAK VOLTS

HORIZONTAL	PLATE
HORIZONTAL VOLTS/DIV	.5
SERIES LOAD	300
PEAK VOLTS	5

b. PEAK VOLTS

Check PEAK VOLTS as follows:

PEAK VOLTS	VOLTS/DIV	deflection major div approx
5	.5	10
10	1	10
20	2	10
50	5	10
100	10	10
200	20	10
300	50	6
500	50	10

25b. C315 location

(1) Underneath scope at right front.

25b. Temporary connections

(1) Use insulated alligator clips to make temporary connections. Adjust caps and make final location selections.

Plate Sweep, Plate Trans

Grid C502

26. PLATE SWEEP AND TRANS CURRENT BALANCE

a. Setup

STEPS/FAMILY	full cw
HORIZONTAL VOLTS/DIV	50
VERTICAL	PLATE
VERTICAL MA/DIV	.02
PEAK VOLTS	500
SERIES LOAD	1 M

26a.

Screen C509

b. C315, C316, Plate Sweep C311, Plate Trans C315

Try all the following combinations and adjustments to find minimum trace width:

Connect ungrounded side of C315 of either terminal 5 or 7 of T310. Ceramic capacitor C316 may be connected from gnd to either terminal 5 or 7 of T310 or removed.

Adjust Plate Sweep C311 and Plate Trans C315 for minimum trace width.

NOTES

27. GRID AND SCREEN TRANSFORMERS

a. Grid C502, Screen C509

Set VERTICAL to GRID for C502 and SCREEN for C509.

Connect C502 to either terminal 14 or 16 of T501.

Connect C509 to either terminal 7 or 9 of T501.

Locate transformer terminals at which C502 and C509, when adjusted, give minimum trace width in SCREEN and GRID positions of VERTICAL switch. These adjustments interact, repeat as necessary.

28. 6U8 DISPLAY

a. Presets

TEST power	off
PEAK VOLTS	200
SERIES LOAD	10 K
+DC	100
VERTICAL	PLATE
VERTICAL MA/DIV	1
HORIZONTAL	PLATE
HORIZONTAL VOLTS/DIV	20
VOLTS/STEP	.5
STEPS/SEC	240
INDICATION	HTR
HEATER	6.3
VARIABLE heater	100%

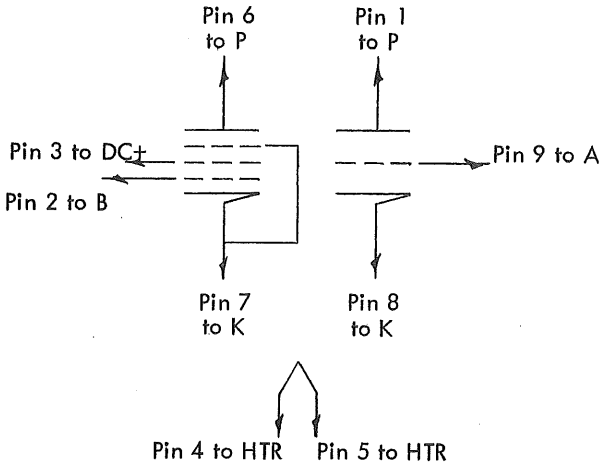
NOTES

b. Connections

Place a 9 pin test plate in the test panel. Insure that the plate seats properly without shorting to any solder lug under the test plate.

Insert a 6U8 into the test socket.

Make the following connections between the test plate pin jacks and the test panel.

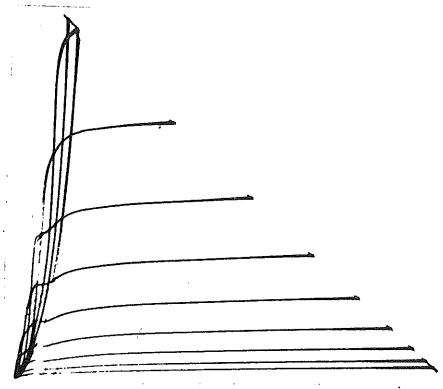


c. Display of curves

28c.

Set TEST power to ON. When tube is sufficiently warmed, set TEST POSITION to GRID A and GRID B and note the display of curves.

Set TEST power to off, move plate to other side of test panel, reset TEST power to ON, and recheck for displays.



6U8 in GRID B
HORIZONTAL VOLTS/DIV at 20

29. RETRACE

a. C205

With a display of GRID A curves from previous step, set HORIZONTAL VOLTS/DIV to 20 and 50 while adjusting C205 for best min retrace in both positions.

Recheck operation of SINGLE FAMILY button with STEPS/FAMILY full cw.

30. ACCESSORIES

Check accessories package for:

2	016-004	7 pin adapter plates
2	016-005	8 pin adapter plates
2	016-006	9 pin adapter plates
2	016-007	Blank adapter plates
5	012-023	Black patch cords, banana plug and jack combination both ends.
5	012-024	Red patch cords, banana plug and jack combination both ends.
2	012-025	100Ω suppressor cord, banana plug both ends.
2	012-026	300Ω suppressor cord, banana plug both ends.
2	012-027	1k suppressor cord, banana plug both ends.
5	012-028	Black patch cords, banana plug both ends.
5	012-029	Red patch cords, banana plug both ends.
5	159-024	Fuse, 1/16 a 3 ag fast-blo
5	159-025	Fuse, 1/2 a 3 ag fast-blo

31. THE END