OPERATING AND SERVICE MANUAL

MODIFICATIONS
MODEL 1725A/OPTION H01
OSCILLOSCOPE

The Hewlett-Packard Model 1725A/H01 is a standard Model 1725A/091 modified as follows:

a. Standard Option 001 (fixed power cord) is incorporated.

b. The following additional accessories are supplied:

One Model 10018A Probes (Total of three)

One Model 10100C 50-ohm feedthrough terminations.

One Model 10140A Viewing Hood.

One Model 1007A/C01 instrument cart.

Four 10036-63207 probe tip adapters.

Four 10034-42102 probe adapters.

Four 0340-0683 probe tip adapters.

Four 5060-0449 adapters.

One 5955-2798 operating note .

c. The instrument provides a 300 MHz bandwidth (at time of sale only).

d. Standard Option 101 modified for curve tracer operation is incorporated. The State Display Board Assembly A26 is changed to HP Part No. 01710-93044 for this modification.

e. The front panel TIME INTERVAL STOP control is replaced with a dual OFFSET control providing coarse and fine adjustment of the delay time interval. The Analog Assembly board, A18, is changed to 01710-93051 for this modification.

f. The calibrator circuit is changed to provide a 1 MHz (0.005%) output. The Gate Assembly, A14 is changed to HP Part No. 01720-93013 for this modification.

g. The labeling for front panel Horizontal POSITION control has been changed to include the words X POSITION.

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Make the following changes to the 1725A Operating and Service Manual.

Section V. Add the following Performance Checks and Adjustments:

HORIZONTAL CIRCUITRY PERFORMANCE CHECKS.

Test horizontal circuitry according to procedures in the 1725A manual, except:

a. Delete tests of TIME INTERVAL STOP accuracy under Differential Time Interval Accuracy Performance Check.

b. Verify that TIME INTERVAL FINE and COARSE controls operate smoothly and move bright dot over full 10 divisions of CRT.

VERTICAL CIRCUITRY PERFORMANCE CHECKS.

Test vertical circuitry according to procedures described in the 1725A manual, except:

a. Test and adjust bandwidth to 300 MHz, if possible. This instrument was adjusted for a 300-MHz bandwidth at the factory. The 300-MHz bandwidth may not be achievable during the entire life of the instrument.

TRANSMISSION DELAY PERFORMANCE CHECK.

Add the following performance check:

a. Connect pulse generator output through short Tee connection to channels A and B. Use equal lengths of cable from Tee to each channel.

b. Set pulse generator to supply 5-volt, 50-kHz pulse with less than 5-ns rise time.

c. Set 1725A/H01 front panel controls as follows:

Coupling (both channels)	50 OHMS
VOLTS/DIV (both channels)	1 V/div
Vertical Display	ALT
MAG X10.	X10
TIME/DIV	10 nSEC

d. Measure time difference between pulses shown on channels A and B. Swap input connections between channels A and B and remeasure time difference between channels. Disregard any delay introduced by test cabling.

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e. Leading edges of pulses in channels A and B should be ≤ 1/2 minor division (≤ 100 ps) apart. Adjust pulse shape if necessary to reduce time difference between channels. Refer to Vertical Amplifier Pulse Response Adjustment in Section V of 1725A manual.

ANALOG ASSEMBLY ADJUSTMENTS.

Adjust Analog Assembly, A18 according to procedure described in 1725A manual, except delete adjustment of A18R6.

HORIZONTAL AMPLIFIER XI ADJUSTMENT.

Use voltmeter in place of 10 turn counter dial.

CURVE TRACER ADJUSTMENT.

CAUTION

The customer's curve tracer is to be used with 115 volt AC line ONLY.

Add the following adjustment procedure:

a. Attach curve tracer supplied by the customer and pull the PULL FOR CURVE TRACER knob. (Connect Curve Tracer to inputs marked "1607A Horizontal" and "1607A Vertical" on 1725A rear panel.)

b. Align trace vertically to center graticule using A26 R100. (Y POSN)

c. Short curve tracer inputs.

d. Align trace horizontally to center graticule on X axis using A26 R104. (X POSN)

e. Connect 1.5-volt dc source in CURVE TRACER circuit. (Attach - end to + terminal and + end to - terminal.)

f. Align trace 1.5 divisions to the left of center graticule on X axis using A26 R103 (X GAIN).

g. Insert 100-ohm resistor into CURVE TRACER input.

h. Adjust A26 R101 for 45-degree angle from upper left to lower right. (Y GAIN)

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i. Verify that adjustments obtain following conditions:

Shorted input gives centered trace.

1.5 volts across inputs gives trace 1.5 divisions to left.

100 ohms across inputs gives 45-degree diagonal trace.

100 ohms and 1.5 volts gives 45-degree diagonal trace displayed 1.5 divisions to left.

If an Amdahl curve tracer is not available or in location where 220-230 volt AC line is used: use this procedure in place of steps a-i.

j. Short inputs on 1725A rear panel marked 1607A horizontal and 1607A vertical inputs.

k. Align dot vertically to center graticule using A26 R100 (Y POSN).

l. Align dot horizontally to center graticule using A26 R104 (X POSN).

m. Remove short and connect -1.5 volt dc source to input marked 1607A horizontal input.

n. Adjust dot 1.5 divisions to the left of center graticule using A26 R103 (X-Gain).

o. Reconnect short to input marked 1607A horizontal.

p. Remove short and connect -1.5 volt dc source to input marked 1607A vertical input.

q. Adjust dot 1.4 divisions below the center graticule using A26 R101 (Y-Gain).

This completes the curve tracer adjustments.

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SECTION VI. Change Table 6-2 in 1725A manual according to table 1 of this modification sheet.

SECTION VIII. Make the following changes:

Schematic 7,
Add A8L101 (BEAD) in base of A8Q11.

Schematic 11,
Change schematic 11 (P/O A18) as shown in figure 1 of this modification sheet.

Figure 8-19, Sheet 1 of 2,
Replace component locator for A14 with figure 2 of the modification sheet.

Schematic 16,
Change calibrator circuitry of schematic 16 (P/O A14) as shown in figure 3 of this modification sheet.

Schematic 21,
Change schematic 21 (A26) as shown in figure 4 of this modification sheet.

Figure 8-23, Sheet 2 of 2,
Replace component locator for A26 with figure 5 of this modification sheet.

Encl: 1725A Manual

Original: DH/12-77

REV: DH/1-78

REV: AS/11/78

REV: RK/4-80

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Table 1. Replaceable Parts

Action	Ref. Desig.	HP Part No.	TQ	Description
CHANGE	A8	01722-93012	1	Horizontal Sweep Assembly (Modified)
CHANGE	A14	01720-93013	1	Gate Assembly (Modified)
CHANGE	A18	01710-93051	1	Analog Assembly (Modified)
CHANGE	A26	01710-93044	1	Board Assembly: State Display (Modified)
ADD	E101	0360-0012	1	Terminal Strip (Rear of front panel)
DELETE	MP7	1140-0036	1	Dial
CHANGE	MP23	01725-93001	1	Front Panel
CHANGE	MP24	0370-1005	1	Knob: Intensity
ADD	MP101	0370-1092	1	Knob: Coarse
ADD	MP102	0370-0963	1	Knob: Fine
ADD	R23	01720-93005	1	R: Dual Conc 10T 10K (Bourns 3540S-468-103/103)
ADD	R101	0757-0465	1	R: Fxd 100K 1% .125W F Tubular
ADD	R102	0757-0443	1	R: Fxd 11K 1% .125W F Tubular
ADD	R103	0757-0449	1	R: Fxd 20K 1% .125W F Tubular
	A8	01722-93012		Horizontal Sweep Assembly (Modified)
ADD	A8L101	9170-0029	1	Core, Mag, Shielding Bead
	A14	01720-93013	1	Gate Assembly
DELETE	A14C14 through A14C18			
DELETE	A14C31			
DELETE	A14CR7, 8, 9, 16, 17			

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Table 1. Replaceable Parts

Action	Ref. Desig.	HP Part No.	TQ	Description
DELETE	A14R37 through A14R52			
DELETE	A14R80			
DELETE	A14U1			
DELETE	A14UR1			
DELETE	A14UR4			
ADD	A14R201	0683-0475	1	Resistor 4.7Ω 5% .25W
ADD	A14R202	0747-0454	1	Resistor 90.9Ω 1% .125W
ADD	A14U201	01725-93008	1	Oscillator, 1 MHz Manufacturer is Connon-Winfield Corp. West Chicago, Ill. part no. D14C.
DELETE	A18 R26	2100-3103	1	RV CMT 10K 17T
DELETE	A18 R27	0698-3449	1	R: Fxd 28.7K 1% .25W F Tubular
	A26	01710-93044	1	Board Assembly: State Display (Modified)
DELETE	A26C4	0160-3451	1	
DELETE	A26CR6	1901-0047	3	
DELETE	A26CR7	1901-0047		
DELETE	A26CR8	1901-0047		
DELETE	A26Q10	1854-0215	1	
CHANGE	A26R3	0757-0438		R: Fxd 5.11K 1% .125W F TC=0+-100
CHANGE	A26R4	0757-0274	1	R: Fxd 1.21K 2% .125W F Tubular
CHANGE	A26R5	0698-4424	1	R: Fxd 1.4K 1% .125W F Tubular
CHANGE	A26R6	0757-0409	2	R: Fxd 274 ohm 1% .125W F Tubular

Table 1. Replaceable Parts

Action	Ref. Desig.	HP Part No.	TQ	Description
CHANGE	A26R7	0757-0076	1	R: Fxd 560 ohm 2% .25W F Tubular
CHANGE	A26R8	0757-0409		R: Fxd 274 ohm 1% .125W F Tubular
CHANGE	A26R11	0757-0200	1	R: Fxd 5.62K 1% .125W F Tubular
CHANGE	A26R13	0757-0407	1	R: Fxd 200 ohm 1% .125W F Tubular
DELETE	A26R20	0684-1001	1	
DELETE	A26R21	0684-1021	1	
ADD	A26R100	2100-3350	1	R: Var Trmr 200 ohm 10% C Side Adj
ADD	A26R101	2100-3207	1	R: Var Trmr 5K 10% C Side Adj
ADD	A26R102	0757-0416	1	R: Fxd 511 ohm 1% .125W F Tubular
ADD	A26R103	2100-3273	1	R: Var Trmr 2K 10% C Side Adj
DELETE	A26S1	3101-0973	1	
ADD		01725-93005	1	CASE-ACCESSORY

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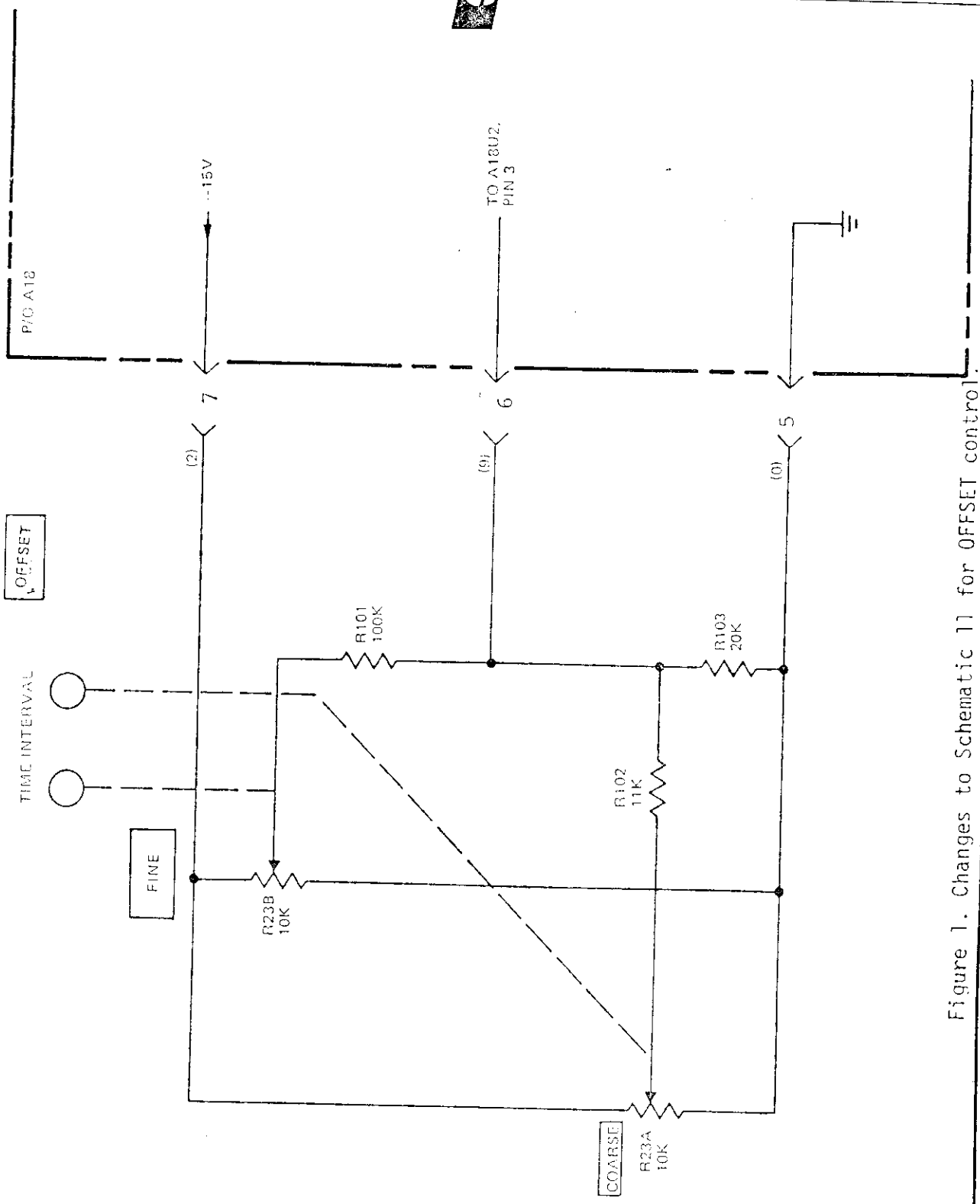
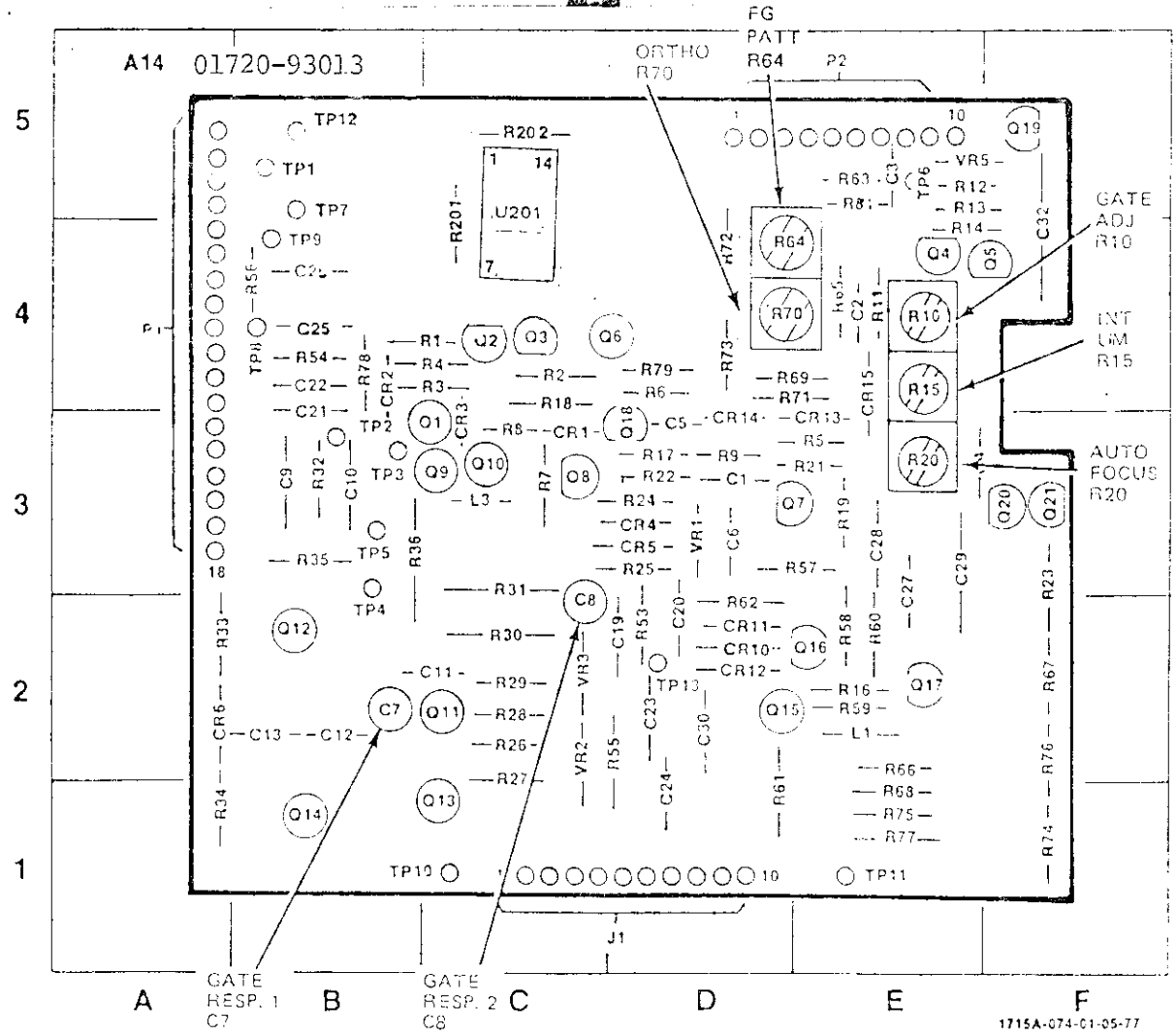


Figure 1. Changes to Schematic 11 for OFFSET control.



REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC
C1	D-3	C32	F-4	Q5	F-4	R11	E-4	R36	B-3	R77	E-1
C2	E-4	CR1	C-3	Q6	D-4	R12	E-5	R53	D-2	R78	B-4
C3	E-5	CR2	B-4	Q7	D-3	R13	E-5	R54	B-4	R79	D-4
C4	E-3	CR3	C-3	Q8	C-3	R14	E-4	R55	D-2	R81	E-5
C5	D-3	CR4	D-3	Q9	C-3	R15	E-4	R56	B-4	R201	B-5
C6	D-3	CR5	D-3	Q10	C-3	R16	E-2	R57	E-3	R202	C-5
C7	B-2	CR6	A-2	Q11	C-2	R17	D-3	R58	E-2	TP1	B-5
C8	C-2	CR10	D-2	Q12	B-2	R18	C-4	R59	E-2	TP2	B-2
C9	B-3	CR11	D-2	Q13	C-1	R19	E-3	R60	E-2	TP3	B-3
C10	B-3	CR12	D-2	Q14	B-1	R20	E-3	R61	D-1	TP4	B-3
C11	C-2	CR13	E-3	Q15	D-2	R21	E-3	R62	D-2	TP5	B-3
C12	B-2	CR14	D-3	Q18	D-3	R22	D-3	R63	E-5	TP6	E-5
C13	B-2	CR15	E-4	Q19	F-5	R23	F-3	R64	D-4	TP7	B-5
C19	D-2	CR16	B-4	Q20	F-3	R24	D-3	R65	E-4	TP8	B-4
C20	D-2	CR17	B-4	Q21	F-3	R25	D-3	R66	E-2	TP9	B-4
C21	A-3	J1	D-1	R1	C-4	R26	C-2	R67	F-1	TP10	C-1
C22	B-4	L1	E-2	R2	C-2	R27	C-2	R68	E-1	TP11	E-1
C23	D-2	L2	D-4	R3	C-4	R28	C-2	R69	D-4	TP12	B-5
C24	D-1	L3	C-3	R4	C-4	R29	C-2	R70	D-4	TP13	D-2
C25	B-4	P1	A-4	R5	E-3	R30	C-2	R71	D-4	U201	C-4
C26	B-4	P2	E-5	R6	D-4	R31	C-2	R72	D-4	VR1	D-3
C27	E-3	Q1	C-3	R7	C-3	R32	B-3	R73	D-4	VR2	C-2
C28	E-3	Q2	C-4	R8	C-3	R33	A-2	R74	F-1	VR3	C-2
C29	E-3	Q3	D-4	R9	D-3	R34	A-1	R75	E-1	VR5	E-5
C30	D-2	Q4	E-4	R10	E-4	R35	B-3	R76	F-1		

Figure 2. Replacement Component Locator for Figure 8-19, Sheet 1 of 2.

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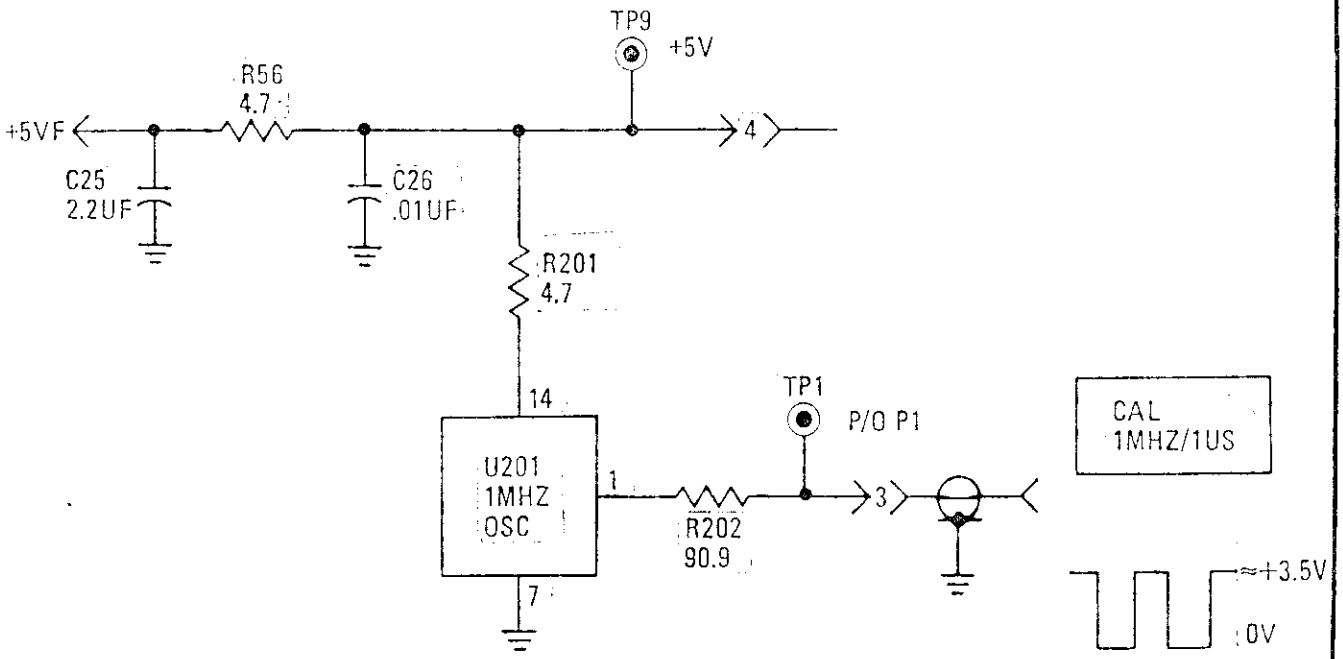

Figure 3. Calibrator Circuit changes to Schematic 16.

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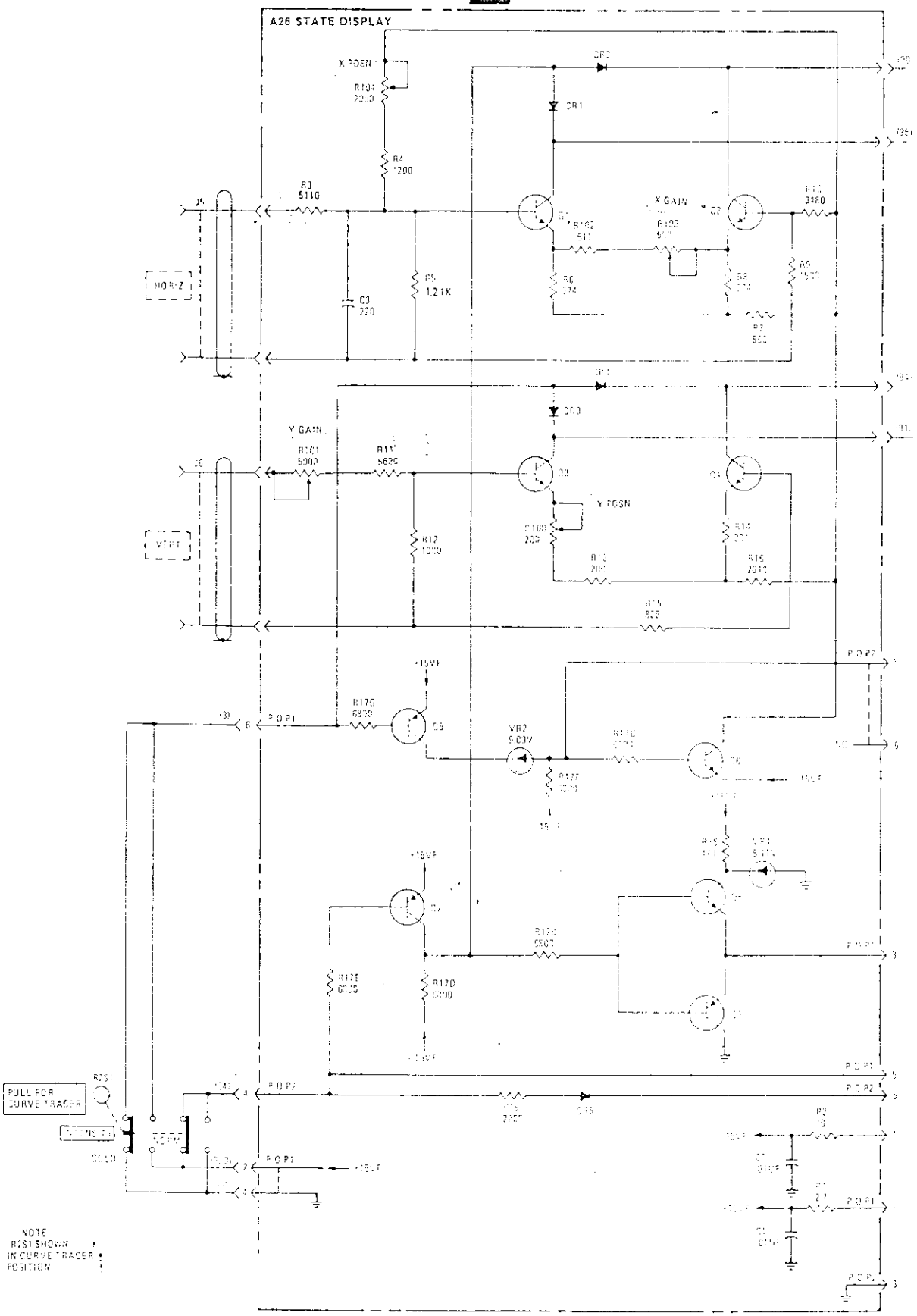

Figure 4. Curve Tracer Modifications to Schematic 21.

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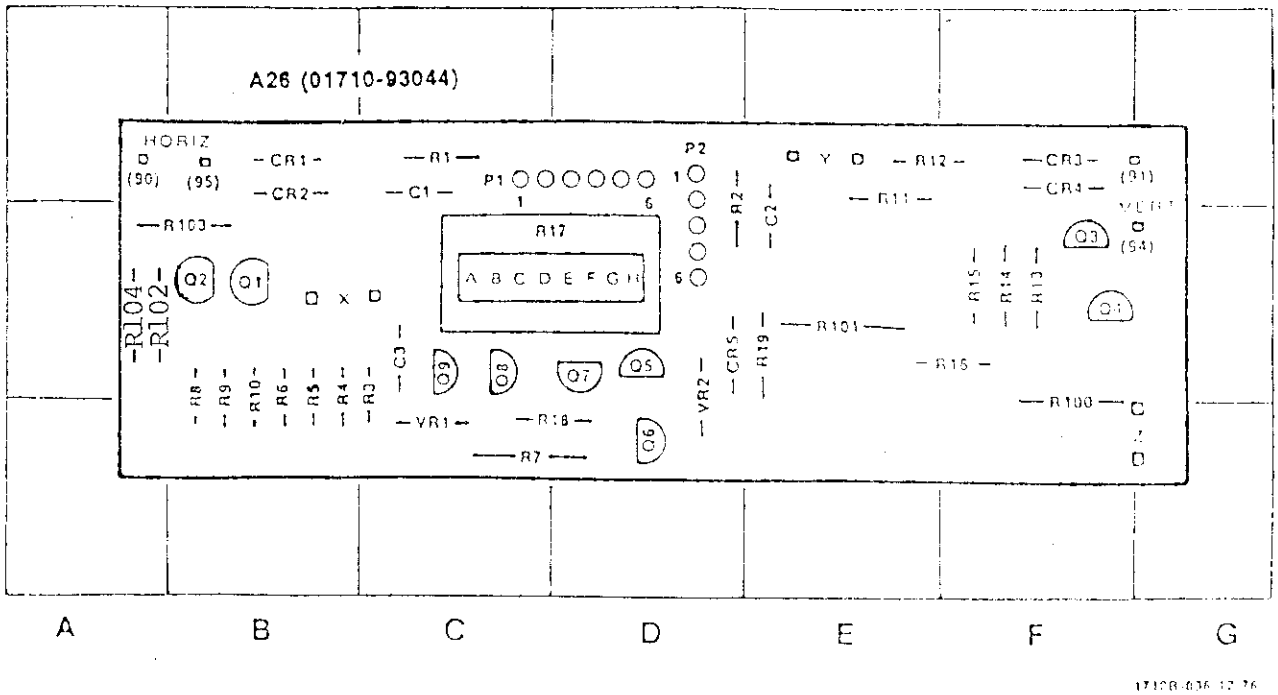

REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC	REF DESIG	GRID LOC
C1	C-3	P1	C-3	Q7	D-2	R6	B-2	R14	F-2	R102	A-2
C2	E-2	P2	D-3	Q8	C-2	R7	C-1	R15	E-2	R101	B-2
C3	C-2	Q1	B-2	Q9	C-2	R8	B-2	R16	E-2	R104	A-1
CR1	B-3	Q2	B-2	R1	C-3	R9	B-2	R17	D-2	VR1	C-1
CR2	B-3	Q3	E-2	R2	D-2	R10	B-2	R18	D-1	VR2	D-2
CR3	F-3	Q4	F-2	R3	C-2	R11	E-3	R19	E-2		
CR4	F-3	Q5	D-2	R4	B-2	R12	F-3	R100	F-2		
CR5	D-2	Q6	D-1	R5	B-2	R13	F-2	R101	E-2		

Figure 5. Replacement Component Locator for Figure 8-23, Sheet 2 of 2.

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