PROBES MUST BE TERMINATED IN 50Ω

453 MAY OSCILLATE ON EXTENDERS — MUST ADJUST INSIDE 661

453

4S3 CALIBRATION OUTLINE

1.	DC OFFSET	Set to 0v ±100mv -100v 2 5% to +104.5 ± 10% range
2.	SMOOTHING BALANCE (R1125, R2125) 50Ω term (5 nsec cable)	No trace shift when rotating SMOOTHING (1 cm or less) at 200 mv/cm Noise should be less than 1 cm
3.	INVERTER ZERO (R1161, R2161) 50Ω term (5 nsec cable)	4mm trace shift (200 MV/CM) Check trace positioning range
	MAY NOT MAKE IT IF BRIDGE BAL IS OFF	
4.	BRIDGE BALANCE (R1056, R2056) Lo Noise Mode - 50Ω term (5nsec cable)	No trace shift when rotating MV/CM (5cm or less) } REPEAT STEP 3
5.	RISE TIME BALANCE (R1050, R2050) Fast Rise Mode - 50Ω term (5nsec cable)	
** 6.	MEMORY GATE WIDTH (R2073) READJ - SMOOTHING (FRONT PANEL) AS NECESSARY,	Set for optimum sampling efficiency (Check + and - signal inputs on 20 mv/cm) (Variable from 200-1200 nsec)
** 7.	AC AMP GAIN (C1107, C2107)	Set for optimum Bridge Volts (Usually about mid range)
* 8. **	BRIDGE VOLTS (R1045, R2045) ±1.5V HOB in Lo Noise (+P1042 -P1043) 4V Total HOB in Fast Rise	Set for proper rise time. Start with maximum bridge volts; set risetime with snap-off current, then reduce bridge volts as necessary to meet other specs (scaling drift, transient response, noise, etc.)
* **	SNAP-OFF Current (R1067)	
	Repeat steps 4 and 5	
9.	RISETIME	FAST RISE 0.35 ns LO NOISE 0.5 ns Use Proper DTR
10.	DELAY TIME DIFFERENCE SHOULD CHECK EACH TIME A PROBE IS CHANGED OR REPAIRED	50ps including Probes
11.	OVERSHOOT AND UNDERSHOOT	5% max in Fast Rise (first 300 psec using 4S2 pulser)
12.	CROSSTALK	1% max using TD pulser
13.	SCALING DRIFT	Less than 10mv from 50cps to 100KC (10mv/cm sens)
14.	MEMORY SLASH	100 MV at 10cps
15.	SMOOTHING RANGE	Provide correct DTR from 50Ω FAST RISE to 300Ω LO NOISE

16. BLOWBY	Less than 1% -- use 50KC to 100KC square wave from 105
17. MICROPHONICS 50Ω term	Less than 2cm 1 mv/cm sens
18. NOISE (50Ω term)	FAST RISE: 1mv LO NOISE: .5mv ADDED: 0.8mv Probe Movement: 4mv DTR Correct
19. DUAL TRACE POSITIONING	Traces at center ±1cm with vert pos centered and DC offset at zero
20. GAIN (R2182, R1172) (Indicated gain on CRT)	NORMAL: ±1.5% INVERTED: ±2.5%
21. VARIABLE MV/CM	3:1 GAIN in all MV/CM positions
22. ATTENUATOR ACCURACY	200 MV/CM: Adjusted 100-10 MV/CM: ± 1% 5-2 MV/CM: ± 3%
23. COMPRESSION and EXPANSION	Less than 1% with 8cm signals throughout VERT POS limits. Check at 200 MV/CM and 5 MV/CM
24. ADDED ALGEBRAICALLY	4 cm indicates 8 cm ± 1 mm in 200 MV/CM position
25. 2 MV GAIN CHANGE	3% maximum deviation through range of DC offset control
26. REJECTION RATIO	40:1 with 0.5v signal at 50 MV/CM. (POSITION controls centered)
27. LISSAJOUS OPERATION (A Vert-B Horiz)	±1.5% maximum (Use 10mc through T and 2.5 to 3 cm sig)
28. DELAYED PULSE OUT	Check risetime of pulse

* INTERACTION
** EFFECTS DOT TRANSIENT RESPONSE