105/107

CALIBRATION PROCEDURE

SQUARE WAVE GENERATOR

(067-509)

1. EQUIPMENT REQUIRED:

   1 Test Scope - 540 Series - with Type 1A1 plug-in.

   1 Sampling system - 661 with 4S1/5T1A or 561 with 3S76/3T77

   1 X10 Probe P6008

   1 50Ω Termination, 011-049

   1 10 nsec Cable, 017-501

   1 GR, BNC, Male Adapter

   1 GR, X10, 50Ω "T" Attenuator

   1 630 Triplett Meter, 20,000Ω/v dc or 262 Simpson Meter, 20,000Ω/v dc

   1 Variable Line Voltage Source with Meter

2. PRELIMINARY INSPECTION:

   a. General

      Check for unsoldered joints, rosin joints, lead dress, and long ends. Check controls for smooth mechanical operation and proper indexing.

3. PRESETS:

   a. External controls

Frequency Multiplier	Midrange
Standard Output Amplitude	cw but not fast rise
Range	10 kc
Symmetry	Midrange
Power On	Off

   b. Internal adjustments — Midrange

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

4. RESISTANCE CHECKS:

Supply	Check Point	Approx Resistance
A	+ end of C302 and ground	130 k-
A + 150	Emitter of Q6 and ground	130 k
A + 150	Emitter of Q6 and + end of C302	50 k
A - 150	Negative end of C400 & gnd	120 k
A - 150	Negative end of C400 & end of C302	3-5 k
-12.6	Cathode end of D604 & gnd	2.5 k

5. POWER SUPPLIES:

a. Turn on.

1) "A" Supply

Adjust R315 for ~~120~~ 150 volts out while observing square wave out with a scope. (R314 Amplitude control set for maximum.)
Ripple: ~~.5~~ .2 volts at maximum output.

2) A + 150

Check for +150 volts. Common lead to the "A" supply positive lead to emitter of Q6. +150 shbuld read +150 ± 5%.
Ripple: ~~.5~~ .2 volts at maximum output.

3) A - 150

Check for -150 volts common lead to the "A" supply positive lead to the negative end of C400. -150 should read -150 ±5%.
Ripple: ~~.7~~ .2 volts at maximum output.

4) -12.6

Check for -12.6. Common lead to chassis ground. Positive lead to the cathode of D604. -12.6 should read -12.6 ±5%.
Ripple: Approximately .01 volts.

b. All supplies checked for regulation from 105 to 125 line voltage.

6. MULTI SCREEN ADJUSTMENTS:

a. Screen adjust R102.

b. Set frequency to cw end.

c. Connect probe to standard output.

d. Set frequency multiplier to 1 kc.

e. Set sweep speed to 10 μsec.

f. Adjust screen adjust for 1 cycle/10 div.

7. OUTPUT FREQUENCY:

a. Set Frequency to ccw end.

b. Connect probe to standard output.

c. Set Freq Multiplier at 10 kc.

d. Set sweep speed for 10 µsec.

e. Adjust Freq Cal R108 for 1 cycle/10 divisions.

f. Check other frequency ranges and Freq Variable. ±20% on frequency.

g. Remove probe.

8. TEST CONDITIONS:

a. Output terminated in 50Ω. 105 10 nsec/CM

b. Output to be observed by a sampling system. X10 All B1X

9. MEASUREMENTS: USE X10 ATTEN INTO 3S76

a. Amplitude Range approximately .2 to 12 volts

b. Risetime

at .2 volts 5 nsec or less; preshoot approximately 50 mVolts
at 12 volts 10 nsec or less; preshoot approximately 100 mVolts

c. Falltime Adj L120

at .2 volts approximately 10 nsec; negative overshoot approximately 40 mVolts
at 12 volts approximately 20 nsec; negative overshoot approximately 200 mVolts

10. Trigger output is observed by connecting a probe to the BNC jack. Should be +2 volts and -3 volts differentiated.

11. FASTRISE OUTPUT: Remove X10 ATEN

a. Output terminated in 50Ω and being observed by a sampling system.

b. Amplitude range: 70 mVolts to 500 mVolts.

c. Risetime: 1 nsec or less at any amplitude setting.

d. Adjust the Variable Capacitors for minimum amplitude of ringing (approx 1 kmc) and risetime at 500 mVolts of 1 nSec or less. Peak to peak ringing should not exceed ±2%.