



# product modification

M23275-1

Type DC503

## CHANNEL A TRIGGERING IMPROVED

Effective Prod SN B153200, B163410

To improve Channel A triggering at 100MHZ and 300mV and to prevent over counting in the TOTALIZE A mode, several changes were made to the Trigger and Main Circuit Boards. Portions of this Mod supersede M20085 and M22577-1.

### PARTS REMOVED:

C10	281-0549-00	Capacitor, Cer 68pF 500V
	*337-1399-00	Shield, Electrical, Side
	*337-1399-02	Shield, Electrical, Side
	670-2253-02	Main Circuit Board for DC503 and DC503 Option 4 (950H)
	670-2254-02	Trigger Circuit Board
	670-3411-02	Main Circuit Board for DC503 Option 1 (950A)

### PARTS ADDED:

	337-1399-04	Shield, Electrical, Side, Ventilated
	670-2253-03	Main Circuit Board
	670-2254-03	Trigger Circuit Board
	670-3411-03	Main Circuit Board

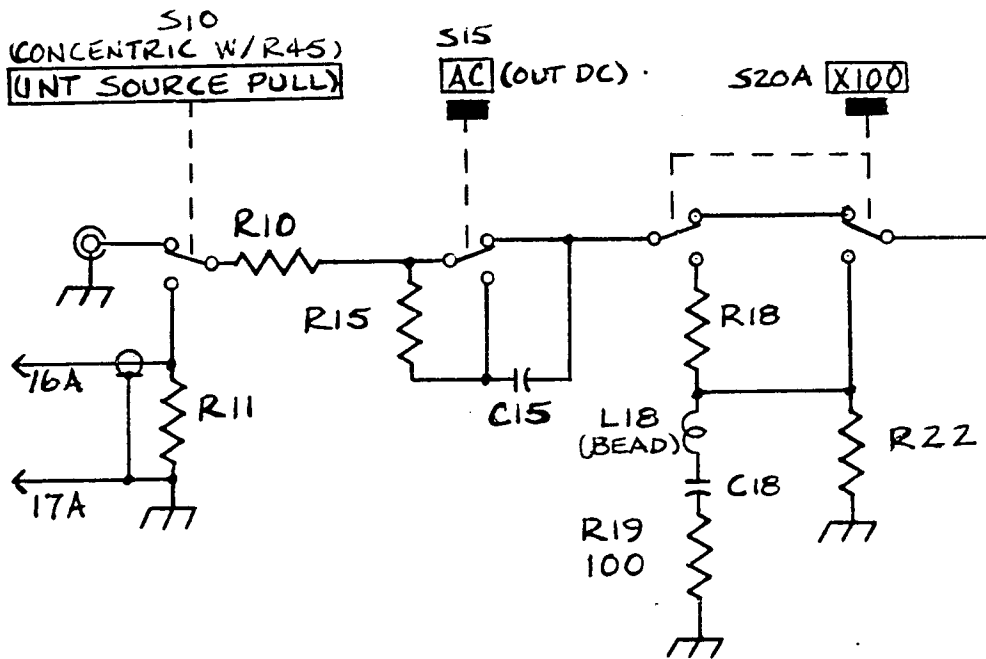
The new Trigger Circuit Board 670-2254-03 is the same as 670-2254-02 except as follows:

### PARTS REMOVED:

C54	281-0542-00	Capacitor, Cer., 10pF 500V $\pm 10\%$
Q50, Q68	151-0225-00	Transistor, Silicon, NPN, replaceable by 2N3563
Q95		
R38, R40	321-0222-00	Resistor, Prec, 2.00K 1/8W 1%
R60	315-0102-00	Resistor, Comp., 1K 1/4W 5%
R97	301-0202-00	Resistor, Comp., 2K 1/4W 5%

\* From SN B050660 - up, DC503 Option 4 (950H) used 2 shields (337-1399-00) and DC503 and DC503 Option 1 (950A) used 1 ea shield (337-1399-00) and (337-1399-02)

Partial -- TRIGGER AMPLIFIER 1



5. Make the following component value changes on the Main Circuit Board:
  - a. R542 from 22.1K to 4.42K.
  - b. R548 from 15.8K to 3.16K.
6. Replace the Electrical Side Shields with a new ventilated Electrical Side Shields (337-1399-04).

After installation of C54, the following procedure should be added to the INTERNAL ADJUSTMENTS PROCEDURE:

Apply 0.2V to 0.3V of fast rise ( $\leq 1$  nS) square wave at a frequency above 1 kHz to CH A INPUT. Attach a probe ( $\geq 5K$  paralleled by  $\leq 5$  pF input Z) to the junction of R97 and the emitter of Q95. This probe must work into an oscilloscope (sampling or real time) where response with the probe has a rise time  $\leq 2$  nS. After obtaining the optimum signal by adjusting the LEVEL control (R45), adjust the oscilloscope for about 5 divisions of vertical display and 10 nS/division horizontal display. Adjust C54 for optimum front corner with less than 20% aberration peak to peak.

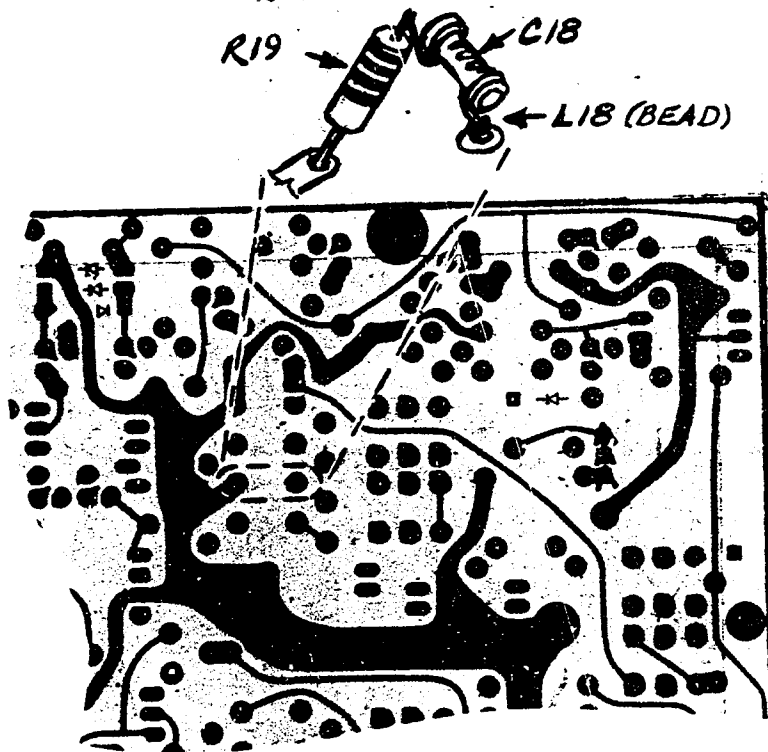


Figure 1. Partial Front View of the TRIGGER CIRCUIT BOARD

PARTS ADDED:

C54	281-0205-00	Capacitor, Var., 5.5-65pF
Q50,Q68	151-0427-00	Transistor, Silicon, NPN, replaceable by 2N3563
Q95		
R19	317-0101-00	Resistor, Comp 100 $\Omega$ 1/8W 5%
R38,R40	315-0511-00	Resistor, Comp 510 $\Omega$ 1/4W 5%
R60	301-0102-00	Resistor, Comp 1K 1/2W 5%
R97	301-0152-00	Resistor, Comp 1.5K 1/2W 5%

The new Main Circuit Boards 670-2253-03 and 670-3411-03 are the same as 670-2253-02 and 670-3411-02 except as follows:

PARTS REMOVED:

R542	321-0322-00	Res. Fxd Film 22.1K 1/8W 1%
R548	321-0308-00	Res. Fxd Film 15.8K 1/8W 1%

PARTS ADDED:

	175-0529-00	Wire, #26 Stranded, white-black
R542	321-0255-00	Res. Fxd Film 4.42K 1/8W 1%
R548	321-0241-00	Res. Fxd Film 3.16K 1/8W 1%
	176-0122-00	Wire, #22, bare 1/2" DC503 Option 1 (950A) only.

INSTRUCTIONS:

1. Remove the Electrical Side Shields.
2. Remove C10, 68pF, located parallel to R10, 47 $\Omega$ , from (INT SOURCE PULL) Switch, S10, to the Trigger Circuit Board. (Supersedes M20085)
3. Change the value of the following components on the Trigger Circuit Board:
  - a. C54 from 10pF to a variable capacitor, 5.5-65pF. (Supersedes a portion of M22527-1).
  - b. Q50, Q68 and Q95 from 151-0225-00 to 151-0427-00.
  - c. R38 and R40 from 2.00K to 510 $\Omega$ .
  - d. R60 from 1K 1/4W to 1K 1/2W.
  - e. R97 from 2K to 1.5K.
4. Add R19, 100 $\Omega$ , in series with C18, 170pF. Lift the ground side of C18 and tepee R19 between ground and lifted side of C18, insuring side shield clearance. NOTE: The manual schematic incorrectly shows the ferrite bead. L18, on the ground side of C18.