PROBE SIMULATOR
(067-0802-99)
FUNCTIONAL CHECK

To insure the simulator is working properly, the following functional checks should be made to verify its:

       I.   INDICATOR LAMPS

      II. MODE SWITCH

    III. ABERRATIONS

          A. Current Mode
          B. Volts Mode

     IV. OFFSET

      V. GAIN

Functional checks (using a properly working AM503):

I.   INDICATOR LAMPS

   A. Both Hall bias lamps should be lit as soon as AM503 is energized

   B. Probe unlock lamp on AM503 should always light as soon as simulator is plugged in with power on.

II. MODE SWITCH

   A. When switching from P6302 to P6303 the attenuator lamp should switch from left to right.

   B. Place AM503 to 'Cal DC Level'

   C. Apply an offset from zero at AM503 output of four divisions. This should divide by approximately two when switching from P6302 to P6303.

III. ABERRATIONS

   A. Current Mode

      1. Place simulator in 'Current' and 'P6302' modes.

      2. Inject a squarewave of sufficient amplitude to measure aberration content at output of AM503. Note: Squarewave need not be fast; for this check a high amplitude is preferred.

      3. Note aberrations from 500nsec to trailing edge. In this mode, the simulator is like a P6302, and should meet P6302/AM503 specs. If in error, the transformer may be defective, or the leads connecting to it broken or shorted. This may cause the offset to be unacceptable or the gain to be low in current mode.

B. Volts Mode

   1. If the AM503's aberration content is in doubt, do the following checks first:

     a) remove orange striped coax from attenuator input (P202) in AM503

     b) unsolder one side of L202

     c) insert a fast rise squarewave via Peltola connector into attenuator input (J202)

     d) Note AM503's squarewave response.

       1. risetime
       2. aberration

     e) reconnect L202 and coax (P202)

   2. Connect fast rise squarewave signal to BNC input of simulator

   3. Place simulator in 'Volts' and 'P6302' modes

   4. Note: Signal is attenuated by a factor of two from Step 1 part d. Compare risetime and aberrations with Step 1 part b above.

     Note: Some risetime reduction (about 0.5nsec) is normal.

IV. OFFSET

A. With no signal applied to the simulator, set mode to 'Current' and 'P6302'.

B. Remove bottom of simulator (unscrew four feet)

C. Short white wire to yellow wire (labeled on circuit board) in simulator.

D. Zero DC level with Cal DC level switch then return to DC on AM503.

E. Zero balance in 10 mA/Div on AM503   (P6302 mode)

F. Remove short and press deguass button then release.

G. Offset should measure less than 30 mA

H. If in error, the selected resistor is wrong and/or the Hall device is defective (which should show up in Step III part A or Part V).

   A transformer lead may also be defective

V. GAIN

A. Switch simulator to 'P6302' and 'Current' - simulator is now identical to P6302 probe

B. Inject a known voltage (@ 50Ω load) into BNC connector of simulator (after removing 50Ω load since simulator has an internal 50Ω load).

C. Measure the current output from AM503. Current should be the injected-voltage divided by 50.

   Example: Signal Generator output is 5V @ 50Ω
       The current measured is 5/50 = 100 mA.
   The AM503 should measure 100 mA, if not check that the simulators' BNC input is 50Ω or AM503's gain may be misadjusted