OPTIONS

OPTION 02 INTERFACE NOTES

General

Pin 26A is the only rear connector pin (from 14 through 28) that is factory wired to internal circuitry. All other inputs and outputs through the rear interface must be user wired when it is desired to interface the SG 503 in a specialized Option 02 Power Module system.

SINE OUT (contact 28A) and GND for SINE OUT (contacts 27A and 28B).

NOTE

Flatness specifications for the SG 503 are invalid when the output signal has been transferred from the front panel to the rear interface, because the insertion loss between the output and the 50 Ω load will be different from that of the precision coaxial cable (Tektronix Part Number 012-0482-00) provided with the instrument.

To transfer the output signal from the front panel to the rear interface, perform the following steps:

1. Remove the short blue cable (with ferrite bead) between the bnc output connector and the Attenuator-Output Buffer Circuit Board (located on the "B" side of the instrument). When this short blue cable is removed, be certain that it is stored in a known location and not misplaced or lost. This cable is mandatory for repairing or recalibrating the instrument.

2. Locate the four holes near pins 27 and 28 on the "B" side of the Main Circuit Board. Install a pin connector socket (Tektronix Part Number 136-0252-01) in the center hole labeled SINE OUT and solder it in place from the "A" side of the board so that connection is made to pin 28A. Install a 3-prong, coaxial-cable receptacle (Tektronix Part Number 131-1003-00) in the remaining three holes and solder it in place from the "A" side of the board so that ground connections are made to pins 27A and 28B.

3. Install a 9.4 inch miniature coaxial cable (blue), with connectors on each end (Tektronix Part Number 175-1554-00), from the output connector on the Attenuator-Output Buffer Circuit Board to the newly installed receptacle for SINE OUT. Dress the blue coaxial cable underneath the lower rear corner of the Attenuator-Output Buffer Circuit Board. Be certain that the center conductor of the blue coaxial cable mates with the center socket pins at each end.

4. Place a tag to the left of the OUTPUT connector on the front panel, labeled: OUTPUT AT REAR CONNECTOR PIN 28A.

NOTE

To prevent ground loop currents, GND for SINE OUT (pins 27A and 28B) should not be tied to any other grounds at the rear interface.

REMOTE Amplitude Controls (Contacts 21A and 22B)

To transfer the OUTPUT AMPLITUDE control from the front panel to the rear interface, perform the following steps:

1. On the "A" side of the Main Circuit Board, immediately behind the front panel, locate the unused holes labeled REMOTE. Install a pin connector socket (Tektronix Part Number 136-0252-01) in the center hole, and a 3-prong, coaxial-cable receptacle (Tektronix Part Number 131-1003-00) in the remaining holes and solder in place from the "B" side of the instrument.

2. Locate the unused holes labeled REMOTE near rear connector pins 21 and 22 ("A" side, Main Circuit Board). Install a pin connector socket (Tektronix Part Number 136-0252-01) in the center hole, and a 3-prong, coaxial-cable receptable (Tektronix Part Number 131-1003-00) in the remaining three holes and solder in place from the "B" side of the instrument. Be certain that the center pin socket is connected to pin 21B and that the 3-prong receptacle is providing a ground connection to pin 22B.

3. On the "B" side of the Main Circuit Board, locate W260 (Terminal Link). W260 looks like a solid white dummy resistor and is located immediately behind the front panel. Unsolder both ends of W260 and without bending the leads, move it horizontally to the two unused holes about one-fourth inch closer to the front panel. Resolder W260 (from the "B" side) into the new holes.

4. On the "B" side of the Main Circuit Board add (solder) a resistor; 51 kΩ, 1/4 W, 5%, (Tektronix Part Number 315-0513-00) between the circuit board run connected to pin 21B and the unused hole labeled GND.

5. Install a 12.4 inch minature coaxial cable (white), with connectors on each end (Tektronix Part Number 175-1555-00), between the two newly installed REMOTE receptacles, making sure that the center conductor mates with the center pin sockets at each end. Dress the white

coaxial cable between the Coil Circuit Board and the bottom side rail. Do not dress the white coaxial cable along the top side rail. In some instruments, this operation may require loosening screws for the Main Circuit Board and side mount bracket (used as a heat sink); if so, remember to retighten all loosened screws.

6. Check with an ohmmeter to verify that a complete circuit (zero resistance) exists between rear connector pin 21B and pin 4 of P230. P230 is the flat blue plug attached to the Attenuator-Output Buffer Circuit Board on the "B" side of the instrument. Pin 4 is connected to a yellow coded wire. Refer to schematic number 1 in the SG 503 instruction manual.

7. Place a tag above the OUTPUT AMPLITUDE control on the front panel, labeled: OUTPUT AMPLITUDE REMOTE CONTROLLED AT REAR CONNECTOR PIN 21B.

NOTE

A dc voltage of approximately −1 V to −11 V applied to pin 21B (after modification) will control the output amplitude over the range from 0.5 V to 5.5 V (peak-to-peak). GND for REMOTE (pin 22B) should not be tied to any other ground at the rear interface.

BCD Outputs (Contacts 14A through 26A)

The SG 503 can be user wired to provide this type of output data to the rear interface. Each decimal digit displayed on the front panel has its own 4-bit BCD data available from the counters in the form of unused holes (solder pads) on the "A" side of the Main Circuit Board (between the upper two rows of IC's). Each set of four holes are labeled: 1A through 1D for the Most Significant Digit (MSD), 2A through 2D for the Middle Digit (MD), and 3A through 3D for the Least Significant Digit (LSD). The rear connector pins (14A through 25A) are also labeled in a one-to-one correspondence with 1A through 3D. It is only necessary to use flat ribbon-wire cable (Tektronix Part Number 175-0827-00) of the proper length to interconnect the counter BDC outputs to the proper solder pads (holes) for the rear connector pins. Solder all connections from the "B" side of the instrument.

The BCD output data user positive logic and is TTL compatible. The 4-bit data lines have a fanout of 8. External decoding circuitry depends on the desired application. Pin 26A provides an internal ground for the BCD output data.

Decimal Data Output (Contacts 27B, 26B, and 23B)

To transfer Decimal Data to the rear interface, perform the following steps:

1. On the "A" side of the Main Circuit Board, just below U480, locate three unused holes (solder pads) labeled: 10^{-1}, 10^{1}, and 10^{0}.

2. Use flat ribbon-wire cable (Tektronix Part Number 175-0827-00) to interconnect these pads in a one-to-one correspondence with rear connector solder pads labeled 10^{-1}, 10^{1}, and 10^{0} (just to the left of CR680 and close to rear connector pins 25 and 26). Solder the wire connections to the "B" side of the Main Circuit Board.

Each Decimal Data line will drive only one TTL gate without external buffering. A Decimal Data line goes to an active-high state when the corresponding front-panel decimal point is turned on by the auto-ranging circuitry.