

Instructions



050-3202-04 and above
LCD Module Replacement & Main Board
Modification
TSG601 Serial Digital Generator
SDA601 Serial Digital Analyzer

075-0021-04

Warning

The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

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- Worldwide, visit www.tektronix.com to find contacts in your area.

Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the *General Safety Summary* before performing any service procedures.

Do Not Service Alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power. To avoid electric shock, switch off the instrument power, then disconnect the power cord from the mains power.

Use Care When Servicing With Power On. Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

Kit Description

The LCD module (Tektronix part number 119-5566-02) replaces LCD modules 119-4506-00, 119-5566-00, and 119-5566-01 which are no longer available. This kit includes the necessary resistor values to set the proper contrast adjustment range for the new LCD module.

In the case where it is necessary to modify the Main circuit board to use a previous version of the LCD module, this kit provides the resistors necessary to support each version of the LCD module.

This document is supported by Tektronix modifications: 84032, 85014, 87045, 453, 454, and ECR30631.

Instruments

TSG601 B010100 and above
SDA601 B010100 and above

Kits Parts List

Circuit/figure number	Quantity	Part number	Description
-----	1 EA	315-0471-xx	RES, FXD, FILM: 470 OHM, 5%, 0.25W
-----	1 EA	321-5006-xx	RES, FXD, FILM; 100 OHM, 1%, 0.125W
-----	1 EA	321-5016-xx	RES, FXD: THICK FILM; 681 OHM, 1%, 0.125W
-----	1 EA	321-5032-xx	RES, FXD, FILM; THICK FILM; 15.0K OHM, 1%, 0.125W, TC=100 PPM; 1206, T&R
-----	1 EA	321-5051-xx	RES, FXD: THICK FILM; 0 OHM, 1%, 0.125W
-----	1 EA	321-5028-xx	RES, FXD: THICK FILM; 6.81K OHM, 1%, 0.125W
-----	1 EA	322-3301-xx	RES,FXD,FILM; 13.3K OHM,1%,0.2W
-----	1 EA	NS	MARKER, IDENT: MARKED 050-3202-04
-----	1 EA	075-0021-04	KIT INSTRUCTION: LCD MODULE REPLACE & MAIN BOARD MODIFICATION, 050-3202-04 and above, TSG601, SDA601

NS - Not Saleable

Equipment Required

Required tools and equipment	Part number
Phillips #1 screwdriver	n/a
Needle-nose pliers	n/a
Solder/desolder equipment for surface mount components	n/a

Installation Instructions

These instructions are for personnel who are familiar with servicing the instrument. If you need further details for disassembling or reassembling the instrument, refer to the product service manual. Contact your nearest Tektronix, Inc., Service Center or Tektronix Factory Service for installation assistance.



CAUTION. To prevent static discharge damage, service the instrument only in a static-free environment. Observe standard handling precautions for static-sensitive devices while installing this kit. Always wear a grounded wrist strap, grounded foot strap, and static resistant apparel while installing this kit.

Disassemble

Perform the following procedure to disassemble the instrument.

Separate the Instrument Halves

1. Remove the four screws holding the back cover to the front cover. Refer to Figure 1.

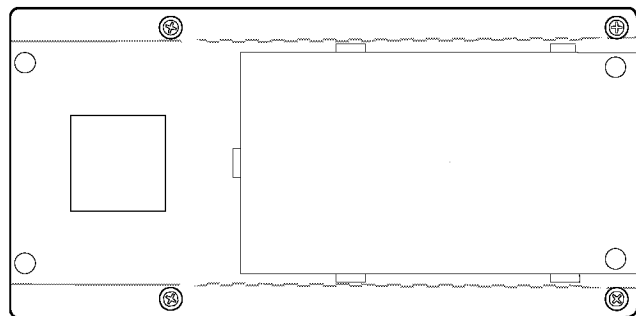


Figure 1: Cover attaching screws

2. Gently separate the back cover about 1 inch from the instrument, taking care to not pull the rear panel (connector panel) away with it.
3. Disconnect the battery cable. Make sure to pull on the connector housing to do this, not the wires. The back cover is now free and may be moved away from the instrument.

Remove the Connector Panel

1. Unplug the cable from the connector panel. Pull on the connector housing, not on the wires.
2. Slide the assembly up away from the front panel.

Remove the Main Circuit Board and LCD Module

1. Use a pair of needle-nose pliers to gently pull the connector housing up away from the instrument. Pull straight up, lifting the Main circuit board at the same time. Do not bend the connector housing.
2. When the connector pulls free, lift the Main circuit board and the LCD module away from the case.
3. Separate the Main circuit board and LCD module as follows:
 - a. Disconnect the LCD cable.
 - b. Gently pull the two assemblies apart at the interboard connector. The rubber board spacers should remain attached to the LCD module.

Identify LCD Module

Figure 2 shows the location of the manufacturer's part number that identifies the version of the LCD module.

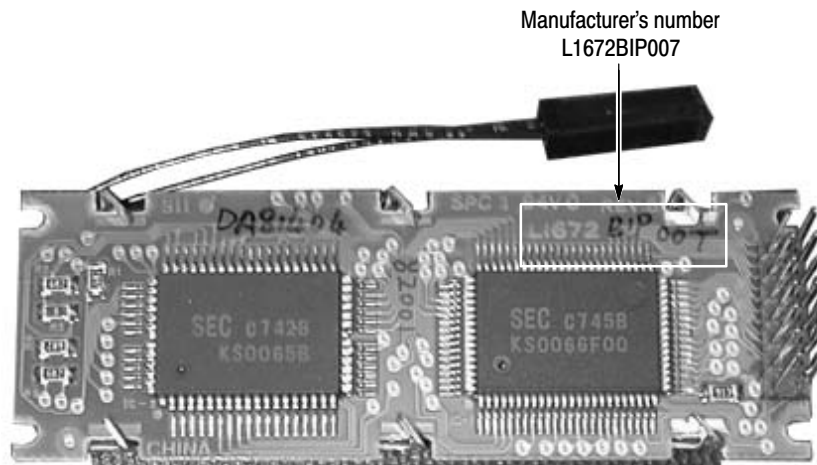


Figure 2: Location of manufacturer's number on the LCD module

Modifying the TSG601 Main circuit board

Modify the TSG601 Main circuit board in one of two ways:

- To use the latest version of the LCD module on instruments with serial number B052013 or lower, you must follow the correct procedure in this section to upgrade your existing board. Follow the instructions that pertain to the serial number of your instrument.
- To use your existing LCD module with a new circuit board, you must select the correct resistors to match the LCD module. Select the resistors according to the manufacturer's part number on the LCD module (Figure 1), not the serial number of your instrument. Refer to Figures 3 and 4 for the locations of the resistors on the circuit board.

Table 1 shows the LCD module history for the TSG601 Serial Digital Generator and the resistor values associated with each version of the LCD module.

Table 1: TSG601 LCD module history

TSG601 serial number range	LCD module part number	LCD module manufacturer's number	R45	R46	R90
B010100 to B040554	119-4506-00	M16327JYT	6.81 k Ω	681 Ω	None
B040555 to B041213	119-5566-00	L1672BIP007	681 Ω	0 Ω	470 Ω
B041214 to B052013	119-5566-01	M16327JY/TEK	681 Ω	100 Ω	None
B052014 and Up	119-5566-02	M16327UY/TEK or TRULY	15 k Ω	0 Ω	None

**Upgrading TSG601
SN B010100 to B040554**

For serial numbers B010100 to B040554, upgrade the TSG601 Main circuit board to use the latest version of the display as follows:

1. Replace R45 with the 15 k Ω resistor. Refer to Figure 3 for component locations.
2. Replace R46 with the 0 Ω resistor provided in the kit.

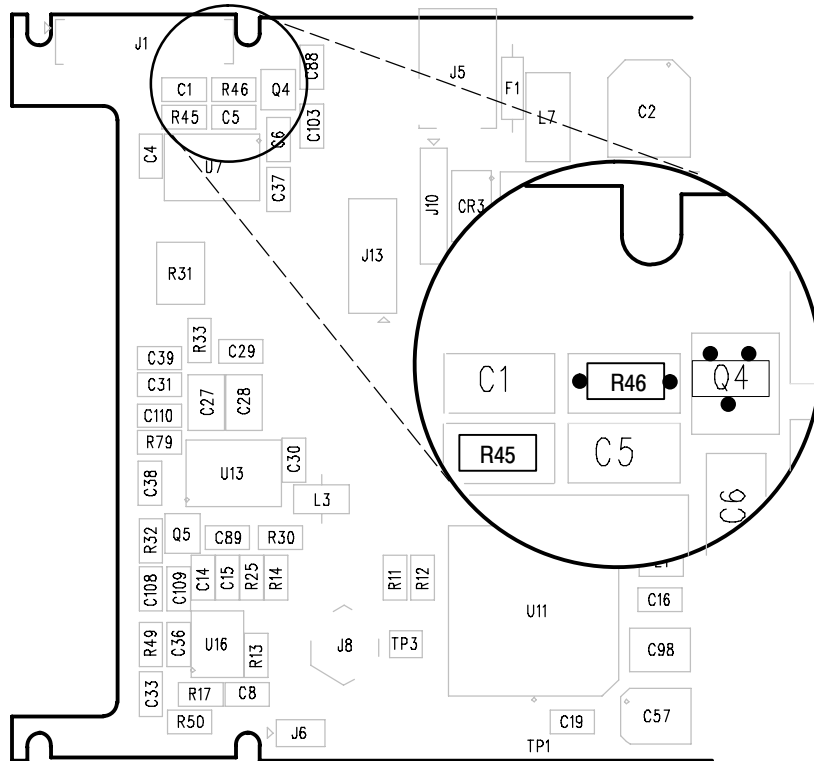


Figure 3: Partial Main circuit board (TSG601) showing location of changed parts

**Upgrading TSG601
SN B040555 to B041213**

For serial numbers B040555 to B041213, upgrade the TSG601 Main circuit board to use the latest version of the display as follows:

1. Remove R90 (470 Ω resistor). See Figure 4 for location.
2. Replace R45 with the 15 k Ω resistor.
3. Replace R46 with the 0 Ω resistor provided in the kit.

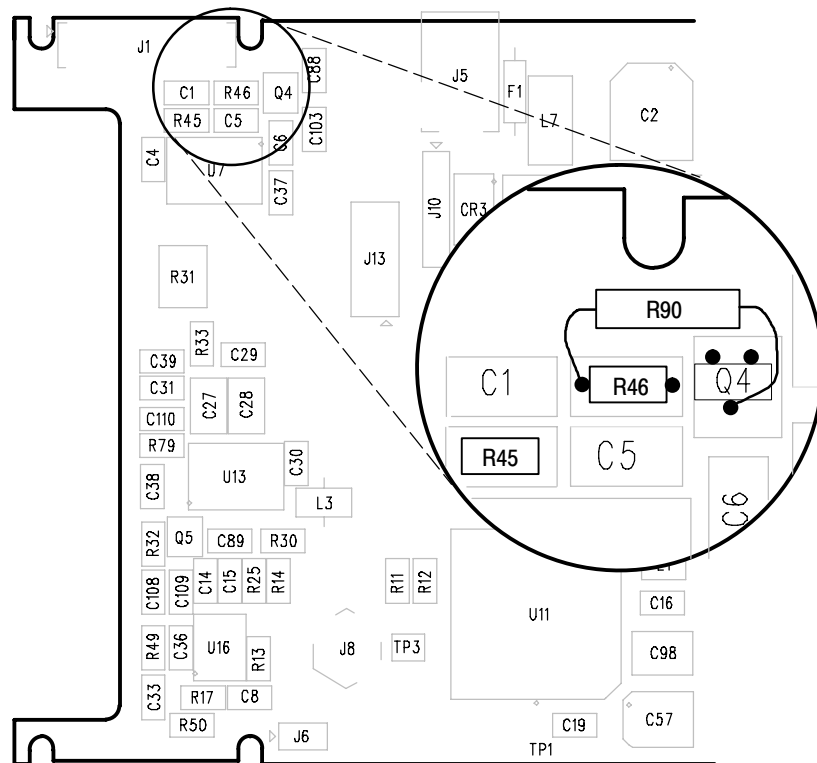


Figure 4: Partial Main circuit board (TSG601) showing location of changed parts

**Upgrading TSG601
SN B041214 to B052013**

For serial numbers B041214 to B052013, upgrade the TSG601 Main circuit board to use the latest version of the display as follows:

1. Replace R45 with the 15 k Ω resistor provided in the kit. See Figure 4 for location.
2. Replace R46 with the 0 Ω resistor provided in the kit.

Modifying the SDA601 Main circuit board

Modify the SDA601 Main circuit board in one of two ways:

- To use the latest version of the LCD module on instruments with serial number B041404 or lower, you must follow the correct procedure in this section to upgrade your existing board. Follow the instructions that pertain to the serial number of your instrument.
- To use your existing LCD module with a new circuit board, you must select the correct resistors to match the LCD module. Select the resistors according to the manufacturer's part number on the LCD module (Figure 1), not the serial number of your instrument. Refer to Figures 5 and 6 for the locations of the resistors on the circuit board.

Table 2 shows the LCD module history for the SDA601 Serial Digital Analyzer and the resistor values associated with each version of the LCD module.

Table 2: SDA601 LCD module history

SDA601 Serial number range	LCD module part number	LCD module manufacturer's number	R60	R61	R84
B010100 to B030479	119-4506-00	M16327JYT	6.81 k Ω	681 Ω	None
B030480 to B030934	119-5566-00	L1672BIP007	681 Ω	0 Ω	470 Ω
B030935 to B041404	119-5566-01	M1632 7JY/TEK	681 Ω	100 Ω	None
B041405 to B041596	119-5566-02	M1632 7UY/TEK	15 k Ω	0 Ω	None
B041597 and up		TRULY			13.3 k Ω

**Upgrading SDA601
SN B010100 to B030479**

For serial numbers B010100 to B030479, upgrade the SDA601 Main circuit board to use the latest version of the display as follows:

1. Replace R60 with the 15 k Ω resistor. Refer to Figure 5 for component locations.
2. Replace R61 with the 0 Ω resistor.

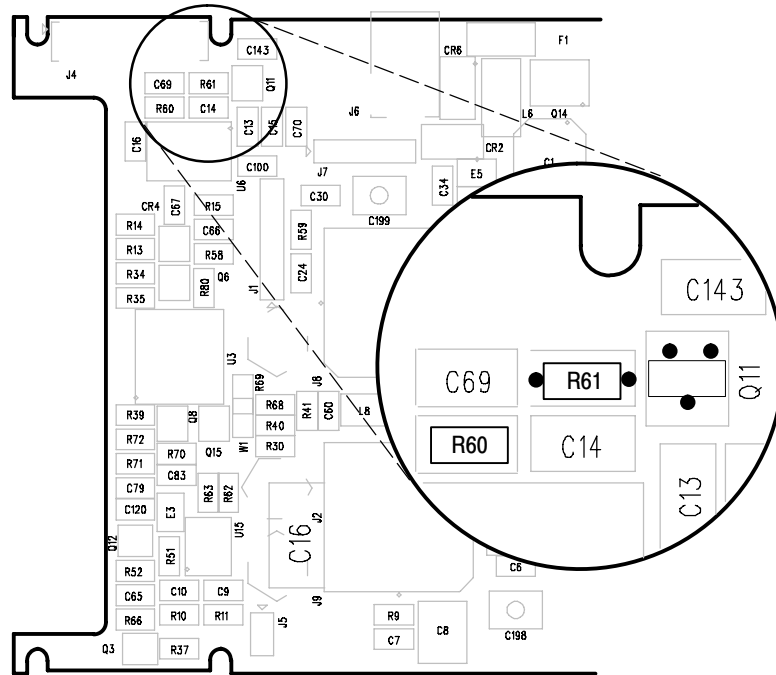


Figure 5: Partial Main circuit board (SDA601) showing location of changed parts

**Upgrading SDA601
SN B030480 to B030934**

For serial numbers B030480 to B030934, upgrade the SDA601 Main circuit board to use the latest version of the display as follows:

1. Remove R84 (470 Ω resistor) shown in Figure 6.
2. Replace R60 with the 15 k Ω resistor provided in the kit.
3. Replace R61 with the 0 Ω resistor provided in the kit.

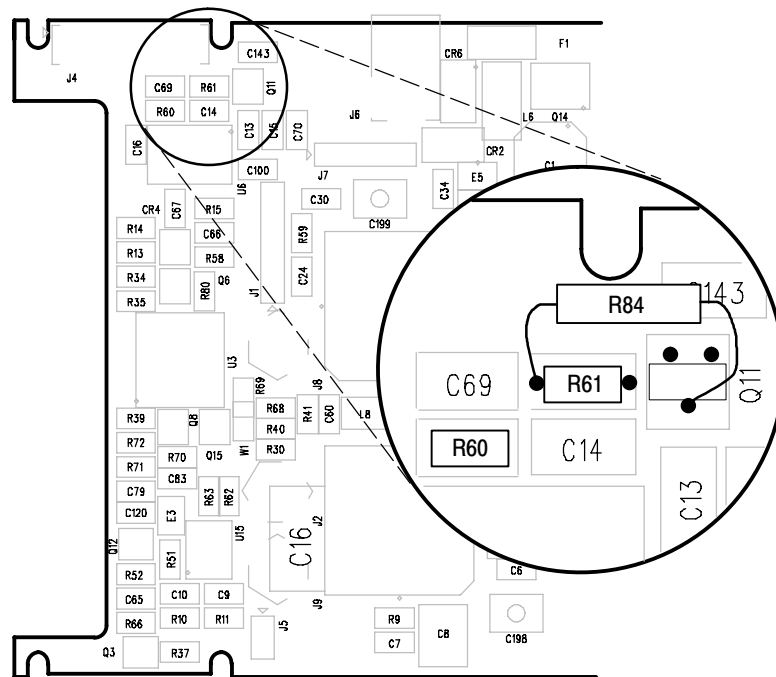


Figure 6: Partial Main circuit board (SDA601) showing location of changed parts

**Upgrading SDA601
SN B030935 to B041404**

For serial numbers B030935 to B041404, upgrade the SDA601 Main circuit board to use the latest version of the display as follows:

1. Replace R60 with the 15 k Ω resistor provided in the kit. See Figure 6 for location.
2. Replace R61 with the 0 Ω resistor provided in the kit.

Reassemble

Perform the following procedures to reassemble the instrument and verify operation.

Install the Main Circuit Board and LCD

1. Assemble the Main circuit board and LCD module as follows:
 - a. Transfer the rubber board spacers (if necessary) to the new module.
 - b. Attach the LCD cable.
 - c. Plug in the LCD module to the pins on the Main circuit board. Press firmly to seat the interboard connector.

Miscellaneous

1. Complete the reassembly of the instrument. Use the reverse of the disassembly procedure.
2. Install the identification marker, provided in the kit, near the instrument serial number label to indicate this kit has been installed.
3. Be sure that the brown wire of the battery cable assembly connects to pin 1.

Verify Operation

Verify instrument performance. Refer to the instrument service manual.

This completes the LCD module replacement.

■ End of document ■

