

# Instructions



**050-3680-00**

**A1U11 and A1U15 Replacement  
TSG90 and TSG95 Signal Generators**

**075-0959-00**

## **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.

**[www.tektronix.com](http://www.tektronix.com)**



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## **Contacting Tektronix**

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For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit [www.tektronix.com](http://www.tektronix.com) to find contacts in your area.

# Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service 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

This document describes how to change A1U11 and A1U15. The original IC type has become unavailable, so if you have to replace one of these ICs you must replace both of them as a set. Several resistors must also be changed so the new parts will work correctly.

This document supports Tektronix modification: ECR31418

## Products

|              |                    |
|--------------|--------------------|
| <b>TSG90</b> | All serial numbers |
| <b>TSG95</b> | B010100 - B033365  |

## Minimum Tool and Equipment List

| Required tools and equipment      | Part number   |
|-----------------------------------|---------------|
| Phillips screwdriver              | Standard tool |
| Surface mount desoldering station | Standard tool |

## Kit Parts List

| Circuit/figure number | Quantity | Part number | Description                                                                                                                                            |
|-----------------------|----------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| A1U11, A1U15          | 2 Each   | 156-8900-00 | IC, LINEAR; BIPOLAR, OP-AMP; CURRENT FEEDBACK, 3.0MV VOS, 5.0UA +IB, 10UA -IB, 140MHZ, +/- 1 TO 10 GAIN RANGE, VIDEO SPECS, EXT TEMP RANGE; AD811AR-16 |
| A1R32                 | 1 Each   | 321-5020-00 | RES, FXD, FILM; THICK FILM; 1.5K OHM, 1%, 0.125W, TC=100 PPM                                                                                           |
| A1R33, A1R34          | 2 Each   | 321-5016-00 | RES, FXD, FILM; THICK FILM; 681 OHM, 1%, 0.125W, TC=100 PPM                                                                                            |
| A1R35                 | 1 Each   | 321-5205-00 | RES, FXD, FILM; 1.33K OHM, 1%, 0.125, 1206, 8MM                                                                                                        |
| -----                 | 1 Each   | 075-0959-00 | This document                                                                                                                                          |



# Installation Instructions

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



**CAUTION.** To prevent static discharge damage, service the product 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.

## Install the Kit

Use Figure 1 or Figure 2 to locate the parts affected by this kit. Use a surface mount soldering station to replace the parts shown with the parts provided in this kit.

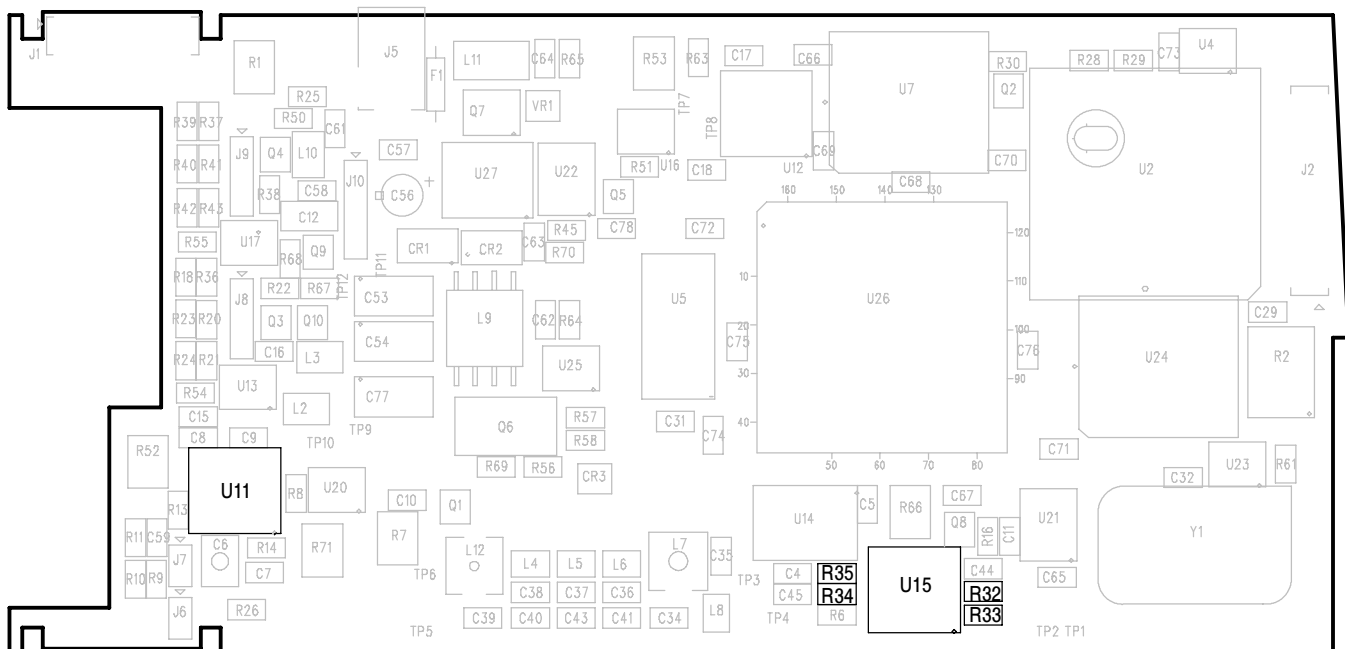
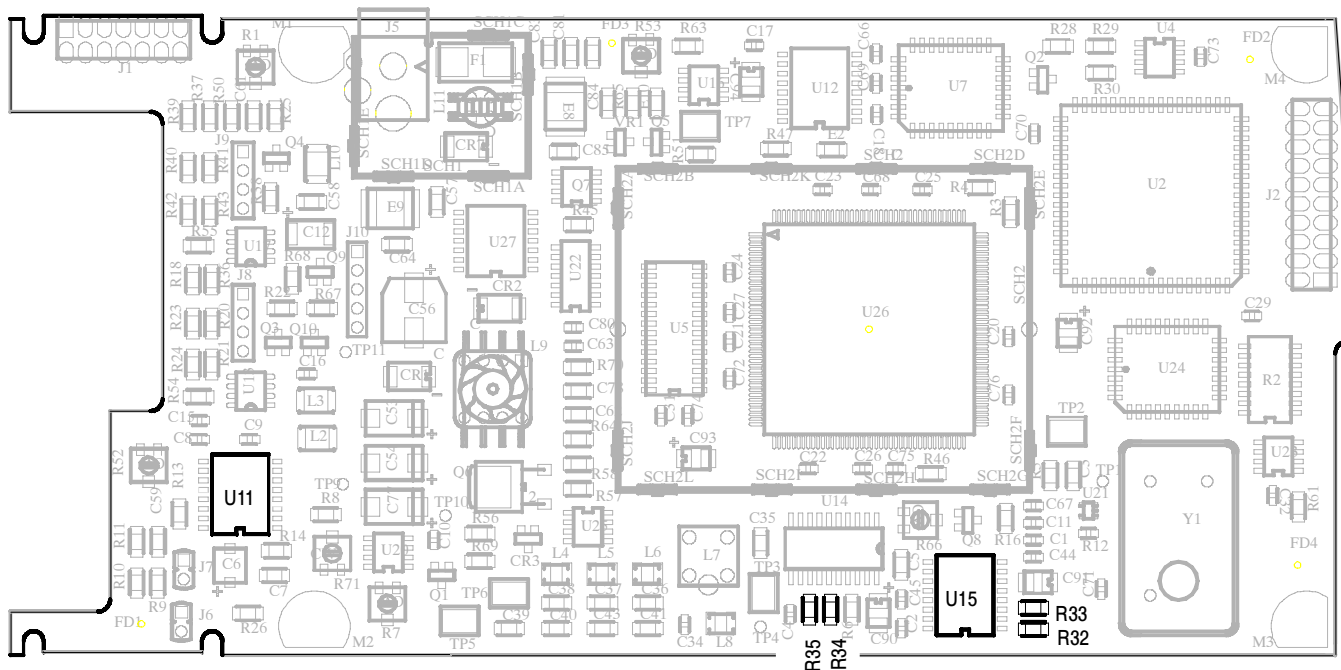


Figure 1: TSG90 Main board (all), TSG95 Main board (671-3353-00 to 671-3353-07)



**Figure 2: TSG95 Main board (671-3353-08 and later)**

1. Replace U11 and U15 with the IC's included in this kit.
2. Replace R32 with the 1.5 k $\Omega$  resistor included in this kit.
3. Replace R33 and R34 with the 681  $\Omega$  resistors included in this kit.
4. Replace R35 with the 1.33 k $\Omega$  resistor included in this kit.

## Reassemble the Instrument

After installing this kit, reassemble the instrument; torquing the back-cover screws to approximately 4 in/lb.

## Verify Operation

After reassembling the instrument, perform the Performance Verification steps for Chrominance-to-Luminance Delay and Gain, Multiburst Frequency Response, and SCH Phase. The Performance Verification procedure is found in the *TSG95 PAL/NTSC Signal Generator Service Manual*, available on the Web at [www.tektronix.com/manuals](http://www.tektronix.com/manuals).

If the TSG95 fails these Performance Verification steps, perform the Adjustment Procedure found in the same manual.

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