

S E R V I C E N O T E

SUPERSEDES: NONE

59551A GPS Measurements Synchronization Module

Serial Numbers: 0000A00000 / 3706A00236

Possible Mis-wiring of alarm relay circuit**To Be Performed By:** Agilent Service Centers**Tools/Materials Required:**

TORX T-10 Driver
 TORX T-15 Driver
 7/16 inch Nut Driver
 1/4 inch Flat-Blade Screwdriver

Soldering Tools and Materials

Terminal or PC-Compatible Computer with terminal emulation software
 59551A/58503A Getting Started Guide (P/N 59551-90001)

Situation

Some units in the serial number range above may have a defective rear Panel board. One or both of the polarized connectors for the Alarm Relay Input/Output wiring harness may be soldered in reverse. This is not a hazard, it will simply mean that the alarm relay will either work in reverse or not at all.

Continued

DATE: December 1997

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
MODIFICATION RECOMMENDED			
ACTION CATEGORY:	☐ IMMEDIATELY ☐ ON SPECIFIED FAILURE ☒ AGREEABLE TIME	STANDARDS: LABOR 1.0 Hours	
LOCATION CATEGORY:	☐ CUSTOMER INSTALLABLE ☐ ON-SITE ☒ SERVICE CENTER	SERVICE INVENTORY: ☐ RETURN ☐ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ☐ SCRAP ☐ SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE		AGILENT RESPONSIBLE UNTIL: January 2000
AUTHOR: DC	ENTITY: 0200	ADDITIONAL INFORMATION:	

Procedure

The overall procedure is divided into two major steps, "ALARM CIRCUIT CHECK PROCEDURE" and "REPAIR PROCEDURE".

Alarm Circuit Check Procedure

This procedure requires a terminal or PC with terminal emulation software. Please refer to the "Getting Started Guide" for information on proper connection and configuration of your terminal and the 59551A. All subsequent steps assume that this is complete and a prompt is visible on the screen.

1. Connect either an ohmmeter or your preferred alarm circuit to the Alarm Relay BNC on the rear panel.

NOTE

The Alarm Relay BNC is a twin-lead BNC. Both center pins are insulated from chassis ground. Connect only to the two center pins for this test.

2. Type the following commands on the terminal, each followed by a carriage return ("Enter" or "Return" keypress).

NOTE

The lines preceded with an exclamation (!) mark are comments only. Do not type these commands.

NOTE

Two sets of commands are provided below. Depending on the firmware revision, one version may not work. Please use the other if this is the case.

Program Set #1

```
*cls;*sre 0;*ese 0;status:preset:alarm ! completely initialize status
*sre 8;stat:ques:enab 2;ntr 0;ptr 2 ! Set up conditions for alarm
:stat:ques:cond:user set ! Alarm Activated"
:stat:ques? ! Alarm De-Activated
:stat:ques:cond:user clear ! remove condition so event is not re-detected
```

Program Set #2

```
*cls;*sre 0;*ese 0;status:preset:alarm ! completely initialize status
*sre 8;stat:ques:enab 8;ntr 0;ptr 8 ! Set up conditions for alarm
:stat:ques:cond:user set ! Alarm Activated
:stat:ques? ! Alarm De-Activated
:stat:ques:cond:user clear ! remove condition so event is not re-detected
```

3. In each set above, the alarm should activate at the step marked "Alarm Active". Ensure that either the ohmmeter reads a very low resistance, or that your alarm circuit is activated.
4. In each set above the alarm will be de-activated at the step marked "Alarm De-Activated". Ensure that either the ohmmeter reads a very high resistance or that your alarm circuit is no longer activated.

5. If the above tests indicate a problem, proceed to the section "REPAIR procedure" below.

Repair Procedure

Static Precautions

In all procedures, be sure to follow static precautions to prevent damage to internal components.

- 1. Remove all power and connections to the 59551A.
- 2. Position the carrying (plastic) handle so that it is perpendicular with respect to the cover, facing upward.
- 3. Carefully spread the handle at the pivot points, and it will release from its mounting holes.
- 4. The front foot/trim frame is soft rubber, and can now be removed by prying it off with your fingers.
- 5. Loosen two TORXz T-15 screws at the right and left edges of the rear panel to remove the rear foot/trim assembly.
- 6. Remove the TORXz T-15 screw at the bottom rear of the cover and slide cover off toward the rear.
- 7. Position the 59551A so that the front panel is facing toward you with the A6 visible.
- 8. Locate the two alarm relay connectors, one on each side of the A6 board. One will have a white/black wire pair, the other a red/black pair.
- 9. First observe carefully the wire colors and compare to Table 1 below:

Table 1.

Connector	Pin	Wire Position	Number	Color
-----		Left	1 (top)	Black 2
	not connected	3 (bottom)	White Right	1 (top)
Red 2		Black 3 (bottom)	not connected	

- 10. Proceed to step 11 below if the wire colors do not match the above table. Proceed to step 25 below if the colors do match.
- 11. If one or both pairs of wires are incorrect, it is likely that the connector body soldered to the printed circuit board is reversed. Proceed to the next step.
- 12. It is first necessary to remove the A2 Power Supply assembly. It is suspended by two metal brackets above the A1 Main board.
- 13. Disconnect two cable from the power supply.
- 14. Remove 4 TORXz T-10 screws (2 on each side) holding the power supply assembly in place.
- 15. Lift entire bracket and power supply assembly out, noting routing of other cables as you do so.

16. Disconnect each pair of Alarm Relay wires (Red/Black, White/Black) from the A6 Rear Panel assembly.
17. Each connector socket should have its indexing tab "slot" facing to the right. If not, the A6 assembly needs to be removed.
18. Use a 7/16 inch wrench or Nut Driver to disengage the 7 BNC connectors.
19. Disconnect ribbon cable connecting the A6 Rear Panel assembly to the A1 Main Board assembly.
20. The A6 Rear Panel assembly can now be lifted out.
21. Remove and re-solder any connector socket that is incorrectly installed.
22. Replace the A6 assembly by reversing the steps above, and re-connect the alarm relay wires.
23. re-check the wire colors against the table above to be sure they are now correct.
24. Re-assemble the A2 Power Supply assembly, associated cables, and replace all covers. repeat the "ALARM CIRCUIT CHECK PROCEDURE" above.
25. These steps are used if the Red/black and White/Black wire colors on the A6 Rear Panel assembly are correct, but the Alarm Relay Circuit does not work properly.
26. The Alarm Relay is located between the front panel and the interior of the unit, mounted to a metal bulkhead dividing the two sections.
27. Check the wire colors leading to the Alarm Relay using Table 2 below:

Table 2.

Alarm Relay	Wire Terminal	Color	-----1
Black (from white/Black pair)	2	White	3
	Black (from Red/Black pair)		Red 4

28. Correct any wiring errors as necessary. If no wiring errors are noted, the Alarm Relay (P/N 0490-1846) should be ordered and replaced. In either case the front panel must first be removed before wiring corrections or relay replacement can be performed.
29. Remove the two TORXz T-15 screws, one on each side that are recessed in the plastic shell of the front bezel. They are located between the handle pivot holes and the front of the unit.
30. Identify two metal extrusions visible within openings in the plastic, immediately above and below the screw just removed. There will be two more on the other side of the unit as well. These extrusions hold the front bezel in place by engaging the openings in the plastic.

31. Insert a flat-blade screwdriver between the plastic bezel and the underlying chassis, immediately near one of the metal extrusions. Carefully pry slightly and pull the bezel away so that the extrusion no longer completely engages the bezel.
32. Repeat this for the other extrusion on the same side of the unit. This will allow this side of the bezel to be pulled free of the metal extrusions. The other side of the bezel will fall free without using the screwdriver.
33. Disconnect the ribbon cable connecting the front panel to the main board.
34. Re-assemble and test as necessary.
35. If re-wiring or replacing the Alarm Relay does not correct the problem this unit requires further troubleshooting that is beyond the scope of this Service Note: Refer to current repair strategy for the 59551A to determine the appropriate disposition of further repairs.