

P R O D U C T I O N M E M O

TO: ALL MICROWAVE SERVICE GROUPS

FROM: SIGNAL ANALYSIS DIVISION PRODUCT SUPPORT

INSTRUMENT: 8568A SPECTRUM ANALYZER

SUBJECT: KEYBOARD SWITCH FAILURES
(FLYING SPRING SYNDROME)

BACKGROUND:

The 85680A RF Section and 85662A IF Display Section Keyboard Assemblies use several pushbutton front-panel switches, HP P/N 5060-9436. Some problems with these front-panel switches exhibiting a "fly-away spring" failure occurred recently. 8568A Spectrum Analyzers shipped between August 1, 1981 and December 10, 1981 are likely to contain front-panel switches that are susceptible to this failure. The failure occurs only when the instrument has been subjected to low temperatures (below -10 degrees C) and the switches are then actuated at this low temperature.

Not all switches are susceptible to the "fly-away spring" failure. Switches that have a "gate mark" (from the mold) that appears on the red body as a small whitish dot about in the center of the surface opposite the spring (see Figure 1) do not exhibit the "fly-away spring" failure.

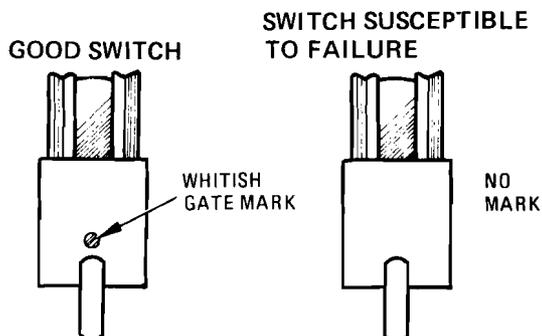


Figure 1. Pushbutton Front-Panel Switch, HP P/N 5060-9436

8568A Spectrum Analyzers shipped after December 10, 1981 may have good switches that do not have a "gate mark". Therefore, the above criteria can be used to identify bad switches ONLY in 8568A Spectrum Analyzers that were shipped on or before December 10, 1981. (Serial Numbers 2118A01500 through 2140A01700 for the 85680A; 2112A02340 through 2134A02750 for the 85662A.)

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2/82/53

PROBLEM:

All 8568A Spectrum Analyzers shipped after December 10, 1981 have pushbutton switches that do not exhibit the "fly-away spring" failure. However, there are several instruments in the field that have pushbutton front-panel switches which may be susceptible to failure.

SOLUTION:

Rebuilt (Blue-Stripe) keyboards have been set up for the RF Section and IF-Display Section; 85680-60141 and 85662-60129 respectively. The rebuilt keyboards include all key caps and all front-panel LEDs. For 85680A RF Sections with serial numbers 2118A01500 through 2140A01700, and 85662A IF-Display Sections with serial numbers 2112A02340 through 2134A02750, follow **PROCEDURE** in this Production Memo. For instruments that do not fall within the above designated serial number ranges, but appear to exhibit the "fly-away spring" failure, contact the 8568A Product Support Engineer before beginning repair.

PROCEDURE:

DO NOT REPLACE KEYBOARDS UNLESS AT LEAST ONE SWITCH HAS FAILED and the failure mode is a "fly-away spring". If one or more switches have failed in this manner, replace both the RF Section Keyboard and the IF-Display Section Keyboard.

85680A RF Section Keyboard Replacement:

1. Referring to Figure 9-7 on Page 9-21, Volume 4 of the 8568A O&S Manual, remove the Front Panel Assembly as described in Steps 1 through 9.
2. Referring to View E of Figure 9-7, perform the following steps:
 - a. Disconnect connectors 27 and 28 from Attenuator A5AT1. To remove connector 28, press sides of connector firmly (to release latch) while pulling connector away from attenuator.
 - b. Disconnect connectors 16 and 24 from A5K1 Input Relay.
 - c. Unsolder the 3 and 92 wires 25 and remove them from A5K1 Input Relay.
 - d. Remove attenuator bracket making sure to record the serial numbers of the attenuator and the RF Section. **THE ATTENUATOR MUST BE REINSTALLED IN THE SAME RF SECTION FROM WHICH IT WAS REMOVED.**
 - e. Remove three screws 18 from small PC board between SIGNAL INPUT ports.
 - f. Clip the following leads as close to the PC boards as possible. (DO NOT UNSOLDER).
 1. 92 wire in first hole of small PC board removed in step e.
 2. 94, 93, 95, and 96 wires (bottom-middle of A5A1 Keyboard).
 - g. Disconnect RPG leads 30 from A5A1 Keyboard.

h. Remove A5A1 Keyboard from front-panel frame (DO NOT REMOVE KEY CAPS FROM SWITCHES OR LEDS FROM SOCKETS).

i. Solder 94, 93, 95, and 96 wires onto Rebuilt Keyboard Assembly, HP P/N 85680-60141, and install Rebuilt Keyboard Assembly in front-panel frame. Refer to View E for position of Attenuator Cable Clamp.

j. Connect RPG leads.

k. Solder 92 wire onto small PC board and install small PC board between SIGNAL INPUT ports.

l. Reinstall attenuator bracket and solder 3 and 92 wires to A5K1 Input Relay.

m. Reconnect all cables and reinstall front panel assembly in RF Section.

85662A IF-DISPLAY Section Keyboard Replacement:

1. Referring to Figure 8-7 on page 8-22, Volume 3 of the 8568A O&S Manual, remove the keyboard as described in steps 1 through 12.

2. Install Rebuilt Keyboard Assembly, HP P/N 85662-60129 in front-panel frame. Remove foam blocks from ribbon cable connectors and place them on the connectors of the failed keyboard to protect connector pins during shipment.

3. Connect cables and reinstall front panel assembly in IF-DISPLAY Section.

4. Properly package and return the replaced keyboards using the normal Blue-Stripe procedures. DO NOT REMOVE KEY CAPS OR LEDS.