

P.C. None

SUPERSEDES
3570A-3

-hp- Model 3570A Network Analyzer

Serial Number: All

REPLACEMENT PARTS CHANGES

Three separate production modification improvements have been made to the 3570A. Many of the circuit boards have been modified extensively and some of the old style boards which they replace have been obsoleted and are no longer available. To assist you in servicing your 3570A, each modification is outlined below. During any repair, observe the following:

1. When any of these old style boards fail, they should be replaced by a new improved board.
2. When troubleshooting a defective instrument, care must be used to ensure that a correct combination of boards is being used.
3. Once an instrument is equipped with a complete set of new boards from a particular production modification, individual new style replacement boards are then available in case of any subsequent failure.

Production Modification 1 (Log Amplifier Changes)¹

All instruments with S/N 1251A00246 and higher were factory equipped with this change. Prior to this production modification (S/N 1251A00245 and lower), the amplitude stability of the 3570A was not a published specification. Typically it was 0.10 dB/°C. With this modification, the 3570A is specified to have a temperature stability of ± 0.02 dB/°C (3 kHz and 100 Hz BW) and ± 0.05 dB/°C (10 Hz BW).

This production modification obsoletes the old style Log Amplifier Boards and Output Buffer Board and replaces them with their new improved versions. (See Table 1)

Table 1. Log Amplifier Changes.

| Qty/ Inst. | Reference Designator | Description | Old Style BD Number | | New Style BD Number | |
|---------------|-------------------------|---------------------|---------------------|----------------------------|----------------------|---------------------|
| | | | Orig. BD | Rebuilt Exch. BD Number | Direct Replace BD | Rebuilt Exch. BD |
| 2 | A7 and A23 | Log Amp Board | 03570-66535* | 03570-69535* | 03570-66555 | 03570-69555 |
| 1 | A15 | Output Buffer Board | 03570-66543* | 03570-69543* | 03570-66556 | 03570-69556* |

*These boards are no longer available.

¹ Refer to Service Note 3570A-2A

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Never interchange only one old style board of this set with a single new style board. If an instrument is equipped with the old style boards and one of them fails, it becomes necessary to replace all three boards with new style boards. All three are available in a kit at a reduced price under -hp- Part No. 03570-87900. Once this kit has been installed, individual replacement boards are available in case of subsequent failure. (See Table 1.) The latest version of the 3470A Operating and Service Manual contains the schematics, parts list, and adjustment procedures for the individual boards. A copy of the latest manual is included with each new board kit.

Production Modification 2 (Input Amplifier Changes)¹

All instruments with S/N 1251A00246 and higher were factory equipped with this change. The modification improves the frequency response of the 3570A. Instruments with S/N 1251A00245 and lower were not factory equipped with this modification.

This production modification obsoletes the old style Input Amplifier Boards and replaces them with a new improved version (See Table 2). In addition, all existing Mixer/IF Amplifier Boards were updated to make them compatible with the improved versions of the Input Amplifier Boards. This change is indicated by a new revision letter on the Mixer Board (Rev. B and higher) or a minor circuit modification to the original Rev. A Mixer Boards. (See Table 2)

Table 2. Input Amplifier Changes.

| Qty/ Inst. | Reference Designator | Description | Old Style BD Number | | New Style BD Number | |
|---------------|-------------------------|--------------------|-------------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|
| | | | Orig. BD | Rebuilt Exch. BD Number | Direct Replace BD | Rebuilt Exch. BD |
| 2 | A1 and A17 | Input Amplifier | 03570-66531* (50 ohms) | 03570-69531* (50 ohms) | 03570-66551 (50 ohms) | 03570-69551* (50 ohms) |
| | | | 03570-66528* (75 ohms) | 03570-69528* (75 ohms) | 03570-66558 (75 ohms) | 03570-69558* (75 ohms) |
| 2 | A2 and A18 | Mixer/IF Amplifier | 03570-66532* Rev. A (50 ohms) | 03570-69532* Rev. A (50 ohms) | 03570-66532 Rev. B** (50 ohms) | 03570-69532* Rev. B** (50 ohms) |
| | | | 03570-66529* Rev. A (75 ohms) | 03570-69529* Rev. A (75 ohms) | 03570-66529 Rev. B** (75 ohms) | 03570-69529* Rev. B** (75 ohms) |

*These boards are no longer available.

**Some Rev. A Mixer/IF Amplifier Boards have been modified to be electrically identical to the Rev. B boards. A2/A18R24 and R33 have been changed from 75 ohms to 1000 ohms. A 60 μ F capacitor and 100 Ω resistor (in series) have been connected across R33.

Never interchange old style boards of this set with new style boards. If an instrument is equipped with the old style boards (3570A's with Serial Number 1125A00245 and lower) and an Input Amplifier Board fails, order two new style Input Amplifier Boards to replace the existing boards. These two boards are available in a kit at a reduced price. Order -hp- Part No. 03570-87901 (50 ohms) or -hp- Part No. 03570-87902 (75 ohms). The existing Mixer/IF Amplifier Boards of the 3570A must then be updated to be compatible with these new style Input Amplifiers (See instructions included at the end of this Service Note). Once these modifications have been made, individual replacement boards are available (See Table 2.) The latest version of the 3570A Operating and Service Manual contains the schematics, parts list, and adjustment procedures for the individual boards. A copy of the latest manual is included with each new board kit.

If the Mixer/IF Amplifier Board fails in an instrument equipped with the old style boards, do not replace the boards as a set. Order only the direct replacement part number or the rebuilt exchange part number for your Mixer/IF Amplifier. You will receive a Rev. B Mixer/IF Amplifier or equivalent which can be easily modified to work in your instrument (See instructions included at the end of this Service Note). The adjustment procedures will not be affected if the Input Amplifiers are not updated to the new style (03570-66551, 50 ohms or 03570-66558, 75 ohms).

Production Modification 3 (Crystal Filter Board Changes)

All instruments with S/N 1251A00276 and higher were factory equipped with this change. The modification decreases the offset introduced when the front panel Bandwidth setting of the 3570A is changed. Prior to this modification, no adjustments were available to null out the offsets introduced by the three BANDWIDTH settings.

¹ Refer to Service Note 3570A-4A

This modification changed the A5/A21 Crystal Filter Boards (the last stage of the crystal filter in each channel) from an 03570-66533 to an 03570-66553. The A3/A19 and A4/A20 Crystal Filter Boards did not change part number, but did change to a Rev. C or higher. See Table 3.

Table 3. Crystal Filter Changes.

| Qty/ Inst. | Reference Designator | Description | Old Style BD Number | New Style BD Number |
|---------------|-------------------------|----------------------|---------------------|---------------------|
| 2 | A5 and A21 | Crystal Filter Board | 03570-66533 Rev. A | 03570-66553 |
| 4 | A3, A4/A19, A20 | Crystal Filter Board | 03570-66533 Rev. A | 03570-66533 Rev. C |

If you have an instrument equipped with the old style boards (03570-66533 only) and one of them fails, order the 03570-66533 board as a replacement. (Do not order a new crystal unless it is defective.) You will receive a Rev. C board which is a direct replacement. Your adjustment procedure will be affected by this change.

If you have an instrument equipped with the new style crystal boards, the crystal filter adjustment has changed. Also you must perform an additional Bandwidth Switching Adjustment. Consult the latest version of the 3570A Operating and Service Manual. If any of these new style boards should fail, always order the new style direct replacement board as outlined in Table 3. (Do not order a new crystal unless it is defective.)

If you wish, you may retrofit your instrument with this production modification by ordering two 03570-66553 Crystal Boards and using them to replace the existing old style A5 and A21 Crystal Filter Boards. The crystal itself is not part of the board and should not be replaced unless defective.

SCHEMATIC AND ADJUSTMENT CHANGES

The latest version of the 3570A Operating and Service Manual contains the schematics, parts list, and adjustment procedures for the individual boards. A copy of the latest manual is included with each new board kit.

| Production Change | Circuit Boards Affected | Schematics Affected | Adjustment Changes |
|---|---|--|---|
| # 1 (Factory equipped in all instruments with S/N 11251A00246 and higher) | A7 and A23 (Log Amplifiers) A15 (Output Buffer) | 4 (Figure 7-13, Page 7-29/7-30) 6 (Figure 7-15, Page 7-33/7-34) | Log Amplifier Phase Adjustments through Input Mixer Phase Adjustments and Log Amplifier Adjustments |
| # 2 (Factory equipped in all instruments with S/N 11251A00246 and higher) | A1 and A17 (Input Amplifier) A2 and A18 (Mixer/IF Amplifier) | 2 (Figure 7-11, Page 7-25/7-26) 2 (Figure 7-11, Page 7-25/7-26) | High Frequency Phase Adjustments for instruments equipped with A1 and A17 03570-66551/69551 (50 ohms or 03570-66558/69558 (75 ohms) |
| # 3 (Factory equipped in all instruments with S/N 1331A00276 and higher) | A3, A4, A5 and A19, A20, A21 (Crystal Filters) | 3 (Figure 7-12, Page 7-27/7-28) | New Bandwidth Switching Adjustments (for instruments equipped with A5 and A20 03570-66553 Crystal Boards only) |

RETROFITTING A2/A18 MIXER BOARDS

The A2/A18 Mixer Board was changed along with the A1/A17 Input Amplifier (Production Modification 2). However, the changes were minor and with proper field modifications, the A2/A18 Mixer Board can be made compatible with any style of A1/A17 Input Amplifiers.

If you have an instrument equipped with old style A1/A17 Input Amplifiers (03570-66531/69531, 50 ohms, or 03570-66528/69528, 75 ohms), and you order a new A2/A18 Mixer/IF Amplifier Board (03570-66532, 50 ohms, or 03570-66529, 75 ohms), you will receive a Rev. B (or modified Rev. A.) vintage of this board which is only compatible with the new style of Input Amplifier Boards (03570-66551/69551, 50 ohms, or 03570-66558/69558, 75 ohms). To make this board compatible with your present instrument, replace A2/A18R24 and R33 (1 kilohm 1% metal film resistors) with 75 ohm 1% 1/8 watt metal film resistors (-hp- Part No. 0757-0280). Remove R49 (100 ohm 1% resistor in series with C22 and this combination in parallel across R33).

If you replace the old style A1/A7 Input Amplifiers of your 3570A with two new style input Amplifier Boards (03570-66551, 50 ohms, or 03570-66558, 75 ohms), you must modify the existing A2 and A18 Mixer/IF Amplifier Boards. Any Rev. B Mixer/IF Amplifier Board can be modified by simply changing A2/A18R24 and R33 from 75 ohm resistors to 1 kilohm 1% 1/8 watt metal film resistors (-hp- Part No. 0757-0280), and replacing A2/A18R49 (100 ohm 1% metal film resistor, -hp- Part No. 0757-0401). R49 would have been removed per the instructions of the previous paragraph and during a repair replacement of the Mixer/IF Amplifier. Revision A Mixer/IF Amplifier Boards must be modified more extensively.

1. A2/A18R24 should be changed from a 75 ohm resistor to a 1 kilohm 1% 1/8 watt metal film resistor (-hp- Part No. 0757-0280).
2. A2/A18R33 should be removed. Solder a terminal pin (-hp- Part No. 0360-1647) into each of the two holes used by R33 (short end of pin through the board).
3. Connect a 1 kilohm 1% 1/8 watt metal film resistor (-hp- Part No. 0757-0280) between the two terminal pins installed in Step 2.
4. Install a brass turret terminal (-hp- Part No. 0360-0077) approximately 1/4" directly below U2 pin 15. Use a number 51 (.0670") bit to make a hole for the turret. Flange out the bottom of the turret terminal so it is held firmly in the circuit board.
5. Solder a 60 μ F capacitor (-hp- Part No. 0180-0160) between the bottom terminal pin installed in Step 2 (the pin connected to pin 7 of the Mixer&IF Amplifier Board) and the terret terminal installed in Step 4. Cut off any excess lead.
6. Place plastic tubing (-hp- Part No. 0890-0060) on both ends of a 100 ohm 1/8 watt 1% metal film resistor (-hp- Part No. 0757-0401). Solder the resistor between the turret terminal installed in Step 4 and the upper terminal pin installed in Step 2.
7. All Rev. A Mixer/IF Amplifier Boards should now appear as in Figure 1. All Rev. B Mixer/IF Amplifier Boards should be modified as described previously.

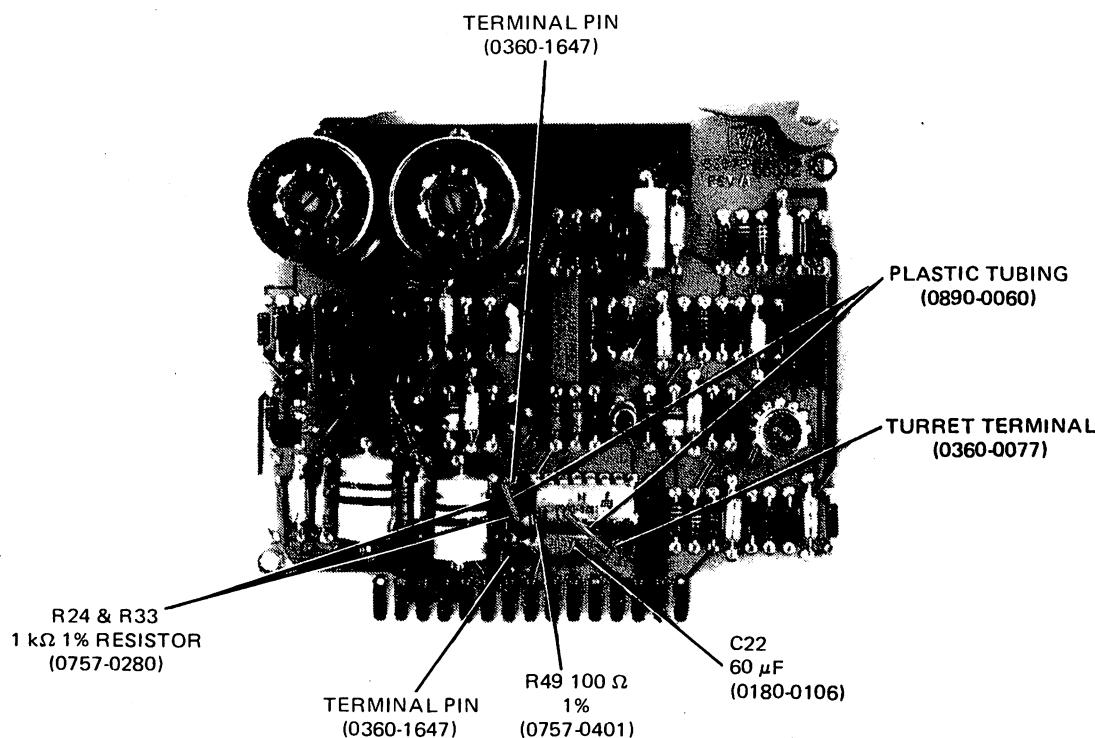


Figure 1. Modified Mixer/IF Amplifier