SERVICE NOTES INDEX

Service Note #	Prefix Break	Description
8902A-1	2616A & Below	Intermittent lock up and HPIB hangup
8902A-2	2411A & Below	RF power calibration error
8902A-2	2305A to 2523A	Error 06
8902A-3		
8902A-4		
8902A-5	2741A & Below	Set reference error
8902A-6		
8902A-7	2621A to 2751A	Automatic tuning anomaly
8902A-8	2834A02050 to 2834A02125	Mod to correct defective cable...affects aaten, RF switch, amplifier
8902A-9	2305A to 2834A	Mod to use keyboard and display in older inst.
8902A-10	2834A01917 to 2920A02293	Intermittent lock up at power on
8902A-11	2920A02415 to 3001A02534	HPIB hang up
8902A-12	3028A02567 to 3028A02698	Recommended firmware replacement
8902A-13	3028A02569 to 3112A02794	TRFL cal factor anomaly
8902A-14	3122A02709 to 3122A02984	TRFL problem using Track-Mode tuning
08901-60287	All Serials	Service Accessory Kit

SERVICE NOTE

Supersedes:
None

HP 8902A Measuring Receiver

2616A and Below (HP 8902A)

Modification to resolve HP 8902A Intermittent Lockup and HP-IB Hangup.

Qty.	Description	HP Part Number	CD
2	Resistor 4.0k 1% .125W	0698-5808	5

Some HP 8902A's may exhibit intermittent lock up and HP-IB hangup problems. HP 8902A's that have this problem may have any of the following symptoms:

1. Display is filled with random ones and zeros.
2. Random keys light and other annunciators are on.
3. There is no change in the display but the keyboard does not respond.
4. Error 89 is displayed along with other symptoms from above.
5. The HP-IB bus is locked up by the HP 8902A and the 8902A is demonstrating one of the symptoms from above.
6. The instrument randomly goes through it's power up routine.

In most of the cases from above the problem can only be cleared by cycling the power on the HP 8902A off and then back on. In some cases pressing the clear key or doing an instrument preset will also clear the problem.

The failure mechanism has been identified as the crimps on cable W45. W45 is a molex connector that goes between A26 J3 and A27 J4. W45 connects the power supply voltages to the digital section. The crimps on this cable have been found to be causing intermittent drop outs of a supply voltage to the digital section, or allowing oxidation to form which develops a voltage drop across the crimp. In most of the cases the crimp has developed a voltage drop. The +5 volt line (white/red wire) is the one that will cause the lock up problem if this problem develops. The voltage drop needed to cause this problem is only 250 mV on the +5 volt line.

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The reason for this can be found in the +12V AND +5V POWER SUPPLY DROP DETECTION circuitry on the A13 Controller Board. This circuitry is designed to disable the RAM and switch it to battery back up if either of these supplies drops 5 percent below it's nominal value. If the RAM gets disabled and the microprocessor continues to run, as is the case here, the microprocessor gets lost in it's program and generally leaves the HP 8902A in one of the above described conditions.

This problem is compounded by the HP 8902A's +5V power supply nominal setting. The +5V power supply is nominally +5.00 Vdc on the A10 Power Supply Regulator board. Due to normal losses in connectors and wiring the +5V on the A13 Controller Board is nominally 4.94 Vdc.

To solve this problem perform the following modifications:

1. Remove W45 from the HP 8902A. Solder all of the crimp connections on both ends of W45. It is best to do this one crimp at a time by removing the contact from it's housing, soldering it, and replacing it.
2. Remove the A10 Power Supply Regulator Board from the instrument. Remove A10 R50 and R54 and replace them with a 4.0k ohm resistor (HP P/N 0698-5808). This will raise the nominal supply voltages on the A10 Board to +5.24 for the +5V supply and −5.24 for the −5V supply.

SERVICE NOTE

Supersedes:
None

HP MODEL 8902A MEASURING RECEIVER

Serial Prefix 2411A and Below

RF POWER REFERENCE CALIBRATION ERROR

HP 8902A Measuring Receivers with serial prefix 2411A and below may have RF Power References that are out of calibration. Typically, the calibration will be about 1% low.

The calibration of the RF Power Reference for these instruments should be verified. Use the procedure in the Service Manual titled "Power Reference Performance Test (Using DC Substitution)" to check the calibration. Use the calibration procedure titled "Power Reference Adjustment (Using DC Substitution)" to readjust the reference if necessary.

W/IM/WA

08/84-10/JH

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SERVICE NOTE

Supersedes:
None

HP MODEL 8902A Measuring Receiver

2305A to 2523A

Modification for Invalid Error 06 Indication

Description

These instruments may indicate Error 06 (instrument overpower) under normal operating conditions. Three independent sources for this problem have been identified: (1) microphonic chatter of contacts in the +15V power supply relay (A26K1), (2) drift in the input RF peak detector circuits, and (3) switching transients in the RF input attenuator.

Procedure

For instruments of any serial prefix, check the +15V power supply relay by tapping gently on the relay with a wooden or plastic instrument. See A26K1 on Service Sheet 31. If Error 06 appears as a result, replace or clean the contacts of the relay.

For instruments with serial prefix 2305A to 2523A, check the following components and replace them with the recommended parts if they are different. See Service Sheets 4 and 24.

Reference Designator	Value or Type	Part Number
A13U10[1]	EPROM	08901-80100
A13U7[1]	EPROM	08901-80101
A13U4[1]	EPROM	08901-80102
A16R10[2]	1 MΩ	0698-8827
A16R11[2]	162 kΩ	0757-0470
A16R15[2]	3.48 kΩ	0698-3152
A16C20[2]	470 pF	0160-4768
A16U2[3]	LM 211	1826-0098

[1] This revises firmware to date code 304.1985 (use 42.0 SPCL).
[2] Some of the passive component changes on the A16 RF Detector Assembly may already be installed in some instruments.
[3] This change replaces A16U2 with the same part from a different manufacturer.

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SERVICE NOTE

Supersedes:
None

HP MODEL 8902A MEASURING RECEIVER

SERIAL PREFIXES 2741A AND BELOW

MODIFICATION TO RESOLVE SET REFERENCE ERROR

DESCRIPTION

HP 8902A Measuring Receivers may return as much as 0.07 dB error in the Tuned RF Level measurement mode under unique circumstances. This can happen only when storing and recalling Set Reference calibration factors on signals in the 40 MHz to 80 MHz frequency range. The error can occur if:

a. The HP 8902A is tuned to a signal between 40 MHz and 80 MHz in the Tuned RF Level measurement mode.

b. A Set Reference is performed.

c. The set reference calibration factor is read out and saved.

d. The HP 8902A is tuned to a frequency higher than 160 MHz.

e. The HP 8902A is re-tuned to the original frequency in the 40 MHz to 80 MHz range.

f. The HP 8902A is set to the Tuned RF Level measurement mode.

g. The Set Reference calibration factor is re-entered.

The error will occur approximately 50% of the time. To resolve this error the A19 L.O. Divider Assembly must be replaced with a new version. Table 1 lists the required part needed to modify the HP 8902A.

Table 1. *Part List.*

QTY	PART	C/D	DESCRIPTION	REF DES
1	08902-60126	0	L.O. DIVIDER	A19

(cont'd)

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PROCEDURE

1. Set the HP 8902A POWER switch to STBY.
2. Disconnect the line power cord from the rear of the HP 8902A.
3. Remove the top cover by first removing the top two rear plastic feet from each rear corner and then unscrewing the center screw on the rear of the top cover. This is a captive screw. The top cover will begin to come off as the screw is removed.
4. Remove the A19 L.O. Divider Assembly (HP P/N 08901-60274). It is located in the right side of the instrument as viewed from the front. (12 screws, 6 on each side, and 3 cables must be removed before removing the assembly.)
5. Replace the A19 L.O. Divider Assembly with the new A19 L.O. Divider Assembly HP P/N 08902-60126. (Re-install the securing screws previously removed.)
6. Reconnect all cables which were removed from the original A19 L.O. Divider Assembly.
7. Perform Adjustment 5 - LO Doubler Output Power and Balance Adjustment in section 5 of the HP 8902A Operation and Calibration Manual.
8. Re-install the HP 8902A top cover and rear feet.
9. Re-connect the line power cord.
10. Set the HP 8902A POWER switch to ON.
11. Verify the operation of the HP 8902A by performing the Basic Functional Checks in the HP 8902A Operation and Calibration Manual. (Do not perform the Hewlett-Packard Interface Bus (HP-IB) portion of the checks.)

SERVICE NOTE

Supersedes:
None

HP MODEL 8902A MEASURING RECEIVER

SERIAL PREFIXES 2621A TO 2751A

MODIFICATION TO RESOLVE AUTOMATIC TUNING ANOMALY

DESCRIPTION

High sub-harmonic levels generated on A19 L.O. Divider Assemblies HP part numbers 08902-60126 and 08901-60274 have been found to cause mis-tuning at a small number of frequencies in the HP 8902A operating range. This problem was found to be caused by higher than normal levels out of the new divider circuits used on this assembly. To resolve this, one divider bias resistor value must to be changed to lower the sub-harmonic level. To install the new resistor value, listed in table 1, follow the procedure below.

Table 1. Part List.

QTY	PART	C/D	DESCRIPTION	REF DES
1	0757-0420	0	RESISTOR 750 1% .125W	A19 R34

PROCEDURE

1. Set the HP 8902A POWER switch to STBY.
2. Disconnect the line power cord from the rear of the HP 8902A.
3. Remove the top cover by first removing the top two rear plastic feet from each rear corner and then unscrewing the center screw on the rear of the top cover. This is a captive screw. The top cover will begin to come off as the screw is loosened.

(cont'd)

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4. Remove the A19 L.O. Divider Assembly (HP P/N 08901-60274 or HP P/N 08902-60126). It is located in the right side of the instrument as viewed from the front. Refer to figure 8A-3a on page 8A-9 in Volume 2 of the HP 8902A Service Manual for assembly locations. 12 screws, 6 on each side, and 3 cables must be removed before removing the assembly.
5. Replace A19 R34 in either the HP P/N 08901-60274 or HP P/N 08902-60126 assembly with the resistor listed in table 1. Refer to Service Sheet 17 in Volume 4 of the HP 8902A Service Manual for the location of A19 R34.
6. Re-install the A19 L.O. Divider Assembly into the HP 8902A. Re-installation is the reverse of removal.
7. Reconnect all cables which were removed from the original A19 L.O. Divider Assembly.
8. Re-install the HP 8902A top cover and rear feet.
9. Re-connect the line power cord.
10. Set the HP 8902A POWER switch to ON.
11. Verify the operation of the HP 8902A by performing the Basic Functional Checks in the HP 8902A Operation and Calibration Manual. (Do not perform the Hewlett-Packard Interface Bus (HP-IB) portion of the checks.)

S E R V I C E N O T E

HP 8902A Measuring Receiver

Serial Numbers: 2834A02050/2834A02125

Assembly Name/Reference Designator: W15 Ribbon Cable Assembly

Modification to correct defective cable assembly

To Be Performed By: HP-Qualified personnel

Parts Required:
08902-60025 W15 Ribbon Cable Assembly (A15J1 to A70J1)

Situation:
Ribbon Cable Assembly W15, which connects A15J1 to A70J1, may have defective connectors on both ends. The defective connectors have insufficient spring tension to hold them onto the pins of A15 and A70. This can cause loss of control of the 10 dB input attenuator, RF switch and 24 dB amplifier.

Solution/Action:
Check each connector by pulling vertically on it with minimum force. If the connector comes off of the pins on A15 or A70, replace the cable. It is necessary to remove the wire duct cover (MP30) to replace W15. Refer to Figure 6-5 in the 8902A Service Manual (Volume 1) for cable identification.
Re-calibration is not required after replacement of W15.

Date: 18 December 1989

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 ■ HP LOCATION	SERVICE INVENTORY: ☐ RETURN ■ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ■ SCRAP ☐ SEE TEXT
AVAILABILITY: PRODUCT'S SUPPORT LIFE		RESPONSIBLE ENTITY: 1000	UNTIL: 01 Jan 1993
AUTHOR: LL	ENTITY: 1000	ADDITIONAL INFORMATION:	

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the A1 assembly will fit correctly into the front frame/panel assembly.

NOTE:

PLACE THE INSTRUMENT IN STANDBY (STBY) MODE AND REMOVE THE POWER CORD BEFORE BEGINNING THIS MODIFICATION. FAILURE TO REMOVE POWER CAN RESULT IN ELECTRICAL SHOCK AND/OR PERSONAL INJURY.

Solution/Action:

Referring to Figure 1 for LED locations on the A1 Keyboard and Display Assembly, replace the 11 LEDs using the part numbers and reference designators noted above. Refer to Volume 1 of the 8902A Service Manual, Section 8, Disassembly, Front-Panel Disassembly Procedure (Pages 8C-1 and 2). Also refer to Figure 8C-3, Illustrated Parts Breakdown of the Front Panel,(Page 8C-5). Insure proper orientation when installing the replacement LEDs.

Perform a brief functional verification (turn-on and basic frequency measurement) after completing the modification. Recalibration is not required.

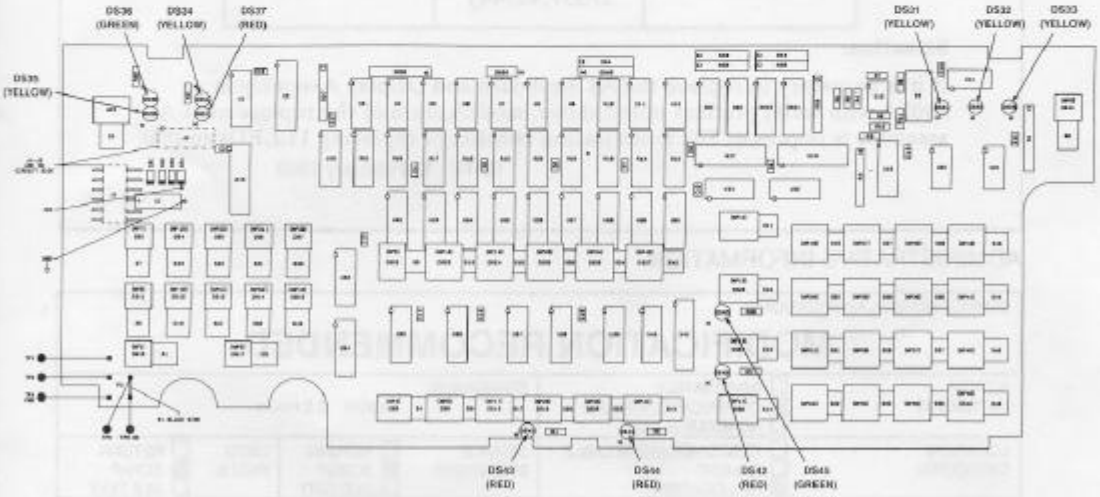

Figure 1

S E R V I C E N O T E

SUPERSEDES None

8902A Measuring Receiver

Duplicate Service Notes: 8901B-05

Serial Numbers: 2834A01917/2920A02293

A13 Controller Assembly (08901-60196)

Modification to Resolve Intermittent Instrument Lock-up at Power-On

To Be Performed By: HP-Qualified Personnel

Parts Required:

HP P/N	Description	Qty
0180-0100	Capacitor, 4.7 uF, 35V	1
0698-3454	Resistor, 215 Kohms, 1%, 0.125 W	1

NOTE:

The failure mechanism described below can occur in older instruments where replacement or retrofit of the Option 002 high stability timebase is performed. If this occurs, modification of both versions of the A13 processor assembly (08901-60244 or 08901-60196) is recommended. The division will not accept any billings for instruments with serial numbers outside the range noted above.

Continued

DATE 10 May 1990

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 ■ HP LOCATION	SERVICE INVENTORY:	☐ RETURN ■ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ■ SCRAP ☐ SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	RESPONSIBLE ENTITY: 1000		UNTIL: 01 May 1995
AUTHOR: LL	ENTITY: 1000	ADDITIONAL INFORMATION:		

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Situation

Some 8902As (serial number range noted above) with Option 002 installed may intermittently lock-up at power-on. Symptoms of this problem include failure of the instrument to complete the normal power-up sequence, non-responding keyboard or non-changing display. The problem can be traced to a difference in start-up time between two different vendor's Opt 002 Time base.

The processor clock is derived from this timebase. Changing the values of two components (A13C17 and A13R11) delays the processor start-up sequence until the 10 MHz signal is stable.

Solution/Action:

Replace A13C17 and A13R11 with the HP part numbers noted above. Re-calibration the instrument is not required.

S E R V I C E N O T E

SUPERSEDES None

8902A Measuring Receiver

Serials Numbers: 2920A02415/3001A02534

A14 Remote Interface Assembly/A14R5

Modification to prevent HP-IB hang-up

To Be Performed By: HP-Qualified Personnel

Parts Required:

HP P/N	Description	Qty.
0698-0084	Resistor, 2150 ohms, 1%, 0.125W	1

Note:

This modification should be performed only on A14 Remote Interface Assembly HP P/N 08901-60268.

Situation:

Some instruments with serial numbers noted above may cause the HP-IB to hang-up for long periods of time. The problem is caused by insufficient time delay on the reset line of handshake logic (DAC) flip-flop A14U15B (pin 13). Increasing the value of A14R5 will prevent this failure mechanism.

Continued

DATE 23 May 1990

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

MODIFICATION RECOMMENDED

ACTION CATEGORY:	☐ IMMEDIATELY ■ ON SPECIFIED FAILURE ☐ AGREEABLE TIME	STANDARDS: LABOR: 1.00 Hours		
LOCATION CATEGORY:	☐ CUSTOMER INSTALLABLE ☐ ON-SITE ■ HP LOCATION	SERVICE INVENTORY:	☐ RETURN ■ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ■ SCRAP ☐ SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	RESPONSIBLE ENTITY: 1000		UNTIL: 01 June 1995
AUTHOR: LHL	ENTITY: 1000	ADDITIONAL INFORMATION:		

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Solution/Action:

Replace A14R5 with with the HP part number noted above. Re-calibration of the instrument is not required.

8902A-12A

S E R V I C E N O T E

SUPERSEDES: 8902A-12

HP 8902A Measuring Receiver

Serial Numbers: 3028A02567 / 3028A02698

Recommended Replacement of Firmware

Parts Required:

08901-80121, UVPROM

Situation:

Firmware revision 180.1990 (in units with serial numbers noted above) has two operational anomalies. First, there are certain places in the Power Meter/Tuned RF Level overlap region where 'RECAL' does not illuminate when calibration is required. Second, the Frequency Offset Mode (27.X SPCL) tuning algorithm is not compatible with HP and customer-generated software.

Firmware revision 349.1990 fixes both anomalies. The present firmware revision can be displayed by entering 42.0 SPCL on the keyboard.

Solution/Action:

Replace A13U14 with the part number noted above.

DATE: 22 May 1991

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION: **MODIFICATION RECOMMENDED**				
ACTION CATEGORY:	☐ IMMEDIATELY ■ ON SPECIFIED FAILURE ☐ AGREEABLE TIME	STANDARDS: LABOR: 0.5 Hours		
LOCATION CATEGORY:	☐ CUSTOMER INSTALLABLE ☐ ON-SITE ■ HP LOCATION	SERVICE INVENTORY:	☐ RETURN ■ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ■ SCRAP ☐ SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	RESPONSIBLE ENTITY: 1000		UNTIL: 12 December 1994
AUTHOR: LHL	ENTITY: 1000	ADDITIONAL INFORMATION: Older Units Upgraded at Customer Expense.		

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S E R V I C E N O T E

SUPERSEDES: None

HP 8902A Measuring Receiver

Serial Numbers: 3028A02569 / 3112A02794

Firmware upgrade corrects TRFL Cal Factor anomaly

Parts Required:

HP Part No.	Description
08901-80128	UVPROM

Situation:

Firmware revisions 180.1990 and 349.1990 (in units with serial numbers noted above) have an operational anomaly when the 8902A is concurrently operated in the TRFL (Tuned RF Level) and Frequency Offset modes. This anomaly may cause errors in the accuracy of TRFL readings when measuring the level of signals above 1300 MHz.

This anomaly does not affect real time single-frequency, single-calibration generation of calibration factors. However, if previously generated TRFL Range-to-Range Calibration Factors are down-loaded from an external controller using 39.X SPCL, they are accepted by the 8902A but are not used to correct the readings.

Firmware revision 94.1991 corrects this anomaly. The present firmware revision can be displayed by entering 42.0 SPCL on the front-panel keyboard. Earlier firmware revisions do not have this anomaly.

Solution/Action:

Replace A13U14 with the part number noted above.

DATE: 01 May 1991

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

MODIFICATION RECOMMENDED

ACTION CATEGORY:	☐ IMMEDIATELY ■ ON SPECIFIED FAILURE ☐ AGREEABLE TIME	STANDARDS: LABOR: 0.5 Hours		
LOCATION CATEGORY:	☐ CUSTOMER INSTALLABLE ☐ ON-SITE ■ HP LOCATION	SERVICE INVENTORY: ☐ RETURN ■ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ■ SCRAP ☐ SEE TEXT	
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	RESPONSIBLE ENTITY: 1000	UNTIL: 01 May 1996	
AUTHOR: LHL	ENTITY: 1000	ADDITIONAL INFORMATION:		

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8902A-14

S E R V I C E N O T E

SUPERSEDES: None

HP 8902A Measuring Receiver

Serial Numbers: 3122A02709/3122A02984

Problem with TRFL Measurements using Track-Mode Tuning

Parts Required:

0160-4807 Capacitor, Ceramic 33pF 100V

Situation:

A problem has been noted with certain 8902As (serial numbers noted above) while performing Tuned RF Level (TRFL) measurements using track-mode tuning. Track-mode tuning is used with TRFL to make low-level measurements of drifting signals. The failure can only be observed by enabling Special Function 32.9. Failure symptoms appear as an inability to properly track drifting low-level signals or loss of phase-lock onto the RF input signal while this mode of operation is enabled.

The problem is caused by a transistor (A4Q9) in the precision limiter circuitry of the FM Demodulator which breaks into oscillation. This oscillation causes errors in the output voltage of the FM discriminator which is used to re-tune the LO when Track-mode tuning is enabled. Installing an AC ground at the collector of this transistor eliminates the oscillation.

Continued

DATE: 04 August 1992

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

MODIFICATION RECOMMENDED

ACTION CATEGORY:	☐ IMMEDIATELY ■ ON SPECIFIED FAILURE ☐ AGREEABLE TIME	STANDARDS: LABOR: 2.0 Hours		
LOCATION CATEGORY:	☐ CUSTOMER INSTALLABLE ☐ ON-SITE ■ HP LOCATION	SERVICE INVENTORY:	☐ RETURN ■ SCRAP ☐ SEE TEXT	USED PARTS: ☐ RETURN ■ SCRAP ☐ SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	RESPONSIBLE UNTIL : 01 September 1997		
AUTHOR: LHL	ENTITY: 1000	ADDITIONAL INFORMATION:		

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Solution/Action:

Install a 33 pF capacitor on the backside of the A4 assembly from the collector of Q9 to the positive (+) end of C36. Insure that the lead length is kept as short as possible. Refer to the component locator diagram for the A4 assembly which is located on the back of Service Sheet 10 in the 8902A Service Manual, Volume 3. Re-adjustment of the track-tune mode offset (Adjustment 7, 8902A Operation/Calibration manual) is required. Re-calibration is not required.

P-08901-60287

SERVICE NOTE

Supersedes:
P-08901-60089A

HP MODEL 8901A AND 8901B MODULATION ANALYZER AND HP MODEL 8902A MEASURING RECIEVER

All Serials

SERVICE ACCESSORY KIT
(HP Part Number 08901-60287)

mh/WN

10/85–10/DA

Printed in U.S.A.
HP Part No. 08901-90112

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DESCRIPTION

The HP 08901-60287 Service Accessory Kit contains extender boards, extender cables, and other accessories useful for servicing the HP Model 8901A, 8901B Modulation Analyzers and the HP Model 8902A Measuring Receiver. Table 1 lists the contents (and replaceable parts) of the kit. (Check digit for the kit is 3.) Figure 2 is a schematic diagram for the HP 08901-60081 Digital Test/Extender Board contained in the kit.

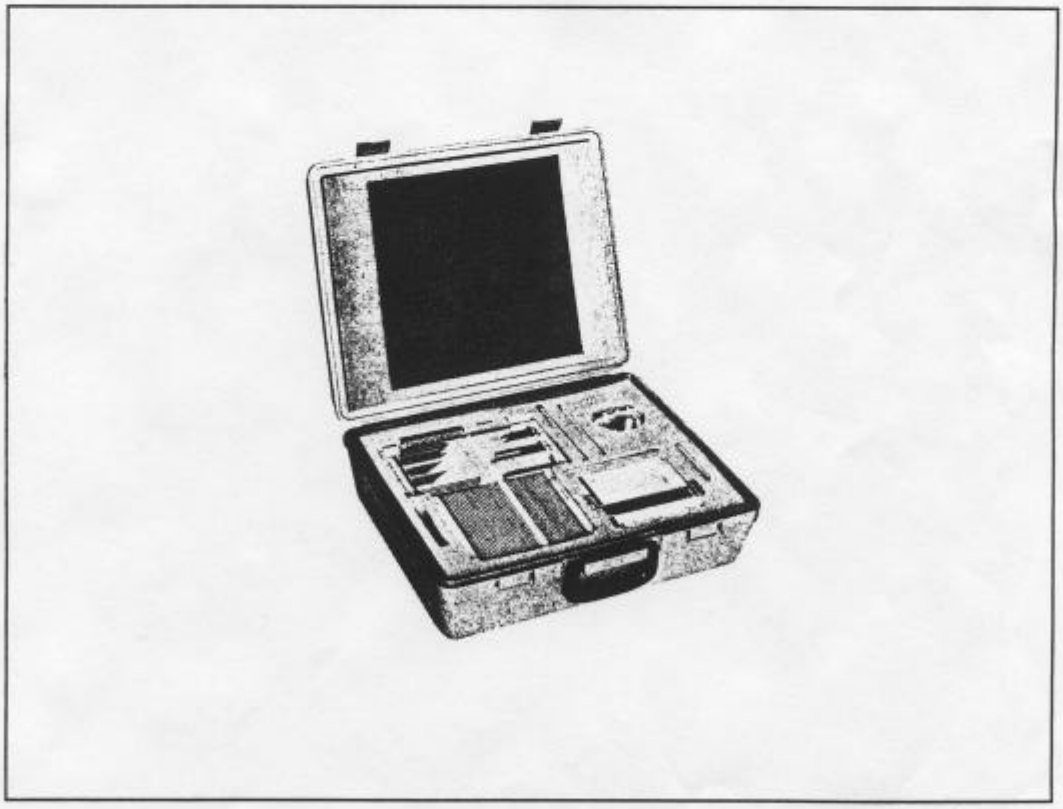
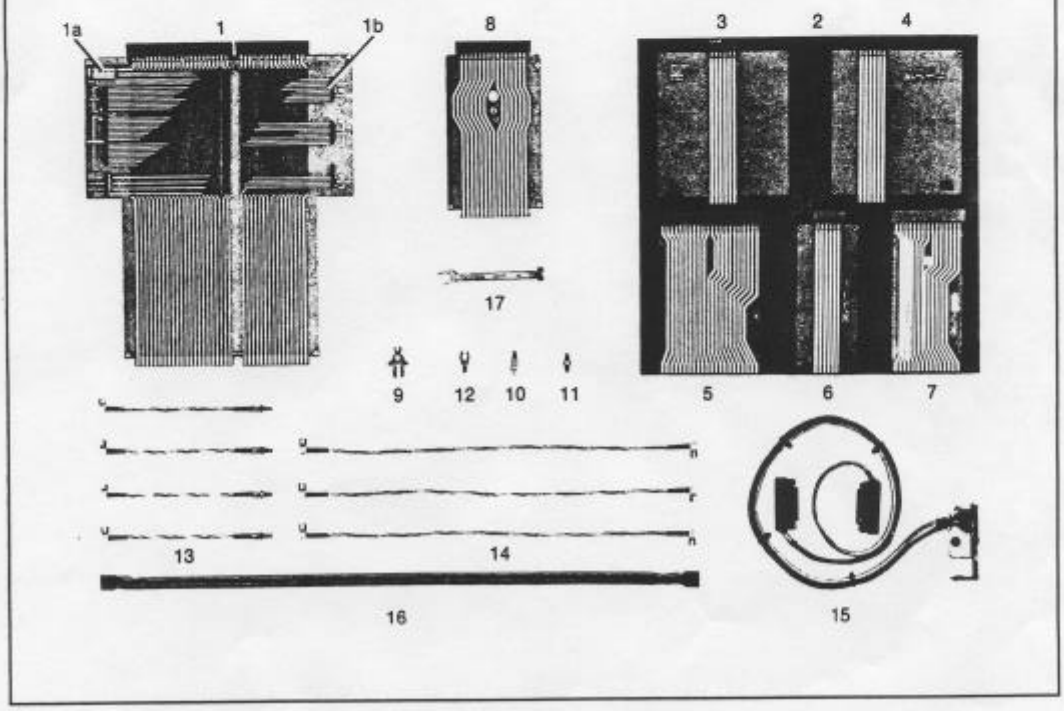


Figure 1. Internal View of the Service Accessory Kit

Table 1. Contents of the HP 08901-60287 Service Accessory Kit

Item Number	Description	Qty	HP Part Number	Check Digit
1	Digital Test/Extender Board	1	08901-60081	5
1a	7-Pole Switch	1	3101-1973	7
1b	8-Pin Connector	7	1251-4335	6
2	Conductive Foam	1	4208-0094	8
3	Extender Board (2 x 6 pins)	1	08901-60087	1
4	Extender Board (2 x 6 pins)	1	08901-60088	2
5	Extender Board (2 x 22 pins)	1	08901-60084	8
6	Extender Board (2 x 6 pins)	1	08901-60086	0
7	Extender Board (2 x 15 pins)	1	08901-60085	9
8	Extender Board (2 x 15 pins)	1	08662-60276	0
9	SMC-BNC Adapter	1	1250-0832	8
10	SMC RF Test Probe	1	1250-1598	5
11	SMC-SMC Adapter	1	1250-0827	1
12	SMA-SMC Adapter	1	1250-1693	1
13	Cable Assembly (coax SMC)	4	08901-60090	6
14	Cable Assembly (coax SMC)	3	08901-60056	4
15	Cable Assembly (RF Power)	1	08901-60290	2
16	Cable Assembly (Ribbon)	1	08902-60025	7
17	Wrench (5/16 inch)	1	5021-2810	5



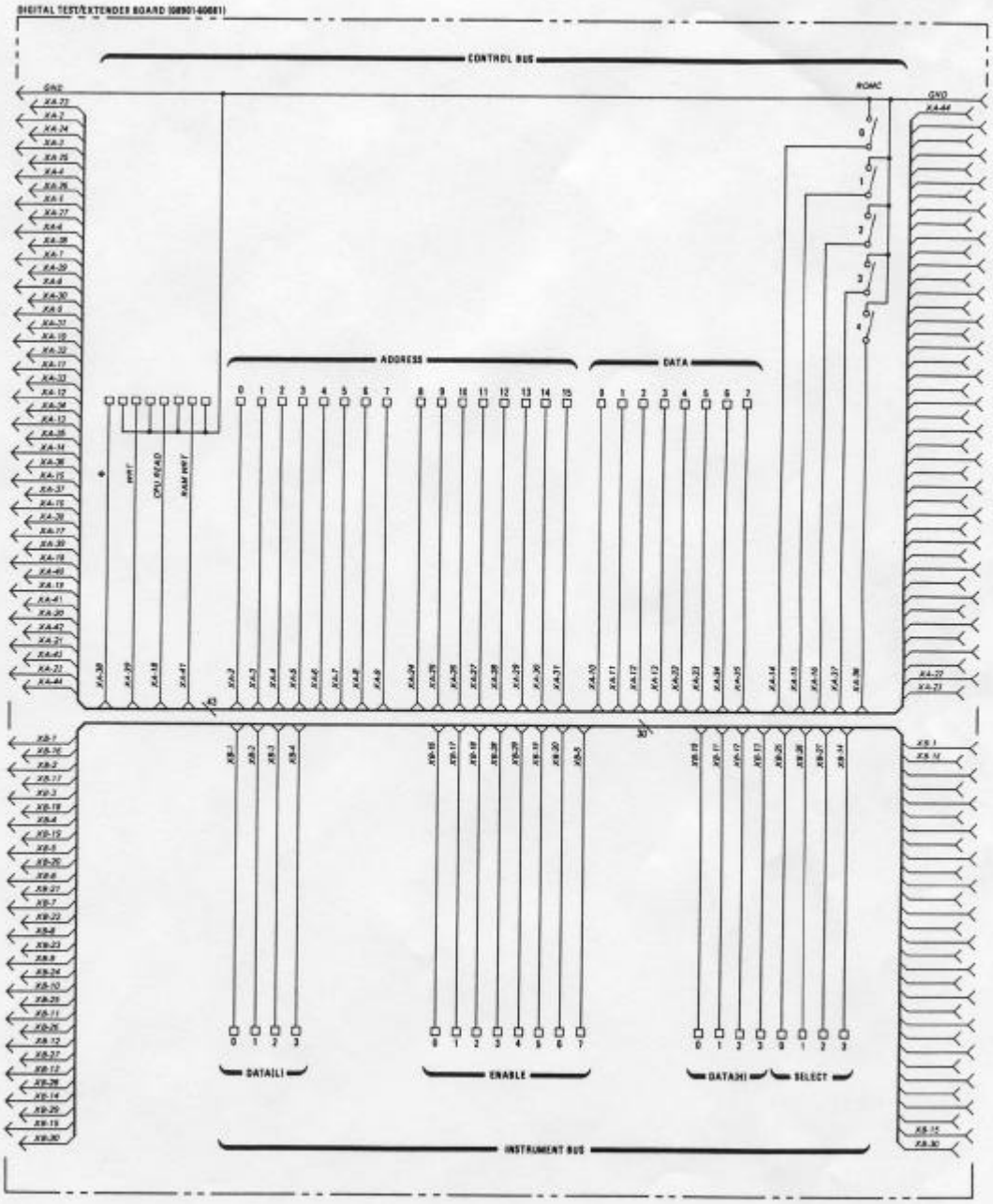


Figure 2. Schematic Diagram of HP 08901-60081 Test/Extender Board