

MANUAL UPDATING CHANGES**CHANGE DATE:** December 13, 1984

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* * * * MANUAL IDENTIFICATION * * * *
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* * * * MANUAL UPDATING COVERAGE * * * *
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* This supplement adapts your manual
* to instruments with serial numbers
* prefixed through 2332.
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* Instrument:   Model 10811A/B
*               Quartz Crystal
*               Oscillator
*               Operating & Service
*               Manual
* Manual Part No: 10811-90002
* Manual Microfiche: 10811-90003
* Manual Print Date: August 1980
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ABOUT THIS SUPPLEMENT

The information in this supplement is provided to correct manual errors and to adapt the manual to instruments containing changes after the manual print date.

Change and correction information in this supplement is itemized by page numbers corresponding to the original manual pages. The pages in this supplement are organized in numerical order by manual page number.

Manual updating supplements are revised as often as necessary to keep manuals as accurate as possible. Hewlett-Packard recommends that you periodically request the latest edition of this supplement. Free copies are available from all HP offices. When requesting copies quote the model number, print date, and part number listed at the top of this page.

HOW TO USE THIS SUPPLEMENT

Insert this title page in front of the title page in your manual.

Perform all changes specified for "All Serials", and all changes through the Series Prefix of your instrument or board.

Insert any complete replacement pages provided into your manual in the proper location.

If your manual has been updated according to the last edition of this supplement, you need only perform those changes pertaining to the new series prefix. See List of Effective Pages on the reverse side of this page. New information affecting "All Serials" will be indicated by a "#" in front of the page number.



LIST OF EFFECTIVE PAGES

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*****
* SERIAL PREFIX OR SERIAL NUMBER PAGES *
*****
All Serials 1-2, 1-3, 1-19, 1-20, 1-21, 2-3, 2-4, 2-6
3-2, 4-4, 4-5, 5-6, 4-7, 5-2, 5-3, 5-4,
6-4, 6-6, 8-3, 8-15, 8-16, 8-17, 8-21, 8-25

2048A 6-4, 8-25

2132A 6-4, 8-25

2216A 1-2, 6-6

2244A (10811B only) 1-3, 6-4, 8-25, 5, 6-4, 6-5, 6-6, 8-17, 8-25

2332A (10811A only) 1-3, 6-4, 8-25, 5, 6-4, 6-5, 6-6, 8-17, 8-25

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(10811AB) 2048A=10783, 2132A=12402/2216A=13375, 14000/2244A, 2332A=14019, 14774
15402, 15406, 16197, 16592, 16603, 16626

MANUAL CHANGES MODEL 10811A/B (10811-90002)

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Inside Front Cover - WARRANTY:

All Serials >Add the following:

NOTE

The Oscillators in the Replacement Kits with the following part numbers are covered by Hewlett-Packard's standard 90-day parts warranty:

05061-6170	00105-6112	10544-60041
05065-6097	10544-60040	05245-60038

Page 1-2, Table 1-1, Specifications:

All Serials >Add asterisks (**) next to the title, "PHASE NOISE RATIO" (table in upper right corner).

Frequency Stability:

>Add asterisks (**) next to the following titles:

"LONG TERM (AGING RATE)"

"SHORT TERM"

"TEMPERATURE"

"GRAVITATIONAL FIELD"

"MAGNETIC FIELD"

>Add the following note to the bottom of the table:

**Various versions of the oscillator may have specifications different from those shown in Table 1-1, Specifications. See Paragraph 1-19 for more details.

Accessories Available:

>Change Service Manual part number from "19811-90002" to "10811-90002".

2216A

Temperature:

>Change $<4.5 \times 10^{-9}$ to, $<1.5 \times 10^{-8}$.>Change $<2.5 \times 10^{-9}$ to, $<7 \times 10^{-9}$.

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Page 1-3. General Information:

All Serials >Replace paragraphs 1-19 through 1-21 with the following:

1-19. SPECIFICATIONS FOR OTHER 10811A/B OSCILLATORS

1-20. There are several versions of the 10811A/B Oscillator. These versions may have specifications that are different from those shown in Table 1-1. These oscillators are labeled with a part number in the form of 10811-6XXXX.

1-21. Table 1-1a lists the oscillators and the specifications which are different from the standard 10811A or 10811B.

Table 1-1a. Specifications for Other Versions of the 10811A/B

HP Part Number	Frequency Domain	Long Term (Aging Rate)	Gravitational Field	Magnetic Field	Time Domain	Temperature
10811-60101	PDS	PDS	PDS	PDS	PDS	PDS
10811-60102	PDS	PDS	PDS	PDS	PDS	PDS
10811-60105	NS	$1.5 \times 10^{-9}/\text{day}$	NS	NS	1×10^{-11} at 1 second only	Frequency change less than 7×10^{-9} for temperature change of 0 to 71 deg C.
10811-60109	-95 dBc at 1 Hz All other points PDS	PDS	PDS	PDS	PDS	PDS
10811-60111	PDS	PDS	NS	NS	1×10^{-11} at 1 second only	Frequency change less than 7×10^{-9} for temperature change of 0 to 71 deg C.
10811-60116*	-155 dBc at 1 KHz only	$1.5 \times 10^{-9}/\text{day}$	NS	NS	1×10^{-11} at 1 second only	Frequency change less than 1×10^{-7} for temperature change of 0 to 71 deg C.
10811-60211	NS	$7.0 \times 10^{-10}/\text{week}$	NS	NS	1×10^{-11} at 1 second only	Frequency change less than 7×10^{-9} for temperature change of 0 to 71 deg C.

* Other 10811-60116 specifications which differ from standard 10811B are:
Oscillator Supply Sensitivity: $\leq 1\text{E-}8$ for a 1% change

NOTES: NS= Not Specified
PDS= Per Data Sheet

Oven Supply Sensitivity: $\leq 1\text{E-}9$ for a 10% change
Coarse Frequency Range: $\geq +8\text{E-}7$ (+8 Hz)
EFC Range: Not Specified
Voltage Output: 0.5 Vrms Nominal (into 50 ohms)

Page 2-3. INSTALLATION

All Serials Oven Monitor LED Circuit:
>Change the diode and transistor description to "GENERAL PURPOSE SI DIODE AND TRANSISTOR".

Figure 2-3. 10811A Supply and Oven Connections:
>Add to Note 2: "...and the outer housing".

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Page 2-4. Installation:

- All Serials Figure 2-4. 10811B Supply and Oven Connections:
 >Change mounting stud screw size from 6-32 to 4-40, in center of the drawing.
- >Add note to table in paragraph 2-22, "For 10811B Only".
- >Add the following table of parts for cable part number 10811-60151 for use with the 10811-60102.

Description	Qty	HP Part No.	Berg Part No.
Connector-Shell	1	1251-4492	65039-031
Connector-Sgl Cont	5	1251-4182	47565
Keying Plug	1	1251-3808	65307-001

Page 2-6. Installation:

- All Serials Paragraph 2-36. Environment, Altitude specification:
 >Change the K in Km to lower-case k.

Page 3-2. Operation:

- All Serials Paragraph 3-9f, FREQUENCY ADJUSTMENT PROCEDURE:
 >Add a minus sign(-) to the front of the formula as shown:

$$- \frac{\Delta \text{ FREQUENCY}}{\text{FREQUENCY}} = \frac{\Delta \text{ TIME}}{\text{TIME}}$$

OR

$$- \frac{\Delta F}{f} = \frac{\Delta t}{t}$$

- >Add a minus sign (-) to the front of the example formula as shown:

$$- \frac{\Delta f}{f} = \frac{1 \text{ div} \times 0.01 \mu\text{s/div.}}{10 \text{ s}} = -1 \times 10^{-9}$$

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Page 4-4. Operational Verification:

All Serials Table 4-2. Operational Verification Procedure (Cont'd)
 Step 4, Short Term Stability:
 >Delete the HP-IB bus line connected to 10811A/B, 5065A
 and K79-59992A. The HP-IB bus line in the setup figure
 should connect to the 9825A Calculator and the 5345A
 Electronic Counter ONLY.

Page 4-5. Operational Verification:

All Serials Table 4-2. Operational Verification Procedure (Cont'd)
 Step f, Short-Term Stability:
 >Change step "f" to read: "Type the program from Figure
 5-1 into the 9825A calculator. (See paragraph 4-13 for
 use of other controllers and counters)".

Page 4-6. Operational Verification:

All Serials OPTIONAL CONTROLLERS AND COUNTERS:
 >Replace Figures 4-1 and 4-2 with figures 4-1 and 4-2 in
 these Manual Changes. Figure 4-1 should be the HPL
 program for the 9825A, and Figure 4-2 should be the
 Basic program for the 9835A. The figures are reversed
 in the manual.
 >Change paragraph 4-15 to read: "Figure 4-2 lists the
 program for the 9835A Calculator".

Page 4-7. Operational Verification:

All Serials Table 4-3. 5316A Program Codes:
 >Replace the table with the following:

INTR1ATOGAOWA1RE

Page 5-2. Adjustments:

All Serials Paragraph 5-13. Offset Calculation:
 >Add a minus sign to the front of the formulas as shown:

$$\begin{aligned}
 - \frac{\Delta f}{f} &= \frac{\Delta t}{t} \\
 - \frac{\Delta f}{f} &= \frac{-5 \times 0.01 \mu\text{s/div.}}{10 \text{ s}} = -5 \times 10^{-9}
 \end{aligned}$$

MANUAL CHANGES MODEL 10811A/B (10811-90002)

Page 4-6, Figures 4-1, 4-2:

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0:
1: "Short term stability test 10811A/B":
2: "100 Samples is standard value":ent "Enter number of samples",S
3: Ø→L
4: "5345A Codes":wrt 718,"I2E1<:8"
5: "Empty dummy buffer":red 718,A
6: "First measurement":red 718,A
7: Ø→C
8: for L=1 to S
9: "Successive measurements":red 718,B
10: C+(A-B)I2→C
11: B→A
12: fxd Ø
13: dsp L
14: next L
15:
16: flt 1
17: "Short term stability formula":prt "STS=", $\sqrt{(C/(2*L))}/1e7$ 
18: gto 5
19: stp

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Figure 4-1. HPL Program

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10: ! Short term stability test 10811A/B
20: INPUT "Enter number of samples",Samples    !100 Samples is standard value
30: Loop=Ø
40: OUTPUT 7,18;"I2E1<:8"    !5345A Codes
50: ENTER 7,18;A    !Empty dummy buffer
60: ENTER 7,18;A    !First measurement
70: Count=Ø
80: FOR Loop=1 TO Samples
90: ENTER 7,18;B    !Successive measurements
100: Count=Count+(A-B)I2
110: A=B
120: FIXED Ø
130: DISP Loop
140: NEXT Loop
150: PRINTER IS Ø
160: FLOAT 1
170: PRINT "STS=";SQR(Count/(2*Loop))/1E7    !Short term stability formula
180: GOTO 5Ø
190: STOP

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Figure 4-2. BASIC Program

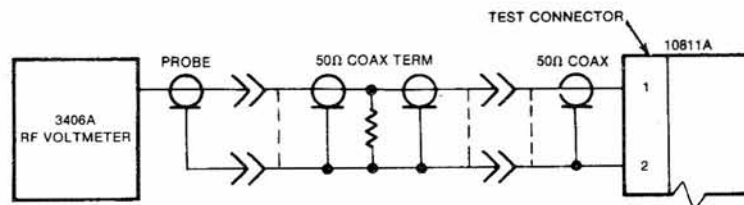
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Page 5-3. Adjustments:

All Serials Figure 5-2. 10811A Amplitude Adjustment Set-up:
 >Change the figure to match the following figure:



Page 5-4. Adjustments:

All Serials Step 6, Fifth line:
 >Change the word "Micon" to "SMB".

Figure 5-3. 10811B Amplitude Adjustment Set-up:
 >Change the adapter description from "Micon-BNC" to
 "SMB-BNC".

Page 6-4, Table 6-1. 10811A/B (10811-60001) Replaceable Parts:

All Serials	>Add 10811-60002 to HP part number 10811-60001. The 10811-60001 is used in the "A" model and the 10811-60002 is used in the "B" model. >Change R6 from 2100-2489, 5K to 2100-2522, 10K R VAR.
2048A	>Change C9 and C11 from 0160-0576 .1UF to 0160-4019, CAPACITOR-FXD .01UF, 50V.
2132A	>Add C25 0160-3277 CAPACITOR-FXD .01UF +-20% 50VDC CER (150-050-X7R-103M).
2244A (10811B) 2332A (10811A)	>Change the HP part number for the 10811B board to 10811-60115 for 10811A/B, Series 2244. >Add C26 0160-3879 CAPACITOR-FXD .01UF +-20% 100VDC CER. >Add C27 0160-3872 CAPACITOR-FXD 2.2PF +-25PF 200VDC CER. >Add for B only Q7 and Q8 1854-0701 TRANSISTOR NPN SI DARL TO-220AB PD=70W. >Change 10811-60001 to 10811-60115 for 10811A/B. >Add reference designator A1 to 10811-60115 circuit board. >Change Q7, Q8 from 10811-80001 to 1854-0701 TRANSISTOR-NPN SI DARL TO-220AB PD=70W.

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Page 6-4, Table 6-1. 10811A/B (10811-60001) Replaceable Parts:

All Series >Service Kit 10811-60114 replaces 10811-60001, 10811-60002, and 10811-60115 for service replacement.

Page 6-5, Table 6-1. 10811A/B Replaceable Parts:

2244A (10811B) >Add W1 8120-4013 FLAT RIBBON ASSY, 6-COND.
 2332A (10811A) >Add W2 8120-4014 FLAT RIBBON ASSY, 4-COND.
 >Add W3 8120-3817 FLAT RIBBON ASSY, 7-COND. (10811A only)
 >Add note to Y1 "Not part of replacement A1 board".

Page 6-6, Table 6-1. Replaceable Parts (Cont'd)

All Serials 10811A Miscellaneous Parts:
 >Change Mfr Part Number for NYLON INSULATOR to 3050-0791.
 >Change the INFO LABEL 10811-60101 part number from 7120-0331 to 7121-0331 and shift the MFR CODE and MFR PART NUMBER down one space.

10811B Miscellaneous Parts:
 >Change the 05060-6116 to "ADAPTER SMB-BNC" in the description column and in the note following the description.

2216A 10811A/B Transistor Mounting Hardware:
 >Change NYLON INSULATOR TO 3050-1021; WASHER SHLDR.

2244A (10811B) 10811A/B Circuit Board Miscellaneous Parts:
 2332A (10811A) >Add reference designator J1 to 1200-0868.
 >Add A2, 10811-60003 EDGE CONNECTOR.

Page 8-3. Figure 8-2. 10811A/B OVERALL BLOCK DIAGRAM:

All Serials >Change the second from the top AGC connection from "AGC" to "10 MHz".
 >Change the 44 newton metres to .6 newton metres in NOTE.

Page 8-13. Service

All Serials >Change the 44 newton metres to .6 newton metres in NOTE.

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Page 8-15. Service:

All Serials >Change the beginning of the sentence to read "A SMB to BNC...".

Page 8-16. Service:

All Serials Paragraph 8-68, part b:
>Change "44 newton-meters" in second from last line to ".6 newton-meters".

2332A Table 8-1. Temperature Set Resistor List:
>Change last two entries from "jumper" to 8159-0005 RESISTOR ZERO OHMS 22 AWG LEAD DIA.

Page 8-17. Service:

All Serials Paragraph 8-68, part d:
>Change "44 newton-meters" in second from last line to ".6 newton-meters".

2244A (10811B) Special Replacement Considerations, step d:
2332A (10811A) >Change part number 10811-80001 to 1854-0701.
>Delete "have formed leads for easy installation". Sentence should now read "The replacement transistor for Q7 and Q8 is 1854-0701.

Page 8-21. Service:

All Serials Paragraph 8-96, third line:
>Change Q6(c) to Q2(c).

Page 8-25. Figure 8-15. 10811A/B OSCILLATOR SCHEMATIC DIAGRAM:

All Serials >Change the Series number of the diagram to 2028.
>Complete the connections between U3(7) and U2(1).
>Complete the connection between R30 and the junction of R25 and U2(1).
>Add a circle to signify a teflon standoff at the junction of R23, C18, and U3 pin 2.
>Change 2nd line of note 10 from "(44 NEWTON-METERS)" to "(.6 NEWTON-METERS).
>Change "SEE PARAGRAPH 8-18(D)" to "SEE PARAGRAPH 8-68(d)" in the last line of Note 10.

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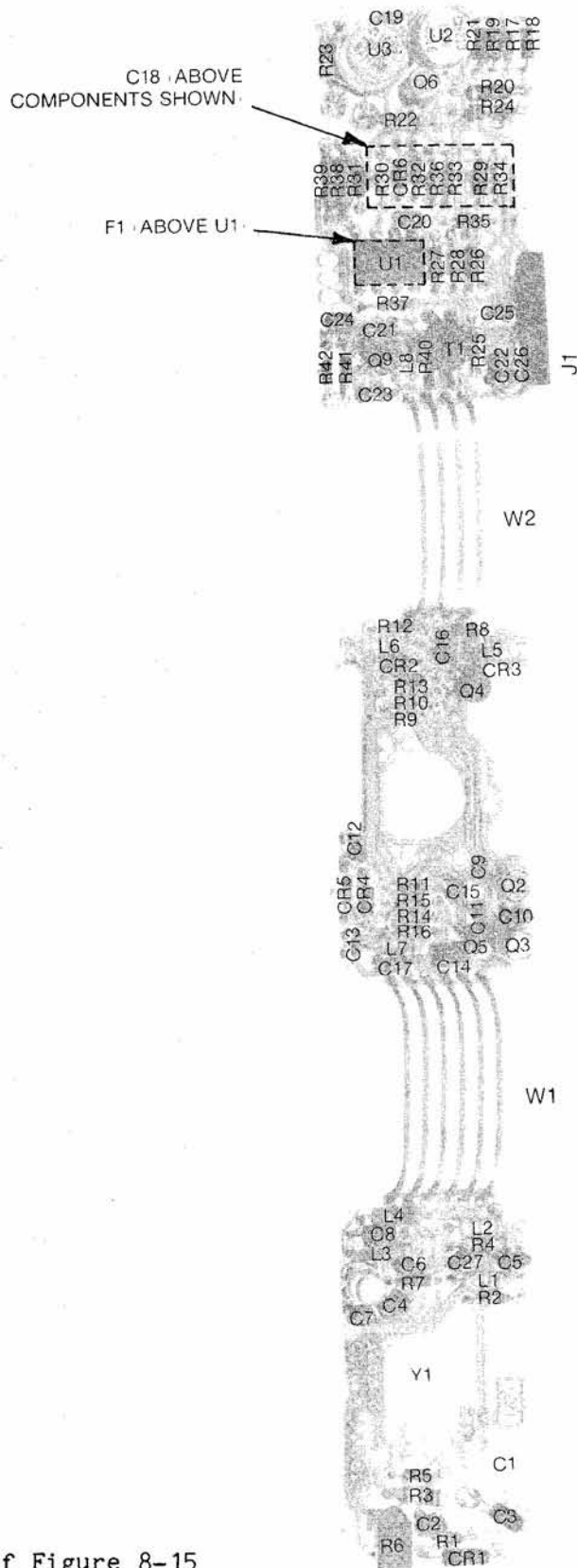
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Page 8-25, Figure 8-15. 10811A/B OSCILLATOR SCHEMATIC DIAGRAM (Cont'd):

- 2048A >Change the series number at the top of the diagram to 2048.
>Change the value of both C9 and C11 to .01U.
- 2132A >Change the series number at the top of the diagram to 2132.
>Add C25, .01UF CAPACITOR, between pins 6 and 7 of U1A.
- 2244A (10811B) >Add the attached component locator .
- 2332A (10811A) >Add C26 next to F1 in the upper right-hand corner of the schematic. Connect one side of C26 to the line that goes to PIN6 of the EDGE CONNECTOR and the other side to ground A.
>Add C27 (2.2 pF) in parallel to L1.
- >Change 10811-60001 for 10811A to 10811-60115, series 2244.
>Add Pin 1 callout to edge connector photo. Pin 1 is end pin nearest W3.
>Add A2 reference designator to Edge Connector board in photograph.
>Add W1 reference designator to 6-COND Flat Ribbon Assy between Oscillator and AGC.
>Add W2 reference designator to 4-COND Flat Ribbon Assy between AGC and Oven Controller.
>Add W3 reference designator to 7-COND Flat Ribbon Assy between Oven Controller and Edge Connector.

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Part of Figure 8-15
10811A/B Component Locator
Part of Page 8-25