HEWLETT PACKARD

MANUAL CHANGES **July, 98**

Manual for Model Number	3324A
Manual printed on	May 1990
Manual Part Number	03324-90011

Make all ERRATA corrections.

Check the following table for your instrument serial prefix/serial number/EDC and make the listed changes to your manual

New Item

Serial Prefix or Serial Number	Manual Changes

ERRATA

Notice

Hewlett-Packard to Agilent Technologies Transition

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. To reduce potential confusion, the only change to product numbers and names has been in the company name prefix: where a product name/number was HP XXXX the current name/number is now Agilent XXXX. For example, model number HP8648 is now model number Agilent 8648.

Contacting Agilent Sales and Service Offices

The sales and service contact information in this manual may be out of date. The latest service and contact information for your location can be found on the Web at:

`http://www.agilent.com/find/assist`

If you do not have access to the Internet, contact your field engineer or the nearest sales and service office listed below. In any correspondence or telephone conversation, refer to your instrument by its model number and full serial number.

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Europe
(tel) (31 20) 547 2323
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(tel) 1 800 629 485
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(tel) (852) 3197 7777
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Agilent Technologies

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ERRATA

On Page A-3 , Specifications

delete : Ranges (without DC offset)

add : Supplementary Range Information : The 1 mV to 10 V (p-p) output range of the HP 3324A consists of 8 internal output ranges

AC Function Only	DC Offset Only	AC Function and DC Offset		
Amplitude Range (p-p)	DC Level (p-p)	Ampl.Range (p-p)	Max DC (+ or -)	Min DC (+ or -)
1.000 mV to 2.999mV	1.000mV to 1.499mV			
3.000mV to 9.999mV	1.500mV to 4.999mV	1.000mV to 3.333mV	4.500mV 3.333mV	0.001mV 0.001mV
10.00mV to 29.99mV	5.00mV to 14.99mV	3.334mV to 9.999mV	14.99mV 11.66mv	0.001mV 0.001mV
30.00mV to 99.99mV	15.00mv to 49..99mV	10.00mV to 33.33mV	45.00mV 33.33mV	0.010mv 0.010mV
100.0mV to 299.9mV	50.00mV to 149.99mV	33.34mV to 99.99mV	149mV 116.6mV	0.010mV 0.010mV
300.0mV to 999.9mV	150.00mV to 499.9mV	100mV to 333.3mV	450.0mV 333.3mV	0.100mV 0.100mV
1.000V to 9.999V	500.0mV to 1.499V	333.4 to 999.9mV	1.499V 1.166V	0.100mV 0.100mV
3.000V to 10.00V	1.500V to 5.000V	1.000V to 9.998V	4.500V 1.000mV	1.000mV 1.000mV

On Page 11-3, HP-IB Commands and Programming Examples

Param. Or Operation	Cmd grp	Query	Mne mon	Data	Delimeter	3325 comp?	See Notes
. . .							
Select output	0	Y	RF	1-front 2-rear	NA	Y	
. . .							

On Page F-10, Error Messages

add : Self- test Error Reporting on the Frontpanel

Self-test Error

Reporting on the Frontpanel (add to Section F, Error Messages, after page F-10)

Note The following self-test errors apply to ROM software revision 3.12

Memory Test

RAM-TEST FAILED	RAM failure.
ROM-TEST FAILED	ROM failure.
MEMORY LOST	Corrupt data settings found, all data reset to default values.

MFP Test

ERROR MFP U	Multi-function peripheral IC failed USART test.

Device bus Test

ERROR DB TRANS	Device bus transmitter failure.
ERROR DB REC	Device bus receiver failure.
ERROR DB READ	Device bus data read failed.
ERROR DB W-R	Device bus data write/read compare failed.

Display Test

DIS1-TEST FAILED	Display Busy line-test failed (J10(13)DISRDY)
DIS2-TEST FAILED	Display Busy line-test failed (J10(13)DISRDY)

DAC Test

DAC-TEST ERR 1	USART (device bus) test failed.
DAC-TEST ERR 2	DAC active signal still low 1 ms after
DAC-TEST ERR 3	DAC counter test failed

Keyboard Test

KEY1-TEST FAILED	General error message, followed by more detailed message:
ERR KEYB1 I	Interrupt busy line-test failed
ERR KEYB1 K	Input line active (key pressed).
ERR KEYB1 IK	Interrupt busy line-test failed and input line active.
ERR KEYB1 KK	Two or more lines are busy (more than one key pressed).
ERR KEYB1 I KK	Interrupt busy line-test failed and two or more lines active.

Fractional-N IC Test

FRCN-ERR R/W (1)	Write and read of Fractional-N registers failed.
FRCN-ERR R/W (2)	Write and read using another value failed
FRCN-ERR ADD (1)	Fractional-N adder failed.
FRCN-ERR ADD (2)	Fractional-N adder failed with different values.
FRCN-ERR SWE (1)	Fractional-N sweep-limit output interrupt failed.

VCO Test

VCO-ERR 30MHZ	VCO unlocked at 30 MHz.
VCO-ERR 60MHZ	VCO unlocked at 60 MHz.

Sweep-timer Test

SW-TM-IRQ FAILED	Sweep-timer interrupt request failed.
SW-TIM-ERR CLOCK	Sweep-timer clock failed.

Offset Test

OFFS-TEST FAILED	Offset DAC test failed.

Amplitude Calibration Test

AC fail 1	Level flip-flop defect.
AC fail 2	Low level not achieved.
AC fail 3	Stuck at low level.
AC fail 4	High level not achieved.
AC fail 5	Stuck at high level.
AC fail 6	Output range 1 - 10 V cannot be achieved with the calculated calibration factors.
AC fail 7	DC failed.

On Page A-13, General, add following text:

Acoustic Noise Emission:

LpA = 42 dB
Typical operator position,
normal operation.

Data are results from type tests per ISO 6081.

Geräuschemissionswerte:

LpA = 42 dB
am Arbeitsplatz,
normaler Betrieb.

Angabe ist das Ergebnis einer
Typprüfung nach DIN 45635 Teil 19.

On Page A-7, Specifications

Frequency Sweep

.
.
Linear Sweep (settable for each interval):
.
.

add: Minimum sweep rate: 0.2 Hz/sec.

On Page 12-4, Performance Test

Table 12-1. Recommended Test Equipment (cont.)

Instrument	Critical Specifications	Recommended Model
Resistors	: : :	
add:	500 Ω 2W 1%	

Performance Test

Triangle Linearity

On Page 12-37, in the 03324-90011 Manual

step 13: change to read:

$y=a_1x+a_0$

step 14:

change to read:

For each delay (x), subtract the calculated voltage ($_y$') from the measured voltage ($_y$)[$_Y$-$_Y$'=Δ $_Y$] Find the largest positive or negative voltage difference (Δ $_Y$ max). Using the following formular compute the % linearity:

% linearity = (|Δ y max | / 4 Volt) x 100%

Performance Test

Amplitude Accuracy

Page 12-24 and 12-49 in the 03324-90011 Manual

step 32, or Test Recorde List

change to read:

Amplitude 1V New Limits
DC Offset 1mV

Test	Freq	Function	Minimum	Maximum
13	99.9Hz	Square	0.958 V	1.042 V
15	99.9Hz	Triangle	0.953 V	1.047 V
18	99.9Hz	+ Ramp	0.953 V	1.047 V
19	99.9Hz	- Ramp	0.953 V	1.047 V
21	1kHz	Square	0.958 V	1.042 V
22	2kHz	Triangle	0.953 V	1.047 V
23	500Hz	+ Ramp	0.953 V	1.047 V
24	500Hz	- Ramp	0.953 V	1.047 V
25	100kHz	Square	0.880 V	1.120 V
26	10kHz	Triangle	0.918 V	1.082 V
27	10kHz	+ Ramp	0.868 V	1.132 V
28	10kHz	- Ramp	0.868 V	1.132 V

Specifications

page A-6 in the 03324-90011 manual

DC Offset

change to read:

Accuracy:
a) DC only:

DC Offset Range	Accuracy
1.5000 V to 5.000 V	+/- 50 mV
0.5000 V to 1.4999 V	+/- 17 mV
0.0150 V to 0.4999 V	+/- 5 mV
0.0500 V to 0.1499 V	+/- 1.7 mV
0.0150 V to 0.0499 V	+/- 0.52 mV
0.0050 V to 0.0149 V	+/- 0.19 mV
0.0015 V to 0.0049 V	+/- 0.07 mV
0.0005 V to 0.0014 V	+/- 0.037 mV

The accuracy given to each range is the same for each value in this range.

b) DC + AC, → < 1 MHz:

Sinewave + Squarewave

Amplitude Range	Accuracy
1.0000 V to 10.0000 V	+/- 60 mV
0.3000 V to 0.9999 V	+/- 20 mV
0.1000 V to 0.2999 V	+/- 6 mV
0.0300 V to 0.0999 V	+/- 2 mV
0.0100 V to 0.0299 V	+/- 0.6 mV
0.0030 V to 0.0099 V	+/- 0.2 mV
0.0010 V to 0.0029 V	+/- 0.06 mV

The accuracy given to each range is the same for each value in this range.

Ramp + Triangle, upto 11 kHz

Amplitude Range	Accuracy
1.000 V to 10.0000 V	+/- 120 mV
0.3000 V to 0.9999 V	+/- 40 mV
0.1000 V to 0.2999 V	+/- 12 mV
0.0300 V to 0.0999 V	+/- 4 mV
0.0100 V to 0.0299 V	+/- 1.2 mV
0.0030 V to 0.0099 V	+/- 0.4 mV
0.0010 V to 0.0029 V	+/- 0.12 mV

The accuracy given to each range is the same for each value in this range.

c) DC + AC, → > 1 MHz

Sinewave up to 21 MHz

Squarewave up to 11 MHz

Amplitude	Accuracy
1.0000 V to 10.0000 V	+/- 150 mV
0.3000 V to 0.9999 V	+/- 48 mV
0.1000 V to 0.2999 V	+/- 15 mV
0.0300 V to 0.0999 V	+/- 4.8 mV
0.0100 V to 0.0299 V	+/- 1.5 mV
0.0030 V to 0.0099 V	+/- 0.48 mV
0.0010 V to 0.0029 V	+/- 0.15 mV

The accuracy given to each is the same for each value in this range.

Add the Table of Contens the pages Contens -13 to Contens -17. This adds the Figures and Tables available in the Operating and Programming Manual.

(see folowing pages)

page 1-3, Instrument Introduction
Add after paragraph "About this Manual":

Available Puplications

. Service information down to board level is available in the HP 3324A ServiceManual, p/n 00324-90001.

. For service information down to component level, please refer to the HP 3324A Component-level information Package (Clip), 03324-90031.

Add the following tables at the end of the Contens list
(page Contens – 12)

Figures

Tables

On page 1-2, add:

Available Publications

Service information down to board level is available in:
HP 3324A Service Manual, part number 03324-90001.

For service information down to component level, please refer to:
HP 3324A Component -level Information Package (Clip) part number 03324-90031

page 1-4, Instrument Introduction

add after "About the Note":

Recalibration, Cleaning and Lubrication

The Performance Tests should be performed at 12-month intervals, if necessary using the adjustment procedure described in Chapter 3 of the Service Manual should any of the performance tests fail.
At the same intervals, the instrument should be inspected mechanically and for cleanliness.
Dust is best removed with a small vacuum cleaner or fine brush. Accumulation of dirt on the front panel or covers can be removed with a soft cloth if necessary slightly moistened with water. The instrument requires no lubrication.

page A-13, Specifications

General (supplementary)

add: Calibration cycle: 12months recommended

page 12-23, Performance Tests

change to read:

.
.

Test	Frequence	Function	Minimum	Maximum
25	101kHz	Square	2.860V	3.150V

.
.

page 12-48 Test Record

Amplitude: 3V (p-p)
change to read:

.
. Min Measured Max
Square, 101kHz 2.850V ----- 3.150V
.
.

On page C-8 Operating Environment:
add errata:
Storage Temperature: -40 C to +70 C
Altitute up to 2000m
Installation Category II
Pollution Degree 2
Warning: To prevent electrical shock, disconnect the HP model 3324A from mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.

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! CHANGE TO NEW SERIAL NUMBER FORMAT !

last serial number old format 3009G02755
first serial number new format DE30202756

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