



**HP 82402A  
Dual HP-IL Adapter  
Owner's Manual**

**For the HP-71**

**November 1985**

**82402-90002**

**Printed in U.S.A.**

**©Hewlett-Packard Company 1985**

**NOTE**

Hewlett-Packard Company makes no express or implied warranty with regard to the keystroke procedures and program material offered or their merchantability or their fitness for any particular purpose. The keystroke procedures and program material are made available solely on an "as is" basis, and the entire risk as to their quality and performance is with the user. Should the keystroke procedures or program material prove defective, the user, (and not Hewlett-Packard nor any other party) shall bear the entire cost of all necessary correction and all incidental or consequential damages. Hewlett-Packard Company shall not be liable for any incidental or consequential damages in connection with or arising out of the furnishing, use, or performance of the keystroke procedures or program material.

# CONTENTS

<b>Section 1: Installing the Adapter and Interface Modules . . . . .</b>	<b>1-1</b>
<b>Section 2: Extended HP-IL Syntax . . . . .</b>	<b>2-1</b>
2.1    Loop Number Specifier . . . . .	2-1
2.2    Syntax Conventions . . . . .	2-2
2.3    Definitions of Standard Terms . . . . .	2-2
2.4    HP-IL Interface Commands . . . . .	2-4
<b>Appendix A: Care, Warranty, and Service Information. . . . .</b>	<b>A-1</b>
A.1    Care of the Adapter . . . . .	A-1
A.2    Diagnostic Procedure . . . . .	A-1
A.3    Limited One-Year Warranty . . . . .	A-4
A.4    Service . . . . .	A-6
A.5    Potential For Radio/Television Interference . . . . .	A-9
A.6    When You Need Help. . . . .	A-9

# INSTALLING THE ADAPTER AND INTERFACE MODULES

SECTION  
1

This section explains how to install one or two HP 82401A HP-IL Interface modules in the HP 82402A Dual HP-IL Adapter, and how to install the adapter in the HP-71B Handheld Computer. You should be familiar with the basic concepts of HP-IL. For an introduction to HP-IL and its use with the HP-71, refer to Section 1, "Getting Started," in the *HP 82401A HP-IL Interface Owner's Manual*.

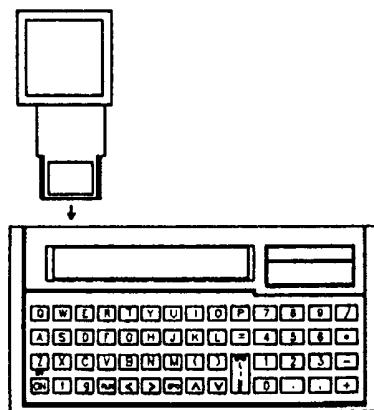
To install the adapter and interface modules, follow the instructions below:

## CAUTION

Be sure the HP-71 is turned off before connecting or disconnecting the adapter or interface modules. If this is not done, the system's operation may be disrupted.

If an HP-IL interface has already been installed in the HP-71, turn off the computer and remove the interface. Now *turn the computer on, then off again*. (This clears the system buffer so that it can be reinitialized for operation with the adapter installed.)

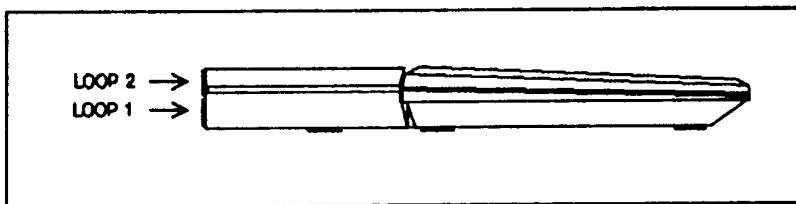
Install the interface modules in the adapter, being sure the slot in the end of the interface is towards the bottom of the adapter. Push in the interface until it snaps into place. *If only one interface is installed, it must be in the lower port.*



The adapter plugs into the HP-IL port at the back of the HP-71. First slide the cover off the port, then insert the adapter. Be sure the slot in the end of the interface is towards the bottom of the computer. Push in the adapter until it snaps into place.

## Installing the Adapter and Interface Modules

Once the interfaces and the adapter have been installed, the interface in the lower port becomes *loop 1*. The interface in the upper port becomes *loop 2*.



You can now connect peripheral devices to each HP-IL interface in the usual manner. (Refer to the *HP 82401A HP-IL Interface Owner's Manual* for details.) *The loops must be distinct. You cannot cross connect the two loops.*

### NOTE

If your HP-IL interfaces have different release numbers, put the interface with the latest release number in the bottom port of the HP 82402A Dual HP-IL Adapter. This insures that the latest version of each command will be used. (When executing an HP-IL command, the HP-71 searches first the interface in the bottom port, then the interface in the top port of the adapter.) To determine the release number of an HP-IL interface module, use the VER# command (refer to the *HP-71 Reference Manual*).

# EXTENDED HP-IL SYNTAX

SECTION

2

The syntax for HP-IL commands is extended to accommodate multiple loops. HP-IL commands may specify an optional loop number in addition to the device specifier. If the loop number is not specified, the default is loop 1. The HP-IL interface plugged into the lower port of the adapter is loop 1; the upper port is loop 2.

## 2.1 LOOP NUMBER SPECIFIER

You can specify the optional loop number in an HP-IL command by including a numeric expression in the command. The correct method of doing this depends upon the command. There are three distinct cases:

**Case 1:** If the command requires a device specifier, append a colon followed by a numeric expression (the loop number) to the device specifier. For example:

PRINTER IS PRINTER:2

assigns the standard print device to the first printer in the second loop.

OUTPUT %66(2):2 ; "ABCDE"

outputs the string to the second device in the second loop that has an accessory ID of 66.

ENTER LOOP:2 ; A\$

reads in data from the second loop.

**Case 2:** If the command requires no parameter (for example, CONTROL OH), simply specify the loop number with a numeric expression. For example:

CONTROL OH 2

sets the controller role in the second loop.

DISP STATUS(2)

displays the status of the second loop.

**Case 3:** If the command takes a parameter that is not a device specifier, insert the loop number as the first parameter and follow it with a semicolon. For example:

ENABLE INTR 2 ; 64

sets the interrupt mask to 64 in the second loop.

## 2.2 SYNTAX CONVENTIONS

When you use BASIC statements and commands, you must use proper *syntax* in order for the computer to understand their meaning. The following syntax guidelines are used throughout this section.

### DOT MATRIX TYPE

Words in dot matrix type may be keyed in using either lowercase or uppercase letters, but otherwise must be entered exactly as shown. Commands, statements, and functions entered in lowercase are converted internally to uppercase.

### *italics type*

Items in *italics* are the parameters you supply, such as a *filename*.

### ' '," "

Filenames and other character strings can be enclosed with single or double quotation marks and can be entered in lowercase or uppercase letters. Quoted filenames are converted to uppercase internally.

### [ ]

Square brackets enclose optional items.

### |

If items are separated with a vertical bar, you may choose one or the other of the items, but not both.

### { }

Braces indicate that an item is required. Usually, the braces are used in conjunction with the vertical bar to indicate that one of a series of items is required. For example, {1|2} indicates that either 1 or 2 may be selected.

## 2.3 DEFINITIONS OF STANDARD TERMS

Several syntax items are common to many of the command syntax definitions. These "standard" items are used to define an HP-IL device or to define a file in an HP-IL device.

The syntax definitions for the standard items are given in alphabetical order below. Note that some of these items use other items as part of their definitions.

### accessory ID

Numeric expression, which is rounded to an integer (range 0 through 255). (This indicates the accessory ID of an HP-IL device.)

### accessory type

Two-part item:

1. A % symbol followed by an *accessory ID*.
2. Optional *sequence number*.

### assign code

String expression (or unquoted string) that evaluates either to one letter or else to a letter followed by a letter or digit. (Avoid using as an unquoted string. If an assign code is also a valid variable name, it will be interpreted as an HP-IL address.)

<i>device ID</i>	String expression (or unquoted string). (This indicates the device ID of an HP-IL device. Only the specified characters are compared.)
<i>device specifier</i>	Any one of the following: <ul style="list-style-type: none"><li>• <i>accessory type</i> with option of starting with : (colon).</li><li>• <i>assign code</i> with option of starting with : (colon).</li><li>• <i>device type</i> with option of starting with : (colon).</li><li>• <i>device word</i> with option of starting with : (colon).</li><li>• <i>HP-IL address</i> with option of starting with : (colon).</li><li>• A . (period) followed by a <i>volume label</i>.</li></ul>
<i>device type</i>	Two-part item: <ol style="list-style-type: none"><li>1. A <i>device ID</i>.</li><li>2. Optional <i>sequence number</i>.</li></ol>
<i>device word</i>	Two-part item: <ol style="list-style-type: none"><li>1. Any one of the following reserved words:<ul style="list-style-type: none"><li>• DISPLAY</li><li>• GPIO</li><li>• GRAPHIC</li><li>• HPIB</li><li>• INSTRMT</li><li>• INTRFCE</li><li>• MASSMEM</li><li>• MODEM</li><li>• PRINTER</li><li>• RS232</li><li>• TAPE</li></ul></li><li>2. Optional <i>sequence number</i>.</li></ol>

## Extended HP-IL Syntax

<i>file name</i>	String expression (or unquoted string) that evaluates to a letter and up to nine additional letters and digits.
<i>file specifier</i>	Two-part item: <ol style="list-style-type: none"><li>1. A <i>file name</i>.</li><li>2. A <i>device specifier</i> that must include either a : (colon) or a . (period).</li></ol>
<i>HP-IL address</i>	Numeric expression, which is rounded to two decimal places: <ul style="list-style-type: none"><li>• Integer part (indicates device's simple address or primary part of extended address). Range: 1 through 30.</li><li>• Fractional part (if nonzero, indicates device's secondary part of extended address). Range: .01 through .31.</li></ul>
<i>loop number</i>	String expression (or unquoted string) that evaluates to LOOP, with option of starting with : (colon).
<i>sequence number</i>	Numeric expression enclosed in ( ); expression is rounded to an integer. (This defines the <i>n</i> th device of specified type.) The range is 1 through 16; the default is 1.
<i>volume label</i>	String expression (or unquoted string) that evaluates to a letter and up to five additional letters and digits.

## 2.4 HP-IL INTERFACE COMMANDS

This subsection defines the extended syntax of each HP-IL command. The syntax definition of each command is given within a box. For each command, one or more examples are given below the box.

### ASSIGN #

```
ASSIGN # channel number TO file specifier
```

```
ASSIGN # 1 TO DATAFILE:MASSMEM:L
```

### CAT

```
CAT [ file name ] device specifier
```

```
CAT :TAPE(3):L  
CAT .VOLUME1:2
```

### CAT\$

```
CAT$( file number , device specifier )
```

```
F$=CAT$(1,:TAPE:2")  
CAT$(F,.DATA:1")
```

### CHAIN

```
CHAIN file specifier
```

```
CHAIN PARSER:@16:2  
CHAIN TESTPRG.QA:L
```

### CLEAR

```
CLEAR device specifier  
CLEAR [LOOP [ : loop number ]]
```

```
CLEAR ":DISPLAY:2"  
IF X(2) THEN CLEAR LOOP:2
```

## Extended HP-IL Syntax

### CONTROL OFF

```
CONTROL OFF [loop number]
```

```
IF NOT C THEN CONTROL OFF 2
```

### CONTROL ON

```
CONTROL ON [loop number]
```

```
IF C(I) THEN CONTROL ON 2
```

### COPY

```
COPY[ {file-spec | LOOP [ : loop number ] } ] TO {file-spec | LOOP [ : loop number ] } ]  
COPY{file-spec | LOOP [ : loop number ] } [ TO {file-spec | LOOP [ : loop number ] } ]
```

```
COPY START:TAPE(3):2  
COPY TO BACKUPFILE.DATA1:L  
COPY DATA:TAPE:1 TO DATAFILE:TAPE:2  
COPY OLDFILE:TAPE:L TO NEWFILE  
COPY TO :MASSMEM:2
```

### CREATE

```
CREATE file type, file specifier, filesize [, record length]
```

```
CREATE TEXT FILE6:1:L,500  
CREATE DATA A$,10,50
```

### DEVADDR

```
DEVADDR < device specifier >
```

```
A=DEVADDR("PRINTER(2):2") @ PRINTER IS A  
B=DEVADDR("%16:2") @ COPY FILE1 TO :B  
C=DEVADDR(0$)
```

### DEVAID

```
DEVAID(< device specifier >)
```

```
T=DEVAID("HP82164A:2")
```

### DEVID\$

```
DEVID$(< device specifier >)
```

```
DEVID$("3:2")
```

### DISPLAY IS

```
DISPLAY IS device specifier  
DISPLAY IS LOOP [: loop number ]
```

```
DISPLAY IS 1.02:L  
DISPLAY IS %48(2):L
```

## Extended HP-IL Syntax

### ENABLE INTR

```
ENABLE INTR [ loop number ; ] interrupt mask byte
```

```
ENABLE INTR L; L+I*2
IF E THEN ENABLE INTR 1;8 @ ENABLE INTR 2;8
```

### ENTER

```
ENTER dev spec [USING { string exp | line # } ] ; variable [, variable... ]
ENTER LOOP [ : loop # ] [USING { string exp | line # } ] ; variable [, variable... ]
```

```
ENTER "HP82164:2" ; N,A$
ENTER %64:L USING "80A" ; X$,Y$
ENTER :3:L USING "#,B"; A
ENTER LOOP:2 ; B1$
```

### INITIALIZE

```
INITIALIZE [ volume label ] device specifier [, directory size ]
```

```
INITIALIZE A$,85
INITIALIZE DATA:TAPE:L,55
```

### LOCAL

```
LOCAL device specifier
LOCAL [LOOP [ : loop number ] ]
```

```
IF NOT R THEN LOCAL "HP3468:2"
LOCAL HP71(2):L
```

## LOCAL LOCKOUT

```
LOCAL LOCKOUT [loop number]
```

IF NOT 0 THEN LOCAL LOCKOUT L

## OUTPUT

```
OUTPUT { dev spec | LOOP [:loop#] } [ USING { string | line# } ; expr { , | ; } expr... ] [ ; ]
```

OUTPUT DISPLAY:2;A\$  
OUTPUT LOOP:2;A/10  
OUTPUT :HP3468:2; "F2H5"

## PACK

```
PACK device specifier
```

PACK :TAPE:2  
IF V THEN PACK TAPE(3):2  
PACK %16:L

## PACKDIR

```
PACKDIR device specifier
```

PACKDIR :TAPE(3):L  
IF V THEN PACKDIR .DATATAPE:2

## Extended HP-IL Syntax

### PASS CONTROL

```
PASS CONTROL { device specifier | LOOP [ : loop number ] }
```

PASS CONTROL %1:L  
PASS CONTROL 3:2

### PRINTER IS

```
PRINTER IS device specifier  
PRINTER IS LOOP [ : loop number ]
```

PRINTER IS "HP82164(2):2"  
PRINTER IS %32:L

### PRIVATE

```
PRIVATE file specifier
```

PRIVATE TEST:TAPE:L  
PRIVATE "FILE1.DATATAPE:2"

### PURGE

```
PURGE file specifier
```

PURGE BACKUP:TAPE(2):L  
IF E\$=R\$ THEN PURGE A\$

### READDC

```
READDC [ ( loop number ) ]
```

```
X=READDC(L)  
IF BIT(READINTR(L),0) THEN A=READDC(L)
```

### READINTR

```
READINTR [ ( loop number ) ]
```

```
I=READINTR(L)
```

### REMOTE

```
REMOTE device specifier  
REMOTE [LOOP [ : loop number ] ]
```

```
IF R THEN REMOTE "%66(2):2"  
REMOTE LOOP:L
```

### RENAME

```
RENAME old file specifier TO new file specifier
```

```
RENAME "FILE1027:TAPE:2" TO "FILE1028"  
RENAME "POINTS" TO "DATA:1.02:2"
```

## Extended HP-IL Syntax

### REQUEST

```
REQUEST [ loop number ; ] numeric expression
```

```
REQUEST L; 224
```

### RESET HPIL

```
RESET HPIL [ loop number ]
```

```
IF LEN(A$)>2 THEN RESET HPIL 2  
RESET HPIL 1
```

### RESTORE IO

```
RESTORE IO [ loop number ]
```

```
IF A$=R$ THEN RESTORE IO 2
```

### RUN

```
RUN file specifier
```

```
RUN INIT:TAPE:2  
RUN CALENDAR.DATA:2
```

**SECURE**

```
SECURE file specifier
```

```
SECURE VER1:TAPE(2):L  
SECURE "TEST:3:2"
```

**SEND**

```
SEND [loop number ; ]{CMD expression...}
```

```
SEND 2; CMD A# LISTEN 4 SAD 14,18 DATA X4
```

**SPOLL**

```
SPOLL(device specifier)
```

```
A=SPOLL("3:1")  
IF SPOLL("MASSMEM(1):2")=220 THEN 100
```

**STANDBY**

```
STANDBY [loop number ; ]{OFF|ON}  
STANDBY [loop number ; ]numeric expression [ , numeric expression ]
```

```
STANDBY 2;ON  
STANDBY A;OFF  
STANDBY L; F,I
```

## STATUS

```
STATUS [ ( loop number ) ]
```

```
X=STATUS(2)  
IF BIT(STATUS(L),5) THEN 100
```

## TRANSFORM

```
TRANSFORM [ file specifier ] INTO file type [ file specifier ]
```

```
TRANSFORM INTO TEXT BACKUP.SAVE:2  
TRANSFORM TEMP:TAPE:2 INTO BASIC TEMP1  
TRANSFORM FILE:TAPE INTO BASIC FILE:TAPE:2
```

## TRIGGER

```
TRIGGER device specifier  
TRIGGER [ LOOP [ : loop number ] ]
```

```
IF T THEN TRIGGER 1:2  
TRIGGER LOOP:2
```

## UNSECURE

```
UNSECURE file specifier
```

```
UNSECURE DATA:@16:L  
UNSECURE FILE1:HP82161A:L
```

# CARE, WARRANTY, AND SERVICE INFORMATION

APPENDIX

A

## A.1 CARE OF THE ADAPTER

The HP82402A Dual HP-IL Adapter does not require maintenance. However, there are several precautions, listed below, that you should observe.

### CAUTION

- Do not place fingers, tools, or other objects into the plug-in ports. Damage to the adapter contacts and the computer's internal circuitry may result. Such actions could result in minor electrical shock hazard and interference with pacemaker devices worn by some persons.
- Turn off the computer (press **f OFF**) before installing or removing the adapter. Turn off the computer before installing or removing an HP-IL interface if the adapter is installed in the HP-71.
- If an interface jams when inserted into a port, it may be upside down. Attempting to force it further may result in damage to the computer, the adapter, or the interface.
- Handle the adapters very carefully while they are out of the computer. Do not insert any objects in the adapter connector sockets. Always keep a port cover over the HP-IL port in the HP-71 when an interface or adapter is not installed. Failure to observe these precautions may result in damage to the adapter, an HP-IL interface, or the computer.

## A.2 DIAGNOSTIC PROCEDURE

In the event that the HP-71/HP-IL systems appear to be malfunctioning, a simple diagnostic procedure may be performed to determine which component is not working properly. This procedure consists of the following steps:

- Verify the proper operation of the HP-71.
- Verify the proper operation of the HP 82401A HP-IL Interfaces.
- Verify the proper operation of the adapter.

**CAUTION**

If one of the components of the system experiences a catastrophic failure during this procedure, the program and data files in the HP-71 may be lost. Be sure to make back-up copies of critical files before performing the test.

## Testing the HP-71

Turn the HP-71 off and remove any HP-IL module or adapter that is installed in the HP-IL port. Turn the HP-71 on and off to reset all HP-IL associated system flags. Hold down the **ON** key and press the **RESET** key. The HP-71 will respond:

INIT: 1

The initialization prompt.

**[2] ENDLINE**

Execute a level 2 initialization to check the HP-71's circuits and ROMs.

ROM TEST 1G 2

When the first portion of the test verifies the proper operation of the circuits, the computer displays the ROM test sequence.

ROM TEST 1G 2G 3G 4G

When the test has been completed, the computer will display the results. This display indicates that all the circuits have passed the test.

ROM TEST 1G 2B 3G 4G

If one of the circuits is faulty, the character after its number will show a B instead of G, and the HP-71 requires service.

## Testing the HP-IL Interfaces

To verify the operation of the HP 82401A HP-IL Interfaces, follow these steps for each interface:

1. Turn off the HP-71.
2. Install the HP-IL interface in the HP-IL port in the back of the HP-71.
3. Connect a single HP-IL cable between the IN and OUT receptacles of the interface.
4. Turn on the HP-71. If the cursor appears, continue with step 5. If the cursor doesn't appear immediately, press **ATTN****ATTN** (at least two more times). If the HP-71 won't turn on with the interface installed but will turn on without the interface, the interface requires service.
5. Execute **RESET HFIL**. This performs a self test of the interface's internal circuitry. If the cursor appears, the HP-IL interface is good. If **Self Test Failed** is displayed, the HP-IL interface requires service.

6. Execute CONTROL ON. This checks HP-IL continuity. If the cursor appears immediately, HP-IL continuity is good. If Loop Broken is displayed after several seconds, HP-IL continuity is bad. Try another HP-IL cable. If the HP-IL continuity remains bad, the HP-IL interface requires service.

## Testing the Adapter

Assuming that the HP-71 and HP-IL interfaces are working properly, the adapter can be tested. With no interface or adapter plugged into the HP-IL port, turn the HP-71 on, then off to reset any HP-IL associated system flags. Insert two *known-good* HP 82401A HP-IL Interfaces into the HP 82402A Dual HP-IL Adapter under test, then install the adapter in the HP-71. Connect the IN receptacle of each interface to the corresponding OUT receptacle. *Do not cross connect the two interfaces.* Turn on the HP-71. The cursor should appear immediately.

To verify the operation of the adapter, execute a VER# command:

VER# **ENDLINE**

Execute the VER# command.

:1BBBB HPIL:1A HPIL:1A

Each HP-IL interface is identified by the message HPIL: followed by a two-character code identifying its release number (for example, HPIL:1A or HPIL:1B). The message should appear twice in the display.

If the HP-IL interface identification message appears twice, the adapter is working properly. (The two-character codes may differ between the two messages. This simply means that two different releases of the HP-IL interface are in use.)

If the HP-71 does not turn on, or the identification message does not appear twice, the adapter is defective. Refer to the Limited One-year Warranty section for your options at this point.

If the HP-71 does not turn on, the software will be lost and the HP-71 may not turn on even with the adapter removed. If this happens one of two techniques may be used to recover the system:

1. Hold down the **ON** key and press the **2** key. If the message INIT 1 appears in the display, press **3ENDLINE**. After a short time, the HP-71 is reset and ready for further use.
2. If no response occurs in step 1, remove the batteries and press **ON** for about 30 seconds to discharge the circuits. Install the batteries and turn on the HP-71. The Memory Lost message should appear, at which time the HP-71 is ready for further use.

## **A.3 LIMITED ONE-YEAR WARRANTY**

### **What We Will Do**

The HP 82402 Dual HP-IL Adapter is warranted by Hewlett-Packard against defects in materials and workmanship affecting electronic and mechanical performance for one year from the date of original purchase. If you sell your unit or give it as a gift, the warranty is transferred to the new owner and remains in effect for the original one-year period. During the warranty period, we will repair, or, at our option, replace at no charge a product that proves to be defective, provided you return the product, shipping prepaid, to a Hewlett-Packard service center.

### **After the Warranty Period**

If your adapter should fail after the warranty period, follow the diagnostic procedures given in this appendix. In the case of a hardware failure, you should purchase a replacement product. For assistance in following the test procedures refer to "Technical Assistance" at the end of this appendix.

### **What Is Not Covered**

This warranty does not apply if the product has been damaged by accident or misuse or as the result of service or modification by other than an authorized Hewlett-Packard service center.

No other express warranty is given. The repair or replacement of a product is your exclusive remedy. **ANY OTHER IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE ONE-YEAR DURATION OF THIS WRITTEN WARRANTY.** Some states, provinces, or countries do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. **IN NO EVENT SHALL HEWLETT-PACKARD BE LIABLE FOR CONSEQUENTIAL DAMAGES.** Some states, provinces, or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state, province to province, or country to country.

### **Warranty for Consumer Transactions in the United Kingdom**

This warranty shall not apply to consumer transactions and shall not affect the statutory rights of a consumer. In relation to such transactions, the rights and obligations of Seller and Buyer shall be determined by statute.

### **Obligation To Make Changes**

Products are sold on the basis of specifications applicable at the time of manufacture. Hewlett-Packard shall have no obligation to modify or update products once sold.

## Warranty Information

If you have any questions concerning this warranty, please contact an authorized Hewlett-Packard dealer or a Hewlett-Packard sales and service office. Should you be unable to contact them, please contact:

- In the United States:

Hewlett-Packard  
Personal Computer Group  
Customer Support  
11000 Wolfe Road  
Cupertino, CA 95014

Toll-Free Number: (800) FOR-HPPC (800 367-4772)

- In Europe:

Hewlett-Packard S. A.  
150, route du Nant-d'Avril  
P.O. Box CH-1217 Meyrin 2  
Geneva  
Switzerland  
Telephone: (022) 83 81 11

Note: Do *not* send units to this address for repair.

- In other countries:

Hewlett-Packard Intercontinental  
3495 Deer Creek Rd.  
Palo Alto, California 94304  
U.S.A.  
Telephone: (415) 857-1501

Note: Do *not* send units to this address for repair.

## A.4 SERVICE

Hewlett-Packard maintains service centers in most major countries throughout the world. You may have your unit repaired at a Hewlett-Packard service center any time it needs service.

Hewlett-Packard products are normally repaired and reshipped within five (5) working days of receipt at any service center. This is an average time and could vary depending upon the time of year and the work load at the service center. The total time you are without your unit will depend largely on the shipping time.

If you suspect that your adapter is malfunctioning, follow the diagnostic procedure given in this appendix. If the adapter has failed, you should determine whether it failed within the one-year limited warranty period. If the adapter is covered by warranty, return it, shipping prepaid, to a Hewlett-Packard service center. If the adapter has failed after the warranty period, you should purchase a replacement.

### Obtaining Repair Service in the United States

The Hewlett-Packard United States Service Center for battery-powered computational products is located in Corvallis, Oregon:

Hewlett-Packard Company  
Service Department

P.O. Box 999  
Corvallis, Oregon 97339, U.S.A.  
*or*  
1030 N.E. Circle Blvd.  
Corvallis, Oregon 97330, U.S.A.

## Obtaining Repair Service in Europe

Service centers are maintained at the following locations. For countries not listed, contact the dealer or sales office where you purchased your unit.

### AUSTRIA

HEWLETT-PACKARD Ges. m. b. H.  
Kleinrechner-Service  
Wagramerstrasse-Lieblgasse 1  
A-1220 Wien (Vienna)  
Telephone: (0222) 23 65 11

### BELGIUM

HEWLETT-PACKARD BELGIUM SA/NV  
Woluwedal 100  
B-1200 Brussels  
Telephone: (02) 762 32 00

### DENMARK

HEWLETT-PACKARD A/S  
Datavej 52  
DK-3460 Birkerod (Copenhagen)  
Telephone: (02) 81 66 40

### EASTERN EUROPE

Refer to the address listed under Austria.

### FINLAND

HEWLETT-PACKARD OY  
Revontulentie 7  
SF-02100 Espoo 10 (Helsinki)  
Telephone: (90) 455 02 11

### FRANCE

HEWLETT-PACKARD FRANCE  
Division Informatique Personnelle  
S. A. V. Calculateurs de Poche  
F-91947 Les Ulis Cedex  
Telephone: (6) 907 78 25

### GERMANY

HEWLETT-PACKARD GmbH  
Kleinrechner-Service  
Vertriebszentrale  
Berner Strasse 117  
Postfach 560 140  
D-6000 Frankfurt 56  
Telephone: (611) 50041

### ITALY

HEWLETT-PACKARD ITALIANA S.P.A.  
Casella postale 3645 (Milano)  
Via G. Di Vittorio, 9  
I-20063 Cernusco Sul Naviglio (Milan)  
Telephone: (2) 90 36 91

### NETHERLANDS

HEWLETT-PACKARD NEDERLAND B. V.  
Van Heuven Goedhartiaan 121  
NL-1181 KK Amstelveen (Amsterdam)  
P. O. Box 667  
Telephone: (020) 472021

### NORWAY

HEWLETT-PACKARD NORGE A/S  
P. O. Box 34  
Oesterndalen 18  
N-1345 Oesteras (Oslo)  
Telephone: (2) 17 11 80

### SPAIN

HEWLETT-PACKARD ESPANOLA S. A.  
Calle Jerez 3  
E-Madrid 16  
Telephone: (1) 458 2600

### SWEDEN

HEWLETT-PACKARD SVERIGE AB  
Skalholtsgatan 9, Kista  
Box 19  
S-163 93 Spanga (Stockholm)  
Telephone: (08) 750 2000

### SWITZERLAND

HEWLETT-PACKARD (SCHWEIZ) AG  
Kleinrechner-Service  
Allmend 2  
CH-8967 Widen  
Telephone: (057) 31 21 11

### UNITED KINGDOM

HEWLETT-PACKARD Ltd  
King Street Lane  
GB-Winnersh, Wokingham  
Berkshire RG11 5AR  
Telephone: (0734) 784 774

## **Care, Warranty, and Service Information**

### **International Service Information**

Not all Hewlett-Packard service centers offer service for all models of HP products. However, if you bought your product from an authorized Hewlett-Packard dealer, you can be sure that service is available in the country where you bought it.

If you happen to be outside the country where you bought your unit, you can contact the local Hewlett-Packard service center to see if service is available for it. If service is unavailable, please ship the unit to the address listed above under Obtaining Repair Service in the United States. A list of service centers for other countries can be obtained by writing to that address.

All shipping, reimportation arrangements, and customs costs are your responsibility.

### **Shipping Instructions**

Should your unit require service and it is within the warranty period, return it with the following items:

- A completed Service Card, including a description of the problem.
- A sales receipt or other proof of purchase date if the one-year warranty has not expired.

The product, the Service Card, a brief description of the problem, and the proof of purchase date should be packaged in adequate protective packaging to prevent in-transit damage. Such damage is not covered by the one-year limited warranty; Hewlett-Packard suggests that you insure the shipment to the service center. The packaged unit should be shipped to the nearest Hewlett-Packard designated collection point or service center.

It is your responsibility to pay shipping charges for delivery to the Hewlett-Packard service center. After the warranty repair is completed, the service center returns the unit with postage prepaid.

### **Further Information**

Circuitry and designs are proprietary to Hewlett-Packard, and service manuals are not available to customers. Should other problems or questions arise regarding repairs, please call your nearest Hewlett-Packard service center.

## A.5 POTENTIAL FOR RADIO/TELEVISION INTERFERENCE

The HP 82402A Dual HP-IL Adapter, with one or two HP 82401A HP-IL Interfaces installed, generates and uses radio frequency energy. If not installed and used properly; that is, in strict compliance with the instructions in this manual; it may cause interference to radio and television reception. The adapter has been manufacturer verified to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules. The adapter has also been tested for compliance with VFG 1046/84. These guidelines are designed to provide reasonable protection against radio and television interference in a residential installation, but there is no guarantee that interference will not occur in a particular installation. In the unlikely event that the adapter does cause interference to radio or television reception (which can be determined by removing the adapter from the HP-71), you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the HP-71 or HP-IL cables with respect to the receiver.
- Move the HP-IL system away from the receiver.
- Plug the ac adapter into a different ac outlet so that the HP-71 and the receiver are on different branch circuits.

If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find the following booklet, prepared by the Federal Communications Commission, helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock Number 004-000-00345-4.

## A.6 WHEN YOU NEED HELP

Hewlett-Packard is committed to providing after-sale support to its customers. To this end, our customer support department has established phone numbers that you can call if you have questions about this product.

**Product Information.** For information about Hewlett-Packard dealers, products, and prices, call the toll-free number below:

(800) FOR-HPPC  
(800 367-4772)

**Technical Assistance.** For technical assistance with your product, call the number below:

(503) 757-2004

For either product information or technical assistance, you can also write to:

Hewlett-Packard  
Portable Computer Division  
Customer Technical Support  
1000 N.E. Circle Blvd.  
Corvallis, OR 97330

# HP 82402A Dual HP-IL Adapter Owner's Manual Addendum

This addendum contains updating information for the *HP 82402A Dual HP-IL Adapter Owner's Manual*, part number 82402-90002, dated November, 1985.

**Page 2-3, under DEVICE SPECIFIER:** The *device specifier* must include the loop number at the end if the intended loop number is other than 1.

**Page 2-4, under LOOP NUMBER:** The *loop number* is a positive number or numeric expression which is rounded to an integer.

**Page 2-4, under HP-IL INTERFACE COMMANDS:** The following keywords do not accept a loop number parameter. (These keywords are not listed in the manual.)

- Keywords applying only to LOOP 1: ASSIGN IO and LIST IO.
- Global keywords which apply to all loops at the same time: OFF IO, ON INTR, and OFF INTR.

After executing OFF IO, all loops are disabled. If a subsequent RESTORE IO is executed, loop #1 is assumed unless the loop number is specified.

**Page 2-7, under DEVADDR:** The first two examples should read:

```
A=DEVADDR("PRINTER(2):2") ② PRINTER IS A:2
B=DEVADDR("%16:2") ② COPY FILE1 TO :B:2
```

**Page 2-7, under OUTPUT:** The syntax should read:

## OUTPUT

```
OUTPUT { dev spec | LOOP [:loop#] } [ USING { string | line# } ][; expr [ {, | ;} expr... ] ][,|]
```

## HP-IL Version 1A Limitations

The first release of the HP 82401A HP-IL Module (VER\$="HPIL:1A") contains limitations on the operation of the HP-71 with multiple loops. If a more recent revision of the module is LOOP 1 (lower adapter slot), such as the 1B release, these limitations will not apply.

### Limitation 1.

Some keywords do not allow the HP-71 to talk to two loops in the same statement. These keywords are CAT\$, READDOC, READINTR, and STATUS. The work around is to split the functions among two statements.

```
10 PRINTER IS PRINTER:1 @ PRINT CAT$(N,:TAPE:2")
```

can be replaced by:

```
10 PRINTER IS PRINTER:1 @ A$=CAT$(N,:TAPE:2") @ PRINT A$
```

### Limitation 2.

With the keywords ENABLE INTR and REQUEST, if a loop number is used, it must be a constant or a variable. More complicated numeric expressions may reset memory or lock up the HP-71. For example:

```
ENABLE INTR FNN(A) can be replaced by: A1=FNN(A) @ ENABLE INTR A1
REQUEST VAL(A$) can be replaced by: A=VAL(A$) @ REQUEST A
```

### Limitation 3.

If loop #1 has data available, higher numbered loops cannot interrupt the HP-71. This can occur if loop 1 is *not a system controller*. Consider the following code segment:

```
100 ON INTR GOTO 1000
110 ENABLE INTR 2; 8
120 SEND 2; IDY @ GOTO 120
```

If the system controller for loop 1 sends data to the HP-71 while the program is executing line 120, the ON INTR branch will not be taken. One work around is to configure the system so that loops which are not system controllers have higher numbers than loops that are system controllers. In a two loop system, the loop dedicated as non-system controller should be loop 2. Another work around is to use an ON TIMER interrupt to cause the interrupt to be detected.



Portable Computer Division  
1000 N.E. Circle Blvd., Corvallis, OR 97330, U.S.A.

European Headquarters  
150, Route du Nant-D'Avril  
P.O. Box, CH-1217 Meyrin 2  
Geneva-Switzerland

HP-United Kingdom  
(Pinewood)  
GB-Nine Mile Ride, Wokingham  
Berkshire RG11 3LL

Scan Copyright ©  
The Museum of HP Calculators  
[www.hpmuseum.org](http://www.hpmuseum.org)

Original content used with permission.

Thank you for supporting the Museum of HP  
Calculators by purchasing this Scan!

Please do not make copies of this scan or  
make it available on file sharing services.