CONVEX
Service Plan for
Hewlett-Packard 735/755

First Edition
April 1994

CONVEX Press
Richardson, Texas
United States of America

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Printed in the United States of America

Revision information for
CONVEX
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Edition	Document No.	Description
First	081-025330-000	Initial release April, 1994

Contents

Service Plan for Hewlett-Packard Model 9000/735 and 9000/755 Workstations

CONVEX now offers the Hewlett-Packard 735 and Hewlett-Packard 755 workstations. The HP 735 is a desktop unit and the HP 755 is a floor unit. Several HP 735s may be connected in a cluster configuration. Unless otherwise stated, the two workstations are referred to as the HP 735/755 in this document. This document provides the service manager advanced information about the HP 735/755 for planning purposes.

Product information

The Hewlett-Packard HP 735/755 is a high-performance, PA-RISC-based workstation that runs the HP-UX operating system.

The HP 735 workstation houses up to two internal mass-storage devices, connected to one of two internal SCSI interfaces, either single-ended or fast/wide. Using the single-ended SCSI interface, the first I/O bay will house a 1-GByte hard drive, and the second bay can house another 1-GByte hard drive. The hard drives are pre-formatted, and are not interchangeable between single-ended and fast/wide interfaces. Removable media devices for the HP 735 workstations will include an external CD-ROM drive or an optional DAT drive.

The HP 755 workstation can house up to two hard drives and up to two removable-media devices. It has two internal SCSI-2 interfaces: single-ended and fast/wide/differential. The hard drives may be either single-ended or fast/wide differential, but not mixed. The first I/O bay will house a 2-GByte hard drive, and the second bay may house another 2-GByte hard drive Removable-media devices include a CD-ROM drive with an option for a DAT drive. These removable-media drives may be connected to only the single-ended SCSI interface.

Technical and performance information

The HP 735/755 workstations are described in the following sections.

Workstation features

The HP 735/755 workstation features are listed inTable 1.

Table 1 Hewlett-Packard HP 735/755 features

Feature	Description	735	755
Operating system	HP-UX	X	X
Graphics	19-inch. 1,280x1,024 8-plane color	X	X
Main Memory	16 MByte non-removable (on processor board) Up to 768 MByte removable	X[4]	
	12 slots, expandable in pairs of 64-MBytes - to a total of 768 MBytes		X[5]
Mass Storage	3.5-in. 1.2 GByte SCSI-2 hard disk drive (SE)	X	
	3.5-in. 1.2 GByte SCSI-2 hard disk drive (F/W/D)	X	
	4.25-in. 2.0 GByte SCSI-2 hard disk drive (F/W/D)		X
	5.25-in. CD-ROM disk drive (SE)	X[1]	X
	DDS-format disk drive (SE)	X[1,2]	X[2]
Network for Data Management	LAN AUI	X	X
	FDDI	X[2]	X
	Thinnet	X[2]	X[2]
Network for Cluster	LAN AUI		
	FDDI	X[2]	
	Thinnet	X	
I/O	Two 9-pin RS-232 ports	X[3]	X[3]
	One 25-pin parallel port	X	X
	One 8-bit, single-ended SCSI-2 port	X	X
	One 16-bit, Fast/Wide, SCSI-2 port	X	X
	HP-HIL/Keyboard port	X	X
	EISA F/N/D SCSI Host Adapter	X	X
	One EISA slot	X	
	Four EISA slots		X

1. External device only
2. Non-standard CONVEX configuration, but available as an option
3. For mass storage, HP 735/755 workstation can accommodate the METRUM library and a CLARiiON disk array. The METRUM library requires only one RS232C port, but the CLARiiON requires two. Connecting both the METRUM and the CLARiiON requires a special modification kit which adds a third RS232 port.
4. Minimum of 80 MBytes required for Unitree software.
5 Minimum of 128 MBytes required for Unitree software.

Facility and clearance requirements

The Hewlett-Packard HP 735/755 requires little space. The HP9000/735 is a desktop unit and the HP9000/755 is sits on the floor. Workstation clusters, of course, require additional space depending on the number of workstations. Both units require only a standard workbench for servicing. Table 2 shows the physical characteristics for the HP 735 in both cluster and workstation configuration and the HP 755 workstation.

Table 2 HP 735/755 SPU Physical characteristics

	735 Cluster	735 WS Desktop	735 WS Deskside	755 WS	735/755 Monitor	735/755 Keyboard
Height (in./mm)	20.0/508	4.5/114	20.6 /524	24/610	16.1/410	2/50.8
Width (in./mm)	4.5/114	20.0/508	4.5/114	8.7/220	19.1/485	17.5/444.5
Width Pedestal (in./mm)			10.0/254	10.2/259		
Depth (in./mm)	18.5/470	18.5/470	18.5/470	23.4/595	20.1/510	7/177.8
Weight (lbs./kg)	50/22.7	50/22.7	50/22.7	91/41.3	71.5/32.5	

Power requirements

The HP 735/755 uses an autoranging power supply that excepts either 90 to 132 vac or 180 to 264 vac, single phase, 47 to 63 Hz, 240 watts (HP 735), 540 watts (HP 755).

Environmental requirements

Table 3 Hewlett-Packard HP 735 environmental requirements

Operational temperature	41°F to 104°F (5°C to 40°C)
Non-operational temperature	-22°F to 158°F (-30°C to 70°C)
Operational temperature change	±18°F (±10°C)
Non-operational temperature change	±36°F (±20°C)
Operational humidity	15% to 80%, operating at 104°F (40°C)
Non-operational humidity	10% to 90% non-operating at 158°F (65°C)
Altitude	10,000 feet (3,000 meters)

Table 4 Hewlett-Packard HP 755 environmental requirements

Operational temperature	41°F to 113°F (5°C to 45°C)
Non-operational temperature	41°F to 113°F (5°C to 45°C)
Operational temperature change	±18°F (±10°C)
Non-operational temperature change	±36°F (±20°C)
Operational humidity	8% to 85%, operating at 104°F (40°C)
Altitude	10,000 feet (3,000 meters)

The HP 735/755 have met the following regulatory requirements:

- FCC Class A
- CSA C22.2 No. 950M
- VCCI Class 1
- EN 55022 Class A / CISPR 22 Class A
- UL 1950
- TUV/CS Mark
  - IEC 950/EN60950
  - ZH 1/168

MTBF and MTTR

Table 5 shows the mean-time-between-failure the major components of the HP 735/755. These figures are theoretical, and as more data is collected, they may change. The mean-time-to-restore each unit is less than four hours.

Table 5 MTBF for HP 735/755

Description	MTBF (hours)
735 workstation (CPU, 32 MBytes RAM, disk)	47,000
755 workstation (CPU, 64 MBytes RAM, disk)	35,000
Color monitor	35,000
Keyboard	35,000

System software requirements

The HP 735/755 requires the Hewlett-Packard HP-UX v9.01 or higher operating system (CONVEX part number to be determined) for stand-alone units and CONVEXOS v10.1 for units operating in a cluster configuration.

When HP workstations are used in a data management application using Unitree software, the following applies:

Unitree 1.7.x data management software is required for both stand-alone and cluster configurations. It is licensed based on the amount of data stored in system. Each installation needs the Unitree Software kit, the base license, and the LTU license.

Order Unitree software by normal sales order procedures. When ready to install the software, call the TAC for a validation key.

The part number for the basic software kit and the site license are listed in Table 6.

Table 6 Unitree licensing

Convex part number	System storage size
750-001522-xxx	Unitree Software Kit
750-000490-000	Unitree base license
750-000749-001	30 Gbytes
750-000749-002	60 Gbytes
750-000749-003	140 GBytes
750-000749-004	280 GBytes
750-000749-005	560 GBytes
750-000749-006	900 GBytes
750-000749-007	1.4 TBytes
750-000749-008	2.5 TBytes
750-000749-009	5 TBytes
750-000749-010	10 TBytes
750-000749-011	50 TBytes
750-000749-012	100 TBytes
750-000749-013	500 TBytes
750-000749-014	1,000 TBytes
750-000749-015	5,000 TBytes
750-000749-016	10,000 TBytes
750-000749-200	Source LTU

Future plans may include the use of the Hewlett-Packard 800 series computers as a customer-independent sourcing selection. At this time, CONVEX does not plan to sell or provide service for HP 800 series products. The customer must contract service directly from Hewlett-Packard.

Software distribution options

All software updates and revisions will normally be distributed on compact disc read-only memory (CDROM) with an option for digital audio tape (DAT).

The appropriate media selection will depend upon the customer configuration and should be communicated to the CONVEX software distribution group via the original sales order.

Software upgrades and revisions

The CONVEX software distribution group will provide all software upgrades and revisions for HP workstations and cluster products under Convex maintenance agreement with the end user.

CONVEX will initiate and manage Unitree upgrades and revisions for data management applications.

Upgrades to HP-UX and any other HP software packages will be initiated by Hewlett-Packard, but CONVEX will manage the software distribution for all HP workstations and cluster products sold through CONVEX sales channels.

All HP upgrades and revisions will be qualified by CONVEX prior to release to end-user sites by CONVEX.

CONVEX will pay a monthly fee to Hewlett-Packard for technical support and upgrades to HP-UX and other HP software. CONVEX headquarters will manage the administration of the agreements with Hewlett-Packard on a per-site basis. Support cost paid by CONVEX to Hewlett-Packard will be transferred to the service region where the HP equipment is installed. Whenever an end-user discontinues an HP-equipment service agreement with CONVEX, the CONVEX regional service manager must communicate to CONVEX headquarters the end-user site location and equipment serial number so upgrade support and associated costs for the affected site can be discontinued.

Note

Upgrades to HP-UX or other HP software prior to qualification by CONVEX may result in diminished performance or non-performance with other CONVEX-provided software products. For HP equipment which CONVEX services, HP software upgrades and revisions should only be installed when received through the CONVEX software distribution channel. If there is a need to verify HP software compatibility, contact the CONVEX TAC (in the US and North America) or the local CONVEX support office in the region where the equipment is installed.

Service philosophy

CONVEX is the primary service provider for the HP 735/755. This service consists of three levels as follows:

- The first level is the response to the customer problem call. When the problem call requires corrective (or preventive) maintenance, a service engineer (SSE) is dispatched to the customer site to troubleshoot the problem.
- Second-level service is fixing the problem with the appropriate spare parts.
- Third-level service is technical backup from CONVEX headquarters. Personnel with the appropriate expertise are on standby to resolve problems with either the SSE or the customer in some cases. Service personnel require proper training, tools and spare parts before down-time can be kept within specification.

Spare parts

Table 7 shows field replaceable units (FRUs) for the HP 735 and Table 8 shows the FRUs for the HP 755.

The distribution of spares will be managed over time. The stocked spare parts list is subject to change as CONVEX gains experience.

Table 7 HP9000/735 field-replaceable units

CONVEX P/N	Description	Stocked by CONVEX
217-000005-001	CDROM Player	X
217-000005-002	Cable, SCSI CDROM Player/Dat Tape Drive to WS	X
217-000005-003	Terminator, CDROM Player/Dat Tape Drive	X
217-000005-008	8 MByte Memory Card	X
217-000005-016	16 MByte Memory Set	
217-000005-032	32 MByte Memory Set	X
217-000005-064	64 MByte Memory Set	X
217-000006-012	EISA LAN Card	X
217-000006-014	DAT DDS Tape Drive	X
217-000008-002	1 GByte S.E. SCSI Disk Drive	X
217-000008-003	1 GByte F/W SCSI Disk Drive	X
900-000652-001	Power Supply	X
900-000655-001	EISA Adaptor Card	X
900-000657-001	Mouse	X
900-000658-001	Keyboard	X
900-000660-001	Fuse, External AUI	
900-000661-001	Battery, TOD Clock	
900-000662-001	Fan, Small w/cable	X
900-000663-001	Fan, Large w/cable	X
900-000664-001	VSC Backplane Card	X
900-000665-001	Cable, VSC Backplane Card	X
900-000667-001	Switch Card	X
900-000668-001	Cable, LED Panel Card	X
900-000669-001	LED Panel Card	X
900-000737-001	Cobra CPU Card	X
900-000738-001	Core I/O Card	X
900-000739-001	Slider ThinNet Interface Card	X
900-000740-001	Terminator, F.W. SCSI	X
900-000741-001	Slider FDDI Interface Card	X
900-000758-001	Cable, F.W. SCSI External	X
900-000759-001	Cable, S.E. SCSI External	X
900-000847-001	Adaptor card, EISA SCSI differential	X
900-000848-001	Cable, SCSI to SCSI Daisy Chain	X
900-000877-001	Thicknet slider card	X
900-000879-001	19-inch color monitor	X

Table 8 HP9000/755 field-replaceable units

CONVEX P/N	Description	Stocked by CONVEX
217-000006-012	EISA LAN Card	X
900-000657-001	Mouse	X
900-000658-001	Keyboard	X
900-000739-001	Slider ThinNet Interface Card	X
900-000740-001	Terminator, F/W SCSI	X
900-000741-001	Slider FDDI Interface Card	X
900-000830-001	System Card	X
900-000831-001	Power Switch	
900-000832-001	Large Fan	X
900-000834-001	Audio Adaptor Board	X
900-000835-001	LED Board Assembly	
900-000836-001	Main Backplane Card	
900-000837-001	EISA Backplane Assembly	
900-000838-001	Connector Backplane Card	
900-000839-001	Power Supply	X
900-000840-001	120mm Fan Assembly	X
900-000841-001	Small Fan	X
900-000842-001	EEPROM	
900-000843-001	Cable, EISA/ISA	
900-000844-001	Cable, Power	
900-000845-001	Cable, LED	
900-000846-001	Cable, Disk Power	
900-000847-001	Adaptor card, EISA SCSI differential	X
900-000872-001	Cable, FDDI Flex	X
900-000873-001	32-MByte memory card	X
900-000874-001	64-MByte memory card	X
900-000875-001	16-MByte memory card	
900-000876-001	Disk drive, 2-GByte F/W/D SCSI	X
900-000877-001	Thicknet slider card	X
900-000878-001	Internal CDROM drive	X
900-000879-001	19-inch color monitor	X
900-000880-001	Internal compression DAT	

Recommended tools

The tools in the standard SSE toolkit are sufficient to maintain the HP 735/755.

Maintenance

Maintenance consists of troubleshooting, replacement or repair, and adjusting or calibrating failed FRUs and is performed by CONVEX field personnel.

Note

CONVEX cannot service any product (hardware or software) not sold through CONVEX channels. This restriction is established in the agreement between CONVEX and Hewlett-Packard.

Note

Hewlett-Packard products bought outside of CONVEX channels may not function properly with CONVEX-supplied hardware or software. CONVEX field personnel should pre-qualify or audit for acceptability any HP equipment provided to the customer site outside the CONVEX sales channel. CONVEX field personnel should not guarantee performance on such equipment until audit for acceptability is completed.

Level of repair

The level of repair is determined by the local Field Support management. Failed FRUs are diagnosed and replaced by the SSE and returned to CONVEX via the logistic procedures appropriate for the region. The spares listed in Table 7 and Table 8 are required to adequately maintain the HP 735/755. These spares will normally be stocked at the depot level.

Note

Returned parts must be fully documented or the warranty will not be honored by Hewlett-Packard. Be sure to indicate both the CONVEX and Hewlett-Packard system serial numbers on all required documentation used to return defective parts.

Note

The SSE should not swap FRUs between HP workstations. Returned parts must be documented to the original workstation serial number or the warranty will not be honored by Hewlett-Packard.

For logistic procedures contact:

	Primary contact	Region	E-mail login	Phone number
Headquarters Spares Depot	Barbara Lester	US, S. America, Asia, and Pacific	lester	(214) 497-4216
European Distribution Center	Jorge Torres	Europe	torres	31-20-6540251 (Holland)

Diagnostic approach

The HP 735/755 has eight status LEDs on the front panel. Using the troubleshooting section of the *Service Handbook*, an SSE can determine the error. The units have a test mode in the Boot ROM and other diagnostic test that may be invoked by the SSE. These tests are the ISL diagnostics and Support Wave online tests. The use of these tests are documented in Hewlett-Packard *Precision Architecture RISC HP Apollo 9000 Series 700 Diagnostics Manual.*

Another diagnostic tool, called CSTM (Command-line Support Tools Manager), is a collection of tools that verify, exercise, and diagnose different components in a workstation. CSTM can also be used as a confidence test for a workstation after it has been serviced.

CONVEX has additional **PROPRIETARY** Hewlett-Packard service and diagnostic manuals and software available to field managers **only**. The proprietary service documentation kit number is 090-010001-200.

Note

Under no circumstances can Hewlett-Packard manuals be copied or otherwise duplicated.

Preventive maintenance schedule

The HP 735/755 requires no preventive maintenance.

Installation

CONVEX field engineering organization is responsible for installing the HP 735/755. It is also responsible for installing any additional units and exchanging replacement parts. These activities should be accurately recorded by field service personnel in the appropriate reporting system.

Support

CONVEX is the primary service provider for the HP 735/755. In the US, the CONVEX Technical Assistance Center (TAC) is the front line of support for SSEs and customers. In other CONVEX regions around the world, the SSE and customer should contact their local CONVEX support office. A second line of support is provided by expert personnel. A secondary points-of-contact for the Hewlett-Packard HP 735/755 is:

Point-of-contact	E-mail login	Phone number
Chris Magargee	magargee	(214) 497-4402

Obtaining spares and tools

When an SSE requires a spare part, he/she will follow established procedures in the appropriate region to obtain that part. Questions concerning the logistics, pricing, and ordering of spare parts and tools should be directed to:

	Primary contact	Region	E-mail login	Phone number
Headquarters Spares Depot	Barbara Lester	US, S. America, Asia, and Pacific	lester	(214) 497-4216
European Distribution Center	Jorge Torres	Europe	torres	31-20-6540251 (Holland)

Training

The SSE maintaining the HP 735/755 automated storage library may require a special training course provided by CONVEX. This course covers other peripheral devices than the HP 735/755. The class is in the development stage at this time.

To obtain latest information for this course, contact:

Point-of-contact	E-mail login	Phone number
Chris Magargee	magargee	(214) 497-4402
Debbie Ericksen	ericksen	(214) 497-4239