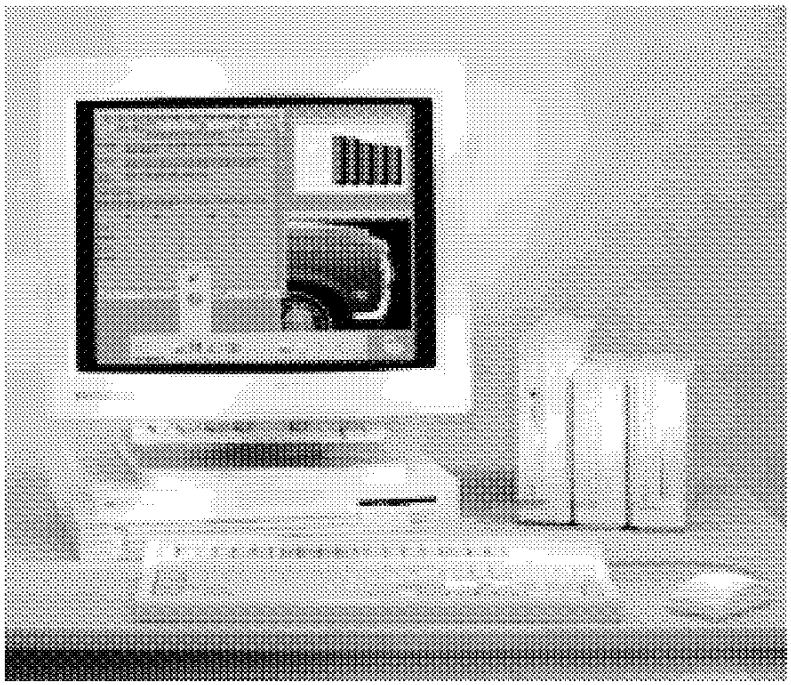
HEWLETT® PACKARD

HP 9000 Series 700 Model 712/60 and 712/80*i* Workstations



The HP 9000 Series 700 Model 712/60 and 712/80*i* workstations offer outstanding performance at new low prices. They feature a unique combination of price/performance, ease of use, and networking functionality ideally suited for today's growing enterprise desktop requirements. High-performance graphics, as well as superb integer performance also make these workstations excellent tools for design, development, and analytical work. The Model 712/60 has an unequaled integer performance for its price: 58.1 SPECint92. The Model 712/80*i* is even more powerful, with a SPECint92 measure of 84.1. A broad set of choices for monitor sizes and resolutions fit easily on any deskspace.

The graphics are derived from HP's history of leadership in price/performance.

The Models 712/60 and 712/80*i* are designed for simple installation, expansion and serviceability. They are as easy to configure as stereo components, featuring plug-in memory modules and disks. Great application flexibility is provided through a wide selection of inexpensive networking and multimedia devices. To provide the best possible performance and cost savings for the user, the systems have the following built-in interfaces: IEEE (802.3) local area networking (LAN), external SCSI-2, bi-directional parallel (Centronics), one RS-232C. Two IBM PS/2 ports allow connection of a standard PC 101/102 key keyboard and a mouse. The system may be expanded with inexpensive plug-in cards. The cards available include a second RS-232C port, a second LAN (IEEE 802.3 or IEEE 802.5), and X.25 wide area networking. The Model 712 features outstanding access to PC applications through HP Wabi 1.1 and SoftWindows™.

The Model 712/60 and 712/80*i* are the workstations of choice for a broad range of applications that require fast X Window System performance and low cost 2D wire-frame color graphics. Entry-level surface rendering is available through HP's 3D software, PowerShade. A second video monitor can be added by the use of a plug-in card. Multimedia functionality is also plentiful, including support for the easy to use HP MPower Version 2.0 (V2.0) software, fast JPEG and MPEG image display, and CD-quality audio I/O. HP TeleShare further enriches the possibilities with integrated telephone, FAX and modem capabilities.

Network control products such as OpenView and Ready-to-Wear Desktop Builder Kit (RTW DBK) enable simplified management of enterprise-wide systems, including the Model 712 and other client nodes. HP also offers financing alternatives to help get you the equipment you need now and to upgrade in the future. And HP products set the standard for quality, reliability, and low cost of ownership.

Technical Specifications	712/60	712/80*i*
System Processing Unit		
Central processor	PA7100LC	PA7100LC
Clock frequency	60MHz	80MHz
Performance		
SPECint92	58.1	84.1
SPECfp92	79	79
MFLOPS (DP)	12.8	15.6
AIM APR II	44.5	66.3
Memory management unit		
Virtual memory address	48 bit	48 bit
Instruction TLB and data TLB	120 page entries unified 16 variable block entries unified full associative	120 page entries unified 16 variable block entries unified full associative
External cache		
Instruction/data cache size	64KB	256KB
Organization	Direct mapped	Direct mapped
Bus width	64 bits	64 bits
Instruction cache bus	400MB/second	400MB/second
peak performance	I-fetch (4 byte)	I-fetch (4 byte)
Data cache size	64KB	256KB
Organization	Direct mapped	Direct mapped
Data bus width	64 bits	64 bits
Data cache peak bus	400MB/second load (8 byte)	400MB/second load (8 byte)
performance	400MB/second single store (8 byte)	400MB/second single store (8byte)
Note: Instruction and data cache are shared, the 712/60 has a total of 64KB external cache, and the 712/80*i* has 256KB total external cache.		
Main memory type	ECC SIMMs single bit correct double bit detect	ECC SIMMs single bit correct double bit detect
Capacity	16-128MB	16-128MB
Main memory bus width	64 data bits w/8 check bits	64 data bits w/8 check bits
Main memory bus	160MB/sec	160MB/sec
peak performance	(64 byte duration)	(64 byte duration)
System DRAM technology	70ns, 4 & 16 Mbit DRAM	70ns, 4 & 16 Mbit DRAM
Memory Options	16, 32, 64, 128MB	16, 32, 64, 128MB
Note: The system has 4 memory expansion slots, and memory is installed in matching pairs. Memory modules are available in 4, 8, 16 and 32MB sizes.		
Graphics Monitors		
Monitor Size		
11.8" Flat Panel	1024 x 768	1024 x 768
15"	1024 x 768	
17" (Multi-mode)	1024 x 768 or 1280 x 1024	1024 x 768 or 1280 x 1024
19"	1280 x 1024	1280 x 1024
Performance		
Xmark93	5.9	8.5
X11 vectors/sec	1.1M	1.4M
2D/3D vectors/sec	1.2M	725K
Mass Storage		
Internal Capacity	260MB-1GB	260MB-1GB
Total External Capacity	14GB	14GB
Removable Media		
Internal Option	1.44MB Floppy	1.44MB Floppy

Operating System
HP-UX 9.03 Complies with IEEE POSIX.1993.1 and 1003.2 FIPS 151-1, ANS X3.159-1989, System V InterfaceDefinition (SVID) Issue II (Base System and all Extensions except AS, NS and shmat [KE_OS]), X/Open Portability Guide Issue IV (XPG4), (Base Branding)

HP-UX 9.03 also complies with IS 9945/1 and Base Component and all Optional Components except XTI only.

X Window System
Version 11 Release 5 (X11R5), OSF/Motif 1.2

Languages
C, C++, Pascal, ANSI FORTRAN, ANSI C, PA RISC 1.1, Assembler

User Interface
HP VUE 3.0

User-friendly Features
HP VUE, OSF/Motif, X11 Window System, Instant Ignition

Cooperative Computing Products
NCS, Passwd Etc, Task Broker, NetLS, NFS, OmniBack, OpenView, SoftBench, Software Distribution Utility (SDU), The Ready-to-Wear Desktop Builder Kit (RTW DBK)

Systems Processing Unit

Physical Dimensions
Desktop:
- Height
  - 70 mm (2.75 in)
- Width
  - 405mm (15.95 in)
- Depth
  - 370 mm (14.56 in)

Deskside:
- Height
  - 405 mm (15.95 in)
- Width
  - 70 mm (2.75 in)
- Depth
  - 370 mm (14.56 in)
- Net weight
  - 8.36 kg (18.4 lbs) (fully loaded)
- Shipping weight
  - 12.72 kg (28 lbs) (fully loaded)

System Unit Power Source Consumption
- 2.7 A RMS max @ 120V
- 1.2 A RMS max @ 240V

Auto ranging
- 90-132 vac
- 98-264 Volts

Line frequency
- 47-63Hz

Maximum power input
- 110 max Watts

Environmental Specifications
Temperature: operating
- 10C to 40C; 20C/hr. rate of change max.

Temperature: non-operating
- -40 C to +70C

Humidity: non-condensing
Operating
- 15% to 80% R.H. max.

Operating max. wet bulb temp
- 37C

Non-operating max. wet bulb temp
- 68C

Altitude: operating
- 3050 meters (10,000 ft.) to 40C

Altitude: non-operating
- 4572 meters (15,000 ft.) to 60C

Regulatory and Safety
Regulatory compliance
- FCC 47 cfr, part 15 sub-part J, Class A
- Koren RRL, Class B
- VCCI, Class 1
- EN55022/CISPR 22 Class A
- EN50082-1
- IEC801-4

Safety
- UL1950
- CSA22.2 950
- TUV EN60950
  - Finland TSH
  - EMKO TUE(74) DK203
  - Sweden SS43614 50

Ergonomics
- TUV ZH-1/618
- ISO9241
- 90/270 EEC

Power Budget
Maximum power output
- 70 Watts

Voltage/Current
- 5.1V @ 11.5 A
- 12.0V @ 1 A
- 3.3V @ 1 A

Terminator power
- 5.26V-4.5V @ 0.50 A

Human Interface

Keyboard
Layout
- 101/102 Key PC standard

Languages
- 13

Length
- 463.2mm (18.23 in)

Width
- 177.6mm (6.99 in)

Height
- 3 angle settings
- 38.6mm (1.49 in) lowest
- 55.3mm (2.17 in) highest

Weight
- 1.54kg (3.39 lbs)

Regulatory specifications
- EN 55022 Class A
- EN 55024-2/IEC 801-2
- EN 55024-3/IEC 801-3
- IEC 950/EN 60950
- ZH1/618
- UL 1950
- CSA C22.2 No.950
- FCC Part 15 Subpart J Class B
- RRL EMI

Mouse
3 button, rollerball

Keyboard and Mouse Interface
Electrical
IBM PS/2 compatible
Connectors
MiniDIN Pair
Data rate
2.5K 11-bit samples/sec
Power available
4A Fused

Graphics

Features
Type
Integrated, Color, 8-plane with HP Color Recovery
Resolutions
600 x 480 x 8 to 1024 x 768 x 8
Optional resolution
1280 x 1024 x 8 (V-Ram frame buffer card)
Optional second video card resolutions
600 x 480 x 8 to 1280 x 1024 x 8
Note: The second video functions the same as the integrated video except it will not function as the system boot console

Software
X11/R5, PEX, PHIGS, Starbase, GKS

Monitors
11.8" Flat Panel
Video
75Hz
Video signals
RS-343A levels
Resolution
1024 x 768
Colors
512

Electrical specifications:
Line voltage
90-132VAC
180-264VAC
Line frequency
47-63Hz
Maximum current
1.25A/0.6A
Power consumption
55 Watts max.

Environmental characteristics:
Operating temperature
0-40 degrees C
Non-operating temperature
–25–60 degrees C
Humidity operating
15–80%RH non-condensing
Max. altitude operating
3048m (10,000 ft)
Max. altitude non-operating
9144m (30,000 ft)

Regulatory compliance:
CISPR LEVEL: B
FCC CLASS: A
VCCI CLASS: 2

Safety:
UL, CSA, EN60950, GS Mark

Monitors physical characteristics:
Height
378mm (14.9 in.)
Width
330mm (13.0 in.)
Depth
153mm (6.0 in.)
Net weight
5.45 Kg (12 lbs)

15" color monitor
Screen refresh rate
70Hz (single mode)
Video signals
RS-343A levels
Resoluton
1024x768

Electrical specifications:
Line voltage
88-135VAC
193-269VAC
Line frequency
47-63Hz
Maximum currrent
1.5A/1.0A
Power consumption
75 Watts max.

Environmental characteristics:
Operating temperature
5-40 degrees C
Non-operating temperature
-40-70 degrees C
Humidity operating
15-80%RH non-condensing
Max. altitude operating
3048m (10,000 ft)
Max. altitude non-operating
10,668m (35,000 ft)

Regulatory compliance:
CISPR LEVEL: A
FCC CLASS: A
VCCI CLASS: 1

Safety:
UL, CSA, EN60950, GS Mark

Monitors physical characteristics:
Height
366mm (14.4 in.)
Width
354mm (13.9 in.)
Depth
400mm (15.8 in.)
Net weight
14kg (31 lbs)

17" color (Multi-mode)
Screen refresh rate
50–150Hz Vertical
28–82KHz Horizontal
Video signals
RS-343A levels
Resoluton
640x480, 60Hz to 1280x1024, 75Hz

Electrical specifications:
Line voltage
90-132VAC
195-264 VAC
Line frequency
47-63Hz
Maximum current
2.7/1.5A
Power consumption
140 Watts max.

Environmental characteristics:
Operating temperature
0-40 degrees C
Non-operating
-40-60 degrees C
Humidity operating
10-80%RH non-condensing
Max. altitude operating
3658m (12,000 ft)
Max. altitude non-operating
15,240m (50,000 ft)

Regulatory compliance:
CISPR level: B
FCC class: B
VCCI class: 2

Safety:
UL, CSA, EN60950, GS Mark

Monitors physical characteristics:
Height
414mm (16.3 in.)
Width
406mm (15.98 in.)
Depth
450mm (17.71 in.)
Net weight
22kg (48.4 lbs)

19" Color
Screen refresh rate
72Hz (single sync)
Video signals
RS-343A level
Resolution
1280x1024

Electrical specifications:
Line voltage
88-135VAC
193-269VAC
Line frequency
47-63Hz
Maximum current
3.7A/2.0A
Power consumption
250 watts max.

Environmental characteristics:
Operating temperature
10-40 degrees C
Non-operating temp
-40-60 degrees C
Humidity operating 40 degrees C
10-80%RH non-condensing
Max. altitude operating
3048m (10,000 ft)
Max. altitude non-operating
10,668m (35,000 ft)

Regulatory compliance:
CSPR level: A
FCC class: A
VCCI class: 1

Safety:
UL, CSA, IEC950, GS Mark

Monitors physical characteristics:
Height
410mm (16.1 in.)
Width
485mm (19.1 in.)
Depth
510mm (20.1 in.)
Net weight
32.5kg (71.5 lbs)

Options
Second Monitor Support
Type
Plug-in Card

Multimedia
Software
HP MPower V2.0
Features:
MPEG decompression
HP Digital Video
Video Playback
Playback to 30 frames/sec (352x240 pixel frame)
Maximum frame size full screen resolution
Pause, stop, looping, reverse playback, random frame access
Image viewer
Audio Editor/Player
Digital Video Player for MPEG compressed digital chips
HP SharedX, Deskscan, Sharedprint

Hardware
Integrated graphics/audio
Optional TeleShare card

Audio
Type
Integrated, CD quality, stereo
Inputs
Stereo line-in, MIC-in
Outputs
Stereo phone-out
Frequency response

Networking

LAN(2)
Standard IEEE 802.3 LAN with interfaces
Type
IEEE 802.3/Ethernet
Data rate
10 Mbits/sec
Connectors
15 pin AUI
RJ45, UTP (10BaseT)

Optional
Second IEEE 802.3
HP Token Ring/9000
(IEEE 802.5)
X.25

Networking Products
NCS, NFS, Berkely 4.3 TCP-IP, BSD 4.3 Network Services, and ARPA Services

Standard I/O Specifications

SCSI Interface (standard)
Type
SCSI-II: single-ended, 8 bit
Data rate
5MB/sec synchronous
1.5 MB/sec asynchronous with standard length cables
Device limit
7 devices
Connector
ALT-1 of SCSI-2 50-pin high density

Serial Interface (one standard)
Type
EIA RS232C, CCITT V.24/V.28
Data rate
to 460.8kbps (16550A UART)
Connector
9 pin male DTE (PC Standard)

Parallel Interface (standard)
Type
Centronics, BUSY handshake
Data rate
300+ KB/sec with DMA
200,B/sec sustained
Connector
25-pin female (PC standard)

Optional Internal Mass Storage

Max Internal Mass Storage
One disk drive + floppy

Internal 260MB Disk
Operating system
HP-UX 9.03
Size
3.5-inch
Formatted capacity
260MB
Average seek time
10 ms
Average latency
6.7 ms
Spindle speed
4,500 rpms

Internal 525MB Disk
Operating system
HP-UX 9.03
Size
3.5-inch
Formatted capacity
525MB
Average seek time
10.5 ms
Average latency
6.7 ms
Spindle speed
4,500 rpm

Internal 1GB Disk
Operating system
HP-UX 9.03
Size
3.5-inch
Formatted capacity
1.05GB
Average seek time
10.5 ms
Average latency
5.6 ms
Spindle speed
4,500 rpms

Internal removable disk (optional)
1.44MB 3.5" Floppy
Operating system
HP-UX 9.03
Media
HP 2MB or HP 1MB floppy disk
Formatted capacity
1.44MB 720MB
Format
MFM OR FM
Transfer rate
500Kb/sec or 250Kb/sec
Track to track access time
3 ms
Avg. latency
100 ms
Avg. access w/latency
194 ms

General optional I/O
Second Serial Interface
Type
EIA RS232C, CCITT V.24/V.28
Data rate
to 460.8kbps (16550A UART)
Connector
9 pin male DTE (PC Standard)

Second LAN AUI + Second serial port
LAN
Type
IEEE 802.3/Ethernet
Data rate
10 Mbits/sed
Connector
15 pin AUI

Serial
Type
EIA RS232C, CCITT V.24/V.28
Data rate
to 460.8kbps (16550A UART)
Connector
9 pin male DTE (PC Standard)

HP Token Ring/9000
Type
IEEE 802.5
(Full IBM Token Ring Interoperability)
Rate
4-16Mbps
Media connections
UTP (Unshielded Twisted Pair) (with media filter)
STP (Shielded Twisted Pair)
Physical connector type
DB-9

X.25 + Second serial port
X.25
Protocol
LAP-B
Data rates
1.2 Kbps to 19.2 Kbps
Window sizes
1–7 (level 2 and level 3)
Switched virtual circuits
1 way/2 way
Permanent virtual circuits
packet sizes
16 to 1024 bytes
DTE (level 1) or DCE(s) support
D-bit, Q-bit, M-bit
Facilities negotiation
Throughput, flow control, packet and window sizes
Interface
RS-232C/V.24
Connector
DB25S

Serial
Type
EIA RS232C, CCITT V.24/V.28
Data rate
to 460.8Kbps (16550A UART)
Connector
9 pin male DTE (PC Standard)

Second monitor connection
Type
Expansion card
Resolutions
640 x 480 to 1280 x 1024
Note: the first and second monitor must be identical
Connector
15-pin VGA (PC Standard)
Note: The second monitor will not function as the boot console

External Peripherals
2GB DAT Drive
Dimensions
Width 170.2mm (6.7 in)
Height 62.8mm (2.47 in)
Depth 220mm (8.66 in)
Weight 1.9Kg (4.18 lbs)
Interface
SCSI-II
Connector
50-pin high density
Transfer rate
183Kb/sec
Capacities
1.3GB 60M tape
2.0GB 90M tape
Format
DDS

1GB Hard Disk Drive
Dimensions
Width 170.2mm (6.7 in)
Height 62.8mm (2.47 in)
Depth 222mm (8.74 in)
Weight 2.19Kg (4.81 in)
Interface
SCSI-II
Connector
50-pin high density
Operating system
HP-UX 9.03
Size
3.5 inch
Formatted capacity
1.05GB
Average seek time
10.5 ms
Average latency
5.6 ms
Spindle speed
4,500 rpms

CD-ROM Drive
Dimensions
Width 210.5mm (8.28 in)
Height 62.8mm (2.47 in)
Depth 260mm (10.23 in)
Weight 2.5Kg (5.5 in)
Interface
SCSI-II
Connector
50-pin high density
Transfer rates
330Kb/sec data
150Kb/sec audio
Capacities
680MB nominal
Formats
IEC RedBook media and audio
ISO 10149 YellowBook CD-ROM

For more information, contact any of our worldwide sales offices or HP Channel Partners (In the U.S., call 1-800-637-7740; in Canada, call 1-800-387-3867).

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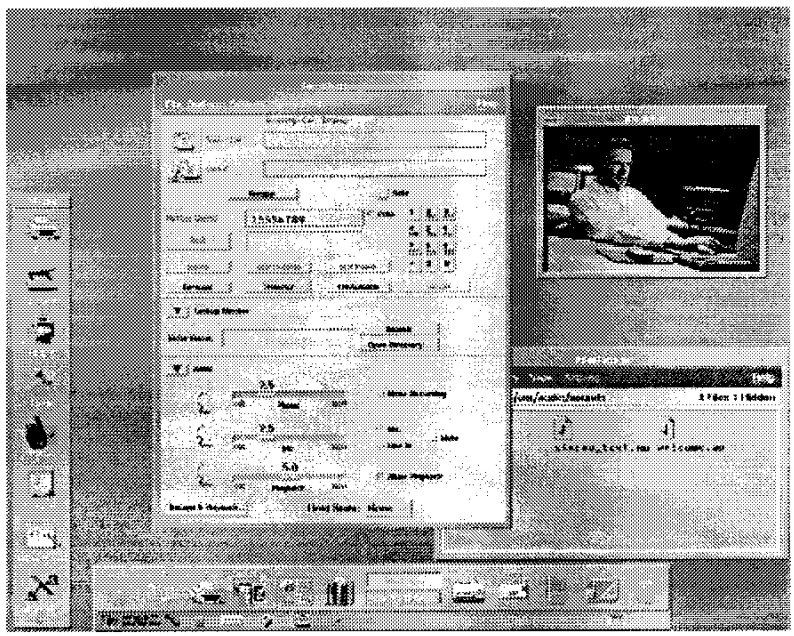
HP TeleShare

HP TeleShare is a 3-in-1 telecommunication tool, incorporating telephone, FAX service, and data modem into the Model 712/60 and 712/80*i* workstations. The product contains two dual-line phone ports for analog phone line (POTS) access. The Motif-based TeleShare software provides an easy-to-use, point-and-click style graphical interface to all telecommunication needs. HP TeleShare can be ordered either factory-installed into the Model 712 or standalone (customer installed).



Features	Benefits
• 3-in-1 telecommunication tool including telephone, FAX and data modem	• Eliminate separate telecommunications peripherals; the workstation becomes the one telecommunications tool with a single interface
• Two dual-line analog phone ports	• FAX without delay from your workstation, while you talk, using HP TeleShare's dual-phone line design
• Volume and ring control	• Set the sound level most convenient for you and your work context
• Mute, hold, conference, and transfer buttons	• Access standard telephone services with less effort using the mouse and graphical user interface
• Recording incoming or outgoing audio from phone lines	• Record calls for later reference using HP TeleShare's integration of telephony and audio services
• Play back audio information into phone line	• Get immediate feedback on audio information from your caller by playing back the audio snippet directly into the phone line for your caller to hear
• Double-click to dial address book	• Speed phone number lookup and dialing with HP TeleShare's electronic phonebook
• Last number redial and programmable speed-dialing key	• Avoid time consuming phone number lookup altogether

Software Specifications
GUI: X11R5, Motif 1.2
Operating System: HP-UX 9.03
Disk Space: 1.5 Mbytes
Ram Required: 1 Mbytes
FAX Class: Class II Group 3
FAX Speeds: 300–14.4K baud (v.17, v.29, v.27ter, v.21)
Data Compression: CCITT v.42bis, MNP Class 5
Error Correction: CCITT v.42 LAPM MNP Classes 2-4
Data Speeds: 1.2K–14.4K baud (v.32bis, v.32, v.22bis, v.22)
Modem: Based on HP Softmodem®

® Softmodem is a registered trademark of Digicom Systems, Inc.

Hardware Specifications
Platform: S712 HP PA-RISC
Data Modem: Hayes AT Command Set Compatible
Line Type: Analog
Connectors: 2 RJ14
Tip/Ring Line 1: Pins 2, 3
Tip/Ring Line 2: Pins 1, 4
Accessories: Phone cable, splitter, adapter
Dimensions: 2.5 in. x 8 in.

Headsets
(available separately)
A4370A – Stereo headset with mike
A4371A – Monaural (one-ear) headset with mike
A4372A – Monaural headset with noise cancelling mike
A4373A – Biaural (two-ear) headset with mike
A4374A – Biaural headset with noise cancelling mike
A4374A – Over-the-ear style headset with mike

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Printed in U.S.A. 12/93
5091-9780E