

# Wren™ VI Half-Height 5¼-Inch Rigid Disk Drive

NOV 15 1988

IMPRIMIS



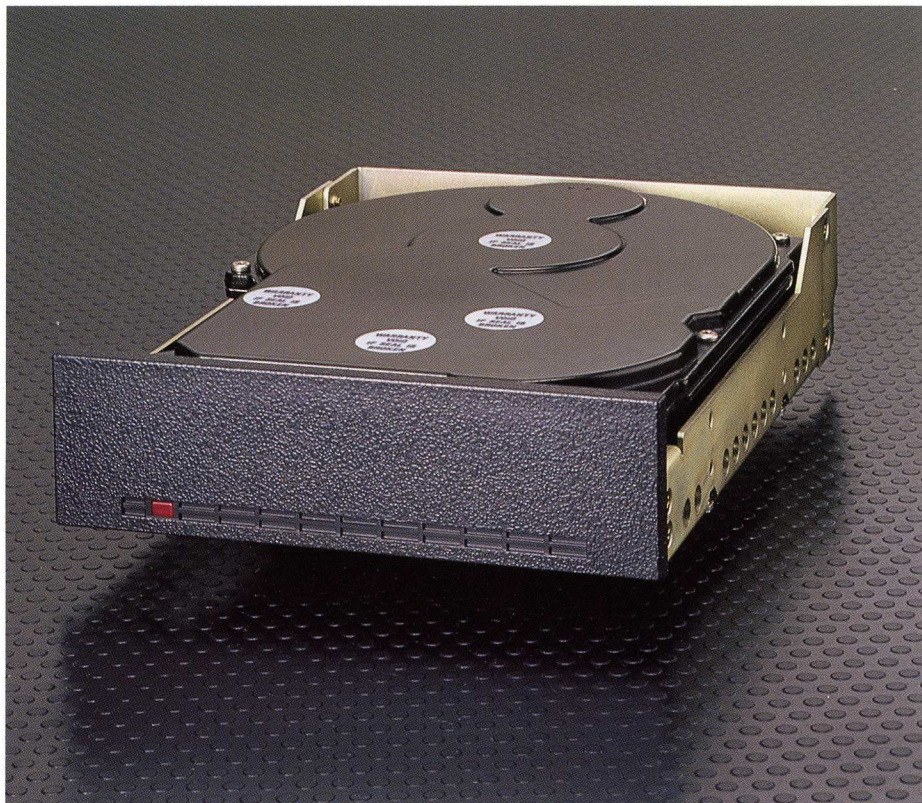
The Imprimis Wren VI is a high-capacity 5¼-inch Winchester disk drive. The Wren VI half-height features the high performance and reliability designed into the Wren family of products. Two industry standard interfaces are offered—PCAT and ESDI.

The Wren VI half-height provides 383 megabytes unformatted — tomorrow's capacity with today's technology and availability.

The reliability of the Wren VI half-height drive is enhanced by incorporation of a lifetime environmental control system with a patented low vapor diffusion breather filter, high performance-low noise thin film media, thin film heads, surface mount technology (SMT) circuit board and low power requirement.

## Features

- ▶ Capacity of 383 megabyte unformatted
- ▶ ESDI or PCAT interface
- ▶ In-hub spindle motor allows four disks in 5¼-inch half height form factor
- ▶ Average seek as fast as 16.0 ms
- ▶ Patented tri-phase servo for faster access
- ▶ Read Ahead Buffer Management
- ▶ Low power consumption
- ▶ 40,000-hour MTBF
- ▶ Patented lifetime internal HDA environmental control
- ▶ Read/write heads automatically retract to non-data zone
- ▶ Automatic actuator restraint/shipping lock
- ▶ Internal shock mounts
- ▶ Patented, balanced, low-mass, straight-arm, rotary, voice coil actuator
- ▶ No mounting restrictions
- ▶ Surface mount technology reduces electronics to one board
- ▶ Low power consumption — 15 watts
- ▶ Cool operation
- ▶ Low audible noise



### **Tri-phase Servo**

This patented servo design allows greater servo sampling, allowing faster actuator speeds than conventional designs. A unique feature of this design is the automatic single track seek error correction capability.

### **Four-Disk Design**

The Wren VI half-height utilizes four platters of thin film media. The industry standard half height form factor is achieved by the use of an in-hub spindle motor.

### **Low-mass Actuator Improves Performance**

The heads are mounted on a patented straight-line arm connected to a balanced rotary voice coil actuator. This design has 60 percent less mass than other designs. High-energy magnets in the voice coil further improve speed, resulting in a typical average seek of 16.0 milliseconds.

### **Applications**

The Wren VI half-height is designed for applications where form factor, capacity and performance are important. These applications frequently are multi-user, multi-tasking systems and local area networks with file server requirements.

- ▶ Small business systems
- ▶ Office automation
- ▶ Word processing
- ▶ Local area networks
- ▶ Multi-user microcomputers
- ▶ Low-end minicomputers
- ▶ Engineering workstations
- ▶ CAD/CAM
- ▶ Artificial intelligence

### **PCAT Interface**

The Wren VI half-height AT provides 32K of buffer memory with read look ahead. The embedded controller manages the cache memory, providing faster data access and significantly increased throughput performance compared to drives requiring separate controllers. The drive has 1:1 inter-leave read/write capability and uses RLL encoding for increased data storage.

The Wren VI half-height AT responds to an extended command set which meets interface requirements of the AT bus.

- ▶ Drive ID: Enables the host to receive drive parameters.
- ▶ Set Buffer Mode: Enables or disables the read look ahead.
- ▶ Set Multiple Mode: Defines number of sectors to be transferred as a block.
- ▶ Read Multiple: Transfers multiple read sector blocks to host.
- ▶ Write Multiple: Transfers multiple write sector blocks to host.

### **ESDI Interface**

The ESDI interface provides an industry standard 15 MHz transfer rate. The Wren VI half-height drives support both hard- and soft-sector applications and are compatible with all industry-standard controllers and applications. Data recovery and separation are incorporated in the drive.

### **Low Power Consumption**

The Wren VI half-height typically draws only 15 watts, resulting in cool operation, higher MTBF and reduced operating cost.

### **Lifetime HDA Environmental Control**

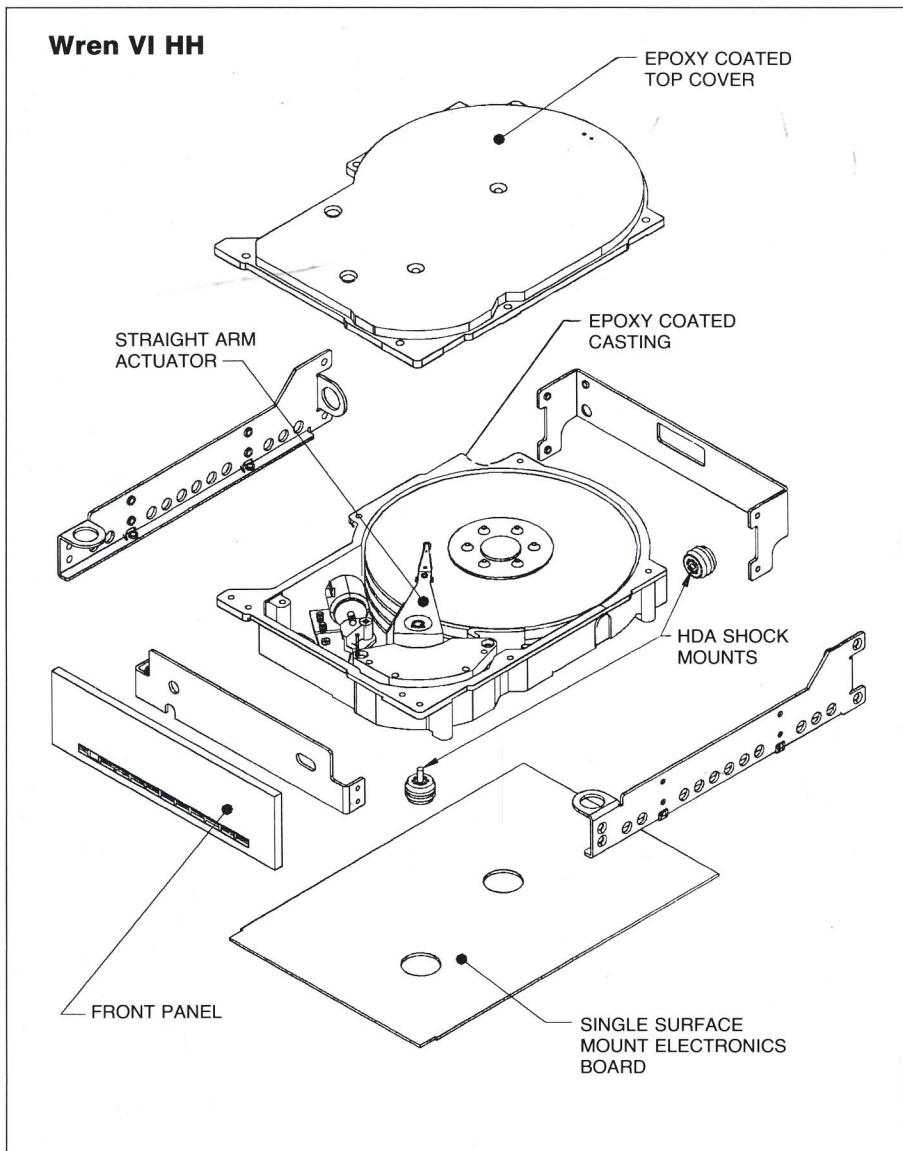
The head disk assembly of the Wren VI half-height incorporates a lifetime environmental control system with a patented low vapor diffusion filter. This system uses advanced two-phase air filtration, activated carbon to absorb thin film media harmful gases, and a unique desiccant module that controls HDA internal humidity. A capillary tube in the breather filter restricts water vapor entry.

The base casting is epoxy coated and all HDA internal metal parts are coated. This lifetime environmental control system provides internal humidity and corrosion control, and absorption of harmful gases, resulting in a higher margin product.

### **Quality Designed In**

Features such as HDA environmental control allow Imprimis to provide the high-performance, high-reliability disk drives in the high volumes demanded today. The margins are designed into the Wren VI half-height to allow maximum application flexibility.

## Wren VI HH



### Product Safety Standards

All Wren family products meet requirements for UL, CSA and VDE certification. Wren drives are supplied as Class A computing devices per FCC rules governing radio frequency and electromagnetic interference.

### Maintenance and Spares

All Imprimis products are backed by a comprehensive maintenance and spares support program.

### Repair

Imprimis provides a dedicated repair facility for all Wren family products.

## The Wren Family

The Wren family provides a range of models from 48 to 1200 megabytes.

- ▶ Wren II: 48 to 135 Mbytes
  - ST506
  - ESDI
  - RLL to 135 Mbytes
- ▶ Wren II HH:
  - ST506 51 Mbytes
  - RLL to 77 Mbytes
  - PCAT to 80 Mbytes
- ▶ Wren III: 101 to 182 Mbytes
  - ESDI
  - SCSI
- ▶ Wren III HH: 106 Mbytes
  - ESDI
  - SCSI
- ▶ Wren IV: 350 to 376 Mbytes
  - SCSI
- ▶ Wren V: 383 to 702 Mbytes
  - ESDI
  - SCSI
- ▶ Wren V HH: 209 Mbytes
  - SCSI
- ▶ Wren VI: 766 Mbytes
  - ESDI
  - SCSI
- ▶ Wren VI HH: 182 to 383 Mbytes
  - ESDI
  - PCAT
- ▶ Wren VII: 1200 Mbytes
  - SCSI

<b>Specifications</b>	<b>94246-383</b>	<b>94246-182</b>	<b>94244-383</b>	<b>94244-219</b>
<b>Capacity Mbytes</b>				
ESDI-unformatted	383	182		
PCAT-unformatted			383	219
<b>Configuration</b>				
Number of disks	4	3	4	3
Data surfaces	7	4	7	4
Servo surfaces	1	1	1	1
Tracks/surface	1747	1453	1747	1747
Recording method	RLL 2,7	RLL 2,7	RLL 2,7	RLL 2,7
<b>Performance</b>				
Seek time (ms)				
Single track	4	4	4	4
Average	16.0	16.0	16.0	16.0
Data transfer rate (Mbits/sec)	15	15	15	15
Rotation speed	3,600 rpm	3,600 rpm	3,600 rpm	3,600 rpm
Average latency	8.33 msec	8.33 msec	8.33 msec	8.33 msec
<b>Reliability and Maintainability</b>				
Error rate				
Recoverable	1 in 10 <sup>10</sup> bits read, max			
Unrecoverable	1 in 10 <sup>12</sup> bits read, max			
Seek	1 in 10 <sup>8</sup> seeks, max			
MTBF	40,000 hours			
Preventive maintenance	None			
<b>Power Requirements</b>				
	<b>ESDI</b>		<b>PCAT</b>	
DC + 12V (± 5%)	.9A typical		.9A typical	
DC + 5V (± 5%)	.8A typical		1.0A typical	
Power dissipation	15 Watts		16 Watts	
<b>Environmental</b>				
Temperature				
Operating	10° to 50° C (50° to 122° F)			
Storage	- 10° to 54° C (14 to 120° F)			
Transit	- 40° to 70° C (- 40° to 158° F)			
Relative humidity				
Operating	8% to 80%			
Storage	8% to 90%			
Transit	5% to 95%			
Altitude				
Operating	- 300 m to 3,000 m (- 1,000 to 10,000 ft)			
Transit	- 300 m to 12,000 m (- 1,000 to 40,000 ft)			
Acoustical noise				
Operating	Less than or equal to 50 dBa			
<b>Physical</b>				
Height mm	41.3 (1.63 in)			
Width mm	147 (5.75 in)			
Depth mm	203 (8.00 in)			
Weight kg	1.9 (4.2 lbs)			

Specifications subject to change without notice.



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