

Product Announcement



IBM United States

February 19, 1991

IBM 3490 Magnetic Tape Subsystem Enhanced Capability Models D41 and D42

The 3490 Enhanced Capability (3490E) Models D41 and D42 are new members of the IBM 3490 Magnetic Tape Subsystem family, providing significant performance and cartridge capacity improvements to mid-range and intermediate customers. The D41 and D42 use the existing Cartridge System Tape and are read-compatible with earlier cartridge system formats, providing for ease of migration. The new Enhanced Capability format (36-track, bidirectional recording), together with the standard Improved Data Recording Capability (IDRC), significantly increases overall cartridge capacity. This increased capacity and the optional Automatic Cartridge Loader (ACL) combine to address the data capacity issues of unattended tape operations. Improved utilization of ESCON Channels provides new possibilities in performance, connectivity, and remote tape operations.

Planned Availability Date: June 14, 1991.

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Highlights

- Significant increase in cartridge capacity
 - Enhanced Capability format (36-track, bidirectional recording)
 - Improved Data Recording Capability standard
 - Ability to read previous 3480 and 3490 formats
- Expanded utilization of ESCON Channels
 - Up to 9 MB/second instantaneous data rate
 - Up to 32 logical control unit (CU) to host paths
- Improved subsystem performance, reliability, and availability

Description

Systems Management and Systems Handling

The new Enhanced Capability format (36-track, bidirectional recording) approximately doubles the cartridge capacity of the previous 3480 and 3490 formats. This larger cartridge capacity, together with the standard IDRC and optional ACL, addresses the data capacity requirement for unattended backup among mid-range and intermediate customers. Backup, archive, interchange, and master file data all require fewer cartridges for the same amount of data. Tape mounts, cartridge handling, and cartridge library space are reduced, and the data capacity of the ACL is approximately doubled. Rewind

time is virtually eliminated on a full cartridge, read or write, removing the need to allocate two tape drives for each multivolume data set to mask rewind time. Rewind time for partially full cartridges is improved; average speed is 5 meters/second from physical end of tape to physical beginning of tape. The 3490E D41 or D42 will write the new tape format introduced with this product and for ease of migration will read all previous 3480 and 3490 IBM Cartridge System Tape formats.

Expanded utilization of ESCON Channels provides new possibilities in floor-space planning, configurability, and connectivity, providing for up to 32 logical control unit to host paths, using the ESCON Director, with either the 3490E D41 or D42. A logical path is a connection between a host channel and a logical address on a control unit function. ESCON Channel connected tape can be installed up to 9 kilometers (5.6 miles) away from the host, addressing remote tape operations requirements and providing remote site security advantages.

Improvement in subsystem performance is provided through the optional Performance Enhancement feature together with ESCON Channels. The result is an improved effective data rate, reducing the backup and batch window time constraints and time required for tape processing. The Performance Enhancement feature also provides support for a 9 MB/second channel data rate. This feature will be available in the fourth quarter of 1991.

"LOCATE" has been enhanced to accommodate the new format. Depending on the location of the requested record, LOCATE may be faster than with previous formats and can never take longer than a LOCATE to the physical end of tape.

When service is required on the 3490E D42, concurrent maintenance may be performed on one drive while operations continue on the second drive.

Reliability and availability are improved by advanced electronic packaging. The number of electronic cards within the control unit has been reduced from fourteen to nine. Higher reliability of circuit technology and the microcode input disk unit, and enhanced control unit error recovery procedures (ERP) all contribute to improved reliability. Reduced loads (tape mounts) decrease the opportunity for load failures and improved autoblocking reduces start/stop repositioning.

Up to two channel adapters may be installed. The first is a standard parallel channel, while the second may be either an ESCON Adapter or an additional parallel channel attachment.

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Business Solutions

Significant improvements in cartridge capacity, performance, and connectivity reduce tape drive growth and labor-intensive activities such as tape mounts. Approximately doubling the cartridge capacity reduces the number of cartridges needed, thus further reducing media costs as well as library storage costs.

ESCON architecture enables users to better plan remote disaster recovery sites with the ability to connect up to 9 kilometers from the central facility. This allows the users to utilize less expensive floor space and potentially eliminates the need to expand facilities to accommodate growth.

Investment Protection

Past investments in IBM 3490 base models (D31 and D32) are protected by the ability to field upgrade to 3490E Models D41 and D42.

The performance of ESCON Adapters installed on the IBM 3490 Models D31 and D32 is enhanced when the D31 or D32 is upgraded to a 3490E Model D41 or D42.

The IBM 3490E D41 or D42 uses the same Cartridge System Tape first introduced with the IBM 3480, protecting years of investment in media.

Growth Enablement

The 3490E Model D41 offers the granularity and lower cost of a 1X1 configuration to satisfy the save/restore requirement for mid-range customers, and can be upgraded to a 3490E D42 (1X2) when additional capacity and/or performance is required.

Mixing of Parallel Adapters and ESCON Adapters is allowed. Both adapter types can be field and/or factory installed.

User Productivity

Direct access storage device (DASD) to tape backup time is significantly reduced, resulting in more online time for users.

Statement of General Direction

It is IBM's intent to support these new models of the 3490 Magnetic Tape Subsystem on the AS/400® at a future date.

® Registered trademark of International Business Machines Corporation.

Publications

The following publications are shipped with the product. Additional copies will be available on or before general availability.

- IBM 3490 Magnetic Tape Subsystem Models D31, D32, D41, and D42 Operator's Guide (GA32-0124)
- Care and Handling of the IBM Magnetic Tape Cartridge (GA32-0047).

The following publications will be available on or before general availability. To order, contact your IBM representative.

- IBM 3490 Magnetic Tape Subsystem Models D31, D32, D41, D42 Introduction (GA32-0123)

- IBM System/360™, System/370™, 4300, and 9370 Processors Input/Output Equipment Installation Manual — Physical Planning (GC22-7064)
- IBM 3490 Magnetic Tape Subsystem Models D31, D32, D41, and D42 Operator's Guide (GA32-0124)
- IBM 3490 Magnetic Tape Subsystem Models D31, D32, D41, and D42 Planning and Migration Guide (GC35-0117)
- IBM 3490 Magnetic Tape Subsystem Models D31, D32, D41, and D42 User's Reference (GC35-0118)
- IBM 3490 Magnetic Tape Subsystem Models D31, D31, D41, and D42 Hardware Reference (GA32-0130)

The System Library Subscription Service (SLSS) is available by order number only. Customers currently subscribing to SLSS will receive publication updates automatically.

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Schedule

The planned availability date is June 14, 1991.

Technical Information

Specified Operating Environment

Physical Specifications:

No new interface is introduced with this product.

Width — 745 mm (29.3 inches).
Depth — 950 mm (37.4 inches).
Height — 1.580 m (62.13 inches).
Weight — 404 kg (890 pounds) maximum.

Operating Environment:

Temperature — 16° to 32° C (60° to 90° F).
Relative Humidity — 20% to 80%.
Wet Bulb — 26° C (78° F).

Machine Requirements: The 3490E Models D41 and D42 may be attached to any of the following host processors:

- ES/3090™
- ES/9000™
- ES/9370™
- 308X
- 4381.

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Programming Requirements: Support for 3490E Models D41 and D42 will be provided in the MVS, VM, and TPF operating environments. A program temporary fix (PTF) will be provided at general availability for the following releases:

- MVS/XA™ Version 2 Release 2.3
- MVS/ESA™ Version 3 Release 1.0
- MVS/ESA Version 3 Release 1.0E
- MVS/ESA Version 3 Release 1.3
- MVS/ESA Version 4 Release 1.0
- MVS/DFP™ Version 3 Release 1.1
- MVS/DFP Version 3 Release 2.0
- MVS/DFP Version 3 Release 3.0
- JES3 Version 2 Release 2.1
- JES3 Version 3 Release 1.1
- JES3 Version 3 Release 1.2
- JES3 Version 3 Release 1.3

- DFDSS Version 2 Release 5.0
- EREP Version 3 Release 4.2
- DFHSM Version 2 Release 6.0 (no PTF required)
- DFSORT Release 11.0
- DFSORT Release 11.1 (no PTF required)
- TPF Version 3.1
- VM/ESA™ Version 1 Release 1.1 (general availability: December 27, 1991).

VSE/ESA™ will provide support for these new 3490E models in the next release.

For those MVS systems that support 3490E Models D41 and D42 while operating as a guest on a VM system, they will be supported as "unsupported devices" in the following VM releases at general availability:

- VM/XA™ Version 2.0
- VM/XA Version 2.1
- VM/ESA Version 1.0.

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Enhanced Capability Format Recognition

A toleration PTF will be provided on the following Data Facility Product (DFP) levels to permit 3480 and previous 3490 devices to recognize a 3490E format tape, and display a meaningful message to the operator. This will eliminate the problem of having a 3490E formatted cartridge placed on a drive other than a 3490E drive confused with an uninitialized volume.

Note: Unpredictable results can occur if a cartridge with this new format is loaded on a 3480 or 3490 when the operating system is at a down-level version other than those listed below.

- MVS/370 DFP Version 1 Release 1.2 PTF
- MVS/370 DFP Version 1 Release 1.3 PTF
- MVS/XA DFP Version 2 Release 4.0 PTF
- MVS/DFP Version 3 Release 1.0 PTF

Planning Information

Customer Responsibilities: Physical planning is a customer responsibility.

Detailed physical planning information is in the *IBM Input/Output Equipment Installation Manual — Physical Planning* (GC22-7064).

Cable Orders: Cable limitations are identified in the *IBM Input/Output Equipment Installation Manual — Physical Planning* (GC22-7064).

Installability: Installation time for a 3490 Magnetic Tape Subsystem Enhanced Capability Model D41 or D42 is approximately 2.5 hours. Installation times for model conversions are:

- D31 to D41 — 11 hours
- D32 to D42 — 16 hours
- D41 to D42 — 8 hours.

This product contains no new interfaces.

Packaging:

Product	Shipment Group
3490 D41 or D42 (65F5334)	Cleaner Cartridge, Blank Cartridge, Operator's Guide, Tape Care and Handling Guide, Parts Catalog

Note: The Product Diskette, Support Diskette, Maintenance Manual, Power Cord, and 20-foot interface cables will be included if feature code 9985 is specified on the order shipped with either the D41 or D42, but are not part of the "Shipment Group."

Accessories and/or Supplies: Supplies can be purchased from IBM Authorized Supplies Dealers, IBM Authorized Distributors, or the National Distribution Division's (NDD's) IBM Direct Response Operations (DRO). Call IBM DRO at 1-800-IBM-2468. Mail orders should be sent to:

IBM Corporation
IBM Direct Response Operations
One Culver Road
Dayton, NJ 08810

Security, Auditability and Control

User management is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Terms and Conditions

On January 22, 1991, IBM announced the IBM Customer Agreement (ICA). The subject of this announcement is available to customers under the ICA or any equivalent agreement, accepted by IBM, that is still in effect.

Volume Purchase Discount: Volume purchasing is available under the Volume Procurement Amendment (VPA) to Agreement for Purchase of IBM Machines.

The announced products are included in Category C of the Selected Systems I/O Exhibit (SSIO). Customers with an existing VPA with a commitment in Category C of this exhibit may order these products as additional quantities to, or as direct substitutes for, any other machines in the same category, subject to availability.

For further information regarding volume orders, contact your IBM marketing representative.

IBM Credit Corporation Financing: Term leases and installment payment plans are available for commercial and state and local government customers.

Customer Fulfillment Option Applies: Yes.

Eligible Machine under Alternative Certification for IBM Machines: Yes.

Warranty Period: One year.

Warranty Service: IBM On-Site Repair (IOR).

IBM Maintenance Agreement: IOR.

Agreement for Lease or Rental of IBM Machines: IOR.

IBM Hourly Service Rate Classification: Two.

IBM warranty service, maintenance service, or hourly service may be obtained by calling 1-800-IBM-SERV. IBM hourly service is available at the applicable rate and terms, including element exchange price if applicable.

Mid-Range System Amendment: These products are eligible machines for the Mid-Range System Amendment to the IBM Maintenance Agreement. A revised exhibit will be available at a later date.

Product Announcement



IBM United States

February 19, 1991

IBM 3490 Magnetic Tape Subsystem Enhanced Capability Models A10, A20, B20, and B40

The IBM 3490 Enhanced Capability (3490E) Model A10 and A20 Control Units and B20 and B40 Drive Units are the newest members of the 3490 family of Magnetic Tape Subsystems. They are designed to provide significant tape subsystem performance and cartridge capacity improvements. The B20 and B40 Tape Drive Units write in a new Enhanced Capability format and use the existing Cartridge System Tape, and are capable of reading cartridges in earlier formats, providing for ease of migration. The 3490 base models (A01, A02, B02, and B04) can be field upgraded to the models being announced today. The A10 and the B20 can be field upgraded to the A20 and B40, respectively, providing granularity from a minimum 1X2 (A10 X B20) configuration to a maximum 2X16 (A20 X four B40s) configuration. Improved utilization of ES Connection (ESCON™) Channels provides new possibilities in performance, connectivity, and remote tape operations.

Planned Availability Date: April 26, 1991.

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Highlights

- 36-track, bidirectional recording format
 - Approximate doubling of cartridge capacity
 - Ability to read previous 3480 and 3490 formats
- Performance enhancement function
 - 8MB buffer and faster compactor to increase subsystem performance
- Expanded utilization of ESCON Channels
 - Up to 9 MB/second instantaneous data rate
 - Up to 128 control unit to host logical connections

Description

Systems Management and Systems Handling

The approximate doubling of the cartridge capacity over the IBM base 3490s is introduced via a new 36-track, bidirectional Enhanced Capability tape format. This cartridge capacity improvement reduces tape cost, as the number of cartridges required for all multiple volume data sets is reduced by up to half. Archive, backup, master file, and interchange data all require fewer cartridges for the same amount of data. Total tape mounts are reduced, cartridge handling and cartridge library space are reduced, and the data capacity of the cartridge loader is doubled.

Rewind time is virtually eliminated when reading or writing a full cartridge, removing the need to allocate two tape drives for each multivolume data set to mask rewind time. Rewind time for partially full cartridges is improved (average speed is 5 meters/second from physical end of tape to physical beginning of tape).

In MVS the "LOCATE" function will accommodate the new format, and depending on the location of the requested record, LOCATE may be faster than with previous formats and can never take longer than a LOCATE to the physical end of tape.

An instantaneous data rate of up to 9 MB/second is provided through the performance enhancement function. This function, with an 8MB buffer and increased speed compactor, will be available in the fourth quarter of 1991. The IBM 3490E A10 and A20 Control Units shipped prior to the fourth quarter of 1991 will be upgraded in the field at no charge.

With the performance enhancement function, a subsystem throughput improvement of up to 23% can be achieved on parallel channels in environments with long string lengths and uncompact or low compacted (Improved Data Recording Capability [IDRC]) data. The performance enhancement function has a significant effect on subsystem throughput when using ESCON Channels and can show dramatic improvement (up to 69%) with high (IDRC) compaction ratios. Your IBM representative has access to detailed performance data showing a comparison between a 3490 subsystem prior to the addition of the performance enhancement function, and a 3490 subsystem with the performance enhancement function. Relative improvement with both parallel and ESCON Channels is shown. The subsystem effective data rate is improved, reducing the backup and batch window time constraints, and reducing the time required for master file creation and use.

Expanded utilization of ESCON Channels (including ESCON Directors) provides new possibilities in floor-space planning, configurability, and connectivity. An A20 Control Unit (fully configured with ESCON Adapters) provides up to 128 logical paths to ESCON host processors, when ESCON Directors are employed in the system configuration.

Through the use of ESCON Directors, ESCON Channel connected 3490Es can be installed up to 9 kilometers (5.6 miles) from the host, addressing remote tape operations requirements, and providing remote site security advantages.

Because tape operations are more efficient, tape drive growth may decrease, and in some cases, fewer drives may be required. The 3490E Models A10, A20, B20, and

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B40 will write the new tape format introduced with this product and, for ease of migration, will read all 3480 and 3490 IBM Cartridge System Tape formats.

When service is required, devices are serviced from the rear of the subsystem while the remainder of the subsystem remains operational.

As a convenience for tape operators, the B20 (two-drive unit) has a 36-cartridge storage/staging area in the upper section where the two additional drives would fit in a B40.

Reliability and availability are improved by advanced electronic packaging: the number of electronic cards within the control unit is reduced by half over 3490 base models. Higher reliability of circuit technology and the microcode input disk unit, and enhanced control unit error recovery procedures (ERP) all contribute to improved reliability. Reduced loads (tape mounts) decrease the opportunity for load failures. The new 3490E control unit function includes a new, superior error correction algorithm designed to address the increased (36-track) density of the B20 and B40 drives.

Up to four adapters per control unit function may be installed. These can be parallel adapters, ESCON Adapters, or combinations of both.

Business Solutions

Tape drive growth and labor-intensive (tape mount) activities are reduced due to significant improvements in performance, connectivity, and cartridge capacity. As tape comes under system control, the additional cartridge capacity provides benefits in reducing the number of cartridges in the tape library, and increases the number of cartridges available to the scratch pool, reducing media costs.

ESCON architecture allows users to better manage their data processing complex, by allowing the location of tape subsystems up to 9 kilometers from the central processing facility. Customers can now utilize less expensive floor space for a separate tape installation, and potentially eliminate the need to build additional facilities for their growing hardware requirements. If the appropriate system planning for remote site input/output (I/O) has been completed, tape data at a remote site can facilitate system recovery.

Investment Protection

Past investments in IBM 3490 base models (A01, A02, B02, and B04) are protected by the ability to field upgrade to the Enhanced Capability Models A10, A20, B20, and B40.

The performance of ESCON Adapters installed on the IBM 3490 A01 or A02 is significantly enhanced when the A01 or A02 is upgraded to an A10 or A20 with the performance enhancement function.

The IBM 3490E B20 and B40 use the same Cartridge System Tape first introduced with the IBM 3480, protecting years of investment in media.

Growth Enablement

The Enhanced Capability Models A10 and B20 provide the additional granularity and lower cost 1X2 (A10 X B20) configuration required for entry into the high-end 3490, and can be upgraded later to the A20 and/or B40. In addition, the customer can add B20s and/or B40s up to a maximum configuration of 2X16 (A20 X four B40s).

Mixing of parallel adapters and ESCON Adapters is allowed. Both adapter types can be field or factory installed.

As data center requirements dictate, previously available IBM 3490 Models A01, A02, B02, and B04 can be field upgraded to IBM 3490E Models A10, A20, B20, and B40.

The improved performance of these 3490E models will reduce the amount of time required to save or restore data to direct access storage devices (DASD), resulting in higher availability of production data to users.

Statement of General Direction

It is IBM's intent to support these new models of the 3490 Magnetic Tape Subsystem on the AS/400® at a future date.

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Publications

The following publications are shipped with the product. Additional copies will be available on or before planned availability:

- 3490 Magnetic Tape Subsystem Models A01, A02, B02, B04, A10, A20, B20, and B40 Operator's Guide (GA32-0126)
- Care and Handling of the IBM Magnetic Tape Cartridge (GA32-0047).

The following publications will be available on or before planned availability. To order, contact your IBM representative.

- IBM 3490 Magnetic Tape Subsystem Models A01, A02, A10, A20, B02, B04, B20, and B40 Introduction (GA32-0125)
- IBM System/360™, System/370™, 4300, and 9370 Processors Input/Output Equipment Installation Manual — Physical Planning (GC22-7064)
- IBM 3490 Magnetic Tape Subsystem Models A01, A02, A10, A20, B02, B04, B20, and B40 Operator's Guide (GA32-0126)
- IBM 3490 Magnetic Tape Subsystem Models A01, A02, A10, A20, B02, B04, B20, and B40 Planning and Migration Guide (GC35-0116)
- IBM 3490 Magnetic Tape Subsystem Models A01, A02, A10, A20, B02, B04, B20, and B40 User's Reference (GC35-0115)
- IBM 3490 Magnetic Tape Subsystem Models A01, A02, A10, A20, B02, B04, B20, and B40 Hardware Reference (GA32-0127)

The System Library Subscription Service (SLSS) is available by order number or product number and subject codes.

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Schedule

The planned availability date is April 26, 1991.

Technical Information

Specified Operating Environment

Physical Specifications:

No new interface is introduced with this product.

Model A10

Width — 749 mm (29.5 inches).
Depth — 863 mm (34.0 inches).
Height — 1,770 mm (69.65 inches).
Weight — 318 kg (700 pounds).

Model A20

Width — 749 mm (29.5 inches).
Depth — 863 mm (34.0 inches).
Height — 1,770 mm (69.65 inches).
Weight — 359 kg (790 pounds).

Model B20

Width — 724 mm (28.5 inches).
Depth — 863 mm (34.0 inches).
Height — 1,770 mm (69.65 inches).
Weight — 318 kg (700 pounds).

Model B40

Width — 724 mm (28.5 inches).
Depth — 863 mm (34.0 inches).
Height — 1,770 mm (69.65 inches).
Weight — 422 kg (930 pounds).

Operating Environment:

Temperature — 15.6° to 32.2° C (60° to 90° F).
Relative Humidity — 20% to 80%.
Wet Bulb — 25.6° C (78° F).

Machine Requirements: The 3490E Models A10, A20, B20, and B40 may be attached to any of the following host processors:

- ES/3090™
- ES/9000™
- ES/9370™
- 308X
- 4381.

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Programming Requirements: Support for 3490E Models A10, A20, B20, and B40 will be provided in the MVS, VM, and TPF operating environments. A program temporary fix (PTF) will be provided at general availability for the following releases:

- MVS/XA™ Version 2 Release 2.3
- MVS/ESA™ Version 3 Release 1.0
- MVS/ESA Version 3 Release 1.0E
- MVS/ESA Version 3 Release 1.3
- MVS/ESA Version 4 Release 1.0
- MVS/DFP™ Version 3 Release 1.1
- MVS/DFP Version 3 Release 2.0
- MVS/DFP Version 3 Release 3.0
- JES3 Version 2 Release 2.1
- JES3 Version 3 Release 1.1
- JES3 Version 3 Release 1.2
- JES3 Version 3 Release 1.3
- DFDSS Version 2 Release 5.0
- EREP Version 3 Release 4.2

- DFHSM Version 2 Release 6.0 (no PTF required)
- DFSORT Release 11.0
- DFSORT Release 11.1 (no PTF required)
- TPF Version 3.1
- VM/ESA™ Version 1 Release 1.1 (general availability: December 27, 1991).

VSE/ESA™ will provide support for these new 3490E models in the next release.

Those MVS systems that support 3490E Models A10, A20, B20, and B40 while operating as a guest on a VM system will be able to use 3490E Models A10, A20, B20, and B40 as "unsupported devices" in the following VM releases at general availability:

- VM/XA™ Version 2.0
- VM/XA Version 2.1
- VM/ESA Version 1.0.

Enhanced Capability Format Recognition

A toleration PTF will be provided on the following Data Facility Product (DFP) levels to permit 3480 and previous 3490 devices to recognize a 3490E format tape, and display a meaningful message to the operator. This will eliminate the problem of having a 3490E formatted cartridge placed on a drive other than a 3490E drive confused with an uninitialized volume.

Note: Unpredictable results can occur if a cartridge with this new format is loaded on a 3480 or 3490 when the operating system is at a down-level version other than those listed below.

- MVS/370 DFP Version 1 Release 1.2 PTF
- MVS/370 DFP Version 1 Release 1.3 PTF
- MVS/XA DFP Version 2 Release 4.0 PTF
- MVS/DFP Version 3 Release 1.0 PTF

Limitations: The Model A20 Control Units contain two control unit functions, and the parallel adapters and ESCON Adapters in these control unit functions must be identical. If CU function "0" has three parallel adapters and one ESCON Adapter, CU function "1" must have three parallel adapters and one ESCON Adapter.

Planning Information

Customer Responsibilities: Physical planning is a customer responsibility. Detailed physical planning information is contained in the *IBM Input/Output Equipment Installation Manual — Physical Planning* (GC22-7064).

Cable Orders: Standard-length cables are provided at no charge with the following feature codes: Parallel Adapters — #3355, #3356, and #3357; ESCON Adapters — #3311, #3312, #3313, #3314, #3315, #3316, and #3317.

Cable limitations and details are identified in the *IBM Input/Output Equipment Installation Manual — Physical Planning* (GC22-7064).

Installability: Installation times for the 3490 Magnetic Tape Subsystem Enhanced Capability Models A10, A20, B20, and B40 are approximately:

- A10 — 6.5 hours
- A20 — 7.5 hours
- B20 — 1.7 hours
- B40 — 2.0 hours

3490 Model Upgrades

- A01 to A10 — 3.5 hours/A unit
- A02 to A20 — 7.0 hours/A unit
- A10 to A20 — 11.0 hours/A unit
- B02 to B20 — 4.4 hours/B unit
- B04 to B40 — 9.0 to 22.0 hours/B unit
- B20 to B40 — 10.0 hours/B unit.

Note: The above hours are person hours only (using one customer engineer). For estimated subsystem downtime and recommended number of CEs per configuration see the *IBM 3490 Systems Assurance Product Review (SAPR) Guide*.

Packaging:

Product	Shipment Group
3490 A10 (39F4805)	Cleaner Cartridge, Blank Cartridge, Write-Bus Terminators, Operator's Guide, and Tape Care and Handling Guide
3490 A20 (67X8373)	Cleaner Cartridge, Blank Cartridge, Write-Bus Terminators, Operator's Guide, and Tape Care and Handling Guide
3490 B20 (39F5000)	Labels, Acoustic Pans
3490 B40 (67X8501)	Labels, Acoustic Pans

Note: The Product Diskette, Support Diskette, and Maintenance Manual are shipped with each "A" box but are not part of the "Shipment Group."

Accessories and/or Supplies: Supplies can be purchased from IBM Authorized Supplies Dealers, IBM Authorized Distributors, or the National Distribution Division's (NDD's) IBM Direct Response Operations (DRO). Call IBM DRO at 1-800-IBM-2468. Mail orders should be sent to:

IBM Corporation
IBM Direct Response Operations
One Culver Road
Dayton, NJ 08810

Security, Auditability and Control

User management is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Terms and Conditions

On January 22, 1991, IBM announced the IBM Customer Agreement (ICA). The subject of this announcement is available to customers under the ICA or any equivalent agreement, accepted by IBM, that is still in effect.

Volume Purchase Discount: Volume purchasing is available under the Volume Procurement Amendment (VPA) to Agreement for Purchase of IBM Machines.

These products are included in Category C of the Selected Systems I/O Exhibit (SSIO). Customers with an existing VPA commitment may order these products as additional quantities to, or as direct substitutions for, any other machines in the same category, subject to availability.

For further information regarding volume orders, contact your IBM marketing representative.

IBM Credit Corporation Financing: Term leases and installment payment plans are available for commercial and state and local government customers.

Customer Fulfillment Option Applies: Yes.

Eligible Machine under Alternative Certification for IBM Machines: Yes.

Warranty Period: One year.

Warranty Service: IBM On-Site Repair (IOR).

IBM Maintenance Agreement: IOR.

IBM Hourly Service Rate Classification: Three.

IBM warranty service, maintenance service, or hourly service may be obtained by calling 1-800-IBM-SERV. IBM hourly service is available at the applicable rate and terms, including element exchange price if applicable.

Mid-Range System Amendment: These products are eligible machines for the Mid-Range System Amendment to the IBM Maintenance Agreement. A revised exhibit will be available at a later date.

Eligible Types	Discount	
	Three-Year	Five-Year
3490E	13%	18%

Corporate Service Amendment: These products are eligible machines for the Corporate Service Amendment to the IBM Maintenance Agreement. A revised exhibit will be available at a later date.

Option	Discount	
	Three-Year	Five-Year
System	16%	21%

Extended Maintenance Option Amendment: These products are eligible machines for the Extended Maintenance Option Amendment to the IBM Maintenance Agreement. A revised exhibit will be available at a later date.

Product Availability Status: New product available.

Field Installable Features/Model Conversions: Yes.

Licensed Internal Code: No.

Educational Allowance: A 15% educational allowance is available to qualifying institutions in accordance with the Educational Allowance Amendment. The educational allowance may not be added to any other discount or allowance.

Pre-installation Test Allowance: None.

On-Site Allowance: None.

Charges

Product Charges

Description	Machine Type	Model/ Feature Number	Price Effective to 12/31/91	Price Effective 01/01/92
Magnetic Tape Subsystem	3490	A10	—	\$ 62,100
Magnetic Tape Subsystem	3490	A20	—	117,100
Magnetic Tape Subsystem	3490	B20	—	72,000
Magnetic Tape Subsystem	3490	B40	—	113,000
Add 1 ESCON Adapter Model A10		3311	\$12,000	12,000
Add 2 ESCON Adapter Model A20		3312	24,000	24,000
Add 1 3311 with Upgrade Model A10-20		3313	12,000	12,000
Add 1 3312 and Return 1 3356		3314	13,100	22,000
Add 1 3311 and Return 1 3355		3315	6,550	11,000
Add 1 3312 and Return 2 3356		3316	2,200	20,000
Add 1 3311 and Return 2 3355		3317	1,100	10,000
Add 1 Parallel Adapter Model A10		3355	—	5,660
Add 2 Parallel Adapter Model A20		3356	—	11,320
Add 1 3355 with Upgrade Model A10-20		3357	—	5,660

Model Conversion Purchase Prices

Model From	Model To	Model Conversion Purchase Price
A01	A10	\$15,000 ¹
A02	A20	28,200 ¹
A10	A20	59,600 ¹
B02	B20	20,000 ¹
B04	B40	30,500 ¹
B20	B40	52,300 ¹

¹ Parts removed or replaced become the property of IBM and must be returned.

Maintenance and Use Charges

Description	Machine Type	Model/ Feature Number	Maintenance Charge (Monthly)
Magnetic Tape Subsystem	3490	A10	\$280
Magnetic Tape Subsystem	3490	A20	560
Magnetic Tape Subsystem	3490	B20	442
Magnetic Tape Subsystem	3490	B40	692
Add 1 ESCON Adapter Model A10		3311	30
Add 2 ESCON Adapter Model A20		3312	60
Add 1 3311 with Upgrade Model A10-20		3313	60
Add 1 3312 and Remove 1 3356		3314	60
Add 1 3311 and Remove 1 3355		3315	30
Add 1 3312 and Remove 2 3356		3316	60
Add 1 3311 and Remove 2 3355		3317	30
Add 1 Parallel Adapter Model A10		3355	21
Add 2 Parallel Adapter Model A20		3356	42
Add 1 3355 with Upgrade Model A10-20		3357	42