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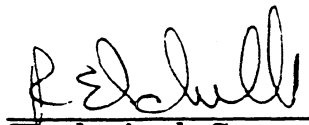
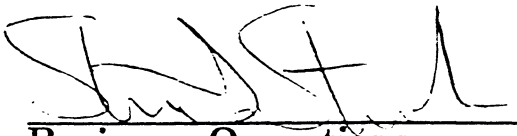
Service Plan for:

Automatic Cartridge Loader

Approvals

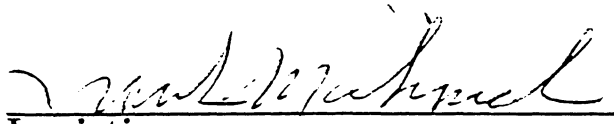


Technical Support

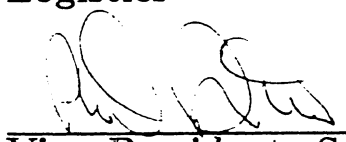


Business Operations

Hardware Education



Logistics



Vice President, Service

1. Product Description

The Automatic Cartridge Loader (ACL) is a tape stacker/loader mechanism that attaches to the CONVEX 3480-Compatible Cartridge Tape System. It provides storage for ten cartridge tapes that can be read from or written to, either sequentially, or in a random order. This new product, and related software, will now allow for unattended tape dumps and restores of system files, as well as provide a means to allow jobs that require large volumes of tape data to be better scheduled and not require constant attention by the user.

2. Program Overview

2.1 Scope

CONVEX will offer this new product in two forms. An upgrade will be available for systems that currently have the 3480-Compatible Cartridge drives attached, and new 3480 purchases will be shipped with the ACL mechanism attached, if ordered by the customer.

Because of the vertical travel path of the ACL magazine, some system reconfiguration may be required on systems being upgraded. The reconfiguration is required to reposition the 3480-ACL drive units in the cabinet to allow a newly designed door to be fitted. The new door will allow the ACL mechanisms to protrude out of the expansion cabinet. This provides the user with easy access for the loading and unloading of cartridge magazines. The new door will allow two 3480 drives with ACL mechanisms attached, to be mounted side-by-side in a cabinet. Systems shipped from manufacturing with a 3480-ACL tape system installed will require no changes.

Once the ACL mechanism is in operation, access to equipment behind this cabinet's door is restricted.

2.2 System Requirements

To utilize these new 3480-ACL subsystem, the system must have the following software/hardware installed:

ConvexOS:	v 9.1 or later
ACL software:	v 1.2 or later
SCSI Controller Firmware:	v 22
3480 Formatter Firmware:	v 10
3480 Drive Firmware:	v H or later

3. Equipment Specifications

3.1 Physical Dimensions of the Automatic Cartridge Loader

The physical specifications of the ACL mechanism is provided below:

ACL mechanism

height	5.00in / 127mm
width	8.50in / 217mm
depth	8.90in / 226mm
weight	17.6lb / 8.0kg

3.2 Power Requirements of the Automatic Cartridge Loader

The ACL mechanism obtains its power from a power take-off connector, located on the 3480 tape drive. No additional power is required by the ACL mechanism.

4. Integration Philosophy

4.1 Overview

The ConvexOS and System Diagnostics software will require modification in order to integrate the ACL. New build systems will be shipped from the factory with the necessary software installed. When an existing system is upgraded with an ACL mechanism in the field, the necessary software will be structured to ship concurrently with the equipment. It is strongly suggested that each Field Office and Remote F.E. have a backup copy of this software upgrade in anticipation of a replacement situation.

4.2 Physical Integration into Existing Cabinetry

Due to mechanical considerations when using the ACL mechanism, existing configurations may require a rearrangement of the peripherals within a cabinet.

Peripheral system upgrades will be shipped with a new cabinet door. This will allow two ACL configured 3480 Tape Drives to operate side-by-side in a cabinet, with the ACL mechanism protruding out of the front of the door. This new door produces a clean look to the cabinet while allowing the user access to the ACL, for the loading and unloading of cartridge magazines.

5. Service Philosophy

5.1 Overview

Because the ACL mechanism attaches to the 3480 Cartridge Drive, which is already covered by a service plan, the service philosophy for the ACL will be to replace this unit, once it has been determined to be the failing unit. If the 3480 Cartridge Drive is deemed to be the failing unit, the ACL mechanism should be removed from this unit, and then installed on the 3480 replacement.

The following FRU has been designated:

1. Automatic Cartridge Loader. 550-000344-224

5.2 Level of Repair

The Field Level of Repair will be to the defined FRU. The FRU referenced in paragraph 5.1 above can be readily identified by the Field Engineer, and system downtime can be reduced by replacing the faulty FRU.

5.3 Repair Techniques

The techniques used by CONVEX Field Engineers will conform to accepted guidelines for field repairs. The unit replacement technique will be to utilize the personal grounding system and the removal of ALL AC power prior to working on the equipment.

5.4 Preventive Maintenance

The procedures described in the 3480 Service Plan for preventive maintenance of that unit fulfill the needs of the ACL mechanism.

6. Diagnostics

6.1 Internal Self-Tests

Additional internal self-tests are provided to allow an ACL mechanism to be tested to a basic operational level.

6.2 Standard CONVEX Diagnostics

CONVEX Diagnostic **dev_vscsit** will be changed to provide support for the ACL mechanism. This will be accomplished by adding a new subtest class. Existing subtests will be modified to permit loading test tapes with a stacker when one is present.

6.3 Diagnostic Approach

The Diagnostic Approach for the ACL mechanism will be to:

a. Use Operating System Error messages first, if they occur.
b. Observe any self-test errors that may be displayed on the ACL's Operator Panel.
c. Use **dev_vscsit** to determine the source of the error.
d. Exchange the FRU, or the Tape Drive to resolve the problem.

7. Support Philosophy

7.1 Support Levels

First level of support is to be provided by the Field Engineer assigned to each site. Second level technical support will be provided by individuals so designated by area support management within each geographical territory. Third level Product Support will be provided by the Hardware Product Support Specialists in the Technical Assistance Center.

7.2 Response Time

For purposes of planning, the maximum response time is defined to be four (4) hours. Response time is defined as the time elapsed between problem report to CONVEX and the start of problem determination by a CONVEX representative.

8. Installation Philosophy

The philosophy for installation will be for the local field organization to coordinate the required activities to install the ACL mechanism as either an add-on to an existing 3480 Tape System, or as a new installation of the 3480/ACL combination.

8.1 Installation Responsibility

The prime responsibility will be with the Field Engineering organization. CONVEX Field Engineers will install add-on 3480/ACL units or replacement units at the customer site. They will also be responsible for accurately recording the activity via the Service Tracking And Reporting System (STARS).

8.2 Installation Time Requirements

The estimated time to add an ACL mechanism to an existing 3480 drive unit is approximately one (1) hour. The estimation of time required for more complex installations or upgrades will be the responsibility of the local field office.

9. Modification Philosophy

9.1 Overview

The modification philosophy will be to exchange the individual FRU item with an upgraded version when deemed necessary to respond to functional discrepancies, design errors or performance improvements.

9.2 Modification Control Procedure

Any FMI activity should be reported to the STARS system for tracking and revision control.

10. Available Documentation

10.1 Types of Documentation

The Fujitsu M2481A/B Cartridge Tape Drives CE Manual contains a chapter devoted to the ACL mechanism.

11. Training

11.1 Overview

No specific training is planned for this product due to the ease of installation and usefulness of documentation.

12. Spare Parts

12.1 Overview

The field level of repair is defined to be to replace the FRU (Field Replaceable Unit). A FRU has been defined for this product and is provided for reference in paragraph 12.2 below.

12.2 FRU List

Description	CONVEX P/N
Automatic Cartridge Loader.	550-000344-224

13. Tools and Test Equipment

13.1 Standard Tools

The standard CONVEX F.E. Tool Kit will be utilized.

Description	CONVEX P/N
Zipper Bag	902-000001-001
Fluke Meter	902-000002-001

13.2 Standard Test Equipment

There is no standard CONVEX test equipment required to maintain the Stacker/Automatic Cartridge Loader beyond the tool kit and digital volt meter.

14. Service Planning Considerations

14.1 Mean Time Between Failure

For Service Pricing planning purposes only, CONVEX has determined a Mean Time Between Failure (MTBF) value of 25,000 hours. This value is an estimate only and is not meant to set a performance standard for the product.

14.2 Mean Time To Repair

The Field Engineering average Mean Time To Repair (MTTR) an ACL mechanism failure should be no more than 2.00 hours. This figure represents the total amount of time a fully-trained CONVEX Field Engineer would spend diagnosing and replacing this unit.