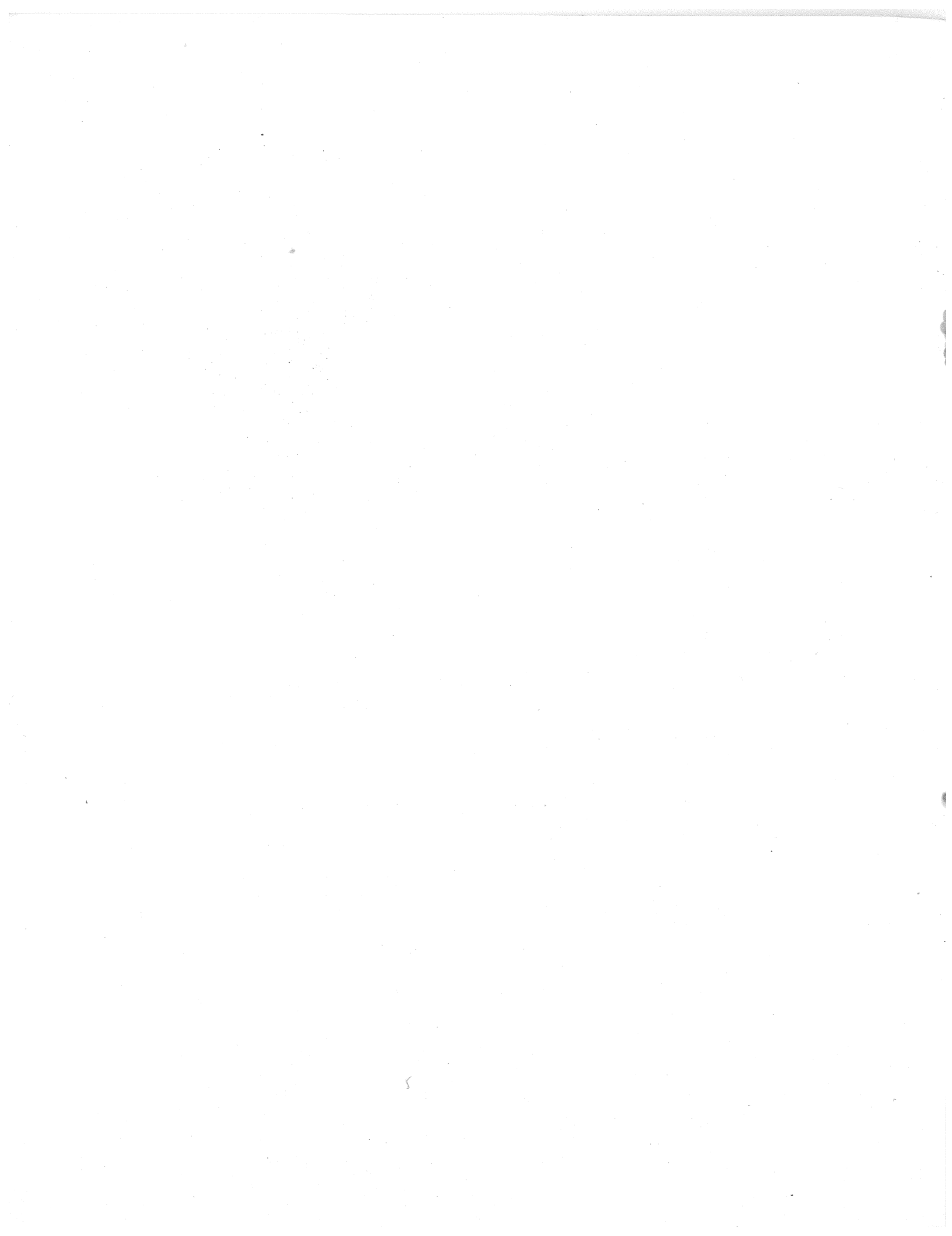


EY-1173E-SG-0001

# RA60 Disk Drive Maintenance Course

Student Guide

digital



EY-1173E-SG-0001

RA60 Disk Drive  
Maintenance  
Course

STUDENT GUIDE

A Portion of Course  
EY-1173E-V0-VU01

FOR INTERNAL USE ONLY

Prepared by Educational Services  
Digital Equipment Corporation

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UDA50	MASSBUS	RA80
HSC50	RA60	RA81

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## STUDENT GUIDE

### INTRODUCTION

The RA60 Maintenance Course is a layered course that meets the needs of more than one target population by making some sections optional. Students needing only to isolate RA60 faults to the failing FRU should take only the required portions of the course. Students needing information on how the drive and SDI interface operates, or how to decode MSCP error log messages, should take both the required and optional sections of the course.

Identify your level of training need to the course administrator before taking the RA60 course since the training time can vary by a factor of two or more.

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### COURSE DESCRIPTION

The RA60 Maintenance Course is self-paced and uses both videotape and paper. It consists of seven course lessons, five of which are videotape and two are paper. You are guided through the course using the workbooks.

It should take you four to eight hours to complete this course, depending on the training level desired. If you elect to take the minimal training offered in the required sections of the course, four hours is typical. If you elect to take both the required and optional sections, eight hours is typical.

The seven lessons are organized into three workbooks. Workbook I contains lessons one through five, which are all the videotape lessons. Workbook II contains lesson six which is subdivided into four sections. Workbook III contains lesson seven which is subdivided into six sections. A brief description of the seven lessons follows.

- Lesson 1. Part Location - This videotape lesson introduces the RA60 Disk Drive and shows the location of all the drive parts.
- Lesson 2. Drive Installation - This videotape lesson shows the service person how to prepare and install the drive for customer operation.
- Lesson 3. Drive Operation - This videotape lesson shows the drive control panel and explains the functions of the controls. It also shows how to load and unload an RA60 disk pack.
- Lesson 4. Part Replacement - This videotape lesson shows the service person how to remove all the RA60 field replaceable units (FRUs).
- Lesson 5. Hand-held Terminal - This videotape lesson shows the service person how the field service hand-held diagnostic terminal operates.

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- Lesson 6. Subsystem Functional Description - This book covers the following four information areas.
  - Section I: SDI Overview
  - Section II: RA60 Disk Layout
  - Section III: RA60 Internal Assemblies
  - Section IV: RA60 Drive Functions
  
- Lesson 7. Subsystem Fault Isolation - This book covers the following six fault isolation areas.
  - Section I: RA60 Resident Diagnostic Aids
  - Section II: UDA50 Host-Resident Subsystem Diagnostics
  - Section III: Error Log Messages on MSCP/SDI Systems
  - Section IV: VMS Error Logs
  - Section V: RSTS/E Error Logs
  - Section VI: Introduction to SPEAR

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### REQUIRED AND OPTIONAL COURSE SECTIONS

As mentioned in the introduction, some sections of the course are optional. Each student may choose the level of training needed.

The following chart shows both required and optional sections. All students are asked to complete the required sections and the final test, part I. Those requiring additional information may go further and complete the optional sections and final test, part II.

Course Module or Section	Required
Lesson 1 Part Location	Yes
Lesson 2 Drive Installation	Yes
Lesson 3 Drive Operation	Yes
Lesson 4 Part Replacement	Yes
Lesson 5 Hand-Held Terminal	Yes
Lesson 6 Subsystem Functional Description	
Section I    SDI Overview	No
Section II   RA60 Disk Layout	No
Section III  RA60 Internal Assembly	No
Section IV   RA60 Drive Functions	No
Lesson 7 Subsystem Fault Isolation	
Section I    RA60 Resident Diagnostics	Yes
Section II   UDA50 Host-Resident Diagnostics	Yes
Section III  Introduction to Error Logs	No
Section IV   VMS Error Logs	No *
Section V    RSTS/E Error Logs	No *
Section VI   Introduction to SPEAR	No
Final Test Part I	Yes
Final Test Part II	No

\* Only take the error log section that applies to you.

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### PREREQUISITES

You should have taken an SDI disk controller course like the UDA50, UDA50A, or HSC50. If you have not done so, notify your course administrator.

### EQUIPMENT REQUIRED

The following equipment is required for the student to take this course.

- Videotape player
- TV monitor

### COURSE RESOURCES

The following course resources are required for you to successfully complete this course.

- RA60 Disk Drive Service Manual (EK-ORA60-SV)
- RA60 Disk Drive User Guide (EK-ORA60-UG)

### COURSE MAP

Figure 1 shows the course map. The course starts at the bottom of the map and should be completed in the sequence shown.

### COURSE PACKAGING

The RA60 Maintenance Course is packaged under the following numbers.

- Course EY-1173E-V0-VU01
- Administrator Package EY-1173E-VA-VU01
- Student Package EY-1173E-VS-0001
- Reference Package EY-1173E-VR-0001

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When ordering the administrator package (EY-1173E-VA-VU01), you will receive the following documents.

- Administrator Guide EY-1173E-AG-0001
- Umatic Videotape 3/4 inch EY-1173E-VU-0001

When ordering the student package number (EY-1173E-VS-0001), you will receive the following documents.

- Student Guide EY-1173E-SG-0001
- RA60 Maintenance Course Workbook I EY-1173E-WB-0101
- RA60 Maintenance Course Workbook II EY-1173E-WB-0201
- RA60 Maintenance Course Workbook III EY-1173E-WB-0301

When ordering the reference package number (EY-1173E-VR-001), you will receive the following documents.

- RA60 Disk Drive User Guide EK-ORA60-UG
- RA60 Disk Drive Service Manual EK-ORA60-SV
- RA60 Maintenance Guide AA-M880A-TC

If you do not receive the RA60 User Guide, RA60 Disk Drive Service Manual, and RA60 Maintenance Guide in the package, you may have to order these manuals separately. The User Guide and the Service Manual are available from Printing and Circulation Services, 444 Whitney St., Northboro, MA., 01532.

The Maintenance Guide is available from the Software Distribution Center, Order Administration/Processing, 20 Forbes Rd., Northboro, MA., 01532.

A 7 1/2 x 5 inch binder (AV-1980A-TK) for the Maintenance Guide can be ordered from Software Distribution Center, Order Administration/Processing, 20 Forbes Rd., Northboro, MA., 01532.

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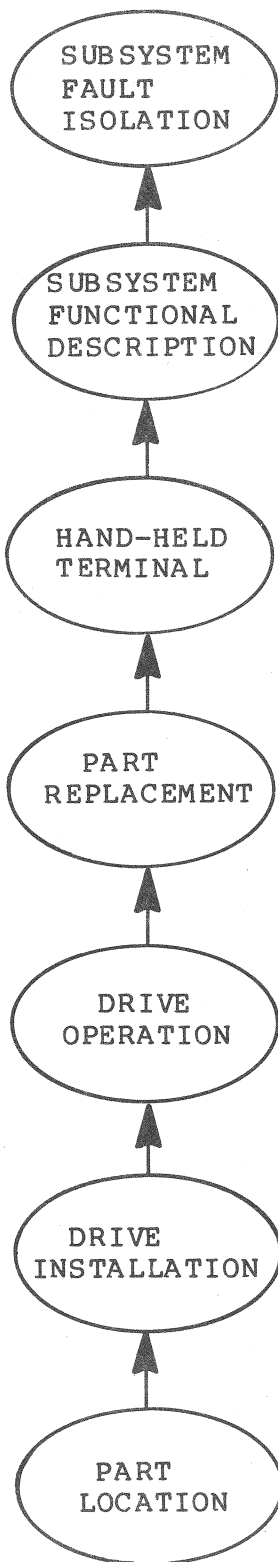


Figure 1 RA60 Maintenance Course Map

## STUDENT GUIDE

### TESTING

The final test for the RA60 Maintenance Course is on perforated pages at the back of Workbook III. If you take the course at the branch office, you can remove the test and send it to the closest ILC to be graded.

Final test, part I is for the required portion of the course. Final test, part II is for the optional portion of the course. The final test answers are given only in the course Administrator's Guide.

### HOW TO TAKE THE COURSE

1. Look at the course description and determine whether you need both the required and optional sections. Identify your intent to the course administrator since the optional part of the course may require an additional four hours.
2. Begin the course by reading the introduction and objectives of lesson 1 on part location. This lesson is found in Workbook I and is the first of five videotape lessons.
3. The workbook will tell you when to watch the videotape sequence. At the end of each videotape sequence, you will be told to stop the tape and return to the lesson summary in your workbook.
4. Read the lesson summary and perform the exercises at the end of each lesson. The answers are given in the workbook.
5. After you complete the five videotape lessons in Workbook I, begin the book lessons in Workbook II or III, depending on your training level. These workbooks will lead you through the remainder of the course.
6. Hand in your final test answers to the course administrator for grading. The final test should be 80% correct or better to complete the course successfully.



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