Basic Musicianship

An Introduction to Music Fundamentals with Computer Assistance

For Apple® II Series Computers

DISKETTE INCLUDED

Raynold L. Allvin

BASIC MUSICIANSHIP

An Introduction to Music Fundamentals with Computer Assistance

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Preface

Basic Musicianship: An Introduction to Music Fundamentals with Computer Assistance was written to take full advantage of microcomputers in teaching and learning basic musical concepts. While there are many excellent computer-assisted music programs on the market that provide discrete and novel units or exercises, there are few attempts to integrate software with text to create a total package that systematically covers the elements of beginning musicianship. In this text and the related computer programs, the basic concepts are given in printed form while the computer is used to perform tasks of self-examination, drill, ear training, concept practice, and creativity. In short, the instructional unit uses the book and the accompanying programs in their strongest suit and joins the strengths of each to synergistically make the instructional impact greater than the sum of the two.

The Audience

The book is designed for a variety of users: those who begin the study of music with little or no background, including prospective college music majors who must prepare for formal training in harmony and counterpoint, elementary school teachers needing a basic knowledge of music, and those general students who would like a degree of music literacy.

Main Features

The text material is very concise. When preparing materials for instruction there is always a temptation to try to illustrate every variation of a principle and to account for each context in which the principle might occur. But that approach is not practical here. The printed material and the programs together make a whole, and thus the text explanations are as tight as possible.

When using the text in conjunction with a class, the instructor can elaborate principles with additional examples and discussions, while the text keeps the concept flow moving and correlated with regular work on the computer. The instructor can be assured that salient points are covered and that sufficient practice is being performed so that the concepts are developed. When this book is used as a self-teaching device, the

basic principles will be studied in the text and then checked, reinforced, and practiced with computer assistance.

Sight and Sound

Perhaps the most powerful feature of computer-assisted music instruction is the ability to couple symbols of music directly with the sound they represent. Music notation appears on the screen simultaneously with pitches and rhythm. The printed text serves two functions: to provide adequate explanations of the concepts with appropriate musical examples and to serve as a reference handbook.

Proficiency

The computer programs supply the necessary drills, exercises, demonstrations, games, and creative activities. Because the computer has infinite patience, it will work as long as the student desires to achieve the needed level of proficiency.

Supervised Practice

Coupling the explanations of the text with an immediate supervised exercise of the concepts in various interactive settings creates one of the strongest learning strategies available in instructional technology today.

Sequential Concepts

The text is traditional in its approach; that is, each concept is presented in a straightforward fashion with sufficient examples to clarify major points. The concept flow is sequential — each leads logically to the next — and builds complex concepts from the subconcepts as they are needed.

Student Created Reference Materials

In some instances students use the information of the text coupled with the computer activities to build their own individual sets of reference materials. A key signature table, for instance, is not provided, but rather a blank page is supplied on which students can record each key

signature as they work it out. There is no chance of having incorrect information because it can be checked and reinforced in the context of the computer work. The rules and procedures for finding key signatures are listed, but students actually go through the process to determine what each key signature should be.

Record Keeping and Report to the Instructor

In order for the student to be aware of the progress being made in building listening skills, a record sheet is provided at the end of most chapters. If students do not gain proficiency at the first sitting for a given task, they may record their scores and return to the task later for additional work. The record may also be used as a report to the instructor on the progress or completion of units of work.

Creativity

Whenever feasible the computer-based learning tasks are designed to allow and encourage creativity. Student responses in triad building, for example, permit an almost infinite variety of combinations of tones for input and then computer analysis to determine their function. In order to help the student to be successful in first attempts to create melodies, Chapter 8 includes a *minicomposer program*, which gives rhythm patterns, then asks the student to choose pitches. The resulting melodies can be immediately played by the computer so that changes and alterations can be tried. This is almost a fail-safe method of launching a student into manipulation of tones to create original melodies.

Playing the Recorder

Chapter 9 is an introduction to playing the recorder. While it is not necessarily an integral part of the study of basic musicianship, some music-making experience is desirable to help students realize the full impact of the technical discussions. Beginning recorder playing has generally been recognized as one of the most direct and immediate methods of involving a student in the actual process of music making.

In Chapter 9 the text provides the instruction and the computer models the examples which the student is to match in rhythm and pitch. In the latter part of the chapter simple duets between the recorder and the computer are provided. The design of these is to assure that the stu-

dent learns early in his experience that rhythm and tempos should be accurately maintained.

Readiness

In Chapter 2 there are a number of activities that are so basic to the process of musical notation reading that they are often taken for granted or are assumed to be obvious. The author has found, however, that students sometimes plunge into the tasks of notation reading and try to manage all of the variables of that complex symbolic system before they have built reading foundations. The small amount of time spent in learning to discriminate between pitches, simple rhythms, and abstract visual representations of sounds is well repaid when the standard notation is studied. While the programs and game at the beginning of the chapter are not an absolute requirement for success, they are very beneficial in preparing for music reading.

There is sufficient latitude in the procedures for using the computer programs in every chapter that a great deal of experimentation can take place. While there are only a few direct readiness activities, the learning/teaching strategies assist in setting the stage for the learning task and allow a variety of inputs to the programs.

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Contents

indicates a program on the accompanying diskette.

1

Getting Ready

Objectives

This chapter is designed to prepare you to use this text with the correlated computer programs. These items are tools to learn some of the theoretical and practical aspects of music. In this chapter you will:

1. Find the relationship of the text materials to the computer programs.
2. Determine the scope of the instructional materials.
3. Learn how to operate the computer and the instructional materials.
4. Be guided through the process of initializing the disk for your personal use.
5. Learn some standard nomenclature of computers and related equipment.

Computer Programs

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CHAPTER 1—GETTING READY

100 INITIALIZING YOUR DISK


REMEMBER: ONCE INITIALIZED,
PROGRAM 100 WILL NOT BE
AVAILABLE AGAIN.
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The Computer

The computer is an electronic device which can *receive* information stated in mathematical terms, *process* the information by performing mathematical operations on it at an extremely high rate of speed, and *produce* a mathematical result. But we need not concern ourselves about all of the mathematical dimensions, because the modern computer also automatically translates our information into mathematical terms, performs its operations, and then produces a result which is returned to us in verbal, sound, or graphic form. We do need to be aware of its idiosyncrasies, as well as its potential and limitations, since we may communicate with it in our own terms and it will reply in similar modes.

Apple II+ and Apple //e

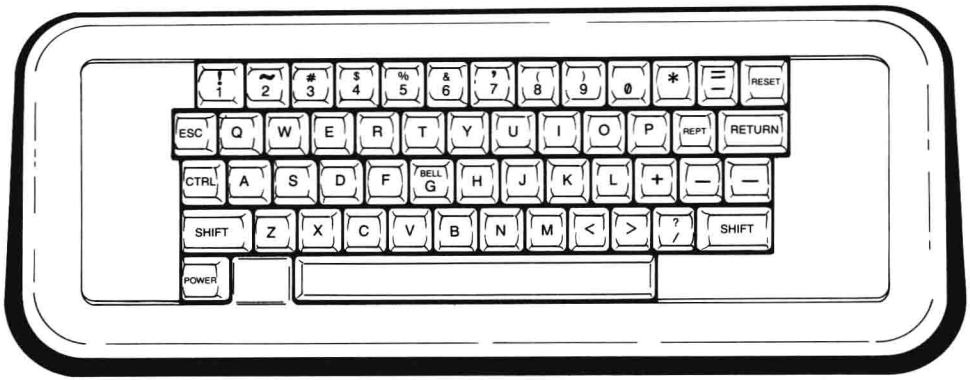
The computers which will operate the instructional material on the disk provided are the Apple II+ (Apple Two Plus) and the Apple //e (Apple Two Extended). If you are completely familiar with the operation of these computers you may want to skip the following discussion and go directly to page 6, "Conventions of the Programs."

The Apple II+ and //e are part of the new variety of small computers known as *microcomputers*. The mathematical operations are very fast, often performed within one or two microseconds (millionths of a second). While this seems far faster than we might need, each of the visuals or sounds generated are actually the result of thousands of these operations. At times, therefore, it will seem that responses to your input to the computer will be instant; at other times, a few seconds can seem like a very long interval. The computer must analyze as well as respond to the data you have supplied. In every case the computer is functioning at full speed, and there are no changes you can make to alter the procedures.

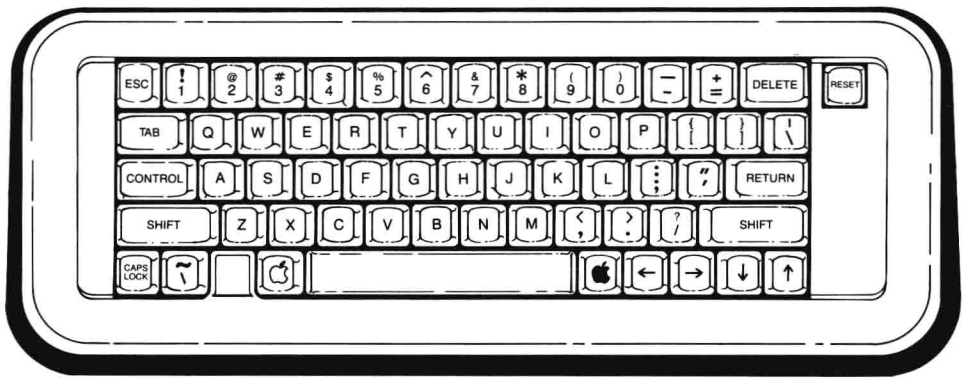
Keyboards

In addition to the alphabetic and numeric keys found on the standard typewriter, the Apples have several important *function keys*. Also note that many of the symbols are not in the same place as they appear on the typewriter. Before turning on the computer, determine which model you will be using. The type of Apple is indicated on the label immediately above the keyboard.

Apple II+



Apple //e



The Apples have some function keys in common. Locate them and know their purpose.

RESET This is a key for which you will have no use in this program. It is to be carefully avoided. Its use at an inappropriate time may do permanent damage to the programs on the disk. On some models of the Apple, this key has special safeguards to avoid accidental use, but on others a mistake is very easy to make.

RETURN As explained below, this key is used to tell the computer that you have typed the answer you want it to read.

ESC These letters are short for ESCAPE. This key provides, at certain times, literally an escape from the program. It may allow you to jump out of the current program and return to an index.

[→] [←] These keys have various functions during the course of the program. Instructions for their use will appear on the screen or in the descriptive material in this text.

[CTRL] This key is not used in these programs.

In addition to those discussed above, the Apple //e has several unique keys which are not found on the Apple II+. For the most part, these will not be needed in the operation of the instructional programs. Unlike the Apple II+, however, the Apple //e is capable of using both upper- and lower-case letters. In the programs provided, *only upper-case* will be used. If you enter your responses using lower-case letters, the computer will not accept them as correct and you will be given error messages. To avoid that problem, the Apple //e has a special key called [CAPS LOCK] located in the lower left-hand corner of the keyboard. This is somewhat like a shift lock on the standard typewriter, except that it effects only the letters, not the symbols or numbers. What it in fact does is to make the functions of the Apple //e keyboard similiar to those of the Apple II+. This in turn makes it possible to run the same programs on both computers. To operate the diskette provided with this text on the Apple //e, the [CAPS LOCK] key *must be in the depressed position at all times.*

The Diskette and the Disk Drive

The instructional program you will be using is located on a small plastic *diskette* (about $5\frac{1}{4}$ inches in diameter) coated so that information may be stored and erased from its surface. The coating is very similar to that found on magnetic recording tape. The diskette (disk for short) is sealed in a square plastic cover which helps protect it, keeps it clean, and yet allows it to spin freely in the disk drive.

The disk, sometimes referred to as a "floppy" disk, is in fact somewhat flexible, but it can be damaged if it is actually bent. Be careful with it! Never allow anything to come in contact with the surface of the disk. The disk holds over 931,000 bits of information, so each bit is very small. Even an invisible scratch, a fingerprint, smoke from a cigarette, or dust can cause errors. Handle it only by the black plastic cover; when not in use, keep it in the paper pocket provided.

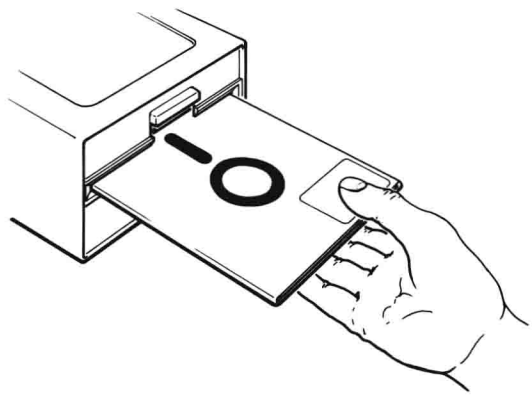
Keep disks away from magnetic files—this means away from electric motors, magnets, tape recorders, TV sets, and other electromagnetic devices. Disks are also sensitive to extremes of temperature. Keep them out of the sun, off car dashboards, and out of the trunk on hot days.

With reasonable care, a diskette will give you months of service; with carelessness, you will get nothing at all.

The *disk drive* is a mechanical device operated by the computer to read the information into the computer's memory. It is somewhat delicate. You need to give it at least the same care that you would your record player and stereo system. As with the disk, handle with care.

The drive door is opened by pulling on its bottom edge. The disk is then inserted into the slot *with the label upwards.* The bottom of the disk, the part with the oval cut out in the plastic cover, should be placed in the drive first. If you hold a diskette with your right thumb over the label when you insert it into the drive, it will assure that the correct end of the disk enters first.

Inserting a Diskette



Gently push the disk entirely into the drive. *Do not bend!* Pushing too hard will surely damage it. Close the door by pressing it down all the way. The door lowers and raises the head from the disk, just like a phonograph needle—so slowly and gently are the watchwords.

Remember, *never open or close the door of the disk drive when the red light is on.* You may damage the drive heads and you will surely destroy the program on the disk.

Input

There is a single mode of communication between you and the computer that will be used in these programs. This is the typewriter-like keyboard. All of your input (information you send to the computer) will be made using this keyboard in some manner.