



Bell & Howell

**Back Pack
Operator's Manual**

P/N-713946

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IMPORTANT USER INFORMATION

Class A Computing Device Interference Potential

WARNING: This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential environment. Operation of this equipment in a residential area is likely to cause interference, and the user at their own expense will be required to take whatever measures may be required to correct the interference.

Dell & Howell

PRELIMINARY

User's Manual

Backpack for the Apple® IIe Microcomputer

CAUTIONS

- 1. Do not connect to the backpack outputs any peripheral devices which require more than 250 watts for operation.
- 2. Do not attempt to power other microcomputers (especially those which backpack) from the peripheral power outlets at the rear of this backpack.

Interactive Communications Division

- 3. Do not forget to disconnect the microcomputer when you turn the microcomputer off for an extended period of time.
- 4. Do not attempt to defeat the cover interlock switch if it there for your protection.
- 5. Connect only Apple approved equipment to the game paddles and cassette input/output ports.
- 6. Do not attempt to drive video lines longer than 50 feet with the video output receptacles mounted at the rear panel of the backpack. The only cable which is suitable for the transmission of video signals (and which is in good condition) we recommend Type RG-58/U cable.

IMPORTANT USER INFORMATION

Class A Computing Device Interference Potential

WARNING: This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructional manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at their own expense will be required to take whatever measures may be required to correct the interference.

CAUTIONS

- (1) Do not connect to the Backpack outlets any peripheral devices which require more than 250 watts for operation.
- (2) Do not attempt to power other microcomputers (especially those with Backpacks) from the peripheral power outlets at the rear of this Backpack.
- (3) Do not forget to turn off the peripheral devices attached to the microcomputer when you turn the microcomputer off for an extended period of time.
- (4) Do not attempt to defeat the cover interlock switch; it is there for your protection.
- (5) Connect only Apple approved equipment to the game paddles and cassette input/output ports.
- (6) Do not attempt to drive video lines longer than 50 feet with the video output receptacles mounted to the rear panel of the Backpack. Use only cable which is suitable for the transference of video signals (and which is in good condition). We recommend Type RG-59/U cable.

- (7) Do not put input signals of more than 5 volts RMS into the audio input jack. Damage to internal components may result.

Section I

INTRODUCTION

Your selection of a Bell & Howell Backpack for your Apple IIe microcomputer has added a whole new dimension to its capabilities and functions.

Through proper usage and by carefully following the instructions in this manual you will have many hours of useful functions and challenges with this new "add-on" unit developed by Bell & Howell Engineering. The Backpack provides a number of options not available on the standard Apple IIe microcomputer.

The Backpack has been installed and tested by your Bell & Howell dealer. You should not attempt to use any peripherals other than those listed in this manual nor remove the Backpack for any reason.

REMOVAL OF THE BACKPACK SHOULD BE DONE ONLY BY THE DEALER FROM WHOM IT WAS PURCHASED OR BY AN AUTHORIZED BELL & HOWELL DEALER.

The Backpack, when viewed from the back of the microcomputer, includes the power and safety components on the right side, and the audio input and output jack and level control on the left side.

Among the key features it provides are: A second video monitor can be added; jacks for the addition of a cassette tape recorder; a game paddle receptacle for video games; a headphone jack for private listening, and more.

OPERATIONAL SWITCHES AND CONNECTORS

The following switches and connectors are identified on the panel of the Backpack mounted on the rear of the computer. The Backpack is easier to use if you will take a moment to read the list and familiarize yourself with each item before adding any instructions of the peripheral devices.

The following items are on the Backpack panel:

- (1) Microcomputer power switch (labelled "Micro")
- (2) Peripheral control AC power switch (Labelled "Outlets")

The Power Switches are a rocker type, one turns the microcomputer On or Off, the other controls the convenience outlets. Three Convenience Outlets allow accessory equipment to be plugged directly into the microcomputer and are controlled by a Power Switch.

- (3) 3 grounded type AC power receptacles
- (4) A fuse which protects the microcomputer and peripherals.

An 8 Amp, 3AG Fuse protects the microcomputer and the accessory equipment plugged into the Convenience Outlets.

- (5) A game paddle connection receptacle (9 pin "D" type)
- (6) Cassette input and output jacks for the storage/retrieval of data on cassette tape.
- (7) 2 BNC video output jacks which are fed from two independent video amplifiers.
- (8) An audio input receptacle (suitable for connection of a 3.5mm plug)
- (9) A headphone jack

The Headphone Jack allows for private listening with headphones having a nominal impedance of 8 Ohms to 600 Ohms. When headphones are plugged into this jack, the built-in speaker will be muted.

- (10) A volume control which adjusts the level of the computer generated audio and the audio which is presented at the audio input jack
- (11) 2 cover lock screws (hexagonal socket-head type) for the purpose of locking the computer's cover into position so as to prevent unauthorized tampering with the internal components of the computer.

- (12) A cover interlock switch which shuts off power to the microcomputer when its cover is opened

Separate AC power switches are provided for the control of the microcomputer and its peripheral devices. Separating these functions allows the computer to be turned on and off without affecting the peripheral devices. Television monitors are adversely affected by frequently turning the power on and off.

Another feature of the Backpack is that the AC power cord is attached to avoid accidental disconnect and loss of the power cord.

Section II

BACKPACK FUNCTIONS

Game Paddles. The game paddle receptacle on the Backpack is similar to the one on the rear of the Apple IIe. However, this receptacle has now been extended to the rear panel of the Backpack to provide a connector for the game paddles.

The cassette input and output jacks have also been extended to the panel of the Backpack.

The operation of the circuitry associated with these jacks is described in your Apple Owner's Manual.

Video Monitors. The computer generated video signal is available at two BCN receptacles mounted to the rear panel of the Backpack. One video monitor can face the computer operator and the other video monitor (or video projector) should face the audience as in a teaching situation. The signal present at each of these video output receptacles is approximately one volt peak-to-peak. The

output impedance of these circuits is 75 Ohms for each receptacle. This means that the video monitor for the audience can be placed up to 50 feet away from the computer and used simultaneously.

Audio Amplifier. A built-in audio amplifier and mixing system is provided in the Backpack. The audio amplifier is used to drive the internal computer speaker or, for private listening, drives the headphone jack on the rear panel of the Backpack.

Headphones having impedances of 8 Ohms to 600 Ohms are acceptable for connection to this jack. The volume of sound produced in the headphones (or computer speaker) is adjusted by the Backpack volume control.

Mixing Audio. There is a separate audio input jack (3.5mm type) to connect an external audio source. This jack is particularly useful for mixing audio from video cassette tapes with computer generated audio for private listening through the headphones. A complete video/audio interactive training station can be set up when the mixer/amplifier and headphone output are used in this manner.

Tamper Prevention. The cover lock-down screws fitted to the Backpack are particularly useful in a classroom environment. By locking down the cover, tampering with internal computer parts can be prevented. This eliminates damage to the computer/interface card should its removal or insertion be done when the computer power switch is "On".

Section III

SYSTEM SET-UP

The convenience of having a Backpack becomes apparent when connecting the AC line plugs for peripherals to the outlets mounted on the panel of the Backpack. The switch marked "Outlets" now controls the power to your peripherals.

You may want to leave the AC power switches on the peripherals in the "On" position so that peripheral power is controlled by the outlet power switch.

Either video output from the microcomputer can be connected to the monitor from either of the two video output receptacles on the Backpack; it makes no difference which one.

NOTE: You have control of the computer speaker by means of the volume control fitted to the rear panel of the Backpack. The volume level should be left between the midpoint and upper end of the volume control range so that computer generated sound (beeps) will always be audible.

Section IV

SPECIFICATIONS

<u>Features</u>	<u>Specification</u>
Size and Weight	3" Deep x 4½" High x 15" Wide, 2 lbs.
AC Line	120 volts AC \pm 10% 60 Hz
Power	AC line power is: 40 Watts minimum (microcomputer only)

Features

Specification

Convenience Outlets

750 Watts maximum; 250 Watts maximum each outlet; fused by main power fuse; controlled by a 120 volt power switch.

AC Line Fuse

8 amps, 3 AG 250 Volt type

Game Paddle Outpost Port

9 pin sub-miniature "D" connector with female screw lock strain reliefs

Cassette Input/Output Jacks

Each jack is a 3.5mm type (mini-phone plug type). Jack marked "cassette out" should be connected to the microphone input of the cassette tape recorder.

"Cassette in" should be connected to the headphone jack on the cassette tape recorder. AC power to the cassette tape recorder should come from the Backpack AC outlets.

Video Output Receptacles

1 Volt peak-to-peak at 75 Ohms load. Output impedance matched to 75 Ohms load. Frequency response is DC to 10 MHz.

Audio Input Jack

3.5mm type. The input impedance at this jack is approximately 6000 Ohms. The expected input level is 400 millivolts RMS of audio signal. (This input is suitable for use with video cassette recorder audio outputs).

Headphone Jack

$\frac{1}{4}$ " type. Suitable for use with headphones having impedances of 8 to 600 Ohms. The volume level through the headphone jack is restricted by the amplifier. The volume control adjusts audio levels at the headphone jack. Has priority over internal speaker.

Line Cord

The line cord is a 3 wire 18 gauge type that extends approximately 10 feet from the Backpack. Connect to a properly wired, grounded outlet only. The attached line cord stores around the unit.

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