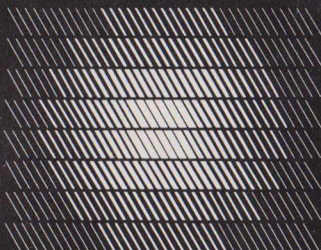


 **VideoBrain™**

Home Computer  
Accessory  
Owner's  
Handbook



Accessory:

**Expander 1**

For best results,  
read this brochure before  
using cartridge

The VideoBrain and its accessories have received FCC type approval.

The customer should be aware that any modifications or attachments to the VideoBrain and/or accessories are subject to FCC regulations.

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## **Expander 1**

### OWNER'S HANDBOOK

#### Accessory

- The Intelligent Interface

VideoBrain Computer Company  
2950 Patrick Henry Drive  
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## Introduction

Congratulations, you have just purchased the “Intelligent Interface.” The VideoBrain™ Expander 1 is an input/output (I/O) device that has its own micro-processor “brain” and two thousand bytes of special instructions. It allows you to connect your VideoBrain home computer to:

- 2 cassette recorders (for storage and retrieval of programs and data)
- a printer (for reports and program listings)
- Expander 2, an acoustic coupler (for communicating with other computers via a telephone).

This manual provides general operating instructions for Expander 1. You'll find each VideoBrain cartridge that uses this expander will display—on the screen—instructions for operating the remote devices. Refer to each cartridge Owner's Handbook for specific operating instructions.

## Unpacking

The Expander 1 shipping carton includes the following equipment:

Expander 1

2 audio cables

PLAYBACK and RECORD labels

Owner's Handbook

Warranty/Service Card (if sold separately)

## The Cassette Recorders

This expander allows you to store and load data on two ordinary audio cassette tape recorders. With each recorder you can store up to 225K bytes of information on a 60-minute tape.

## Expander 1 Features

- An LED indicator to assist in setting volume levels for ease of program loading
- Record formatting
- Record search
- Automatic error detection
- Remote control of two cassette recorders

## Selecting Cassette Recorders

Expander 1 is designed to work with many type of audio cassette recorders. Unfortunately, the design of certain recorders precludes their working with Expander 1. The enclosed list shows the brand names and model numbers of recorders VideoBrain has tested and found either satisfactory or unsatisfactory for use with Expander 1.

Any recorder used with Expander 1 should meet the following requirements:

- AUX (auxiliary input) jack so that a high signal level may be recorded
- REMOTE (remote control) and EAR (earphone output) jacks
- Direct AC line (batteries tend to slow the motor as they run down).

Also, it is best if your recorder has the following features:

- Graduated volume control
- Graduated tone control
- Tape counter

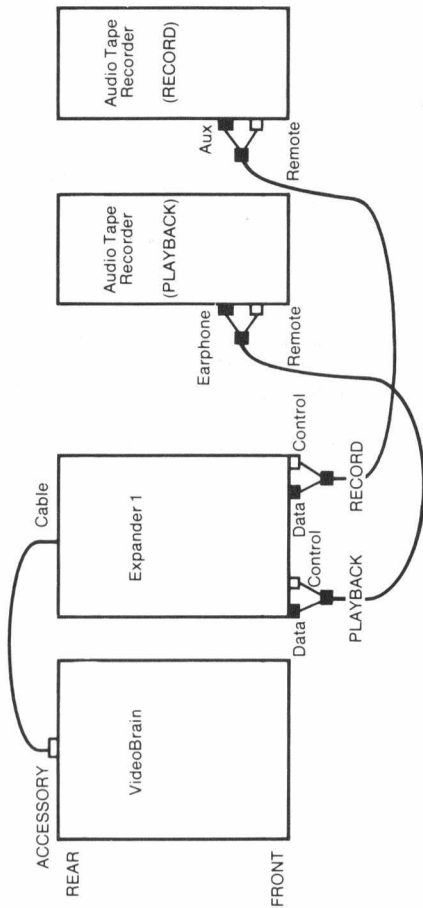
## **Why Two Recorders?**

To simplify using Expander 1 and to minimize operational errors, we recommend the use of two recorders. Expander 1 has been designed so that one recorder is dedicated to the RECORD function and one to the PLAYBACK function. All this helps you avoid the accidental erasure of recorded information. (We've included PLAYBACK and RECORD labels for these units to simplify things still further.) Of course, you can still record and play back data using just one recorder.

## **Selecting Audio Tape**

Any low noise, high density tape can be used. Our recommendations include 3M Scotch brand or TDK tapes. Since most programs and data can be stored using one or two minutes worth of tape, we recommend using tapes of the shortest possible lengths.

# HOW TO CONNECT EXPANDER 1 TO VIDEOBRAIN AND THE CASSETTE RECORDERS (FIGURE 1):





## Connecting the Cassette Recorder

The connections for RECORD and PLAYBACK cassettes are located on the front panel of Expander 1 (see Figure 1). Connect as shown:

1. Label your cassette recorders with the supplied PLAYBACK and RECORD labels.
2. Use one audio cable and
  - a. Connect the RECORD CONTROL jack on Expander 1 and the RECORD cassette REMOTE jack with the smaller white plugs.
  - b. Connect the RECORD DATA jack on the Expander 1 and the RECORD cassette AUX jack using the larger black plugs.
3. Use the other audio cable and
  - a. Connect the PLAYBACK CONTROL jack on the Expander 1 and the PLAYBACK cassette REMOTE jack using the smaller white plugs.
  - b. Connect the PLAYBACK DATA jack on the Expander 1 and the PLAYBACK cassette EAR jack using the larger black plugs.
4. Connect the cord on the rear of Expander 1 to the back of the VideoBrain ACCESSORY jack.
5. Plug the RECORD AND PLAYBACK cassettes into the AC wall outlet.

**BE SURE THAT ALL PLUGS MATE CORRECTLY.**

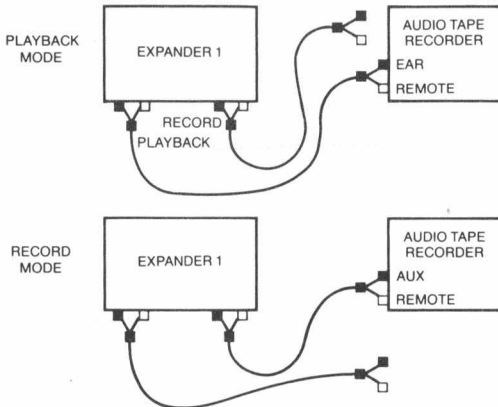
## Using the Cassette Recorder

1. **Storing Data.** Data is stored by recording data from the VideoBrain memory onto audio tape. Expander 1 controls this process, which is independent of any volume or tone control setting on the tape cassette recorder. All that need be done to successfully store is to follow the procedures outlined with each program cartridge.
2. **Loading Data.** Data is loaded by reading data on the tape into the VideoBrain memory. This process is also controlled by Expander 1, but requires careful adjustment of both the volume and tone controls on the audio tape cassette recorder. The following procedure is suggested:
  - a) Set the tone control to slightly above midrange.
  - b) Initially, set the volume control to its lowest level.
  - c) Make a trial loading run with a tape that has data. Gradually increase the volume until the red LED indicator light on the front panel of Expander 1 just begins to illuminate. At that point, increase the volume just a bit further (about 1/10th full scale). That volume level should result in proper loading operation.
  - d) With the volume now set, proceed to load data. Rewind the data tape. Push MASTER CONTROL on the VideoBrain console to reset both microprocessors and follow the loading instructions outlined with each program cartridge.
3. **General Operating Hints**
  - a) **Cleaning of Heads.** Clean the tape heads periodically to avoid loss of volume. The general rule is to clean the lead capstan and pinch rollers after 4 hours of

operation. Cassette cleaning and demagnetizing accessories are available in most department stores and audio outlets.

- b) **Single Cassette Operation.** When using one cassette for both Playback and Record (see Figure 2), do not leave the AUX and EAR jacks connected at the same time. A hum may be added to the signal which will cause errors.
- c) **Tapes.** Use only clean high-quality tapes. Cheap or prerecorded tapes may distort the digital signal causing loss of recorded data. Also, store tapes away from magnetic fields (power supplies) which may cause errors.
- d) **Rewind.** To rewind the tape, the REMOTE jack must be disconnected.

SINGLE CASSETTE OPERATION (FIGURE 2)



## Troubleshooting Digital Recordings

In spite of the fact that your Expander 1 has been designed to accommodate the wide range of specifications and performance typically found in audio cassette recorders, some problems related to these variations may occur. Some common problems and their solutions are listed below:

1. **Write (Store) Errors**—The accessory connection on the back of the VideoBrain is loose. Make sure the plug is properly connected to the accessory jack.
2. **Read (Load) Errors**—If, after following the previous instructions for loading, errors occur, most likely the volume setting is either too high or too low. To correct the problem, reset the program by depressing the MASTER CONTROL key on the VideoBrain console, reset the volume setting and reinitiate the load procedure. (To ascertain the proper volume setting, remove the black plug from the EAR jack and listen to the tape. A comfortable audio level for your ears is also the proper setting for the Expander 1.) This volume setting adjustment can be rather sensitive on certain recorders, and may take several tries to get it right.

Check the tone setting. Remember, it should be 2 to 9 on a scale of 10.

Make sure the tape heads are clean, and finally check for background interference from home appliances (such as a vacuum cleaner).

3. **Motor Does Not Turn**—The CONTROL plug (white) does not mate correctly with the REMOTE jack. Check the connection on the Expander 1 and the recorder. (For some cartridges, the CONTROL plugs are not necessary. In those cases, leave the CONTROL plugs disconnected so that you can control the recorders manually.)

### Connecting the Expander 1 to the Printer and Expander 2

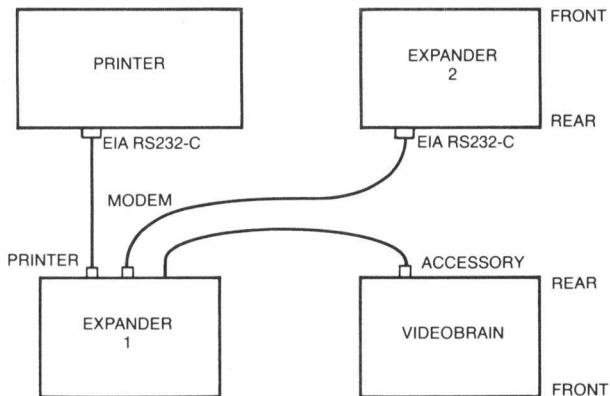
The connectors for the printer and Expander 2 acoustic coupler/modem are on the back panel of Expander 1 (see Figure 3). Connect as follows:

1. You can connect any RS232-C-interfaced (serial) printer to the printer socket on Expander 1. You can order a printer cable (catalog number AC07) from your VideoBrain retailer.
2. The VideoBrain Expander 2 acoustic coupler comes with a cable that connects Expander 2 to Expander 1. If you have your own coupler, you can order an Expander 2 cable (catalog number AC06) from your VideoBrain retailer.

3. Connect the cable on the rear of Expander 1 to the VideoBrain ACCESSORY jack.

Instructions for operation, fault correction, and service for the printer and coupler come with the specific equipment.

### HOW TO CONNECT EXPANDER 1 TO THE PRINTER AND EXPANDER 2 (FIGURE 3):



## Technical Specifications

CPU: 3870 Single Chip Microprocessor

MEMORY: 2K ROM

CASSETTE CAPABILITIES:

Sets of Jacks: 2

Interface: Data and Control jacks

Format: Self-clocked pulse modulation

Rate: 500 baud

Error Check: 16-Bit CRC

PRINTER AND MODEM CAPABILITIES:

Set of Jacks: 2

Interface: RS232-C

Format: ASCII

Rate: 110, 300 or 1200 baud

POWER CONSUMPTION: 2.6 Watts

SOURCE: VideoBrain Computer

LED: Data Load Indicator

DIMENSIONS: 12.7 cm x 12.7 cm x 3.8 cm

WEIGHT: .44 Kilograms

FCC Approved

Expander 1 is used with many exciting VideoBrain cartridges brought to you by the VideoBrain Computer Company. We suggest you try all the VideoBrain Cartridges to help you around the home, educate your children and entertain the whole family.

### **Money Management**

APL/S     The Computational Language\*  
VB-81     Financier™  
VB-1000   Money Minder\*  
VB-1200   Information Manager\*

### **Communications**

CM01   Timeshare\*\*

### **Education**

ED01   Music Teacher 1  
ED02   Math Tutor 1  
ED03   Wordwise™ 1  
ED04   Wordwise™ 2  
ED05   VideoArtist™  
ED06   Lemonade Stand—A Business Simulation  
ED07   Musicianship 1  
ED09   Historical Simulation—France in the Old Regime

### **Entertainment**

EN01   Gladiator  
EN02   Pinball  
EN03   Tennis  
EN04   Checkers  
EN05   Blackjack  
EN06   Vice Versa™  
EN10   Computer Life

\*use with Expander 1

\*\*use with Expander 2



## Limited Warranty

For 12 months from date of purchase, VideoBrain Computer Company will repair any Accessory electronic circuitry defect in the material and workmanship free of charge.

For 90 days from the date of purchase, VideoBrain Computer Company will repair any case or cable defect in material or workmanship in this Accessory free of charge.

To obtain warranty service, return the Accessory postpaid, with sales receipt showing date of purchase, to the VideoBrain Service Center with address shown below.

Under no circumstances will VideoBrain Computer Company be liable for any special, incidental or consequential damages resulting from use or possession of the VideoBrain or its accessories. However, some states do not allow the exclusion or limitation of incidental or consequential damages, so that the above limitations or exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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