The Self Contained PETS

The self contained PET models 2001-4 and 8 come complete with TV screen, keyboard and built-in cassette deck as well as the computer circuitry. They are simply plugged into any 13 amp mains and no special knowledge is needed for running standard programs — over 200 of which are available on cassettes (please see separate software bulletins).

Specifications:

Dimensions: 16 1/4” wide by 18 3/4” deep. 14” overall height.

Weight: 44 lbs

MEMORY
Random Access Memory 4K or 8K as per model number Expandable to 32K bytes

Read Only Memory (operating system resident in the computer): 13K bytes
8K BASIC interpreter
4K - Operating system
1K - Diagnostic routine

VIDEO DISPLAY UNIT
9” enclosed, black and white, high-resolution CRT
1000 character display, arranged 40 columns by 25 lines
8 x 8 dot matrix for characters and continuous graphics
Automatic scrolling from bottom of screen
Winking cursor with full motion control
Reverse field on all characters (white on black or black on white)

Cassette control, reverse field, and graphics under simple BASIC control
Cassette file management from BASIC
Pseudo random number Generator

KEYBOARD
9 1/2” wide x 3” deep: 73 keys
All 64 ASCII characters available without shift. Calculator style numeric key pad
All 64 graphic and reverse field characters accessible from keyboard (with shift)

Screen Control: Clear and erase Editing: Character insertion and deletion

CASSETTE STORAGE
Fast Commodore designed redundant-recording scheme, assuring reliable data recovery
Cassette drive modified by Commodore for much higher reliability of recording and record retention
High noise immunity, error detection, and correction
Uses standard audio cassette tapes
Tape files, named

OPERATING SYSTEM
Machine language accessibility
File management in operating system

Connections to the Outside world
Available at the back and sides of the PET 2001 computer are four edge card connectors. These are to the built-in IEEE-488 interface (HP-IB), the 8 bit user port with two extra handshake lines, the second cassette interface and the memory expansion connection.

The Big Memory PETS

The Big Memory PETS contain the same main features as for the 2001-4 and 2001-8 models except that they incorporate a full typewriter size keyboard and have larger internal memory of 16K and 32K bytes RAM respectively. To accommodate the larger keyboard there is no built in cassette deck and this has to be purchased as a separate item if required.

External Cassette

The C2N Cassette is an economical data storage and retrieval device for use with the PET™ as a single unit for loading and saving programs. Twin cassettes enable file handling and updating. It uses standard audio cassette tapes available in stores everywhere. The C2N features a Double Save technique at different audio frequencies ensuring error correction. The verify command feature provides correct saving of programs. The C2N Cassette is the perfect low cost device for a variety of programming functions.

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High noise immunity, error detection, and correction
Tape files, named

Commands:
LOAD ie. LOAD "NAME", 2
SAVE ie. SAVE "NAME", 1, 1
VERIFY ie. VERIFY "NAME", 2
OPEN ie. OPEN 1, 2, 0, "NAME"
CLOSE ie. CLOSE 1

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Basic Interpreter
Expanded 8K BASIC, 20% faster than most other 8K BASICS
Upward expansion from current popular BASIC language Strings, integers and multi-dimensional arrays
10 significant digits; floating point numbers
Direct memory access through PEEK and POKE commands
The Self Contained PETs

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software and documentation

The inclusion of 8K of extended BASIC in ROM means there are a large number of programs that can readily be used with the PET. Commodore has its own Master Library which is being added to on a monthly basis. These are issued on cassettes and include Scientific, Financial, Business, Educational and Games packages. Personalised programming is not undertaken by Commodore but is available from many Authorised Dealers, software houses and freelance programmers. Commodore’s BASIC is comprehensive and easily learnt for writing one’s own programs. Over 200 programs are now available from Commodore and other software suppliers for the PET. Most popular program titles for PET include: Stock Control, Statistics, Payroll, Strathclyde Basic Course, Chess, Lunar Lancing, Education packs.

An introductory and a Users Handbook are included as standard documentation. Also available are the highly praised hardware and Programming manuals on our own MOS Technology 6560 microprocessor — used at the heart of both the PET computer and our KIM microprocessor system. These will aid the more sophisticated users. Highly recommended is “The Strathclyde Basic Course” — an extremely comprehensive work book and instructional tapes to teach newcomers Basic programming.

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commodore basic

The fastest full floating-point BASIC implemented on a micro-computer. Allows communication directly from BASIC to IEEE-488 standards, devices, cassette, display, and keyboard built into PET. Accurately built-in clock is settable and readable from BASIC in decimal or string value. Full command set, including:

Basic Arithmetic Statements

\[
\begin{align*}
+ & - * / \downarrow \uparrow \\
& \\
\end{align*}
\]

Standard Dartmouth BASIC Statements

LET READ PRINT DATA IF THEN FOR NEXT DIM END GOTO

Extended BASIC Statements

RESTORE REM GET GOSUB DEF RETURN STOP STEP INPUT FN ON...GOTO ON...GOSUB

Scientific Functions

SGN INT ABS SOR RND SIN COS TAN ATN LOG EXP \pi

Logical Operators

AND OR NOT

Operation Commands

RUN NEW CLR LIST CONT FRE

Formating Commands

TAB POS SPC

Machine Level Statements

PEEK POKE

Allow the user to examine and store at specific memory locations.

USR SYS

Link BASIC to machine language subroutines with parameter passing or developmental subsystems.

WAIT

Monitors status of a memory location such as an I/O port until specified bits are set.

The screen writing rate is 1000 characters per second.

String Functions

LEFT$ RIGHTS MID$ Returns substrings (of specified length and position) of string acted upon.

CHR$ ASC

CHR$ returns a character, given a numeric code.

ASC returns a numeric code corresponding to a character.

LEN

Returns the length of a string.

VAL STRS

Convert decimal values to numeric strings and vice-versa.

Extended I/O Statements

OPEN CLOSE

Control association of a logical file number to a physical device, and optionally, a file on the device.

SAVE LOAD VERIFY

Store and retrieve a program, with optional file name, on a physical device. Load allows for program overlay. VERIFY compares contents of memory to stored program.

PRINT# INPUT# GET#

Allow communication with logical device numbers other than keyboard or screen. GET# inputs one character.

CMD

Permits communication with multiple devices simultaneously.

Example of I/O Operations

Tape-to-tape file copy

10 OPEN 5,1,0, “OLD FILE”;
15 POKE 243, 5B; POKE 244, 3
20 OPEN 6,2,1, “NEW FILE”;
30 INPUT 25, A8
40 IF (ST) AND 64 GO TO 70
50 PRINT #6, A8
60 GO TO 30
70 CLOSE 5
80 CLOSE 6

Program locates “OLD FILE” on tape #1, writes file header for “NEW FILE” on tape #2, then copies tape #1 to #2 until it encounters an EOF on #1, and then writes an EOF on #2.

Variables

TYPES: Real Integer (I) String (S)
NAMES: Variable names are uniquely given as a letter or a letter followed by a letter or a digit.

Special variables

TI TIS Time of day
ST Status word for I/O operations.
Professional Printers

2022 PRINTER
This Tractor Feed model is a high specification printer that can print onto paper (multiple copies) all the PET characters — letters (upper and lower case), numbers and graphics available in the PET. The tractor feed capability has the advantage of accepting mailing labels, using standard preprinted forms (customized), cheque printing for salaries, payables, etc. Again, the only connections required are an A/C lead and PET connecting leads. The PET is programmable, allowing the printer to format print for: width, decimal position, leading and trailing zeros, left margin justified, lines per page, etc. It accepts 8½” paper giving up to four copies. Programmable line spacing.

Specifications:
Microcomputer System Devices
- 6504 Microprocessor
- 6522 I/O, interval timer (2)
- 6114 1K x 4 RAM (2)
- 6332 4K x 8 ROM

Printer Mechanism
- Tractor feed
- Epson DH-70 print head
- Dot matrix: 7 x 6 - 80 columns per line
- Impact print: 75 LPM (.93 CPS)
- Programmable line spacing:
  - Forms: 8.5 plus 5 x 2 (spocket margins)
  - Pin to pin distance: 5
  - Longitudinally: 9.5
  - Laterally: 5/32

Packaging
- 18 gauge all steel cabinet
- Dimensions: width - 17”, depth - 18”, height - 6
- Forms enter from rear or bottom of cabinet.

Data Interface
- IEEE-488
- Standard 24-pin stacking connector
- Device -4B-7 by jumper option
- Listener only
- Recognizes secondary addressing

Character Set
- Upper case ASCII
- Lower case ASCII
- PET character set

Control Characters
- Enhance printing (doubles size)
- Enable automatic line count and paging
- Page eject
- Print reverse field
- Overprint a line
- Switch to graphics character set
- Switch to lower case character set
- Print programmable character

IEEE Secondary Address Commands
- Print data exactly as received
- Accept characters as a format
- Edit data to format
- Alter number of lines per page
- Enable diagnostic messages to print
- Accept data for programmable character

Data Formatting Capability
- Field width and decimal position specified
- Leading or trailing sign
- Fixed or floating decimal sign
- Forced leading zeros
- Literal characters always printed
- Alpha fields left justified

Diagnostic Messages
- Can be turned on when desired
- Print on paper
- Describes problems with format and data

2023 Printer
This is a friction feed version of the above printer.
(please note that the 2020 Printer has been cancelled)

Dual Drive Floppy Disk

The Dual Drive Floppy Disk is the latest in disk technology with extremely large storage capability and excellent file management. As the new Commodore disk is an “Intelligent” peripheral, it uses none of the RAM (user) memory of the PET.

The Floppy Disk operating system used with the PET computer enables a program to read or write data in the background while simultaneously transferring data over the IEEE to the PET. The Floppy Disk is a reliable low cost unit, and is convenient for high speed data transfer. Due to the latest technological advances incorporated in this disk, a total of 360K bytes are available in the two standard 5½” disks, without the problems of double tracking or double density. This is achieved by the use of two microprocessors and fifteen memory IC’s built into the disk unit. Only two connections are necessary — an A/C lead and PET interface lead.

Specifications:
Microcomputer system devices
- Controller: 6504 microprocessor
- 6530 I/O, RAM, and 1K ROM software
- 6316 2K ROM for encoding & decoding disk data
- 6522 1K/0 and interval timers

Floppy Disk Commands (summary)
- LOAD, i.e., LOAD "0: BASIC", 8
- Save, i.e., SAVE "0: BASIC", 8
- OPEN COMMAND, CHANNEL, VERIFY, FORMAT
  - i.e., PRINT #1,"VER 0:
  - PRINT #1, "NEW 0:
  - NAME
- OPEN A WRITE, CHANNEL, SAVE, WRITE
- CLOSE CHANNEL, i.e., DISK 14
- NUMBER, i.e., "N" matches all file names beginning with "N"

Disk drives
- 2 Shugart Associates 5A30 drives
- Standard mini-floppy (5½" disk)
- activity LED's light when a file is open on that drive

Packaging
- 18 gauge all steel cabinet
- Dimensions: width - 15", depth - 14.35", height - 6.5
- Cover hinges from base for servicing

Diskette organization
- Formatting is by the drive itself — any mini-floppy diskette may be used
- 35 concentric tracks
- Constant density recording on each track
- Number of sectors per track:
  - innermost: 17
  - outermost: 21
- 1765 bytes on a single side
- Track 16 used for directory
- 171520 bytes for user storage
- Soft sectoring
- Diskettes for dual side recording may be used

Data interface
- IEEE-488
- Standard 24-pin stacking connector
- Device -4B-7 by jumper option
- Full listener — talker recognizes secondary addressing

Pattern matching with file names may be used only when:
- Loading directory ($) Scratch files
- Opening read channels
- Loading programs

Default drive A may be used in most cases.
Using a " with drive A indicates a default to the previously determined drive. A file name with no drive # or " indicates that the file is to be used on both drives, beginning with the previously determined drive. A " must separate commands from file names as described above.

Commands may be abbreviated to any form that retains the 1st char.
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Epson DH-70 print head
Dot matrix — 7 x 6 — 80 columns per line
Impact print — original plus 3 copies
Print rate = 75 LPM (93 CPS)
Programmable line spacing
Forms: 8½ + 5½ + 2½ (sporet margin)
Pin to pin distance: 5½ Longitudinally
9½ Laterally
5½ + 3½ Diameter

Packaging
18 gauge all steel cabinet
Dimensions: width = 17”, depth = 18½”, height = 6½
Forms enter from rear or bottom of cabinet.

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IEEE-488
Standard 24-pin stacking connector
Device 48-7 by jumper option
Listener only
Recognizes secondary addressing

Character Set
Upper case ASCII, lower case ASCII, PET* graphics

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Logical Operators
AND OR NOT

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