HP Users' Program Library Europe

The Hewlett-Packard Users' Program Library is a customer service offered to owners of HP fully-programmable personal calculators. **(HP-67/97/41C)**
At nominal cost, it offers programs contributed by other users. Over 2,000 application programs, from all imaginable fields of science and professional activity, are available. Launched in 1974 as the HP-65 Users' Library, it was later extended to the HP-67 and HP-97 and, now, to the HP-41C. The library is multilingual and has grown into a huge success with over 10,000 members at present. While the Users' Library is administered by Hewlett-Packard its aim is to provide application assistance by users for users.

Access to international expertise and solutions

Membership of the HP Users' Library is by subscription. It gives you access to a vast pool of knowledge that enables you to take full advantage of the capabilities of your calculator… faster.

You will find solutions to problems that might otherwise take you hours to unravel and program yourself. You will discover interesting pro-gramming techniques and individual styles pioneered by others to help you master your HP-67, HP-97 or HP-41 faster and more efficiently.

Join in an active dialogue

While *you* benefit from other users' experience, remember that they may need yours. You can contribute your own programs to the Library and receive a reward in the form of free programs.

HEWLETT hp PACKARD

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HEWLETT hp PACKARD

HP
SOFTWARE ACCESSORIES

From Hewlett-Packard you get MORE comprehensive software support and accessories to make you MORE productive

Hewlett-Packard goes a lot further with its series of advanced programmable calculators. You get an unparalleled array of software support and accessories to give you more muscle, make you even more productive. No matter which HP calculator you possess, or which discipline interests you most, Hewlett-Packard has produced comprehensive back-up for general and specialised applications. With Hewlett-Packard, you save more time and energy.

HP-41C

For the HP-41C:

Choose from 16 Application Modules and 25 Solution Books in English** to find the ready-programmed solutions you need. Then, all HP-67/97 magnetic cards are instantly translatable through the HP-41C Card Reader. Better still, the Users' Program Library Europe gives you access to over 2,000 user-contributed programs covering every imaginable field.
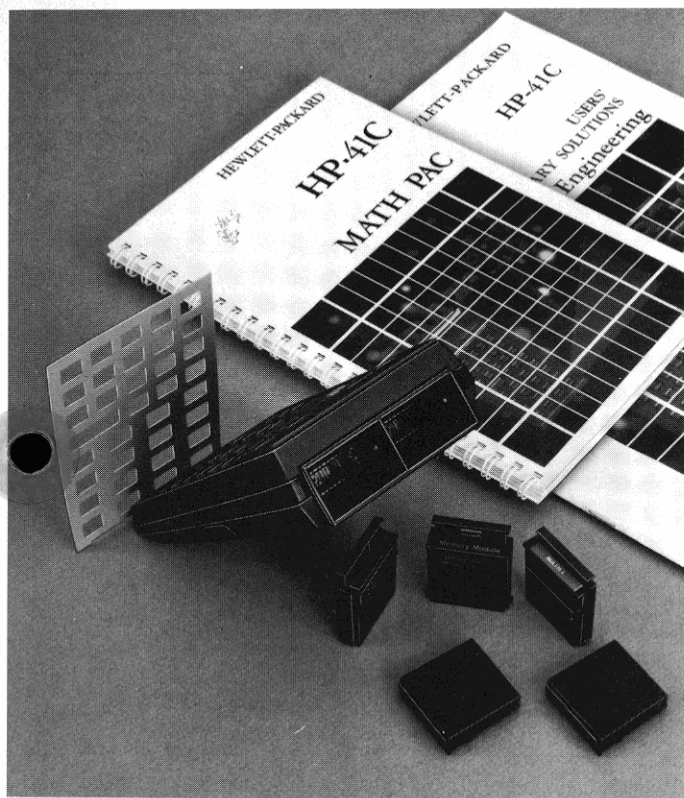
** Several of these books have been translated into other European languages, others will be later. (Ask your HP dealer.)

HP-41C Application Modules are miniature plug-in solutions that provide instant access to sets of programs covering diverse ranges of subject matter: Mathematics, Electrical Engineering, Business Decisions, Games, and lots more. Each Module comes in a Pac with a detailed manual containing descriptions and examples plus helpful programming techniques.

Choose from:

Aviation (00041-15018)*
Flight Management
General Aircraft Weight and Balance
Determining In-Flight Winds
True Air Temperature, Density Altitude, and Freezing Levels
Great Circle Navigation
Position by One or Two VORS
Mach Number, True Airspeed and Other Conversions
Standard Atmosphere
Course and Speed Corrections
Dead Reckoning

Clinical Lab and Nuclear Medicine (00041-15024)
Clinical Chemistry
Beer's Law
Body Surface Area
Creatinine Clearance
Blood Acid-Base Status
Oxygen Saturation and Content
Red Cell Indices

Nuclear Medicine
Total Blood Volume
Thyroid Uptake
Radioactive Decay Corrections

Radioimmunoassay

Statistics
Basic Statistics
Chi-square Evaluation and Distribution
t Statistics
t Distribution

Circuit Analysis (00041-15006)
General Network Analysis
Ladder Network Analysis

Financial Decisions (00041-15004)†
Compound Interest Solutions
Internal Rate of Return
Modified Internal Rate of Return (FMRR)
Net Present Value
Loan Amortization Schedules
Depreciation Schedules
Bond Price and Yield
Days Between Dates

Mathematics (00041-15003)
Matrix Operations
Solution to $f(x) = 0$ on an Interval
Polynomial Solutions/Evaluation
Numerical Integration
Differential Equations
Fourier Series
Complex Operations
Hyperbolics
Triangle Solutions
Coordinate Transformations

Securities (00041-15026)†
Bond/Note Price and Yield
Routines for Option Writers Using the Black-Scholes Evaluation Method
Warrant and Option Hedging
Yield on Call Option Sales
Butterfly Options
Bull Spread Option Strategy
Convertible Security Analysis
Convertible Bond Investment Analysis
Stock Portfolio Valuation
Portfolio Selection and Timing
Bond Speculation Using Margin

Statistics (00041-15002)
Basic Statistics for Two Variables
Moments, Skewness and Kurtosis
Analysis of Variance (One Way)
Analysis of Variance (Two Way, No Replications)
Analysis of Covariance (One Way)
Curve Fitting (Linear, Exponential, Logarithmic, and Power Curve)
Multiple Linear Regression
Polynomial Regression
t Statistics
Chi-Square Evaluation
Contingency Table
Spearman's Rank Correlation Coefficient
Normal and Inverse Normal Distribution
Chi-Square Distribution

Stress Analysis (00041-15027)
Section Properties
Beams
Simply Supported Continuous Beams
Columns
Mohr Circle Analysis
Strain Gage Data Reduction
Soderberg's Equation for Fatigue
RPN Vector Calculator

† Conform to U.S.A. practice

* In preparation

Structural Analysis*
(00041-15021)
Section Properties
Beams
Simply Supported Continuous
 Beams
Settling of Continuous Beams
Continuous Frame Analysis
Steel Column Formula
RPN Vector Calculator
Reinforced Concrete Beam
Concrete Columns
Effective Moment of Inertia for
 Concrete Sections

Surveying (00041-15005)†
Traverse, Inverse and Sideshots
Compass Rule Adjustment
Transit Rule Adjustment
Intersections
Curve Solutions
Horizontal Curve Layout
Vertical Curves and Grades
Resection
Predetermined Area
Volume by Average End Area
Volume of a Borrow Pit
Coordinate Transformation

Games* (00041-15022)
Programs include calculator
games such as Super Bagels,
Space War, Submarine Hunt, and
Biorhythms.

Home Management*
(00041-15023)†
Contains programs to assist in
managing home budgets and
personal finance. Programs
include Home Budget, Annuities
and Compound Amounts,
Retirement (IRA or Keogh)
Planning, and Stock Portfolio
Valuation.

Machine Design*
(00041-15020)
Programs for the Mechanical
Engineer involved in design and
analysis. Topics include Cams,
Linkages, Gears, Springs,
Vibrations, Machine Geometry,
and Unit Conversions.

Navigation* (00041-15017)
Provides an integrated set of
programs to solve the classic
navigation problems of dead
reckoning and celestial navigation.

Real Estate* (00041-15016)†
Programs for the real estate
investor including Internal Rate
of Return, Depreciation,
Compound Interest Solutions, and
Income Property Analysis.

Thermal and Transport
Science* (00041-15019)
Programs intended for Mechanical
and Chemical Engineers. Topics
include Gas Properties,
Compression Flow, Incompressible
Flow and Heat Transfer.

(Application Pac titles and
program listings subject to change
without notice.)

HP-41C Solution Books
Each have collections of up to 15 programs that provide answers to general and specialised problems. Drawn from among the best of more than 9,000 usersubmitted programs, HP Solution Books offer a diverse selection of program material covering a broad spectrum of application areas… *a low cost, highly defined source of software.*
(Printed bar codes available at a later date).

Choose from:
BUSINESS
**Business Statistics/
Marketing/Sales
(00041-90094)**
Forecasting using Exponential
 Smoothing
Seasonal Variation Factors
 (SEVAR)
Multiple Linear Regression
Normal, t and f Distributions
Grouped Statistics
Moving Average
Price Elasticity of Demand
Experience (learning) Curve for
 Manufacturing Cost
Sales Force Requirements
Breakeven Analysis
Gompertz Curve

**Home Construction Estimating
(00041-90096)†**
Concrete Volume
Linear to Board Feet Conversions
 and Costing
Framing Board Feet
Lumber Estimate
Shingle Estimate
Wall and Ceiling Areas Estimate
Wallpaper Estimate
Drywall and Insulation Estimate
Sheathing and Subfloor Estimate
Painting Estimate
Wood Floor Estimate

**Lending, Saving and Leasing
(00041-90086)†**
Constant Payment to Principal
 Loan
APR with Fees/Discount
Rules of 78's
Compound Interest Solutions
Amortization Schedule
Add-on to APR with Odd Days
Savings Plan
Interest Conversions
Lease with Additional Payments
 in Advance
Skipped Payments
Compounding Periods Different
 from Payment Periods

Real Estate (00041-90136)†
Ellwood Analysis
Analysis of Income Property
Wrap-Around Mortgage
Amount of Equity at Any Time

Mortgage Yield
Mortgage Pricing
Investment Analysis for Property
 and Land
Residential Analysis (Rent or Buy)
Variable Analysis of Real Estate
 Investment
IRR
Shopping Center Rent Projections

**Small Business
(00041-90137)†**
Hourly Payroll
Invoicing
Account Posting
Percentages and Proportions with
 Tabulator
Retail Inventory Monitor
Estimating Inventory
Inventory Ordering
Order Point Calculations
Working Capital Needs – Bardahl
 Formula
Depreciation Schedules
Breakeven Analysis

COMPUTATION
Geometry (00041-90084)
Sine Plate Solutions
V Notches and Long Radii
Internal and External Tapers
Points of Tangency with Circles
 and Arcs
Line-Line Intersection/Grid Points
Points on a Straight Line
Grid of Points: Calculates All
 Points
Grid of Points: Calculates Discrete
 Points
Tangent circle to Two Straight
 Lines with a Given Radius
Distance Between Lines in Space

**High Level Math
(00041-90083)**
Sine, Cosine, Exponential Integrals
Eigen Values/Vectors of 3rd Order
 Systems
Eigen Values for 3rd Order System
Chebyshev, Legendre, Hermite,
 and Laguerre Polynomials
Sixteen-Point Gaussian
 Quanratune
Gamma Function
Bessel Functions, Error Function
Characteristic Equation of a 4 x 4
 Matrix
4 x 4 Matrix Operations

Residual Cylinder Induced at
Tear/Cornea Interface by
Contact Lens
Cylinder Induced by Toric Contact
Lens
Contact Lens Power Necessary to
Correct Ametropia
Toric Contact Lens Parameters
Tabb Contact Lens of 1st
Approximation
May-Grant Contact Lens of 1st
Approximation
Roggenkamp Specifications for
Prism Ballast Front Toric or
Prism Ballast Contact Lens
Brungardt I
Brungardt II
Clebsch- Gordon Coefficients
and 3j Symbols Evaluation
32- P Remaining on MM.DDYYYY
Given
MCI on Earlier MM.DDYYYY
(Solutions Book titles and pro-
gram listings subject to change
without notice).

Surveying (00041-90141)†
Spiral Curve Layout
Two Instrument Radial Survey
EDM Slope Reduction
Stadia Reduction
Three Wire Leveling
Azimuth of the Sun
Earthwork Cut and Fill
Taping Reduction
Field Angle Check
Triangle Solutions
Traverse for Auto Adjust Routines
Auto Adjust for Compass Rule
Auto Adjust for Crandall's Rule

Physics (00041-90142)
Black Body Thermal Radiation
Black Hole Characteristics
Special Relativity Conversions
Three- Dimensional Special
Relativity
Einstein's Twin Paradox
Delta-V Orbit Simulator
Equations of Motion
Ballistics Trajectory Computations
Isotope Overlap Corrections
Critical Reactor Code
Semi- Empirical Nuclear Mass
Formula

HP-67/97

For the HP-67/97:

Choose from 10 Application Pacs and 20 Solution Books, *plus* the 2,000 plus programs in the Users' Program Library Europe.

HP-67/97 Application Pacs each contain 19 to 26 pre-printed, pre-recorded program cards holding programs covering a discipline or sub-discipline. Pacs come complete with a program card holder and a complete documentation manual with instructions, examples, limits, warnings and programming hints.

Choose from:

STAT PAC I
No. 00097–13111

French version No. 00097–13112
German version No. 00097–13113
Italian version No. 00097–13114

21 programs on 24 magnetic cards

General Statistics
■ Basic Statistics for Two
Variables.
Basic statistics for two
variables, grouped or
ungrouped.
■ Factorial, Permutation and
Combination.
Calculate factorial (extended
range), permutation, and
combination.
■ Moments, Skewness and
Kurtosis for Grouped or
Ungrouped Data
Moments, Skewness, and
Kurtosis are calculated for
general (geometrical)
description of a distribution;
symmetry, relative peakness or
flatness, etc.
■ Random Number Generator.
Generate up to 500000 different
numbers.
■ Histogram.
A histogram program for 24
intervals of equal width between
specified upper and lower limits.

Analysis of Variance
■ Analysis of Variance (One Way).
This program is used to test the
observed differences among
sample means.
■ Two Way Analysis of Variance.
The row effects and the column
effects are tested independently
in the analysis of the total
variability of a set of data.
■ Analysis of Covariance (One
Way).
This program tests the effect
of one variable separately from
the effect of the second variable.

Distribution Functions
■ Normal and Inverse Normal
Distribution.
Polynomial approximation is
used to calculate normal and
inverse normal distribution.
■ Chi-Square Distribution.
This program evaluates the chi-
square density. A series
approximation is used to
evaluate the cumulative
distribution.
■ t Distribution.
This program evaluates the t
density function and the
cumulative distribution for a
given x and degrees of
freedom v.

■ F Distribution.
This program evaluates the
integral of the F distribution for
given values of x (> 0), degrees
of freedom v_1, v_2, provided
either v_1 or v_2 is even.

Curve Fitting
■ Multiple Linear Regression.
Linear regression for two
independent variables, using
least squares method.
■ Polynomial Approximation.
This program approximates in
the least square sense the func-
tion (f (x) by a polynomial of
degree m, where $2 \leq m \leq 4$
Data from equally spaced points
are required.

Test Statistics
■ t Statistics.
Paired t statistic tests the null
hypothesis Ho : $\mu_1 = \mu_2$ for two
observations. t statistic for two
means tests the null hypothesis
Ho : $\mu_1 - \mu_2$ = d for two indepen-
dent random samples.
■ Chi-Square Evaluation.
This program calculates the
value of χ^2 statistics for the
goodness of fit test.
■ Contingency Table.
2 × k and 3 × k contingency
tables test the null hypothesis
that two variables are indepen-
dent.
■ Spearman's Rank Correlation
Coefficient.
This program tests whether
2 rankings are substantially in
agreement with one another.

Quality Control
■ x and R Control Chart.
x̄ (mean) and R (range) are used
to decide periodically whether a
process is in statistical control.
■ Operating Characteristic
Curves.
This program evaluates the
probability P_a of acceptance for
a single sampling plan with finite
or infinite lot size.

Queueing Theory
■ Single- and Multi-Server
Queues.
Queueing theory for infinite
customers and finite customers.

MATH PAC I
No. 00097–13121

French version No. 00097–13122
German version No. 00097–13123
Italian version No. 00097–13124

19 programs on 20 magnetic cards

■ Factors and Primes.
Finds prime factors of an
integer; finds all primes
between two numbers.
■ GCD, LCM, Decimal to Fraction.
Finds greatest common divisor
and least common multiple of
two integers; finds nearest
fractional approximation for a
decimal number.
■ Base Conversions.
Converts a number in base b to
its equivalent in base B (b,
B < 100).
■ Optimal Scale for a Graph;
Plotting.
Finds a "nice" scale for
graphing a function; generates
ordered pairs for a graph.
■ Complex Operations.
Arithmetic and several functions
for complex numbers.
■ Polynomial Solutions.
Solves polynomial equations up
to 5th degree.
■ 4 × 4 Matrix Operations
(2 Cards).
Computes determinant and
inverse of 4 × 4 matrix, solves
4 simultaneous equations in
4 unknowns, by Gaussian
elimination.
■ Solution to f (x) = 0 on an
Interval.
Uses combination of bisection
and secant method to guarantee
rapid convergence to a root.
■ Numerical Integration.
Trapezoidal rule and Simpson's
rule for discrete case;
Simpson's rule for functions
known explicitly.
■ Gaussian Quadrature.
Uses the six-point Gauss-
Legendre quadrature method to
find integrals over finite or
infinite intervals.
■ Differential Equations.
Solves first- and second-order
differential equations by the
fourth-order Runge-Kutta
method.
■ Interpolations.
Linear, Lagrangian, and finite
difference.
■ Coordinate Transformations.
Two- and three-dimensional
translation and rotation of axes.
■ Intersections.
Line-line, line-circle, circle-
circle.

- **Circles.**
  Circle determined by three points; equally spaced points on a circle.
- **Spherical Triangles.**
  Solutions to six cases of spherical triangles.
- **Gamma Function.**
  Computes $\Gamma(x)$ for $1 \le x \le 70$.
- **Bessel Functions, Error Function.**
  Computes the value of the Bessel functions $J_n(x)$ and $I_n(x)$; computes error function and complementary error function.
- **Hyperbolics.**
  Finds hyperbolic functions and their inverses.

EE PAC I
No. 00097-13131

French version No. 00097-13132
German version No. 00097-13133

18 programs on 20 magnetic cards

- **Network Transfer Functions.**
  This program computes various transfer functions of a ladder network composed of any number of standard elements.
- **Reactive L-Network Impedance Matching.**
  This program computes networks which will match any two complex impedances.
- **Class A Transistor Amplifier Bias Optimization.**
  This program simplifies the design of a class A transistor amplifier.
- **Transistor Amplifier Performance.**
  This program computes the small-signal properties of a transistor amplifier given the h-parameter matrix and the source and load impedances.
- **Transistor Configuration Conversion.**
  This program permits conversion among h-parameter matrices for CB, CE, or CC transistor configurations.
- **Parameter Conversions:** $S \rightleftarrows Y$, Z, G, H.
  This program allows conversion among various commonly used parameter sets.
- **Fourier Series.**
  This program computes Fourier coefficients from samples of a periodic function.
- **Active Filter Design.**
  This program computes element values for a standard filter circuit.
- **Butterworth or Chebyshev Filter Design.**
  This program computes component values for Butterworth or Chebyshev filters between equal terminations. The user may select various filter characteristics.
- **Bode Plot of Butterworth and Chebyshev Filters.**
  This program provides gain, phase, and group delay information for Bode plots of n-pole Butterworth or Chebyshev filters.
- **Resistive Attenuator Design.**
  This program computes values for the resistors which yield an attenuator having any desired loss.

- **Smith Chart Conversions.**
  This program converts among various radially scaled parameters (σ, ρ, SWR, R.L.) and also interconverts impedance and reflection coefficient.
- **Transmission Line Impedance.**
  This program computes high frequency characteristic impedance for five types of transmission lines.
- **Microstrip Transmission Line Calculations.**
  This program computes relative phase velocity and characteristic impedance for lossless microstrip. It also computes copper loss and resistance per unit length.
- **Transmission Line Calculations.**
  This program computes the input impedance of lossy transmission line terminated in Z_L.
- **Unilateral Design: Figure of Merit, Maximum Unilateral Gain, Gain Circles.**
  This program computes u, G_u, G_{min}, G_{max}, G_0, G_{1max}, and G_{2max} from a transistor's s-parameters. It also computes r_{01} and ρ_{01} from $G_i \le G_{max}$ ($i = 1, 2$).
- **Bilateral Design: Stability Factor, Maximum Gain, Optimum Matching.**
  This program computes the maximum gain available and the load and source reflection coefficients which yield the maximum gain.
- **Bilateral Design: Gain and Stability Circles, Load and Source Mapping.**
  This program computes the location and radius of stability circles. It also computes the source or load reflection coefficient corresponding to a given load or source termination.

BUSINESS DECISIONS PAC I
No. 00097-13144
(Conforms to U.S.A. practice)

French version No. 00097-13145
German version No. 00097-13146

22 programs on 22 magnetic cards

- **Internal Rate of Return.**
  Yield of a sequence of uneven cash flows.
- **Internal Rate of Return – Groups of Cash Flows.**
  Yield of groups of uneven cash flows.
- **Discounted Cash Flow Analysis – Net Present Value.**
  Finds the net present value of future cash flows.
- **Direct Reduction Loans – Sinking Fund.**
  Solves problems when payments are made at the end of the compounding periods (ordinary annuity).
- **Accumulated Interest/Remaining Balance.**
  Calculates accumulated interest and remaining balance, and generates an amortization schedule(s).
- **Wrap-Around Mortgage.**
  Calculates yield of wrap-around mortgage.
- **Constant Payment to Principal Loan.**
  Generates schedule for constant payment to principal loan.

- **Add-on Rate Installment Loan/Rule of 78's.**
  Calculations involving add-on loans and loans using the rule of 78's.
- **Savings Plans-Leases.**
  Solves problems involving payments at the beginning of the compounding periods (annuity due), and compounded amounts.
- **Advance Payments.**
  Payment and yield calculations when additional payments are made in advance.
- **Savings – Compounding Periods Different from Payment Periods.**
  Calculations when deposits and compounding periods differ.
- **Simple Interest/Interest Conversions.**
  Simple interest calculations and nominal to effective interest rate conversions.
- **Depreciation Schedules.**
  Straight line, SOYD, declining balance, and crossover between straight line and declining balance.
- **Days Between Dates.**
  Calendar routine.
- **Bond Price and Yield.**
  Calculates price and yield of semiannual coupon bonds.
- **Interest at Maturity/Discounted Securities.**
  Price or yield of interest at maturity or discounted securities.
- **Linear Regression – Exponential Curve Fit.**
  Fits a set of data points x, y to a straight line and a curve. Determines goodness of fit.
- **Multiple Linear Regression.**
  Fits a set of data points x, y, z to a straight line. Also determines goodness of fit.
- **Break-even Analysis.**
  Calculates all values for linear break-even chart.
- **Invoicing.**
  Maintains net line totals, subtotal and grand total for invoicing.
- **Payroll.**
  Guide for writing a payroll program.
- **Inventory.**
  Guide for establishing an inventory program.

CLINICAL LAB. AND NUCLEAR MEDICINE PAC I
No. 00097-13165

(available in English only)

19 programs on 19 magnetic cards.

Clinical Chemistry
- **Beer's Law.**
  Converts between absorbance and % transmittance; solves for an unknown concentration given standard concentration and absorbance or % T of standard and unknown.
- **Protein Electrophoresis.**
  Given integration counts of a number of protein fractions, finds percentage of each. Calculation of weights optional.
- **LDH Isoenzymes.**
  Given values for the five LDH isoenzymes, finds activity of each as a percent of total. Compares results against normal values.

- **Body Surface Area.**
  Calculates an estimated BSA by method of Dubois or Boyd. Accepts either English or Metric units.
- **Urea Clearance.**
  Calculates urea clearance with option of correcting for BSA.
- **Creatinine Clearance.**
  Calculates creatinine clearance with option of correcting for BSA.
- **Amniotic Fluid Assay.**
  Performs calculations for the spectrophotometric estimation of bile pigments in amniotic fluid.
- **Blood Acid-Base Status.**
  Finds total CO_2 and base excess from PCO_2, pH, and Hgb concentration.
- **Oxygen Saturation and Content.**
  Finds oxygen saturation and content in blood given PO_2, PCO_2, pH, and body temperature.
- **Red Cell Indices.**
  Given hematocrit percent, red cell count, and hemoglobin, finds mean corpuscular volume, mean corpuscular hemoglobin, and mean corpuscular hemoglobin concentration.

Nuclear Medicine
- **Total Blood Volume.**
  Computes total blood volume by the radioisotope dilution method.
- **Schilling Test.**
  The radioisotope determination of vitamin B_{12} absorption.
- **Thyroid Uptake.**
  The radioisotope determination of thyroid uptake.
- **Radioactive Decay Corrections.**
  Finds the activity of a radioisotope corrected for decay over time.

Radioimmunoassay
- **Radioimmunoassay.**
  Computes least-squares regression line of logit of net counts vs. log concentration, including regression constants, correlation coefficient, and concentration for a given count.

Statistics
- **Basic Statistics.**
  Computes mean, standard deviation, standard error, and coefficient of variation for grouped or ungrouped data.
- **Chi-Square Evaluation and Distribution.**
  Computes the chi-square statistic for goodness of fit. For given $x \ge 0$, finds the chi-square density function $f(x)$ and the cumulative distribution $P(x)$.
- **t Statistics.**
  Computes the paired t statistic and the unpaired t statistic.
- **t Distribution.**
  For a given $x > 0$, evaluates the t density function and cumulative distribution.

MECHANICAL ENG. PAC I
No. 00097-13155

(available in English only)

- **Vector Statics.**
  Performs basic vector operations of addition, cross product, and dot product, and finds angle between vectors.

- **Section Properties (2 Cards).**
  The area, centroid, and moments of inertia of an arbitrarily complex polygon may be calculated using this program.
- **Stress on an Element.**
  Reduces data from rosette strain gauge measurement and performs Mohr circle analysis.
- **Soderberg's Equation for Fatigue.**
  Solves for any one of the seven variables of Soderberg's equation for fatigue.
- **Cantilever Beams.**
  Calculates deflection, slope, moment and shear for point, distributed, and moment loads applied to cantilever beams.
- **Simply Supported Beams.**
  Calculates deflection, slope, moment and shear for point, distributed, and moment loads applied to simply supported beams.
- **Beams Fixed at Both Ends.**
  Calculates deflection, slope, moment, and shear for point, distributed, and moment loads applied to beams fixed at both ends.
- **Propped Cantilever Beams.**
  Calculates deflection, slope, moment, and shear for point, distributed, and moment loads applied to propped cantilever beams.
- **Helical Spring Design.**
  Performs two point design for helical compression springs.
- **Four Bar Function Generator (2 Cards).**
  Program designs four bar systems which will approximate an arbitrary function of one variable.
- **Progression of Four Bar System.**
  Calculates angular displacement, velocity, and acceleration for the output and connecting link of a four bar system.
- **Progression of Slider Crank.**
  Calculates displacement, velocity, and angular velocity and acceleration of the connecting rod for the progression of a slider crank system.
- **Circular Cams.**
  Computes parameters necessary for design of harmonic or cycloidal, circular cams with roller, flat or curve followers.
- **Linear Cams.**
  Computes the parameters necessary for design of harmonic, cycloidal, or parabolic profiles for linear cams with roller followers.
- **Gear Forces.**
  Computes the reaction forces resulting from torque applied to helical, bevel, or worm gears.
- **Standard External Involute Spur Gears.**
  Calculates parameters necessary in design manufacture, and testing of standard, external, involute, spur gears.
- **Belt Length.**
  Computes belt length around an arbitrary set of pulleys.
- **Free Vibrations.**
  Calculates an exact solution to the differential equation for a damped oscillator vibrating freely.
- **Vibration Forced by $F_0 \cos \omega t$.**
  Finds the steady-state solution for a damped oscillator forced by $F_0 \cos \omega t$.

- **Equations of State.**
  Ideal gas relation plus Redlich-Kwong model of real gas behavior.
- **Isentropic Flow for Ideal Gases.**
  Replaces isentropic flow tables for ideal gases in converging-diverging passages.
- **Conduit Flow.**
  Calculate velocity or pressure drop for incompressible viscous flow in conduits.
- **Heat Exchangers (2 Cards).**
  Performs analysis of counter-flow, parallel-flow, parallel-counter-flow and cross-flow (fluids unmixed) heat exchangers.

SURVEYING PAC I
No. 00097-13175
(Conforms to U.S.A. practice)

19 programs on 26 magnetic cards. (available in English only)

- **Traverse, Inverse and Sideshots.**
  Reduction on field traverse data with closure and area calculation.
- **Traverse Adjustment.**
  Adjustment of traverses by compass rule or Crandall's rule.
- **Intersections.**
  Bearing-bearing, bearing-distance and distance-distance intersections and offset from a point to a line.
- **Curve Solutions.**
  Calculation of parameters of circular curves.
- **Horizontal Curve Layout.**
  Calculation of field data for layout of horizontal circular curves.
- **Spiral Curve Layout.**
  Calculation of field data for layout of spiral transition curves.
- **Vertical Curves and Grades.**
  Station and elevation calculations for vertical curves and grades.
- **Resection.**
  Solution of the "three point problem".
- **Two Instrument Radial Survey.**
  Location of a point using a distance meter and theodolite.
- **EDM Slope Reduction.**
  Reduction of slope distances measured with an Electronic Distance Meter.
- **Stadia Reduction/3-Wire Leveling.**
  a. Reduction of stadia observations to distance and elevation.
  b. Calculation of elevations for a line of wire levels.
- **Taping Reduction/Field Angle Check.**
  a. Correction and reduction of taped distances.
  b. Reduction of field angle data.
- **Azimuth of the Sun.**
  Calculation of the sun's azimuth from a solar observation.
- **Predetermined Area.**
  Location of one side of a land parcel to enclose a specified area.
- **Earthwork.**
  Calculation of volume by average end area and volume of a borrow pit.
- **Coordinate Transformation.**
  Scaling, rotation and translation of coordinates from one system to a second.

- State Plane Coordinates – Lambert.
  Conversion of geographic coordinates to and from state plane coordinates on Lambert projections.
- State Plane Coordinates – Transverse Mercator.
  Conversion of geographic coordinates to and from state plane coordinates on transverse Mercator projections.
- State Plane Coordinates – Alaska Zones 2-9.
  Conversion of geographic coordinates to and from state plane coordinates for Alaska zones 2-9.

TOPOGRAPHIE (Application Manual)
French version No. 00097-13176

VERMESSUNG (Application Manual)
German version No. 00097-90162
(These two locally developed pacs are delivered without magnetic cards)

PROGETTO CURVE STRADALI
Italian version

CIVIL ENGINEERING PAC
No. 0097-13195

- Vector Statics.
  Performs basic vector operations of addition, cross product, and dot product, and find the angle between vectors.
- Section Properties (2 cards).
  The area, centroid, and moments of an arbitrarily complex polygon may be calculated using this program.
- Properties of Special Sections.
  Section properties for rectangles, triangles, ellipses circles and concentric circles are provided by this program.
- Stress on an Element.
  Reduces data from rosette strain gage measurement and performs Mohr circle analysis.
- Bending or Torsional Stress.
  Solves either the bending stress equation (s = Mv/I) or the analogous torsional shear stress equation (s = TR/J) interchangeably for all variables.
- Linear or Angular Deformation.
  This program solves for linear deflection under tensile load or the analogous angular deflection under bending load. The solution is interchangeable between the five variables.
- Cantilever Beams.
  Calculates deflection, slope, moment, and shear for point, distributed, and moment loads applied to cantilever beams.
- Cantilever Beams—Trapezoidal Load.
  Calculates deflection, slope, moment and shear for cantilever beams with distributed trapezoidal loads.
- Simply Supported Beams.
  Calculate deflection, slope, moment, and shear for point, distributed, and moment loads applied to cantilever beams.
- Simply Supported Beams—Trapezoidal Load.
  Calculates deflection, slope, moment and shear for simply supported beams with distributed trapezoidal loads.

- Beams Fixed at Both Ends.
  Calculates deflection, slope, moment, and shear for point, distributed and moment loads applied to beams with rigidly fixed ends.
- Beams Fixed at Both Ends—Trapezoidal Load.
  Calculates deflection, slope, moment and shear for point, distributed, and moment loads applied to cantilever beams.
- Propped Cantilever Beams.
  Calculates deflection, slope, moment, and shear for point, moment and distributed loads applied to propped cantilever beams.
- Propped Cantilever Beams—Trapezoidal Load.
  Calculates deflection, slope, moment and shear for distributed trapezoidal loads applied to propped cantilever beams.
- Six-span Continuous Beams.
  Solves for the intermediate couples present at the supports of continuous beams. Two to six spans are allowed.
- Steel Column Formula.
  Computes allowable loads for steel columns. Column ends must be constrained by welds, rivets or in some other means which prevents deflection and rotation.
- Reinforced Concrete Beams.
  Solves interchangeably between steel area, width, depth, concrete strength, steel strength and internal moment for reinforced concrete beams. Base on the American Concrete Institute code—ACI 318-71.
- Bolt Torque.
  Calculates the torque that will yield a specified bolt load or the load resulting from a specified torque. The shear stress in the bolt may be calculated as an option.

BIBLIOTHÈQUE BÉTON ARMÉ – STRUCTURES (Application Manual)
French version No. 00097-90148
This pac, developed in France, is delivered without magnetic cards.

INGEGNERIA CIVILE 1
Italian version No. 00097-90150
INGEGNERIA CIVILE 2
Italian version No. 00097-90151

GAMES I
No. 00097-13185

- Game of 21.
  This card game is also known as blackjack.
- Dice.
  This includes the game of "Craps" as well as a dice roller.
- Slot machine.
  The familiar one armed bandit.
- Submarine Hunt.
  Find and then sink the moving submarine with your depth charges.
- Artillery.
  Can you locate and destroy the moving target before it destroys you?

- Space War.
  Your mission : Search out and annihilate the 3 evil Alglogs before time and energy are gone.
- Super Bagels.
  Based on "Mastermind". How fast can you guess the secret number?
- Nim$_k$.
  Who will pick the last object from the last pile, you or the machine?
- Queen Board.
  You and the calculator take turns moving a chess queen to its target. The one who moves last, wins.
- Hexapawn.
  You and the 67/97 command armies of 3 chess pawns each. Caution : The calculator learns from its mistakes.
- Tic-Tac-Toe.
  Your best hope is to play the machine to a draw.
- Wari.
  You have a reasonable chance of beating the HP-67/97, but beware of a smart human. This ancient game is also known as Man-Kalah.
- Racetrack.
  Up to 5 players can race. Be alert to the differences between velocity and acceleration.
- Teaser.
  Changing from one pattern to the other looks easy, but…
- Golf.
  The HP Country Club course is challenging, but a duffer with his handicap can beat a champion.
- The Dealer.
  This shuffles and deals a deck of cards to 4 people; it also calls Bingo.
- Bowling Scorekeeper.
  Tired of keeping score and missing the game? Here's your answer for up to 10 bowlers.
- Biorhythm.
  Calculates cycle values for any date, and tells which of the next 33 days are critical, maximum or minimum days.
- Timer.
  Offers 2 visible timers, a count-up and count-down timer, and allows splits to be taken.

NAVIGATION PAC
No. 00097-13205

14 programs on 21 magnetic cards

Course Planning Programs
- Estimated Time of Arrival.
- Great Circle and Rhumb Line Navigation.
- Dead Reckoning.
  Predicts or keeps track of your dead reckoning position.
- Velocity Triangle and Course to Steer.
  An interchangeable solution for the vector addition problem. Also computes course to steer.

Celestial Navigation Programs
- Star Sight Planner (2 cards).
  Produces a list of available stars given location, date and time. Also gives approximate time of middle of morning and evening twilight periods.

- Almanac Interpolator.
  Interpolates in Almanac for position of any body and reduces sight as well. Can be used to compute sextant setting for difficult-to-see objects.
- Sun Line of Position.
  This program is virtually a perpetual Sun almanac.
- Star Line of Position (7 cards).
  This program is virtually a perpetual star almanac. Six data cards contain almanac data on all 57 navigational stars plus Polaris.
- Bearing Line of Position.
  Produces a fix from bearing on two objects. May be used to provide a line of position.

- Two-Angle Line of Position.
  Produces one or two lines of position for the Position Fixing program.
- Fix from Two Lines of Position.
  Uses two lines of position from any combination of above programs to compute a fix. Also computes running fixes.

Miscellaneous Programs
- Radar Plotting Closest Point of Approach.
  Tracks two vessels simultaneously, computing range, bearing, and time of CPA. Also computes new course to steer to avoid another vessel by a specified distance.

- Distance by Horizon Angle.
  Computes the distance to an object of known height either beyond or short of the horizon. Also can be used with vertical angles of objects.
- Beating to Windward.
  From measurements made on your boat, your speed-made-good and course-made-good are calculated. Then time to the lay line, course and speed-made-good on the next tack, and time to the mark are computed.

USERS' LIBRARY SOLUTIONS BOOKS
(these books are delivered without magnetic cards)

HP-67/97 Users' Library Solutions Books are a collection of programs provided by users of these calculators. 20 volumes cover 20 application areas, each containing up to 15 programs without magnetic cards.

BUSINESS

- **Options/Technical Stock Analysis (00097-14009)**
  Put and Call Option Fair Values (Black-Scholes)
  Call Option Evaluation
  Routines for Option Writers
  Empirical CBOE Call Pricing
  Warrant and Option Hedging
  Bull Spread Option Strategy
  Butterfly Options
  Stock Price 30-Week Moving Average with Data Storage
  Exponential Smoothing
  Multiple Linear Regression
  Curve Fitting, Selecting Best Function
* - **Portfolio Management/Bonds and Notes (00097-14010)**
  Stock Portfolio Valuation
  Portfolio Data Card
  Stock Portfolio Beta Coefficient Analysis
  True Annual Growth Rate of an Investment Portfolio
  Convertible Bond Portfolio Premium Evaluation
  Yield on Call Option Sales
  Bond Price and Yield
  Bond Yield to Maturity
  Interest at Maturity/Discounted Securities
  U.S. Treasury Bill Valuation
  Convertible Security Analysis
* - **Real Estate Investments (00097-14012)**
  Mortgage Yield
  Mortgage Pricing No. 1
  Mortgage Pricing No. 2
  Yearly Amortization Schedule
  Amount of Equity at Any Time
  Ellwood Income Valuation for Income Property Appraisal
  Income Property Analysis
  Return on Equity Rental Property
  Real Estate Investment Analysis
  Internal Rate of Return
  Depreciation Schedules

* - **Taxes (00097-14004)**
  11 U.S. programs covering various aspects of tax payments.
* - **Home Construction Estimating (00097-14033)**
  Concrete Volume
  Linear to Board Feet Conversion and Costing
  Framing Board Feet
  Lumber Estimate
  Shingle Estimate
  Wall and Ceiling Estimate
  Wallpaper Estimate
  Drywall and Insulation Estimate
  Sheathing and Subfloor Estimate
  Painting Estimate
  Wood Floor Estimate
- **Marketing/Sales (00097-14032)**
  Forecasting using Exponential Smoothing
  Financial Trend Analysis
  Seasonal Variation Factors (SEVAR)
  Price Elasticity of Demand
  Experience (Learning) Curve for Manufacturing Cost
  Breakeven Analysis
  Income Statement (P & L) Analysis
  Internal Rate of Return-Groups of Cash Flows
  Sales Force Requirements
  Cost and Price Computations
* - **Home Management (00097-14031)**
  Income Tax Planning-I
  True Cost of Insurance Policy
  Automobile Cost/Tire Cost Comparison
  Comparison Shopping
  Time and Charges Running Total
  Reconcile Checking Account
  Savings Account Compounded Daily
  Accumulated Interest/Remaining Balance
  Stock Portfolio Valuation and Data Card
  True Annual Growth Rate of an Investment Portfolio
  Diet Planning

* - **Small Business (00097-14039)**
  Hourly Payroll
  Invoicing
  Account Posting
  Tabulation
  Retail Inventory Monitor
  Estimating Inventory
  Inventory Ordering
  Order Point Calculation
  Depreciation
  Amortization
  Federal Tax
  Working Capital Needs-Bardahl Formula

ENGINEERING

- **Antennas (00097-14021)**
  Loaded Vertical Antennas
  Loaded Dipole Antennas
  Gain of a Horizontal Rhombic Antenna at Zero Azimuth
  Azimuth Pattern of Cylindrical Array of Antennas
  Colinear Antenna Gain and Pattern
  Beam Pattern for Uniform Array
  Radar Antenna Beamwidth and Gain
  Antennas
  Parabolic Antenna Calculations
  RF Path Loss, DB
  Antenna Gain or Power of a Remote Transmitter
  Planar Phased Array Radar Beam Positions
  Radar Parameter Unit Conversions
  (Television) Antenna Length and Channel Frequency
- **Thermal and Transport Sciences (00097-14023)**
  Psychrometric Properties
  Psychrometric Calculations for Water in Air
  Equations of State
  Isentropic Flow for Ideal Gases
  Saturated Steam Properties
  Conduit Flow
  Parallel and Counter Flow Heat Exchangers

Energy Equation for Steady Flow
Flow with a Free Surface
Pipe Slide-Rule
Force at Bends and Fittings
- **EE (Lab) (00097–14025)**
Wire Table
OHM'S Law
Reactance Chart (Nine Equations)
Coil Calculations
Complex Impedance Calcula-
tor—AC Circuit Calculator
Wye-Delta Transformations
RC Timing
Series R-L-C Circuit Analysis
Program
Passive High and Lowpass
Composite Filter Design
''L'' Attenuator (Generator
Impedance Greater than Load
Impedance)
1% Resistor Value Subroutine
Wheatstone Bridge
- **Industrial Engineering
(00097–14035)**
Discounted Cash Flow/Present
Value Analysis
Depreciation Schedules
Invoicing and Inventory Control
Production Monitor and Record
Learning Curve
x and R Control Chart
Single- and Multi-Server Queues
Two Way-Analysis of Variance
with Replications Fixed Effects
Model
Multiple Linear Regression for
3 Independent Variables
Simultaneous Equations in
Six Unknowns
- **Beams and Columns
(00097–14027)**
Compressive Buckling
Eccentrically Loaded Columns
Reinforced Concrete Beams
Concrete Beam Deflection
Torsion-Concentrated Load-
Steel Beams (Wide Flange)
Torsion-Uniform Load-Steel
Beams (Wide Flange)
A.I.S.C. Steel Column Formula
Concrete Columns Ultimate
Strength Design
Column Strength
Beam on Elastic Foundation
with Point Load-Any Location
- **Control Systems (00097–14026)**
Frequency Response of a
Transfer Function
Bode of Transfer Function that
has each Pole and Zero Given
Bode of Second-Order over
Third-Order Transfer Function
Bode of Second-Order over
Second-Order Times s* 'n

Transfer Function
Pole-Zero to Group Delay
Routh Test for Continuous and
Discrete Time System Analysis
Convert Frequency Response—
Open Loop Closed Loop
Aid to Root Locus Plots I—
Real Poles
Aid to Root Locus Plots II—
Complex Poles
Classical Control Gains
First Order Regulator
Second Order Regulator

COMPUTATION

- **High-Level Math (00097–14011)**
Eigenvalues for 3rd Order
System
Eigenvalues/Vectors of 3rd Order
Systems
Matrix Algebra
Characteristic Equation of a
4 × 4 Matrix
One Card Determinant and
Inverse of a 5 × 5 Matrix
Simultaneous Equations in
Six Unknowns
Roots of Polynomials
Miscellaneous Special Func-
tions A
Miscellaneous Special Func-
tions B
Incomplete Gamma Function
Incomplete Beta Function
Incomplete Elliptic Integrals
- **Test Statistics (00097–14008)**
One Sample Test Statistics for
the Mean
Test Statistics for the Correlation
Coefficient
Differences Among Proportions
Behrens-Fisher Statistic
Kruskal-Wallis Statistic
Mean-Square Successive
The Run Test for Randomness
Intraclass Correlation Coefficient
Fisher's Exact Test for a
2 × 2 Contingency Table
Bartlett's Chi-Square Statistic
Mann-Whitney Statistic
Kendall's Coefficient of
Concordance
- **Geometry (00097–14007)**
Sine Plates Solutions
V Notches and Long Radii
Internal and External Tapers
Points of Tangency with
Circles and Arcs
Line-Line Intersection/Grid
Points
Points on a Straight Line
Grid of Points : Calculates All
Points

Grid of Points : Calculates
Discrete Points
Tangent Circle to Two Straight
Lines with a Given Radius
Distance between Lines in Space

PHYSICAL/LIFE SCIENCES

- **Chemistry (00097–14006)**
pH of Weak Acid/Base Solutions
Acid-Base Equilibrium (Diprotic)
Weak Acid/Base Titration Curve
Equations of State
Van Der Waals Gas Law
Beer's Law and Absorbtivity
Calculations
Activity Coefficients from
Potentiometric Data
Crystallographic to Cartesian
Coordinate Transformations
Kinetics using Lineweaver-
Burk or Hofstee Plots
Mixture Viscosities
Vapor Pressure, Bubble and
Dew Point Calculation
Single-Stage Equilibrium
Calculation
- **Energy Conservation
(00097–14029)**
Air Cooling System Design
Black Body Thermal Radiation
Economic Insulation Thickness
Heat Transfer through Composite
Cylinders and Walls
Steady State Conduction Heat
Transfer, Heat Load and
Logarithmic Mean Temperature
Difference
Sun Altitude, Azimuth, Solar
Pond Absorption
Total Daily Amount of Solar
Radiation
Temperature or Concentration
Profile for a Semi-Infinite Solid
Transient Temperature Distribu-
tion in a Semi-Infinite Solid
Conservation of Energy

OTHER

- **Games (00097–14013)**
Risk
Blackjack with a Permanent Bank
Bell-Fruit (Mills Standard)
Turn the Die
Word Encoder
Word Game Subroutine
Hangman Word Game
Pro Football Simulation
Electronic Contract Bridge Score
Pad
Duplicate Bridge Score with
Running Totals
Battleship

SERIES E

For the HP-33E/C, HP-34C, HP-37E, HP-38E/C:

A Standard Applications Book for each model provides ready-
ritten solutions to a variety of multi-disciplinary problems.
Optional Application Books provide ready-written solutions in the
the specialised fields of Student Engineering, Mathematics,
Statistics, and Surveying.

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(00033-90030)

includes fifteen programs in the
fields of algebra and number
theory, numerical methods and
analytical geometry.

HP-33E/33C Statistics
(00033-90031)

includes 16 programs in general
statistics, probability, distributions,
curve fitting and test statistics.

HP-33E/33C Surveying
(00033-90033)†

includes 14 programs, using North
American surveying conventions,
in traverses, inverses, sideshots,
intersections, curves, earthworks
and more.

HP-33E/33C Student
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has 14 programs demonstrating
concepts in electrical engineering,
heat and thermal engineering,
mechanical engineering, stress
analysis and engineering
economics.

HP-34C Student
Engineering (00034-90035)†

Electricity: ohm's law, reactance
chart, impedance of a ladder net-
work, series-parallel resistor addi-
tion and standard resistance values.
Thermal: ideal gas equation of
state.
Transport: conduit flow.
Mechanical: equation of motion,
kinetic energy.
Structural: Mohr circle for stress,
simply supported beams sections
properties, static equilibrium at a
point.
(Will be available in French and
German).

HP-34C Mathematics
(00034-90032)

covers various fields of
mathematics such as matrix
operations, integration by discrete
points, vector operation, analytical
geometry, etc…

HP-34C Statistics
(00034-90033)

offers advanced programs such
as permutations, combinations,
distribution (t, F, Poisson), con-
tingency, table, Spearman's Rank
correlation coefficient, etc…

HP-34C Surveying
(00034-90034)†

includes 13 programs, using North
American surveying convention in
traverses, inverses, sideshots,
intersections, curves, earthwork.

† Conform to U.S.A. practice

HP-37E, HP-38E, HP-38C Marketing and Forecasting, 00038-90049

Forecast: moving average, seasonal variation factors, exponential curve fit, gompertz curve trend analysis, forecasting with exponential smothing.
Finance: breakeven analysis, operating leverage, profit and loss analysis.
Pricing: markup, margin, list and net prices with discounts
Miscellaneous: learning curve, queuing and waiting line theory, cash flow loader, percentage tabulator.
(Will be available in French and German).

HP-37E, HP-38E, HP-38C Lending, Saving and leasing (00038-90025)†

covers annual percentage rate calculations, rule of 78's, add-on to APR rate conversion, savings with variations in compounding periods, credit, life insured loans and more.

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Personal finance

covers portfolio evaluation, bond purchased between coupons, and various U.S. personal finance calculations.

HP-37E, HP-38E, HP-38C (00038-90025)†
Real estate I

includes routines for variations in mortgage problems, equity investment analysis, depreciation, appreciation, appraisal and more.

HP-37E, HP-38E, HP-38C (00038-90051)†
Real Estate II

covers annual property cash flow analysis, mortgage-equity (Ellwood) analysis, and investment and feasibility analysis.

HP-41C Accessories: Those Needed Extras

As an added support feature, HP offers a complete line of hardware accessories for the HP-41C. Keep your calculator at peak operating efficiency with:

HP-41C Accessories
82111A Vinyl Case
82152A Overlay Kit
82151A Module Holder
00041-15001 Standard Applications Module

Printer Accessories
82045A Thermal Paper
82033A Battery Pack
82067B Recharger (230 V-UK plug)
82066B Recharger (220 V-Euro plug)
82044A Security Cable
82037A Reserve Power Pack

Card Reader Accessories
Blank Cards
00097-13141 40-Pac (with holder)
00097-13143 120-Pac (with holders)
00097-13206 1000-Pac
00097-13142 3 Card Holders

HP-67/HP-97 Accessories

Optional Accessories

These optional accessories have been created to help you maximize the usability and convenience of your calculator.

HP-67

Security Cradle 82015A
Reserve Power Pack 82004A
Field Case 82016A

HP-97

Security Cable 82044A
Reserve Power Pack 82037A
Paper Rolls 82045A

HP-67/97 Common Accessories

Programming Pad 00097-13154
Blank Magnetic Cards 00097-13141
Multiple Card Packs 00097-13143
Program Card Holders 00097-13142

Accessories for Series E Calculators

With HP accessories, you can take full advantage of your calculator.

Standard Accessories

82109B Battery Pack
82089B Adaptor/recharger 230 V a.c. U.K. plug
82090B European plug
82110A Soft vinyl case

Optional Accessories

Reserve Power Pack (82103A)

comes with an extra battery pack and attaches to the recharger supplied with your calculator. Allows you to recharge a battery pack outside your calculator so you always have a fresh pack.
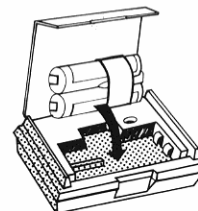
DC Adaptor/Recharger (82144A)

lets you operate and recharge your calculator in a car, boat, or anywhere a 10–16 V d.c. supply is available.
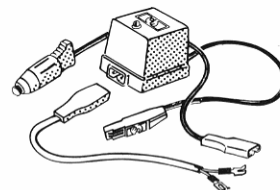
Recharger/AC Adaptor for 110 V US plug (82087B)

for the international traveller who uses his calculator in locations where 110 V a.c. is available. Comes with U.S. flat pin connector only.