HP-65

SOFTWARE

To concentrate the capabilities of the HP-65 in your field of interest, you can select from this range of pre-recorded magnetic program cards packaged in the form of Application Pacs. Each Pac contains up to 40 program cards*, a detailed manual on the Pac and a set of Pocket Instruction Cards for listing your program instructions.

As an alternative to the Pacs, the European Users Library offers a choice of hundreds of programs written by HP-65 users themselves. These programs, because they are user-defined, deal with specific applications in depth.

Programmability of the HP-65 kind, demands support. These 15 Application Pacs, plus the ever-expanding Users Library, ensure that the support is there, at your fingertips, should you have need of it.

*Surveying and Numerical Control come complete with 40 blank magnetic cards.

EE PAC 1
00065-67007

Thirty-five programs (40 pre-recorded cards) provide functions for use in electronic and electrical engineering projects. Topics addressed include impedance matching filter design; transmission calculation; parameter conversion; power supply design; transistor biasing; control system and waveform analyses. The programs are:

- REACTANCE CHART
- IMPEDANCE OF LADDER NETWORK
- TRANSMISSION LINE IMPEDANCE TRANSFORMATION
- S ⇄ Y PARAMETER CONVERSION
- FOURIER SERIES
- SERIES RESONANT CIRCUIT
- PARALLEL RESONANT CIRCUIT
- T ATTENUATOR
- PI ATTENUATOR
- WYE-DELTA OR DELTA-WYE
- TRANSFORMATION
- MINIMUM-LOSS PAD MATCHING
- PI NETWORK IMPEDANCE MATCHING
- BAND PASS FILTER DESIGN
- ACTIVE FILTER–LOW PASS
- ACTIVE FILTER–HIGH PASS
- BUTTERWORTH FILTER
- CHEBYSHEV FILTER
- CAPACITANCE OF PARALLEL PLATES
- SELF-INDUCTANCE OF STRAIGHT ROUND WIRE
- INDUCTANCE OF A SINGLE-LAYER CLOSE-WOUND COIL
- SKIN EFFECT AND COIL Q
- TRANSFORMER DESIGN
- REED RELAY DESIGN
- IMPEDANCE OF TRANSMISSION LINE
- MICROSTRIP TRANSMISSION LINE
- POWER SUPPLY RECTIFIER CIRCUITS
- CONTROLLED RECTIFIER CIRCUITS
- INTEGRATED CIRCUIT CURRENT SOURCE
- TRANSISTOR BIAS
- JFET BIAS AND TRANSCONDUCTANCE
- PHASE-LOCKED LOOP
- DECIBEL CONVERSION
- VOLTAGE TO dBm
- WIRE TABLES Al & ANNEALED Cu
- HEAT SINKS

EE PAC 2 (Microwave)
00065-67056

Twenty-seven programs (40 pre-recorded cards) will assist the microwave circuit designer in making microwave measurements, designing transistor amplifiers, computing transmission line properties and certain system properties, and performing difficult related mathematical operations.

- MISMATCH ERROR LIMITS
- MULTIPLE MISMATCH ERROR LIMIT
- SMITH CHART: RADIALLY SCALED PARAMETERS
- SMITH CHART: IMPEDANCE ⇄ REFLECTION COEFFICIENT
- MICROSTRIP CALCULATIONS
- TRANSMISSION LINE CALCULATIONS
- CUTOFF FREQUENCY IN COAX
- RECTANGULAR WAVEGUIDE CALCULATIONS
- FREQUENCY CONVERSIONS
- PULSE SPECTRUM ANALYSIS
- SPURIOUS RESPONSES
- FM SIDEBAND LEVEL
- MODULATION INDEX FOR SPECIFIED CARRIER SUPPRESSION
- CONSTANT-EXCESS NOISE MEASUREMENT
- NOISE FIGURE OF CASCADED NETWORKS
- IMPEDANCE MATCHING
- UNILATERAL DESIGN: FIGURE OF MERIT, MAXIMUM UNILATERAL GAIN
- UNILATERAL DESIGN: GAIN CIRCLES
- UNILATERAL DESIGN: NOISE FIGURE CIRCLES
- BILATERAL DESIGN: STABILITY FACTOR, MAXIMUM GAIN, OPTIMUM MATCHING
- BILATERAL DESIGN: GAIN CIRCLES
- BILATERAL DESIGN: STABILITY CIRCLES
- LOAD AND SOURCE MAPPING
- LINEAR AND LAGRANGIAN INTERPOLATION
- PARAMETER CONVERSION: S⇄Y, Z, G, H
- PARAMETER CONVERSION: S ⇄ T
- COMPLEX MATRIX OPERATIONS

To help you obtain the full potential of the HP-65 ... a continuing program of information and assistance has been initiated.

The Users' Library provides a low-cost way to obtain documentation for any of the hundreds of programs contributed by HP-65 users, which you can record on blank program cards. *The Catalogue of User Contributed Programs* lists and describes the programs currently available, and is updated periodically. A year's subscription to the Catalogue of User Contributed Programs is given free to each HP-65 purchaser.

The HP-65 Newsletter – "Users' News" – announces new Application Pacs, describes new HP-65 accessories, passes along programming tips and carries other news and information of interest to HP-65 users. You'll receive this "Newsletter" without cost.

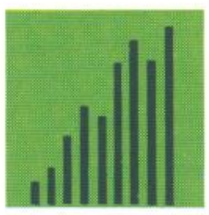
Assistance on the Operation of the HP-65 and information on its capability are available from Hewlett-Packard, by phone or by mail.

FINANCE PAC 1

00065-67044

These 38 programs (on 40 pre-recorded cards) help give you fast answers to complex problems in investment analysis, loans, leasing, savings and annuities, business statistics and other business and financial applications. Included are programs for:

- COMPOUND AMOUNT
- DIRECT REDUCTION LOAN
- DIRECT REDUCTION LOAN WITH BALLOON PAYMENT
- SINKING FUND
- PERIODIC SAVINGS, ANNUITY DUE
- PRESENT VALUE, ANNUITY DUE
- PRESENT VALUE, ANNUITY DUE WITH BALLOON PAYMENT
- SAVINGS-COMPOUNDING PERIODS DIFFERENT FROM PAYMENT PERIODS
- NOMINAL TO EFFECTIVE/EFFECTIVE TO NOMINAL RATE CONVERSION
- DIRECT REDUCTION LOAN; ACCUMULATED INTEREST/REMAINING BALANCE
- DIRECT REDUCTION LOAN; AMORTIZATION SCHEDULE
- ADD-ON RATE INSTALLMENT LOAN
- CONSTANT PAYMENT TO PRINCIPAL LOAN AMORTIZATION SCHEDULE
- INTEREST REBATE–RULE OF 78'S
- INTERNAL RATE OF RETURN, UNEVEN CASH FLOWS
- DISCOUNTED CASH FLOW ANALYSIS, NET PRESENT VALUE
- STRAIGHT LINE DEPRECIATION SCHEDULE
- SUM-OF-THE-YEAR'S DIGITS DEPRECIATION SCHEDULE
- VARIABLE RATE DECLINING BALANCE DEPRECIATION SCHEDULE
- CROSSOVER POINT-DECLINING BALANCE TO STRAIGHT LINE
- DAYS BETWEEN DATES
- BOND PRICE AND YIELD
- ACCRUED SIMPLE INTEREST
- LINEAR REGRESSION (Trend Line)
- EXPONENTIAL CURVE FIT (Growth Curve)
- TOTAL, AVERAGE AND PERCENT OF TOTAL
- MOVING AVERAGES
- INVOICING



STAT PAC 1

00065-67005

Basic and advanced functions–37 programs (40 pre-recorded cards)–selected from the areas of general statistics; distribution functions; curve fittings; and test statistics. Programs included in this Pac are:

- MEAN, STANDARD DEVIATION, STANDARD ERROR
- RANDOM NUMBER GENERATOR
- ANALYSIS OF VARIANCE (One Way)
- MULTIPLE LINEAR REGRESSION
- 2 x k CONTINGENCY TABLE
- SUMS FOR TWO VARIABLES
- BASIC STATISTICS (Two Variables)
- MEAN, STANDARD DEVIATION, STANDARD ERROR (Grouped Data)
- PERMUTATION AND COMBINATION ARITHMETIC, GEOMETRIC, HARMONIC AND GENERALISED MEANS
- MOMENTS, SKEWNESS AND KURTOSIS (Grouped or Ungrouped Data)
- NORMAL DISTRIBUTION
- INVERSE NORMAL INTEGRAL
- CHI-SQUARE DISTRIBUTION
- t DISTRIBUTION
- F DISTRIBUTION
- BIVARIATE NORMAL DISTRIBUTION
- LOGARITHMIC NORMAL DISTRIBUTION
- WEIBULL DISTRIBUTION
- BINOMIAL DISTRIBUTION
- NEGATIVE BINOMIAL DISTRIBUTION
- HYPERGEOMETRIC DISTRIBUTION
- POISSON DISTRIBUTION
- LINEAR REGRESSION
- EXPONENTIAL CURVE FIT
- POWER CURVE FIT
- LOGARITHMIC CURVE FIT
- LEAST SQUARES REGRESSION OF $y = cx^a + dx^b$
- PARABOLIC CURVE FIT
- PAIRED t STATISTIC
- t STATISTIC FOR TWO MEANS
- CHI-SQUARE EVALUATION
- BARTLETT'S CHI-SQUARE STATISTIC
- SPEARMAN'S RANK CORRELATION COEFFICIENT
- MANN-WHITNEY STATISTIC
- KENDALL'S COEFFICIENT OF CONCORDANCE
- BISERIAL CORRELATION COEFFICIENT

STAT PAC 2

00065-67053

Thirty-one programs (40 pre-recorded cards) provide solutions in the areas of general statistics, distribution functions, curve fitting, analysis of variance, test statistics, probability, quality control, and queuing theory.

- PARTIAL AND MULTIPLE CORRELATION COEFFICIENTS
- MOVING AVERAGES (Order 2 to 8)
- HISTOGRAM (12 Intervals)
- F DISTRIBUTION WITH ODD DEGREES OF FREEDOM
- ERLANG DISTRIBUTION (Gamma Distribution)
- GEOMETRIC CURVE FIT
- GOMPERTZ CURVE FIT
- WEIBULL DISTRIBUTION PARAMETER CALCULATION
- WEIGHTED REGRESSION (Special Case)
- POLYNOMIAL APPROXIMATION
- TWO WAY ANALYSIS OF VARIANCE (No Replications)
- TWO WAY ANALYSIS OF VARIANCE (With Replications)
- LATIN SQUARE
- ANALYSIS OF COVARIANCE (One Way)
- 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 DIFFERENCE
- 3 x K CONTINGENCY TABLE
- THE RUN TEST FOR RANDOMNESS
- INTRACLASS CORRELATION COEFFICIENT
- FISHER'S EXACT TEST FOR A 2x2 CONTINGENCY TABLE
- PROBABILITY OF NO REPETITIONS IN A SAMPLE (Birthday Problem)
- $\bar{x}$ and R CONTROL CHARTS
- p AND c CONTROL CHARTS
- OPERATING CHARACTERISTIC CURVE (Type A)
- OPERATING CHARACTERISTIC CURVE (Type B)
- SINGLE- AND MULTI-SERVER QUEUES (Infinite Customers)
- SINGLE- AND MULTI-SERVER QUEUES (Finite Customers)

MATH PAC 1

00065-67001

This basic series of 40 programs (on 40 pre-recorded cards) speeds the handling of problems in algebra, trigonometry, analytic geometry and calculus. It covers:

- HYPERBOLIC FUNCTIONS
- FIRST ORDER DIFFERENTIAL EQUATION
- SOLUTION OF A TRIANGLE (Given a, b, c or a, b, C)
- 3x3 MATRIX INVERSION
- FIFTH DEGREE POLYNOMIAL EQUATION
- FACTORS OF INTEGER
- GREATEST COMMON DIVISOR, LEAST COMMON MULTIPLE
- ARITHMETIC AND HARMONIC PROGRESSIONS
- GEOMETRIC PROGRESSION
- FUNCTIONS OF x AND y
- QUADRATIC EQUATION
- CUBIC EQUATION
- FOURTH DEGREE POLYNOMIAL EQUATION
- SIMULTANEOUS EQUATIONS IN TWO UNKNOWNS
- SIMULTANEOUS EQUATIONS IN THREE UNKNOWNS
- SYNTHETIC DIVISION
- RECTANGULAR, SPHERICAL CONVERSIONS
- TRANSLATION AND/OR ROTATION OF COORDINATE AXES
- ANGLE CONVERSIONS
- SECONDARY VALUES OF $\sin^{-1}$, $\cos^{-1}$, $\tan^{-1}$
- TRIGONOMETRIC FUNCTIONS
- INVERSE HYPERBOLIC FUNCTIONS
- SOLUTION OF A TRIANGLE (Given a, A, C or a, B, C)
- SOLUTION OF A TRIANGLE (Given B, b, c)
- SPHERICAL TRIANGLES
- AREA OF A TRIANGLE
- AREA OF A POLYGON
- CIRCLE DETERMINED BY THREE POINTS
- EQUALLY SPACED POINTS ON A CIRCLE
- POLYGONS INSCRIBED IN AND CIRCUMSCRIBED ABOUT A CIRCLE
- UNIT CONVERSIONS: C→F; ft, in→cm; lb→kg
- UNIT CONVERSIONS: mi→km; gal→ltr; yd→m; ac→ft^2
- POLYNOMIAL EVALUATION (Real)
- LINEAR AND LAGRANGIAN INTERPOLATIONS
- FINITE DIFFERENCE INTERPOLATION
- NUMERICAL INTEGRATION (Discrete Case)
- SIMPSON'S RULE FOR NUMERICAL INTEGRATION
- ROOTS OF f(X)=0 IN AN INTERVAL
- DETERMINANT AND CHARACTERISTIC EQUATION OF A 3 x 3 MATRIX
- 2 x 2 MATRIX OPERATIONS
- COMPLEX INVERSE TRIGONOMETRIC AND HYPERBOLIC FUNCTIONS
- OCTAL ARITHMETIC
- INTEGER BASE CONVERSION
- COMPLEX FUNCTIONS z^n, z^1/w
- COMPLEX FUNCTIONS e^z, ln z, a^z, $\log_a z$
- COMPLEX FUNCTIONS z^w, z^1/w, $\log_2 w$
- POLYNOMIAL EVALUATION (Complex)
- INTERSECTIONS OF A LINE AND A CONIC SECTION
- VECTOR PRODUCTS AND ANGLE BETWEEN VECTORS
- PARTIAL SUM AND PARTIAL PRODUCT
- GAUSSIAN QUADRATURE FOR $\int_a^\infty f(x)dx$
- KELVIN FUNCTIONS
- EULER Φ FUNCTION
- GAMMA FUNCTION
- INCOMPLETE GAMMA FUNCTION
- ERROR FUNCTION AND COMPLEMENTARY ERROR FUNCTION
- CONFLUENT HYPERGEOMETRIC FUNCTION
- GAUSSIAN HYPERGEOMETRIC FUNCTION
- CHEBYSHEV POLYNOMIAL
- LEGENDRE POLYNOMIAL
- HERMITE POLYNOMIAL
- LAGUERRE POLYNOMIAL
- SINE INTEGRAL
- COSINE INTEGRAL
- EXPONENTIAL INTEGRAL
- FRESNEL INTEGRALS

SURVEYING PAC 1* U.K. version

00065-67021

Permits the rapid solution of calculations needed in the field, such as:

- SUMMATION OF TRAVERSE ANGLES
- BEARING AND DISTANCE FROM COORDINATES AND VICE VERSA
- TRAVERSE USING INTERNAL ANGLES
- TRAVERSE BY BEARINGS
- COORDINATES OF OFFSET POINTS
- INTERSECTION OF TWO STRAIGHT LINES
- SOLUTION OF A TRIANGLE USING ANGLES
- SOLUTION OF A TRIANGLE USING BEARINGS
- POINT COORDINATION USING MEASURED LENGTHS
- STADIA TACHOMETRY
- COSINE FORMULA
- INTERPOLATION OF HEIGHT IN A SQUARE
- INTERPOLATION OF HEIGHT IN A TRIANGLE
- AREA FROM COORDINATES
- CROSS SECTION AREA – UNEQUAL SIDE SLOPES
- VOLUME FROM GRID OF LEVELS
- RESECTION
- CHANGE OF GRID
- REDUCTION OF EDM MEASUREMENTS TO THE SPHEROID
- TRIGONOMETRICAL HEIGHTING
- REFRACTIVE INDEX – RADIO WAVES
- REFRACTIVE INDEX – LIGHT WAVES
- SCALE FACTOR
- (t–T) CORRECTION
- AZIMUTH BY ALTITUDE
- ELEMENTS AND COORDINATES ON A CIRCULAR CURVE
- COORDINATES ROUND A CLOTHOID CURVE
- CLOTHOID DEFLECTION ANGLES
- VERTICAL CURVE HEIGHTS
- INTERSECTION BY VARIATION OF COORDINATES
- LEAST SQUARES STRAIGHT LINE FIT

MATH PAC 2

00065-67002

A variety of advanced mathematical functions is provided by the 37 programs (40 pre-recorded cards) in this Pac. The programs are:

- BASE CONVERSION
- COMPLEX FUNCTIONS $|z|$, z^2, $\sqrt{z}$, $1/z$
- GAUSSIAN QUADRATURE FOR $\int_a^b f(x)dx$
- BESSEL FUNCTION $J_n(x)$
- COMPLETE ELLIPTIC INTEGRALS
- COMPLEX ARITHMETIC
- COMPLEX TRIGONOMETRIC AND HYPERBOLIC FUNCTIONS

STRESS ANALYSIS PAC 1

00065-67051

25 programs (on 39 pre-recorded cards) designed to aid the engineer in the calculation of the properties of structural elements. Topics addressed include vector statics, section properties, interference fits, stress analysis, flat plates, beams and columns. Programs included in this Pac are:

- TWO DIMENSIONAL VECTOR OPERATIONS
- STATIC EQUILIBRIUM OF A POINT
- STATIC EQUILIBRIUM OF A RIGID BODY
- PROPERTIES OF RECTANGULAR SECTIONS
- PROPERTIES OF CIRCULAR SECTIONS
- PROPERTIES OF ANNULAR SECTIONS
- COMPOSITE SECTION PROPERTIES
- BENDING STRESS IN BEAMS OR TORSIONAL SHEAR STRESS IN CIRCULAR SHAFTS
- LINEAR OR ANGULAR DEFORMATION OF A SHAFT
- THIN-WALLED PRESSURE VESSELS
- STRESS IN THICK-WALLED CYLINDERS
- INTERFERENCE FITS
- MOHR CIRCLE FOR STRESS
- SODERBERG'S EQUATION FOR FATIGUE
- CIRCULAR PLATES WITH SIMPLY SUPPORTED EDGES
- CIRCULAR PLATES WITH FIXED EDGES
- RECTANGULAR PLATES (SIMPLY SUPPORTED AND WITH FIXED EDGES)
- COMPRESSIVE BUCKLING
- ECCENTRICALLY LOADED COLUMNS
- RECTANGULAR, REINFORCED CONCRETE SECTIONS
- BOLT TORQUE

The next four programs calculate deflection, slope, moment, and shear for various beam geometries.

- CANTILEVER BEAMS
- SIMPLY SUPPORTED BEAMS
- BEAMS FIXED AT BOTH ENDS
- BEAMS FIXED AT ONE END AND SIMPLY SUPPORTED AT THE OTHER

CHEMICAL ENGINEERING PAC 1

00065-67050

18 programs (on 40 pre-recorded cards) designed to aid the engineer in thermodynamic and transport process calculations. Topics addressed include P-V-T gas relations, gas dynamics, incompressible flow, heat exchangers, heat conduction, black body radiation, and curve fitting.

- IDEAL GAS EQUATION OF STATE
- REDLICH–KWONG EQUATION OF STATE
- REVERSIBLE POLYTROPIC PROCESS FOR AN IDEAL GAS
- ISENTROPIC FLOW FOR IDEAL GASES
- ONE DIMENSIONAL NORMAL SHOCKS FOR IDEAL GASES
- FLUID TRANSPORT NUMBERS (NUSSELT–HEAT & MASS, REYNOLDS, STANTON, LEWIS, SCHMIDT, BIOT, AND PRANDTL)
- FANNING FRICTION FACTOR AND CONDUIT FLOW
- CONSERVATION OF ENERGY
- VON KÁRMÁN ANALOGY FOR HEAT AND MASS TRANSFER
- HEAT EXCHANGER ANALYSIS (HEAT TRANSFER AND EFFECTIVENESS FOR CROSS-FLOW, COUNTER-FLOW, PARALLEL-FLOW AND PARALLEL-COUNTER-FLOW HEAT EXCHANGERS)
- HEAT TRANSFER THROUGH COMPOSITE CYLINDERS AND WALLS
- STRAIGHT FIN EFFICIENCY
- NATURAL CONVECTION (ESTIMATE COEFFICIENTS FOR VERTICAL CYLINDERS AND WALLS, AND HORIZONTAL CYLINDERS AND PLATES)
- BLACK BODY THERMAL RADIATION TEMPERATURE OR CONCENTRATION PROFILE FOR A SEMI-INFINITE SOLID
- HYDROCARBON COMBUSTION
- CURVE FITTING (LINEAR, EXPONENTIAL, AND POWER)
- UNIT CONVERSIONS

MACHINE DESIGN PAC 1

00065-67052

Thirty-five programs (40 pre-recorded cards) provide solutions for the machine designer in dynamics, vibrations, linkages, cams, gears, springs, power transmission, and machine geometries.

- CONSTANT ACCELERATION–TIME
- CONSTANT ACCELERATION–VELOCITY
- KINETIC ENERGY
- FREE VARIATIONS
- VIBRATION FORCED BY $F_0 \cos \omega t$
- FORCED OSCILLATOR WITH ARBITRARY FUNCTION
- FOURIER SERIES
- CRITICAL SHAFT SPEED
- FOUR BAR FUNCTION GENERATOR
- PROGRESSION OF FOUR BAR SYSTEM
- LINEAR PROGRESSION OF SLIDER CRANK
- ANGULAR PROGRESSION OF SLIDER CRANK
- CAM DATA STORAGE
- HARMONIC CAM DESIGN–RADIAL ROLLER FOLLOWER
- HARMONIC CAM DESIGN–FLAT FACED FOLLOWER
- ROLLER FOLLOWER CAM FUNCTION GENERATOR
- FLAT FACED FOLLOWER CAM FUNCTION GENERATOR
- LINEAR CAM FUNCTION GENERATOR
- SPUR GEAR REDUCTION DRIVE
- STANDARD EXTERNAL INVOLUTE SPUR GEARS
- SPUR/HELICAL GEAR FORCES
- BEVEL GEAR FORCES
- WORM GEAR FORCES
- SPRING CONSTANT
- HELICAL SPRING DESIGN
- TORSION SPRING DESIGN
- FLAT SPRING DESIGN
- CONE AND PLATE CLUTCHES
- POWER SCREWS
- RPM/TORQUE/POWER
- LINE–LINE INTERSECTION/GRID POINTS
- CIRCLE–LINE INTERSECTION
- CIRCLE–CIRCLE INTERSECTION
- POINTS ON A CIRCLE
- BELT LENGTH

AVIATION PAC 1

00065-67042

Here are 29 programs (31 cards) for flight and preflight calculations–primarily for the private and business pilot, but also being used by many airline pilots. Included are:

- AIRCRAFT FLIGHT PLAN WITH WIND
- FLIGHT MANAGEMENT
- PREDICTING FREEZING LEVELS
- GENERAL AIRCRAFT WEIGHT AND BALANCE
- CUSTOMIZED WEIGHT AND BALANCE
- TURN PERFORMANCE
- RATE OF CLIMB AND DESCENT
- HEAD WINDS AND CROSSWINDS
- FLIGHT PLANNING AND FLIGHT VERIFICATION
- DETERMINING IN-FLIGHT WINDS
- STANDARD ATMOSPHERE (For altitudes 0-36089 and 36089-82000 ft)
- MACH NUMBER AND TRUE AIRSPEED
- TRUE AIR TEMPERATURE AND DENSITY ALTITUDE
- LOWEST USABLE FLIGHT LEVEL
- GREAT CIRCLE PLOTTING
- RHUMBLINE NAVIGATION
- GREAT CIRCLE NAVIGATION
- POSITION, GIVEN HEADING, SPEED AND TIME
- LINE OF SIGHT DISTANCE
- POSITION BY TWO VORS
- NAVIGATION BY TWO VORS
- POSITION BY ONE VOR
- DME SPEED CORRECTION
- AVERAGE WIND VECTOR
- COURSE CORRECTION
- TIME OF SUNRISE AND SUNSET
- AZIMUTH OF SUNRISE AND SUNSET
- PILOT UNIT CONVERSIONS
- CUSTOMIZED UNIT CONVERSIONS

NAVIGATION PAC 1

00065-67045

Written for marine navigators but also useful to the land or air navigator, these 26 programs (40 cards) assist the navigator in piloting, dead reckoning, celestial navigation, and relative motion problems. The Pac includes:

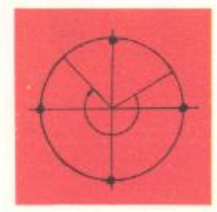
- GREAT CIRCLE COMPUTATION
- LONG-TERM ARIES ALMANAC
- 1974-1975 SUN ALMANAC
- LONG-TERM STAR ALMANAC
- ALMANAC POSITIONS
- SIGHT REDUCTION TABLE
- MANOEUVERING RELATIVE TO ANOTHER VESSEL
- LENGTH CONVERSIONS
- SPEED, TIME, AND DISTANCE
- TIME-ARC CONVERSION
- PROPELLER SLIP
- FUEL CONSUMPTION
- DISTANCE TO OR BEYOND HORIZON
- DISTANCE BY HORIZON ANGLE AND DISTANCE SHORT OF HORIZON
- DEAD RECKONING
- RHUMBLINE NAVIGATION
- GREAT CIRCLE NAVIGATION
- COMPOSITE SAILING
- SEXTANT ALTITUDE CORRECTIONS
- SUNRISE, SUNSET, AND TWILIGHT
- MOST PROBABLE POSITION
- FIX BY TWO OBSERVATIONS
- FIX BY THREE OBSERVATIONS
- DISTANCE OF AN OBJECT BY TWO BEARINGS
- VECTOR ADDITION
- VELOCITY TO CHANGE RELATIVE POSITION

MEDICAL PAC 1

00065-67004

This Pac of 27 programs (38 pre-recorded cards) allows for the following types of medical calculations: unit conversions; ventilator set-up and calibration; analysis of cardio-pulmonary function; acid-base balance, blood gases; and respiratory status.
The Pac contains:

- WEIGHT CONVERSIONS
- LENGTH CONVERSIONS
- VOLUME CONVERSIONS
- ENGLISH-METRIC CONVERSIONS
- PATIENT IDENTIFICATION
- MALE PULMONARY FUNCTIONS
- FEMALE PULMONARY FUNCTIONS
- LUNG DIFFUSION
- RESPIRATORY GAS CONVERSIONS
- VENTILATOR SETUP
- Pa CO_2 NORMALIZATION
- BLOOD ACID-BASE STATUS
- VIRTUAL PO_2
- OXYGEN SATURATION AND CONTENT
- ANAEROBIC PCO_2 AND pH CHANGE
- ANAEROBIC PO_2 CHANGE
- DEAD SPACE FRACTION
- A-a O_2 DIFFERENCE
- PHYSIOLOGIC SHUNT AND FICK
- DUBOIS BODY SURFACE AREA
- BOYD BODY SURFACE AREA
- DYE CARDIAC OUTPUT
- FICK CARDIAC OUTPUT
- VALVE AREA
- ANATOMIC SHUNTS
- CONTRACTILITY
- STROKE WORK



NUMERICAL CONTROL PAC 1*

00065-67055
(French only)

Thirty-three programs that perform calculations of points and intersections of lines and circles, calculations of circles and translations.

- POINTS – CARTESIAN COORDINATES
- POINTS – POLAR COORDINATES
- INTERSECTION OF TWO LINES
- INTERSECTION OF A LINE AND A CIRCLE
- INTERSECTION OF TWO CIRCLES
- POINTS ON A LINE
- POINTS ON A CIRCLE
- POINTS EQUIDISTANT ON A CIRCLE
- POINTS ON A GRID (all points)
- POINTS ON A GRID (defined)
- DEFINED POINTS ON A CIRCLE
- DEFINING A TANGENT (know point and circle)
- CIRCLE DEFINED BY THREE POINTS
- CIRCLE DEFINED BY TWO POINTS AND A RADIUS
- DIVIDE CIRCLE INTO QUARTERS
- TRANSLATIONS OF A POINT
- ROTATIONS OF A POINT
- ROTATION AND TRANSLATION OF A POINT
- TRANSLATION AND ROTATION OF A POINT
- SYMETRY (horizontal axis, vertical axis or about a point)
- SYMETRY (oblique axis)
- CONVERSION OF INCREMENTAL TO ABSOLUTE COORDINATES
- NORMALS TO A LINE
- NORMALS TO A CIRCLE
- MOVING A POINT ON A LINE
- MOVING A POINT ON A CIRCLE
- COMPUTE EQUIDISTANCE (lines)
- COMPUTE EQUIDISTANCE (lines)
- CIRCULAR INTERPOLATION (approx. using lines)
- CIRCLE-TANGENT TO TWO LINES
- CIRCLE-TANGENT TO A LINE AND CIRCLE
- CIRCLE-TANGENT TO TWO CIRCLES

BLANK PROGRAM CARDS

00065-67010 (40 cards)
00065-67054 (3 × 40 cards)

So that you may customise the HP-65's capabilities even more, these blank magnetic cards can be used to store programs of up to 100 steps, then used repeatedly for problem-solving. Each card may be "erased" to record different programs, or secured for permanency.

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HEWLETT hp PACKARD

Sales and service from 172 offices in 65 countries.

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