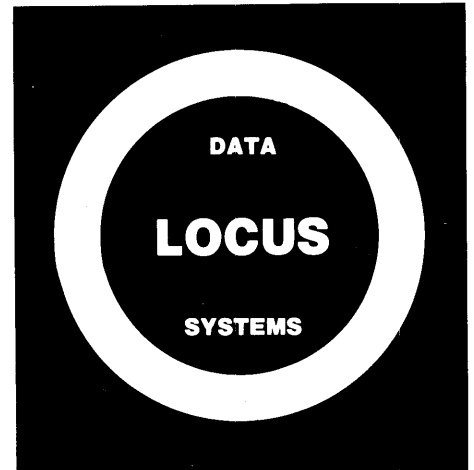
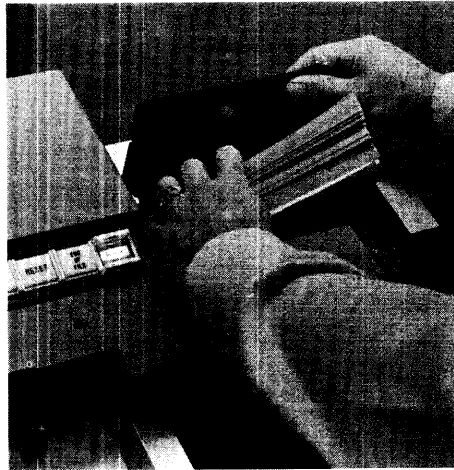


# Data Systems

HEWLETT  PACKARD

Library of contributed user software

## Program Catalog



LIBRARY OF CONTRIBUTED USER SOFTWARE

DATA

**LOCUS**

SYSTEMS

HEWLETT • PACKARD



HEWLETT-PACKARD COMPANY  
 11000 WOLFE ROAD, CUPERTINO, CALIFORNIA, 95014

Library Index Number  
 2LIBR.060.22000-90099

# CLASSIFICATION CODE CATEGORY

## 000 OPERATING AND PROGRAMMING SYSTEMS

001 TIME-SHARED OPERATING SYSTEMS  
002 I/O, TELECOMMUNICATIONS  
003 I/O, SPECIAL DEVICE  
004 I/O, STATUS PROCESSING  
005 REPORT GENERATORS  
006 I/O, INSTRUMENT  
007 DISC OPERATING SYSTEMS  
008 PREPARATION OF SYSTEMS  
009 I/O, PAPER TAPE  
010 I/O, PUNCH CARD  
011 I/O, PRINTER  
012 DATA ACQUISITION SYSTEMS  
013 I/O, A/D - D/A  
014 I/O, GRAPHIC  
015 I/O, DISC/DRUM  
016 I/O, MAGNETIC TAPE  
017 LOADERS  
018 TRANSLATORS, LANGUAGE  
019 EXTERNAL INTERRUPT PROCESSING  
020 REAL TIME SYSTEMS  
021 SYSTEM LIBRARIES  
022 SYSTEM UTILITIES

## 100 DATA HANDLING

101 EDITING  
102 INFORMATION STORAGE AND RETRIEVAL  
103 TABLE HANDLING  
104 CHARACTER/SYMBOL MANIPULATION  
105 CODE/MADIX CONVERSION  
106 DUPLICATION  
107 SORTING AND MERGING  
108 DATA HANDLING UTILITIES  
109 MEDIA CONVERSION  
110 FILE MANAGEMENT  
112 SPECIAL FORMAT DATA TRANSFER  
114 PLOT ROUTINES IN MP BASIC

## 200 TESTING, DEBUGGING AND PROGRAMMING AIDS

201 TRACING  
202 INSTRUMENT TEST  
203 DISC/DRUM EQUIPMENT TEST  
204 MAGNETIC TAPE EQUIPMENT TEST  
205 GRAPHIC EQUIPMENT TEST  
206 MEMORY SEARCH AND DISPLAY  
207 DUMPING  
208 CORE STORAGE TEST  
209 CENTRAL PROCESSING UNIT TEST  
210 BREAK POINTS  
211 DEBUGGING AIDS  
212 PROGRAMMING AIDS  
213 PAPER TAPE EQUIPMENT TEST  
214 PUNCH CARD EQUIPMENT TEST  
215 PRINTER EQUIPMENT TEST  
216 A/D - D/A EQUIPMENT TEST  
217 TELECOMMUNICATIONS EQUIPMENT TEST  
218 SPECIAL DEVICE EQUIPMENT TEST  
219 DATA ACQUISITION SYSTEMS TEST

## 300 MATH AND NUMERICAL ANALYSIS

301 MATHEMATICS, GENERAL  
302 EXTENDED-PRECISION ARITHMETIC  
303 COMPLEX ARITHMETIC  
304 BCD/ASCII ARITHMETIC  
305 BOOLEAN ALGEBRA  
306 FUNCTIONS, COMPUTATION OF  
307 INTERPOLATION/EXTRAPOLATION  
309 CURVE FITTING  
310 NUMERICAL INTEGRATION  
311 POLYNOMIALS AND POLYNOMIAL EQUATIONS  
312 MATRIX OPERATIONS  
313 EIGENVALUES AND EIGENVECTORS  
314 SYSTEMS OF LINEAR EQUATIONS  
315 SYSTEMS OF NON-LINEAR EQUATIONS  
316 INTEGRAL TRANSFORMS  
317 NUMERICAL DIFFERENTIATION  
318 ORDINARY DIFFERENTIAL EQUATIONS  
319 PARTIAL DIFFERENTIAL EQUATIONS

## 400 PROBABILITY AND STATISTICS

401 UNIVARIATE AND MULTIVARIATE PARAMETRIC STATISTICS  
402 TIME SERIES ANALYSIS  
403 DISCRIMINANT ANALYSIS  
404 REGRESSION ANALYSIS  
405 RANDOM NUMBER GENERATORS  
406 PROBABILITY DISTRIBUTION SAMPLING  
407 NON-PARAMETRIC STATISTICS  
408 STATISTICS, GENERAL  
409 CORRELATION ANALYSIS  
410 ANALYSIS OF VARIANCE AND COVARIANCE  
411 FACTOR ANALYSIS  
412 SCALING  
413 GENERAL PROBABILITY

## 500 SCIENTIFIC AND ENGINEERING APPLICATIONS

501 SOCIAL AND BEHAVIORAL SCIENCES  
502 GEOPHYSICS  
503 GEOLOGY  
504 OCEANOGRAPHY  
505 PHYSICS  
506 MEDICAL SCIENCES  
507 CHEMISTRY  
508 BIOLOGY  
509 ASTRONOMY AND CELESTIAL NAVIGATION  
510 PETROLEUM ENGINEERING  
511 HYDRAULIC ENGINEERING  
512 NUCLEAR ENGINEERING  
513 ELECTRICAL ENGINEERING  
514 MECHANICAL ENGINEERING  
515 CIVIL ENGINEERING  
516 CHEMICAL ENGINEERING  
517 AERONAUTICAL ENGINEERING  
518 STRUCTURAL ENGINEERING  
519 SYSTEM THEORY

## 600 MANAGEMENT SCIENCES AND OPERATIONS RESEARCH

602 PERT  
603 CRITICAL PATH ANALYSIS  
604 OPTIMIZATION PROGRAMS  
605 LINEAR PROGRAMMING  
606 DISCRETE SYSTEMS SIMULATION  
607 CONTINUOUS SYSTEMS SIMULATION  
608 FORECASTING TECHNIQUES  
610 DYNAMIC PROGRAMMING

## 700 BUSINESS AND MANUFACTURING APPLICATIONS

701 JOB REPORTING  
702 QUALITY ASSURANCE PERFORMANCE ANALYSIS  
703 QUALITY ASSURANCE TESTING  
704 NUMERICAL CONTROL  
705 BILL OF MATERIALS  
706 PAYROLL ACCOUNTING  
707 WORK-IN-PROCESS CONTROL  
708 INVENTORY ANALYSIS  
709 ACCOUNTS PAYABLE  
710 SALES FORECASTING  
711 ACCOUNTS RECEIVABLE  
712 FINANCIAL ANALYSIS  
713 INVESTMENT ANALYSIS  
714 ECONOMIC ANALYSIS  
716 BUDGETING PROGRAMS  
717 BUSINESS INFORMATION SYSTEMS  
718 BUSINESS SERVICES

## 800 EDUCATION

801 MATHEMATICS (EDUCATION)  
810 PROGRAMMING AND COMPUTER SCIENCE (EDUCATION)  
820 ENGINEERING (EDUCATION)  
830 ECONOMICS (EDUCATION)  
833 SCIENCE (EDUCATION)  
850 FINE ARTS (EDUCATION)  
860 SOCIAL SCIENCE (EDUCATION)  
863 HISTORY (EDUCATION)  
870 ENGLISH (EDUCATION)  
871 FOREIGN LANGUAGES (EDUCATION)  
872 READING (EDUCATION)  
880 BUSINESS (EDUCATION)  
885 EDUCATIONAL ADMINISTRATION  
890 VOCATIONAL (EDUCATION)

## 900 UNCLASSIFIED

901 DEMONSTRATIONS  
903 GAMES  
904 PLOTTING ROUTINES  
905 MICROCODE

# TABLE OF CONTENTS

Section I	Page
<b>INDEXES</b>	
Numerical List .....	1-2
Cross-Reference Index .....	1-9
Section II	Page
<b>SOFTWARE ABSTRACTS</b>	
Introduction .....	2-1
Stat-Pack .....	2-2
Sample Abstract Header .....	2-3
Abstracts .....	2-4
Section III	Page
<b>ORDERING INFORMATION</b> .....	3-1

Section IV	Page
<b>CONTRIBUTOR'S GUIDE</b>	
Guidelines .....	4-1
Program Documentation Form .....	4-3
Program Disclaimer Form .....	4-9
Software Report Form .....	4-11
Section V	Page
<b>CONVERSION GUIDE</b> .....	5-1
DOS-III to RTE-III .....	5-2

# INTRODUCTION

The Hewlett-Packard Data Systems Division's "Library Of Contributed User Software" (LOCUS) program catalog is designed as a reference to contributed software written in Assembly, Microprocessor Assembly, Fortran, Algol and Basic for the 2100, and 21MX series computers. All software is currently available from the HP Software Center.

The Contributed programs apply to a wide range of systems from a CPU and teleprinter to a large disc based configuration with a variety of computer peripherals and digital input/output instrumentation.

The large variety of programs can be used without modification or as a starting point for developing special purpose software. Users will find the abstracts with technical description particularly useful in evaluating the desirability of obtaining a referenced program.

Contributed software is checked by HP personnel; however, it is impractical to test programs under all circumstances. If you do encounter errors, please report them using the LOCUS Software Report form, supplied with the catalog.

*The Hewlett-Packard Company offers no warranty, expressed or implied and assumes no responsibility in connection with the program material listed hereon.*

## CATALOG ORGANIZATION

The catalog is organized into five sections: Indexes, Software Abstracts, Ordering Information, the Contributor's Guide and a Conversion Guide.

## HOW TO FIND A PROGRAM

The software abstracts are organized numerically by contribution number/part number. The abstracts include the order number, a description of the program, any hardware requirements beyond the minimum system, the source language, the price and the operating system(s).

To locate a specific software abstract quickly, first determine what type of program you are interested in and think of a keyword or phrase that describes it. The cross-reference index includes an alphabetical list of keywords and phrases related to computer software. Each program is listed under a keyword or phrase that applies to it. If you are concerned only with programs written for a particular operating system use the numerical list which gives you the contribution number, the part number, title and operating system.

## HOW TO ORDER PROGRAMS

Customers in the U.S. may use the enclosed Direct Mail Order Form (see Section III). International customers should order through local Hewlett-Packard Sales Office.

## HOW TO CONTRIBUTE PROGRAMS

The contributors Guide (Section IV) gives a detailed explanation of submittal procedures and policies. Additional information and forms may be obtained from your local HP Sales Office.



**SECTION I**  
**INDEXES**

# INDEXES

You will find two indexes in this section:

- Numerical List
  - Cross-Reference Index
- 
- The Numerical List shows programs in numerical sequence. Program identification number, title and operating systems are listed.
  - The Cross-Reference Index lists programs under keywords and phrases related to computer software. Program identification number and title are listed.

## NOTE

Please refer to the ABSTRACT in Section II for prices and actual orderable numbers.



N U M E R I C A L   L I S T  
CONTRIBUTION NUMBER/PART NUMBER ORDER  
\*\*\* FEATURING OPERATING SYSTEM \*\*\*

CON #	PART NUMBER	TITLE	OPERATING SYSTEM(S)
1	22002A-K01	TIME-OF-DAY-CLOCK	BCS
2	22004A-K01	COUNTER DATA SOURCE INTERFACE DRIVER - FORTRAN CALLABLE	RCS
3	22005A-K01	HP2401C DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE	RCS
4	22006A-K01	HP2401C DATA SOURCE INTERFACE DRIVER - FORTRAN CALLABLE	RCS
5	22008A-K01	HP3460A DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE	RCS
6	22009A-K01	ROOTSTRAP LOADER GENERATOR	SIO
7	22013A-K01	INVERSE ASSEMBLER	RCS
8	22014A-K01	BINARY TAPE EDITOR	BCS
9	22015A-K01	BASIC LINE RESEQUENCER	SIO
10	22016C-K01	SYMBOLIC ALPHANUMERIC GENERATOR	RCS
11	22017A-K01	GAMMA FUNCTION ROUTINE	RCS
12	22018A-K01	K BESSEL FUNCTION ROUTINE	BCS
13	22019A-K01	I BESSEL FUNCTION ROUTINE	RCS
14	22020A-K01	Y BESSEL FUNCTION ROUTINE	RCS
15	22021A-K01	LOCATE MAXIMUM-MINIMUM INTEGER	RCS
16	22022A-K01	SOLUTION OF LINEAR LEAST SQUARES PROBLEMS	BCS
17	22023A-K01	TRAPEZOIDAL INTEGRATION ROUTINE	RCS
18	22024A-K01	TRAPEZOIDAL INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	BCS
19	22025A-K01	SIMPSON & NEWTON'S 3/8 INTEGRATION RTN, EQUAL INTERVAL ARGUMENT	RCS
20	22026A-K01	HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE	RCS
21	22027A-K01	HERMITIAN 4TH ORDER INTEGRATION RTN, EQUAL INTERVAL ARG	BCS
22	22028A-K01	HERMITIAN 6TH ORDER INTEGRATION ROUTINE	RCS
23	22029A-K01	HERMITIAN 6TH ORDER INTEGRATION RTN, EQUAL INTERVAL ARG	BCS
24	22030A-K01	COMPLEX ROOTS OF A REAL POLYNOMIAL	BCS
25	22031A-K01	ADD ROWS OF MATRICES	BCS
26	22032A-K01	RANK AND BASIS ROUTINE	BCS
27	22033A-K01	SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS	RCS
28	22034A-K01	SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX	RCS
29	22035A-K01	SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC MATRIX	BCS
30	22036A-K01	REAL FOURIER TRANSFORM	BCS
31	22037A-K01	COMPLEX FOURIER TRANSFORM	RCS
32	22038A-K01	SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS	RTE,DOS
33	22039A-K01	MEAN, DEVIATION & CORRELATION COEFFICIENTS ROUTINE	BCS
34	22041F-K01	PUNCHED TAPE DUPLICATOR	SELF CONTAINED
35	22042C-K21	AN HP 2116-FAMILY SIMULATOR FOR THE IBM-360	IBM SYSTEM 360
36	22044A-K01	RUN-TIME DATA INPUT FOR BASIC	HP BASIC
37	22055A-K01	HP3460A/B DATA SOURCE INTERFACE DRIVER-FORTRAN CALLABLE	RCS
38	22061A-K01	HP2320 LOW-SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN CALLABLE	BCS
39	22062A-K01	HP2322A LOW-SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN CALLABLE	BCS
40	22063A-K01	HP2770A/2771A DISC DRIVER - FORTRAN CALLABLE	DOS
41	22064A-K01	AUTOMATIC TARRING PROGRAM	SIO
42	22069A-K01	HP2323A LOW-SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN CALLABLE	BCS
43	22071A-K01	HP12539A TIME BASE GENERATOR DRIVER - FORTRAN CALLABLE	RCS
44	22075A-K01	HP5100B FREQUENCY SYNTHESIZER DRIVER - FORTRAN CALLABLE	RCS
45	22077A-K01	CALCOMP PLOTTER DRIVER - BASIC CALLABLE	HP BASIC
46	22078A-K01	HIGH-SPEED PUNCH DRIVER - BASIC CALLABLE	HP BASIC
47	22079A-K01	NUMERIC STRING SORT FOR ASCII RECORDS	BCS
48	22080A-K01	HP2331A X-Y DISPLAY SUBSYSTEM DRIVER - FORTRAN CALLABLE	BCS
49	22081A-K01	BIT OPERATIONS (SET, CLEAR, TEST) - FORTRAN CALLABLE	BCS
50	22082B-K01	BASIC PHOTO READER DATA INPUT	HP BASIC
51	22084C-K01	INTEGRATED MATH CALCULATOR PROGRAM	BCS
52	22085B-K01	EXTENDED PRECISION CALCULATOR	RCS
53	22086A-K01	ERCDIC TO ASCII TRANSLATOR	BCS
54	22088A-K01	OCTAL UTILITY SYSTEM (HOCUS)	HP BASIC,SIO
55	22089A-K01	TELEPRINTER OCTAL INPUT PROGRAM	SIO
56	22090A-K01	KEYBOARD TAPE GENERATOR	SIO
57	22093A-K01	ASCII/IBM 8-LEVEL CHARACTER CONVERSION ROUTINE	BCS,DOS,RTE,DACE
58	22094A-K01	JEU DE MORPIONS (GAME OF TIC-TAC-TOE)	BCS
59	22095A-K01	RASIC HP2778A LINE PRINTER DRIVER	HP BASIC
60	22097D-K01	DOUBLE PRECISION INTEGER LIBRARY	BCS
61	22099A-K01	DOS DEMO	DOS
62	22100A-K01	FILE THREE INPUT FOR MTS ALGOL	MTS/2020,3030
63	22101B-K01	HP 2911A/B CROSSBAR SCANNER DRIVER - BASIC CALLABLE	HP BASIC 20392A
64	22102A-K01	HP 3460A/B DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE	HP BASIC
65	22104A-K01	HP 2402A DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE	HP BASIC 20392A
66	22106A-K01	COUNTER DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE	HP BASIC
67	22107A-K01	HP2912A RFFD SCANNER DRIVER - BASIC CALLABLE	HP BASIC 20392A
68	22108C-K01	HP3450A DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE	HP BASIC
69	22111C-K01	HP2770A/2771A DISC DRIVER - BASIC CALLABLE	HP BASIC 20392A
70	22112A-K01	HP12539A TIME BASE GENERATOR DRIVER - BASIC CALLABLE	HP BASIC
71	22113A-K01	MTS PUNCHED TAPE DUPLICATOR	SIO,MTS/2020,3030
72	22114A-K01	REPRODUCE/EDIT PAPER TAPE	SELF CONTAINED
73	22116A-K01	ORDERING A FLOATING POINT ARRAY	BCS
74	22117A-K01	TRANSFORMATIONS	BCS
75	22118C-K01	MATRIX INVERSION SUBROUTINES	BCS
76	22119A-K01	MATRIX ARITHMETIC SUBROUTINE	BCS
77	22120A-K01	MATRIX ARITHMETIC PROGRAM	BCS
78	22121A-K01	CROSS-TABULATION PROGRAM	RCS
79	22122A-K01	SIMULTANEOUS EQUATION SOLVER PROGRAM	BCS
80	22123A-K01	SIMULTANEOUS EQUATION SOLVER ROUTINE	RCS
81	22124A-K01	AUTOCORRELATION AND SPECTRAL DENSITY	BCS
82	22125A-K01	MOVING AVERAGES	RCS
83	22126A-K01	CROSS CORRELATION ANALYSIS	BCS
84	22127A-K01	DISCRIMINANT ANALYSIS PROGRAM	RCS
85	22128A-K01	LEAST SQUARES REGRESSION PROGRAM	RCS
86	22129A-K01	LINEAR REGRESSION INTERVAL ESTIMATES	BCS
87	22130A-K01	POLYNOMIAL REGRESSION PROGRAM	RCS

CON #	PART NUMBER	TITLE	OPERATING SYSTEM(S)
88	22131A-K01	POLYNOMIAL REGRESSION CONFIDENCE INTERVALS	BCS
89	22132A-K01	STEPWISE REGRESSION PROGRAM	BCS
90	22133A-K01	ASSAY PROGRAM	BCS
91	22134A-K01	ORTHOGONAL REGRESSION PROGRAM	BCS
92	22135A-K01	LINEAR REGRESSION WITH REPLICATION	BCS
93	22136A-K01	NONLINEAR REGRESSION PROGRAM	BCS
94	22137A-K01	CUMULATIVE DISTRIBUTION PROGRAM	BCS
95	22138A-K01	KENDALL'S COEFFICIENT OF CONCORDANCE	BCS
96	22139A-K01	KENDALL'S COEFFICIENT OF CONCORDANCE	BCS
97	22140A-K01	KENDALL'S TAU CORRELATION	RCS
98	22141A-K01	GENERAL STATISTICS PROGRAM	BCS
99	22142R-K01	GENERAL STATISTICS FOR MULTIPLE GROUPS	BCS
100	22143A-K01	PROBABILITY SUBPROGRAMS	BCS
101	22144A-K01	INTEGRATION ROUTINE	BCS
102	22145R-K01	CONFIDENCE INTERVAL FOR MEAN & VARIANCE OF A NORMAL DISTRIBUTION	BCS
103	22146C-K01	SAMPLE SIZE DETERMINATION OF THE SAMPLE VARIANCE	RCS
104	22147A-K01	MULTIPLE CORRELATION ROUTINE	BCS
105	22148A-K01	COMPLETELY RANDOMIZED DESIGN	BCS
106	22149A-K01	COMPLETELY RANDOMIZED DESIGN WITH SUBSAMPLING	BCS
107	22150A-K01	RANDOMIZED COMPLETE BLOCK DESIGN	BCS
108	22151R-K01	RANDOMIZED COMPLETE BLOCK DESIGN WITH SUBSAMPLING	RCS
109	22152A-K01	TWO-WAY FACTORIAL DESIGN	BCS
110	22153A-K01	THREE-WAY FACTORIAL DESIGN	BCS
111	22154A-K01	ANALYSIS OF VARIANCE INFORMATION GENERATOR	RCS
112	22155A-K01	DUNCAN'S MULTIPLE RANGE TEST	RCS
113	22156A-K01	PAIRED T-TEST	RCS
114	22157R-K01	BARTLETT'S HOMOGENEITY OF VARIANCE TEST	BCS
115	22158C-K01	KOLMOGOROV-SMIRNOV GOODNESS-OF-FIT TEST	BCS
116	22159R-K01	CHI SQUARE GOODNESS-OF-FIT TEST	RCS
117	22160A-K01	TESTS OF HYPOTHESIS FOR VARIANCE	RCS
118	22161R-K01	TEST OF HYPOTHESIS FOR MEANS	BCS
119	22162R-K01	X-Y PLOTTER ON PRINTER	BCS
120	22163A-K01	TIME SERIES PLOTTER	BCS
121	22164R-K01	HISTOGRAM PLOTTER PROGRAM	BCS
122	22165A-K01	CARD TO MAGNETIC TAPE UTILITY	BCS,MTS/3030
123	22166A-K01	MAGNETIC TAPE TO PRINT UTILITY PROGRAM	BCS,MTS/3030
124	22167A-K01	ORDERING A FIXED POINT ARRAY	RCS
125	22168A-K01	RANKING A FLOATING POINT ARRAY	BCS
126	22169A-K01	ORDERING A FLOATING POINT ARRAY	RCS
127	22170A-K01	SYNCHRONOUS HIGH SPEED DATA ACQUISITION PROGRAM	RCS
128	22171A-K01	FORTRAN UNIT REFERENCE NUMBER EDITOR	BCS
129	22172C-K01	IOC - FORTRAN CALLABLE	BCS
130	22174A-K01	RCS DUMP IN BBL FORMAT	BCS
131	22176A-K01	HP 2754A PUNCH/LIST IN KT MODE	BCS
132	221A0C-K01	FAST PUNCH VERIFY	SIO
133	221A1A-K01	RTE HP 2020 MAGNETIC TAPE DRIVER	RTE
134	221A2A-K01	HISTOGRAM PLOTTER ROUTINE	BCS
135	221A3A-K01	SAMPLE SIZE DETERMINATION TO TEST HO	BCS
136	221A4A-K01	POOLING OF GROUPS IN REGRESSION	BCS
137	221A5A-K01	MULTIPLE REGRESSION PROGRAM	BCS
138	221A6A-K01	MULTIPLE CORRELATION MATRIX PROGRAM	BCS
139	221A7A-K01	NONLINEAR REGRESSION OF A SINGLE VARIABLE FUNCTION	BCS
140	221A8A-K01	NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION	BCS
141	221A9A-K01	GENERAL FAST FOURIER TRANSFORM	BCS
142	22190A-K01	ABSOLUTE PROGRAM CONTROL SYSTEM	SELF CONTAINED
143	22191A-K01	NAM-ENT-EXT EDITOR	SIO
144	22192A-K01	EIGENVALUES OF A SYMMETRIC REAL MATRIX	BCS
145	22193A-K01	INTERPRETIVE BINARY SIMULATOR	BCS
146	22194A-K01	PSEUDO-RANDOM NUMBER GENERATOR	BCS
147	22195R-K01	PROGRAM EXECUTION TIMER	BCS
148	22197A-K01	SINGLE DRIVE MAGNETIC TAPE COPY PROGRAM	DOS
149	22198C-K01	MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM	SELF CONTAINED
150	22199A-K01	BASIC LANGUAGE DATA ACQUISITION SYSTEM	HP BASIC 20392A,MTS
151	22200A-K01	WAVETEK BASIC DRIVER	HP BASIC
152	22201D-K01	PACIFIC UNION COLLEGE MULTI-TERMINAL HP BASIC SYSTEM	HP BASIC 24000A
153	22204A-K01	DATA BLOCK MOVEMENT	BCS
154	22205A-K01	TABULATION & FORM-FEED CALLS FOR HP 2754 TELEPRINTER	BCS
155	22207A-K01	CHARACTER AND BIT STRING PROCEDURES FOR ALGOL	BCS,DOS
156	22208A-K01	HP 3030G MAGNETIC TAPE DRIVER - FORTRAN CALLABLE	RCS
157	22209C-K01	DRUM BASED MAGNETIC TAPE DUPLICATOR	SELF CONTAINED
158	22211A-K01	HP 5100R FREQUENCY SYNTHESIZER DRIVER - BASIC CALLABLE	HP BASIC
159	22214A-K01	CHARACTER CODE TRANSLATOR	MTS/3030
160	22215A-K01	HP 3480A/B DIGITAL VOLTMETER DRIVER - BASIC CALLABLE	HP BASIC 24000A
161	22216R-K01	HP 2870A CARTRIDGE DISC DRIVER - BASIC CALLABLE	HP BASIC 24000A
162	22217R-K01	HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER - BASIC CALLABLE	HP BASIC
163	22218-1A900	FAST FOURIER TRANSFORM	BCS,MTS
164	22219A-K01	HIGH SPEED CONTINUOUS LINE PLOTTER FOR HP 7004B	BCS
165	22220A-K01	LINEAR LEAST SQUARES PROBLEM SOLVER	BCS,DOS
166	22221R-K01	HP BIOMEDICAL RESPONSE AVERAGING PROGRAM	SELF CONTAINED
167	22222A-K01	BLOOD ACID-BASE VARIABLES DETERMINATION PROGRAM	BCS
168	22223C-K01	LOADER BOOTSTRAP	ABSOLUTE,SIO
169	22225R-K01	HP 2870A CARTRIDGE DISC DRIVER - FORTRAN CALLABLE	BCS
170	22226R-K01	HP 3480A/B DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE	BCS
171	22227A-K01	HP 6131R DIGITAL VOLTAGE SOURCE DRIVER - FORTRAN CALLABLE	BCS
172	22229R-K01	HP 12551A/B RELAY REGISTER INTERFACE DRIVER - FORTRAN CALLABLE	BCS
173	22230A-K01	EXTENDED PRECISION ARITHMETIC LIBRARY	BCS
174	22233C-K01	DOS-M PRIVILEGED DISC I/O ROUTINES	DOS-M
175	22234A-K01	COMPLEX MATH PACKAGE	BCS
176	22235A-K01	FORTRAN POWER FAIL LINK	BCS,MTS,DACE,MEDACE
177	22236A-K01	FORTRAN I/O STATUS FUNCTION	BCS
178	22237C-K01	TELEPRINTER/LINEPRINTER OUTPUT SELECTOR FOR HP BASIC	HP BASIC 20392A
179	22238A-K01	FORTRAN RUN-TIME FORMAT SPECIFICATION	RCS

# Indexes

CON #	PART NUMBER	TITLE	OPERATING SYSTEM(S)
1A0	22239A-K01	HP 7970 MAGNETIC TAPE DRIVER - BASIC CALLABLE	HP BASIC
1A1	22240A-K01	LUNG COMPLIANCE AND RESISTANCE MEASUREMENT SYSTEM	RCS
1A2	22242A-K01	X-Y PLOTTING ROUTINE	RCS
1A3	22244A-K01	16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM	BCS
1A4	22245A-K01	USFR INTERFACE TO RCS TELECOMMUNICATIONS DRIVER D.50	BCS
1A5	22246A-K01	DOS=M REMOTE TAPE READER DRIVER	DOS=M
1A6	22247A-K01	FAST DOS/DOS=M PHOTOREADER DRIVER	DOS,DOS=M
1A7	22250A-K01	EXEC CALL ADAPTER ROUTINE	BCS,MTS
1A8	22251A-K01	MAGNETIC TAPE TO LINE PRINTER ROUTINE	MTS
1A9	22252A-K01	RTE/DOS DUPLICATOR PROGRAM	DOS,RTE
1A0	22253C-K01	OSCILLOSCOPE PLOTTING SUBROUTINE	BCS
1A1	22255F-K01	MSU MULTI-TERMINAL HP BASIC SYSTEM WITH CARD READER CAPABILITY	SELF CONTAINED
1A2	22256A-K01	FRFSNFI INTEGRAL EVALUATION	BCS,MTS,DOS,DOS=M
1A3	22257A-K01	MTS/RCS SYSTEM ABSOLUTE DUMP	BCS,MTS
1A4	22258A-K01	HP 2767 LINE PRINTER BASIC DRIVER	HP BASIC
1A5	22259A-K01	DOS TO MAGNETIC TAPE DUMP	DOS
1A6	22260A-K01	MAGNETIC TAPE TO DOS DUMP	DOS
1A7	22261A-K01	MINI-BASIC	HP BASIC 24000A
1A8	22262A-K01	THREE DIMENSIONAL PLOT SUBROUTINE	RCS
1A9	22263A-K01	PLOT, RELAY, WAIT	RCS
200	22264A-K01	TELEX TO ASCII PHOTOREADER DRIVER	BCS
201	22265A-K01	FLOATING POINT RANDOM NUMBER GENERATOR	BCS,DOS
202	22266A-K01	MARK SENSE EDUCATIONAL TEST CARD SCORING PROGRAM	RCS
203	22267A-K01	MTS FORTRAN CHAIN	MTS
204	22268A-K01	DECIMAL ARITHMETIC AND MOVE/COMPARE ROUTINES	BCS,MTS,DOS,RTE
205	22269A-K01	PAPER TAPE TITLER	RTE
206	22270D-K01	ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REVISION E	MTS
207	22272A-K01	DISC/DRIUM UTILITY	STO
208	22273A-K01	CLEAR JOB BINARY AREA IN DOS/DOS=M	DOS,DOS=M
209	22274A-K01	4-2-2-1 BCD TO FLOATING POINT CONVERSION FOR RTE	RTE
210	22276A-K01	RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION	RTE
211	22277A-K01	DOS=M FILE ACCESS AND STRING LOOKUP	DOS=M
212	22278A-K01	TAB FOR PREPARING FORTRAN TAPES	SELF CONTAINED
213	22279A-K01	BASIC PLOT SUBROUTINES	HP BASIC 24000A
214	22280A-K01	ABSOLUTE CORE DUMP ROUTINE	BCS,SELF CONTAINED
215	22281A-K01	MINVERTER DRIVER	BCS
216	22282A-K01	DOS=M LIBRARIAN	DOS=M
217	22284A-K01	DOS=M DUMP/RFSTORE PROGRAM	DOS=M
218	22285C-K01	CONVERSATIONAL DOS=M DISC FILE EDITOR	DOS=M
219	22286A-K01	D H SYMBOLIC EDITOR	MTS,STO
220	22287A-K01	CHAIN FROM PHOTOREADER IN HP BASIC	HP BASIC
221	22289A-K01	ALGOL ARRAY TRANSFER FOR SEGMENTATION	DOS,DOS=M,RTE
222	22290A-K01	CORE PUNCH IN BBI FORMAT	SELF CONTAINED
223	22291C-K01	DOS/DOS=M HP 2331 X-Y SCOPE DISPLAY	DOS,DOS=M
224	22292A-K01	ABSOLUTE OBJECT DECODER	BCS
225	22293-18900	OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM (OCTAPUS)	SELF CONTAINED
226	22294A-K01	DOS/DOS=M/RTE 3480 DVM DRIVER AND BCD CONVERSION	DOS,DOS=M,RTE
227	22295A-K01	RCS INTERPRETER FOR FLOATING POINT OPERATIONS	BCS
228	22297A-K01	OFFLINE RELOCATING LOADER	SELF CONTAINED
229	22298A-K01	RATTLESHIP	RTE
230	22299A-K01	DOS/DOS=M SOURCE STORAGE AND RETRIEVAL	DOS,DOS=M
231	22300A-K01	QUICK FIXED HEAD DUMP	STO
232	22301A-K01	HP 2870A CARTRIDGE DISC MEMORY DRIVER - FORTRAN CALLABLE	RCS
233	22304A-K01	HP 5610A ANALOG-TO-DIGITAL DRIVER - FORTRAN CALLABLE	RCS
234	22305A-K01	HP 2402A DIGITAL VOLTMETER DRIVER - BASIC CALLABLE	HP BASIC 20392A
235	22308A-K01	GAUSSIAN RANDOM NUMBER GENERATOR	RCS,MTS,DOS,DOS=M
236	22310A-K01	FORTRAN/ALGOL ARRAY TRANSFER ROUTINE	BCS,DOS,DOS=M
237	22311A-K01	RCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION	BCS
238	22313A-K01	HP 12551R RELAY REGISTER INTERFACE DRIVER - BASIC CALLABLE	HP BASIC 20392A
239	22315A-K01	CONTINUOUS DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE	BCS,DOS,DOS=M
240	22316A-K01	VARIABLE DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE	BCS,DOS,DOS=M
241	22317A-K01	RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE	RTE
242	22318A-K01	HP 1331C STORAGE SCOPE DRIVER - BASIC CALLABLE	HP BASIC 20392A
243	22319A-K01	DOS/DOS=M HP 2020 MAGNETIC TAPE DRIVER	DOS,DOS=M
244	22320A-K01	DOS/DOS=M HP 2020/3030 MAGNETIC TAPE CONTROL PROGRAM	DOS,DOS=M
245	22322A-K01	ABSOLUTE OCTAL OR DECIMAL CORE DUMP	SELF CONTAINED
246	22325A-K01	COPPER-CONSTANTAN THERMOCOUPLE VOLTAGE - CELSIUS DGS CONVERSION	BCS
247	22326A-K01	DOS=M RELOCATABLE BASIC	DOS=M
248	22327F-K21	SNOROL COMPILER FOR DOS/DOS=M	BCS,DOS,DOS=M
249	22328C-K01	RCS TELECOMMUNICATIONS DVR FOR SYNCHRONOUS & ASYNCHRONOUS DEVICES	BCS
250	22329A-K01	SCIENTIFIC SUBROUTINE PACKAGE	BCS,MTS
251	22330R-K01	PSEUDO REPORT GENERATOR	DOS=M
252	22331A-K01	DOS HP 2322A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER	DOS
253	22332A-K01	THE EXECUTIVE GAME	RCS
254	22333A-K01	HP 9300N DISC EXERCISER	SELF CONTAINED
255	22334A-K01	THREE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES	BCS
256	22335A-K01	FIVE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES	BCS
257	22336A-K01	HP 1900 PROGRAMMABLE PULSE GENERATOR - FORTRAN CALLABLE	RCS
258	22337A-K01	HP1900 PROGRAMMABLE PULSE GENERATOR DRIVER - BASIC CALLABLE	HP BASIC 20392A
259	22338A-K01	DISC BASIC EXECUTIVE	HP BASIC 20392A
260	22339A-K01	DOS HP2320A LOW-SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER	DOS
261	22340A-K01	360 FORMAT MAGNETIC TAPE DUMP	RCS,MTS
262	22341A-K01	FTN IV CORE SAVER	BCS,MTS,DOS/M,RTE
263	22342A-K01	DOS=M HARDWARE BOOT	SELF CONTAINED
264	22343A-K01	FIFLNSORT	BCS,MTS,DOS
265	22344A-K01	ON-LINE SYSTEM LOAD FOR MOVING HEAD RTE	RTE
266	22345A-K01	ON-LINE MOVING HEAD RTE BOOTSTRAP FROM DOS=M OR DOS	DOS,DOS=M
267	22346A-K01	DOS/DOS=M ASSEMBLY LANGUAGE COMMENT INSERTER	DOS,DOS=M
268	22347A-K01	DOS/DOS=M SOURCE FILE VERIFY PROGRAM	DOS,DOS=M
269	22348A-K01	X-Y PLOTTER FOR 11-INCH PAGE PRINTER	RCS,MTS,DOS,DOS=M
270	22349A-K01	DOS=M BOOTSTRAP PROGRAM FOR DOS=M OR DOS	DOS,DOS=M
271	22350A-K01	DOS=M BOOTSTRAP PROGRAM FROM RTE	RTE

CON #	PART NUMBER	TITLE	OPERATING SYSTEM(S)
272	22351A-K01	ASCII STRING SEARCH FROM DISC FILE	DOS,DOS-M
273	22353A-K01	ASCII STRING SEARCH FROM PHOTOREADER	DOS,DOS-M
274	22353A-K01	DOS/DOS-M PHOTOFADER DRIVER TO READ ABSOLITE BINARY TAPES	DOS,DOS-M
275	22354A-K01	DOS-M STORE ABSOLUTES	DOS,DOS-M
276	22355A-K01	DOS-M PAPER TAPE/DISC VERIFY	DOS,DOS-M
277	22356A-K01	PACKED MAGNETIC TAPE STORAGE AND RETRIEVAL FOR DOS-M	DOS,DOS-M
278	22357A-K01	MTS BOOT FROM DOS-M	DOS-M
279	22358A-K01	EASY MAGNETIC TAPE I/O AND STATUS INFORMATION	DOS,DOS-M,RTE
280	22359A-K01	HANDI-0	DOS,DOS-M
281	22360A-K01	DOS-M PAPER TAPE REPRODUCER	DOS,DOS-M
282	22361A-K01	DOS-M BINARY FILE DATA ACQUISITION	DOS-M
283	22362A-K01	STACK ROUTINES	DOS-M
284	22364A-K01	EFMP RECORD READ/WRITE	DOS-M
285	22366A-K01	ALGOL SEGMENT RETURN TO MAIN PROGRAM	DOS,DOS-M
286	22367A-K01	8K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM	BCS
287	22368A-K01	PAPER TAPE COPY	MTS,SIO
288	22369A-K01	DOS-M FILE WRITER	DOS-M
289	22371A-K01	QUOTATION MARKS CONVERSION IN DOS/DOS-M FILES	DOS,DOS-M
290	22372A-K01	HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108	BCS
291	22373R-K01	ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE	DOS
292	22374A-K01	A BCS ASYNCHRONOUS DATA SFT INTERFACE DRIVER	BCS
293	22375A-K01	REMOTE HP2100 ACCESS TO 32K DOS	DOS
294	22376A-K01	ASCII DISC FILE FIELD SORT	DOS,DOS-M
295	22377A-K01	DOS-M DISC INITIALIZE PROTECT UTILITY	DOS-M
296	22378A-K01	RTE LOGBOOK	RTE
297	22379A-K01	SIO LIST OUTPUT TO A STORAGE SCOPE	SIO
298	22380D-K01	HP BASIC DRIVER SYSTEM WITH BINARY DATA I/O	HP BASIC 20392A
299	22381A-K01	RELOCATABLE MODULE LISTER	BCS,MTS,DOS,DOS-M
300	22383A-K01	ALPHANUMERIC RECORD SORT	BCS
301	22384A-K01	EFFECTIVE PERCEIVED NOISE LEVEL	BCS
302	22385A-K01	SYMBOLIC MARCO ASSEMBLER FOR THE HP2100	SIO
303	22386A-K01	MULTIRECORD FORMATTED OUTPUT LISTER	BCS,MTS,DOS/M,RTE
304	22387A-K01	0.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER	BCS,MTS
305	22388A-K01	HP BASIC TO FORTRAN TRANSLATOR FOR DOS/DOS-M	DOS,DOS-M
306	22389A-K01	DOS-M EAU RELOCATABLE BASIC	DOS-M
307	22390A-K01	HP7004 X-Y RECORDER LIBRARY	BCS,MTS
308	22391A-K01	HP 1331C SIO SCOPE DISPLAY DRIVER	SIO
309	22392A-K01	RELOCATABLE OBJECT UTILITY LIBRARY	BCS
310	22393A-K01	ON-LINE EDITOR	SELF CONTAINED
311	22394A-K01	CORE-SAVING TELEPRINTER I/O DRIVER & CODE CONVERSION ROUTINE	BCS
312	22396R-K21	AN HP ASSEMBLER FOR THE IBM 360	IBM OS-360
313	22397A-K01	COMBINATION GENERATOR	DOS,DOS-M
314	22398R-K01	RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING	RTE
315	22399A-K01	HP 277R/2767 LINE PRINTER PATCH FOR EDUCATIONAL BASIC	HP BASIC 24160A
316	22400A-K01	ZERO	BCS
317	22401A-K01	RTE SELF SUSPEND ROUTINE	RTE
318	22404A-K01	SPACE SAVING ASCII STORAGE ROUTINES	BCS
319	22407R-K01	HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER - BASIC CALLABLE	HP BASIC 20392A
320	22408A-K01	BASIC CALLABLE LNF PRINTER DRIVER	HP BASIC 20392A
321	22409A-K01	EDUCATIONAL BASIC HP 2767 LINE PRINTER DRIVER	HP BASIC 24160A
322	22410A-K01	RTE MULTIPROGRAMMER DRIVER (DVR61)	RTE
323	22411A-K01	A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER	SIO
324	22413A-K01	RANDOM INTEGER NUMBER GENERATOR	BCS
325	22414A-K01	NON-DMA BCS HP3030 DRIVER	BCS,MTS
326	22415R-K01	DOS ABSOLUTE OBJECT DECODER	DOS,DOS-M,RTE
327	22416A-K01	CREATE DOS-M DIRECTORY ENTRY UNDER PROGRAM CONTROL	DOS-M
328	22417C-K01	SUPER BASIC FOR DOS-M	DOS-M
329	22425A-K01	THREE-DIMENSIONAL TRANSFORMATIONS USING EULER'S ANGLES	BCS
330	22426A-K01	LOGARITHMIC AXIS GENERATOR FOR THE CALCOMP 565	BCS
331	22427A-K01	MEDIA CONVERSION	DOS-M
332	22428A-K01	ASSEMBLER JUSTIFICATION PROGRAM	BCS,DOS-M
333	22429A-K01	FFMP FILE TRANSFER	DOS-M
334	22430A-K01	NUMERIC SORT	BCS,DOS,RTE
335	22431A-K01	DOS-M SEGMENT RETURN TO MAIN	DOS-M
336	22432B-K01	FFMP DIRECTORY LISTER	DOS-M
337	22433A-K01	ASCII/INTEGER CONVERSION ROUTINE	DOS,BCS,RTE
338	22434A-K01	RANDOM NUMBER GENERATORS	BCS
339	22435A-K01	SECOND VIRIAL COEFFICIENTS	BCS
340	22436A-K01	HANGMAN	BCS
341	22437A-K01	WILCOXON-MANN-WHITNEY TEST	DOS
342	22438A-K01	DOS-M RELOCATABLE REVERSE ASSEMBLER	DOS-M
343	22439A-K01	8K SIO RELOCATABLE REVERSE ASSEMBLER	SIO
344	22440A-K01	8K SIO ABSOLUTE REVERSE ASSEMBLER	SIO
345	22441A-K01	PSEUDO MULTIPROGRAMMING EXECUTIVE FOR BCS	BCS,MTS
346	22442A-K01	BD.1 BASIC DRIVER FOR HP 8054A REAL TIME ANALYZER	HP BASIC 20392A
347	22443A-K01	DOS/RTE ALGOL COMPILER	DOS,DOS-M,RTE
348	22444A-K01	COMMENT INSERTER FOR ASSEMBLER PROGRAMS	DOS,DOS-M,RTE
349	22445A-K01	RTE TRACK ASSIGNMENT TABLE LOG	RTE
350	22446A-K01	MAGNETIC TAPE SYSTEM PROGRAM CATALOG	MTS
351	22447A-K01	HP 5360 COMPUTING COUNTER DRIVER	BCS
352	22448A-K01	CORE RESIDENT DOS-M BOOTSTRAP	DOS-M
353	22449A-K01	TYPE 3 LANGUAGE GENERATOR	SELF CONTAINED
354	22450A-K01	PRIVILEGED RTE DRIVER FOR THE HP 8054 AUDIO ANALYZER (DVR75)	RTE
355	22451A-K01	RELAY TIMER FOR HP 12551B RELAY REGISTER INTERFACE	BCS
356	22452A-K01	RCS - FORTRAN/ALGOL MEMORY ALLOCATION ROUTINES	BCS
357	22453R-K01	HP 2100 REMOTE JOB ENTRY TO IBM HOST CPU	BCS,MTS
358	22454C-K01	QUICK DUMP FOR HP 7900A MOVING HEAD DISC	SIO
359	22455A-K01	HP IDFAL COMMERCIAL SUBROUTINE LIBRARY	RCS
360	22457R-K01	DEFINE AND FILL FILES FROM DOS-M USER PROGRAM	DOS-M
361	22458A-K01	DOS/DOS-M HP 7970 7-TRACK MAGNETIC TAPE DRIVER (DVR24) WITH DMA	DOS,DOS-M
362	22460A-K01	CONTINUOUS SYSTEM MODELING PROGRAM (CSMP)	DOS-M
363	22461A-K01	FILE AND REWIND FOR THE TENNECOMP TP-1371 MINIDEK SYSTEM	RCS
364	22462A-K01	READ/WRITE ROUTINES FOR THE TENNECOMP TP-1371 MINIDEK SYSTEM	HP BASIC 24160A

# Indexes

CON #	PART NUMBER	TITLE	OPERATING SYSTEM(S)
365	22463A-K01	HP 7900 DISC TO DISC DUMP	BCS
366	22464A-K01	TEKTRONIX 4010 VIDEO DISPLAY UNIT DRIVER - BASIC CALLABLE	HP BASIC 20392A
367	22465A-K01	EXTENDED PRECISION ADAPTER FOR BCS	BCS,MTS
368	22466C-K01	HP 2311A SUBSYSTEM DRIVER	DOS-M
369	22467A-K01	INTEGR EXTRACTION FROM A STRING OF TEXT	BCS,DOS,DOS-M
370	22468A-K01	EXPAND/CONTRACT DOS-M FILES	DOS
371	22469A-K01	HP 2870 DISC TO DISC DUMP	SIO
372	22471A-K01	HP 7210 PLOTTER DRIVER FOR DOS-M	DOS-M
373	22472A-K01	HP 2310/2311 SUBSYSTEM DRIVER FOR DOS-M	DOS-M
374	22473R-K01	HP 7210 PLOTTER DRIVER FOR RTE	RTE
375	22474A-K01	HP 7210 PLOTTER LIBRARY	RTE,DOS-M
376	22475A-K01	HP 2311A SUBSYSTEM DRIVER - BASIC CALLABLE	HP BASIC 20392A
377	22476A-K01	MULTI-PURPOSE SURROUTINE PACKAGE FOR HP BASIC 20392A	HP BASIC 20392A
378	22477A-K01	FLOATING POINT OVERLAY FOR HP BASIC	HP BASIC 20392A
379	22479A-K01	ALPHANUMERIC DISC FILE SORT	DOS,DOS-M
380	22480R-K01	DUMP FROM DOS-M MAG TAPE STORAGE AND RETRIEVAL (HP 22198) FORMAT	SELF CONTAINED
381	22481R-K01	LOAD DOS-M FROM MAG TAPE STORAGE AND RETRIEVAL (HP 22198) FORMAT	SELF CONTAINED
382	22482A-K01	HP 2020R MAGNETIC TAPE STORAGE & RETRIEVAL	SELF CONTAINED
383	22483R-K01	APPLICATIONS DATA MANAGEMENT PACKAGE (ADM) - DOS-M	DOS-M
384	22484A-K01	DOS-M USER FILE DESCRIPTION DIRECTORY	DOS-M
385	22485A-K01	DOS-M DIRECTORY LISTING PROGRAM WITH MASKING FACILITY	DOS
386	22486A-K01	FFMP READ/WRITE WITH FORTRAN IV INPUT/OUTPUT LISTS	DOS-M
387	22487A-K01	CIVIL ENGINEERING COORDINATE GEOMETRY (COGO)	DOS-M
388	22488A-K01	DOS-M ABSOLUTE BINARY TAPE LOADER	DOS-M
389	22489A-K01	CORE SIZE INDEPENDENT TELEPRINTER SIO DRIVER (LP COMPATIBLE)	SELF CONTAINED
390	22490A-K01	CORE SIZE INDEPENDENT PHOTO READER SIO DRIVER	SELF CONTAINED
391	22491A-K01	CORE SIZE INDEPENDENT PAPER TAPE PUNCH SIO DRIVER	SELF CONTAINED
392	22492A-K01	THE EXECUTIVE GAME FOR DOS-M	DOS-M
393	22493A-K01	CRFATE DSGEN MAGNETIC TAPE	DOS-M
394	22494R-K01	HAVING EDUCATIONAL BASIC FOR DOS-M	DOS-M
395	22495A-K01	FORTTRAN FORMATTED READ FROM DOS-M S-TYPE USER FILES	DOS-M
396	22496A-K01	CDC USER 200 TERMINAL SIMULATOR	BCS,MTS,DOS-M
397	22497A-K01	PERT FOR DOS/DOS-M	DOS,DOS-M
398	22498R-K21	STRUCTURAL ENGINEERING SYSTEM SOLVER (STRESS)	DOS-M
399	22500A-K01	DOS-M RFLOCATABLE PROGRAM TAPE EDITOR	DOS,DOS-M
400	22501A-K01	HEXADECIMAL/OCTAL LIST OF ANSI-COMPATIBLE MAGNETIC TAPE (TDUMP)	MTS,SIO
401	22503A-K01	IEFMP LOAD SUBSYSTEM	DOS-M
402	22504A-K01	CHARACTER PACKING AND UNPACKING	BCS,DOS,DOS-M
403	22505A-K01	RTE HP 1331C STORAGE SCOPE DRIVER (DVR47)	RTE
404	22506A-K01	RTE HP 1331C STORAGE SCOPE LIBRARY	RTE
405	22507A-K01	CONVERSION ROUTINE FOR HP 2058E SUBSYSTEM RTE DRIVER	RTE
406	22508A-K01	HP 2058F SCANNER SUBSYSTEM RTE DRIVER (DVR57)	RTE
407	22509A-K01	DOS/DOS-M HP 1331C STORAGE SCOPE LIBRARY	DOS,DOS-M
408	22510A-K01	DOS/DOS-M HP 1331C STORAGE SCOPE DRIVER (DVR47)	DOS,DOS-M
409	22511A-K01	INVERSE SIN AND COS ROUTINE	DOS,DOS-M,RTE
410	22512A-K01	DOS-M DRIVER PACKAGE FOR ACCESSING FRONT-END MAGNETIC TAPE	BCS,DOS-M
411	22515A-K01	PSEUDO-DMA INPUT (MULTI-CHANNEL)	BCS,SELF CONTAINED
412	22516A-K01	WORD MOVE (INTERRUPTABLE)	BCS,SELF CONTAINED
413	22517A-K01	NORMAL DISTRIBUTION	DOS,DOS-M
414	22518A-K01	VARIANCE RATIO DISTRIBUTION	DOS,DOS-M
415	22519A-K01	DOS-M AUTOLOAD ROUTINE	DOS-M
416	22520A-K01	TAPE PUNCH AND VERIFY ROUTINE	SELF CONTAINED
417	22523A-K01	RCS ODEC LINE PRINTER DVR. (D.16)	BCS
418	22524A-K01	RTE ALPHANUMERIC TAPE LABEL GENERATOR	RTE
419	22525A-K01	READ/WRITE DOS-M FILES IN RTE ENVIRONMENT	RTE
420	22526A-K01	DOS-M FORTRAN IV CROSS REFERENCE TABLE GENERATOR	DOS-M
421	22527A-K01	DEBUG FOR ABSOLUTE/BCS PROGRAMS	SELF CONTAINED
422	22528A-K01	SERIAL ACCESS TO DOS-M FILES	DOS-M
423	22529A-K01	INTEL 8008 ASSEMBLER FOR HP 2100	BCS,DOS-M,RTE
424	22530R-K01	CHFRNACK(HP22198) M T SOURCE FORMAT TO DOS-M SOURCE FILE (CHERN)	DOS-M
425	22531A-K01	COMPLEX ARITHMETIC FOR HP BASIC	HP BASIC 20392A
426	22532A-K01	SYSTEM SIMULATION PROGRAM (SSP)	DOS-M
427	22533A-K01	RESTORE BASIC BINARY LOADER (PBOOT)	DOS-M
428	22534A-K01	MODIFIED DOS-M WITH FORTRAN READ/WRITE OF DISC FILES	DOS-M
429	22535B-K01	MAGNETIC TAPE COPY	SIO
430	22537A-K01	DOS-M ASCII FILE RETRIEVAL SUBROUTINE	DOS-M
431	22538A-K01	DOS-M CENTRONICS 101-A LINE PRINTER DRIVER (DVR00)	DOS-M
432	22539A-K01	DOS-M SYSTEM TELFPRINTER WITH PAPER TAPE I/O (DVR00)	DOS-M
433	22540A-K01	DOS-M HAZELTINE 2000 TERMINAL DRIVER (DVR00)	DOS-M
434	22542A-K01	HP 2870/7900 DISC/MAGNETIC TAPE UTILITY (MADIU)	SIO
435	22544A-K01	16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAG TAPE	SIO
436	22545A-K01	PHOTOREADER DATA INPUT FOR HP 20992A BASIC	HP BASIC 20392A
437	22546A-K01	SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS FOR BCS	BCS
438	22547A-K01	DOS-M ONLINE ROOT FROM MTS	MTS
439	22548A-K01	TEKTRONIX T4002 PLOTTER LIBRARY FOR RTE	RTE
440	22549A-K01	DOS-M MAGNETIC TAPE COPY	DOS-M
441	22550A-K01	FFMP FILE SORT	DOS-M
442	22553A-K01	TODS INDEX	TODS
443	22554A-K01	DOS-M/DOS-III UTILITIES	DOS-M,DOS-III
444	22555A-K01	SIO DRIVER FOR TTY AND CRT IN SAME SYSTEM	SIO
445	22556A-K01	ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REV.G/M	MTS
446	22557A-K01	8K SDUMP FOR HP 7900A MOVING HEAD DISC	SIO
447	22559A-K01	PAPER TAPE/OPTICAL CARD COPY PROGRAM	SIO
448	22560A-K21	HP2000 SERIES TSB COLD DUMP TAPE ANALYZER (CDTA)	SELF CONTAINED
449	22561A-K01	LIST/POSITION DOS-M NON-DISC FILES	DOS-M
450	22562A-K01	ADMINISTRATION OF A SCHOOL'S OPTIONS SCHEME ON DOS-M	DOS-M
451	22564A-K01	INDIVIDUALIZED STUDENTS EXAMINATION TIMETABLES	DOS-M
452	22565A-K01	GENERATE ARITHMETIC WORKSHEETS UNDER DOS-M	DOS-M
453	22569A-K01	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY	RTE
454	22575A-K01	LIST THE RTE TABLES	RTE
455	22577A-K01	DOS-M REMOTE BATCH TERMINAL TO UNIVAC 1108, EXEC 8 (H1004)	DOS-M
456	22579A-K01	PAPER TAPE SYSTEM DIAGNOSTIC	SELF CONTAINED

CON #	PART NUMBER	TITLE	OPERATING SYSTEM(S)
457	225A0A-K01	RTE BINARY TAPE/FILE UTILITY (BEDIT)	RTE
458	225A1A-K01	HP 2A83A DISC TO DISC DUMP	SELF CONTAINED
459	225A2A-K01	UPPER/LOWER CASE CHARACTER GENERATOR FOR HP 7210 PLOTTER	BCS,MTS,DOS-M,RTE
460	225A5A-K01	DOS-M/DOS III MULTI-FILE ASMB.& XREF SYMBOL TABLE GENERATOR	DOS-M,DOS-III
461	225A6A-K01	VIRTUAL ARRAY HANDLER	DOS-M
462	225A7A-K01	MICRO-CODED DOS-M ROUTINES .PWR2 AND .FLUN	DOS
463	225A8A-K01	MULTI-TERMINAL BCS DRIVER (D,00C)	RCS
464	225A9A-K01	64-BIT INTEGER LIBRARY - FORTRAN CALLABLE	DOS-M
465	22590A-K01	RTE CROSS-REFERENCE GENERATOR	RTE
466	22591A-K01	STRIPPED FORTRAN FORMATTER FOR INTERNAL CONVERSION (STRIF)	RCS
467	22592A-K01	MAKE RTE DRIVERS DISC RESIDENT (DVR67)	RTE
468	22593A-K01	MAIL LIST PROCESSOR	DOS-M
469	22594A-K21	IBM O.S. CROSS ASSEMBLER FOR HP 2100 COMPUTER	IBM OS-360
470	22598A-K01	HP 2321A SUBSYSTEM DRIVER BASIC CALLABLE	HP BASIC 20392A/B
471	22600A-K01	RTE DEBUG WITH TRACE	RTE
472	22602A-K01	HP 5327A UNIV. TIMER/COUNTER/DVM DVR BASIC CALLABLE	HP BASIC 20392A
473	22603A-K01	ON-LINE ACCESS TO HP WCS (MICROBASIC)	SELF CONTAINED
474	22604A-K01	RILL OF MATERIAL PACKAGE	DOS-M
475	22606A-K01	RTE DISC PROGRAM PATCH UTILITY	RTE
476	22607A-K01	MFORM: FORMATTER FOR ASCII CONVERTED INTEGERS	DOS-M,RTE
477	22608C-K21	HP 2000F BASIC FOR DOS-M/DOS III	DOS-M,DOS-III
478	22610A-K01	CORE RESIDENT DOS-M DISC LOADER UTILITY	DOS-M
479	22612A-K01	RTE MAGNETIC TAPE FILE MANAGER	RTE
480	22614A-K01	SUMMARY OF DOS-M SOURCE FILES	DOS-M
481	22615A-K01	DOS-M CFSIL INTERPRETER	DOS-M
482	22618A-K01	MICROCODED FAST FOURIER TRANSFORM	RCS,DOS-M
483	22620A-K01	RCS SUBROUTINES FOR KEYBOARD COMMUNICATIONS	RCS
484	22622A-K01	RCS HP7260A CARD READER DRIVER	RCS,MTS
485	22624A-K01	MICROCODED FAST FOURIER TRANSFORM WITH AUTOMATIC RESCALING	RCS,DOS-M
486	22625A-K01	IRM 1130 FORTRAN TO HP2100 FORTRAN TRANSLATOR	DOS-M
487	22626A-K01	SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN)	DOS-M
488	22627A-K01	DOS-M JOB ACCOUNTING SYSTEM	DOS-M
489	22629A-K01	RTE NON-DMA DRIVER FOR HP5401B MULTICHANNEL ANALYSER	RTE
490	22631A-K01	BCS LOADER WITH TELETYPE/LINE PRINTER OUTPUT	RCS
491	22633A-K01	MULTI-TERMINAL NON-BCS DRIVER (INOUT)	RCS
492	22634A-K01	ABSOLUTE RELOCATING LOADER (ABLOD)	SIO
493	22635A-K01	DOS-M/2000E TIME-SHARED BASIC FILE HANDLER	DOS-M
494	22638A-K01	SPECIAL PRIVILEGED RTE DRIVER FOR HP2313 SUBSYSTEM	RTE
495	22641A-K01	TRIPLE WORD ROUTINE	RCS,DOS-M,DOS-III
496	22642A-K01	LANGUAGE PARSING	RCS
497	22644A-K01	RTE QUICK CORE SORT (QSORT)	RTE
498	22645A-K01	2000F TIME-SHARE BASIC PATCH UTILITY	SELF CONTAINED
499	22646R-K01	RCS ACTIVITY PROFILE GENERATOR (ACP)	RCS
500	22647A-K01	PATCH/MERGE ABSOLUTE BINARY TAPES	SELF CONTAINED
501	22649A-K01	MICROCODED INTEGFR SORT	RCS
502	22653A-K01	READ TIME FROM HP 5666A CLOCK	RCS,MTS,DOS-M,RTE
503	22654A-K01	FAU AND FLOATING POINT EXTERNAL REFERENCE OPTIMIZER	DOS-M
504	22655A-K01	DESCRIPTION DIRECTORY FOR RTE FILE MANAGER FILES	RTE
505	22657A-K01	DEMO THROUGHPUT RATE OF HP 2100 WITH HP 7900A DISC	SELF CONTAINED
506	22658A-K21	RTE/DOS FORTRAN IV COMPILER	RCS,MTS,DOS-M,RTE
507	22659A-K21	IBM O.S. CROSS MICROASSEMBLER FOR HP 2100 COMPUTER	IBM OS-360
508	22660A-K01	CHESS	DOS-M
509	22661A-K01	FAST MICROCODED MULTIPLY INSTRUCTION	RCS
510	22662A-K01	BURST MODE OUTPUT INSTRUCTION	RCS
511	22663A-K01	BYTE DATA MANIPULATION WITH MICROCODED ROUTINES	RCS,DOS-M
512	22664A-K01	RTE CONVERSATIONAL SUPER EDITOR	RTE
513	22665A-K21	TCS ORDER PROCESSING DEMONSTRATION	DOS-III
514	22667A-K01	SERIAL DEVICE TIMING STUDY PROGRAM	RCS
515	22668A-K01	RTE LIBRARY SPEED IMPROVEMENTS	RTE
516	22670A-K01	MICROPROGRAMMED INDEX REGISTER INSTRUCTIONS	ANY
517	22673A-K01	MICROCODED BIT MANIPULATIONS (SET, CLEAR, TEST)	DOS-M
518	22677A-K01	DOS-III UTILITY	DOS-M,DOS-III
519	22679A-K01	CURVE FITTING - WEIGHTED AVERAGING	RCS
520	22680A-K01	MICROPROGRAM SOURCE FORMATTER	DOS-M
521	22681-10910	COMPREHENSIVE ACHIEVEMENT MONITORING (CAM)	DOS-M
522	22681-18911	2100 BYTE MANIPULATION ROUTINES	RCS,MTS,DOS-M,RTE
523	22681-18912	RTE MICRO DEBUG EDITOR	RTE
524	22681-18913	DVR44-RTE DVR FOR INTERMEDIA SYS.4406&4416 GRAPHIC VIDEO GEN	RTE
525	22681-18914	RTE ACTIVITY PROFILE GENERATOR	RTE
526	22681-18915	DVR 33 - RTE WRITE CONTROL STORE DRIVER	RTE
527	22681-18916	RCS TERMINAL COMMUNICATIONS VIA THE DIAL-UP PHONE NETWORK	RCS,MTS
528	22681-18917	MUXT: ASCII MESSAGES VIA 12920 MULTIPLEXOR & LOGICAL DVR ATD01	DOS-III B
529	22681-18918	3000 TO DOS-III SOURCE FILE CONVERSION	DOS-III R
530	22681-18919	PERPETUAL CALENDAR	RCS
531	22681-18920	DVR 12 FOR 9866A THERMAL LINE PRINTER	DOS-M,DOS-III
532	22681-18921	OPTOR: OPTIMIZE BCS SYSTEM BASE PAGE LINKS	DOS-M
533	22681-18922	MEMORY TO PAPER TAPE ARL FORMAT	RCS,MTS,DOS-M,RTE
534	22681-18923	CERTIFICATE DRAFTING PROGRAM (COP)	DOS-M,DOS-III,RTE
535	22681-18924	DOS-M TEKTRONIX 4010 DRIVER AND GRAPH PACKAGE	DOS-M
536	22681-10925	RTE DISC FILE SORT (DSORT)	RTE
537	22681-18926	DOS-M UTILITY PROGRAM GROUP	DOS-M
538	22681-18927	EXTENDED OFFLINE RELOCATING LOADER (SALOD)	SIO
539	22681-18928	21MX PAPER TAPE ASSEMBLER	SIO
540	22681-10929	RTE UTERM-CDC 200 USER TERMINAL SIMULATOR	RTE
541	22681-18931	ROUTINES FOR SWITCHING BETWEEN DOS-M AND BCS	RCS,DOS-M
542	22681-10932	RTE MULTIPLEXER DRIVER (12928A)	RTE
543	22681-18933	ENTEX: FACILITATES CREATION OF SOURCE FILES FROM 2600 KEYBOARD	DOS-III A/B
544	22681-18934	DUPER: RTE FILE MANAGER DUMP	RTE
545	22681-18935	DOS-M DRIVER FOR CFNTRONICS 101A LINE PRINTER	DOS-M
546	22681-18936	026/029 DRIVER 15	DOS-III B
547	22681-18937	DOS-M MARK SENSE EDUCATIONAL TEST SCORING PROGRAM	DOS-M,DOS-III

CON #	PART NUMBER	TITLE	OPERATING SYSTEM(S)
548	22681-18938	RTE MICROASSEMBLER FOR WCS	RTE
549	22681-18939	RTE 4271A 1MHZ DIGITAL LCR METER	RTE
550	22681-18940	PAYROLL PACKAGE	DOS-III
551	22681-18941	CASSETTE PREPARE TAPE SYSTEM	MTS,SIO
552	22681-18942	AK SIO CASSETTE DRIVER	SIO
553	22681-18943	PING-PONG	DOS-M
554	22681-18944	MODIFIED DOS-III SYSTEM CONSOLE DRIVER (DVR05)	DOS-M,DOS-III
555	22681-18945	SFRFD:CONVERTS STRING OF ASCII CHAR.INTO ASCII AND/OR INTEG.FIELD	DOS-M
556	22681-18946	AK CASSETTE SIO DUMP	SIO
557	22681-18947	SCIENTIFIC PROGRAMMER:RCD BINARY CONVERSION SUBROUTINE	RCS
558	22681-18948	RTE RELOCATABLE EDITOR	RTE
559	22681-18949	DOS-III ACTIVITY PROFILE GENERATOR (ACP)	DOS-III
560	22681-18950	DYNAMIC LOAD OF FAST FORTRAN PROCESSOR TO WCS	DOS-M,DOS-III
561	22681-18951	SLEFP/HIBERNATE ANALYSIS PROGRAM (SHAN II)	RCS
562	22681-18953	HP 59310A INTEFACE BUS DRIVER	DOS-M,DOS-III
563	22681-18954	COPY FMP FILES	DOS-M
564	22681-18956	FXOR RANDOM NUMBER GENERATOR	HP BASIC 20392A
565	22681-18958	DOS IIIR BASFD PREPARE CONTROL SYSTEM	DOS-IIIR
566	22681-18960	SPACHE READABILITY FORMULA	DOS-M
567	22681-18961	OCTASFT	SELF CONTAINED
568	22681-18963	TODS-C DISC EDITOR	DOS
569	22681-18967	RCS PLOTTING ROUTINES USING A TEKTRONIX 4010-1	RCS
570	22681-18968	PRE-ASSEMBLER/FILE GATHERER (PRASM) FOR DOS-M	DOS-M
571	22681-18970	STAR - STARTREK - RTE	RTE
572	22681-18971	DOS-M UTILITIES PACKAGE	DOS-M
573	22681-18973	PROGRAM FOR SAVING AND RESTORING DISC FILES ON MAG TAPE	DOS-M
574	22681-18974	ALPHA: PAPER TAPE IDENTIFICATION	DOS-M,RTE
575	22681-18975	DOS-M DISC EDITOR	DOS-M
576	22681-18977	TODS-C BASIC MAG TAPE RCS DRIVER	TODS-C
577	22681-18980	RTE HP2310C SPECIAL SUBSYSTEM DRIVER (DVP56)	RTE
578	22681-18981	HIGH SPEED DISC INPUT/OUTPUT	DOS-III
579	22681-18990	21MX MICROCODED SIN-COS-TAN	RCS,MTS,DOS-M,RTE
580	22681-18991	IMPLEMENTING A USER WRITTEN IBL LOADER ON THE 21MX	DOS-M
581	22682-18900	BASIC CALL TO PRINT NUMBERS WITHOUT SPACFS	HP BASIC
582	22682-18901	RENUM	RTE
583	22682-18903	D.06 RCS DRIVER FOR PRINTER TECHNOLOGY MODEL PRINTEC 100 PRINTER	RCS
584	22682-18904	SINGLE TERMINAL-TIMESHARE BASIC CONVERSATIONAL LINK	HP BASIC 20392A
585	22682-18905	BINARY TO RCD CONVERSION	RCS,DOS-M,RTE,SIO
586	22682-18907	ON-TOP DEMO	DOS-M,DOS-III/R
587	22682-18907	RTEIF	RTE-II,RTE-III
588	22682-18908	PROM WRITER ASSEMBLER MASK TAPE	DOS-III
589	22682-18909	PERT PACKAGE FOR DOS-III	DOS-III
590	22682-18910	SCORE PACK	HP BASIC 24160A
591	22682-18911	RTE 2100 MICROPROGRAMMING SOFTWARE	RTE
592	22682-18912	SIO MACRO PROCESSOR	SIO
593	22682-18913	RTE ASYNCHRONOUS DATA SET INTERFACE DRIVER	RTE
594	22682-18914	INTEL 8080 CROSS ASSEMBLER	DOS-M
595	22682-18916	2000E DISC CHECK UTILITY PROGRAM (TSEDP)	DOS-III
596	22682-18917	FIXED HEAD DISC DIAGNOSTIC	24296-60001
597	22682-18918	OPTIONAL DVS1-RTE AUTO DIAL DVR. FOR 12589A INTERFACE KIT	RTE
598	22682-18919	MAPIO	RTE
599	22682-18920	31-0DD	RCS
600	22682-18921	FILE TRANSFER BETWEEN RTE AND DOS-M/III	RTE-I/II/III
601	22682-18922	DOS-M/III FILE DIRECTORY LISTING FROM RTE ENVIRONMENT	RTE-I/II/III
602	22682-18923	DVR37 - DOS DRIVER FOR ASCII BUS (HP59310A)	DOS-M
603	22682-18924	DOS-III FILE SAVER	DOS-III
604	22682-18925	TAPE-TO-TAPE COPY, SINGLE DRIVE MAG TAPE	DOS-M
605	22682-18926	UTDMP - UNIVERSAL MAG TAPE DUMP	DOS-M
606	22682-18927	SIMPLFX - LINEAR PROGRAMMING FOR DOS-III	DOS-III
607	22682-18928	ADM FOR HP RTE FMGR COMPUTER SYSTEMS	RTE-III
608	22682-18929	RTE DRIVER PACKAGE FOR XYNFITCS & CALCOMP PLOTTERS	RTE
609	22682-18930	RTE SYSTEM MAINTENANCE UTILITY (SMUT)	RTE
610	22682-18931	USER SPOOL POOL FILE ACCESS OR SPOOLING MADE EASIER	RTE-II/III
611	22682-18932	LOAD ON CALL	DOS-M
612	22682-18933	12 X 12 CHARACTER GENERATOR SUBROUTINE	RCS,DOS-M/III,RTE
613	22682-10934	RTE MACRO PROCESSOR	RTE
614	22682-18935	DATL SYSTEM 256 ANALOG-TO-DIGITAL CONVERTER ROUTINE	RCS,DOS-M
615	22682-18936	FAST FOURIER TRANSFORM WITH DATA-STORAGE ON DISC	DOS-M
616	22682-18937	DLU FOR RTE	RTE
617	22682-18938	DOS-IIIR INTERACTIVE EDITOR	DOS-IIIR
618	22682-18939	RREF - CROSS REFERENCE TABLE GENERATOR FOR HP 92101A	RTE
619	22682-18940	ASCII SOURCE FILE WRITE SUBROUTINE	DOS-III
620	22682-18941	DOS-IIIR CHANGE SYSTEM CONSOLE PROGRAM	DOS-IIIR
621	22682-18942	RTE P/3 ACTIVITY PROFILE GENERATOR FOR 21MX M/E COMPUTERS	RTE-II/III
622	22682-18943	PROGRAMMING FOR HP2645 TERMINAL (SOFTKEYS)	RTE-II/III
623	22682-18944	ASCII SOURCE FILE READ SUBROUTINE	DOS-M,DOS-III
624	22682-18945	UNEXT	RTE
625	22682-18946	21MX MICROCODED FFT WITH AUTOMATIC SCALING ON OVERFLOW	RCS,MTS,DOS-M,RTE
626	22682-18947	(STRAK) TEMPORARY, EXPANDABLE FIXED LENGTH RECORD DISC FILE	RTE
627	22682-18948	FORMATTED READ/WRITE TO DISC FILES USING FORTRAN READ/WRITE STMTS	DOS-IIIR
628	22682-18949	CLASS - INTERROGATE CLASS I/O SYSTEM	RTE-II/III
629	22682-18950	TRACK	RTE-II/III
630	22682-18951	FMP-UTIL	RTE-II/III
631	22682-18952	MINV - INVERSE ASSEMBLER FOR MICROCODE	RTE-II/III
632	22682-18953	RTDMD	DOS-M,RTE
633	22682-18954	LISTF - SELECTIVE FMGR DIRECTORY LISTER	RTE-II/III
634	22682-18955	EQTXX	RTE
635	22682-18956	21MX MICROCODED .PACK AND .FLUN	DOS,RTE
636	22682-18957	OVER	RTE-II/III
637	22682-18958	DFINE - REDEFINE PARTITIONS ON-LINE	RTE-III
638	22682-18959	DOS-M DUMP - DISC FILE DUMP UTILITY	DOS-M
639	22682-18960	NAMP	RTE-II,RTE-III

# CROSS REFERENCE INDEX

Think of a key word that describes the program. The Cross-Reference Index includes an alphabetical list of key words and phrases related to computer software. Each program in the catalog is listed under a key word or phrase that applies to it.

<b>A TO D CONVERTER</b>		INTEGER EXTRACTION FROM A STRING OF TEXT	22467A
HP 5610A ANALOG TO DIGITAL DRIVER — FORTRAN CALLABLE	22304A	ALPHANUMERIC DISC FILE SORT	22479A
RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE	22317A	DOS-M ASCII FILE RETRIEVAL SUBROUTINE	22537A
DOS HP 2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER	22339A	EFMP FILE SORT	22550A
DATel SYSTEM 256 ANALOG-TO-DIGITAL CONVERTER ROUTINE	22682-***35	TODS INDEX	22553A
		MFORM: FORMATTER FOR ASCII CONVERTED INTEGERS	22607A
<b>ACCOUNTS RECEIVABLE (711)</b>		ENTEX: FACILITATES CREATION OF SOURCE FILES FROM 2600 KEYBOARD	22681-***33
DOS-M JOB ACCOUNTING SYSTEM	22627A	SFRFD: CONVERTS STRING OF ASCII CHARACTERS INTO ASCII AND/OR INTEGER FLD.	22681-***45
		DVR37 — DOS DRIVER FOR ASCII BUS	22682-***23
<b>AERONAUTICAL ENGINEERING (517)</b>		<b>ASSEMBLER</b>	
EFFECTIVE PERCEIVED NOISE LEVEL	22384A	INVERSE ASSEMBLER	22013B
		AUTOMATIC TABBING PROGRAM	22064B
<b>ALGEBRA</b>		ABSOLUTE OBJECT DECODER	22292B
TRANSFORMATIONS	22117A	DOS/DOS-M ASSEMBLY LANGUAGE COMMENT INSERTER	22346A
		SYMBOLIC MACRO ASSEMBLER FOR THE HP 2100	22385A
<b>ALGOL</b>		ASSEMBLER JUSTIFICATION PROGRAM	22428A
FILE THREE INPUT FOR MTS ALGOL	22100A	DOS-M RELOCATABLE REVERSE ASSEMBLER	22438A
CHARACTER AND BIT STRING PROCEDURES FOR ALGOL	22207A	8K SIO RELOCATABLE REVERSE ASSEMBLER	22439A
ALGOL OPERATING SYSTEM FOR MTS	22270D	8K SIO ABSOLUTE REVERSE ASSEMBLER	22440A
ALGOL ARRAY TRANSFER FOR SEGMENTATION	22289A	COMMENT INSERTER FOR ASSEMBLER PROGRAMS	22444A
FORTRAN/ALGOL ARRAY TRANSFER ROUTINE	22310A	INTEL 8008 ASSEMBLER FOR HP 2100	22529A
DOS/RTE ALGOL COMPILER	22443A	DOS-M/DOS III MULTI-FILE ASSEMBLER AND CROSS REFERENCE	22585A
ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REVISION G/H	22556A	SYMBOL TABLE GENERATOR	
		IBM O.S. CROSS ASSEMBLER FOR HP 2100 COMPUTER	22594A
<b>ALPHA</b>		IBM O.S. CROSS MICROASSEMBLER FOR HP 2100 COMPUTER	22659A
SYMBOLIC ALPHANUMERIC GENERATOR	22016C	21MX PAPER TAPE ASSEMBLER	22681-***28
PAPER TAPE TITLER	22269A	RTE MICROASSEMBLER FOR WCS	22681-***38
RTE ALPHANUMERIC TAPE LABEL GENERATOR	22524A	OCTASET	22681-***61
		PROM WRITER ASSEMBLER MASK TAPE	22682-***08
<b>ANALYSIS OF VARIANCE AND COVARIANCE (410)</b>		INTEL 8080 CROSS ASSEMBLER	22682-***14
LEAST SQUARES REGRESSION PROGRAM	22128A	MINV-INVERSE ASSEMBLER FOR 2100 MICROCODE	22682-***52
LINEAR REGRESSION INTERVAL ESTIMATES	22129A		
ORTHOGONAL REGRESSION PROGRAM	22134A	<b>AUTO RESTART</b>	
COMPLETELY RANDOMIZED DESIGN	22148A	FORTRAN POWER FAIL LINK	22235A
COMPLETELY RANDOMIZED DESIGN WITH SUBSAMPLING	22149A		
RANDOMIZED COMPLETE BLOCK DESIGN	22150A	<b>BASIC</b>	
RANDOMIZED COMPLETE BLOCK DESIGN WITH SUBSAMPLING	22151B	BASIC LINE RESEQUENCER	22015B
TWO-WAY FACTORIAL DESIGN	22152A	BASIC PHOTOREADER DATA INPUT	22082B
THREE-WAY FACTORIAL DESIGN	22153A	OCTAL UTILITY SYSTEM (HOCUS)	22088A
ANALYSIS OF VARIANCE INFORMATION GENERATOR	22154A	BASIC LANGUAGE DATA ACQUISITION SYSTEM	22199A
DUNCAN'S MULTIPLE RANGE TEST	22155A	PACIFIC UNION COLLEGE MULTI-TERMINAL HP BASIC SYSTEM	22201D
BARTLETT'S HOMOGENEITY OF VARIANCE TEST	22157B	TELEPRINTER/LINEPRINTER OUTPUT SELECTOR FOR HP BASIC	22237C
TESTS OF HYPOTHESIS FOR VARIANCES	22160A	HP 7970 MAGNETIC TAPE DRIVER — BASIC CALLABLE	22239A
MULTIPLE REGRESSION PROGRAM	22185A	MSU MULTI-TERMINAL BASIC SYSTEM WITH CARD READER CAPABILITY	22255E
		MINI-BASIC	22261A
<b>ARITHMETIC</b>		CHAIN FROM PHOTOREADER IN HP BASIC	22287A
INTEGRATED MATH CALCULATOR PROGRAM	22084C	BCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION	22311A
DOUBLE PRECISION INTEGER LIBRARY	22097D	DOS-M RELOCATABLE BASIC	22326A
COMPLEX MATH PACKAGE	22234A	DISC BASIC EXECUTIVE	22338A
DECIMAL ARITHMETIC AND MOVE/COMPARE ROUTINES	22268B	HP BASIC TO FORTRAN TRANSLATOR FOR DOS/DOS-M	22388A
THREE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES	22334A	DOS-M EAU RELOCATABLE BASIC	22389A
FIVE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES	22335A	HP 2778/2787 LINE PRINTER PATCH FOR EDUCATIONAL BASIC	22399A
COMPLEX ARITHMETIC FOR HP BASIC	22531A	EDUCATIONAL BASIC HP 2767 LINE PRINTER DRIVER	22409A
INDIVIDUALIZED STUDENTS EXAM TIMETABLE	22564A	SUPER BASIC FOR DOS-M	22417C
GENERATE ARITHMETIC WORKSHEETS UNDER DOS-M	22565A	READ/WRITE ROUTINES FOR THE TENNECOMP TP-1371 MINIDEK SYSTEM	22462A
TRIPLE WORD ROUTINES	22641A	HP 2311A SUBSYSTEM DRIVER — BASIC CALLABLE	22475A
FAST MICROCODED MULTIPLY INSTRUCTION	22661A	MULTI-PURPOSE SUBROUTINE PACKAGE FOR HP BASIC 20392A	22476A
		FLOATING POINT OVERLAY FOR HP BASIC	22477A
<b>ASCII</b>		HAVING EDUCATIONAL BASIC FOR DOS-M	22494B
EBCDIC TO ASCII TRANSLATOR	22086A	COMPLEX ARITHMETIC FOR HP BASIC	22531A
ASCII/IBM 8-LEVEL CHARACTER CONVERSION ROUTINE	22093A	PHOTOREADER DATA INPUT FOR HP 20392A BASIC	22545A
CHARACTER CODE TRANSLATOR	22214A	HP 2321A SUBSYSTEM DVR-BASIC CALLABLE	22598A
TELEX TO ASCII PHOTOREADER DRIVER	22264B		
ASCII DISC FILE FIELD SORT	22376A		
SPACE SAVING ASCII STORAGE ROUTINES	22404A		



## CROSS REFERENCE INDEX

HP 5327B COUNTER/TIMER/DIGITAL VOLTMETER DVR.	22602A	MTS BOOT FROM DOS-M	22357A
HP 2000F BASIC FOR DOS-M/DOSIII	22608C	CORE RESIDENT DOS-M BOOTSTRAP	22448B
2000E TIME SHARE BASIC PATCH UTILITY	22645A	DOS-M AUTOLOAD ROUTINE	22519A
ROUTINES FOR SWITCHING BETWEEN DOS-M AND BCS	22681-***31	RESTORE BASIC BINARY LOADER (PBOOT)	22533A
BASIC CALL TO PRINT NUMBER WITHOUT SPACES	22682-***00	DOS-M ONLINE BOOT FROM MTS	22547A
SINGLE TERMINAL — TIMESHARE BASIC CONVERSATIONAL LINK	22682-***04	CORE RESIDENT DOS-M DISC LDR. UTIL.	22610A
SCORE-PACK	22682-***10		
BREF-CROSS REFERENCE TABLE GENERATOR FOR HP 92101A	22682-***39		
		<b>BREAK POINTS (210)</b>	
<b>BCD</b>		LIST/POSITION DOS-M NON-DISC	22561A
DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION	22294A		
HP 2402A DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22305A	<b>BUSINESS (EDUCATION) (880)</b>	
SCIENTIFIC PROGRAMMER:BCD BINARY CONVERSION SUBROUTINE	22681-***47	THE EXECUTIVE GAME	22332A
BINARY TO BCD CONVERSION	22682-***05	THE EXECUTIVE GAME FOR DOS-M	22492A
		<b>BUSINESS INFORMATION SYSTEMS (717)</b>	
<b>BCD/ASCII ARITHMETIC (304)</b>		TCS ORDER PROCESSING DEMONSTRATION	22665A
DECIMAL ARITHMETIC AND MOVE/COMPARE ROUTINES	22268B		
		<b>BUSINESS SERVICES (718)</b>	
<b>BCS</b>		DOS-M JOB ACCOUNTING SYSTEM	22627A
16K BINARY SYNCHRONOUS CONTROLLED DATA	22244B		
COMMUNICATIONS PROGRAM		<b>CALCOMP</b>	
USER INTERFACE TO BCS TELECOMMUNICATIONS DRIVER D.50	22245A	CALCOMP PLOTTER DRIVER — BASIC CALLABLE	22077B
'EXEC' CALL ADAPTER ROUTINE	22250A	LOGARITHMIC AXIS GENERATOR FOR THE CALCOMP 565	22426A
MTS/BCS SYSTEM ABSOLUTE DUMP	22257A	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY	22569A
BCS INTERPRETER FOR FLOATING POINT OPERATIONS	22295A	RTE DRIVER PACKAGE FOR XYNETICS & CALCOMP	22682-***29
OFFLINE RELOCATING LOADER	22297A	PLOTTERS	
HP 2870A CARTRIDGE DISC MEMORY DRIVER — FORTRAN	22301A		
CALLABLE		<b>CALCULATOR</b>	
BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS AND	22328C	INTEGRATED MATH CALCULATOR PROGRAM	22084C
ASYNCHRONOUS DEVICES		EXTENDED PRECISION CALCULATOR	22085B
8K BINARY SYNCHRONOUS CONTROLLED DATA	22367A		
COMMUNICATIONS PROGRAM		<b>CARD</b>	
ALPHANUMERIC RECORD SORT	22383A	CARD TO MAGNETIC TAPE UTILITY	22165A
PSEUDO MULTIPROGRAMMING EXECUTIVE FOR BCS	22441A	PAPER TAPE/OPTICAL CARD COPY PROGRAM	22559A
BCS-FORTRAN/ALGOL MEMORY ALLOCATION ROUTINE	22452A	BCS HP 7260A CARD READER DRIVER	22622A
HP 2100 REMOTE JOB ENTRY TO IBM HOST CPU	22453B	026/029 DRIVER 15	22681-***36
BCS ODEC LINE PRINTER DRIVER (D.16)	22523A		
DEBUG FOR ABSOLUTE/BCS PROGRAMS	22527A	<b>CHAIN</b>	
MULTI-TERMINAL BCS DRIVER (D.00C)	22588A	MTS FORTRAN CHAIN	22267A
BCS SUBROUTINES FOR KEYBOARD COMMUNICATION	22620A	CHAIN FROM PHOTOREADER IN HP BASIC	22287A
BCS LOADER WITH TELETYPE/LINE PRINTER OUTPUT	22631A	ALGOL ARRAY TRANSFER FOR SEGMENTATION	22289A
ABSOLUTE RELOCATING LOADER (ABLOD)	22634A		
BCS TERMINAL COMMUNICATIONS VIA THE DIAL-UP PHONE	22681-***16		
NETWORK		<b>CHARACTER/SYMBOL MANIPULATION (104)</b>	
OPTOR: OPTIMIZE BCS SYSTEM BASE PAGE LINKS	22681-***21	BIT OPERATIONS (SET, CLEAR, TEST) — FORTRAN CALLABLE	22081A
DOS IIIB BASED PREPARE CONTROL SYSTEM	22681-***58	DATA BLOCK MOVEMENT	22204A
D.06 BCS DRIVER FOR PRINTER TECHNOLOGY	22682-***03	CHARACTER AND BIT STRING PROCEDURES FOR ALGOL	22207A
MODEL PRINTEC 100 PRINTER		DECIMAL ARITHMETIC AND MOVE/COMPARE ROUTINES	22268B
		SPACE SAVING ASCII STORAGE ROUTINES	22404A
<b>BESSEL FUNCTION</b>		INTEGER EXTRACTION FROM A STRING OF TEXT	22467A
K BESSEL FUNCTION ROUTINE	22018A	MULTI-PURPOSE SUBROUTINE PACKAGE FOR HP BASIC 20392A	22476A
I BESSEL FUNCTION ROUTINE	22019A	CHARACTER PACKING AND UNPACKING	22504A
Y BESSEL FUNCTION ROUTINE	22020A	TODS INDEX	22553A
		BYTE DATA MANIPULATION WITH MICROCODED ROUTINES	22663A
<b>BILL OF MATERIALS (705)</b>		MICROCODED BIT MANIPULATIONS	22673A
BILL OF MATERIAL PACKAGE	22604A	12 X 12 CHARACTER GENERATOR SUBROUTINE	22682-***33
		<b>CHEMICAL ENGINEERING (516)</b>	
<b>BINARY</b>		COPPER-CONSTANTAN THERMOCOUPLE VOLTAGE TO CELSIUS	22325A
BINARY TAPE EDITOR	22014A	DEGREES CONVERSION	
DOS-M BINARY FILE DATA ACQUISITION	22361A	SECOND VIRIAL COEFFICIENTS	22435A
DOS-M RELOCATABLE PROGRAM TAPE EDITOR	22500A		
RTE RELOCATABLE EDITOR	22681-***48	<b>CHEMISTRY (507)</b>	
BINARY TO BCD CONVERSION	22682-***05	HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER — BASIC	22407B
		CALLABLE	
<b>BIT</b>		<b>CIVIL ENGINEERING (515)</b>	
BIT OPERATIONS (SET, CLEAR, TEST) — FORTRAN CALLABLE	22081A	CIVIL ENGINEERING COORDINATE GEOMETRY (COGO)	22487A
CHARACTER AND BIT STRING PROCEDURES FOR ALGOL	22207A		
MICROCODED BIT MANIPULATIONS	22673A	<b>CLOCK</b>	
		TIME-OF-DAY CLOCK	22002A
<b>BOOTSTRAP</b>		HP 12539A TIME BASE GENERATOR DRIVER — FORTRAN	22071A
BOOTSTRAP LOADER GENERATOR	22009B	CALLABLE	
LOADER BOOTSTRAP	22223C	HP 12539A TIME BASE GENERATOR DRIVER — BASIC CALLABLE	22112A
DOS-M HARDWARE BOOT	22342A	READ TIME FROM HP 5666A CLOCK	22653A
ON-LINE SYSTEM LOAD FOR MOVING-HEAD RTE	22344A		
ON-LINE MOVING-HEAD RTE BOOTSTRAP FROM DOS-M OR DOS	22345A	<b>CODE/RADIX CONVERSION (105)</b>	
DOS-M BOOTSTRAP PROGRAM FOR DOS-M OR DOS	22349A	EBCDIC TO ASCII TRANSLATOR	22086A
DOS-M BOOTSTRAP PROGRAM FROM RTE	22350A	ASCII/IBM 8-LEVEL CHARACTER CONVERSION ROUTINE	22093A

## CROSS REFERENCE INDEX

CHARACTER CODE TRANSLATOR	22214A	<b>CRITICAL PATH ANALYSIS (603)</b>	
TELEX TO ASCII PHOTOREADER DRIVER	22264B	PERT FOR DOS/DOS-M	22497A
4-2-2-1 BCD TO FLOATING POINT CONVERSION FOR RTE	22274A	PERT PACKAGE FOR DOS-III	22682-***09
RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION	22276A		
ASCII/INTEGER CONVERSION ROUTINE	22433A	<b>CROSS REFERENCE</b>	
STRIPPED FORTRAN FORMATTER FOR INTERNAL CONVERSION	22591A	DOS-M FORTRAN IV CROSS REFERENCE TABLE GENERATOR	22526A
MFORM: FORMATTER FOR ASCII CONVERTED INTEGERS	22607A	DOS-M/DOS III MULTI-FILE ASSEMBLER AND CROSS REFERENCE SYMBOL TABLE GENE	22585A
TRIPLE WORD ROUTINES	22641A	RTE CROSS REFERENCE GENERATOR	22590A
BINARY TO BCD CONVERSION	22682-***05	BREF-CROSS REFERENCE TABLE GENERATOR FOR HP 92101A	22682-***39
<b>COMPARE</b>		<b>CROSSBAR</b>	
FAST PUNCH VERIFY	22180C	RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION	22276A
DOS/DOS-M SOURCE FILE VERIFY PROGRAM	22347A		
BYTE DATA MANIPULATION WITH MICROCODED ROUTINES	22663A		
		<b>CURVE</b>	
<b>COMPILER</b>		CURVE FITTING — WEIGHTED AVERAGING	22679A
SNOBOL COMPILER FOR DOS/DOS-M	22327E		
DOS/RTE ALGOL COMPILER	22443A		
LANGUAGE PARSING	22642A		
RTE/DOS FORTRAN IV COMPILER	22658A		
		<b>CURVE FITTING (309)</b>	
<b>COMPLEX</b>		SOLUTION OF LINEAR LEAST SQUARES PROBLEMS	22022A
COMPLEX ROOTS OF A REAL POLYNOMIAL	22030B	LEAST SQUARES REGRESSION PROGRAM	22128A
COMPLEX FOURIER TRANSFORM	22037B	LINEAR REGRESSION INTERVAL ESTIMATES	22129A
FAST FOURIER TRANSFORM	22218A	POLYNOMIAL REGRESSION PROGRAM	22130A
COMPLEX MATH PACKAGE	22234A	POLYNOMIAL REGRESSION CONFIDENCE INTERVALS	22131A
COMPLEX ARITHMETIC FOR HP BASIC	22531A	STEPWISE REGRESSION PROGRAM	22132A
		BIOASSAY PROGRAM	22133A
<b>COMPLEX ARITHMETIC (303)</b>		ORTHOGONAL REGRESSION PROGRAM	22134A
COMPLEX MATH PACKAGE	22234A	LINEAR REGRESSION WITH REPLICATION	22135A
COMPLEX ARITHMETIC FOR HP BASIC	22531A	NONLINEAR REGRESSION PROGRAM	22136A
		KOLMOGOROV-SMIRNOV GOODNESS-OF-FIT TEST	22158C
<b>CONCATENATE</b>		POOLING OF GROUPS IN REGRESSION	22184A
PAPER TAPE COPY	22368A	MULTIPLE REGRESSION PROGRAM	22185A
PRE-ASSEMBLER FILE GATHEREE (PRASM) FOR DOS-M	22681-***68	NONLINEAR REGRESSION OF A SINGLE-VARIABLE FUNCTION	22187A
		NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION	22188A
<b>CONTINUOUS SYSTEMS SIMULATION (607)</b>		LINEAR LEAST SQUARES PROBLEM SOLVER	22220A
CONTINUOUS SYSTEM MODELING PROGRAM (CSMP)	22460A		
SYSTEM SIMULATION PROGRAM (SSP)	22532A	<b>D TO A CONVERTER</b>	
		HP 1331C STORAGE SCOPE DRIVER — BASIC CALLABLE	22318A
<b>CONVERSION</b>		SIO LIST OUTPUT TO A STORAGE SCOPE	22379A
COPPER-CONSTANTAN THERMOCOUPLE VOLTAGE TO CELSIUS DEGREES CONVERSION	22325A		
QUOTATION MARKS CONVERSION IN DOS/DOS-M FILES	22371A	<b>DATA ACQUISITION SYSTEMS (012)</b>	
MEDIA CONVERSION	22427A	HP 2320 LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22061A
ASCII/INTEGER CONVERSION ROUTINE	22433A	HP 2322A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22062A
CONVERSION ROUTINE FOR HP 2058E SUBSYSTEM RTE DRIVER	22507A	HP 2323A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22069A
MFORM: FORMATTER FOR ASCII CONVERTED INTEGERS	22607A	SYNCHRONOUS HIGH SPEED DATA ACQUISITION PROGRAM	22170A
TRIPLE WORD ROUTINES	22641A	BASIC LANGUAGE DATA ACQUISITION SYSTEM	22199A
3000 TO DOS-III SOURCE FILE CONVERSION	22681-***18	HP BIOMEDICAL RESPONSE AVERAGING PROGRAM	22221B
SFRFD: CONVERTS STRING OF ASCII CHARACTERS INTO ASCII AND/OR INTEGER FLD.	22681-***45	DOS-M BINARY FILE DATA ACQUISITION	22361A
SCIENTIFIC PROGRAMMER: BCD BINARY CONVERSION SUBROUTINE	22681-***47	HP BASIC DRIVER SYSTEM WITH BINARY DATA I/O	22380D
FILE TRANSFER BETWEEN RTE AND DOS-M/III	22682-***21	HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER — BASIC CALLABLE	22407B
DOS-M/III FILE DIRECTORY LISTING FROM RTE ENVIRONMENT	22682-***22	HP 2310/2311 SUBSYSTEM DRIVER FOR DOS-M	22472A
		HP 2311A SUBSYSTEM DRIVER — BASIC CALLABLE	22475A
<b>COOLEY-TUKEY</b>		HP 2321A SUBSYSTEM DVR-BASIC CALLABLE	22598A
REAL FOURIER TRANSFORM	22036A	SPECIAL PRIVILEGED RTE DVR	22638A
GENERAL FAST FOURIER TRANSFORM	22189B		
FAST FOURIER TRANSFORM WITH DATA STORAGE ON DISC	22682-***36	<b>DATA COMMUNICATIONS</b>	
		16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM	22244B
<b>CORRELATION ANALYSIS (409)</b>		USER INTERFACE TO BCS TELECOMMUNICATIONS DRIVER D.50	22245A
AUTOCORRELATION AND SPECTRAL DENSITY	22124A	BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS AND ASYNCHRONOUS DEVICES	22328C
CROSS CORRELATION ANALYSIS	22126A	8K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM	22367A
POLYNOMIAL REGRESSION CONFIDENCE INTERVALS	22131A	HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108	22372A
MULTIPLE CORRELATION MATRIX PROGRAM	22186A	A BCS ASYNCHRONOUS DATA SET INTERFACE DRIVER	22374A
		D.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER	22387A
<b>COUNTER</b>		THREE DIMENSIONAL TRANSFORMATIONS USING EULER'S ANGLES	22425A
COUNTER DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE	22004A	DOS-M REMOTE BATCH TERMINAL TO UNIVAC 1108	22577A
COUNTER DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22106B	RTE UTERM-CDC 200 USER TERMINAL SIMULATOR	22681-***29
4-2-2-1 BCD TO FLOATING POINT CONVERSION FOR RTE	22274A	HP 59310A INTERFACE BUS DRIVER	22681-***53
HP 5360 COMPUTING COUNTER DRIVER	22447A	RTE HP 2310A SPECIAL SUBSYSTEM DRIVER (DVR56)	22681-***80
HP 5327B COUNTER/TIMER/DIGITAL VOLTMETER DVR.	22602A	RTE ASYNCHRONOUS DATA SET INTERFACE DRIVER	22682-***13

## CROSS REFERENCE INDEX

OPTIONAL DVR51 — RTE AUTO DIAL DRIVER FOR 12589A INTERFACE KIT	22682-***18	RTE DEBUG WITH TRACE	22600A
DVR37 — DOS DRIVER FOR ASCII BUS (HP 59310A)	22682-***23	ON-LINE ACCESS TO HP WCS (MICROBASIC)	22603A
<b>DATA HANDLING UTILITIES (108)</b>		RTE DISC PROGRAM PATCH UTILITY	22606A
KEYBOARD TAPE GENERATOR	22090A	OCTASET	22681-***61
CARD TO MAGNETIC TAPE UTILITY	22165A	RTE SYSTEM MAINTENANCE UTILITY	22682-***30
MAGNETIC TAPE TO PRINT UTILITY PROGRAM	22166A	BREF — CROSS REFERENCE TABLE GENERATOR FOR HP 92101A	22682-***39
DISC/DRUM UTILITY	22272A	CLASS — INTERROGATE CLASS I/O SYSTEM	22682-***49
DOS-M FILE ACCESS AND STRING LOOKUP	22277A	<b>DECIMAL</b>	
PSEUDO REPORT GENERATOR	22303B	ABSOLUTE OCTAL OR DECIMAL CORE DUMP	22322A
FTN IV CORE SAVER	22341A	<b>DEMONSTRATIONS (901)</b>	
FIELDSORT	22343A	DOS DEMO	22099A
DOS/DOS-M SOURCE FILE VERIFY PROGRAM	22347A	DEMO THROUGHPUT RATE OF HP 2100 W/HP 7900A DISC	22657A
DOS-M STORE ABSOLUTES	22354B	TCS ORDER PROCESSING DEMONSTRATION	22665A
DOS-M PAPER TAPE/DISC VERIFY	22355A	PERPETUAL CALENDAR	22681-***19
EASY MAGNETIC TAPE I/O AND STATUS INFORMATION	22358A	PAYROLL PACKAGE	22681-***40
HANDIO	22359A	RTDMO	22682-***53
DOS-M BINARY FILE DATA ACQUISITION	22361A	<b>DETERMINANT</b>	
EFMP RECORD READ/WRITE	22364A	MATRIX INVERSION SUBROUTINES	22118C
DOS-M FILE WRITER	22369A	<b>DIAGNOSTICS (SEE SPECIFIC TYPE OF DIAGNOSTIC)</b>	
ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE	22373B	<b>DIGITAL VOLTAGE SOURCE (SEE VOLTAGE SOURCE)</b>	
RTE LOGBOOK	22378A	<b>DIGITAL VOLTMETER</b>	
RELOCATABLE MODULE LISTER	22381A	HP 2401C DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE	22005B
MULTIRECORD FORMATTED OUTPUT LISTER	22386A	HP 2401C DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE	22006A
RELOCATABLE OBJECT UTILITY LIBRARIAN	22392A	HP 3460A DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE	22008A
RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING	22398B	HP 3460A/B DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE	22055A
ZERO	22400A	HP 2323A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22069A
SPACE SAVING ASCII STORAGE ROUTINES	22404A	HP 3460A/B DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22102B
EFMP DIRECTORY LISTER	22432B	HP 2402A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22104B
MULTI-PURPOSE SUBROUTINE PACKAGE FOR HP BASIC 20392A	22476A	HP 3450A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22108C
APPLICATIONS DATA MANAGEMENT PACKAGE (ADM)	22483B	HP 3480A/B DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22215A
EFMP READ/WRITE WITH FORTRAN IV INPUT/OUTPUT LISTS	22486A	HP 3480A/B DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE	22226B
DOS-M ABSOLUTE BINARY TAPE LOADER	22488A	DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION	22294A
FORTRAN FORMATTED READ FROM DOS-M S-TYPE USER FILES	22495A	HP 2402A DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22305A
EFMP LOAD SUBSYSTEM	22503A	HP 2321A SUBSYSTEM DVR — BASIC CALLABLE	22598A
READ/WRITE DOS-M FILES IN RTE ENVIRONMENT	22525A	HP 5327B COUNTER/TIMER/DIGITAL VOLTMETER DVR.	22602A
SERIAL ACCESS TO DOS-M FILES	22528A	<b>DISC OPERATING SYSTEMS (007)</b>	
MODIFIED DOS-M W/FORTRAN READ/WRITE OF DISC FILES	22534A	RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING	22398B
DOS-M ASCII FILE RETRIEVAL SUBROUTINE	22537A	MODIFIED DOS-M W/FORTRAN READ/WRITE OF DISC FILES	22534A
LIST/POSITION DOS-M NON-DISC	22561A	CORE RESIDENT DOS-M DISC LDR. UTIL.	22610A
RTE BINARY TAPE/FILE UTILITY (BEDIT)	22580A	<b>DISC/DRUM</b>	
MAIL LIST PROCESSOR	22593A	HP 2770A/2771A DISC DRIVER — FORTRAN CALLABLE	22063A
EAU AND FLOATING POINT EXTERNAL REFERENCE OPTIMIZER	22654A	HP 2770A/2771A DISC DRIVER — BASIC CALLABLE	22111C
BYTE DATA MANIPULATION WITH MICROCODED ROUTINES	22663A	HP 2870A CARTRIDGE DISC DRIVER — BASIC CALLABLE	22216B
3000 TO DOS-IIIB SOURCE FILE CONVERSION	22681-***18	HP 2870A CARTRIDGE DISC DRIVER — FORTRAN CALLABLE	22225B
(STRAK) TEMPORARY, EXPANDABLE FIXED LENGTH RECORD DISC FILE	22682-***47	DOS-M PRIVILEGED DISC I/O ROUTINES	22233C
FILE TRANSFER BETWEEN RTE AND DOS-M/II	22682-***21	DISC/DRUM UTILITY	22272A
DOS-M/III FILE DIRECTORY LISTING FROM RTE ENVIRONMENT	22682-***22	DOS-M DUMP/RESTORE PROGRAM	22284A
FMP-UTIL	22682-***51	CONVERSATIONAL DOS-M DISC FILE EDITOR	22285C
FORMATTED R/N TO DISC FILES USING FORTRAN R/W STATEMENTS	22682-***48	QUICK FIXED HEAD SDUMP	22300B
<b>DATA SET</b>		HP 2870A CARTRIDGE DISC MEMORY DRIVER — FORTRAN CALLABLE	22301A
16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM	22244B	HP 9300N DISC EXERCISER	22333A
USER INTERFACE TO BCS TELECOMMUNICATIONS DRIVER D.50	22245A	ASCII STRING SEARCH FROM DISC FILE	22351A
HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108	22372A	DOS-M PAPER TAPE/DISC VERIFY	22355A
A BCS ASYNCHRONOUS DATA SET INTERFACE DRIVER	22374A	RTE TRACK ASSIGNMENT TABLE LOG	22445A
D.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER	22387A	QUICK SDUMP FOR HP 7900A MOVING HEAD DISC	22454C
THREE DIMENSIONAL TRANSFORMATIONS USING EULER'S ANGLES	22425A	DEFINE AND FILL FILES FROM DOS-M USER PROGRAM	22457B
BCS TERMINAL COMMUNICATIONS VIA THE DIAL-UP PHONE NETWORK	22681-***16	HP 7900 DISC TO DISC DUMP	22463A
RTE ASYNCHRONOUS DATA SET INTERFACE DRIVER	22682-***13	HP 2870 DISC TO DISC DUMP	22469A
<b>DEBUGGING AIDS (211)</b>		HP 2870/7900 DISC/MAGNETIC TAPE UTILITY (MADIU)	22542A
OCTAL UTILITY SYSTEM (HOCUS)	22088A	HP 2883A DISC TO DISC DUMP	22581A
ABSOLUTE PROGRAM CONTROL SYSTEM	22190A	RTE DISC FILE SORT (DSORT)	22681-***25
INTERPRETIVE BINARY SIMULATOR	22193A	FIXED HEAD DISC DIAGNOSTIC	22682-***17
OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM	22293B		
DOS-M FORTRAN IV CROSS REFERENCE TABLE GENERATOR	22526A		
DEBUG FOR ABSOLUTE/BCS PROGRAMS	22527A		
DOS-M/DOS III UTILITIES	22554A		
RTE CROSS REFERENCE GENERATOR	22590A		
MAKE RTE DRIVER DISC RESIDENT (DVR67)	22592A		

## CROSS REFERENCE INDEX

<b>DISCRETE SYSTEMS SIMULATION(606)</b>		HP 5327B COUNTER/TIMER/DIGITAL VOLTMETER DVR.	22602A
THE EXECUTIVE GAME	22332A	COPY EFMP FILES	22681-****54
THE EXECUTIVE GAME FOR DOS-M	22492A	TAPE-TO-TAPE COPY, SINGLE DRIVE MAG TAPE	22682-****25
<b>DISCRIMINANT ANALYSIS (403)</b>		<b>EDUCATION</b>	
DISCRIMINANT ANALYSIS PROGRAM	22127A	ADMINISTRATION OF A SCHOOL'S OPTIONS SCHEME ON DOS-M	22562A
<b>DISPLAY</b>		DOS-M MARK SENSE EDUCATIONAL TEST SCORING PROGRAM	22681-****37
HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER — FORTRAN	22080B	INDIVIDUALIZED STUDENT EXAMINATION TIMETABLES	22564A
CALLABLE		GENERATE ARITHMETIC WORKSHEETS UNDER DOS-M	22565A
HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER — BASIC CALLABLE	22217B	SPACHE READABILITY FORMULA	22681-****60
OSCILLOSCOPE PLOTTING SUBROUTINE	22253C	COMPREHENSIVE ACHIEVEMENT MONITORING (CAM)	22681-****10
THREE DIMENSIONAL PLOT SUBROUTINE	22262A	SCORE-PACK	22682-****10
<b>DMA</b>		<b>EXTERNAL INTERRUPT PROCESSING (019)</b>	
PSEUDO-DMA INPUT (MULTI-CHANNEL)	22515A	FORTRAN POWER FAIL LINK	22235A
BURST MODE OUTPUT INSTRUCTION	22662A	<b>FACTORY ANALYSIS (411)</b>	
<b>DRIVER (SEE I/O, AND/OR SPECIFIC PERIPHERAL TYPE)</b>		ORTHOGONAL REGRESSION PROGRAM	22134A
<b>DRUM (SEE DISC/DRUM)</b>		<b>FILE MANAGEMENT (110)</b>	
<b>DSI</b>		DOS-M FILE ACCESS AND STRING LOOKUP	22277A
COUNTER DATA SOURCE INTERFACE DRIVER — FORTRAN	22004A	CONVERSATIONAL DOS-M DISC FILE EDITOR	22285C
CALLABLE		PSEUDO REPORT GENERATOR	22330B
<b>DUMPING (207)</b>		ASCII STRING SEARCH FROM DISC FILE	22351A
OCTAL UTILITY SYSTEM (HOCUS)	22088A	DOS-M STORE ABSOLUTES	22354B
MAGNETIC TAPE TO PRINT UTILITY PROGRAM	22166A	EFMP RECORD READ/WRITE	22364A
BCS DUMP IN BBL FORMAT	22174A	DOS-M FILE WRITER	22369A
ABSOLUTE PROGRAM CONTROL SYSTEM	22190A	ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE	22373B
MAGNETIC TAPE TO LINE PRINTER ROUTINE	22251A	EFMP FILE TRANSFER	22429A
MTS/BCS SYSTEM ABSOLUTE DUMP	22257A	EFMP DIRECTORY LISTER	22432B
DOS TO MAGNETIC TAPE DUMP	22259A	EXPAND/CONTRACT DOS-M FILES	22468A
MAGNETIC TAPE TO DOS DUMP	22260A	APPLICATIONS DATA MANAGEMENT PACKAGE (ADM)	22483B
DISC/DRUM UTILITY	22272A	EFMP READ/WRITE WITH FORTRAN IV INPUT/OUTPUT LISTS	22486A
ABSOLUTE CORE DUMP ROUTINE	22280A	DOS-M ABSOLUTE BINARY TAPE LOADER	22488A
DOS-M DUMP/RESTORE PROGRAM	22284A	IEFMP LOAD SUBSYSTEM	22503A
CORE PUNCH IN BBL FORMAT	22290A	READ/WRITE DOS-M FILES IN RTE ENVIRONMENT	22525A
OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM	22293B	SERIAL ACCESS TO DOS-M FILES	22528A
QUICK FIXED HEAD SDUMP	22300B	MODIFIED DOS-M W/FORTRAN READ/WRITE OF DISC FILES	22534A
ABSOLUTE OCTAL OR DECIMAL CORE DUMP	22322A	DOS-M ASCII FILE RETRIEVAL SUBROUTINE	22537A
360 FORMAT MAGNETIC TAPE DUMP	22340A	MAIL LIST PROCESSOR	22593A
RELOCATABLE MODULE LISTER	22381A	BILL OF MATERIAL PACKAGE	22604A
MULTIRECORD FORMATTED OUTPUT LISTER	22386A	DOS-M/2000E TIME-SHARED BASIC FILE HANDLER	22635A
QUICK SDUMP FOR HP 7900A MOVING HEAD DISC	22454C	DUPER: RTE FILE MANAGER DUMP	22681-****34
HP 7900 DISC TO DISC DUMP	22463A	PAYROLL PACKAGE	22681-****40
HP 2870 DISC TO DISC DUMP	22469A	PRE-ASSEMBLER/FILE GATHERER (PRASM) FOR DOS-M	22681-****67
DUMP FROM DOS-M MAGNETIC TAPE STORAGE AND RETRIEVAL	22480B	HIGH SPEED DISC INPUT/OUTPUT	22681-****81
(HP 22198) FORMAT		FILE TRANSFER BETWEEN RTE AND DOS-M/III	22682-****21
LOAD DOS-M FROM MAGNETIC TAPE STORAGE & RETRIEVAL	22481B	DOS-M/III FILE DIRECTORY LISTING FROM RTE ENVIRONMENT	22682-****22
(HP 22198) FORMAT		ADM FOR HP RTE FMGR COMPUTER SYSTEMS	22682-****28
HEXADECIMAL/OCTAL LIST OF ANSI-COMPATIBLE MAGNETIC	22501A	DOS-III B INTERACTIVE EDITOR	22682-****38
TAPE (TDUMP)		ASCII SOURCE FILE WRITE SUBROUTINE	22682-****40
DEBUG FOR ABSOLUTE/BCS PROGRAMS	22527A	ASCII SOURCE FILE READ SUBROUTINE	22682-****44
CHERNACK (HP 22198) MAGNETIC TAPE SOURCE FORMAT TO	22530B	(STRAK) TEMPORARY, EXPANDABLE FIXED LENGTH RECORD	22682-****47
DOS-M SOURCE FILE		DISC FILE	
DOS-M HAZELTINE 2000 TERMINAL DRIVER (DVR00)	22540A	SELECTIVE FMGR DIRECTORY LISTER	22682-****54
HP 2870/7900 DISC/MAGNETIC TAPE UTILITY (MADIU)	22542A	<b>FLOATING POINT</b>	
16K STAND-ALONG DUMP OF HP 2000C/F FORMAT	22544A	COMPLEX MATH PACKAGE	22234A
MAGNETIC TAPE		FLOATING POINT OVERLAY FOR HP BASIC	22477A
8K SDUMP FOR HP 7900A MOVING HEAD DISC	22557A	EAU AND FLOATING POINT EXTERNAL REFERENCE OPTIMIZER	22654A
HP 2883A DISC TO DISC DUMP	22581A	<b>FORMAT</b>	
MEMORY TO PAPER TAPE ABL FORMAT	22681-****22	TABULATION AND FORM-FEED CALLS FOR HP 2754 TELEPRINTER	22205A
DUPER: RTE FILE MANAGER DUMP	22681-****34	FORTRAN RUN-TIME FORMAT SPECIFICATION	22238A
8K CASSETTE SIO DUMP	22681-****46	PSEUDO REPORT GENERATOR	22330B
UTDMP — UNIVERSAL MAG TAPE DUMP	22682-****26	MFORM: FORMATTER FOR ASCII CONVERTED INTEGERS	22607A
DLU FOR RTE	22682-****37	MICROPROGRAM SOURCE FORMATTER	22680A
DOS-M DUMP — DISC FILE DUMP UTILITY	22682-****59	<b>FORTRAN</b>	
<b>DUPLICATION (106)</b>		FORTRAN UNIT REFERENCE NUMBER EDITOR	22171A
HP 3450A DATA SOURCE INTERFACE DRIVER — FORTRAN		FORTRAN RUN-TIME FORMAT SPECIFICATION	22238A
CALLABLE		MTS FORTRAN CHAIN	22267A
HP 3450A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22108C	FORTRAN/ALGOL ARRAY TRANSFER ROUTINE	22310A
HP 3480A/B DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22215A	HP BASIC TO FORTRAN TRANSLATOR FOR DOS/DOS-M	22388A
HP 3480A/B DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE	22226B	HP 'IDEAL' COMMERCIAL SUBROUTINE LIBRARY	22455A
DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION	22294A	FORTRAN FORMATTED READ FROM DOS-M S-TYPE USER FILES	22495A
HP 2402A DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22305A	DOS-M FORTRAN IV CROSS REFERENCE TABLE GENERATOR	22526A
HP 2321A SUBSYSTEM DVR — BASIC CALLABLE	22598A	MODIFIED DOS-M W/FORTRAN READ/WRITE OF DISC FILES	22534A
		STRIPPED FORTRAN FORMATTER FOR INTERNAL CONVERSION	22591A

## CROSS REFERENCE INDEX

RENUM	22682-***01	HP 1331C STORAGE SCOPE DRIVER — BASIC CALLABLE	22318A
FORMATTED R/W TO DISC FILES USING FORTRAN R/W STATEMENTS	22682-***48	X-Y PLOTTER FOR 11 INCH PAGE PRINTER	22348A
<b>FOURIER</b>		DOS-M DISC INITIALIZE/PROTECT UTILITY	22377A
REAL FOURIER TRANSFORM	22036A	SIO LIST OUTPUT TO A STORAGE SCOPE	22379A
COMPLEX FOURIER TRANSFORM	22037B	EFFECTIVE PERCEIVED NOISE LEVEL	22384A
GENERAL FAST FOURIER TRANSFORM	22189B	TEKTRONIX 4010 VIDEO DISPLAY UNIT DRIVER — BASIC CALLABLE	22464A
FAST FOURIER TRANSFORM	22218A	TEKTRONIX T4002 PLOTTER LIBRARY FOR RTE	22548A
MICROCODED FAST FOURIER TRANSFORM	22618A	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY	22569A
MICROCODED FAST FOURIER TRANSFORM WITH AUTOMATIC RESCALING	22624A	UPPER/LOWER CASE CHARACTER GENERATOR FOR HP 7210 PLOTTER	22582A
FAST FOURIER TRANSFORM WITH DATA STORAGE ON DISC	22682-***36	DVR 44: RTE DVR FOR INTERMEDIA SYS. GRAPHIC VIDEO GENERATOR	22681-***13
21MX MICROCODED FFT WITH AUTOMATIC SCALING ON OVERFLOW	22682-***46	CERTIFICATE DRAFTING PROGRAM (CDP)	22681-***23
<b>FUNCTIONS, COMPUTATION OF (306)</b>		DOS-M TEKTRONIX 4010 DRIVER AND GRAPH PACKAGE	22681-***24
GAMMA FUNCTION ROUTINE	22017A	BCS PLOTTING ROUTINES USING A TEKTRONIX 4010-1	22681-***67
K BESSEL FUNCTION ROUTINE	22018A	RTE DRIVER PACKAGE FOR XYNETICS & CALCOMP PLOTTERS	22682-***29
I BESSEL FUNCTION ROUTINE	22019A	<b>GRAPHIC EQUIPMENT TEST (205)</b>	
Y BESSEL FUNCTION ROUTINE	22020A	DOS-M UTILITY PROGRAM GROUP	22681-***26
TRANSFORMATIONS	22117A	<b>HAMMINGS</b>	
FRESNEL INTEGRAL EVALUATION	22256A	SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS	22038A
FLOATING POINT RANDOM NUMBER GENERATOR	22265A	<b>HERMITIAN</b>	
SCIENTIFIC SUBROUTINE PACKAGE	22329A	SIMPSON AND NEWTON'S 3/8 INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22025A
INVERSE SIN AND COS ROUTINE	22511A	HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE	22026A
21MX MICROCODED SIN-COS-TAN	22681-***90	HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22027B
<b>GAMES (903)</b>		HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE	22028A
JEU DE MORPIONS (GAME OF TIC-TAC-TOE)	22094A	HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22029A
BATTLESHIP	22298A	<b>HISTOGRAM</b>	
HANGMAN	22436A	GENERAL STATISTICS PROGRAM	22141A
CHES	22660A	HISTOGRAM PLOTTER PROGRAM	22164B
PERPETUAL CALENDAR	22681-***19	HISTOGRAM PLOTTER ROUTINE	22182A
PING PONG	22681-***43	DOS-M TEKTRONIX 4010 DRIVER AND GRAPH PACKAGE	22681-***24
STAR — STARTREK — RTE	22681-***70	<b>HP-IB</b>	
THIRTY-ONE ODD	22682-***20	DVR37-DOS DRIVER FOR ASCII BUS (HP 59310A)	22682-18923
<b>GAMMA</b>		<b>HOUSEHOLDER</b>	
GAMMA FUNCTION ROUTINE	22017A	EIGENVALUES OF A SYMMETRIC REAL MATRIX	22192A
<b>GAS</b>		LINEAR LEAST SQUARES PROBLEM SOLVER	22220A
HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER — BASIC CALLABLE	22407B	<b>I/O, A/D — D/A (013)</b>	
SECOND VIRIAL COEFFICIENTS	22435A	HP 2320 LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22061A
<b>GAUSSIAN</b>		HP 2322A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22062A
RANK AND BASIS ROUTINE	22032A	HP 2323A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22069A
SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS	22033A	HP 3480A/B DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22215A
SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX	22034A	MINIVERTEER DRIVER	22281A
SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC MATRIX	22035A	HP 5610 ANALOG TO DIGITAL DRIVER — FORTRAN CALLABLE	22304A
SIMULTANEOUS EQUATION SOLVER PROGRAM	22122A	RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE	22317A
SIMULTANEOUS EQUATION SOLVER ROUTINE	22123A	DOS HP 2322A LOW SPEED ANALOG TO DIGITAL SUBSYSTEM DRIVER	22331A
GAUSSIAN RANDOM NUMBER GENERATOR	22308A	DOS HP 2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER	22339A
<b>GENERAL PROBABILITY (413)</b>		HP 2311A SUBSYSTEM DOS-M DRIVER	22466C
COMBINATION GENERATOR	22397A	HP 2310/2311 SUBSYSTEM DRIVER FOR DOS-M	22472A
<b>GENERATOR</b>		HP 2311A SUBSYSTEM DRIVER — BASIC CALLABLE	22475A
HP 5100B FREQUENCY SYNTHESIZER DRIVER — FORTRAN CALLABLE	22075A	CONVERSION ROUTINE FOR HP 2058E SUBSYSTEM RTE DRIVER	22507A
WAVETEK BASIC DRIVER	22200A	HP 2058E SCANNER SUBSYSTEM RTE DRIVER (DVR57)	22508A
HP 5100B FREQUENCY SYNTHESIZER DRIVER — BASIC CALLABLE	22211A	HP 2321A SUBSYSTEM DVR — BASIC CALLABLE	22598A
PSEUDO REPORT GENERATOR	22330B	HP 5327B COUNTER/TIMER/DIGITAL VOLTMETER DVR.	22602A
HP 1900 PROGRAMMABLE PULSE GENERATOR — FORTRAN CALLABLE	22336A	DATL SYSTEM 256 ANALOG-TO-DIGITAL CONVERTER ROUTINE	22682-***35
HP 1900 PROGRAMMABLE PULSE GENERATOR DRIVER — BASIC CALLABLE	22337A	<b>I/O, DISC/DRUM (015)</b>	
TYPE 3 LANGUAGE GENERATOR	22449A	HP 2770A/2771A DISC DRIVER — FORTRAN CALLABLE	22063A
<b>GRAPHIC DISPLAY</b>		HP 2770A/2771A DISC DRIVER — BASIC CALLABLE	22111C
OSCILLOSCOPE PLOTTING SUBROUTINE	22253C	HP 2870A CARTRIDGE DISC DRIVER — BASIC CALLABLE	22216B
THREE DIMENSIONAL PLOT SUBROUTINE	22262A	HP 2870A CARTRIDGE DISC DRIVER — FORTRAN CALLABLE	22225B
PLOT, RELAY, WAIT	22263A	DOS-M PRIVILEGED DISC I/O ROUTINES	22233C
BASIC PLOT SUBROUTINES	22279A		
CONTINUOUS DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE	22315A		
VARIABLE DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE	22316A		

## CROSS REFERENCE INDEX

HP 2870A CARTRIDGE DISC MEMORY DRIVER — FORTRAN CALLABLE	22301A	RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE	22317A
DEFINE AND FILL FILES FROM DOS-M USER PROGRAM	22457B	HP 1900 PROGRAMMABLE PULSE GENERATOR — FORTRAN CALLABLE	22336A
VIRTUAL ARRAY HANDLER	22586A	HP 1900 PROGRAMMABLE PULSE GENERATOR DRIVER — BASIC CALLABLE	22337A
DEMO THROUGHPUT RATE OF HP 2100 W/HP 7900A DISC	22657A	DISC BASIC EXECUTIVE	22338A
RTE HP 2310C SPECIAL SUBSYSTEM DRIVER (DVR56)	22681-***80	DOS HP 2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER	22339A
DATEL SYSTEM 256 ANALOG-TO-DIGITAL CONVERTER ROUTINE	22682-***35	HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER — BASIC CALLABLE	22407B
<b>I/O, GRAPHIC (014)</b>			
CALCOMP PLOTTER DRIVER — BASIC CALLABLE	22077B	RTE MULTIPROGRAMMER DRIVER (DVR61)	22410A
HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER — FORTRAN CALLABLE	22080B	BD.1 BASIC DRIVER FOR HP 8054A REAL TIME ANALYZER	22442A
HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER — BASIC CALLABLE	22217B	HP 5360 COMPUTING COUNTER DRIVER	22447A
HIGH SPEED CONTINUOUS LINE PLOTTER FOR HP 7004B	22219A	PRIVILEGED RTE DRIVER FOR THE HP 8054 AUDIO ANALYZER (DVR75)	22450A
X-Y PLOTTING ROUTINE	22242A	8K SDUMP FOR HP 7900A MOVING HEAD DISC	22557A
OSCILLOSCOPE PLOTTING SUBROUTINE	22253C	HP 5327B COUNTER/TIMER/DIGITAL VOLTMETER DVR. 026/029 DRIVER 15	22602A
PLOT, RELAY, WAIT	22263A	RTE 4271A 1 MHZ DIGITAL LCR METER	22681-***36
BASIC PLOT SUBROUTINES	22279A	SCIENTIFIC PROGRAMMER: BCD BINARY CONVERSION SUBROUTINE	22681-***47
DOS/DOS-M HP 2331 X-Y SCOPE DISPLAY	22291C	DVR37 — DOS DRIVER FOR ASCII BUS (HP 59310A)	22682-***23
CONTINUOUS DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE	22315A	<b>I/O, MAGNETIC TAPE (016)</b>	
VARIABLE DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE	22316A	FILE THREE INPUT FOR MTS ALGOL	22100A
HP 1331C STORAGE SCOPE DRIVER — BASIC CALLABLE	22318A	RTE HP 2020 MAGNETIC TAPE DRIVER	22181A
SIO LIST OUTPUT TO A STORAGE SCOPE	22379A	HP 3030G MAGNETIC TAPE DRIVER — FORTRAN CALLABLE	22208A
HP 7004 X-Y RECORDER LIBRARY	22390A	HP 7970 MAGNETIC TAPE DRIVER — BASIC CALLABLE	22239A
HP 1331C SIO SCOPE DISPLAY DRIVER	22391A	ALGOL OPERATING SYSTEM FOR MTS	22270D
TEKTRONIX 4010 VIDEO DISPLAY UNIT DRIVER — BASIC CALLABLE	22464A	DOS/DOS-M HP 2020 MAGNETIC TAPE DRIVER	22319A
HP 7210 PLOTTER DRIVER FOR DOS-M	22471A	NON-DMA BCS HP 3030 DRIVER	22414A
HP 7210 PLOTTER DRIVER FOR RTE	22473B	DOS/DOS-M HP 7970 7-TRACK MAGNETIC TAPE DRIVER (DVR24) WITH DMA	22458B
RTE HP 1331C STORAGE SCOPE DRIVER — DVR47	22505A	FILE AND REWIND FOR THE TENNECOMP TP-1371 MINIDEK SYSTEM	22461A
RTE HP 1331C STORAGE SCOPE LIBRARY	22506A	READ/WRITE ROUTINES FOR THE TENNECOMP TP-1371 MINIDEK SYSTEM	22462A
DOS/DOS-M HP 1331C STORAGE SCOPE LIBRARY	22509A	DOS-M DRIVER PACKAGE FOR ACCESSING FRONT-END MAGNETIC TAPE	22512A
DOS/DOS-M HP 1331C STORAGE SCOPE DRIVER — DVR47	22510A	TAPE PUNCH AND VERIFY ROUTINE	22520A
TEKTRONIX T4002 PLOTTER LIBRARY FOR RTE	22548A	ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REVISION G/H	22556A
RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY	22569A	8K SIO CASSETTE DRIVER	22681-***42
DVR 44: RTE DVR FOR INTERMEDIA SYS. GRAPHIC VIDEO GENERATOR	22681-***13	TODS-C BASIC MAG TAPE BCS DRIVER	22681-***77
DOS-M TEKTRONIX 4010 DRIVER AND GRAPH PACKAGE	22681-***24	<b>I/O, PAPER TAPE (009)</b>	
BCS PLOTTING ROUTINES USING A TEKTRONIX 4010-1	22681-***67	RUN-TIME DATA INPUT FOR BASIC	22044B
RTE DRIVER FOR XYNETICS & CALCOMP PLOTTERS	22682-***29	HIGH SPEED PUNCH DRIVER — BASIC CALLABLE	22078B
<b>I/O, INSTRUMENT (006)</b>			
COUNTER DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE	22004A	BASIC PHOTOREADER DATA INPUT	22082B
HP 2401C DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE	22005B	HP 2754A PUNCH/LIST IN KT MODE	22176A
HP 2401C DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE	22006A	DOS-M REMOTE TAPE READER DRIVER	22246B
HP 3460A DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE	22008A	FAST DOS/DOS-M PHOTOREADER DRIVER	22247B
HP 3460A/B DATA SOURCE INTERFACE DRIVER — FORTRAN CALLABLE	22055A	TELEX TO ASCII PHOTOREADER DRIVER	22264B
HP 2320 LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22061A	DOS/DOS-M PHOTOREADER DRIVER TO READ ABSOLUTE BINARY TAPES	22353A
HP 2322A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22062A	CORE SIZE INDEPENDENT PHOTOREADER SIO DRIVER	22490A
HP 2323A LOW SPEED A-TO-D SUBSYSTEM DRIVER — FORTRAN CALLABLE	22069A	CORE SIZE INDEPENDENT PAPER TAPE PUNCH SIO DRIVER	22491A
HP 5100B FREQUENCY SYNTHESIZER DRIVER — FORTRAN CALLABLE	22075A	DOS-M SYSTEM TELEPRINTER WITH PAPER TAPE I/O (DVR00)	22539A
HP 2911A/B CROSSBAR SCANNER DRIVER — BASIC CALLABLE	22101B	DOS-M HAZELTINE 2000 TERMINAL DRIVER (DVR00)	22540A
HP 3460A/B DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22102B	PHOTOREADER DATA INPUT FOR HP 20392A BASIC	22545A
HP 2402A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22104B	MULTI-TERMINAL BCS DRIVER (D.00C)	22588A
COUNTER DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22106B	MULTI-TERMINAL NON-BCS DVR (INOUT)	22633A
HP 2912A REED SCANNER DRIVER — BASIC CALLABLE	22107B	ALPHA: PAPER TAPE IDENTIFICATION	22681-***74
HP 3450A DATA SOURCE INTERFACE DRIVER — BASIC CALLABLE	22108C	<b>I/O, PRINTER (011)</b>	
WAVETEK BASIC DRIVER	22200A	BASIC HP 2778A LINE PRINTER DRIVER	22095A
HP 5100B FREQUENCY SYNTHESIZER DRIVER — BASIC CALLABLE	22211A	HP 2767 LINE PRINTER BASIC DRIVER	22258A
HP 3480A/B DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22215A	HP 2778/2767 LINE PRINTER PATCH FOR EDUCATIONAL BASIC	22399A
HP 3480A/B DIGITAL VOLTMETER DRIVER — FORTRAN CALLABLE	22226B	BASIC CALLABLE LINE PRINTER DRIVER	22408A
HP 6131B DIGITAL VOLTAGE SOURCE DRIVER — FORTRAN CALLABLE	22227A	EDUCATIONAL BASIC HP 2767 LINE PRINTER DRIVER	22409A
4-2-2-1 BCD TO FLOATING POINT CONVERSION FOR RTE	22274A	A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER	22411A
RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CODE CONVERSION	22276A	BCS ODEC LINE PRINTER DRIVER (D.16)	22523A
DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION	22294A	DOS-M CENTRONICS 101-A LINE PRINTER DRIVER (DVR00)	22538A
HP 2402A DIGITAL VOLTMETER DRIVER — BASIC CALLABLE	22305A	DVR FOR 9866A THERMAL LINE PRINTER	22681-***20
HP 12551B RELAY REGISTER INTERFACE DRIVER — BASIC CALLABLE	22313A	DOS-M DRIVER FOR CENTRONICS 101A LINE PRINTER	22681-***35
		D.06 BCS DRIVER FOR PRINTER TECHNOLOGY MODEL PRINTEC 100 PRINTER	22682-***03
		USER SPOOL POOL FILE ACCESS OR SPOOLING MADE EASIER	22682-***31

## CROSS REFERENCE INDEX

<b>I/O, PUNCH CARD (010)</b>				
026/029 DRIVER 15		22681-***36	AN HP ASSEMBLER FOR THE IBM 360	22396A
			HP 2100 REMOTE JOB ENTRY TO IBM HOST CPU	22453B
			IBM 1130 FORTRAN TO HP 2100 FORTRAN TRANSLATOR	22625A
			IBM O.S. CROSS MICROASSEMBLER FOR HP 2100 COMPUTER	22659A
<b>I/O, SPECIAL DEVICE (003)</b>				
TIME-OF-DAY CLOCK	22002A			
HP 12539A TIME BASE GENERATOR DRIVER — FORTRAN CALLABLE	22071A			
HP 12539A TIME BASE GENERATOR DRIVER — BASIC CALLABLE	22112A			
ORTHOGONAL REGRESSION PROGRAM	22134A			
SYNCHRONOUS HIGH SPEED DATA ACQUISITION PROGRAM	22170A			
PROGRAM EXECUTION TIMER	22195B			
WAVETEK BASIC DRIVER	22200A			
HP 12551A/B RELAY REGISTER INTERFACE DRIVER — FORTRAN CALLABLE	22229B			
BCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION	22311A			
HP 12551B RELAY REGISTER INTERFACE DRIVER — BASIC CALLABLE	22313A			
HP 1900 PROGRAMMABLE PULSE GENERATOR — FORTRAN CALLABLE	22336A			
HP 1900 PROGRAMMABLE PULSE GENERATOR — DRIVER BASIC CALLABLE	22337A			
BCS HP 7260A CARD READER DRIVER	22622A			
RTE NON DMA DVR FOR HP 5401B MULTI CHANNEL ANALYZER	22629A			
READ TIME FROM HP 5666A CLOCK	22653A			
OPTIONAL DVR51 — RTE AUTO DIAL DRIVER FOR 12589A INTERFACE KIT	22682-***18			
<b>I/O, STATUS PROCESSING (004)</b>				
PROGRAM EXECUTION TIMER	22195B			
FORTRAN I/O STATUS FUNCTION	22236A			
EQTX	22682-***55			
<b>I/O, TELECOMMUNICATIONS (002)</b>				
TELEPRINTER OCTAL INPUT PROGRAM	22089A			
TELEPRINTER/LINEPRINTER OUTPUT SELECTOR FOR HP BASIC	22237C			
16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM	22244B			
USER INTERFACE TO BCS TELECOMMUNICATIONS DRIVER D.50	22245A			
DOS-M REMOTE TAPE READER DRIVER	22246B			
BCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION	22311A			
ABSOLUTE OCTAL OR DECIMAL CORE DUMP	22322A			
BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS AND ASYNCHRONOUS DEVICES	22328C			
8K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM	22367A			
HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108	22372A			
A BCS ASYNCHRONOUS DATA SET INTERFACE DRIVER	22374A			
SIO LIST OUTPUT TO A STORAGE SCOPE	22379A			
RELOCATABLE MODULE LISTER	22381A			
D.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER	22387A			
CORE-SAVING TELEPRINTER I/O DRIVER AND CODE CONVERSION ROUTINE	22394A			
HP 2100 REMOTE JOB ENTRY TO IBM HOST CPU	22453B			
CORE SIZE INDEPENDENT TELEPRINTER SIO DRIVER (LINE PRINTER COMPATIBLE)	22489A			
CDC USER 2000 TERMINAL SIMULATOR	22496A			
HEXADECIMAL/OCTAL LIST OF ANSI-COMPATIBLE MAGNETIC TAPE (TDUMP)	22501A			
DOS-M SYSTEM TELEPRINTER WITH PAPER TAPE I/O (DVR00)	22539A			
SIO DVR FOR TTY AND CRT IN SAME SYSTEM	22555A			
DOS-M REMOTE BATCH TERMINAL TO UNIVAC 1108	22577A			
MULTI-TERMINAL BCS DRIVER (D.00C)	22588A			
MULTI-TERMINAL NON-BCS DVR (INOUT)	22633A			
BCS TERMINAL COMMUNICATIONS VIA THE DIAL-UP PHONE NETWORK	22681-***16			
RTE UTERM-CDC 200 USER TERMINAL SIMULATOR	22681-***29			
RTE MULTIPLEXER DRIVER (12920A)	22681-***32			
MODIFIED DOS-III SYSTEM CONSOLE DRIVER (DVR05)	22681-***44			
HP 59310A INTERFACE BUS DRIVER	22681-***53			
RTE ASYNCHRONOUS DATA SET INTERFACE	22682-***13			
<b>IBM</b>				
AN HP 2116-FAMILY SIMULATOR FOR THE IBM 360	22042C			
MAGNETIC TAPE TO LINE PRINTER ROUTINE	22251A			
BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS AND ASYNCHRONOUS DEVICES	22328C			
360 FORMAT MAGNETIC TAPE DUMP	22340A			
			<b>INFORMATION STORAGE AND RETRIEVAL (102)</b>	
			MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM	22198C
			DOS TO MAGNETIC TAPE DUMP	22259A
			MAGNETIC TAPE TO DOS DUMP	22260A
			DISC/DRUM UTILITY	22272A
			DOS-M DUMP/RESTORE PROGRAM	22284A
			DOS/DOS-M SOURCE STORAGE AND RETRIEVAL	22299A
			DISC BASIC EXECUTIVE	22338A
			FIELDSORT	22343A
			PACKED MAGNETIC TAPE STORAGE AND RETRIEVAL FOR DOS-M	22356A
			MAGNETIC TAPE SYSTEM PROGRAM CATALOG	22446A
			DUMP FROM DOS-M MAGNETIC TAPE STORAGE AND RETRIEVAL (HP 22198) FORMAT	22480B
			LOAD DOS-M FROM MAGNETIC TAPE STORAGE & RETRIEVAL (HP 22198) FORMAT	22481B
			HP 2020B MAGNETIC TAPE STORAGE & RETRIEVAL	22482A
			APPLICATIONS DATA MANAGEMENT PACKAGE (ADM)	22483B
			DOS-M USER FILE DESCRIPTION DIRECTORY	22484A
			DOS-M DIRECTORY LISTING PROGRAM WITH MASKING FACILITY	22485A
			READ/WRITE DOS-M FILES IN RTE ENVIRONMENT	22525A
			CHERNACK (HP 22198) MAGNETIC TAPE SOURCE FORMAT TO DOS-M SOURCE FILE	22530B
			16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAGNETIC TAPE	22544A
			MAIL LIST PROCESSOR	22593A
			BILL OF MATERIAL PACKAGE	22604A
			RTE MAGNETIC TAPE FILE MANAGER	22612A
			SUMMARY OF DOS-M SOURCE FILES	22614A
			DOS-M/2000E TIME-SHARED BASIC FILE HANDLER	22635A
			TCS ORDER PROCESSING DEMONSTRATION	22665A
			PROGRAM FOR SAVING & RESTORING DISC FILES ON MAG TAPE	22681-***73
			DOS-III FILE SAVER	22682-***24
			ADM FOR HP RTE FMGR COMPUTER SYSTEMS	22682-***28
			FMP — UTIL	22682-***51
			<b>INTEGER</b>	
			INTEGER EXTRACTION FROM A STRING OF TEXT	22467A
			64-BIT INTEGER LIBRARY-FORTRAN CALLABLE	22589A
			MICROCODED INTEGER SORT	22649A
			FAST MICROCODED MULTIPLY INSTRUCTION	22661A
			<b>INTEGRAL TRANSFORMS (316)</b>	
			REAL FOURIER TRANSFORM	22036A
			COMPLEX FOURIER TRANSFORM	22037B
			GENERAL FAST FOURIER TRANSFORM	22189B
			FAST FOURIER TRANSFORM	22218A
			MICROCODED FAST FOURIER TRANSFORM	22618A
			MICROCODED FAST FOURIER TRANSFORM WITH AUTOMATIC RESCALING	22624A
			FAST FOURIER TRANSFORM WITH DATA STORAGE ON DISC	22682-***36
			21MX MICROCODED FFT WITH AUTOMATIC SCALING ON OVERFLOW	22682-***46
			<b>INTEGRATION</b>	
			TRAPEZOIDAL INTEGRATION ROUTINE	22023A
			TRAPEZOIDAL INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22024A
			SIMPSON AND NEWTON'S 3/8 INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22025A
			HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE	22026A
			HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22027B
			HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE	22028A
			HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22029A
			INTEGRATION ROUTINE	22144A
			FRESNEL INTEGRAL EVALUATION	22256A
			<b>INTERPRETER</b>	
			PACIFIC UNION COLLEGE MULTI-TERMINAL HP BASIC SYSTEM	22201D
			MINI-BASIC	22261A
			BCS INTERPRETER FOR FLOATING POINT OPERATIONS	22295A
			ON-LINE ACCESS TO HP WCS (MICROBASIC)	22603A
			DOS-M CESIL INTERPRETER	22615A

## CROSS REFERENCE INDEX

<b>INTERRUPT</b>		DOS-M BOOTSTRAP PROGRAM FROM RTE	22350A
PRIVILEGED RTE DRIVER FOR THE HP 8054 AUDIO ANALYZER (DVR75)	22450A	MTS BOOT FROM DOS-M	22357A
		CORE RESIDENT DOS-M BOOTSTRAP	22448B
		DOS-M ABSOLUTE BINARY TAPE LOADER	22488A
<b>INVERSE</b>		DOS-M AUTOLOAD ROUTINE	22519A
INVERSE ASSEMBLER	22013B	RESTORE BASIC BINARY LOADER (PBOOT)	22533A
ABSOLUTE OBJECT DECODER	22292B	DOS-M ONLINE BOOT FROM MTS	22547A
OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM	22439A	439A IBM O.S. CROSS ASSEMBLER FOR HP 2100 COMPUTER	22594A
DOS-M RELOCATABLE REVERSE ASSEMBLER	22438A	CORE RESIDENT DOS-M DISC LDR. UTIL.	22610A
8K SIO RELOCATABLE REVERSE ASSEMBLER	22439A	BCS LOADER WITH TELETYPE/LINE PRINTER OUTPUT	22631A
8K SIO ABSOLUTE REVERSE ASSEMBLER	22440A	ABSOLUTE RELOCATING LOADER (ABLOD)	22634A
INVERSE SIN AND COS ROUTINE	22511A	DOS-III UTILITY	22677A
MINV — INVERSE ASSEMBLER FOR 2100 MICROCODE	22682-***52	EXTENDED OFFLINE RELOCATING LOADER (SALOD)	22681-***27
		ROUTINES FOR SWITCHING BETWEEN DOS-M AND BCS	22681-***31
		IMPLEMENTING A USER WRITTEN IBL LOADER ON THE 21MX	22681-***91
<b>JOB REPORTING (701)</b>			
RTE LOGBOOK	22378A		
		<b>LOGARITHMIC</b>	
<b>KEYBOARD</b>		TRANSFORMATIONS	22117A
KEYBOARD TAPE GENERATOR	22090A	LOGARITHMIC AXIS GENERATOR FOR THE CALCOMP 565	22426A
BCS SUBROUTINES FOR KEYBOARD COMMUNICATION	22620A		
		<b>MAGNETIC TAPE</b>	
<b>LABEL</b>		FILE THREE INPUT FOR MTS ALGOL	22100A
SYMBOLIC ALPHANUMERIC GENERATOR	22016C	MTS PUNCHED TAPE DUPLICATOR	22113B
PAPER TAPE TITLER	22269A	CARD TO MAGNETIC TAPE UTILITY	22165A
RTE ALPHANUMERIC TAPE LABEL GENERATOR	22524A	MAGNETIC TAPE TO PRINT UTILITY PROGRAM	22166A
ALPHA: PAPER TAPE IDENTIFICATION	22681-***74	RTE HP 2020 MAGNETIC TAPE DRIVER	22181A
		SINGLE DRIVE MAGNETIC TAPE COPY PROGRAM	22197A
<b>LANGUAGE TRANSLATORS (SEE TRANSLATORS, LANGUAGE)</b>		MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM	22198C
		HP 3030G MAGNETIC TAPE DRIVER — FORTRAN CALLABLE	22208A
<b>LEAST SQUARES</b>		DRUM BASED MAGNETIC TAPE DUPLICATOR	22209C
SOLUTION OF LINEAR LEAST SQUARES PROBLEMS	22022A	HP 7970 MAGNETIC TAPE DRIVER — BASIC CALLABLE	22239A
LEAST SQUARES REGRESSION PROGRAM	22128A	MAGNETIC TAPE TO LINE PRINTER ROUTINE	22251A
LINEAR REGRESSION INTERVAL ESTIMATES	22129A	MTS/BC SYSTEM ABSOLUTE DUMP	22257A
POLYNOMIAL REGRESSION PROGRAM	22130A	DOS TO MAGNETIC TAPE DUMP	22259A
POLYNOMIAL REGRESSION CONFIDENCE INTERVALS	22131A	MAGNETIC TAPE TO DOS DUMP	22260A
NONLINEAR REGRESSION OF A SINGLE-VARIABLE FUNCTION	22187A	MTS FORTRAN CHAIN	22267A
NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION	22188A	ALGOL OPERATING SYSTEM FOR MTS	22270D
LINEAR LEAST SQUARES PROBLEM SOLVER	22220A	DISC/DRUM UTILITY	22272A
		DOS-M DUMP/RESTORE PROGRAM	22284A
<b>LIBRARY</b>		DOS/DOS-M SOURCE STORAGE AND RETRIEVAL	22299A
DOUBLE PRECISION INTEGER LIBRARY	22097D	DOS/DOS-M HP 2020 MAGNETIC TAPE DRIVER	22319A
DOS-M LIBRARIAN	22282A	DOS/DOS-M HP 2020/3030 MAGNETIC TAPE CONTROL PROGRAM	22320A
RELOCATABLE OBJECT UTILITY LIBRARIAN	22392A	360 FORMAT MAGNETIC TAPE DUMP	22340A
		PACKED MAGNETIC TAPE STORAGE AND RETRIEVAL FOR DOS-M	22356A
<b>LINE PRINTER</b>		MTS BOOT FROM DOS-M	22357A
BASIC HP 2778A LINE PRINTER DRIVER	22095A	EASY MAGNETIC TAPE I/O AND STATUS INFORMATION	22358A
MAGNETIC TAPE TO PRINT UTILITY PROGRAM	22166A	HANDI-O	22359A
MAGNETIC TAPE TO LINE PRINTER ROUTINE	22251A	ALGOL SEGMENT RETURN TO MAIN PROGRAM	22366A
HP 2767 LINE PRINTER BASIC DRIVER	22258A	MAGNETIC TAPE SYSTEM PROGRAM CATALOG	22446A
HP 2778/2767 LINE PRINTER PATCH FOR EDUCATIONAL BASIC	22399A	HP 2100 REMOTE JOB ENTRY TO IBM HOST CPU	22453B
BASIC CALLABLE LINE PRINTER DRIVER	22408A	QUICK SDUMP FOR HP 7900A MOVING HEAD DISC	22454C
EDUCATIONAL BASIC HP 2767 LINE PRINTER DRIVER	22409A	DUMP FROM DOS-M MAGNETIC TAPE STORAGE AND RETRIEVAL (HP 22198) FORMAT	22480B
A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER	22411A	LOAD DOS/M FROM MAGNETIC TAPE STORAGE & RETRIEVAL (HP 22198) FORMAT	22481B
CORE SIZE INDEPENDENT TELEPRINTER SIO DRIVER (LINE PRINTER COMPATIBLE)	22489A	HP 2020B MAGNETIC TAPE STORAGE & RETRIEVAL	22482A
BCS ODEC LINE PRINTER DRIVER (D.16)	22523A	CREATE DSGN MAGNETIC TAPE	22493A
DOS-M CENTRONICS 101-A LINE PRINTER DRIVER (DVR00)	22538A	DOS-M RELOCATABLE PROGRAM TAPE EDITOR	22500A
BCS LOADER WITH TELETYPE/LINE PRINTER OUTPUT	22631A	HEXADECIMAL/OCTAL LIST OF ANSI-COMPATIBLE MAGNETIC TAPE (TDUMP)	22501A
DVR FOR 9866A THERMAL LINE PRINTER	22681-***20	DOS-M DRIVER PACKAGE FOR ACCESSING FRONT-END MAGNETIC TAPE	22512A
D.06 BCS DRIVER FOR PRINTER TECHNOLOGY MODEL PRINTEC 100 PRINTER	22682-***03	CHERNACK (HP 22198) MAGNETIC TAPE SOURCE FORMAT TO DOS-M SOURCE FILE	22530B
		SIO MAGNETIC TAPE COPY	22535B
<b>LINEAR</b>		HP 2870/7900 DISC/MAGNETIC TAPE UTILITY (MADIU)	22542A
DISCRIMINANT ANALYSIS PROGRAM	22127A	16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAGNETIC TAPE	22544A
LINEAR REGRESSION INTERVAL ESTIMATES	22129A	DOS-M ONLINE BOOT FROM MTS	22547A
BIOASSAY PROGRAM	22133A	DOS-M MAGNETIC TAPE COPY	22549A
LINEAR REGRESSION WITH REPLICATION	22135A	ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REVISION G/H	22556A
POOLING OF GROUPS IN REGRESSION	22184A	8K SDUMP FOR HP 7900A MOVING HEAD DISC	22557A
DOS-M DRIVER FOR CENTRONICS 101A LINE PRINTER	22681-***35	RTE MAGNETIC TAPE FILE MANAGER	22612A
SIMPLEX — LINEAR PROGRAMMING FOR DOS-III	22682-***27	SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN)	22626A
		CASSETTE PREPARE TAPE SYSTEM	22681-***41
<b>LOADERS (017)</b>		8K SIO CASSETTE DRIVER	22681-***42
BOOTSTRAP LOADER GENERATOR	22009B		
LOADER BOOTSTRAP	22223C		
OFFLINE RELOCATING LOADER	22297A		
DOS-M HARDWARE BOOT	22342A		
ON-LINE SYSTEM LOAD FOR MOVING-HEAD RTE	22344A		
ON-LINE MOVING-HEAD RTE BOOTSTRAP FROM DOS-M OR DOS	22345A		
DOS-M BOOTSTRAP PROGRAM FOR DOS-M OR DOS	22349A		



## CROSS REFERENCE INDEX

SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN) II	22681-***51	RTE 2/3 ACTIVITY PROFILE GENERATOR FOR 21MX M/E	22682-***42
TAPE-TO-TAPE COPY, SINGLE DRIVE MAG TAPE	22682-***25	COMPUTER	
UTDMP — UNIVERSAL MAG TAPE DUMP	22682-***26	21MX MICROCODED FFT WITH AUTOMATIC RESCALING ON	22682-***46
		OVERFLOW	
<b>MARK SENSE</b>		<b>MOVING AVERAGES</b>	
MARK SENSE EDUCATIONAL TEST CARD SCORING PROGRAM	22266A	MOVING AVERAGES	22125A
PAPER TAPE/OPTICAL CARD COPY PROGRAM	22559A		
BCS HP 7260A CARD READER DRIVER	22622A	<b>MULTIPLE</b>	
DOS-M MARK SENSE EDUCATIONAL TEST SCORING PROGRAM	22681-***37	DISCRIMINANT ANALYSIS PROGRAM	22127A
SCORE-PACK	22682-***10	STEPWISE REGRESSION PROGRAM	22132A
		GENERAL STATISTICS FOR MULTIPLE GROUPS	22142B
<b>MATHEMATICS (EDUCATION) (801)</b>		MULTIPLE CORRELATION ROUTINE	22147A
GENERATE ARITHMETIC WORKSHEETS UNDER DOS-M	22565A	MULTIPLE REGRESSION PROGRAM	22185A
		MULTIPLE CORRELATION MATRIX PROGRAM	22186A
<b>MATHEMATICS, GENERAL (301)</b>		<b>MULTIPLEXOR</b>	
LOCATE MAXIMUM-MINIMUM INTEGER	22021A	MUXT:ASCII MESSAGES VIA 12920 MULTIPLEXOR & LOGICAL	22681-***17
INTEGRATED MATH CALCULATOR PROGRAM	22084C	DVR ATD01	
TRANSFORMATIONS	22117A	RTE MULTIPLEXER DRIVER (12920A)	22681-***32
EXTENDED-PRECISION ARITHMETIC LIBRARY	22230A		
COMPLEX MATH PACKAGE	22234A	<b>NEWTON</b>	
THREE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES	22334A	SIMPSON AND NEWTON'S 3/8 INTEGRATION ROUTINE, EQUAL	22025A
FIVE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES	22335A	INTERVAL ARGUMENT	
FAST MICROCODED MULTIPLY INSTRUCTION	22661A		
		<b>NON-LINEAR</b>	
<b>MATRIX OPERATIONS (312)</b>		NONLINEAR REGRESSION PROGRAM	22136A
SOLUTION OF LINEAR LEAST SQUARES PROBLEMS	22022A	NONLINEAR REGRESSION OF A SINGLE-VARIABLE FUNCTION	22187A
ADD ROWS OF MATRICES	22031A	NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION	22188A
RANK AND BASIS ROUTINE	22032A		
SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS	22033A	<b>NON-PARAMETRIC STATISTICS (407)</b>	
SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX	22034A	CROSS-TABULATION PROGRAM	22121A
SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC MATRIX	22035A	KENDALL'S COEFFICIENT OF CONCORDANCE: W	22138A
MATRIX INVERSION SUBROUTINES	22118C	KENDALL'S COEFFICIENT OF CONCORDANCE	22139A
MATRIX ARITHMETIC SUBROUTINE	22119B	KENDALL'S TAU CORRELATION	22140A
MATRIX ARITHMETIC PROGRAM	22120A	MULTIPLE CORRELATION ROUTINE	22147A
SIMULTANEOUS EQUATION SOLVER PROGRAM	22122A	DUNCAN'S MULTIPLE RANGE TEST	22155A
SIMULTANEOUS EQUATION SOLVER ROUTINE	22123A	KOLMOGOROV-SMIRNOV GOODNESS-OF-FIT TEST	22158C
LINEAR LEAST SQUARES PROBLEM SOLVER	22220A	WILCOXON-MANN-WHITNEY TEST	22437A
SCIENTIFIC SUBROUTINE PACKAGE	22329A		
		<b>NUMERICAL DIFFERENTIATION (317)</b>	
<b>MEDIA CONVERSION (109)</b>		SCIENTIFIC SUBROUTINE PACKAGE	22329A
MEDIA CONVERSION	22427A		
DOS-M UTILITY PROGRAM GROUP	22681-***26	<b>NUMERICAL INTEGRATION (310)</b>	
ENTEX: FACILITATES CREATION OF SOURCE FILES FROM 2600	22681-***33	TRAPEZOIDAL INTEGRATION ROUTINE	22023A
KEYBOARD		TRAPEZOIDAL INTEGRATION ROUTINE, EQUAL INTERVAL	22024A
		ARGUMENT	
<b>MEDICAL SCIENCES (506)</b>		SIMPSON AND NEWTON'S 3/8 INTEGRATION ROUTINE, EQUAL	22025A
HP BIOMEDICAL RESPONSE AVERAGING PROGRAM	22221B	INTERVAL ARGUMENT	
BLOOD ACID-BASE VARIABLES DETERMINATION PROGRAM	22222A	HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE	22026A
LUNG COMPLIANCE AND RESISTANCE MEASUREMENT SYSTEM	22240A	HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE, EQUAL	22027B
		INTERVAL ARGUMENT	
<b>MEMORY</b>		HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE	22028A
DATA BLOCK MOVEMENT	22204A	HERMITIAN SIXTH-ORDER INTEGRATION ROUTINE, EQUAL	22029A
BCS-FORTRAN/ALGOL MEMORY ALLOCATION ROUTINE	22452A	INTERVAL ARGUMENT	
MICROPROGRAMMED INDEX REGISTER INSTRUCTIONS	22670A	INTEGRATION ROUTINE	22144A
		<b>OCTAL</b>	
<b>MICROCODE (905)</b>		OCTAL UTILITY SYSTEM (HOCUS)	22088A
BCS ACTIVITY PROFILE GENERATOR (ACP)	22464A	OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM (OCTAPUS)	22293-***00
PSEUDO-DMA INPUT (MULTI-CHANNEL)	22515A		
WORD MOVE (INTERRUPTABLE)	22516A	<b>OPTIMIZATION PROGRAMS (604)</b>	
MICROCODED DOS-M ROUTINES .PWR2 AND .FLUN	22587A	OPTOR: OPTIMIZE BCS SYSTEM BASE PAGE LINKS	22681-***21
ON-LINE ACCESS TO HP WCS (MICROBASIC)	22603A	UNEXT	22682-***45
MICROCODED FAST FOURIER TRANSFORM	22618A		
MICROCODED FAST FOURIER TRANSFORM WITH AUTOMATIC	22624A	<b>ORDINARY DIFFERENTIAL EQUATIONS (318)</b>	
RESCALING		SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS	22038A
PROGRAM SPEED OPTIMIZATION	22646A	SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS/BCS	22546A
MICROCODED INTEGER SORT	22649A		
FAST MICROCODED MULTIPLY INSTRUCTION	22661A	<b>OSCILLOSCOPE</b>	
BURST MODE OUTPUT INSTRUCTION	22662A	OSCILLOSCOPE PLOTTING SUBROUTINE	22253C
BYTE DATA MANIPULATION WITH MICROCODED ROUTINES	22663A	DOS/DOS-M HP 2331 X-Y SCOPE DISPLAY	22291C
MICROPROGRAMMED INDEX REGISTER INSTRUCTIONS	22670A		
MICROCODED BIT MANIPULATIONS	22673A	<b>PAPER TAPE</b>	
DOS-III ACTIVITY PROFILE GENERATOR (ACP)	22681-***49	BINARY TAPE EDITOR	22014A
DYNAMIC LOAD OF FAST FORTRAN PROCESSOR TO WCS	22681-***50	PUNCHED TAPE DUPLICATOR	22041E
21MX MICROCODED SIN-COS-TAN	22681-***90	RUN-TIME DATA INPUT FOR BASIC	22044B
		HIGH SPEED PUNCH DRIVER — BASIC CALLABLE	22078B
		BASIC PHOTOREADER DATA INPUT	22082B

## CROSS REFERENCE INDEX

KEYBOARD TAPE GENERATOR	22090A	<b>PREPARATION OF SYSTEMS (008)</b>	
MTS PUNCHED TAPE DUPLICATOR	22113B	BOOTSTRAP LOADER GENERATOR	22009B
HP 2754A PUNCH/LIST IN KT MODE	22176A	AN HP 2116-FAMILY SIMULATOR FOR THE IBM 360	22042C
FAST PUNCH VERIFY	22180C	LOADER BOOTSTRAP	22223C
DOS-M REMOTE TAPE READER DRIVER	22246B	ALGOL OPERATING SYSTEM FOR MTS	22270D
FAST DOS/DOS-M PHOTOREADER DRIVER	22247B	DISC BASIC EXECUTIVE	22338A
RTE/DOS DUPLICATOR PROGRAM	22252A	FTN IV CORE SAVER	22341A
PAPER TAPE TITLER	22269A	RELOCATABLE OBJECT UTILITY LIBRARIAN	22392A
ASCII STRING SEARCH FROM PHOTOREADER	22352A	PSEUDO MULTIPROGRAMMING EXECUTIVE FOR BCS	22441A
DOS-M PAPER TAPE/DISC VERIFY	22355A	BCS-FORTRAN/ALGOL MEMORY ALLOCATION ROUTINE	22452A
DOS-M PAPER TAPE REPRODUCER	22360A	CREATE DSGEN MAGNETIC TAPE	22493A
PAPER TAPE COPY	22368A	ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REVISION G/H	22556A
CORE SIZE INDEPENDENT PHOTO READER SIO DRIVER	22490A	BATCH/MERGE ABSOLUTE BINARY TAPES	22647A
CORE SIZE INDEPENDENT PAPER TAPE PUNCH SIO DRIVER	22491A	OPTOR/OPTIMIZE BCS SYSTEM BASE PAGE LINKS	22681-***21
TAPE PUNCH AND VERIFY ROUTINE	22520A	CASSETTE PREPARE TAPE SYSTEM	22681-***41
PHOTOREADER DATA INPUT FOR HP 20392A BASIC	22545A	8K CASSETTE SIO DUMP	22681-***46
PAPER TAPE/OPTICAL CARD COPY PROGRAM	22559A	DOS-IIIB BASE PREPARE CONTROL SYSTEM	22681-***58
PAPER TAPE SYSTEM DIAGNOSTIC	22579A		
MULTI-TERMINAL BCS DRIVER (D.00C)	22588A	<b>PRINTER (SEE LINE PRINTER OR TELEPRINTER)</b>	
MULTI-TERMINAL NON-BCS DVR (INOUT)	22633A		
ALPHA: PAPER TAPE IDENTIFICATION	22681-***74		
		<b>PRIVILEGED</b>	
<b>PAPER TAPE EQUIPMENT TEST (213)</b>		DOS/M PRIVILEGED DISC I/O ROUTINES	22233C
PAPER TAPE SYSTEM DIAGNOSTIC	22579A	PRIVILEGED RTE DRIVER FOR THE HP 8054 AUDIO ANALYZER (DVR75)	22450A
		SPECIAL PRIVILEGED RTE DVR	22638A
<b>PAYROLL ACCOUNTING (706)</b>			
PAYROLL PACKAGE	22681-***40	<b>PROBABILITY DISTRIBUTION SAMPLING (406)</b>	
		CUMULATIVE DISTRIBUTION PROGRAM	22137A
<b>PERT (602)</b>		PROBABILITY SUBPROGRAMS	22143A
PERT FOR DOS-DOS-M	22497A	CHI SQUARE GOODNESS-OF-FIT TEST	22159B
PERT PACKAGE FOR DOS-III	22682-***09	NORMAL DISTRIBUTION	22517A
		VARIANCE RATIO DISTRIBUTION	22518A
<b>PHYSICS (505)</b>			
COPPER-CONSTANTAN THERMOCOUPLE VOLTAGE TO CELSIUS DEGREES CONVERSION	22325A	<b>PROGRAMMING AIDS (212)</b>	
		BINARY TAPE EDITOR	22014A
<b>PLOTTING ROUTINES (904)</b>		BASIC LINE RESEQUENCER	22015B
CALCOMP PLOTTER DRIVER — BASIC CALLABLE	22077B	SYMBOLIC ALPHANUMERIC GENERATOR	22016C
X-Y PLOTTER ON PRINTER	22162B	AUTOMATIC TABBING PROGRAM	22064B
TIME SERIES PLOTTER	22163A	OCTAL UTILITY SYSTEM (HOCUS)	22088A
HISTOGRAM PLOTTER PROGRAM	22164B	TELEPRINTER OCTAL INPUT PROGRAM	22089A
HISTOGRAM PLOTTER ROUTINE	22182A	FILE THREE INPUT FOR MTS ALGOL	22100A
HIGH SPEED CONTINUOUS LINE PLOTTER FOR HP 7004B	22219A	BCS DUMP IN BBL FORMAT	22174A
X-Y PLOTTING ROUTINE	22242A	ABSOLUTE PROGRAM CONTROL SYSTEM	22190A
OSCILLOSCOPE PLOTTING SUBROUTINE	22253C	NAM-ENT-EXT EDITOR	22191A
THREE DIMENSIONAL PLOT SUBROUTINE	22262A	TABULATION AND FORM-FEED CALLS FOR HP 2754 TELEPRINTER	22205A
PLOT, RELAY, WAIT	22263A	'EXEC' CALL ADAPTER ROUTINE	22250A
BASIC PLOT SUBROUTINES	22279A	MTS FORTRAN CHAIN	22267A
X-Y PLOTTER FOR 11 INCH PAGE PRINTER	22348A	PAPER TAPE TITLER	22269A
HP 7004 X-Y RECORDER LIBRARY	22390A	TAB FOR PREPARING FORTRAN TAPES	22278A
THREE DIMENSIONAL TRANSFORMATIONS USING EULER'S ANGLES	22425A	CHAIN FROM PHOTOREADER IN HP BASIC	22287A
LOGARITHMIC AXIS GENERATOR FOR THE CALCOMP 565	22426A	ALGOL ARRAY TRANSFER FOR SEGMENTATION	22289A
HP 7210 PLOTTER LIBRARY	22474A	OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM	22293B
RTE HP 1331C STORAGE SCOPE DRIVER — DVR47	22505A	FORTRAN/ALGOL ARRAY TRANSFER ROUTINE	22310A
DOS/DOS/M HP 1331C STORAGE SCOPE LIBRARY	22509A	DOS/DOS-M HP 2020/3030 MAGNETIC TAPE CONTROL PROGRAM	22320A
DOS/DOS-M HP 1331C STORAGE SCOPE DRIVER — DVR47	22510A	DOS/DOS-M ASSEMBLY LANGUAGE COMMENT INSERTER	22346A
TEKTRONIX T4002 PLOTTER LIBRARY FOR RTE	22548A	ASCII STRING SEARCH FROM DISC FILE	22351A
RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY	22569A	ASCII STRING SEARCH FROM PHOTOREADER	22352A
UPPER/LOWER CASE CHARACTER GENERATOR FOR HP 7210 PLOTTER	22582A	ALGOL SEGMENT RETURN TO MAIN PROGRAM	22366A
CERTIFICATE DRAFTING PROGRAM (CDP)	22681-***23	ASSEMBLER JUSTIFICATION PROGRAM	22428A
DOS-M TEKTRONIX 4010 DRIVER AND GRAPH PACKAGE	22681-***24	DOS-M SEGMENT RETURN TO MAIN	22431A
PLOTPAK: BCS PLOTTING ROUTINE USING A TEKTRONIX 4010-1	22681-***67	COMMENT INSERTER FOR ASSEMBLER PROGRAMS	22444A
RTE DRIVER PACKAGE FOR XYNETICS & CALCOMP PLOTTERS	22682-***29	HP 'IDEAL' COMMERCIAL SUBROUTINE LIBRARY	22455A
		BCS ACTIVITY PROFILE GENERATOR (ACP)	22464B
<b>POLYNOMIAL</b>		EXPAND/CONTRACT DOS-M FILES	22468A
COMPLEX ROOTS OF A REAL POLYNOMIAL	22030B	FORTRAN FORMATTED READ FROM DOS-M S-TYPE USER FILES	22495A
POLYNOMIAL REGRESSION PROGRAM	22130A	DOS-M RELOCATABLE PROGRAM TAPE EDITOR	22500A
POLYNOMIAL REGRESSION CONFIDENCE INTERVALS	22131A	WORD MOVE (INTERRUPTABLE)	22516A
NONLINEAR REGRESSION OF A SINGLE-VARIABLE FUNCTION	22187A	RTE ALPHANUMERIC TAPE LABEL GENERATOR	22524A
		DOS-M FORTRAN IV CROSS REFERENCE TABLE GENERATOR	22526A
<b>POLYNOMIALS AND POLYNOMIAL EQUATIONS (311)</b>		DEBUG FOR ABSOLUTE/BCS PROGRAMS	22527A
COMPLEX ROOTS OF A REAL POLYNOMIAL	22030B	LIST THE RTE TABLES	22575A
SCIENTIFIC SUBROUTINE PACKAGE	22329A	RTE BINARY TAPE/FILE UTILITY (BEDIT)	22580A
		RTE CROSS REFERENCE GENERATOR	22590A
<b>POWER FAIL</b>		RTE DEBUG WITH TRACE	22600A
FORTRAN POWER FAIL LINK	22235A	ON-LINE ACCESS TO HP WCS (MICROBASIC)	22603A
		BCS SUBROUTINES FOR KEYBOARD COMMUNICATION	22620A
		MICROCODED BIT MANIPULATIONS	22673A
		MICROPROGRAM SOURCE FORMATTER	22680A

## CROSS REFERENCE INDEX

2100 BYTE MANIPULATION ROUTINES	22681-****11	POLYNOMIAL REGRESSION CONFIDENCE INTERVALS	22131A
RTE ACTIVITY PROFILE GENERATOR	22681-****14	STEPWISE REGRESSION PROGRAM	22132A
ENTEX:FACILITATES CREATION OF SOURCE FILES FROM 2600 KEYBOARD	22681-****33	BIOASSAY PROGRAM	22133A
DOS-III ACTIVITY PROFILE GENERATOR (ACP)	22681-****49	ORTHOGONAL REGRESSION PROGRAM	22134A
RENUM	22682-****01	LINEAR REGRESSION WITH REPLICATION	22135A
"LOAD ON CALL" (LOCAL) PACKAGE	22682-****32	NONLINEAR REGRESSION PROGRAM	22136A
RTE MACRO PROCESSOR	22682-****34	POOLING OF GROUPS IN REGRESSION	22184A
DFINE — REDEFINE PARTITIONS ON-LINE	22682-****58	MULTIPLE REGRESSION PROGRAM	22185A
		MULTIPLE CORRELATION MATRIX PROGRAM	22186A
		NONLINEAR REGRESSION OF A SINGLE-VARIABLE FUNCTION	22187A
		NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION	22188A
<b>PROGRAMMING AND COMPUTER SCIENCE (EDUCATION) (810)</b>		<b>REMOTE</b>	
DOS-M CESIL INTERPRETER	22615A	REMOTE HP 2100 ACCESS TO A 32K DOS	22375A
LANGUAGE PARSING	22642A	HP 2100 REMOTE JOB ENTRY TO IBM HOST CPU	22453B
		CDC USER 200 TERMINAL SIMULATOR	22496A
<b>QUOTIENT-REMAINDER</b>		<b>REPORT GENERATORS (005)</b>	
EIGENVALUES OF A SYMMETRIC REAL MATRIX	22192A	PSEUDO REPORT GENERATOR	22330B
		RTE LOGBOOK	22378A
<b>RANDOM NUMBER GENERATORS (405)</b>		TRACK	22682-****50
PSEUDO-RANDOM NUMBER GENERATOR	22194A	<b>ROOTS</b>	
FLOATING POINT RANDOM NUMBER GENERATOR	22265A	COMPLEX ROOTS OF A REAL POLYNOMIAL	22030B
GAUSSIAN RANDOM NUMBER GENERATOR	22308A		
RANDOM INTEGER NUMBER GENERATOR	22413A	<b>RTE</b>	
RANDOM NUMBER GENERATORS	22434A	RTE HP 2020 MAGNETIC TAPE DRIVER	22181A
EXOR RANDOM NUMBER GENERATOR	22681-****56	'EXEC' CALL ADAPTER ROUTINE	22250A
		RTE/DOS DUPLICATOR PROGRAM	22252A
<b>RANK</b>		PAPER TAPE TITLER	22269A
KENDALL'S COEFFICIENT OF CONCORDANCE: W	22138A	4-2-2-1 BCD TO FLOATING POINT CONVERSION FOR RTE	22274A
KENDALL'S COEFFICIENT OF CONCORDANCE	22139A	RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION	22276A
KENDALL'S TAU CORRELATION	22140A	ALGOL ARRAY TRANSFER FOR SEGMENTATION	22289A
		DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION	22294A
<b>RAYTHEON</b>		BATTLESHIP	22298A
MINIVERTER DRIVER	22281A	RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE	22317A
		ON-LINE SYSTEM LOAD FOR MOVING-HEAD RTE	22344A
<b>READING</b>		ON-LINE MOVING-HEAD RTE BOOTSTRAP FROM DOS-M OR DOS	22345A
SPACHE READABILITY FORMULA	22681-****60	DOS-M BOOTSTRAP PROGRAM FROM RTE	22350A
		EASY MAGNETIC TAPE I/O AND STATUS INFORMATION	22358A
<b>REAL</b>		RTE LOGBOOK	22378A
COMPLEX ROOTS OF A REAL POLYNOMIAL	22030B	RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING	22398B
		RTE SELF SUSPEND ROUTINE	22401A
<b>REAL TIME SYSTEMS (020)</b>		RTE MULTIPROGRAMMER DRIVER (DVR61)	22410A
RTE SELF SUSPEND ROUTINE	22401A	RTE TRACK ASSIGNMENT TABLE LOG	22445A
RELAY TIMER FOR HP 12551B RELAY REGISTER INTERFACE	22451A	PRIVILEGED RTE DRIVER FOR THE HP 8054 AUDIO ANALYZER (DVR75)	22450A
RTE BINARY TAPE/FILE UTILITY (BEDIT)	22580A	HP 7210 PLOTTER DRIVER FOR RTE	22473B
MAKE RTE DRIVER DISC RESIDENT (DVR67)	22592A	HP 7210 PLOTTER LIBRARY	22474A
RTE DISC PROGRAM PATCH UTILITY	22606A	RTE HP 1331C STORAGE SCOPE DRIVER — DVR47	22505A
RTE MAGNETIC TAPE FILE MANAGER	22612A	RTE HP 1331C STORAGE SCOPE LIBRARY	22506A
RTE LIBRARY SPEED IMPROVEMENTS	22668A	CONVERSION ROUTINE FOR HP 2058E SUBSYSTEM RTE DRIVER	22507A
RTE MICRO DEBUG EDITOR	22681-****12	HP 2058E SCANNER SUBSYSTEM RTE DRIVER (DVR57)	22508A
RTE ACTIVITY PROFILE GENERATOR	22681-****14	RTE ALPHANUMERIC TAPE LABEL GENERATOR	22524A
DVR 33: RTE WRITE CONTROL STORE DRIVER	22681-****15	READ/WRITE DOS-M FILES IN RTE ENVIRONMENT	22525A
SINGLE TERMINAL-TIMESHARE BASIC CONVERSATIONAL LINK	22682-****04	TEKTRONIX T4002 PLOTTER LIBRARY FOR RTE	22548A
RTE IF	22682-****07	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY	22569A
USER SPOOL POOL FILE ACCESS OR SPOOLING MADE EASIER OVER	22682-****31	LIST THE RTE TABLES	22575A
	22682-****57	RTE BINARY TAPE/FILE UTILITY (BEDIT)	22580A
<b>RECURSIVE</b>		RTE CROSS REFERENCE GENERATOR	22590A
SNOBOL COMPILER FOR DOS/DOS-M	22327E	MAKE RTE DRIVERS DISC RESIDENT (DVR67)	22592A
STACK ROUTINES	22362A	RTE DEBUG WITH TRACE	22600A
		RTE DISC PROGRAM PATCH UTILITY	22606A
<b>REFERENCE</b>		RTE MAGNETIC TAPE FILE MANAGER	22612A
FORTRAN UNIT REFERENCE NUMBER EDITOR	22171A	RTE NON DMA DVR FOR HP 5401B MULTI CHANNEL ANALYZER	22629A
PERPETUAL CALENDAR	22681-****19	SPECIAL PRIVILEGED RTE DVR	22638A
RTE MULTIPLEXER DRIVER (12920A)	22681-****32	RTE QUICK CORE SORT (QSORT)	22644A
		DESCRIPTION DIRECTORY FOR RTE FILE MANAGER FILES	22655A
<b>REGISTER</b>		RTE CONVERSATIONAL SUPER EDITOR	22664A
HP 12551A/B RELAY REGISTER INTERFACE DRIVER — FORTRAN CALLABLE	22229B	RTE LIBRARY SPEED IMPROVEMENTS	22668A
HP 12551B RELAY REGISTER INTERFACE DRIVER — BASIC CALLABLE	22313A	RTE MICRO DEBUG EDITOR	22681-****12
RELAY TIMER FOR HP 12551B RELAY REGISTER INTERFACE	22451A	DVR 44:RTE DVR FOR INTERMEDIA SYS. GRAPHIC VIDEO GENERATOR	22681-****13
MICROPROGRAMMED INDEX REGISTER INSTRUCTIONS	22670A	RTE ACTIVITY PROFILE GENERATOR	22681-****14
		DVR 33: RTE WRITE CONTROL STORE DRIVER	22681-****15
<b>REGRESSION ANALYSIS (404)</b>		RTE DISC FILE SORT (DSORT)	22681-****25
AUTOCORRELATION AND SPECTRAL DENSITY	22124A	RTE UTERM-CDC 200 USER TERMINAL SIMULATOR	22681-****29
CROSS CORRELATION ANALYSIS	22126A		
DISCRIMINANT ANALYSIS PROGRAM	22127A		
LEAST SQUARES REGRESSION PROGRAM	22128A		
LINEAR REGRESSION INTERVAL ESTIMATES	22129A		
POLYNOMIAL REGRESSION PROGRAM	22130A		

## CROSS REFERENCE INDEX

RTE MULTIPLEXER DRIVER (12920A)	22681-***32	<b>SIMULTANEOUS</b>	
DUPER:RTE FILE MANAGER DUMP	22681-***34	SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS	22033A
RTE MICROASSEMBLER FOR WCS	22681-***38	SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX	22034A
RTE 4271A 1 MHZ DIGITAL LCR METER	22681-***39	SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC MATRIX	22035A
RTE RELOCATABLE EDITOR	22681-***48	MATRIX INVERSION SUBROUTINES	22118C
STAR — STARTREK — RTE	22681-***70	SIMULTANEOUS EQUATION SOLVER PROGRAM	22122A
RTE HP 2310C SPECIAL SUBSYSTEM DRIVER (DVR56)	22681-***80	SIMULTANEOUS EQUATION SOLVER ROUTINE	22123A
RENUM	22682-***01		
RTEIF	22682-***07		
RTE 2100 MICROPROGRAMMING SOFTWARE	22682-***11		
RTE ASYNCHRONOUS DATA SET INTERFACE DRIVER	22682-***13		
OPTIONAL DVR51-RTE AUTO DIAL DVR. FOR 12589A INTERFACE KIT	22682-***18		
MAPIO	22682-***19	<b>SIO</b>	
FILE TRANSFER BETWEEN RTE AND DOS-M/III	22682-***21	SIO LIST OUTPUT TO A STORAGE SCOPE	22379A
DOS-M/III FILE DIRECTORY LISTING FROM RTE ENVIRONMENT	22682-***22	HP 1331C SIO SCOPE DISPLAY DRIVER	22391A
ADM FOR HP RTE FMGR COMPUTER SYSTEMS	22682-***28	A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER	22411A
RTE DRIVER PACKAGE FOR XYNETICS & CALCOMP PLOTTERS	22682-***29	CORE SIZE INDEPENDENT TELEPRINTER SIO DRIVER (LINE PRINTER COMPATIBLE)	22489A
RTE SYSTEM MAINTENANCE UTILITY (SMUT)	22682-***30	CORE SIZE INDEPENDENT PHOTO READER SIO DRIVER	22490A
USER SPOOL POOL FILE ACCESS OR SPOOLING MADE EASIER	22682-***31	CORE SIZE INDEPENDENT PAPER TAPE PUNCH SIO DRIVER	22491A
RTE MACRO PROCESSOR	22682-***34	SIO DVR FOR TTY AND CRT IN SAME SYSTEM	22555A
DLU FOR RTE	22682-***37	8K SIO CASSETTE DRIVER	22681-***42
BREF — CROSS REFERENCE TABLE GENERATOR FOR HP 92101A	22682-***39	8K CASSETTE SIO DUMP	22681-***46
RTE 2/3 ACTIVITY PROFILE GENERATOR FOR 21MX M/E COMPUTERS	22682-***42	SIO MACRO PROCESSOR	22682-***11
PROGRAMMING FOR HP 2645 TERMINAL (SOFTKEYS)	22682-***43		
UNEXT	22682-***45	<b>SOCIAL AND BEHAVIORAL SCIENCES (501)</b>	
(STRAK) TEMPORARY, EXPANDABLE FIXED LENGTH RECORD DISC FILE	22682-***47	COMPLETELY RANDOMIZED DESIGN	22148A
CLASS — INTERROGATE CLASS I/O SYSTEM	22682-***49	COMPLETELY RANDOMIZED DESIGN WITH SUBSAMPLING	22149A
TRACK	22682-***50	RANDOMIZED COMPLETE BLOCK DESIGN	22150A
FMP-UTIL	22682-***51	RANDOMIZED COMPLETE BLOCK DESIGN WITH SUBSAMPLING	22151B
RTDMO	22682-***53	TWO-WAY FACTORIAL DESIGN	22152A
LISTF — SELECTIVE FMGR DIRECTORY LISTER	22682-***54	THREE-WAY FACTORIAL DESIGN	22153A
EQTXX	22682-***55	ANALYSIS OF VARIANCE INFORMATION GENERATOR	22154A
OVER	22682-***57		
DFINE — REDEFINE PARTITIONS ON-LINE	22682-***58		
		<b>SORTING AND MERGING (107)</b>	
<b>RUNGE-KUTTA</b>		LOCATE MAXIMUM-MINIMUM INTEGER	22021A
SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS	22038A	NUMERIC STRING SORT FOR ASCII RECORDS	22079B
SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS/BCS	22546A	ORDERING A FLOATING POINT ARRAY	22116A
		ORDERING A FIXED POINT ARRAY	22167A
<b>SAMPLE</b>		RANKING A FLOATING POINT ARRAY	22168A
SAMPLE SIZE DETERMINATION ON THE SAMPLE VARIANCE	22146C	ORDERING A FLOATING POINT ARRAY	22169A
SAMPLE SIZE DETERMINATION TO TEST H0	22183A	DRUM BASED MAGNETIC TAPE DUPLICATOR	22209C
		DOS-M LIBRARIAN	22282A
<b>SCANNER</b>		CONVERSATIONAL DOS-M DISC FILE EDITOR	22285C
HP 2911A/B CROSSBAR SCANNER DRIVER — BASIC CALLABLE	22101B	FIELDSORT	22343A
HP 2912A REED SCANNER DRIVER — BASIC CALLABLE	22107B	ASCII DISC FILE FIELD SORT	22376A
RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION	22276A	ALPHANUMERIC RECORD SORT	22383A
CONVERSION ROUTINE FOR HP 2058E SUBSYSTEM RTE DRIVER	22507A	NUMERIC SORT	22430A
HP 2058E SCANNER SUBSYSTEM RTE DRIVER (DVR57)	22508A	ALPHANUMERIC DISC FILE SORT	22479A
		APPLICATIONS DATA MANAGEMENT PACKAGE (ADM)	22483B
<b>SCOPE (SEE OSCILLOSCOPE)</b>		EFMP FILE SORT	22550A
		TODS INDEX	22553A
<b>SIMPSON</b>		RTE QUICK CORE SORT (QSORT)	22644A
SIMPSON AND NEWTON'S 3/8 INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT	22025A	PATCH/MERGE ABSOLUTE BINARY TAPES	22647A
INTEGRATION ROUTINE	22144A	MICROCODED INTEGER SORT	22649A
		RTE DISC FILE SORT (DSORT)	22681-***25
<b>SIMULATION</b>		<b>SPECIAL DEVICE EQUIPMENT TEST (218)</b>	
AN HP 2116-FAMILY SIMULATOR FOR THE IBM 360	22042C	HP 9300N DISC EXERCISER	22333A
INTERPRETIVE BINARY SIMULATOR	22193A	SERIAL DEVICE TIMING STUDY PROG	22667A
PSEUDO-RANDOM NUMBER GENERATOR	22194A		
BCS TELECOMMUNICATIONS DRIVER FOR SYNCHRONOUS AND ASYNCHRONOUS DEVICES	22328C	<b>SPECIAL FORMAT DATA TRANSFER (112)</b>	
THE EXECUTIVE GAME	22332A	SYNCHRONOUS HIGH SPEED DATA ACQUISITION PROGRAM	22170A
HP 9300N DISC EXERCISER	22333A	IOC — FORTRAN CALLABLE	22172C
HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108	22372A	FORTRAN RUN-TIME FORMAT SPECIFICATION	22238A
AN HP ASSEMBLER FOR THE IBM 360	22396B	360 FORMAT MAGNETIC TAPE DUMP	22340A
CONTINUOUS SYSTEM MODELING PROGRAM (CSMP)	22460A	HP BASIC DRIVER SYSTEM WITH BINARY DATA I/O	22380D
THE EXECUTIVE GAME FOR DOS-M	22492A	MULTIRECORD FORMATTED OUTPUT LISTER	22386A
CDC USER 200 TERMINAL SIMULATOR	22496A	CORE-SAVING TELEPRINTER I/O DRIVER AND CODE CONVERSION ROUTINE	22394A
INTEL 8008 ASSEMBLER FOR HP 2100	22529A	EFMP FILE TRANSFER	22429A
		APPLICATIONS DATA MANAGEMENT PACKAGE (ADM)	22483B
		IEFMP LOAD SUBSYSTEM	22503A
		16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAGNETIC TAPE	22544A
		SFRFD:CONVERTS STRING OF ASCII CHARACTERS INTO ASCII AND/OR INTEGER FLD.	22681-***45
		BASIC CALL TO PRINT NUMBERS WITHOUT SPACES	22682-***00
		<b>STACK</b>	
		STACK ROUTINES	22362A

# CROSS REFERENCE INDEX

<b>STATISTICS, GENERAL (408)</b>			
MEAN, DEVIATION, AND CORRELATION COEFFICIENTS ROUTINE	22039A	TEKTRONIX T4002 PLOTTER LIBRARY FOR RTE	22548A
AUTOCORRELATION AND SPECTRAL DENSITY	22124A	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY	22569A
MOVING AVERAGES	22125A	MICROCODED DOS-M ROUTINES .PWR2 AND .FLUN	22587A
CROSS CORRELATION ANALYSIS	22126A	64-BIT INTEGER LIBRARY — FORTRAN CALLABLE	22589A
CUMULATIVE DISTRIBUTION PROGRAM	22137A	STRIPPED FORTRAN FORMATTER FOR INTERNAL CONVERSION	22591A
GENERAL STATISTICS PROGRAM	22141A	BCS SUBROUTINES FOR KEYBOARD COMMUNICATION	22620A
GENERAL STATISTICS FOR MULTIPLE GROUPS	22142B	TRIPLE WORD ROUTINES	22641A
PROBABILITY SUBPROGRAMS	22143A	NAMR	22682-***60
CONFIDENCE INTERVAL FOR MEAN AND VARIANCE OF A NORMAL DISTRIBUTION	22145B		
SAMPLE SIZE DETERMINATION OF THE SAMPLE VARIANCE	22146C	<b>SYSTEM UTILITIES (022)</b>	
MULTIPLE CORRELATION ROUTINE	22147A	CLEAR JOB BINARY AREA IN DOS/DOS-M	22273A
CHI SQUARE GOODNESS-OF-FIT TEST	22159B	REMOTE HP 2100 ACCESS TO A 32K DOS	22375A
TESTS OF HYPOTHESIS FOR VARIANCES	22160A	DOS-M DISC INITIALIZE/PROTECT UTILITY	22377A
TEST OF HYPOTHESIS FOR MEANS	22161B	RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING	22398B
SAMPLE SIZE DETERMINATION TO TEST H0	22183A	CREATE DOS-M DIRECTORY ENTRY UNDER PROGRAM CONTROL	22416A
MULTIPLE CORRELATION MATRIX PROGRAM	22186A	RTE TRACK ASSIGNMENT TABLE LOG	22445A
LUNG COMPLIANCE AND RESISTANCE MEASUREMENT SYSTEM	22240A	MAGNETIC TAPE SYSTEM PROGRAM CATALOG	22446A
NORMAL DISTRIBUTION	22517A	DEFINE AND FILL FILES FROM DOS-M USER PROGRAM	22457B
VARIANCE RATIO DISTRIBUTION	22518A	BCS ACTIVITY PROFILE GENERATOR (ACP)	22464A
PERT PACKAGE FOR DOS-III	22682-***09	EXTENDED PRECISION ADAPTER FOR BCS	22465A
		EXPAND/CONTRACT DOS-M FILES	22468A
		FLOATING POINT OVERLAY FOR HP BASIC	22477A
		DOS-M USER FILE DESCRIPTION DIRECTORY	22484A
		DOS-M DIRECTORY LISTING PROGRAM WITH MASKING FACILITY	22485A
		DOS-M ABSOLUTE BINARY TAPE LOADER	22488A
		CREATE DSGEN MAGNETIC TAPE	22493A
		DOS-M/DOS III UTILITIES	22554A
		HP 2000 SERIES TSB COLD DUMP TAPE ANALYZER (CDTA)	22560A
		LIST/POSITION DOS-M NON-DISC	22561A
		LIST THE RTE TABLES	22575A
		HP 2883A DISC TO DISC DUMP	22581A
		DOS-M/DOS III MULTI-FILE ASSEMBLER AND CROSS REFERENCE	22585A
		SYMBOL TABLE GENE	
		MAKE RTE DRIVER DISC RESIDENT (DVR67)	22592A
		RTE DISC PROGRAM PATCH UTILITY	22606A
		SUMMARY OF DOS-M SOURCE FILES	22614A
		SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN)	22626A
		DOS-M JOB ACCOUNTING SYSTEM	22627A
		2000E TIME SHARE BASIC PATCH UTILITY	22645A
		PROGRAM SPEED OPTIMIZATION	22646A
		DESCRIPTION DIRECTORY FOR RTE FILE MANAGER FILES	22655A
		RTE LIBRARY SPEED IMPROVEMENTS	22668A
		CASSETTE PREPARE TAPE SYSTEM	22681-***41
		RTE RELOCATABLE EDITOR	22681-***48
		DOS-III ACTIVITY PROFILE GENERATOR (ACP)	22681-***49
		SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN) II	22681-***51
		DOS-M UTILITIES PACKAGE	22681-***71
		DOS-M DISC EDITOR	22681-***75
		DLU FOR RTE	22682-***37
		RTE SYSTEM MAINTENANCE UTILITY (SMUT)	22682-***30
		DOS-III CHANGE SYSTEM CONSOLE	22682-***41
		PROGRAMMING FOR HP 2645 TERMINAL "SOFTKEYS"	22682-***43
		UNEXT	22682-***45
		CLASS — INTERROGATE CLASS I/O SYSTEM	22682-***49
		TRACK	22682-***50
		FMP-UTIL	22682-***51
		RTDMO	22682-***63
		<b>SYSTEMS OF LINEAR EQUATIONS (314)</b>	
		SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS	22033A
		SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX	22034A
		SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC MATRIX	22035A
		SIMULTANEOUS EQUATION SOLVER PROGRAM	22122A
		SIMULTANEOUS EQUATION SOLVER ROUTINE	22123A
		<b>TABLE HANDLING (103)</b>	
		STACK ROUTINES	22362A
		ZERO	22400A
		MULTI-PURPOSE SUBROUTINE PACKAGE FOR HP BASIC 20392A	22476A
		LIST THE RTE TABLES	22575A
		MAPIO	22682-***19
		<b>TAPE (SEE MAGNETIC TAPE OR PAPER TAPE)</b>	
		<b>TELECOMMUNICATIONS EQUIPMENT TEST (217)</b>	
		MUXT-ASCII MESSAGES VIA 12920 MULTIPLEXOR & LOGICAL DVR ATD01	22681-***17



**SECTION II**

**SOFTWARE ABSTRACTS**

# SOFTWARE ABSTRACTS

## Introduction

This section contains a brief description of the computer programs (and routines) offered for use with the HP 2100, and 21MX series computers.

The abstracts are in numerical sequence by Contribution number and product/part number.

If you know the program product/part number you can immediately locate the corresponding abstract. Please note the product/part number is the number to use when ordering a program. The abstract will include order numbers for alternate options (i.e., magnetic tape, cassettes) if available.

If you do not know the program identification number, there are two indexes which can help you.

- Numerical List featuring operating system

This index is singularly useful in locating all numbers for a particular operating system.

- Cross Reference Index

Think of a keyword that describes the program. The Cross-Reference Index includes an alphabetical list of keywords and phrases related to computer software. Each program in the catalog is listed under a keyword or phrase that applies to it.

## STAT-PACK Routines

Some of the routines listed in this catalog are identified as part of the STAT-PACK group. All programs in this group, are listed below. The STAT-PACK group is a collection of routines based on routines initially prepared by the Goddard Computer Science Institute, a division of Wadley Institute of Molecular Medicine, Dallas, Texas.

### NOTE

The STAT-PACK is orderable in its entirety or as individual routines as listed below.

To order the complete 51 program STAT-PACK, order number:

22117-10950	800 BPI magnetic tape (source) and documentation.	\$175.00
22117-11950	1600 BPI magnetic tape (source) and documentation.	\$175.00



## STAT-PAK

22117A Transformations  
 22118C Matrix Inversion Subroutines  
 22119B Matrix Arithmetic Subroutine  
 22120A Matrix Arithmetic Program  
 22121A Cross Tabulation Program  
 22122A Simultaneous Equation Solver Program  
 22123A Simultaneous Equation Solver Routine  
 22127A Discriminant Analysis Program  
 22128A Least Squares Regression Program  
 22129A Linear Regression Interval Estimates  
 22130A Polynomial Regression Program  
 22131A Polynomial Regression Confidence Intervals  
 22132A Stepwise Regression Program  
 22133A Bioassay Program  
 22134A Orthogonal Regression Program  
 22135A Linear Regression with Replication  
 22136A Nonlinear Regression Program  
 22137A Cumulative Distribution Program  
 22138A Kendall's Coefficient of Concordance: W  
 22139A Kendall's Coefficient of Concordance  
 22140A Kendall's Tau Correlation  
 22141A General Statistic Program  
 22142B General Statistics for Multiple Groups  
 22143A Probability Subprogram  
 22144A Integration Routine  
 22145B Confidence Interval for Mean and Variance of a Normal Distribution  
 22146C Sample Size Determination on the Sample Variance Multiple Correlation Routine  
 22147A Multiple Correlation Routine  
 22148A Completely Randomized Design  
 22149A Completely Randomized Design with Subsampling  
 22150A Randomized Complete Block Design  
 22151B Randomized Complete Block Design with Subsampling  
 22152A Two-Way Factorial Design  
 22153A Three-Way Factorial Design  
 22154A Analysis of Variance Information Generator  
 22155A Duncan's Multiple Range Test  
 22156A Paired T-Test  
 22158C Kolomogorow-Smirnow Goodness-of-Fit-Test  
 22159B Chi Square Goodness-of-Fit-Test  
 22160A Test of Hypothesis for Variance  
 22161B Test of Hypothesis for Mean  
 22162B X-Y Plotter on Printer  
 22163A Time Series Plotter  
 22164B Histogram Plotter Program  
 22171A FORTRAN Unit Reference Number Editor  
 (Not Part of STAT-PACK), but Written For Use With STAT-PACK)  
 22182A Histogram Plotter Program  
 22184A Pooling of Groups in Regression  
 22185A Multiple Regression Program  
 22186A Multiple Correlation Matrix Program  
 22187A Non-Linear Regression of a Single-Variable Function  
 22188A Non-Linear Regression of an Arbitrary Function

**Sample Abstract Heading**

The abstract is comprised of header information (i.e., vital statistics), and the abstract text, a general description of what the program does, hardware requirements beyond the minimum system and any special ordering information.

CONTRIBUTION #:	(A)	PART NUMBER:	(B)
CLASS:	(C)	PRICE:	(D)
CONTRIBUTOR:	(E)	DATE CODE:	(F)
		LANG:	(G)
		OP SYS:	(H)

*Title of program*

**Header Field Definitions:**

- |                    |   |
|--------------------|---|
| (A) Contribution # | Number of the program at the time it was added in the Library. The catalog is in contribution number order. At this publication you will find contribution number and part number order to be in numerical ascending order. |
| (B) Part Number    | This is the order number. Any other media options available will be listed at the end of the abstract text. (See ordering information for product/part number explanation.)   |
| (C) Class          | This number is used to categorize programs, and provides the key for creating the keyword index.  |
| (D) Price          | The price quoted in the header is the price of the part listed in the header. Alternate options will be listed in the text with their order numbers and prices.   |
| (E) Contributor    | This is the name of the author and the organization with which the author was associated at the time the program was contributed.   |
| (F) Date code      | This is the revision level of the program. Only the ten digit part numbers will have a date code. The product/part numbers suffix with a letter will not use the date code field as the letter signifies the revision.      |
| (G) Lang           | This is the language or languages the program is written in.  |
| (H) Op Sys         | This is the Operating System the program was written for and any other operating systems it is compatible with.   |

## ABSTRACTS

CONTRIBUTION #: 1  
 CLASS: 3  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22002A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

## TIME-OF-DAY-CLOCK

AFTER INITIALLY BEING SET TO THE CORRECT TIME, THIS ROUTINE FURNISHES THE TIME OF DAY ON DEMAND. UNITS ARE HOURS, MINUTES AND SECONDS. AN ADDITIONAL FEATURE, ELAPSED TIME CAN BE MEASURED WITH OUT INTERFERENCE WITH THE TIME-OF-DAY FUNCTION. THE CLOCK STOPS WHEN THE COMPUTER HALTS

ONE HP12539 TIME BASE GENERATOR IS REQUIRED.



CONTRIBUTION #: 2  
 CLASS: 6  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22004A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

## COUNTER DATA SOURCE INTERFACE DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP 5-TU-8 DIGIT COUNTER. THE BCD MEASUREMENTS IS CONVERTED TO FLOATING POINT FORM AND FORWARDED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS AN 8-4-2-1 DIGITAL COUNTER OF A TYPE SUITED TO ONE OF THE FOLLOWING DATA SOURCE INTERFACE KITS: HP12604B, 12544A, 12545A, 12546A OR 12547A.



CONTRIBUTION #: 3  
 CLASS: 6  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22005B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

## HP2401C DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP 2401C INTEGRATING DIGITAL VOLTMETER. A CONTROL WORD FROM THE CALLING PROGRAM SPECIFIES THE METER FUNCTION (TYPE OF MEASUREMENT), SAMPLING TIME, AND METER RANGE. IF AN HP 2411A GUARDED DATA AMPLIFIER IS USED IN CONJUNCTION WITH THE METER, EITHER X1 OR X10 VOLTAGE AMPLIFICATION CAN BE SPECIFIED BY THE CONTROL WORD. THE MEASUREMENT ACQUIRED IS CONVERTED TO FLOATING POINT BINARY FORM AND FORWARDED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS ON HP2401C INTEGRATING DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT) WITH PROGRAMMING INTERFACE KIT AND DATA SOURCE INTERFACE KIT.



CONTRIBUTION #:	4	PART NUMBER:	22006A-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

HP2401C DATA SOURCE INTERFACE DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP2401C INTEGRATING DIGITAL VOLTMETER. METER FUNCTION (TYPE OF MEASUREMENT), SAMPLING TIME, AND METER RANGE ARE SELECTED MANUALLY AT THE METER. AUTOMATIC RANGE SELECTION CAN BE EMPLOYED IF THE METER IS EQUIPPED WITH THIS OPTIONAL FEATURE AS WELL AS SUPPLYING THE MEASURED VALUE TO THE CALLING PROGRAM IN FLOATING POINT BINARY FORM, THE ROUTINE FURNISHES AN ADDITIONAL WORD TO INDICATE THE TYPE OF MEASUREMENT FOR WHICH THE METER IS SET.

EQUIPMENT REQUIRED IS ON HP2401C INTEGRATING DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT), WITH DATA SOURCE INTERFACE KIT.



CONTRIBUTION #:	5	PART NUMBER:	22008A-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

HP3460A DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM HP3460A DIGITAL VOLTMETER. A CONTROL WORD FROM THE CALLING PROGRAM SPECIFIES THE METER FUNCTION (TYPE OF MEASUREMENT), SAMPLING TIME, AND METER RANGE. AUTOMATIC RANGE SELECTION, A STANDARD FEATURE OF THE METER, CAN BE EMPLOYED IF DESIRED. THE MEASUREMENT ACQUIRED IS CONVERTED TO FLOATING POINT BINARY FORM AND FORWARDED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS ON HP3460A DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT), WITH PROGRAMMING INTERFACE KIT AND DATA SOURCE INTERFACE KIT.



CONTRIBUTION #: 6  
CLASS: 17  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 220098-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

### BOOTSTRAP LOADER GENERATOR

THIS PROGRAM PRODUCES A PUNCHED TAPE CONTAINING COMPUTER INSTRUCTIONS CONSTITUTING EITHER A BASIC BINARY LOADER OR A BASIC BINARY DISC LOADER. ALSO FURNISHED BY THE PROGRAM IS A TYPED SET OF INSTRUCTIONS FOR USING THE TAPE PRODUCED. BY EMPLOYING A BOOTSTRAP, CONSISTING OF 11 INSTRUCTIONS ENTERED THROUGH THE SWITCH REGISTER, THE BOOTSTRAP LOADER TAPE CAN BE READ INTO THE REQUIRED POSITIONS OF CORE STORAGE. BOOTSTRAP LOADER TAPES CAN BE PRODUCED FOR ANY CORE STORAGE CAPACITY USED IN HP COMPUTERS.



CONTRIBUTION #: 7  
CLASS: 18  
CONTRIBUTOR: J. D. SANKEY  
CANADIAN NATIONAL RESEARCH

PART NUMBER: 22013B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

### INVERSE ASSEMBLER

THIS PROGRAM ACCEPTS AN ABSOLUTE BINARY PROGRAM TAPE AND CREATES FROM IT AN ASSEMBLY LANGUAGE LISTING. WHEN THE INVERSE ASSEMBLER IS USED, THE NORMAL PHOTOREADER DRIVER IS REPLACED BY AN EQUIVALENT OF THE BASIC BINARY LOADER.



CONTRIBUTION #: 8  
CLASS: 212  
CONTRIBUTOR: J. D. SANKEY  
DIVISION OF APPLIED PHYSIC  
CANADIAN NAT. RES. COUNCIL

PART NUMBER: 22014A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

### BINARY TAPE EDITOR

THIS PROGRAM ALLOWS MANIPULATION OF ABSOLUTE-ADDRESS DATA BLOCKS. WHEN USED IN CONJUNCTION WITH THE INVERSE ASSEMBLER (PROGRAM 22013) AND WITH THE ASSEMBLER PROGRAM APPROPRIATE TO THE OPERATING SYSTEM EMPLOYED, IT FACILITATES THE PRODUCTION OF A VALID INVERSE ASSEMBLY LISTING.  
THE BINARY TAPE EDITOR (BTD) LISTS THE STARTING ADDRESSES OF SPECIFIED DATA BLOCKS ON A BINARY PUNCHED TAPE, AND CAN DUPLICATE DESIGNATED DATA BLOCKS OF A BINARY TAPE WITH THE PURPOSE OF PRODUCING A CONTINUOUS SET OF TAPE SEGMENTS THAT CAN BE LOCATED WITHOUT HALTS BY THE BASIC BINARY LOADER.

SOME TYPICAL USES OF (BTED) ARE THE FOLLOWING:

- A. TO INVERSE-ASSEMBLE A SPECIFIED PART OF A BINARY PUNCHED TAPES.
- B. TO CREATE A SINGLE BINARY PUNCHED TAPE FROM TWO OR MORE BINARY PUNCHED TAPES.
- C. TO PRODUCE FROM A BINARY PUNCHED TAPE A SECOND TAPE IN WHICH A DATA BLOCK HAS BEEN CHANGED.

EQUIPMENT REQUIRED IS THE EXTENDED ARITHMETIC UNIT.



CONTRIBUTION #:	9	PART NUMBER:	22015B-K01
CLASS:	212	PRICE:	\$10
CONTRIBUTOR:	T. D. MACCOUN	DATE CODE:	
	QUINDAR ELECTRONICS, INC.	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	SIO

#### BASIC LINE RESEQUENCER

THE BASIC LINE RESEQUENCER PROGRAM PROVIDES A MEANS OF CHANGING THE LINE NUMBERS OF A BASIC PROGRAM. ANY STATEMENT IN THE BASIC PROGRAM WHICH REFERENCES A CHANGED LINE NUMBER IS ALTERED TO CORRESPOND. THE ORIGINAL EXECUTION SEQUENCE OF THE BASIC PROGRAM IS RETAINED.



CONTRIBUTION #:	10	PART NUMBER:	22016C-K01
CLASS:	212	PRICE:	\$10
CONTRIBUTOR:	CHARLES CHERNACK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	BCS

#### SYMBOLIC ALPHANUMERIC GENERATOR

FURNISHING A MEANS OF LABELING A PROGRAM OR ROUTINE, THIS PROGRAM GENERATES A BLOCK-LETTERING LEADER OR TRAILER FOR A PUNCHED TAPE.



CONTRIBUTION #:	11	PART NUMBER:	22017A-K01
CLASS:	306	PRICE:	\$10
CONTRIBUTOR:	UNSPECIFIED	DATE CODE:	
		LANG:	FORTRAN II
		OP SYS:	BCS

#### GAMMA FUNCTION ROUTINE

THIS ROUTINE COMPUTES THE GAMMA FUNCTION BY MEANS OF THE RECURSION RELATION AND POLYNOMIAL APPROXIMATION METHOD.

THE ROUTINE IS FORTRAN CALLABLE.

CONTRIBUTION #: 12  
CLASS: 306  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22018A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

K BESSEL FUNCTION ROUTINE

THIS ROUTINE COMPUTES THE K BESSEL FUNCTION FOR A GIVEN ARGUMENT AND ORDER. IN THE METHOD USED, THE ROUTINE COMPUTES ZERO ORDER AND FIRST ORDER BESSEL FUNCTIONS, USING SERIES APPROXIMATIONS. THE ROUTINE THEN COMPUTES THE (NTH) ORDER FUNCTION BY MEANS OF RECURRENCE RELATION. ACCURACY IS USUALLY FIVE DECIMAL PLACES; IN WORST-CASE SITUATIONS ACCURACY IS FOUR DECIMAL PLACE.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 13  
CLASS: 306  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22019A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

I BESSEL FUNCTION ROUTINE

THIS ROUTINE COMPUTES THE (I) BESSEL FUNCTION FOR A GIVEN ARGUMENT AND ORDER. THE ROUTINE USES EITHER SERIES OR ASYMPTOTIC APPROXIMATION, DEPENDING ON THE RANGE OF THE ARGUMENT. ACCURACY IS USUALLY FIVE DECIMAL PLACES; IN WORST-CASE SITUATIONS ACCURACY IS FOUR DECIMAL PLACES.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 14  
CLASS: 306  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22020A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

Y BESSEL FUNCTION ROUTINE

THIS ROUTINE COMPUTES THE (Y) BESSEL FUNCTION FOR A GIVEN ARGUMENT AND ORDER. THE ROUTINE USES THE RECURRENCE RELATION AND POLYNOMIAL APPROXIMATION TECHNIQUE. ACCURACY IS USUALLY FIVE DECIMAL PLACES; IN WORST-CASE SITUATIONS ACCURACY IS FOUR DECIMAL PLACES.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 15  
 CLASS: 301  
 CONTRIBUTOR: ALLAN P. SHERMAN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22021A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### LOCATE MAXIMUM-MINIMUM INTEGER

THIS ROUTINE DETERMINES THE MAXIMUM AND MINIMUM OF VALUES IN AN INTEGER ARRAY, AND INDICATES THE POSITIONS IN THE ARRAY OF THESE TWO VALUES.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 16  
 CLASS: 309  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22022A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### SOLUTION OF LINEAR LEAST SQUARES PROBLEMS

THIS SUBROUTINE SOLVES LINEAR LEAST SQUARES PROBLEMS. IN ACCOMPLISHING THIS, THE ROUTINE MINIMIZES THE EUCLIDEAN NORM OF  $B-A*X$ , WHERE (A) IS AN  $M \times N$  MATRIX WITH (M) NOT LESS THAN (N). IN THE SPECIAL CASE WHERE  $M=N$ , SYSTEMS OF LINEAR EQUATIONS MAY BE SOLVED.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 17  
 CLASS: 310  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22023A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### TRAPEZOIDAL INTEGRATION ROUTINE

THIS ROUTINE COMPUTES THE VECTOR INTEGRAL VALUES FOR A GIVEN GENERAL TABLE OF ARGUMENT AND FUNCTION VALUES. BEGINNING WITH  $Z(1)=0$ , VECTOR (Z) IS EVALUATED BY MEANS OF THE TRAPEZOIDAL RULE (SECOND ORDER FORMULA).

THIS ROUTINE IS FORTRAN CALLABLE.





CONTRIBUTION #: 18  
CLASS: 310  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22024A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

TRAPEZOIDAL INTEGRATION ROUTINE, EQUAL INTERVAL ARGUMENT

THIS ROUTINE COMPUTES THE VECTOR OF INTEGRAL VALUES FOR A GIVEN EQUIDISTANT TABLE OF FUNCTION VALUES. BEGINNING WITH  $Z(1)=0$ , VECTOR  $Z$  IS EVALUATED BY MEANS OF THE TRAPEZOIDAL RULE (SECOND ORDER FORMULA).

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 19  
CLASS: 310  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22025A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

SIMPSON & NEWTON'S 3/8 INTEGRATION RTN, EQUAL INTERVAL ARGUMENT

THIS ROUTINE COMPUTES THE VECTOR OF INTEGRAL VALUES FOR A GIVEN EQUIDISTANT TABLE OF FUNCTION VALUES. THE INPUT VECTOR OF FUNCTION VALUES MUST CONSIST OF AT LEAST (3) ELEMENTS. BEGINNING WITH  $Z(1)=0$ , VECTOR  $Z$  IS EVALUATED BY MEANS OF SIMPSON'S RULE, NEWTON'S 3/8 RULE, OR A COMBINATION OF THESE TWO RULES. TRUNCATION ERROR, COMPUTED BY THE FOURTH-ORDER METHOD, IN MOST INSTANCES IS OF THE ORDER  $H^{**5}$ . IN THE WORST-CASE SITUATION, HOWEVER, THE TRUNCATION ERROR OF  $Z(2)$  IS OF THE ORDER  $H^{**4}$ .

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 20  
CLASS: 310  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22026A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

HERMITIAN FOURTH-ORDER INTEGRATION ROUTINE

THIS ROUTINE COMPUTES THE VECTOR OF INTEGRAL VALUES FOR A GIVEN GENERAL TABLE OF ARGUMENT, FUNCTION AND DERIVATIVE VALUES. USING THE HERMITIAN FOURTH-ORDER INTEGRATION FORMULA, VECTOR  $Z$  IS EVALUATED BEGINNING WITH  $Z(1)=0$ .

THE ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 21  
 CLASS: 310  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22027B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

HERMITIAN 4TH ORDER INTEGRATION RTN, EQUAL INTERVAL ARG

THIS ROUTINE COMPUTES THE VECTOR OF INTEGRAL VALUES FOR A GIVEN EQUIDISTANT TABLE OF FUNCTION AND DERIVATIVE VALUES. BEGINNING WITH  $Z(1)=0$ , VECTOR Z IS EVALUATED BY MEANS OF THE HERMITIAN FOURTH-ORDER INTEGRATION FORMULA.

THE ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 22  
 CLASS: 310  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22028A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

HERMITIAN 6TH ORDER INTEGRATION ROUTINE

THIS ROUTINE COMPUTES THE VECTOR OF INTEGRAL VALUES FOR A GIVEN GENERAL TABLE OF ARGUMENT, FUNCTION, FIRST DERIVATIVE, AND SECOND DERIVATIVE VALUES. BEGINNING WITH  $Z(1)=0$ , VECTOR (Z) IS EVALUATED BY MEANS OF THE HERMITIAN SIXTH ORDER INTEGRATION FORMULA.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 23  
 CLASS: 310  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22029A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

HERMITIAN 6TH ORDER INTEGRATION RTN, EQUAL INTERVAL ARG

THIS ROUTINE COMPUTES THE VECTOR OF INTEGRAL VALUES FOR A GIVEN EQUIDISTANT TABLE OF FUNCTION, FIRST DERIVATIVE, AND SECOND DERIVATIVE VALUES. BEGINNING WITH  $Z(1)=0$ , VECTOR Z IS EVALUATED BY MEANS OF THE HERMITIAN SIXTH-ORDER INTEGRATION FORMULA.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 24  
CLASS: 311  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 220308-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

### COMPLEX ROOTS OF A REAL POLYNOMIAL

USING THE QUOTIENT-DIFFERENCE ALGORITHM WITH DISPLACEMENT, THIS ROUTINE CALCULATES ALL REAL AND COMPLEX ROOTS OF A POLYNOMIAL EXPRESSION.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 25  
CLASS: 312  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22031A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

### ADD ROWS OF MATRICES

THIS ROUTINE ADDS CORRESPONDING ELEMENTS OF A ROW OF ONE MATRIX TO A ROW OF ANOTHER MATRIX. THE OUTPUT MATRIX MUST BE A GENERAL MATRIX, AND MUST NOT BE STORED IN THE SAME LOCATION AS THE INPUT MATRIX UNLESS THE INPUT MATRIX ALSO IS GENERAL.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 26  
CLASS: 312  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22032A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

### RANK AND BASIS ROUTINE

FOR A GIVEN (M X N) MATRIX, THE FOLLOWING CALCULATIONS ARE PERFORMED BY THIS ROUTINE:

- A. DETERMINE RANK AND LINEARLY INDEPENDENT ROWS & COLUMNS (BASIS)
- B. FACTORIZE A SUBMATRIX OF MAXIMAL RANK.
- C. EXPRESS NONBASIC ROWS IN TERMS OF BASIC ROWS.
- D. EXPRESS BASIC VARIABLES IN TERMS OF FREE VARIABLES.

THE LEFT HAND TRIANGULAR FACTOR IS NORMALIZED SO THAT THE DIAGONAL CONTAINS ALL 1'S, THUS ALLOWING STORAGE OF THE SUB-DIAGONAL PART. GAUSSIAN ELIMINATION TECHNIQUE IS USED FOR CALCULATION OF THE

TRIANGULAR FACTORS OF A GIVEN MATRIX. COMPLETE PIVOTING IS BUILT IN. IN THE CASE OF A SINGULAR MATRIX, ONLY THE TRIANGULAR FACTORS OF A SUBMATRIX OF MAXIMAL RANK ARE RETAINED. THE REMAINING PARTS OF THE RESULTANT MATRIX GIVE THE DEPENDENCIES OF ROWS AND THE SOLUTION OF THE HOMOGENEOUS MATRIX EQUATION  $A \cdot X = 0$ .

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 27  
CLASS: 314  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22033A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

#### SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS

USING GAUSS ELIMINATION WITH COMPLETE PIVOTING, THIS ROUTINE SOLVES A GENERAL SYSTEM OF SIMULTANEOUS LINEAR EQUATIONS.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 28  
CLASS: 314  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22034A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

#### SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, BAND-MATRIX

THIS ROUTINE SOLVES A SYSTEM OF SIMULTANEOUS LINEAR EQUATIONS WITH A COEFFICIENT MATRIX OF BAND STRUCTURES. TO PRESERVE THE BAND STRUCTURE IN THE REMAINING COEFFICIENT MATRICES, THE SOLUTION IS OBTAINED BY MEANS OF THE GAUSS-ELIMINATION METHOD WITH COLUMN PIVOTING ONLY.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 29  
CLASS: 314  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22035A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

SOLUTION OF SIMULTANEOUS LINEAR EQUATIONS, SYMMETRIC MATRIX

THIS ROUTINE SOLVES A SYSTEM OF SIMULTANEOUS LINEAR EQUATIONS WITH A SYMMETRIC COEFFICIENT MATRIX WHOSE UPPER TRIANGULAR PART IS ASSUMED TO BE STORED COLUMNWISE. TO PRESERVE SYMMETRY IN THE REMAINING COEFFICIENT MATRICES, THE SOLUTION IS OBTAINED BY MEANS OF THE GAUSS-ELIMINATION METHOD WITH COLUMN PIVOTING ONLY.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 30  
CLASS: 316  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22036A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

REAL FOURIER TRANSFORM

THIS FORTRAN CALLABLE ROUTINE FINDS THE FOURIER COEFFICIENTS OF A ONE-DIMENSION REAL ARRAY. USING THE COOLEY-TUKEY ALGORITHM, THE ROUTINE GIVES THE COEFFICIENTS OF  $2 \times (2^{**}M)$  REAL POINTS WHEN GIVEN THE INPUT OF  $2 \times (2^{**}M)$  REAL FUNCTION VALUES WHOSE ARGUMENTS ARE EQUALLY SPACED.

CONTRIBUTED PROGRAM #22037 IS REQUIRED.

EQUIPMENT REQUIRED IS 16K OF CORE STORAGE TO COMPILE, 8K TO EXECUTE.



CONTRIBUTION #: 31  
CLASS: 316  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22037B-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

COMPLEX FOURIER TRANSFORM

THE FUNCTION OF THIS FORTRAN CALLABLE ROUTINE IS TO PERFORM DISCRETE COMPLEX FOURIER TRANSFORMS ON A COMPLEX 3-DIMENSION ARRAY WHERE EACH DIMENSION IS A POWER OF 2.

EQUIPMENT REQUIRED IS 16K OF CORE STORAGE TO COMPILE, 8K TO EXECUTE.



CONTRIBUTION #: 32  
 CLASS: 318  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22038A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: RTE,DOS

### SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS

USED BY THE RTE OR DOS OPERATING SYSTEM, THIS FORTRAN CALLABLE ROUTINE SOLVES A SYSTEM OF FIRST-ORDER ORDINARY GENERAL DIFFERENTIAL EQUATIONS WITH GIVEN INITIAL VALUES. A FOURTH ORDER METHOD, HAMMINGS MODIFIED PREDICTOR-CORRECTOR METHOD IS USED. THIS PROCEDURE REQUIRES FOUR PRECEDING POINTS FOR COMPUTATION OF A NEW VECTOR (Y) OF THE DEPENDENT VARIABLES. THE FOURTH-ORDER RUNGE-KUTTA METHOD IS USED FOR ADJUSTMENT OF THE INITIAL INCREMENT AND FOR COMPUTATION OF STARTING VALUES. DURING THE ENTIRE ROUTINE, THE INCREMENT IS AUTOMATICALLY ADJUSTED BY HALVING OR DOUBLING. FOR MAXIMUM FLEXIBILITY IN OUTPUT, AN OUTPUT SUBROUTINE MUST BE SUPPLIED BY THE USER.

ORDER #22038-13300      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 33  
 CLASS: 408  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22039A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

### MEAN, DEVIATION & CORRELATION COEFFICIENTS ROUTINE

THIS FORTRAN CALLABLE ROUTINE COMPUTES MEANS, STANDARD DEVIATIONS, SUMS OF CROSS-PRODUCTS OF DEVIATIONS, AND CORRELATION COEFFICIENTS BY PRODUCT-MOMENT CORRELATION COEFFICIENTS. THE NUMBER OF VARIABLES MUST BE GREATER THAN THE NUMBER OF OBSERVATIONS.

THIS ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 34  
 CLASS: 106  
 CONTRIBUTOR: CHARLES CHERNACK  
 HP, EASTERN SALES REGION

PART NUMBER: 22041E-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

### PUNCHED TAPE DUPLICATOR

THIS INDEPENDENT PROGRAM FURNISHES A RELIABLE METHOD FOR COPYING PUNCHED TAPES. EITHER SOURCE-LANGUAGE TAPES OR BINARY TAPES CAN BE DUPLICATED. AS A TAPE ORIGINAL IS READ INTO CORE STORAGE, THE CHECKSUM IS VERIFIED. VERIFICATION OF A DUPLICATED TAPE AGAINST

THE TAPE IMAGE IN CORE STORAGE IS ALSO POSSIBLE. THE PROGRAM CAN COMBINE TWO OR MORE PUNCHED TAPES INTO A SINGLE TAPE WITH OR WITHOUT A FOUR FEED-HOLE SEPARATION BETWEEN DATA FROM DIFFERENT TAPES. A CONFIGURED TAPE CAN BE PRODUCED FROM AN UNCONFIGURED ORIGINAL. AS AN ADDITIONAL FUNCTION, A BOOTSTRAP LOADER TAPE CAN BE PUNCHED, DUPLICATING THE LOADER WHICH IS IN CORE STORAGE. CORE STORAGE CAPACITY OF THE COMPUTER CAN BE OF ANY MAGNITUDE. HOWEVER, FOR DUPLICATING LENGTHY TAPES 16K OR MORE MAY BE REQUIRED. AN ERROR PRINTOUT IS FURNISHED IF A TAPE EXCEEDS THE CORE STORAGE CAPACITY. DURING THE READING OF A TAPE ORIGINAL, A COUNTDOWN IN THE (B)-REGISTER ILLUSTRATES THE AMOUNT OF CORE STORAGE AVAILABLE FOR THE REMAINDER OF THE TAPE IMAGE. WHEN PUNCHING IS TAKING PLACE, THE PROGRAM HALTS IF END-OF-TAPE IS DETECTED.

FOR READING AND PUNCHING, EITHER HIGH-SPEED TAPE READER AND PUNCH UNITS CAN BE EMPLOYED, OR THE CORRESPONDING UNITS IN THE TELEPRINTER CAN BE USED.



CONTRIBUTION #: 35  
 CLASS: 8  
 CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22042C-K21  
 PRICE: \$75  
 DATE CODE:  
 LANG: IBM-360-BAL  
 OP SYS: IBM SYSTEM 360

AN HP 2116-FAMILY SIMULATOR FOR THE IBM-360

THIS PROGRAM IS RUN ON AN IBM 360 COMPUTER, AND IT SIMULATES THE OPERATION OF INSTRUCTIONS WRITTEN FOR ANY HP COMPUTER IN THE 2114, 2115, 2116, OR 2100 SERIES. THE SIMULATOR PROGRAM FURNISHES A MEANS FOR COMPILING, ASSEMBLING, DEBUGGING, AND EXECUTING HP PROGRAMS WITHOUT THE USE OF AN HP COMPUTER. THE SIMULATOR PROGRAM CAN BE USED FOR ANY OF THE FOLLOWING COMPUTER LANGUAGES OR OPERATING SYSTEMS: HP ALGOL, HP FORTRAN, HP ASSEMBLER, BCS, AND MTS. THE PROGRAM SIMULATES THE FUNCTIONS OF THE FOLLOWING HP I/O DEVICES: TELEPRINTER, 7- OR 9-TRACK MAGNETIC TAPE UNIT, TAPE PUNCH, AND PUNCHED TAPE READER. TELEPRINTER OUTPUTS APPEAR ON AN IBM LINE PRINTER EXACTLY AS THEY WOULD APPEAR IF FURNISHED BY AN HP TELEPRINTER. THE IBM LINE PRINTER ALSO PRINTS OUT THE INFORMATION ON ALL SIMULATOR CONTROL CARDS, LISTS ALL HALTS IN THE HP PROGRAM, AND (IF DESIRED), LISTS EACH HP INSTRUCTION IN THE SEQUENCE IN WHICH IT IS EXECUTED. THE SIMULATED OUTPUT OF THE HP TAPE PUNCH IS PROVIDED IN THE FORM OF PUNCHED CARDS OR AS CARD IMAGES ON MAGNETIC TAPE.

THE INPUT MEDIUM FOR THE IBM COMPUTER IS PUNCHED CARDS, AND THE OUTPUT IS FURNISHED ON A LINE PRINTER AND MAGNETIC TAPE. SIMULATION OF A 4K HP COMPUTER REQUIRES AN IBM 360-30 COMPUTER OR LARGER, USING IBM DOS PROGRAM SYSTEM, AND WITH A MINIMUM CORE STORAGE CAPACITY OF 32K BYTES. AN (OS) VERSION OF THE SIMULATOR PROGRAM, REQUIRING A CORE STORAGE CAPACITY OF 131K BYTES, SIMULATES THE OPERATION OF A 16K HP COMPUTER.

EQUIPMENT REQUIRED IS AN IBM 360 COMPUTER, WITH PUNCHED CARD READER AND LINE PRINTER. IF THE HP PROGRAM INCLUDES MAGNETIC TAPE I/O OPERATIONS, THE IBM SYSTEM MUST INCLUDE A MAGNETIC TAPE UNIT WITH THE SAME NUMBER OF TRACKS AS THE HP TAPE UNIT.

SPECIFY 800 OR 1600 BPI WHEN ORDERING.



CONTRIBUTION #:	36	PART NUMBER:	22044B-K01
CLASS:	9	PRICE:	\$10
CONTRIBUTOR:	DAVID R MC CLELLAN	DATE CODE:	
	HP, SOUTHERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC

#### RUN-TIME DATA INPUT FOR BASIC

THIS ROUTINE TERMED SCANR, ALLOWS A PROGRAMMER TO FURNISH FREE-FIELD DATA TO A RUNNING BASIC PROGRAM THROUGH A PHOTOREADER OR TELEPRINTER, EMPLOYING THE NORMAL BASIC I/O DRIVERS. ANY NUMBER OF DATA ITEMS ARE TRANSFERRED INTO AN ARRAY SPECIFIED BY THE USER PROGRAM.

THE SCANR ROUTINE, AN ASSEMBLY LANGUAGE MODIFICATION OF THE 20392A BASIC OPERATING SYSTEM, CHANGES THE ROUTINE NORMALLY USED TO SCAN A DATA STATEMENT SO THAT THE VALUES ARE READ FROM THE PHOTOREADER OR TELEPRINTER.

AFTER THE VALUES ARE PASSED TO THE USER PROGRAM, SCANR RESTORES THE BASIC OPERATING SYSTEM TO ITS ORIGINAL STATE.



CONTRIBUTION #:	37	PART NUMBER:	22055A-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

#### HP3460A/B DATA SOURCE INTERFACE DRIVER-FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP3460A OR 3460B DIGITAL VOLTMETER. METER FUNCTION (TYPE OF MEASUREMENT) AND METER RANGE ARE SELECTED MANUALLY AT THE METER. AUTOMATIC RANGE SELECTION, A STANDARD FEATURE OF THE METER, CAN BE EMPLOYED IF DESIRED. AS WELL AS SUPPLYING THE MEASURED VALUE TO THE CALLING PROGRAM IN FLOATING POINT FORM, THE ROUTINE FURNISHES AN ADDITIONAL WORD WHICH INDICATES THE TYPE OF MEASUREMENT FOR WHICH THE METER IS SET.

EQUIPMENT REQUIRED IS ONE HP3460A OR 3460B DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT), WITH DATA SOURCE INTERFACE KIT.





CONTRIBUTION #: 38  
CLASS: 6  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22061A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP2320 LOW-SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP2320A LOW SPEED DATA ACQUISITION SUBSYSTEM. CONTROL WORDS FROM THE CALLING PROGRAM SPECIFY THE DATA CHANNEL TO BE SAMPLED, METER FUNCTION (TYPE OF MEASUREMENT), METER MODE (MEASUREMENT OR CALIBRATION CHECK), DELAY, AND METER RANGE. AUTOMATIC RANGE SELECTION CAN BE EMPLOYED IF THE METER IS EQUIPPED WITH THIS OPTIONAL FEATURE. THE MEASUREMENTS ACQUIRED ARE CONVERTED TO FLOATING POINT FORM AND FORWARDED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS ONE HP2320A LOW SPEED DATA ACQUISITION SUBSYSTEM (8-4-2-1 BCD OUTPUT).



CONTRIBUTION #: 39  
CLASS: 6  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22062A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP2322A LOW-SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP2322A LOW SPEED DATA ACQUISITION SUBSYSTEM. CONTROL WORDS FROM THE CALLING PROGRAM SPECIFY THE DATA CHANNEL TO BE SAMPLED, METER FUNCTION (TYPE OF MEASUREMENT), SAMPLING PERIOD, DELAY, AND METER RANGE. AUTOMATIC RANGE SELECTION CAN BE EMPLOYED IF THE METER IS EQUIPPED WITH THIS OPTIONAL FEATURE. THE MEASUREMENT ACQUIRED IS CONVERTED TO FLOATING POINT FORM AND FORWARDED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS ONE HP2322A LOW SPEED DATA ACQUISITION SUBSYSTEM (8-4-2-1 BCD OUTPUT).



CONTRIBUTION #: 40  
 CLASS: 15  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22063A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS

#### HP2770A/2771A DISC DRIVER - FORTRAN CALLABLE

THIS DRIVER CONTROLS DISC I/O OPERATIONS. THE ROUTINE ACCEPTS SEPARATE FLOATING POINT TRACK AND SECTOR ADDRESSES, AND ASSEMBLES THEM INTO COMPLETE ADDRESS WORDS.

EQUIPMENT REQUIRED IS THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER AND ONE HP2770 OR 2771 DISC MEMORY WITH INTERFACE KIT AND POWER SUPPLY.



CONTRIBUTION #: 41  
 CLASS: 212  
 CONTRIBUTOR: JIM FEARNSIDE  
 HP, MEDICAL ELECTONICS

PART NUMBER: 22064B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SIO

#### AUTOMATIC TABBING PROGRAM

THIS PROGRAM, USED WHEN TYPING AND PUNCHING ASSEMBLY LANGUAGE PROGRAMS ON THE TELEPRINTER, AUTOMATICALLY SPACES TO THE CORRECT COLUMNS FOR OPERATION CODE, OPERAND, AND COMMENTS. THE PROGRAM ALSO PREVENTS CERTAIN ILLEGAL OPERATIONS, SUCH AS COMMENTS EXTENDING BEYOND COLUMN 52. THE PROGRAM ALLOWS AT LEAST A 30-PERCENT INCREASE IN THE EFFICIENCY OF MAKING PROGRAM TAPES.



CONTRIBUTION #: 42  
 CLASS: 6  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22069A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### HP2323A LOW-SPEED A-TO-D SUBSYSTEM DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP2323A LOW SPEED DATA SYSTEM. CALIBRATION OF THE MEASUREMENT INSTRUMENT EMPLOYED IN THE SYSTEM CAN ALSO BE CHECKED. CONTROL WORDS FROM THE CALLING PROGRAM SPECIFY THE DATA CHANNEL TO BE SAMPLED, METER FUNCTION (TYPE OF MEASUREMENT), METER MODE (MEASUREMENT OR CALIBRATION CHECK), DELAY, AND METER RANGE. AUTOMATIC RANGE SELECTION CAN BE EMPLOYED IF THE METER IS EQUIPPED WITH THIS OPTIONAL FEATURE. THE MEASUREMENT ACQUIRED IS CONVERTED TO FLOATING POINT FORM AND FORWARDED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS ONE HP2323A LOW SPEED DATA SYSTEM (8-4-2-1 BCD OUTPUT), WITH DATA SOURCE INTERFACE KIT, AND REED SCANNER PROGRAM INTERFACE KIT.



CONTRIBUTION #: 43  
CLASS: 3  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22071A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP12539A TIME BASE GENERATOR DRIVER - FORTRAN CALLABLE

THIS ROUTINE PROVIDES A MEANS FOR MEASURING THE TIME OF DAY. ELAPSED TIME CAN ALSO BE MEASURED. THE TIME-OF-DAY AND ELAPSED TIME FUNCTIONS MAY BE USED SIMULTANEOUSLY WITHOUT RESTRICTIONS. WHEN THE TIME-OF-DAY IS READ OUT, THE UNITS ARE HOURS, MINUTES, AND SECONDS, EACH EXPRESSED AS A FLOATING POINT NUMBER. ELAPSED TIME IS INDICATED IN HUNDREDTHS OF SECONDS, EXPRESSED AS A SINGLE FLOATING POINT NUMBER. FOR TIME-OF-DAY USE, THE ROUTINE MUST BE INITIATED WITH THE CURRENT TIME. IN EITHER USE, THE ROUTINE CAUSES A PROGRAM INTERRUPT EVERY 10 MILLISECONDS; THE TIME-OF-DAY AND ELAPSED TIME COUNTS ARE THEN INCREMENTED IF NECESSARY. WHEN THE PROGRAM HALTS THE TIME-OF-DAY AND ELAPSED TIME COUNTS STOP.

EQUIPMENT REQUIRED IS ONE HP12539A TIME BASE GENERATOR INTERFACE KIT.



CONTRIBUTION #: 44  
CLASS: 6  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22075A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP5100B FREQUENCY SYNTHESIZER DRIVER - FORTRAN CALLABLE

THIS ROUTINE CONTROLS AN HP5100B FREQUENCY SYNTHESIZER. TWO CONTROL WORDS, FURNISHED BY THE CALLING PROGRAM, DESIGNATE THE FREQUENCY REQUIRED. ANY FREQUENCY FROM DC TO 50 MHZ CAN BE SPECIFIED WITH CHANGE INCREMENTS AS SMALL AS 0.01 HERTZ. TYPICALLY, THE FREQUENCY CHANGES 20 MICROSECONDS AFTER THE CONTROL WORDS ARE SUPPLIED.

EQUIPMENT REQUIRED IS A HP5100B FREQUENCY SYNTHESIZER, ONE HP5110B SYNTHESIZER DRIVER, ONE HP2759B SYNTHESIZER PROGRAMMER, AND ONE 40 BIT OUTPUT INTERFACE CARD.



CONTRIBUTION #: 45  
CLASS: 14  
CONTRIBUTOR: DAVID R. MC CLELLAN  
HP, SOUTHERN SALES REGION

PART NUMBER: 22077B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

CALCOMP PLOTTER DRIVER - BASIC CALLABLE

THIS DRIVER, USED WITH THE 20392 BASIC OPERATING SYSTEM, CONTROLS I/O OPERATIONS WITH CALCOMP MODEL 565 PLOTTER.

THE ROUTINE PLOTS POINTS AND STRAIGHT LINES. MOVEMENT, IN INCREMENTS OF 0.01 INCH (0.254 MILLIMETER), TAKES PLACE IN ANY OF EIGHT DIRECTIONS. USER SUBROUTINES CAN BE WRITTEN TO PERMIT PLOTTING COMPLEX FIGURES.

EQUIPMENT REQUIRED IS ONE CALCOMP MODEL 565 DIGITAL INCREMENTAL PLOTTER WITH INTERFACE KIT.



CONTRIBUTION #:	46	PART NUMBER:	22078B-K01
CLASS:	9	PRICE:	\$10
CONTRIBUTOR:	DAVID R. MC CLELLAN	DATE CODE:	
	HP, SOUTHERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC

#### HIGH-SPEED PUNCH DRIVER - BASIC CALLABLE

PROVIDING A MEANS FOR LOGGING DATA OR STORING INTERMEDIATE RESULTS, THIS DRIVER FURNISHES A PUNCHED TAPE OUTPUT FROM A RUNNING BASIC PROGRAM. THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED INCLUDES ONE HP2753 TAPE PUNCH WITH INTERFACE KIT.



CONTRIBUTION #:	47	PART NUMBER:	22079B-K01
CLASS:	107	PRICE:	\$10
CONTRIBUTOR:	ROBERT RICHARDSON	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	FORTRAN II
		OP SYS:	BCS

#### NUMERIC STRING SORT FOR ASCII RECORDS

THIS PROGRAM READS RECORDS OF STRING DATA. EACH RECORD IS PREFIXED BY A FOUR-DIGIT NUMERIC CODE USED BY THE PROGRAM FOR SORTING THE RECORDS. THEN THE NUMERIC CODE IS DROPPED, AND THE STRING RECORDS ARE PRINTED OUT (IN ORDER). THIS PROGRAM READS EITHER PUNCHED OR MARKED SENSE CARDS OR CAN READ FROM THE TELETYPE. THE STRING DATA MAY BE UP TO 48 CHARACTERS IN LENGTH AND IS PREFIXED BY A FOUR-DIGIT INTEGER IN THE FIRST FOUR COLUMNS. THE STRING BEGINS IN COLUMN SEVEN. THE DATA IS READ INTO THE COMPUTER IN RANDOM ORDER. THE COMPUTER THEN COUNTS THE NUMBER OF STRINGS AND PRINTS EACH STRING OUT IN ORDER FROM THE LOWEST TO THE HIGHEST FOUR-DIGIT INTEGER.



CONTRIBUTION #: 48  
CLASS: 14  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22080B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RCS

HP2331A X-Y DISPLAY SUBSYSTEM DRIVER - FORTRAN CALLABLE

THIS DRIVER SETS UP CRT DISPLAYS ON AN HP1300A LARGE SCREEN DISPLAY. THE X AND Y AXES ARE PLOTTED, IF DESIRED.

EQUIPMENT REQUIRED INCLUDES ON HP2331A X-Y DISPLAY SUBSYSTEM, CONSISTING OF AN HP1300 X-Y LARGE SCREEN DISPLAY AND A DUAL D/A CONVERTER INTERFACE KIT.



CONTRIBUTION #: 49  
CLASS: 104  
CONTRIBUTOR: ALLAN P. SHERMAN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22081A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RCS

BIT OPERATIONS (SET, CLEAR, TEST) - FORTRAN CALLABLE

THESE SUBROUTINES SET OR CLEAR ANY BIT OF ANY SPECIFIED WORD. IN ADDITION, THE STATUS OF ANY BIT CAN BE TESTED BY A FORTRAN (IF) STATEMENT.



CONTRIBUTION #: 50  
CLASS: 9  
CONTRIBUTOR: STEPHEN M. CURRY  
DEPARTMENT OF PHYSICS  
STANFORD UNIVERSITY

PART NUMBER: 22082B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

BASIC PHOTO READER DATA INPUT

THIS ROUTINE ALLOWS A PROGRAMMER TO FURNISH FREE-FIELD DATA TO A RUNNING BASIC PROGRAM BY MEANS OF A PHOTOREADER. THE USER REQUESTS INPUT DATA BY MEANS OF AN INPUT STATEMENT. IF THE PHOTOREADER IS READY WHEN THE STATEMENT IS EXECUTED, DATA IS FURNISHED TO THE PROGRAM FROM THE PUNCHED TAPE IN THE PHOTOREADER. IF THE PHOTOREADER IS NOT READY (I.E.; NO TAPE INSTALLED OR GATE DOWN), THE TELEPRINTER TYPES A QUESTION MARK AND DATA IS THEN ENTERED IN THE NORMAL MANNER FROM THE KEYBOARD. THE ROUTINE IS AN ABSOLUTE-ADDRESS MODIFICATION OF THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED INCLUDES AT LEAST 8K OF CORE STORAGE, AND A PHOTOREADER WITH INTERFACE KIT.



CONTRIBUTION #: 51

CLASS: 301

CONTRIBUTOR: ANDRE F. PETERLUNGER  
SANDOZ CHEMICALS  
SWITZERLAND

PART NUMBER: 22084C-K01

PRICE: \$10

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RCS

## INTEGRATED MATH CALCULATOR PROGRAM

THE (IMCP) PROGRAM ALLOWS THE ENTRY OF PROGRAMS INTO THE COMPUTER WITHOUT THE NECESSITY FOR A FORMAL WRITTEN PROGRAM. TO ACCOMPLISH THIS THE COMPUTER AND TELEPRINTER ARE EMPLOYED IN A MANNER SIMILAR TO THAT USED FOR OPERATING MANY DESK-TOP CALCULATORS. THE TELEPRINTER KEYBOARD SERVES TO ENTER INTEGER OR FLOATING POINT DECIMAL NUMBERS, AND TO COMMAND 54 DIFFERENT ARITHMETIC OPERATIONS AND FUNCTIONS. THIS CALCULATOR SYSTEM MAY BE USED IN (PROGRAM MODE) FOR COMPUTATION OF LONG FORMULAS CONSISTING OF MANY DISSIMILAR STEPS. SIX DECIMAL PLACES OF ACCURACY ARE GUARANTEED.

THE BCS FORTRAN IV LIBRARY, 24149 IS REQUIRED.



CONTRIBUTION #: 52

CLASS: 302

CONTRIBUTOR: ANDRE F. PETERLUNGER  
SANDOZ CHEMICALS  
SWITZERLAND

PART NUMBER: 22085B-K01

PRICE: \$10

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

## EXTENDED PRECISION CALCULATOR

THE (XCAL) PROGRAM ALLOWS THE ENTRY OF PROGRAMS INTO THE COMPUTER WITHOUT THE NECESSITY FOR A FORMAL WRITTEN PROGRAM. TO ACCOMPLISH THIS THE COMPUTER AND TELEPRINTER ARE EMPLOYED IN A MANNER SIMILAR TO THAT USED FOR OPERATING MANY DESK-TOP CALCULATORS. THE TELEPRINTER KEYBOARD SERVES TO ENTER INTEGER OR FLOATING POINT DECIMAL NUMBERS, AND COMMAND 48 DIFFERENT ARITHMETIC OPERATIONS AND FUNCTIONS. THIS CALCULATOR SYSTEM MAY BE USED IN (PROGRAM MODE) FOR REPEATED COMPUTATION OF LONG FORMULAS CONSISTING OF MANY DISSIMILAR STEPS. TEN DECIMAL PLACES OF ACCURACY ARE GUARANTEED.



CONTRIBUTION #: 53

CLASS: 105

CONTRIBUTOR: HP, MEDICAL ELECTRONICS

PART NUMBER: 22086A-K01

PRICE: \$10

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

## EBCDIC TO ASCII TRANSLATOR

THIS ROUTINE READS 80-COLUMN CARD IMAGES FROM 9-TRACK MAGNETIC TAPE, CONVERTS THE DATA ACQUIRED FROM EBCDIC TO ASCII CODE, AND

FURNISHES THE ASCII CHARACTERS IN ONE OR MORE OF THE FOLLOWING WAYS:

- A. LIST CARD IMAGES.
- B. PUNCH CARD IMAGES.
- C. PUNCH WITH COLUMNS 73-80 BLANK, AND WITH TRAILING ASCII (SPACE) CHARACTERS OMITTED.
- D. HALT WHEN ANY PREDEFINED GROUP OF CHARACTERS IS DETECTED.
- E. HALT AFTER EACH CARD IMAGE.
- F. READ WITHOUT OUTPUT (TO ADVANCE TAPE RAPIDLY TO A DESIRED AREA).

EQUIPMENT REQUIRED IS ONE HP3030 MAGNETIC TAPE UNIT, WITH INTERFACE KIT.



CONTRIBUTION #: 54  
CLASS: 211  
CONTRIBUTOR: GEORGE V. WOODLEY  
HP, AMD

PART NUMBER: 22088A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC,SIO

#### OCTAL UTILITY SYSTEM (HOCUS)

DESIGNED FOR USE WITH INDEPENDENT USER PROGRAMS, (HOCUS) PERFORMS ANY OF THE FOLLOWING OPERATIONS:

- A. LOADS ANY ABSOLUTE BINARY TAPE.
- B. IN ABSOLUTE BINARY FORM, REPRODUCES ON PUNCHED TAPE THE CONTENTS OF SPECIFIED SECTIONS OF CORE STORAGE.
- C. COMPARES AN ABSOLUTE BINARY TAPE WITH THE CONTENTS OF A SPECIFIED SECTION OF CORE STORAGE.
- D. FURNISHES A TELEPRINTER PRINTOUT OF THE CONTENTS OF A SPECIFIED CORE STORAGE LOCATION, AND PERMITS MODIFICATION OF THE CONTENTS OF CORE STORAGE LOCATION.
- E. PROVIDES A TELEPRINTER PRINTOUT OF THE CONTENTS OF A SPECIFIED SECTION OF CORE STORAGE.
- F. SEARCHES CORE STORAGE FOR A DESIRED WORD AND FURNISHES A TELEPRINTER PRINTOUT OF ITS ADDRESS, OR OF THE ADDRESSES OF ALL WORDS WHICH ARE DIFFERENT.
- G. FILLS A SPECIFIED SECTION OF CORE STORAGE WITH A SPECIFIED WORD.
- H. BRINGS ABOUT A JUMP TO AN ADDRESS TYPED ON THE TELEPRINTER.
- I. REPRODUCES ANY ABSOLUTE-BINARY PUNCHED TAPE.

THOUGH AN INDEPENDENT SYSTEM, (HOCUS) IS COMPATIBLE WITH THE BASIC OPERATING SYSTEM.



CONTRIBUTION #: 55  
 CLASS: 212  
 CONTRIBUTOR: ROBERT RICHARDSON  
 HP, EASTERN SALES REGION

PART NUMBER: 22089A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: S10

#### TELEPRINTER OCTAL INPUT PROGRAM

THIS PROGRAM PERMITS THE USER TO ENTER ROUTINES BY MEANS OF THE TELEPRINTER. THE ROUTINE IS TYPED USING THE OCTAL EQUIVALENT OF BINARY MACHINE CODE. THE TELEPRINTER FURNISHES A PRINTED RECORD OF THE ROUTINE ENTERED, ALLOWING EXAMINATION FOR MISTAKES. ONE USE OF THIS PROGRAM IS TO PERMIT SERVICE TECHNICIANS TO QUICKLY ENTER TEST ROUTINES FOR TROUBLESHOOTING THE COMPUTER. THE PROGRAM CAN ALSO SERVE AS A TEST OF THE SWITCH-REGISTER SWITCHES AND THE CIRCUIT ASSOCIATED WITH THESE SWITCHES.



CONTRIBUTION #: 56  
 CLASS: 108  
 CONTRIBUTOR: STROUD S. CUSTER  
 HP, EASTERN SALES REGION

PART NUMBER: 22090A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: S10

#### KEYBOARD TAPE GENERATOR

THIS PROGRAM ACCEPTS OCTAL DATA AND ASCII COMMANDS FROM THE TELEPRINTER KEYBOARD, AND GENERATES AN ABSOLUTE-ADDRESS PUNCHED TAPE SUITABLE FOR LOADING BY THE BASIC BINARY LOADER OR FOR USE AS A BOOTSTRAP LOADER.



CONTRIBUTION #: 57  
 CLASS: 105  
 CONTRIBUTOR: CHARLES CHERNACK  
 HP, EASTERN SALES REGION

PART NUMBER: 22093A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,DOS,RTE,DACE

#### ASCII/IBM 8-LEVEL CHARACTER CONVERSION ROUTINE

THIS ROUTINE READS IBM 8-LEVEL CHARACTERS FROM 9-TRACK MAGNETIC TAPE, CONVERTS THE CHARACTERS TO ASCII FORM, AND LISTS OR PUNCHES THE ASCII CHARACTERS ON THE TELEPRINTER. THE PROGRAM ALSO READS ASCII CHARACTERS FROM PUNCH CARDS, CONVERTS THE CHARACTERS TO IBM 8-LEVEL CODE, AND RECORDS THE 8-LEVEL CHARACTERS ON MAGNETIC TAPE.

ORDER #22093-K01      SOURCE ON CASSETTE      \$35.00





CONTRIBUTION #: 58  
CLASS: 903  
CONTRIBUTOR: PAUL GAVARINI  
HP, ORSAY-FRANCE

PART NUMBER: 22094A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

JEU DE MORPIONS (GAME OF TIC-TAC-TOE)

THIS PROGRAM, NAMED AFTER ITS CONTRIBUTOR, PLAYS A GAME SIMILAR TO TIC-TAC-TOE WITH THE USER. TIC-TAC-TOE IS KNOWN AS (NOUGHTS AND CROSSES IN BRITAIN). THE GAME IS PLAYED ON A 20-SQUARE GRID, AND THE OBJECTIVE IS TO PLACE FIVE X'S IN ADJACENT SQUARES, EITHER HORIZONTALLY, VERTICALLY, OR DIAGONALLY. THE PROGRAM ATTEMPTS TO PREVENT THIS AND SELECT FIVE ADJACENT SQUARES OF ITS OWN. THE PROGRAM IS CONVERSATIONAL, AND THE USER CAN SELECT EITHER THE FRENCH OR ENGLISH LANGUAGE. THE GAME IS KNOWN AS (JEU DE MORPIONS) IN FRANCE AND AS (GO-MUKU) IN JAPAN.



CONTRIBUTION #: 59  
CLASS: 11  
CONTRIBUTOR: MATTHEW SIMON  
HP, EASTERN SALES REGION

PART NUMBER: 22095A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

BASIC HP2778A LINE PRINTER DRIVER

THIS BASIC DRIVER OVERLAYS A PORTION OF THE 20392A BASIC OPERATING SYSTEM, CAUSING OUTPUT TO BE LISTED EITHER ON THE LINE PRINTER OR THE TELEPRINTER, DEPENDING ON SWITCH REGISTER SETTINGS.

EQUIPMENT REQUIRED IS ONE LINE PRINTER AND ONE 2752 OR 2754 TELEPRINTER, EACH WITH INTERFACE KIT.



CONTRIBUTION #: 60  
CLASS: 302  
CONTRIBUTOR: ENRICO MARIANI  
HP, MILAN-ITALY

PART NUMBER: 22097D-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

DOUBLE PRECISION INTEGER LIBRARY

THIS PROGRAM ADDS, SUBTRACTS, MULTIPLIES, AND DIVIDES DOUBLE PRECISION (32-BIT) NUMBERS. NUMBERS UP TO (2,147,483,648) CAN BE HANDLED.

THE PROGRAM IS FORTRAN CALLABLE.



CONTRIBUTION #: 61  
 CLASS: 901  
 CONTRIBUTOR: MARK KORELL  
 HP, DATA SYSTEMS DIVISION

PART NUMBER: 22099A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS

## DOS DEMO

THIS DOS PROGRAM IS DESIGNED TO DEMONSTRATE THE MAJOR FEATURES AND CAPABILITIES OF THE DISC OPERATING SYSTEM. TWO OF THE FEATURES DEALT WITH ARE BATCH PROCESSING AND DISC FILE MANAGEMENT. MARK SENSE CARDS ARE USED FOR ENTERING CONTROL DIRECTIVES, AND THE OPERATOR CAN TRANSFER BETWEEN BATCH PROCESSING AND KEYBOARD MONITORING TO DEMONSTRATE THE FLEXIBILITY OF THE DISC OPERATING SYSTEM. THE PROGRAM IS INTENDED FOR FIXED-HEAD DISC OR DRUM, AND HAS NOT BEEN TESTED WITH A MOVING-HEAD DISC.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE, ONE HP2770/71 DISC MEMORY WITH INTERFACE KIT AND POWER SUPPLY OR ONE HP2773/74/75 DRUM MEMORY WITH INTERFACE KIT AND POWER SUPPLY, ONE HP2761A-007 OPTICAL MARK SENSE CARD READER WITH INTERFACE KIT, AND THE FOLLOWING OPTIONAL DEVICES FOR THE COMPUTER: 2-CHANNEL DIRECT MEMORY ACCESS, MEMORY PROTECT, EXTENDED ARITHMETIC UNIT, MEMORY PARITY CHECK, EXTENDED ARITHMETIC UNIT, AND TIME BASE GENERATOR.



CONTRIBUTION #: 62  
 CLASS: 16  
 CONTRIBUTOR: JAMES D. REED  
 HUGHES AIRCRAFT CO.

PART NUMBER: 22100A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: MTS/2020,3030

## FILE THREE INPUT FOR MTS ALGOL

(ALMAG) IS AN ABSOLUTE MTS PROGRAM WHICH ALLOWS THE ALGOL COMPILER TO USE AS ITS SOURCE MAGNETIC TAPE FILE THREE RATHER THAN A PUNCHED TAPE READER. THIS SERVES AS AN AID TO PROGRAM EDITING. THE PROGRAM OVERLAYS PART OF THE PHOTOREADER DRIVER, AND FOR THAT REASON IMPOSES NO ADDED STORAGE REQUIREMENT.

EQUIPMENT REQUIRED IS ONE HP2020, 3030, OR 7970 MAGNETIC TAPE UNIT WITH INTERFACE KIT.



CONTRIBUTION #: 63  
 CLASS: 6  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22101B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 20392A

HP 2911A/B CROSSBAR SCANNER DRIVER - BASIC CALLABLE

THIS ROUTINE CONTROLS AN HP2911 GUARDED CROSSBAR SCANNER. THE SCANNER SAMPLES THE DATA CHANNEL DESIGNATED, AND FORWARDS THE SAMPLE TO A METER OR EXTERNAL RECORDING DEVICE. CONTROL WORDS FROM THE CALLING PROGRAM SPECIFY THE DATA CHANNEL, DELAY, AND TYPE OF MEASUREMENT (DC VOLTS, AC VOLTS, RESISTANCE, OR FREQUENCY). THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE HP2911 GUARDED CROSSBAR SCANNER, WITH PROGRAMMING INTERFACE KIT.



CONTRIBUTION #:	64	PART NUMBER:	221028-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC

HP 3460A/B DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 MEASUREMENTS FROM AN HP3460A OR 3460B DIGITAL VOLTMETER. METER FUNCTION (TYPE OF MEASUREMENT) AND METER RANGE ARE SELECTED MANUALLY AT THE METER. AUTOMATIC RANGE SELECTION, A STANDARD FEATURE OF THE METER, CAN BE EMPLOYED IF DESIRED. AS WELL AS SUPPLYING THE MEASURED VALUE TO THE CALLING PROGRAM IN FLOATING POINT FORM, THE ROUTINE FURNISHES AN ADDITIONAL WORD WHICH INDICATES THE TYPE OF MEASUREMENT FOR WHICH THE METER IS SET. THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE HP3460A OR 3460B DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT), WITH DATA SOURCE INTERFACE KIT.



CONTRIBUTION #:	65	PART NUMBER:	221048-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC 20392A

HP 2402A DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP2402A INTEGRATING DIGITAL VOLTMETER. METER FUNCTION (TYPE OF MEASUREMENT), MODE (MEASUREMENT OR CALIBRATION CHECK), AND METER RANGE ARE SELECTED MANUALLY AT THE METER. AUTOMATIC RANGE SELECTION CAN BE EMPLOYED IF THE METER IS EQUIPPED WITH THIS OPTIONAL FEATURE. AS WELL AS SUPPLYING MEASURED VALUE TO THE CALLING PROGRAM IN FLOATING POINT FORM, THE ROUTINE FURNISHES AN

ADDITIONAL WORD WHICH INDICATES THE TYPE OF MEASUREMENT FOR WHICH THE METER IS SET. THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE HP2402A INTEGRATING DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT), WITH DATA SOURCE INTERFACE KIT.



CONTRIBUTION #:	66	PART NUMBER:	22106B-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC

COUNTER DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP 5-TO-8 DIGIT COUNTER. THE MEASUREMENTS ARE CONVERTED TO FLOATING POINT DECIMAL FORM AND FURNISHED TO THE CALLING PROGRAM. THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS AN 8-4-2-1 DIGITAL COUNTER OF A TYPE SUITED TO ONE OF THE FOLLOWING DATA SOURCE INTERFACE CARDS: HP 12544A, 12545A, 12546A, OR 12547A.



CONTRIBUTION #:	67	PART NUMBER:	22107B-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC 20392A

HP2912A REED SCANNER DRIVER - BASIC CALLABLE

THIS ROUTINE CONTROLS AN HP2912A REED SCANNER. THE REED SCANNER SAMPLES A DESIGNATED DATA CHANNEL, AND FORWARDS THE SAMPLE TO A METER OR EXTERNAL RECORDING DEVICE. CONTROL WORDS FROM THE CALLING PROGRAM SPECIFY THE DATA CHANNEL REQUIRED AND DESIGNATE THE DELAY. THIS ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE HP2912A REED SCANNER, WITH PROGRAMMING INTERFACE KIT.



CONTRIBUTION #: 68  
CLASS: 6  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22108C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

HP3450A DATA SOURCE INTERFACE DRIVER - BASIC CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP3450A DIGITAL MULTI-FUNCTION METER. METER FUNCTION (TYPE OF MEASUREMENT) AND RANGE ARE SELECTED MANUALLY AT THE METER. AUTOMATIC RANGE SELECTION, A STANDARD FEATURE OF THE METER, CAN BE EMPLOYED IF DESIRED. AS WELL AS SUPPLYING THE MEASURED VALUE TO THE CALLING PROGRAM IN FLOATING POINT FORM, THE ROUTINE FURNISHES AN ADDITIONAL WORD WHICH INDICATES THE TYPE OF MEASUREMENT FOR WHICH THE METER IS SET. THE ROUTINE OPERATES UNDER THE HP20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE HP3450A DIGITAL MULTI-FUNCTION METER (8-4-2-1 BCD OUTPUT), WITH DIGITAL OUTPUT OPTION AND DATA SOURCE INTERFACE KIT.



CONTRIBUTION #: 69  
CLASS: 15  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22111C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

HP2770A/2771A DISC DRIVER - BASIC CALLABLE

THIS DRIVER CONTROLS DISC I/O OPERATIONS. THE ROUTINE ACCEPTS SEPARATE FLOATING-POINT TRACK AND SECTOR ADDRESSES, AND ASSEMBLES THEM TO FORM COMPLETE ADDRESS WORDS. THE ROUTINE RUNS UNDER THE HP20392 BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER AND ONE HP2770 OR 2771 DISC MEMORY WITH INTERFACE KIT AND POWER SUPPLY.



CONTRIBUTION #: 70  
CLASS: 3  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22112A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

HP12539A TIME BASE GENERATOR DRIVER - BASIC CALLABLE

THIS ROUTINE PROVIDES A MEANS FOR MEASURING THE TIME OF DAY. ELAPSED TIME CAN ALSO BE MEASURED. THE TIME-OF-DAY AND ELAPSED TIME FUNCTIONS CAN BE USED SIMULTANEOUSLY WITHOUT RESTRICTIONS. WHEN TIME-OF-DAY IS READ OUT, THE UNITS ARE HOURS, MINUTES, AND

SECONDS, EACH EXPRESSED AS A FLOATING POINT NUMBER. ELAPSED TIME IS INDICATED IN HUNDREDTHS OF A SECOND, EXPRESSED AS A SINGLE FLOATING POINT NUMBER.

FOR TIME-OF-DAY, THE ROUTINE MUST BE INITIALIZED WITH THE CURRENT TIME. IN EITHER USE, THE ROUTINE CAUSES A PROGRAM INTERRUPT EVERY 10 MILLISECONDS; THE TIME-OF-DAY AND ELAPSED TIME COUNTS ARE THEN INCREMENTED IF NECESSARY. WHEN THE PROGRAM HALTS, THE TIME-OF-DAY AND ELAPSED TIME COUNTS STOP. THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE HP12539A TIME BASE GENERATOR INTERFACE KIT.



CONTRIBUTION #: 71  
 CLASS: 106  
 CONTRIBUTOR: BILL SWANSON  
 HP, SOUTHERN SALES REGION

PART NUMBER: 22113B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SIO,MTS/2020,3030

#### MTS PUNCHED TAPE DUPLICATOR

THE MTS PUNCHED TAPE DUPLICATOR READS PUNCHED TAPE AND STORES THE DATA IN FILE NO.3 ON MAGNETIC TAPE. THEN, UNDER OPERATOR CONTROL, DUPLICATES OF THE PUNCHED TAPE ARE MADE AT THE TELEPRINTER OR ON A HIGH-SPEED PUNCH. FINALLY, EACH DUPLICATE TAPE CAN BE READ AND CHECKED AGAINST THE SOURCE MATERIAL IN FILE NO.3; AN ERROR INDICATION IS PROVIDED IF THERE IS A DISCREPANCY.



CONTRIBUTION #: 72  
 CLASS: 101  
 CONTRIBUTOR: BARRY S. TODD  
 NAVAL WEAPONS CENTER

PART NUMBER: 22114A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

#### REPRODUCE/EDIT PAPER TAPE

THIS PROGRAM FURNISHES THE MEANS FOR MANUALLY EDITING PUNCH TAPE IN ANY OF THE FOLLOWING FORMATS:

- A. RELOCATABLE BINARY
- B. BINARY DATA
- C. ABSOLUTE BINARY
- D. SOURCE LANGUAGE
- E. TIME-SHARING SOURCE LANGUAGE

RECORDS MAY BE ADDED BY READING PUNCH TAPE, OR DELETED BY ADVANCING TAPE IN THE TAPE READER. SEPARATE TAPES CAN BE COMBINED INTO A SINGLE TAPE. TAPE FROM THE BASIC COMPILER CAN BE FORMATTED FOR OTHER TIME-SHARE SYSTEMS.

AN EXPRESS MODE GIVES NONSTOP COPY REPRODUCTION.



CONTRIBUTION #: 73  
CLASS: 107  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22116A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

### ORDERING A FLOATING POINT ARRAY

THIS SUBROUTINE ARRANGES A FLOATING POINT SINGLE-DIMENSION ARRAY IN ASCENDING OR DESCENDING ORDER. THE ORIGINAL ARRANGEMENT OF DATA IS DESTROYED.

THE SUBROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 74  
CLASS: 306  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22117A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

### TRANSFORMATIONS

THIS STAT-PACK FORTRAN PROGRAM PERFORMS ANY OF 25 TRANSFORMATIONS ON ONE OR TWO INPUT VARIABLES. RESULTS ARE PRINTED AND PUNCHED, IF DESIRED. THE TRANSFORMATIONS INCLUDE COMPUTATION OF SQUARE ROOTS, LOGARITHMS, EXPONENTIAL FUNCTIONS, AND COMBINATION TRIGONOMETRIC AND SQUARE ROOT FUNCTIONS, AS WELL AS VARIOUS LINEAR FUNCTIONS.

COMPLETE STAT-PACK INCLUDES ALL 51 PROGRAMS AS LISTED IN FRONT OF CATALOG.

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 75  
CLASS: 312  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22118C-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

### MATRIX INVERSION SUBROUTINES

THESE FIVE FORTRAN CALLABLE STAT-PACK SUBROUTINES PERFORM THE FOLLOWING FUNCTIONS:

- A. THE SYMMETIC MATRIX INVERSION SUBROUTINE INVERTS A MATRIX, WORKING ONLY WITH THE DIAGONAL ELEMENTS AND THE ELEMENTS ABOVE THE DIAGONAL. MAXIMUM DIMENSION OF THE MATRIX IS 20 X 20.

- B. THE MAXIMUM PIVOTAL ELEMENT MATRIX INVERSION SUBROUTINE FINDS MAXIMUM PIVOTAL ELEMENT ON EACH ROW, PLACES THESE ELEMENTS IN A DIAGONAL, INVERTS THE MATRIX, THEN RESTORES THE ROWS AND COLUMNS TO THEIR PROPER PLACES. MAXIMUM DIMENSION OF THE MATRIX IS 20 X 20.
- C. THE QUICK MATRIX INVERSION SUBROUTINE IS A RAPID METHOD FOR INVERTING A MATRIX. NO CHECKS ARE MADE FOR SINGULARITY. MAXIMUM DIMENSION OF THE MATRIX IS 15 X 15.
- D. THE MATRIX INVERSION WITH CHECK FOR SIGNIFICANCE OF PIVOTAL ELEMENT SUBROUTINE INVERTS A MATRIX, CHECKING FIRST TO DETERMINE WHETHER THE DIAGONAL ELEMENTS EXCEED A SPECIFIED TOLERANCE. THERE ARE NO PROVISIONS FOR CHANGING ROWS TO ELIMINATE ZERO ELEMENTS ON THE DIAGONAL. MAXIMUM DIMENSION OF THE MATRIX IS 10 X 10.
- E. THE MATRIX INVERSION SIMULTANEOUS-EQUATION SOLVER INVERTS THE INDICATED MATRIX AND SOLVES A SET OF SIMULTANEOUS EQUATIONS, RETURNING THE SOLUTION, THE INVERTED MATRIX, AND THE DETERMINANT OF THE SYSTEM. MAXIMUM DIMENSION OF THE MATRIX IS 20 X 20.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 76  
 CLASS: 312  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 221198-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

## MATRIX ARITHMETIC SUBROUTINE

THIS STAT-PACK SUBROUTINE ADDS, SUBTRACTS, OR MULTIPLIES TWO 2-DIMENSIONAL MATRICES WHICH ARE CONFORMABLE. DATA IS ENTERED ONE ROW AT A TIME. MAXIMUM MATRIX SIZE IS 20 X 20.

THE ROUTINE IS FORTRAN CALLABLE.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00





CONTRIBUTION #: 77  
CLASS: 312  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22120A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

MATRIX ARITHMETIC PROGRAM

THIS STAT-PACK PROGRAM ADDS, SUBTRACTS, OR MULTIPLIES TWO 2-DIMENSIONAL MATRICES WHICH ARE CONFORMABLE. MAXIMUM MATRIX SIZE IS 20 X 10.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950 800 BPI MAG TAPE \$175.00  
ORDER #22117-11950 1600 BPI MAG TAPE \$175.00



CONTRIBUTION #: 78  
CLASS: 407  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22121A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

CROSS-TABULATION PROGRAM

THIS STAT-PACK PROGRAM PERFORMS A CROSS-TABULATION OF TWO SINGLE-DIMENSION FIXED POINT ARRAYS WHICH USE A CARTESIAN COORDINATE SCHEME. A MAXIMUM OF 9999 VALUES CAN BE HANDLED FOR EACH CELL OF THE ARRAY.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950 800 BPI MAG TAPE \$175.00  
ORDER #22117-11950 1600 BPI MAG TAPE \$175.00



CONTRIBUTION #: 79  
CLASS: 314  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22122A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

SIMULTANEOUS EQUATION SOLVER PROGRAM

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

USING THE GAUSSIAN ELIMINATION METHOD, THIS PROGRAM SOLVES UP TO 22 SIMULTANEOUS EQUATIONS WHOSE COEFFICIENTS ARE IN A SINGLE INPUT MATRIX. A CHECK FOR MATRIX SINGULARITY IS NOT PERFORMED. THE PROGRAM CONTROLS ITS OWN I/O OPERATIONS, USING ANY I/O DRIVER IN THE OPERATING SYSTEM EMPLOYED.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 80  
 CLASS: 314  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22123A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

## SIMULTANEOUS EQUATION SOLVER ROUTINE

THIS ROUTINE IS PART OF THE STAT-PACK GROUP, AND IS FORTRAN CALLABLE.

USING THE GAUSSIAN ELIMINATION METHOD, THIS ROUTINE SOLVES UP TO 22 SIMULTANEOUS EQUATIONS WHOSE COEFFICIENTS ARE IN A SINGLE INPUT MATRIX. A CHECK FOR MATRIX SINGULARITY IS NOT PERFORMED. THE ROUTINE DOES NOT CONTROL ITS OWN I/O OPERATIONS.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 81  
 CLASS: 402  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22124A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

## AUTOCORRELATION AND SPECTRAL DENSITY

FOR A GIVEN SET OF DATA POINTS AND A MAXIMUM LAG (I.E., HARMONIC), THIS PROGRAM CALCULATES AUTOCORRELATION COEFFICIENTS AND POWER SPECTRAL DENSITY. THE INPUT DATA CAN BE NORMALIZED, IF DESIRED. THE PROGRAM WILL HANDLE A MAXIMUM OF 300 DATA POINTS.



CONTRIBUTION #: 82  
CLASS: 402  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22125A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

MOVING AVERAGES

THIS FORTRAN PROGRAM COMPUTES A SET OF MOVING AVERAGES OF ORDER N FROM A TIME-SERIES OF M ELEMENTS.  $M = N + 1$  MOVING AVERAGES ARE COMPUTED AND TABULATED. THE TIME SERIES MAY HAVE A MAXIMUM OF 2000 ELEMENTS, AND THE ORDER OF THE MOVING AVERAGE MUST BE LESS THAN THE NUMBER OF ELEMENTS IN THE TIME SERIES.



CONTRIBUTION #: 83  
CLASS: 409  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22126A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

CROSS CORRELATION ANALYSIS

THIS PROGRAM COMPUTES A SET OF CROSS-CORRELATION COEFFICIENTS FOR TWO TIME SERIES. THE MINIMUM AND MAXIMUM LAG INPUT DETERMINES THE NUMBER OF COEFFICIENTS COMPUTED. THE PROGRAM WILL HANDLE A MAXIMUM OF 900 ELEMENTS FOR EACH TIME SERIES.



CONTRIBUTION #: 84  
CLASS: 403  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22127A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

DISCRIMINANT ANALYSIS PROGRAM

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

GIVEN TWO GROUPS OF DATA WITH UP TO 20 VARIABLES PER GROUP, THIS PROGRAM CALCULATES A LINEAR FUNCTION OF THE VARIABLES BY WHICH THE TWO GROUPS CAN BE DISCRIMINATED. THE LINEAR FUNCTION FOUND IS THE ONE THAT MAXIMIZES THE RATIO OF THE FOLLOWING TWO ELEMENTS:

- A. THE DIFFERENCE BETWEEN THE GROUP MEANS.
- B. THE STANDARD DEVIATIONS WITHIN THE SPECIES.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 85  
 CLASS: 404  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22128A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### LEAST SQUARES REGRESSION PROGRAM

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS THE CALCULATIONS FOR LEAST-SQUARES POLYNOMIAL REGRESSION UP TO DEGREE THREE. THE USER HAS THE OPTION OF SPECIFYING THE DEGREE OF FIT (LINEAR, QUADRATIC, OR CUBIC), OR OF SPECIFYING A FIT THROUGH ALL THREE DEGREES. AN ANALYSIS OF VARIANCE IS PERFORMED FOR EACH POLYNOMIAL FIT, AS WELL AS ANALYSIS OF INDIVIDUAL TERMS. IF DESIRED, THE PREDICTED VALUES AND RESIDUALS ARE INCLUDED IN THE ANALYSIS. THE PROGRAM WILL HANDLE A MAXIMUM OF 400 (X,Y) DATA PAIRS.

EQUIPMENT REQUIRED IS AT LEAST 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 86  
 CLASS: 404  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22129A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### LINEAR REGRESSION INTERVAL ESTIMATES

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES THE LINEAR REGRESSION FUNCTION OF ONE INDEPENDENT VARIABLE AND THE CONFIDENCE PREDICTION INTERVALS FOR PREDICTED VALUES OF THE DEPENDENT VARIABLE, GIVEN A 0.90, 0.95, OR 0.99 CONFIDENCE INTERVAL. THE REGRESSION FUNCTION IS EVALUATED BY THE METHOD OF LEAST SQUARES. AN ANALYSIS OF VARIANCE IS INCLUDED. THE PROGRAM WILL HANDLE A MAXIMUM OF 750 (X,Y) DATA PAIRS.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-7-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 87  
CLASS: 404  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22130A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

POLYNOMIAL REGRESSION PROGRAM

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

USING THE METHOD OF LEAST SQUARES, THIS PROGRAM GENERATES AN APPROXIMATING POLYNOMIAL UP TO THE 15TH DEGREE. THE DEGREE OF REGRESSION IS DETERMINED BY AN ITERATIVE TECHNIQUE, THE ITERATIVE PROCESS BEING TERMINATED BY EITHER OF THE FOLLOWING:

- A. WHEN THE COMPUTED STANDARD ERROR OF THE DEPENDENT VARIABLE FOR THE (I)TH ITERATION (DEGREE I) IS LESS THAN OR EQUAL TO THE MAXIMUM ALLOWABLE ERROR SPECIFIED BY THE USER.
- B. WHEN THE PROGRAM HAS FITTED THE EXPERIMENTAL DATA THROUGH A 15TH DEGREE POLYNOMIAL.

THE PROGRAM WILL HANDLE A MAXIMUM OF 350 (X,Y) DATA PAIRS.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 88  
CLASS: 404  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22131A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

POLYNOMIAL REGRESSION CONFIDENCE INTERVALS

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM GENERATES CONFIDENCE INTERVAL ESTIMATES AT A SPECIFIED CONFIDENCE LEVEL FOR EACH PREDICTED POINT OF AN (I)TH DEGREE APPROXIMATING POLYNOMIAL (I = 1,6). THE USER MAY SELECT A CONFIDENCE LEVEL OF 0.90, 0.95, OR 0.99. ESTIMATES OF THE REGRESSION-COVARIANCE MATRIX ALSO ARE MADE. THE PROGRAM WILL HANDLE A MAXIMUM OF 400 (X,Y) DATA PAIRS. THE DEGREE OF THE INPUT POLYNOMIAL MUST BE LESS THAN, OR EQUAL TO 6.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.



THE POINT, THE AVERAGE OF THESE Y VALUES, THE PREDICTED X VALUE ITSELF, AND THE UPPER AND LOWER BOUNDS OF THE 95-PERCENT CONFIDENCE INTERVAL FOR THE PREDICTED X VALUES. THE PROGRAM IS DESIGNED TO HANDLE A MAXIMUM OF 600 (X,Y) DATA PAIRS.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 91

CLASS: 404

CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22134A-K01

PRICE: \$10

DATE CODE:

LANG: FORTRAN II

OP SYS: RCS

ORTHOGONAL REGRESSION PROGRAM

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

BY MEANS OF ORTHOGONAL POLYNOMIALS, THIS PROGRAM GENERATES A REGRESSION POLYNOMIAL IN ONE INDEPENDENT VARIABLE UP TO THE FIFTH DEGREE. A GENERAL STATISTICAL ANALYSIS IS INCLUDED (INCLUDING THE MEAN, VARIANCE, ETC.), AND CONFIDENCE LIMITS ARE GENERATED FOR THE SAMPLE MEAN AT 0.90, 0.95, AND 0.99 CONFIDENCE LEVELS. THE REGRESSION ANALYSIS IS THEN COMPUTED, YIELDING UNCORRELATED ESTIMATORS. THE POLYNOMIAL IS REWRITTEN IN TERMS OF THE ORIGINAL VARIABLE X, AND AN ANALYSIS OF VARIANCE IS PERFORMED TERM BY TERM. BACK SOLUTIONS ARE INCLUDED IN THE ANALYSIS. THE PROGRAM IS DESIGNED TO HANDLE A MAXIMUM OF 26 DATA POINTS AT EQUALLY SPACED DISTANCES ALONG THE ORDINATE. THE MAXIMUM POLYNOMIAL GENERATED IS OF DEGREE 5.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 92  
 CLASS: 404  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22135A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

### LINEAR REGRESSION WITH REPLICATION

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES A LINEAR REGRESSION AND ANALYSIS OF VARIANCE ON DATA WITH AN EQUAL OR UNEQUAL NUMBER OF REPLICATIONS (I.E. MULTIPLE Y VALUES FOR A GIVEN X VALUE). THE PROGRAM HANDLES A MAXIMUM OF 150 UNWEIGHTED (X,Y) DATA PAIRS. THE VALUES OF THE INDEPENDENT VARIABLE X MUST BE IN ASCENDING SEQUENCE IN ORDER TO ESTABLISH THE NUMBER OF REPLICATES PER VALUE OF X.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 93  
 CLASS: 404  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22136A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

### NONLINEAR REGRESSION PROGRAM

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS NON-LINEAR REGRESSION CALCULATIONS TO FIT A SET OF DATA TO A FUNCTION SPECIFIED BY THE USER. CORRECTIONS TO A STARTING VALUE OF THE PARAMETER VALUES ARE COMPUTED BY ITERATION CYCLES UNTIL THE CORRECTIONS MAKE NO CHANGE (WITHIN A SPECIFIED TOLERANCE) IN THE ERROR SUM OF SQUARES. IT MUST BE NOTED THAT THE FINAL ERROR SUM OF SQUARES MAY BE QUITE LARGE IF THE DATA DOES NOT FIT THE DESIRED MODEL WELL. THE PROGRAM IS SET UP TO HANDLE 10 PARAMETERS, AND THE MODEL USED MUST HAVE ONLY ONE X VALUE FOR EACH Y VALUE. THE PROCEDURE IS DIMENSIONED TO ESTIMATE UP TO 10 PARAMETERS FROM 150 PAIRS OF X AND Y VALUES.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00





CONTRIBUTION #: 94  
CLASS: 406  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22137A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

CUMULATIVE DISTRIBUTION PROGRAM

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM GENERATES A FREQUENCY DISTRIBUTION FOR A SINGLE DATA SET CONSISTING OF 1500 POINTS OR LESS. THE MEAN, MEDIAN, STANDARD DEVIATION, AND INTERQUARTILES ARE INCLUDED.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 95  
CLASS: 407  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22138A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

KENDALL'S COEFFICIENT OF CONCORDANCE: W

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES KENDALL'S COEFFICIENT OF CONCORDANCE: W. THIS IS A MEASURE OF THE RELATION AMONG SEVERAL RANKINGS. TIES ARE CHECKED, AND THE DEGREE OF ASSOCIATION, W, IS ADJUSTED ACCORDINGLY.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 96  
 CLASS: 407  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22139A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### KENDALL'S COEFFICIENT OF CONCORDANCE

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES KENDALL'S COEFFICIENT OF CONCORDANCE.  
 NO CHECK IS MADE FOR TIES.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 97  
 CLASS: 407  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22140A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### KENDALL'S TAU CORRELATION

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES KENDALL'S TAU, A RANK CORRELATION COEFFICIENT, FOR A GIVEN SET OF ORDERED (X,Y) PAIRS. ASSOCIATED STATISTICS ARE ALSO PRODUCED, AND THE PROGRAM DETERMINES THE PRESENCE OR ABSENCE OF TIES IN THE DATA SET AND ADJUSTS TAU ACCORDINGLY. THE PROGRAM HANDLES A MAXIMUM OF 300 (X,Y) DATA PAIRS, WHICH MUST BE SORTED IN ASCENDING ALGEBRAIC SEQUENCE OF THE X VARIABLE.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 98  
CLASS: 408  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22141A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

GENERAL STATISTICS PROGRAM

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM CHARACTERIZES A PARTICULAR SET OF DATA BY PERFORMING ELEMENTARY STATISTICAL CALCULATIONS (POINT ESTIMATES), DETERMINING THE 0.95 AND 0.99 CONFIDENCE INTERVALS FOR THE SAMPLE MEAN (ASSUMING NORMAL DISTRIBUTION OF THE DATA), AND GENERATING A HISTOGRAM OF THE DATA POINTS. A MAXIMUM OF 900 UNWEIGHTED AND UNGROUPED DATA POINTS CAN BE HANDLED.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 99  
CLASS: 408  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22142B-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

GENERAL STATISTICS FOR MULTIPLE GROUPS

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM GENERATES POINT ESTIMATES (MEAN, VARIANCE, STANDARD DEVIATION, AND STANDARD ERROR) AND CONFIDENCE INTERVAL ESTIMATES FOR THE SAMPLE MEAN. THE ANALYSIS MAY BE PERFORMED FOR A MAXIMUM OF 99 SETS OR GROUPS OF DATA IN A SINGLE EXECUTION. THE USER CAN ELECT TO DETERMINE CONFIDENCE INTERVALS FOR THE SAMPLE MEAN AT THE 0.90, 0.95, OR 0.99 LEVEL OF CONFIDENCE.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 100  
 CLASS: 408  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22143A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### PROBABILITY SUBPROGRAMS

THIS CONTRIBUTED SOFTWARE PRODUCT IS PART OF THE STAT-PACK GROUP,  
 AND IS FORTRAN CALLABLE.

THIS SOFTWARE PRODUCT CONSISTS OF TEN ROUTINES WHICH CALCULATE THE  
 FOLLOWING PROBABILITY FUNCTIONS: NORMAL CUMULATIVE PROBABILITY  
 FUNCTION, CUMULATIVE BINOMIAL FUNCTION, CUMULATIVE POISSON  
 FUNCTION, F CUMULATIVE PROBABILITY FUNCTION, CHI-SQUARE CUMULATIVE  
 DISTRIBUTION FUNCTION, CHI-SQUARE AREA FOR CRITICAL VALUES,  
 INVERSE F DISTRIBUTION FUNCTION, STUDENT'S T DISTRIBUTION, NORMAL  
 PROBABILITY FUNCTION, AND STUDENT'S T CUMULATIVE PROBABILITY  
 FUNCTION.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 101  
 CLASS: 310  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22144A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### INTEGRAION ROUTINE

THIS STAT-PACK ROUTINE EVALUATES THE DEFINITE INTEGRAL FOR A  
 FUNCTION WITH VALUES OF EQUIDISTANT DISCRETE POINTS. THE INTEGRAL  
 IS COMPUTED BY SIMPSON'S METHOD, GIVING THE EXACT VALUE OF THE  
 INTEGRAL IF THE FUNCTION IS A POLYNOMIAL OF DEGREE NOT GREATER  
 THAN 3. THERE MUST BE AN ODD NUMBER OF DATA POINTS.

THE ROUTINE IS FORTRAN CALLABLE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 102  
CLASS: 401  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22145B-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

CONFIDENCE INTERVAL FOR MEAN & VARIANCE OF A NORMAL DISTRIBUTION

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM CALCULATES THE UPPER AND LOWER CONFIDENCE LIMITS FOR THE MEAN AND VARIANCE OF A SAMPLE ASSUMING THE DATA TO BE NORMALLY DISTRIBUTED. THE USER MAY SPECIFY A CONFIDENCE LEVEL OF 0.90, 0.95, OR 0.99 FOR THE CONFIDENCE LIMITS OF THE SAMPLE MEAN. THE PROGRAM GENERATES 0.95 CONFIDENCE LIMITS FOR THE SAMPLE VARIANCE AND HANDLES A MAXIMUM OF 900 DATA POINTS.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 103  
CLASS: 401  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22146C-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

SAMPLE SIZE DETERMINATION OF THE SAMPLE VARIANCE

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM UTILIZES AN ESTIMATE OF THE SAMPLE VARIANCE, BASED ON (M) DEGREES OF FREEDOM AND A SPECIFIED MAXIMUM CONFIDENCE INTERVAL LENGTH, TO DETERMINE THE SAMPLE SIZE REQUIRED TO GIVE ANY TEST LEVEL ESTIMATE OF THE POPULATION MEAN. THE PROGRAM USES A TRIAL AND ERROR METHOD, WITH THE INITIAL SAMPLE SIZE SPECIFIED BY THE USER. THE SAMPLE SIZE IS DETERMINED FOR CONFIDENCE LEVELS OF 0.90, 0.95, AND 0.99.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 104  
 CLASS: 407  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22147A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### MULTIPLE CORRELATION ROUTINE

THIS ROUTINE IS PART OF THE STAT-PACK GROUP.  
 THIS ROUTINE IS FORTRAN CALLABLE.

USING A MAXIMUM OF 20 VARIABLES, WITH UP TO 999 OBSERVATIONS PER VARIABLE THIS ROUTINE CALCULATES THE MEANS AND STANDARD DEVIATIONS OF EACH VARIABLE. THE RAW SUM OF SQUARES, CROSS-PRODUCT MATRIX, THE VARIANCE-COVARIANCE MATRIX, AND THE CORRELATION MATRIX, ALSO ARE DETERMINED.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 105  
 CLASS: 410  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22148A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### COMPLETELY RANDOMIZED DESIGN

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS AN ANALYSIS OF VARIANCE ON A COMPLETELY RANDOMIZED EXPERIMENTAL DESIGN. A MAXIMUM OF 400 TREATMENTS CAN BE HANDLED, WITH NO RESTRICTIONS ON THE NUMBER OF OBSERVATIONS PER TREATMENT.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 106  
CLASS: 410  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22149A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: RCS

COMPLETELY RANDOMIZED DESIGN WITH SUBSAMPLING

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

USING EITHER AN EQUAL OR AN UNEQUAL NUMBER OF OBSERVATIONS PER TREATMENT, THIS PROGRAM PERFORMS AN ANALYSIS OF VARIANCE ON A COMPLETELY RANDOMIZED DESIGN WITH SUBSAMPLING. FOR UNEQUAL OBSERVATIONS PER SUBSAMPLE, SATTERTHWAITTE'S APPROXIMATE TEST PROCEDURE IS USED. THE PROGRAM WILL HANDLE A MAXIMUM OF 20 TREATMENTS WITH UP TO 20 SAMPLES PER TREATMENT. THERE IS NO LIMIT TO THE NUMBER OF DETERMINATIONS PER SAMPLE AND TREATMENT.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950 800 BPI MAG TAPE \$175.00  
ORDER #22117-11950 1600 BPI MAG TAPE \$175.00



CONTRIBUTION #: 107  
CLASS: 410  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22150A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: RCS

RANDOMIZED COMPLETE BLOCK DESIGN

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS AN ANALYSIS OF VARIANCE ON A RANDOMIZED COMPLETE BLOCK EXPERIMENTAL DESIGN. A MAXIMUM OF 100 TREATMENTS AND BLOCKS CAN BE HANDLED.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950 800 BPI MAG TAPE \$175.00  
ORDER #22117-11950 1600 BPI MAG TAPE \$175.00



CONTRIBUTION #: 108  
 CLASS: 410  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22151B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

RANDOMIZED COMPLETE BLOCK DESIGN WITH SUBSAMPLING

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS AN ANALYSIS OF VARIANCE ON A RANDOMIZED COMPLETE BLOCK DESIGN AND SUBSAMPLING. A MAXIMUM OF 30 TREATMENTS AND 30 BLOCKS CAN BE HANDLED.

BCS OPERATING SYSTEM.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 109  
 CLASS: 410  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22152A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

TWO-WAY FACTORIAL DESIGN

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THE PROGRAM PERFORMS AN ANALYSIS OF VARIANCE FOR A TWO-WAY FACTORIAL IN A RANDOMIZED COMPLETE BLOCK DESIGN. THE F TEST IS FOR A FIXED MODEL. EACH REPLICATE MUST BE BALANCED (I.E., THE SAME NUMBER OF OBSERVATIONS IS REQUIRED FOR EACH LEVEL OF EACH FACTOR.) A MAXIMUM OF 20 LEVELS PER FACTOR AND 8 REPLICATES PER LEVEL, CAN BE HANDLED.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE. BCS OPERATING SYSTEM.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00





CONTRIBUTION #: 110  
CLASS: 410  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22153A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

THREE-WAY FACTORIAL DESIGN

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS A 3-FACTOR FACTORIAL ANALYSIS OF VARIANCE FOR A RANDOMIZED COMPLETE BLOCK DESIGN WITH REPLICATIONS. THE F STATISTIC COMPUTATION ASSUMES A (FIXED EFFECT) MODEL. A MAXIMUM OF 8 LEVELS OF FACTOR A, 8 LEVELS OF FACTOR B, 5 LEVELS OF FACTOR C, AND 8 REPLICATIONS, CAN BE HANDLED. MISSING OBSERVATIONS ARE NOT PERMITTED, AND THE DESIGN MUST BE BALANCED (I.E., THE SAME NUMBER OF OBSERVATIONS IS REQUIRED FOR ALL TREATMENT COMBINATIONS OVER ALL REPLICATES).

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 111  
CLASS: 410  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22154A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

ANALYSIS OF VARIANCE INFORMATION GENERATOR

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

EXPERIMENTAL DESIGN WITH SUBSAMPLING. THERE MAY BE AN EQUAL OR UNEQUAL NUMBER OF SUBSAMPLES PER EXPERIMENTAL UNIT (TREATMENT-BLOCK COMBINATION). COMPUTATION OF THE NONCENTRALITY PARAMETER IS INCLUDED IN THE ANALYSIS. INTERACTION BETWEEN TREATMENTS AND BLOCKS IS NOT ASSUMED. THE PROGRAM IS DESIGNED TO HANDLE A MAXIMUM OF 7 TREATMENTS AND 7 BLOCKS AND A MAXIMUM OF 99 SUB-SAMPLES PER TREATMENT-BLOCK COMBINATION.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 112  
 CLASS: 407  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22155A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: RCS

#### DUNCAN'S MULTIPLE RANGE TEST

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES ALL STATISTICS AND TESTS INVOLVED IN DUNCAN'S MULTIPLE RANGE TEST WITH EQUAL OR UNEQUAL READINGS PER GROUP. THE INPUT DATA CAN EITHER BE THE MEANS AND THE MEAN SQUARE ERROR, OR THE OBSERVATIONS THEMSELVES. IN THE LATTER CASE, AN ANALYSIS OF VARIANCE FOR A COMPLETELY RANDOMIZED DESIGN IS PERFORMED. SIGNIFICANCE LEVELS OF EITHER 0.05 OR 0.01 CAN BE SELECTED. A MAXIMUM OF 100 TREATMENTS CAN BE HANDLED, WITH AN EQUAL OR UNEQUAL NUMBER OF OBSERVATIONS PER TREATMENT.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 113  
 CLASS: 401  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22156A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: RCS

#### PAIRED T-TEST

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THE STUDENT'S T-TEST FOR PAIRED OBSERVATIONS APPLIES TO THE CASE OF TWO SAMPLES IN WHICH THE OBSERVATIONS OF ONE SAMPLE MAY BE LOGICALLY RELATED OR PAIRED (IN TIME OR SPACE), ITEM BY ITEM, WITH THE OBSERVATIONS OF THE SECOND SAMPLE. THE PROGRAM CALCULATES POINT ESTIMATES (MEAN, STANDARD DEVIATION, STANDARD ERROR OF THE MEAN) FOR BOTH SAMPLES, THEN CALCULATES THE POINT ESTIMATES AND VALUE OF STUDENT'S (T) ON THE DIFFERENCE BETWEEN SAMPLES. THE VALUE OF STUDENT'S (T) IS COMPUTED FOR A SPECIFIED LEVEL OF CONFIDENCE, EITHER 0.90, 0.95, OR 0.99. A MAXIMUM OF 600 UNWEIGHTED (X,Y) DATA PAIRS CAN BE HANDLED.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 114  
CLASS: 401  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22157B-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

BARTLETT'S HOMOGENEITY OF VARIANCE TEST

THIS PROGRAM TESTS THE HYPOTHESIS THAT THE ESTIMATED VARIANCE FROM (K) SAMPLES IS HOMOGENEOUS. A ONE-SIDED ALTERNATIVE AT THE 0.95 CONFIDENCE LEVEL IS USED AS THE TEST STATISTIC; THAT IS, IF THE CALCULATED CHI-SQUARE VALUE EXCEEDS THE TABULAR VALUE OF CHI-SQUARE AT THE DESIGNATED PROBABILITY.



CONTRIBUTION #: 115  
CLASS: 407  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22158C-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

KOLMOGOROV-SMIRNOV GOODNESS-OF-FIT TEST

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

FOR A MAXIMUM OF 999 DATA POINTS, THIS PROGRAM PERFORMS THE KOLMOGOROV-SMIRNOV GOODNESS-OF-FIT TEST FOR A SPECIFIED PROBABILITY DISTRIBUTION. THE SOURCE DATA CAN BE TESTED FOR FIT AGAINST ANY OF THE FOLLOWING FUNCTIONS: BINOMIAL, CHI-SQUARE, F, NORMAL, POISSON, OR STUDENT'S (T) (SEE HP22143 FOR ANY OF THESE FUNCTIONS). THE USER HAS THE OPTION OF (A) SPECIFYING THE NUMBER OF CLASS INTERVALS, (B) LETTING THE PROGRAM GENERATE CLASS INTERVALS BY USE OF STURGE'S RULE, OR (C) SPECIFYING THE NUMBER OF INTERVALS AND UPPER BOUNDS OF EACH INTERVAL.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950 800 BPI MAG TAPE \$175.00  
ORDER #22117-11950 1600 BPI MAG TAPE \$175.00



CONTRIBUTION #: 116  
CLASS: 401  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22159B-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

CHI SQUARE GOODNESS-OF-FIT TEST

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS THE CHI-SQUARE GOODNESS-OF-FIT TEST, AND COMPUTES THE CHI-SQUARE VALUE OF THE TEST, FOR ANY OF THE

FOLLOWING FUNCTIONS: BINOMIAL, CHI-SQUARE, F, NORMAL, POISSON, STUDENT'S (T). THE USER HAS THE OPTION OF SPECIFYING THE UPPER AND LOWER BOUNDS FOR A GIVEN NUMBER OF INTERVALS, OR OF READING IN THE END POINTS OF EACH INTERVAL. A MAXIMUM OF 1,000 DATA POINTS CAN BE HANDLED. HP PROGRAM 22143, CLASSIFICATION CODE A408, CAN BE USED TO FURNISH THE SOURCE DATA.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 117

CLASS: 401

CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22160A-K01

PRICE: \$10

DATE CODE:

LANG: FORTRAN II  
OP SYS: BCS

## TESTS OF HYPOTHESIS FOR VARIANCE

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THE PROGRAM TESTS FOR ONE OF THE FOLLOWING:

- A. WHETHER THE VARIANCE OF A NORMAL POPULATION EQUALS A SPECIFIED VARIANCE.
- B. WHETHER THE VARIANCES ARE EQUAL, PROVIDING BOTH COME FROM A NORMAL POPULATION.

RESULTS ARE DETERMINED WITH A 95-PERCENT CONFIDENCE INTERVAL. A MAXIMUM OF 500 (X,Y) DATA PAIRS OR 1,000 DATA POINTS CAN BE HANDLED.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 118

CLASS: 401

CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22161B-K01

PRICE: \$10

DATE CODE:

LANG: FORTRAN II  
OP SYS: BCS

## TEST OF HYPOTHESIS FOR MEANS

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM TESTS (A), WHETHER A MEAN OF A NORMAL POPULATION EQUALS A SPECIFIED VALUE OR (B), WHETHER THE MEANS ARE EQUAL (PROVIDING BOTH COME FROM A NORMAL POPULATION). RESULTS ARE DETERMINED WITH A CONFIDENCE INTERVAL OF 0.90, 0.95, OR 0.99.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 119  
CLASS: 904  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22162B-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

X-Y PLOTTER ON PRINTER

THIS ROUTINE IS PART OF THE STAT-PACK GROUP.  
THIS ROUTINE IS FORTRAN CALLABLE.

THIS ROUTINE PRODUCES GRAPHS ON A TELEPRINTER, AN X ARRAY IS SCALED TO SUIT THE PRINTED GRAPH, AND IS PLOTTED AGAINST EITHER THE ELEMENT NUMBERS IN THE ARRAY OR AGAINST ANOTHER ARRAY, Y. EACH DATA POINT IS MARKED ON THE GRAPH AS A LETTER (X) AND THE COORDINATES OF THE POINT ALSO ARE PRINTED. THE ROUTINE CAN COMMENCE AT ANY POINT IN THE ARRAY, AND THE OUTPUT CAN BE EITHER A PRINT PLOT OR A BAR PLOT. A MAXIMUM OF 200 (X,Y) DATA PAIRS CAN BE ACCEPTED.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 120  
CLASS: 904  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22163A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

TIME SERIES PLOTTER

THIS ROUTINE IS PART OF THE STAT-PACK GROUP.  
THIS ROUTINE IS FORTRAN CALLABLE.

AVAILABLE IN FUNCTION FORM, THIS SUBPROGRAM PLOTS FIXED-POINTS INTEGERS ON THE TELEPRINTER. IF THE VALUE OF THE INTEGER IS FROM 0 TO 50, THE POINT APPEARS AS AN ASTERISK, THE DISTANCE FROM THE LEFT MARGIN OF THE PAGE BEING PROPORTIONATE TO THE VALUE OF THE POINT. IF THE VALUE IS OVER 50, THE INTEGER ITSELF IS PRINTED IN NUMERICAL FORM AT THE RIGHT HAND EDGE OF THE PAGE. SUCCESSIVE DATA POINTS ARE PLOTTED ON SUCCESSIVE LINES DOWN THE PAGE.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 121	PART NUMBER: 22164B-K01
CLASS: 904	PRICE: \$10
CONTRIBUTOR: ROLAND JAHN	DATE CODE:
HP, MEDICAL ELECTRONICS	LANG: FORTRAN II
	OP SYS: BCS

## HISTOGRAM PLOTTER PROGRAM

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM SORTS A SINGLE DIMENSION FLOATING POINT ARRAY INTO ASCENDING SEQUENCE, AND (A) PRODUCES A HISTOGRAM OF THE DATA POINTS ON THE TELEPRINTER OR LINE PRINTER, OR (B) FURNISHES THE FREQUENCY DISTRIBUTION OF DATA POINTS, OR (C) PRODUCES BOTH A HISTOGRAM AND A FREQUENCY DISTRIBUTION.

EQUIPMENT REQUIRED IS AT LEAST A 16K COMPUTER.

## COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 122	PART NUMBER: 22165A-K01
CLASS: 108	PRICE: \$10
CONTRIBUTOR: ROLAND JAHN	DATE CODE:
HP, MEDICAL ELECTRONICS	LANG: FORTRAN II
	OP SYS: BCS,MTS/3030

## CARD TO MAGNETIC TAPE UTILITY

THIS PROGRAM CREATES MAGNETIC TAPE FILES FROM MARK SENSE CARDS AND/OR PUNCHED CARDS. ANY OF A VARIETY OF TAPE FORMATS CAN BE USED. THE PROGRAM CONVERTS FROM HOLLERITH CODE TO ASCII OR EBCDIC CODE, AND LABELED OR UNLABELED TAPES CAN BE PRODUCED. THE BLOCK SIZE (NUMBER OF CARDS PER RECORD) AND LOGICAL RECORD SIZE (NUMBER

OF CARD COLUMNS PER RECORD) CAN BE SPECIFIED. UNBLOCKED TAPE RECORDS CAN BE PRODUCED, IF DESIRED. THE PROGRAM PROVIDES 200 CARD/MINUTE THROUGHPUT TO TAPE.

EQUIPMENT REQUIRED ARE THE DIRECT MEMORY ACCESS AND EXTENDED ARITHMETIC UNIT OPTIONS FOR THE COMPUTER, AND ONE HP2761A-007 OPTICAL MARK READER WITH INTERFACE KIT, AND ONE HP3030 MAGNETIC TAPE UNIT WITH INTERFACE KIT.



CONTRIBUTION #: 123  
CLASS: 108  
CONTRIBUTOR: DAVID R. MC CLELLAN  
HP, SOUTHERN SALES REGION

PART NUMBER: 22166A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS/3030

MAGNETIC TAPE TO PRINT UTILITY PROGRAM

UNDER TELEPRINTER KEYBOARD CONTROL, THIS PROGRAM DUMPS MAGNETIC TAPE FILES ONTO A LINE PRINTER. THE TAPE RECORDS MAY HAVE ANY OF A VARIETY OF FORMATS, AND EITHER ASCII OR EBCDIC FILES CAN BE ACCOMMODATED.

EQUIPMENT REQUIRED IS THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER, ONE HP3030 MAGNETIC TAPE UNIT WITH INTERFACE KIT, AND ONE LINE PRINTER WITH INTERFACE KIT.



CONTRIBUTION #: 124  
CLASS: 107  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22167A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

ORDERING A FIXED POINT ARRAY

THIS SUBROUTINE ARRANGES A FIXED POINT SINGLE-DIMENSION ARRAY IN ASCENDING OR DESCENDING ORDER. THE ORIGINAL ARRANGEMENT OF DATA IS DESTROYED.

THIS SUBROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 125  
 CLASS: 107  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22168A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### RANKING A FLOATING POINT ARRAY

THIS SUBROUTINE ARRANGES A FLOATING POINT SINGLE-DIMENSION ARRAY IN ASCENDING OR DESCENDING ORDER. THE ORIGINAL ARRANGEMENT OF DATA IS NOT DESTROYED.

THIS SUBROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 126  
 CLASS: 107  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22169A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### ORDERING A FLOATING POINT ARRAY

THIS SUBROUTINE ARRANGES A FLOATING POINT SINGLE-DIMENSION ARRAY IN ASCENDING ORDER. THE ORIGINAL ARRANGEMENT OF DATA IS DESTROYED.

THIS SUBROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 127  
 CLASS: 3  
 CONTRIBUTOR: VITTORIO BALDINI  
 HP, MILAN - ITALY

PART NUMBER: 22170A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: BCS

#### SYNCHRONOUS HIGH SPEED DATA ACQUISITION PROGRAM

INTENDED FOR USE WITH ANY HIGH SPEED DATA SOURCE FURNISHED 16-BIT WORDS AT A REGULAR RATE, THIS PROGRAM TRANSFERS DATA TO AN HP2770A DISC MEMORY. FOR A DISC MEMORY OPERATING FROM A 50-HERTZ POWER SOURCE DATA TRANSFER RATES AS HIGH AS 137,000 WORDS PER SECOND CAN BE ACHIEVED. FOR A 60-HERTZ POWER SOURCE, THROUGHPUT RATES UP TO 164,000 WORDS PER SECOND ARE POSSIBLE.

EQUIPMENT REQUIRED IS ONE HP2770A DISC MEMORY WITH INTERFACE KIT, AND THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER.





CONTRIBUTION #: 128  
CLASS: 101  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22171A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

FORTRAN UNIT REFERENCE NUMBER EDITOR

THIS FORTRAN II PROGRAM ALLOWS THE USER TO ALTER THE UNIT REFERENCE NUMBER OF AN INPUT/OUTPUT STATEMENT WRITTEN IN FORTRAN II. THE PROGRAM IS CONVERSATIONAL, AND ASKS FOR REQUIRED INFORMATION ON THE TELEPRINTER. WRITTEN FOR USE WITH THE STAT-PACK PROGRAM GROUP, THIS PROGRAM IS NOT ITSELF A PART OF THE STAT-PACK.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 129  
CLASS: 112  
CONTRIBUTOR: FRITZ JOERN  
HP, FRANKFURT - GERMANY

PART NUMBER: 22172C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

IOC - FORTRAN CALLABLE

THIS SUBROUTINE ALLOWS DIRECT CALLS TO .IOC FROM A FORTRAN PROGRAM RESULTING IN DATA TRANSFERS WHICH AVOID THE FORMATTER. WITHOUT THE FORMATTER NO DATA CONVERSION CAN BE MADE, AND ASCII INPUT CHARACTERS ARE STORED IN ASCII FORM, AND BINARY INPUTS ARE STORED IN BINARY FORM.



CONTRIBUTION #: 130  
CLASS: 207  
CONTRIBUTOR: FRITZ JOERN  
HP, FRANKFURT - GERMANY

PART NUMBER: 22174A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

BCS DUMP IN BBL FORMAT

THIS PROGRAM DUMPS THE CONTENTS OF CORE STORAGE ONTO PUNCH TAPE. ALTERNATIVELY, THE TELEPRINTER CAN PROVIDE A PRINTOUT OF THE CONTENTS OF CORE STORAGE. THE I/O SELECT CODE OF THE PUNCH OR TELEPRINTER IS SET INTO THE SWITCH REGISTER BEFORE STARTING, AND THE TAPE OR PRINTOUT PROVIDED IS IN ABSOLUTE FORM. THE PROGRAM IS USEFUL FOR DEBUGGING.

CONTRIBUTION #: 131  
 CLASS: 9  
 CONTRIBUTOR: STEVEN M. ROSEN  
 HP, EASTERN SALES REGION

PART NUMBER: 22176A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### HP 2754A PUNCH/LIST IN KT MODE

THIS BCS ROUTINE ALLOWS USERS WITH AN HP 2754 TELEPRINTER AND NO HIGH-SPEED PUNCH TO SELECT BY PROGRAMMING MEANS WHETHER PRINTING OR PUNCHING WILL BE PERFORMED.

EQUIPMENT REQUIRED IS ONE HP 2754 TELEPRINTER, WITH INTERFACE KIT.



CONTRIBUTION #: 132  
 CLASS: 106  
 CONTRIBUTOR: DAVID R. MC CLELLAN  
 HP, SOUTHERN SALES REGION

PART NUMBER: 22180C-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SIO

#### FAST PUNCH VERIFY

(FAST) PUNCH/VERIFY PERMITS RAPID DUPLICATION, VERIFICATION, AND COMPARISON OF PAPER TAPES PUNCHED IN ANY FORMAT. THE TAPE READER AND PUNCH RUN CONTINUOUSLY AND SIMULTANEOUSLY AT MAXIMUM RATES BY UTILIZING PROGRAM INTERRUPTS. A RELEASABLE CONFIGURATION SECTION ALLOWS TAILORING THE PROGRAM TO ANY MEMORY SIZE AND I/O CONFIGURATION, WHILE ALLOWING MAXIMUM MEMORY SPACE FOR STORING THE MASTER IN CORE FOR VERIFICATION.



CONTRIBUTION #: 133  
 CLASS: 16  
 CONTRIBUTOR: DAVID F. DENMAN  
 HP, EASTERN SALES REGION

PART NUMBER: 22181A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

#### RTE HP 2020 MAGNETIC TAPE DRIVER

THIS RTE DRIVER CONTROLS I/O OPERATIONS WITH THE HP2020 MAGNETIC TAPE UNIT. WHEN WRITING ON TAPE, THE ROUTINE CONVERTS ASCII DATA TO ALPHANUMERIC BCD FORM; THE ROUTINE THEN RECORDS THE BCD CHARACTERS ON TAPE WITH EVEN PARITY. WHEN READING TAPE, THE ROUTINE ACQUIRES ALPHANUMERIC BCD CHARACTERS WITH EVEN PARITY, AND CONVERTS THE CHARACTERS TO ASCII. NO PROVISION IS MADE FOR WRITING OR READING WITHOUT ASCII-BCD CONVERSION.

EQUIPMENT REQUIRED IS ONE HP2020 MAGNETIC TAPE UNIT WITH INTERFACE KIT, AND THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER.

ORDER #22181-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 134  
CLASS: 904  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22182A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

HISTOGRAM PLOTTER ROUTINE

THIS ROUTINE IS PART OF THE STAT-PACK GROUP.  
THIS ROUTINE IS FORTRAN CALLABLE.

THIS ROUTINE SORTS A SINGLE-DIMENSION FLOATING POINT ARRAY INTO ASCENDING SEQUENCE, AND (A) PRODUCES A HISTOGRAM OF THE DATA POINTS ON THE TELEPRINTER, OR (B) FURNISHES THE FREQUENCY DISTRIBUTION OF THE DATA POINTS, OR (C) PRODUCES BOTH A HISTOGRAM AND A FREQUENCY DISTRIBUTION. A MAXIMUM OF 400 DATA POINTS CAN BE HANDLED; ANY NUMBER OF DUPLICATIONS ARE ALLOWED. (WITH A SLIGHT CHANGE IN THE ROUTINE, MORE THAN 400 POINTS CAN BE PROCESSED).

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 135  
CLASS: 401  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22183A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

SAMPLE SIZE DETERMINATION TO TEST  $H_0$

THE PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES THE SAMPLE SIZE, N, TO TEST EITHER  $H_0: \mu = \mu_1$  OR  $H_0: \mu_1 = \mu_2$  SO THAT THE PROBABILITY OF DETECTING THE SIGNIFICANT DIFFERENCE, A, IS EQUAL TO  $\beta$ . A PREVIOUS REQUIREMENT IS AN ESTIMATE OF THE POPULATION VARIANCE (FOR  $\mu = \mu_1$ ) OR FOR THE COMMON VARIANCE (FOR  $\mu_1 = \mu_2$ ),  $S^2$ , BASED ON M DEGREES OF FREEDOM. THE TABLE USED IN DETERMINING THE SAMPLE SIZE IS READ IN AS DATA. THE VALUE OF  $K = A^2/S^2$  IS COMPUTED, LOCATED IN THE TABLE, AND THE VALUE OF N CAN THEN BE DETERMINED. THE VALUE OF A, THE PROBABILITY OF REJECTING  $H_0$  WHEN IT IS TRUE, IS 0.10 FOR A TWO-TAILED TEST AND 0.05 FOR A ONE-TAILED TEST. THE VALUES DETERMINED FOR  $\beta$  ARE 0.80 AND 0.95.



CONTRIBUTION #: 136  
 CLASS: 404  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22184A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

### POOLING OF GROUPS IN REGRESSION

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

DESIGNED TO HANDLE A MAXIMUM OF 15 GROUPS, THIS PROGRAM DETERMINES WHETHER SEVERAL GROUPS OF DATA CAN BE POOLED INTO ONE LINEAR REGRESSION.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 137  
 CLASS: 404  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22185A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

### MULTIPLE REGRESSION PROGRAM

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PROVIDES AN EXTREMELY COMPLETE STATISTICAL ANALYSIS, INCLUDING AN ANALYSIS OF VARIANCE TABLE, FOR ESTIMATING THE COEFFICIENTS IN THE FOLLOWING MODEL:

$$Y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + \epsilon_i \quad (k \leq 9)$$

OUTPUT IS IN PRINTED FORM, AND ONLY A SINGLE SET OF DATA CAN BE PROCESSED IN ONE RUN.

THERE CAN BE NO MORE THAN NINE INDEPENDENT AND ONE DEPENDENT VARIABLE. THE NUMBER OF OBSERVATIONS IS RESTRICTED ONLY WHEN THE ONE-PASS OPTION IS EXERCISED, AND THEN TO 2,400 OBSERVATION VECTORS FOR 10 VARIABLES. FOR N VARIABLES THERE MUST BE AT LEAST (N+1) OBSERVATION VECTORS. THE ONLY INPUT CONSTRAINT IS THAT THE ITH OBSERVATION VECTOR ( $y_i, x_{1i}, x_{2i}, \dots, x_{ki}$ ) MUST BE FURNISHED BEFORE THE ITH + 1 VECTOR. THE DEPENDENT VARIABLE CAN BE IN ANY FIELD.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 138  
CLASS: 409  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22186A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

MULTIPLE CORRELATION MATRIX PROGRAM

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM COMPUTES THE MEAN, STANDARD DEVIATION, AND PEARSON'S CORRELATION COEFFICIENT (R) FOR 2 TO 52 VARIABLES. THERE IS NO LIMIT ON THE NUMBER OF OBSERVATIONS PER VARIABLE. THE DISTINGUISHING FEATURE OF THE PROGRAM IS THAT THE COMPUTED CORRELATIONS ARE FURNISHED IN MATRIX FORM WITH VARIABLE NUMBERS LISTED, MAKING IT EASY TO IDENTIFY VALUES.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 139  
CLASS: 404  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22187A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

NONLINEAR REGRESSION OF A SINGLE VARIABLE FUNCTION

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS NONLINEAR LEAST SQUARES REGRESSION ON A SINGLE VARIABLE FUNCTION. THE PROGRAM CAN OPERATE ON ANY REGRESSION MODEL WHICH FORTRAN FUNCTIONS CAN BE WRITTEN FOR EVALUATION OF THE PARTIALS OF THE REGRESSION MODEL WITH RESPECT TO ITS REGRESSION COEFFICIENTS. A USER-WRITTEN PROGRAM IS REQUIRED FOR EVALUATION OF THE FUNCTION AND FIRST PARTIALS. A MAXIMUM OF THREE INDEPENDENT VARIABLES AND ONE DEPENDENT VARIABLE CAN BE HANDLED, AND A MAXIMUM OF 150 (X,Y) DATA PAIRS MAY BE ENTERED PER RUN.

COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950      800 BPI MAG TAPE      \$175.00  
ORDER #22117-11950      1600 BPI MAG TAPE      \$175.00



CONTRIBUTION #: 140  
 CLASS: 404  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22188A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

### NONLINEAR REGRESSION OF AN ARBITRARY FUNCTION

THIS PROGRAM IS PART OF THE STAT-PACK GROUP.

THIS PROGRAM PERFORMS NONLINEAR LEAST SQUARES REGRESSION ON AN ARBITRARY FUNCTION. THE PROGRAM CAN OPERATE ON ANY REGRESSION MODEL FOR WHICH FORTRAN FUNCTIONS CAN BE WRITTEN FOR EVALUATION OF THE PARTIALS OF THE REGRESSION MODEL WITH RESPECT TO ITS REGRESSION COEFFICIENTS. (A USER-WRITTEN PROGRAM IS REQUIRED FOR EVALUATION OF THE FUNCTION AND ITS FIRST PARTIALS.) A MAXIMUM OF THREE INDEPENDENT VARIABLES AND ONE DEPENDENT VARIABLE CAN BE HANDLED, AND A MAXIMUM OF 150 (X,Y) DATA PAIRS MAY BE ENTERED PER RUN.

#### COMPLETE 51 PROGRAM STAT-PACK:

ORDER #22117-10950	800 BPI MAG TAPE	\$175.00
ORDER #22117-11950	1600 BPI MAG TAPE	\$175.00



CONTRIBUTION #: 141  
 CLASS: 316  
 CONTRIBUTOR: PETER K. BICE  
 HP, MICROWAVE DIVISION

PART NUMBER: 22189A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

### GENERAL FAST FOURIER TRANSFORM

THIS ROUTINE EMPLOYS AN EFFICIENT ALGORITHM FOR FINDING THE FOURIER TRANSFORM OF A FUNCTION. THE EXPRESSION EVALUATED IS:

$$F(n) = \frac{1}{N} \sum_{i=0}^{N-1} F(i) e^{-jin \frac{2\pi}{N}}$$

WHERE THE F( ) ARE IN GENERAL COMPLEX. THE COOLEY-TURKEY ALGORITHM IS USED, OFFERING LARGE SAVINGS IN TIME AND STORAGE OVER OTHER METHODS. THE NUMBER OF INPUT DATA MUST BE AN INTEGER POWER OF TWO, AND THE DATA MUST BE COMPLEX.

INVERSE TRANSFORMS CAN ALSO BE TAKEN WITH THIS ROUTINE. THE INVERSE TRANSFORM IS:

$$F(i) = \sum_{n=0}^{N-1} F(n) e^{jin \frac{2\pi}{N}}$$

THE ROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 142  
CLASS: 211  
CONTRIBUTOR: BARRY S. TODD  
NAVAL WEAPONS STATION

PART NUMBER: 22190A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

ABSOLUTE PROGRAM CONTROL SYSTEM

THIS PROGRAM CAN EITHER BE USED AS AN INDEPENDENT CONTROL PROGRAM, OR ITS SUBROUTINES CAN BE INSERTED INTO OTHER PROGRAMS. IT PERFORMS THE FOLLOWING OPERATIONS:

- A. ENTERS DATA INTO MEMORY.
- B. LISTS CORE STORAGE CONTENTS IN BINARY, DECIMAL, OR ASCII FORM.
- C. PUNCHES BINARY TAPE COMPATIBLE WITH THE ABSOLUTE BINARY LOADER.
- D. TRANSFERS PROGRAM CONTROL TO ANY LOCATION IN MEMORY.
- E. EXECUTES ONE INSTRUCTION WITHOUT LOADING.
- F. DEBUGS BY STEPPING THROUGH A NUMBER OF INSTRUCTIONS AT A TIME. SIMULATED REGISTERS ARE USED AND CAN BE PRINTED OUT. FIFTEEN BREAKPOINTS CAN BE ENTERED. JUMP INSTRUCTIONS AND SUBROUTINES CAN BE LISTED EACH TIME THEY OCCUR.

SUBROUTINES AVAILABLE INCLUDE:

- A. OCTAL, DECIMAL OR ASCII KEYBOARD INPUT.
- B. ASCII CHARACTER INPUT.
- C. BYTE INPUT FROM TELEPRINTER PUNCHED TAPE READER.
- D. OCTAL, DECIMAL OR ASCII PRINTER OUTPUT.
- E. ASCII CHARACTER OUTPUT.
- F. BYTE OUTPUT FOR TELEPRINTER PUNCH.
- G. CARRIAGE CONTROL, SPACE, QUESTION MARK.
- H. TELEPRINTER SYSTEM INTERRUPT.



CONTRIBUTION #: 143  
CLASS: 212  
CONTRIBUTOR: ALBERTO L. PANNI  
HP, MILAN - ITALY

PART NUMBER: 22191A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

NAM-ENT-EXT EDITOR

THIS PROGRAM IS USED TO CHANGE THE SYMBOLS IN NAM, ENT, AND EXT STATEMENTS IN RELOCATABLE PROGRAMS ON BINARY PUNCHED TAPES.



CONTRIBUTION #: 144  
 CLASS: 313  
 CONTRIBUTOR: JOHN H. WELSCH  
 HP LABORATORIES

PART NUMBER: 22192A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: BCS

#### EIGENVALUES OF A SYMMETRIC REAL MATRIX

THIS ROUTINE USES HOUSEHOLDER'S METHOD AND THE QR ALGORITHM TO FIND ALL EIGENVALUES OF A SYMMETRIC MATRIX.



CONTRIBUTION #: 145  
 CLASS: 201  
 CONTRIBUTOR: MICHAEL E. SULLIVAN  
 HP, AMD

PART NUMBER: 22193A-K01  
 PRICE: \$60  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### INTERPRETIVE BINARY SIMULATOR

THE INTERPRETIVE BINARY SIMULATOR PROVIDES THE USER WITH AN INTERPRETIVE EXECUTION OF ANY PROGRAM THAT WILL RUN IN AN 8K COMPUTER. THE SIMULATOR IS SIMILAR TO PROGRAM 20002, THE BCS DEBUG ROUTINE, BUT DIFFERS AS FOLLOWS:

- A. TRACING CAN BE CONDUCTED THROUGH .IOC AND ITS I/O DRIVERS.
- B. A MNEMONIC PRINTOUT OF SIMULATED INSTRUCTIONS IS PROVIDED.
- C. ABSOLUTE CODE IS SIMULATED. RELOCATABLE TAPES MUST BE PREPARED BY SELECTING THE ABSOLUTE BCS OPTION.
- D. INTERNALLY, THE INTERPRETIVE BINARY SIMULATOR APPEARS TO BE FUNCTIONING IN AN 8K COMPUTER, BUT THE SIMULATOR REQUIRES 16K FOR ITS OWN STORAGE.

EQUIPMENT REQUIRED IS 16K OF CORE STORAGE.



CONTRIBUTION #: 146  
 CLASS: 405  
 CONTRIBUTOR: DALE N. MURRAY  
 REDSTONE ARSENAL

PART NUMBER: 22194A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### PSEUDO-RANDOM NUMBER GENERATOR

THIS FORTRAN CALLABLE ROUTINE PRODUCES 32-BIT RANDOM NUMBERS BETWEEN 0.000000 AND 0.999999. IF THE ROUTINE IS REPEATED, THE SAME NUMBERS ARE PRODUCED IN THE SAME SEQUENCE.



CONTRIBUTION #: 147  
CLASS: 3  
CONTRIBUTOR: WARREN NELSON  
HP, OTTAWA - CANADA

PART NUMBER: 22195B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

PROGRAM EXECUTION TIMER

THE PURPOSE OF THIS ROUTINE IS TO ACCURATELY MEASURE PROGRAM EXECUTION TIME. CORRECTION IS MADE FOR THE TIME TAKEN TO SERVICE INTERRUPTS. THE EXECUTION TIME IS PRINTED OUT IN SECONDS, CORRECT TO FOUR DECIMAL PLACES. THE MAXIMUM TIME WHICH CAN BE MEASURED IS 32,768 SECONDS (9 HOURS, 6 MINUTES, AND 8 SECONDS).

EQUIPMENT REQUIRED IS ONE HP12539 TIME BASE GENERATOR.



CONTRIBUTION #: 148  
CLASS: 106  
CONTRIBUTOR: UNSPECIFIED

PART NUMBER: 22197A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: DOS

SINGLE DRIVE MAGNETIC TAPE COPY PROGRAM

THIS DOS PROGRAM COPIES OR REBLOCKS MAGNETIC TAPES WITH A SINGLE TAPE UNIT IN THE COMPUTER SYSTEM. THE DISC IS USED FOR INTER-MEDIATE STORAGE. VERIFICATION IS MADE BETWEEN THE MASTER TAPE AND THE DISC AND BETWEEN THE DISC AND EACH COPY TAPE.

EQUIPMENT REQUIRED IS ON HP7970A OR 3030G MAGNETIC TAPE UNIT, WITH INTERFACE KIT.



CONTRIBUTION #: 149  
CLASS: 102  
CONTRIBUTOR: CHARLES CHERNACK  
HP, EASTERN SALES REGION

PART NUMBER: 22198C-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM

THIS INDEPENDENT PROGRAM PERFORMS ANY OF THE FOLLOWING FUNCTIONS:

- A. RECORDS PUNCHED TAPE IMAGES ON MAGNETIC TAPE. IF ADDITIONAL IMAGES ARE SUBSEQUENTLY RECORDED, THE END-OF-FILE MARK IS REMOVED AND A NEW ONE IS PLACED AFTER THE NEW MATERIAL.
- B. UNDER MANUAL CONTROL, REMOVES THE LAST RECORD WRITTEN ON MAG TAPE.

- C. VERIFIES THAT DATA RECORDED ON THE MAG TAPE IS IDENTICAL WITH THE CONTENTS OF A SPECIFIED CORE STORAGE AREA.
- D. MAKES A PUNCHED TAPE DUPLICATING DATA ON THE MAGNETIC TAPE.
- E. LISTS DATA FROM THE MAG TAPE ON A LINE PRINTER OR TELEPRINTER.
- F. READS THE MAGNETIC TAPE AND LISTS ON A LINE PRINTER OR TTY A DIRECTORY OF PROGRAMS RECORDED ON THE TAPE.

PROGRAM 22209C (CLASSIFICATION CODE A106) PERFORMS ADDITIONAL FUNCTIONS USING THE FORMAT OF PROGRAM 22198.

EQUIPMENT REQUIRED IS 16K OF CORE STORAGE (LIMITED FUNCTIONS ARE POSSIBLE WITH 8K), THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER, ONE HP3030G OR 7970 MAGNETIC TAPE UNIT WITH INTERFACE KIT, AND ONE HP2752 TELEPRINTER, HP2754 TELEPRINTER, OR ONE HP 2600A TERMINAL WITH INTERFACE KIT.



CONTRIBUTION #: 150

CLASS: 12

CONTRIBUTOR: GENE OLIG

RESEARCH & DEVELOPMENT DPT  
GIDDENS & LEWIS

PART NUMBER: 22199A-K01

PRICE: \$30

DATE CODE:

LANG: ASSEMBLY ABSOLUTE

OP SYS: HP BASIC 20392A, MTS

#### BASIC LANGUAGE DATA ACQUISITION SYSTEM

'GOL1' IS A SOPHISTICATED AND VERSATILE DATA ACQUISITION PROGRAM, PROVIDING 24-HOUR, 7 DAY PER WEEK DATA MONITORING CAPABILITIES. THE PROGRAM PERMITS CLOSE CONTROL OF ALL PHASES OF THE MEASUREMENT AND DATA CONVERSION OPERATION. IF A PLOTTER IS INCLUDED IN THE EQUIPMENT USED, GRAPHS MAY BE PREPARED FROM THE VALUES MEASURED. PRINCIPLE FEATURES INCLUDE:

- A. PROGRAM CONTROL FROM THE COMPUTER SWITCH REGISTER.
- B. DETECTION OF RESPONSE FAILURE IN THE MEASURING SYSTEM.
- C. MAINTENANCE OF A TIME-OF-DAY CLOCK IN THE COMPUTER.
- D. 200 CHANNELS OF ANALOG INPUT, WITH A SAMPLE TIME OF 0.1 SECS PER CHANNEL, AND A DYAMIC RANGE FROM 1 MICROVOLT TO 1500 VOLTS PER CHANNEL.
- E. 16 CHANNELS OF HIGH SPEED ANALOG-TO-DIGITAL CONVERSION, AT A RATE OF UP TO 100,000 DATA SAMPLES PER SECOND.
- F. 100 CHANNELS FOR THERMOCOUPLE MONITORING.
- G. PERKIN-ELMER LASER INPUT.
- H. 16-BIT DIGITAL INPUT OR OUTPUT.
- I. 2-CHANNELS OF ANALOG OUTPUT, 0 TO +10 VOLTS, SUITABLE FOR AN X-Y PLOTTER.
- J. AN OUTPUT CAPABILITY FOR CLOSING ANY COMBINATION OF 1 TO 16 RELAYS.
- K. IBM-COMPATIBLE MAG TAPE SYSTEM, WITH A TRANSFER RATE OF APPROXIMATELY 30,000 CHARACTERS PER SECOND.

WHILE THE DATA COLLECTION SYSTEM USES AN HP3450A DIGITAL MULTI-FUNCTION METER AS THE MEASURING INSTRUMENT, THE PROGRAM CAN EASILY BE ALTERED TO PERMIT THE USE OF MANY OTHER MODELS OF HP DIGITAL VOLTMETER. THE PROGRAM FUNCTIONS UNDER 20392A BASIC.

REQUIREMENTS INCLUDE: 16-32K COMPUTER AND ONE EACH OF THE FOLLOWING: HP3450A, 2911B, 5610A, 12555A, 12551A, 12539A, 12544A, ALSO HP2020 OR 3030.

EXTENDED DOCUMENTATION

ORDER #22199A-D00

\$5.00



CONTRIBUTION #: 151  
CLASS: 6  
CONTRIBUTOR: M. H. KENDALL III  
WYLE LABORATORIES

PART NUMBER: 22200A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

WAVETEK BASIC DRIVER

THIS DRIVER PERMITS REMOTE PROGRAMMING OF ALL FUNCTIONS OF THE WAVETEK MODEL 150 OR MODEL 155 SIGNAL GENERATOR. CONTROL WORDS PROGRAM ONE TO FIVE OF THESE SIGNAL GENERATORS, EACH WITH ITS OWN OPERATING CONDITIONS. THE CONTROL WORDS ESTABLISH THE FREQUENCY (0.01 HZ TO 1 MHZ), AMPLITUDE (10 MILLIVOLTS TO 10 VOLTS), AND WAVEFORM (SINE, TRIANGULAR, OR SQUARE). THE CONTROL WORDS ALSO SPECIFY EITHER CONTINUOUS OR TRIGGERED OPERATION. THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE TO FIVE WAVETEK MODEL 150 OR 155 SIGNAL GENERATORS, EACH WITH AN HP12556B 40-BIT OUTPUT REGISTER INTERFACE KIT AND INTERCONNECTING CABLE. INSTRUCTIONS FOR CONNECTING THE CABLE TO THE SIGNAL GENERATOR ARE FURNISHED IN THE PROGRAM DOCUMENTATION.



CONTRIBUTION #: 152  
CLASS: 18  
CONTRIBUTOR: DOWELL MARTZ  
WILLIAM TYLER  
PACIFIC UNION COLLEGE

PART NUMBER: 22201D-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 24000A

PACIFIC UNION COLLEGE MULTI-TERMINAL HP BASIC SYSTEM

THIS PROGRAM SYSTEM IS AN INTERPRETER WHICH ALLOWS UP TO EIGHT USERS TO SIMULTANEOUSLY EMPLOY THE FACILITIES OF A LARGE SUBSET OF HP20392 BASIC OPERATING SYSTEM. AS WELL AS PERMITTING MULTIPLE-USER ACCESS, OTHER DIFFERENCES FROM THE HP20392 PROGRAM SYSTEM ARE AS FOLLOWS:

- A. NO MATRIX STATEMENT
- B. NO WAIT STATEMENTS
- C. NO BYE STATEMENTS
- D. GOSUB'S MAY BE NESTED TO ANY DEPTH.
- E. SYNTAX ERROR TYPEOUTS HAVE NO LINE NUMBERS.

NO LOG-ON OR LOG-OFF PROCEDURES ARE REQUIRED, AND NO IDENTITY CODES ARE USED. ALLOCATION OF AVAILABLE CORE STORAGE CAN BE MADE TO EACH USER AT THE TIME OF SYSTEM CONFIGURATION.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.



CONTRIBUTION #: 153  
 CLASS: 104  
 CONTRIBUTOR: G. L. DAVIS  
 AUTOMATIC ELECTRIC LABS

PART NUMBER: 22204A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

## DATA BLOCK MOVEMENT

THIS ROUTINE MOVES DATA FROM ONE AREA OF CORE STORAGE TO ANOTHER.  
 THE SOURCE AND DESTINATION AREAS MUST EACH BE CONTIGUOUS.



CONTRIBUTION #: 154  
 CLASS: 212  
 CONTRIBUTOR: G. L. DAVIS  
 AUTOMATIC ELECTRIC LABS

PART NUMBER: 22205A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

## TABULATION &amp; FORM-FEED CALLS FOR HP 2754 TELEPRINTER

THIS SOFTWARE PRODUCT CONSISTS OF THREE SUBROUTINES WHICH  
 RESPECTIVELY PERFORM THE FOLLOWING FUNCTIONS:

- A. MOVE THE CARRIAGE OF AN HP2754 TELEPRINTER HORIZONTALLY TO THE NEXT HORIZONTAL TABULATION STOP.
- B. ROTATE THE PLATEN OF AN HP2754 TELEPRINTER TO THE NEXT VERTICAL TABULATION STOP.
- C. ROTATE THE PLATEN OF AN HP2754 TELEPRINTER TO THE TOP OF THE NEXT PAGE.

EQUIPMENT REQUIRED IS ONE HP 2754 TELEPRINTER, WITH INTERFACE KIT.



CONTRIBUTION #: 155  
 CLASS: 104  
 CONTRIBUTOR: JOHN H. WELSCH  
 HP LABORATORIES

PART NUMBER: 22207A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: BCS, DOS

## CHARACTER AND BIT STRING PROCEDURES FOR ALGOL

THESE ALGOL-CALLABLE CODE PROCEDURES PERMIT INTEGER ARRAYS TO BE MANIPULATED AS CHARACTER STRINGS AND BIT STRINGS. THE STRINGS MAY BE CONCATENATED OR BROKEN INTO SUBSTRINGS; INDIVIDUAL CHARACTERS OR BITS MAY BE EXAMINED AND CHANGED.

CONTRIBUTION #: 156  
CLASS: 16  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22208A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP 3030G MAGNETIC TAPE DRIVER - FORTRAN CALLABLE

THIS FORTRAN CALLABLE DRIVER CONTROLS I/O OPERATIONS WITH THE HP3030G MAGNETIC TAPE UNIT. WHEN READING RECORDS, THE DRIVER RETURNS A WORD COUNT TO THE CALLING PROGRAM.



CONTRIBUTION #: 157  
CLASS: 106  
CONTRIBUTOR: CHARLES CHERNACK  
HP, EASTERN SALES REGION

PART NUMBER: 22209C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

DRUM BASED MAGNETIC TAPE DUPLICATOR

USING SOURCE MAGNETIC TAPES WITH THE FORMAT PRODUCED BY PROGRAM 22198 (CLASSIFICATION CODE 102), THIS INDEPENDENT PROGRAM PERFORMS ANY OF THE FOLLOWING FUNCTIONS:

- A. THE PROGRAM MAKES COPIES OF A MAG TAPE USING A SINGLE MAG TAPE UNIT. THE DRUM IS USED FOR INTERMEDIATE STORAGE.
- B. THE PROGRAM ALLOWS MANY MAG TAPES TO BE COMBINED ON THE DRUM. A SINGLE MAG TAPE CAN THEN BE PREPARED FROM THE DRUM FILES.
- C. THE PROGRAM CAN PURGE ANY SPECIFIED FILE FROM THE DRUM.
- D. MAG TAPE FILES ON THE DRUM CAN BE SORTED BY ID NUMBER.
- E. SELECTED FILES ON THE DRUM CAN BE RECORDED ON MAG TAPE.
- F. A DIRECTORY OF PROGRAMS RECORDED ON MAG TAPE CAN BE LISTED ON LINE PRINTER OR TELEPRINTER.

BECAUSE THIS IS AN INDEPENDENT PROGRAM, THE MAG TAPE FORMAT AND DRUM FORMAT ARE NOT COMPATIBLE WITH THE FORMATS USED IN STANDARD HP OPERATING SYSTEMS. THEREFORE, THE MAG TAPES PRODUCED MUST BE TRANSFERRED TO PUNCHED TAPE, USING PROGRAM 22198, BEFORE USE IN AN OPERATING SYSTEM.

EQUIPMENT REQUIRED IS 16K OF CORE STORAGE, AND THE DIRECT MEMORY ACCESS AND EXTENDED ARITHMETIC UNIT OPTIONS FOR THE COMPUTER. ALSO REQUIRED IS AN HP2773/4/5 DRUM MEMORY WITH POWER SUPPLY AND INTERFACE KIT, AND AN HP3030 MAGNETIC TAPE UNIT WITH INTERFACE KIT.



CONTRIBUTION #: 158  
 CLASS: 6  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22211A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC

#### HP 5100B FREQUENCY SYNTHESIZER DRIVER - BASIC CALLABLE

THIS ROUTINE CONTROLS AN HP5100B FREQUENCY SYNTHESIZER. TWO CONTROL WORDS, FURNISHED BY THE CALLING PROGRAM, DESIGNATE THE FREQUENCY REQUIRED. ANY FREQUENCY FROM DC TO 50 MHZ CAN BE SPECIFIED, WITH CHANGE INCREMENTS AS SMALL AS 0.01 HERTZ. TYPICALLY, THE FREQUENCY CHANGES 20 MICRO-SECONDS AFTER THE CONTROL WORDS ARE SUPPLIED. THE ROUTINE OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM.

EQUIPMENT REQUIRED IS ONE HP5100B FREQUENCY SYNTHESIZER, ONE HP 5110B SYNTHESIZER DRIVER, ONE HP2759B SYNTHESIZER PROGRAMMER, AND ONE 40-BIT OUTPUT INTERFACE CARD.



CONTRIBUTION #: 159  
 CLASS: 105  
 CONTRIBUTOR: G. L. DAVIS  
 AUTOMATIC ELECTRIC LABS

PART NUMBER: 22214A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: MTS/3030

#### CHARACTER CODE TRANSLATOR

THIS MTS PROGRAM TRANSLATES FROM ASCII TO EBCDIC, AND FROM EBCDIC TO ASCII. EACH TRANSLATED CHARACTER CAN BE PLACED IN THE CORE STORAGE LOCATION FROM WHICH THE CORRESPONDING UNTRANSLATED CHARACTER WAS ACQUIRED. ALTERNATIVELY, THE TRANSLATED CHARACTER CAN BE PLACED IN A DIFFERENT CORE STORAGE LOCATION. THE ORIGINAL CHARACTERS AND THE TRANSLATED CHARACTERS ARE PACKED TWO CHARACTERS PER 16-BIT WORD.

BY PREPARING DIFFERENT CONVERSION TABLES FOR THE PROGRAM, A USER CAN CONVERT ANY 8-BIT (OR LESS) CODE TO ANY OTHER 8-BIT (OR LESS) CODE.



CONTRIBUTION #: 160  
 CLASS: 6  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22215A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 24000A

#### HP 3480A/B DIGITAL VOLTMETER DRIVER - BASIC CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP 3480A OR 3480B DIGITAL VOLTMETER. A CONTROL WORD FROM THE CALLING PROGRAM SPECIFIES THE METER FUNCTION (TYPE OF MEASUREMENT), USE OF AN AC-NOISE FILTER (IF THE METER IS EQUIPPED WITH THIS OPTIONAL FEATURE), DELAY, AND METER RANGE. AUTOMATIC RANGE SELECTION, A STANDARD FEATURE OF THE METER, CAN BE EMPLOYED IF DESIRED. THE MEASUREMENT ACQUIRED IS CONVERTED TO FLOATING POINT FORM AND FORWARDED TO THE CALLING PROGRAM. THE ROUTINE OPERATES UNDER THE 20392 BASIC OPERATING SYSTEM. MATRIX OPERATIONS ARE DELETED.

EQUIPMENT REQUIRED IS ONE HP 3480A OR 3480B DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT), WITH INTERFACE KIT.



CONTRIBUTION #:	161	PART NUMBER:	22216B-K01
CLASS:	15	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC 24000A

HP 2870A CARTRIDGE DISC DRIVER - BASIC CALLABLE

THIS DRIVER, USED WITH THE HP20392 BASIC OPERATING SYSTEM, CONTROLS I/O OPERATIONS WITH AN HP2870A MOVING HEAD DISC UNIT.

EQUIPMENT REQUIRED IS THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER AND ONE HP2870A MOVING HEAD DISC UNIT WITH INTERFACE KIT, DISC CONTROLLER, POWER SUPPLY, AND CABINET.



CONTRIBUTION #:	162	PART NUMBER:	22217B-K01
CLASS:	14	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC

HP 2331A X-Y DISPLAY SUBSYSTEM DRIVER - BASIC CALLABLE

THIS DRIVER, USED BY THE HP20392 BASIC OPERATING SYSTEM, SETS UP CRT DISPLAYS ON AN HP1300A LARGE SCREEN DISPLAY. THE X AND Y AXES ARE PLOTTED, IF DESIRED.

EQUIPMENT REQUIRED IS ONE HP2331A X-Y DISPLAY SUBSYSTEM, CONSISTING OF AN HP1300 X-Y LARGE SCREEN DISPLAY AND DUAL D/A CONVERTER INTERFACE KIT.



CONTRIBUTION #: 163  
 CLASS: 316  
 CONTRIBUTOR: ELECTRONICS RESEARCH LAB.  
 STANFORD UNIVERSITY  
 JACK HOWARD - HP DSD

PART NUMBER: 22218-18900  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS,MTS

### FAST FOURIER TRANSFORM

THIS ROUTINE FINDS THE FOURIER TRANSFORM OF COMPLEX, MULTI-DIMENSIONAL, COMPLEX DATA.

$$\text{TRANSFORM } (k_1, k_2, \dots) = \text{SUM}(\text{DATA}_{j_1, j_2, \dots}) \\
 * \text{EXP}(\text{ISIGN} * 2 * \text{PI} * \\
 \text{SQRT}(-1) * ((j_1 - 1) * \\
 (k_1 - 1) / \text{NN}(1) + (j_2 - 1) \\
 * (k_2 - 1) / \text{NN}(2) + \dots))$$

THIS QUANTITY IS SUMMED FOR ALL  $J_1, K_1$  BETWEEN 1 AND  $\text{NN}(1), J_2, K_2$  BETWEEN 1 AND  $\text{NN}(2)$ , ETC. THERE IS NO LIMIT TO THE NUMBER OF  $K$ 'S (I.E., NO LIMIT ON THE NUMBER OF DIMENSIONS). ALSO, THERE IS NO RESTRICTION ON THE LENGTH OF THE DIMENSIONS, ALTHOUGH THE PROGRAM RUNS FASTER WHEN THE LENGTHS ARE COMPOSITE INTEGERS, AND ESPECIALLY FAST WHEN THE LENGTHS ARE POWERS OF TWO.

BOTH FORWARD ( $\text{ISIGN} = -1$ ) AND INVERSE ( $\text{ISIGN} = +1$ ) TRANSFORMS CAN BE CALCULATED. IF A  $-1$  TRANSFORM IS FOLLOWED BY A  $+1$  TRANSFORM, THE ORIGINAL DATA WILL REAPPEAR MULTIPLIED BY  $\text{NTOT} = (\text{NN}(1) * \text{NN}(2) * \dots)$ .

THE ROUTINE PLACES THE FOLLOWING RESTRICTIONS ON INPUT DATA AND TRANSFORM VALUES:

- A. THE NUMBER OF INPUT DATA AND THE NUMBER OF TRANSFORM VALUES MUST BE THE SAME.
- B. BOTH THE INPUT DATA AND THE TRANSFORM VALUES MUST REPRESENT EQUISPACED POINTS IN THEIR RESPECTIVE DOMAINS OF TIME AND FREQUENCY. CALLING THESE SPACINGS  $\text{DELTA T}$  AND  $\text{DELTA F}$ , IT MUST BE TRUE THAT  $\text{DELTA F} = 2 * \text{PI} / [\text{NN}(I) * \text{DELTA T}]$ . OF COURSE,  $\text{DELTA T}$  NEED NOT BE THE SAME FOR EVERY DIMENSION.
- C. CONCEPTUALLY, AT LEAST, THE INPUT DATA AND THE TRANSFORM OUTPUT REPRESENT SINGLE CYCLES OF PERIODIC FUNCTIONS.

THE ROUTINE IS FORTRAN CALLABLE

EXTENDED DOCUMENTATION - ORDER #22218-D00 \$5.00



CONTRIBUTION #: 164  
 CLASS: 14  
 CONTRIBUTOR: C. M. SCHADE  
 INFORMATION SYSTEMS LAB.  
 STANFORD UNIVERSITY

PART NUMBER: 22219A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

### HIGH SPEED CONTINUOUS LINE PLOTTER FOR HP 7004B

BY PROVIDING CONTROLLED PEN-CARRIAGE ACCELERATION, THIS ROUTINE ALLOWS AN HP7591A POINT PLOTTING SYSTEM TO BE USED AS A HIGH SPEED CONTINUOUS LINE PLOTTER. (THE HP7591A SYSTEM EMPLOYS AN HP7004



X-Y RECORDER FOR PLOTTING POINTS.) WHEN THE POINT PLOTTING SYSTEM EMPLOYS THE STANDARD DRIVER TO DRAW A STRAIGHT LINE, THE LINE IS DRAWN WITH A SLIGHT CURVATURE BECAUSE OF THE DIFFERING INERTIAS OF THE X-AXIS AND Y-AXIS CARRIAGES. THE LIGHTER CARRIAGE ACCELERATES MORE RAPIDLY THAN THE OTHER CARRIAGE, GIVING RISE TO THE CURVATURE IN THE LINE. THE CSI SUBROUTINE OVERCOMES THIS PROBLEM BY INCREMENTALLY INCREASING THE VALUE OF THE COORDINATE FURNISHED TO THE LIGHTER CARRIAGE AS THE CARRIAGE ACCELERATES, UNTIL THE FULL VALUE OF THE COORDINATE IS REACHED. THE HEAVIER CARRIAGE RECEIVES THE FULL VALUE OF ITS COORDINATE WITHOUT DELAY. AN INCREMENT-SIZE FACTOR ALLOWS ROUGH FAST PLOTTING, OR ACCURATE SLOWER PLOTTING.

WHEN THE CARRIAGE IS MOVED WITH THE PEN OFF THE PAPER, THE FULL VALUES OF BOTH COORDINATES ARE FURNISHED WITHOUT DELAY TO BOTH CARRIAGES, RESULTING IN MAXIMUM OPERATING SPEED. ADDITIONALLY, ALL PEN-UP FUNCTIONS USE THE INTERRUPT I/O METHOD, ALLOWING THE COMPUTER TO BE USED FOR OTHER PURPOSES WHILE THE INTERRUPT IS AWAITED. THE SUBROUTINE, WHICH IS NAMED AFTER ITS CONTRIBUTOR IS FORTRAN AND ALGOL CALLABLE.

EQUIPMENT REQUIRED IS ONE HP7591A POINT PLOTTING SYSTEM WITH TWO HP17171A DC PREAMPLIFIERS, TWO J20-6130BR OR J20-6933AR D-A CONVERTERS, ONE HP14535A MULTIPLEX INTERFACE KIT, AND ONE HP12554A 16-BIT DUPLEX REGISTER. (IF 8-BIT RESOLUTION IS SUFFICIENT, AN HP12555A DUAL D-A CONVERTER CAN BE SUBSTITUTED FOR THE D-A CONVERTERS LISTED).



CONTRIBUTION #: 165  
 CLASS: 309  
 CONTRIBUTOR: JOHN H. WELSCH  
 HP LABORATORIES

PART NUMBER: 22220A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: BCS,DOS

#### LINEAR LEAST SQUARES PROBLEM SOLVER

ALGOL CALLABLE, THIS PROCEDURE SOLVES THE LINEAR LEAST SQUARES PROBLEM:

$$\left\| \underline{A} \underline{x} - \underline{b} \right\|_2 = \text{minimum}$$

WHERE  $\left\| \right\|_2$  INDICATES THE EUCLIDEAN NORM AND  $\underline{A}$  IS AN  $M$  BY  $N$  ( $M \geq N$ ) REAL MATRIX OR RANK  $N$ . A MATRIX DECOMPOSITION BASED ON ORTHOGONAL HOUSEHOLDER TRANSFORMATIONS IS USED, RATHER THAN SOLVING THE NORMAL EQUATIONS  $\underline{A}^T \underline{A} \underline{x} = \underline{A}^T \underline{b}$ .

MANY VECTORS,  $\underline{b}$ , MAY BE GIVEN FOR SOLUTION WITH INCREASED EFFICIENCY.



CONTRIBUTION #: 166  
 CLASS: 506  
 CONTRIBUTOR: GEORGE MOORE  
 HP, DSD - CUPERTINO

PART NUMBER: 22221B-K01  
 PRICE: \$100  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

### HP BIOMEDICAL RESPONSE AVERAGING PROGRAM

THE HP BIOMEDICAL RESPONSE AVERAGING PROGRAM WAS WRITTEN IN CONJUNCTION WITH THE UNIVERSITY OF MICHIGAN'S ELECTRO-ENCEPHALOGRAPH LABORATORY. THE UNIVERSITY USES THE PROGRAM TO ANALYZE BRAIN RESPONSE TO PHYSIOLOGICAL STIMULI; A 24-CHANNEL ELECTROENCEPHALOGRAPH BEING THE RESPONSE SENSOR. IT SHOULD BE NOTED, HOWEVER, THAT THE PROGRAM IS BY NO MEANS CONSTRAINED TO EEG USE. THE SIGNAL-AVERAGING TECHNIQUE EMPLOYED CAN BE A POWERFUL AID IN MANY FIELDS, INCLUDING THE FOLLOWING:

- A. HIGH-RESOLUTION SPECTROSCOPY, WHERE SIGNAL AVERAGING CAN HELP OVERCOME STABILITY PROBLEMS.
- B. ELECTROCARDIOGRAPH WORK.
- C. FLUORESCENT DECAY STUDIES.

THE PROGRAM WHICH IS INDEPENDENT, IS FURNISHED ON TWO PAPER TAPES. ONE CONTAINS THE COMPILER, WHICH PERMITS THE USER INPUT AT THE TELEPRINTER IN CONVERSATIONAL FORM. THE SECOND TAPE CONTAINS THE SIGNAL AVERAGING PROGRAM, WHICH PROVIDES FOR DATA ACCUMULATION, STATISTICAL ANALYSIS, THE MONITORING OF FOUR CHANNELS ON AN OSCILLOSCOPE, AND GENERATION OF A REPORT FURNISHING A STATISTICAL ANALYSIS FOR EACH OF THE 24 DATA CHANNELS.

SIGNAL AVERAGING IS CONDUCTED AT 1 MILLISECOND PER POINT OR LONGER. ADDITIONAL FEATURES INCLUDE PRE-STIMULUS CONDITION AVERAGING, DUAL-RESOLUTION SWEEPS, COMPUTATION OF CONFIDENCE STATISTICS AND WEIGHTED AVERAGES, AND PRE-SET SWEEP COUNT. THE AVERAGES, WEIGHTED AVERAGES, AND CONFIDENCE STATISTICS FOR ANY SELECTED DATA CHANNEL ARE RECORDED ON AN X-Y PLOTTER, FURNISHING A PERMANENT RECORD IN GRAPH FORM.

EQUIPMENT REQUIRED INCLUDE 8K OF CORE STORAGE, AN HP2310C MINI-VERTER SYSTEM WITH OPTIONS 01 AND 03. AN HP7004A X-Y RECORDER WITH INTERFACE KIT, ANY HIGH QUALITY GENERAL PURPOSE OSCILLOSCOPE, WITH 4-CHANNEL VERTICAL AMPLIFIER SECTION AND D/A INTERFACE KIT. AN HP12539 TIME BASE GENERATOR AND AN HP12566 DUPLEX REGISTER.

EXTENDED DOCUMENTATION - ORDER #22221B-D00 \$5.00



CONTRIBUTION #: 167  
CLASS: 506  
CONTRIBUTOR: STAN RUSSELL  
HP, MIDWEST SALES REGION

PART NUMBER: 2222A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: RCS

BLOOD ACID-BASE VARIABLES DETERMINATION PROGRAM

USING THE ASTRUP TECHNIQUE, THIS PROGRAM IS AN ACCURATE METHOD OF DETERMINING THE ACID-BASE VARIABLES IN HUMAN BLOOD. TWO SAMPLES OF BLOOD ARE EQUILIBRATED WITH CARBON DIOXIDE/OXYGEN MIXTURES OF DIFFERENT AND KNOWN COMPOSITION, AND THE PH OF EACH SAMPLE IS MEASURED. THIS DATA TOGETHER WITH AN IDENTIFICATION, IS FURNISHED TO THE COMPUTER BY MEANS OF A MARKED CARD. (A SLIGHT CHANGE TO THE PROGRAM ALLOWS INPUT FROM PUNCHED TAPE.) THE PROGRAM (PLOTS) THE PH DATA AGAINST NOMOGRAM CURVES, AND THE OUTPUT, FURNISHED ON THE TELEPRINTER, CONSISTS OF THE FOLLOWING:

- A.  $PCO_2$  OF THE SAMPLE.
- B.  $PCO_2$  OF THE SAMPLE, CORRECTED FOR HEMOGLOBIN OXYGEN DESATURATION.
- C. CONCENTRATION OF BICARBONATE OF THE SAMPLE.
- D. CONCENTRATION OF BICARBONATE OF THE SAMPLE, CORRECTED FOR HEMOGLOBIN OXYGEN DESATURATION.
- E. BASE EXCESS OF THE SAMPLE.
- F. BASE EXCESS OF THE SAMPLE, CORRECTED FOR HEMOGLOBIN OXYGEN DESATURATION.
- G. BUFFER BASE OF THE SAMPLE.
- H. BUFFER BASE OF THE SAMPLE, CORRECTED FOR HEMOGLOBIN OXYGEN DESATURATION.
- I. CARBON DIOXIDE CONTENT OF THE SAMPLE.
- J. CARBON DIOXIDE CONTENT OF THE SAMPLE, CORRECTED FOR HEMOGLOBIN OXYGEN DESATURATION.
- K. STANDARD BICARBONATE.
- L. NORMAL WHOLE BLOOD BUFFER BASE.
- M. A SYMBOL TO DENOTE WHETHER THE HEMOGLOBIN WAS PHYSICALLY MEASURED, OR CALCULATED FROM THE NORMAL WHOLE BLOOD BUFFER BASE.

EQUIPMENT REQUIRED IS 8K OF CORE STORAGE.



CONTRIBUTION #: 168  
CLASS: 17  
CONTRIBUTOR: FRITZ JOERN  
HP, FRANKFURT - GERMANY

PART NUMBER: 2223C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: ABSOLUTE,SIO

LOADER BOOTSTRAP

THIS PROGRAM PROVIDES A SIMPLE METHOD OF ENTERING A BASIC BINARY LOADER OR A BASIC BINARY DISC LOADER. FIRST, TWELVE INSTRUCTIONS ARE ENTERED INTO THE SWITCH REGISTER. THESE INSTRUCTIONS INDICATE

THE CONFIGURATION OF THE COMPUTER SYSTEM, AND ALSO SERVE AS A DRIVER FOR ACQUIRING THE BOOTSTRAP TAPE. AFTER THE TAPE HAS BEEN READ, THE BASIC BINARY LOADER OR BASIC BINARY DISC LOADER IS READY FOR USE IN MEMORY. THE PROGRAM INCLUDES PREPARATION OF A CHECKSUM TO DETECT TAPE READER ERRORS. A TEST OF THE LOADER PROTECT SWITCH IS ALSO MADE.



CONTRIBUTION #:	169	PART NUMBER:	2225B-K01
CLASS:	15	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES DIVISION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

HP 2870A CARTRIDGE DISC DRIVER - FORTRAN CALLABLE

THIS DRIVER CONTROLS I/O OPERATIONS WITH AN HP2870A MOVING HEAD DISC UNIT.

EQUIPMENT REQUIRED IS THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER, AND ONE HP2870A MOVING HEAD DISC UNIT WITH INTERFACE KIT, DISC CONTROLLER, POWER SUPPLY, AND CABINET.



CONTRIBUTION #:	170	PART NUMBER:	2226B-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

HP 3480A/B DIGITAL VOLTMETER DRIVER - FORTRAN CALLABLE

THIS DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP3480A OR 3480B DIGITAL VOLTMETER. A CONTROL WORD FROM THE CALLING PROGRAM SPECIFIES THE METER FUNCTION (TYPE OF MEASUREMENT), USE OF AN AC-NOISE FILTER (IF THE METER IS EQUIPPED WITH THIS OPTIONAL FEATURE), DELAY, AND METER RANGE, AUTOMATIC RANGE SELECTION, A STANDARD FEATURE OF THE METER, CAN BE EMPLOYED IF DESIRED. THE MEASUREMENT ACQUIRED IS CONVERTED TO FLOATING POINT FORM AND FORWARDED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS ONE HP3480A OR 3480B DIGITAL VOLTMETER (8-4-2-1 BCD OUTPUT), WITH INTERFACE KIT.



CONTRIBUTION #: 171  
CLASS: 6  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22227A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP 6131B DIGITAL VOLTAGE SOURCE DRIVER - FORTRAN CALLABLE

THIS ROUTINE ESTABLISHES THE OUTPUT VOLTAGE AND CURRENT-LIMITING POINT FOR AN HP6131B DIGITAL VOLTAGE SOURCE. UP TO EIGHT OF THESE VOLTAGE SOURCES CAN BE CONTROLLED, EACH WITH ITS OWN OPERATING CONDITIONS. VOLTAGE FROM +100 TO -100 CAN BE PROGRAMMED, AND ANY OF SIX CURRENT-LIMITING POINTS BETWEEN 20 AND 500 MILLIAMPS CAN BE SPECIFIED.

AS AN ADDITIONAL FEATURE, ANY TIME AFTER OPERATING CONDITIONS HAVE BEEN ESTABLISHED THE ROUTINE CAN CHECK THE CURRENT-LIMIT STATUS OF THE DIGITAL VOLTAGE SOURCE. IF CURRENT LIMITING IS TAKING PLACE, AN ERROR INDICATION IS FURNISHED TO THE CALLING PROGRAM.

EQUIPMENT REQUIRED IS ONE TO EIGHT HP6131B DIGITAL VOLTAGE SOURCES, WITH INTERFACE KIT AND INTERCONNECTING CABLES.



CONTRIBUTION #: 172  
CLASS: 3  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22229B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP 12551A/B RELAY REGISTER INTERFACE DRIVER - FORTRAN CALLABLE

USED WITH THE HP12551A OR 12551B RELAY OUTPUT REGISTER, THIS ROUTINE OPENS OR CLOSSES ANY SPECIFIED RELAY CONTACT. IN ADDITION, ALL RELAY CONTACTS CAN BE OPENED SIMULTANEOUSLY. AFTER CONTACT OPENING OR CLOSURE, THE ROUTINE REMAINS IN A WAITING LOOP FOR APPROXIMATELY 300 MILLISECONDS TO ALLOW TIME FOR RELAY CONTACTS TO SETTLE.

EQUIPMENT REQUIRED IS ONE HP12551A OR 12551B RELAY OUTPUT REGISTER, WITH INTERFACE KIT.



CONTRIBUTION #: 173  
CLASS: 302  
CONTRIBUTOR: KLAUS STAMER  
HP, FRANKFURT - GERMANY

PART NUMBER: 22230A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

EXTENDED PRECISION ARITHMETIC LIBRARY

THIS GROUP OF BCS ROUTINES PROVIDES THE CAPABILITY FOR EXTENDED-

PRECISION ADDITION, SUBTRACTION, MULTIPLICATION, AND DIVISION.  
ALSO PROVIDED ARE FACILITIES FOR EXTENDED-PRECISION I/O  
OPERATIONS.

THE ROUTINES ARE FORTRAN CALLABLE.



CONTRIBUTION #: 174  
CLASS: 15  
CONTRIBUTOR: DAVID R. MC CLELLAN  
HP, SOUTHERN SALES REGION

PART NUMBER: 22233C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

#### DOS-M PRIVILEGED DISC I/O ROUTINES

THIS PROGRAM, USED BY THE DOS-M OPERATING SYSTEM, GREATLY  
IMPROVES THE ACCESS TIME TO USER FILE DATA. EXECUTION TIME  
IMPROVEMENT OF ABOUT 8 TO 1 CAN BE ACHIEVED. ERROR CHECKING IS  
PERFORMED TO PROTECT THE DATA BASE. THE PROGRAM ACHIEVES ITS  
GREATEST USEFULNESS IN 8K COMPUTERS.



CONTRIBUTION #: 175  
CLASS: 303  
CONTRIBUTOR: EARLE ELLIS  
HP, DSD

PART NUMBER: 22234A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

#### COMPLEX MATH PACKAGE

THIS PROGRAM OFFERS FUNDAMENTAL COMPLEX-MATHEMATICS CAPABILITES  
FOR FLOATING POINT NUMBERS AND FOR NUMBERS IN A SPECIAL PACKED  
FORMAT WHICH MAKES EFFICIENT USE OF STORAGE SPACE. THE  
RESOLUTION OF THE PACKED NUMBER IS APPROXIMATELY 0.025 PERCENT  
(12 SIGNIFICANT BITS).  
IN FLOATING POINT FORMAT, ADDITION, SUBTRACTION, MULTIPLICATION,  
AND DIVISION CAN BE PERFORMED. THE CAPABILITY TO CONVERT TO  
POLAR FORM IS INCLUDED.  
USING THE PACKED FORMAT, ADDITION, SUBTRACTION, MULTIPLICATION,  
AND DIVISION CAN BE PERFORMED, REFERENCING DIRECTLY THE PACKED  
NUMBERS AS ARGUMENTS. THE CAPABILITY TO CONVERT TO POLAR FORM,  
AND TO CONVERT TO AND FROM PACKED FORMAT, ARE INCLUDED.

THIS PROGRAM IS FORTRAN AND ALGOL CALLABLE.



CONTRIBUTION #: 176  
CLASS: 19  
CONTRIBUTOR: STROUD CUSTER  
HP, EASTERN SALES REGION

PART NUMBER: 22235A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS,DACE,MEDACE

FORTRAN POWER FAIL LINK

THIS ROUTINE IS A RELOCATABLE FUNCTION WHICH, WHEN CALLED LINKS THE POWER-FAIL RESTART INTERRUPT TO A FORTRAN PROGRAM. THIS PERMITS THE PROGRAM TO BE RESTARTED WITHOUT MANIPULATION OF PANEL CONTROLS. SIMPLIFIED RESTART IS EXTREMELY USEFUL WHEN A COMPUTER WITHOUT HIGH-SPEED I/O DEVICES IS USED BY UNTRAINED PERSONNEL.

EQUIPMENT REQUIRED IS THE POWER FAILURE AUTO-RESTART OPTION FOR THE COMPUTER.



CONTRIBUTION #: 177  
CLASS: 4  
CONTRIBUTOR: STROUD CUSTER  
HP, EASTERN SALES REGION

PART NUMBER: 22236A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

FORTRAN I/O STATUS FUNCTION

THIS ROUTINE USES A VARIABLE CALLING SEQUENCE TO PROVIDE STATUS INFORMATION ON SELECTED UNIT REFERENCE NUMBERS. USE OF THE ROUTINE OBVIATES WAITING IN THE .DTA LOOP IN THE FORMATTER. ADDITIONALLY, A VARIABLE LENGTH CALLING SEQUENCE PERMITS REQUESTS FOR TRANSMISSION LOG AND HARDWARE STATUS.



CONTRIBUTION #: 178  
CLASS: 2  
CONTRIBUTOR: ROY JACOBUS  
WESTINGHOUSE ELECTRIC CO.

PART NUMBER: 22237C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

TELEPRINTER/LINEPRINTER OUTPUT SELECTOR FOR HP BASIC

THIS ROUTINE, WHICH OPERATES UNDER THE 20392A BASIC OPERATING SYSTEM, ALLOWS AN OPERATOR TO TRANSFER TELEPRINTER I/O OPERATIONS TO EITHER OF TWO TELEPRINTERS. ONE OR BOTH OF THE TELEPRINTERS CAN BE AT A REMOTE SITE, CONNECTED TO THE COMPUTER BY A TELEPHONE DATA-LINK SYSTEM. TRANSFER FROM ONE TELEPRINTER TO THE OTHER IS ACCOMPLISHED IN ANY OF THE FOLLOWING WAYS:

- A. THE WORD (BYE) IS TYPED (OR READ FROM PUNCHED TAPE) ON THE TELEPRINTER CURRENTLY RECOGNIZED BY THE PROGRAM.

- B. WHEN THE COMPUTER IS HALTED, A NUMBER IS ENTERED INTO THE SWITCH REGISTER. THE TRANSFER TAKES PLACE WHEN THE COMPUTER IS STARTED.
- C. THE PROGRAM CALLS A TRANSFER ROUTINE.

WHEN THE TRANSFER TAKES PLACE, THE TELEPRINTER WHICH WILL BE RECOGNIZED BY THE PROGRAM TYPES (READY).



CONTRIBUTION #: 179  
 CLASS: 112  
 CONTRIBUTOR: DON PETTENGILL  
 HP, DSD

PART NUMBER: 22238A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### FORTRAN RUN-TIME FORMAT SPECIFICATION

THIS SUBROUTINE PROVIDES FORTRAN INPUT AND OUTPUT STATEMENTS WITH A FORMAT REFERENCE TO AN ARRAY WHOSE CONTENTS MAY BE DEFINED AT RUN TIME, RATHER THAN TO A LABELED PROGRAM SOURCE STATEMENT. DURING EXECUTION, THE FORMAT POINTER IN THE COMPILER-GENERATED ASSEMBLY CODE IS CHANGED TO THE ACTUAL PARAMETER (TYPICALLY, AN INTEGER ARRAY NAME) WITH WHICH THE SUBROUTINE IS CALLED.



CONTRIBUTION #: 180  
 CLASS: 16  
 CONTRIBUTOR: MICHAEL NAUGHTON  
 HP, MIDWEST SALES REGION

PART NUMBER: 22239A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC

#### HP 7970 MAGNETIC TAPE DRIVER - BASIC CALLABLE

THIS DRIVER PERFORMS THREE FUNCTIONS ON THE 7970 THROUGH SEPARATE CALLS FROM HP BASIC 20392A. ONE CALL PERFORMS A BINARY WRITE OF A GIVEN LENGTH ON A PARTICULAR MAGNETIC TAPE UNIT, 0 THROUGH 3. THE SECOND CALL DOES A BINARY READ AND THE THIRD POSITIONS THE TAPE, WRITES AN EOF OR AN EOR GAP.



CONTRIBUTION #: 181  
 CLASS: 506  
 CONTRIBUTOR: GLYN HARRIS  
 HP, SLOUGH - ENGLAND

PART NUMBER: 22240A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### LUNG COMPLIANCE AND RESISTANCE MEASUREMENT SYSTEM

THIS PROGRAM ENABLES EARLY DETECTION OF THE ADVERSE EFFECTS OF TOBACCO SMOKE OR OTHER IRRITANTS ON LUNG FUNCTION BY DETERMINING THE RESISTANCE TO AIRFLOW AND THE COMPLIANCE OF THE LUNG. INTRAPLEURAL PRESSURE, VOLUME, AND AIRFLOW ARE MEASURED OVER A BREATH CYCLE; TIDAL VOLUME, RESPIRATORY MINUTE VOLUME, RESPIRATORY



RATE, THE LUNG RESISTANCES OVER VARIOUS PARTS OF THE EXPIRATION & INSPIRATION CYCLES, AND THE DYNAMIC COMPLIANCE OF THE TOTAL LUNG ARE CALCULATED. THE COMPLETE CYCLES ARE ANALYZED, EACH PARAMETER IS PRINTED AND A FURTHER CALCULATION IS MADE OF THE MEAN, STANDARD DEVIATION, AND COEFFICIENT OF VARIANCE FOR EACH PARAMETER.

EQUIPMENT REQUIRED INCLUDES 8K MEMORY, 2752A TELEPRINTER, HP5610 ANALOG-TO-DIGITAL CONVERTER, HP7761A RECORDING SYSTEM, HP350-110CM PREAMPLIFIER (2 OFF), HP350-5000A INTEGRATING PREAMPLIFIER, HP270 PRESSURE TRANSDUCER, AND AN HP268 FLOW TRANSDUCER.



CONTRIBUTION #:	182	PART NUMBER:	22242A-K01
CLASS:	14	PRICE:	\$10
CONTRIBUTOR:	BOB R. WALKER	DATE CODE:	
	GENERAL DYNAMICS CORP.	LANG:	ASSEMBLY RELOCATABLE
	CONVAIR AEROSPACE DIVISION	OP SYS:	BCS

#### X-Y PLOTTING ROUTINE

THIS FORTRAN CALLABLE ROUTINE, NAMED AFTER ITS CONTRIBUTOR, DRAWS GRAPHS ON AN X-Y PLOTTER. A MAXIMUM OF 255 POINTS CAN BE PLOTTED. THE X AND Y COORDINATES CAN BOTH BE SPECIFIED FOR EACH POINT; OR, ALTERNATIVELY, ONLY THE Y ORDINATE NEED BE FURNISHED, IN WHICH CASE THE ABSCISSA IS INCREMENTED BY A FIXED AMOUNT FOR EACH SUCCESSIVE DATA POINT. IF DESIRED, A SQUARE, AN X, OR A + SIGN CAN BE CENTERED AT EACH DATA POINT, OR THE POINTS CAN BE CONNECTED BY A STRAIGHT LINE. THE POINT OF ORIGIN CAN EITHER BE SPECIFIED BY THE CALLING PROGRAM OR IT CAN BE SELECTED BY THE ROUTINE TO SUIT THE QUADRANT OR QUADRANTS IN WHICH THE DATA POINTS LIE. SIMILARLY, THE SCALE CAN EITHER BE SPECIFIED, OR IT CAN BE SELECTED BY THE ROUTINE TO SUIT THE MAGNITUDE OF THE LARGEST ORDINATE AND ABSCISSA SUPPLIED. THE COORDINATES MUST BE FURNISHED AS FLOATING POINT ARRAYS.

EQUIPMENT REQUIRED IS ONE X-Y PLOTTER CAPABLE OF RECEIVING PAIRS OF ANALOG INPUTS RANGING FROM 0 VOLTS TO +10 VOLTS, ONE HP12555 DIGITAL-TO-ANALOG CONVERTER, AND ONE HP12551 RELAY REGISTER WITH INTERRUPT INTERFACE KIT.



CONTRIBUTION #:	183	PART NUMBER:	22244B-K01
CLASS:	2	PRICE:	\$60
CONTRIBUTOR:	BILL ALEXANDER	DATE CODE:	
	HP, MIDWEST SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

#### 16K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM

THIS PROGRAM PROVIDES DATA COMMUNICATIONS CAPABILITY BETWEEN TWO HEWLETT-PACKARD 2100 SERIES COMPUTERS. THIS UTILITY IS DESIGNED

TO BE USED IN CONJUNCTION WITH D.50, 22328, A BCS TELECOMMUNICATIONS DRIVER. INTERACTIVE COMMANDS AND MESSAGES ALLOW THE OPERATOR TO SPECIFY THE TRANSMISSION CODE, ASCII, EBCDIC, OR 6-BIT TRANSCODE THROUGH A SYSTEM CONSOLE TELEPRINTER. THE USER MAY ALSO SPECIFY THE DIRECTION OF TRANSMISSION, THE SOURCE OR DESTINATION PERIPHERAL DEVICE, THE MODE OF TRANSMISSION, AND VARIOUS OTHER FUNCTIONS. ALL DATA TRANSMITTED IS COMPRESSED BEFORE TRANSMISSION AND EXPANDED UPON RECEPTION IN BLOCKED OR UNBLOCKED MODE.

EQUIPMENT REQUIRED INCLUDES 16K CORE, AN HP2752 OR 2754 TELEPRINTER, A BELL 202C MODEM, AND AN HP 12539 TIME BASE GENERATOR.



CONTRIBUTION #:	184	PART NUMBER:	22245A-K01
CLASS:	2	PRICE:	\$10
CONTRIBUTOR:	BILL ALEXANDER	DATE CODE:	
	HP, MIDWEST SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

#### USER INTERFACE TO BCS TELECOMMUNICATIONS DRIVER D.50

IDENTIFIED AS BSCIN, THIS ROUTINE SERVES AS A USER'S INTERFACE WITH PROGRAM 22328C, BCS TELECOMMUNICATIONS DRIVER (D.50). BSCIN RELIEVES THE PROGRAMMER OF SUCH HOUSEKEEPING TASKS AS HANDSHAKING WITH A REMOTE TERMINAL, AUTO-ANSWERING, INITIALIZING THE TIME BASE GENERATOR, ADDING CONTROL CHARACTERS TO MESSAGES, ETC. AS A RESULT, TELECOMMUNICATIONS I/O OPERATIONS ARE PERFORMED IN A FASHION SIMILAR TO I/O OPERATION WITH PERIPHERAL UNITS AT THE LOCAL COMPUTER. MORE SPECIFICALLY, FOR A TELECOMMUNICATIONS OPERATION THE PROGRAMMER SIMPLY CODES A SUBROUTINE CALL TO BSCIN, AND FURNISHES A PARAMETER LIST. THE CALL CAN BE MADE EITHER FROM ASSEMBLY LANGUAGE, FORTRAN OR ALGOL.

EQUIPMENT REQUIRED IS ONE HP12539A TIME BASE GENERATOR INTERFACE KIT, AND ONE HP12587A ASYNCHRONOUS DATA SET INTERFACE KIT.



CONTRIBUTION #:	185	PART NUMBER:	22246B-K01
CLASS:	2	PRICE:	\$20
CONTRIBUTOR:	DENIS WINN	DATE CODE:	
	HP, DSD	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	DOS-M

#### DOS-M REMOTE TAPE READER DRIVER

IT IS POSSIBLE TO REMOTE A DOS-M SYSTEM CONSOLE BY CONNECTING A 103-A DATA PHONE DIRECTLY TO THE TELETYPE INTERFACE BOARD USING CABLE NUMBER 2116-6156. THE USER COMMUNICATES WITH DOS-M USING A REMOTE TELEPRINTER (HP 2749 OR EQUIVALENT) AND AN ACOUSTIC COUPLER. ONLY ONE TELEPRINTER AT A TIME CAN BE USED IN THIS MANNER, OPERATING ON A FIRST-COME, FIRST SERVE BASIS.

NO SOFTWARE CHANGES ARE REQUIRED FOR THIS OPERATION AS LONG AS ONLY KEYBOARD/PAGE PRINTER OPERATIONS ARE REQUIRED. (REMOTE BATCH) OPERATIONS USING THE REMOTE SYSTEM CONSOLE TELEPRINTER TAPE READER ARE POSSIBLE BUT REQUIRE THE USE OF SPECIAL SOFTWARE. TWO DRIVERS ARE AVAILABLE FOR THIS PURPOSE. ONE DRIVER IN THIS PACKAGE WITH ENTRY POINT DVR07 CONTROLS OPERATIONS WITH THE TAPE READER ON THE REMOTE CONSOLE TELEPRINTER. THE SECOND DRIVER DVR00, CONTROLS THE REMAINING CONSOLE TELEPRINTER FUNCTIONS (KEYBOARD INPUT, TYPE OUTPUT, AND PUNCH OUTPUT). A LOCKOUT BETWEEN THE TWO DRIVERS PREVENTS THEIR BEING USED SIMULTANEOUSLY. NOTE THAT THIS PACKAGE DOES NOT ALLOW FOR A REMOTE AUTOMATIC BOOTSTRAP OF THE SYSTEM IN CASE OF A CRASH.

A 12K DOS-M SYSTEM IS REQUIRED. THE DRIVERS ARE IN RELOCATABLE LANGUAGE.



CONTRIBUTION #: 186  
CLASS: 9  
CONTRIBUTOR: FRITZ JOERN  
HP, FRANKFURT - GERMANY

PART NUMBER: 22247B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

FAST DOS/DOS-M PHOTOREADER DRIVER

THIS DOS AND DOS-M DRIVER CONTROLS TAPE READER I/O OPERATIONS. THE ROUTINE IS SIMILAR TO ROUTINE 20987C, EXCEPT THAT IT IS THREE TIMES AS FAST AND INCLUDES A SUBROUTINE TO ENSURE THAT INTERRUPTS FROM THE TIME BASE GENERATOR ARE NOT MISSED. THIS DRIVER OPERATES BY THE NON-INTERRUPT METHOD.

EQUIPMENT REQUIRED IS ONE HP2737, 2748 OR 2758 PUNCH TAPE READER, WITH INTERFACE KIT. FOR DOS, REVISION B OF THE DOS MINIMUM SOFTWARE CONFIGURATION IS REQUIRED. FOR DOS-M REVISION A OF THE DOS-M MINIMUM SOFTWARE CONFIGURATION IS USED.



CONTRIBUTION #: 187  
CLASS: 212  
CONTRIBUTOR: FRITZ JOERN  
HP, FRANKFURT - GERMANY

PART NUMBER: 22250A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS

EXEC CALL ADAPTER ROUTINE

THIS ROUTINE, USED BY THE BCS OR MTS OPERATING SYSTEM, ACCEPTS RTE, DOS, AND DOS-M EXEC CALLS, PERMITTING RTE, DOS, AND DOS-M PROGRAMS TO RUN UNDER BCS OR MTS. HOWEVER, DISC OR DRUM OPERATIONS ARE NOT POSSIBLE IF THE BCS OR MTS COMPUTER DOES NOT

INCLUDE THESE I/O UNITS. THE ICODE WORDS ACCEPTED BY THE ROUTINE ARE THE FOLLOWING:

- A. 1, READ (WITH OR WITHOUT WAIT)
- B. 2, WRITE (WITH OR WITHOUT WAIT)
- C. 3, CONTROL
- D. 13, STATUS
- E. 6, STOP
- F. 7, PAUSE
- G. 8, 9, 10, 11, AND 12, CHAINING
- H. 11, TIME (SET TO ZERO)

IT SHOULD BE NOTED THAT RTE, DOS, OR DOS-M LOGICAL UNIT NUMBERS APPLY WHEN THIS ROUTINE IS USED. ADDITIONAL FUNCTIONS OF THE ROUTINE ARE TO PERMIT THE USE OF SIMPLE BINARY READ/WRITE/CONTROL REQUESTS AND CHAIN REQUESTS UNDER BCS OR MTS.



CONTRIBUTION #: 188  
 CLASS: 207  
 CONTRIBUTOR: JIM OVERMAN  
 HP, PALO ALTO

PART NUMBER: 22251A-K01  
 PRICE: \$80  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: MTS

#### MAGNETIC TAPE TO LINE PRINTER ROUTINE

USED BY THE MTS OPERATING SYSTEM, THIS PROGRAM PRINTS THE CONTENTS OF IBM 360 SYSTEM MAGNETIC TAPES ON A DATA PRODUCTS 4300 LINE PRINTER. THE TAPES CAN BE UNLABELED OR CAN HAVE STANDARD LABELS, AND EITHER A FIXED, VARIABLE, OR UNDEFINED FORMAT CAN BE USED. IF THE FORMAT IS UNDEFINED, THE DATA IS PRINTED 60 LINES PER PAGE, SINGLE SPACE. PRINTER CONTROL CHARACTERS ON THE TAPE CAN BE OF THE USASI TYPE OR MACHINE TYPE, OR NO PRINTER CONTROL CHARACTERS NEED BE USED. THE PROGRAM HAS THE CAPABILITY OF SKIPPING DESIGNATED FILES. THE OUTPUT IS FURNISHED AT A RATE OF 1,000 LINES PER MINUTE, AND ALL CHARACTERS ARE IDENTICAL WITH THOSE THAT WOULD BE PRINTED BY THE IBM 360 SYSTEM. THE MAGNETIC TAPE LATERAL RECORDING DENSITY CAN BE EITHER 200, 556 OR 800 BITS PER INCH.

EQUIPMENT REQUIRED IS 16K OF CORE STORAGE, THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER, ONE HP3030 MAGNETIC TAPE UNIT WITH INTERFACE KIT, AND ONE DATA PRODUCTS 4300 LINE PRINTER WITH INTERFACE KIT.



CONTRIBUTION #: 189  
 CLASS: 106  
 CONTRIBUTOR: ALBERTO PANI  
 HP, MILAN - ITALY

PART NUMBER: 22252A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS, RTE

#### RTE/DOS DUPLICATOR PROGRAM

THIS RTE AND DOS PROGRAM DUPLICATES PUNCHED TAPES. THE DATA

FROM THE MASTER TAPE IS STORED ON DISC, AND ONE OR MORE COPY TAPES ARE THEN PUNCHED FROM THE DISC FILE. CHECKSUM VERIFICATION IS PERFORMED, AND EACH COPY TAPE CAN BE REREAD AND COMPARED WITH THE DISC FILE.

ORDER #22252-13300

SOURCE ON CASSETTE

\$35.00



CONTRIBUTION #: 190  
CLASS: 14  
CONTRIBUTOR: JOHN R. LORCH  
NAVAL WEAPONS CENTER

PART NUMBER: 22253C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

#### OSCILLOSCOPE PLOTTING SUBROUTINE

THIS ROUTINE ALLOWS USE OF A STANDARD OSCILLOSCOPE FOR DISPLAYING DATA. A SET OF X,Y AXES IS DISPLAYED ON EACH PLOT AND AN ACCOMPANYING MESSAGE IS ON THE TELEPRINTER INDICATING THE VALUE OF THE ORIGIN AND THE SCOPE SCALE FACTOR IN USER UNITS PER DIVISION. SCALING INFORMATION CAN BE INCLUDED IN THE CALL OR IT CAN BE COMPUTED IN THE SUBROUTINE.

THIS SUBROUTINE IS FORTRAN CALLABLE.

EQUIPMENT REQUIRED IS 4K OF CORE, A TELETYPE, AN HP12555 DIGITAL-TO-ANALOG CONVERTER, AND AN OSCILLOSCOPE.



CONTRIBUTION #: 191  
CLASS: 18  
CONTRIBUTOR: N. K. SHRAUGER  
MONTANA STATE UNIVERSITY

PART NUMBER: 22255E-K01  
PRICE: \$170  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

#### MSU MULTI-TERMINAL HP BASIC SYSTEM WITH CARD READER CAPABILITY

THIS MULTI-TERMINAL HP BASIC SYSTEM WITH CARD READER CAPABILITY IS AN EXPANDABLE LOW COST (TIME-SHARE) SYSTEM REQUIRING AN HP21168 COMPUTER WITH 16K, TWO TO FIVE TELEPRINTERS WITH INTERFACE, AND TIME BASE GENERATOR. THE OPTIONAL CARD READER (HP2761-007 MARK SENSE CARD READER FOR EDUCATIONAL BASIC) CAN BE USED FOR INPUT ON ONE OF THE FOUR USER PORTS. THE SYSTEM PROVIDES 8500 WORDS OF MEMORY WHICH CAN BE DIVIDED AMONG THE FOUR USERS, AUTOMATIC LOGGING AND ACCOUNTING OF USERS FOR UNATTENDED OPERATION, AND A MESSAGE COMMAND FOR SIGNALLING THE COMPUTER OPERATOR. USER CODE WORDS FOR SIGN-ON PREVENT UNAUTHORIZED USE. A RENUMBER COMMAND RESEQUENCES STATEMENTS, A PTAPE COMMAND LOADS USER-DEVELOPED OR

SYSTEM LIBRARY PROGRAMS FROM THE PHOTOREADER, CALL AND WAIT STATEMENTS ARE DELETED, AND ALL OTHER USER COMMANDS ARE IDENTICAL TO THOSE OF HP SINGLE TERMINAL BASIC, 20392.

EXTENDED DOCUMENTATION - ORDER #22255E-000 \$15.00



CONTRIBUTION #: 192  
 CLASS: 306  
 CONTRIBUTOR: JIM KATZMAN  
 AMDHAL CORPORATION

PART NUMBER: 22256A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: BCS,MTS,DOS,DOS-M

#### FRESNEL INTEGRAL EVALUATION

THIS ROUTINE COMPUTES THE FRESNEL SINE AND COSINE INTEGRALS, TO AN ACCURACY OF 11 DIGITS USING THE EXTENDED PRECISION FLOATING-POINT ROUTINES ON THE FORTRAN IV RELOCATABLE LIBRARY. THE ACCURACY DESIRED IS A PARAMETER AS WELL AS THE UPPER LIMIT OF INTEGRATION (W). BOTH S(W) AND C(W) ARE RETURNED.

$$S(W) = \int_0^W \sin\left(\frac{\pi}{2} t^2\right) dt$$

$$C(W) = \int_0^W \cos\left(\frac{\pi}{2} t^2\right) dt$$



CONTRIBUTION #: 193  
 CLASS: 207  
 CONTRIBUTOR: THOMAS J. WINKER  
 HP, DSD

PART NUMBER: 22257A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,MTS

#### MTS/BCS SYSTEM ABSOLUTE DUMP

THIS PROGRAM DUMPS AN ABSOLUTE TAPE UNDER BCS. WHEN USED AS INPUT TO PREPARE TAPE SYSTEM, IT GENERATES ONLY THREE DATA RECORDS ON FILE ONE INSTEAD OF THE USUAL SEVERAL HUNDRED. FASTER ACCESS TIME UNDER MTS AND A SIGNIFICANT SAVINGS IN MAGNETIC TAPE ARE THE BENEFITS OF THIS PROGRAM. IT CAN BE USED ALONG WITH OR INSTEAD OF THE BASIC CONTROL SYSTEM ABSOLUTE DUMP OPTION. WHEN USED AS A GENERAL ROUTINE IT CAN DUMP AN ENTIRE BCS SYSTEM OR SELECTED CORE SECTIONS ENABLING SYSTEM MODIFICATION WITHOUT REASSEMBLY AND GENERATION OF A NEW ABSOLUTE TAPE.



CONTRIBUTION #: 194  
CLASS: 11  
CONTRIBUTOR: BJOERN LINDBERG  
HP, STOCKHOLM - SWEDEN

PART NUMBER: 22258A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

HP 2767 LINE PRINTER BASIC DRIVER

THIS DRIVER ADDS HIGH SPEED PRINTOUT CAPABILITIES TO HP BASIC 20392. PROGRAMS MAY BE LISTED, OR DATA MAY BE OUTPUT FROM A RUNNING BASIC PROGRAM USING THE NORMAL LIST OR PRINT COMMANDS. A SWITCH REGISTER SETTING CONTROLS THE OPTIONAL LINE PRINTER OR TELEPRINTER OUTPUT.



CONTRIBUTION #: 195  
CLASS: 207  
CONTRIBUTOR: CHARLES CHERNACK  
HP, EASTERN SALES REGION

PART NUMBER: 22259A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: DOS

DOS TO MAGNETIC TAPE DUMP

THIS ABSOLUTE PROGRAM DUMPS SELECTED SOURCE FILES OF LENGTH LESS THAN 237 SECTORS, FROM DOS TO A NINE-TRACK 7970/3030 IN A FORMAT COMPATIBLE WITH THE MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM 22198. IT IS LOADED OVER A (HALTED) DOS AND USES BASE PAGE CONSTANTS TO FIND THE SYSTEM DIRECTORY TRACK AND HANDLE THE 90/128 SECTOR PER TRACK DISCS.

HARDWARE REQUIRED IS 16K DISC OPERATING SYSTEM.



CONTRIBUTION #: 196  
CLASS: 207  
CONTRIBUTOR: CHARLES CHERNACK  
HP, EASTERN SALES REGION

PART NUMBER: 22260A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: DOS

MAGNETIC TAPE TO DOS DUMP

THIS ABSOLUTE PROGRAM LOADS SOURCE FILES OVER A (HALTED) 16K DOS FROM A NINE-TRACK MAGNETIC TAPE WHICH HAS BEEN PREVIOUSLY PREPARED BY THE MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM, 22198. ANY NUMBER OF TAPE RECORDS MAY BE CONCATENATED TO FORM A SINGLE SOURCE FILE ON DOS. THE 16K DOS MAY HAVE A 90 OR 128 DISC/DRUM WITH AN HP7970 OR 3030 MAGNETIC TAPE UNIT.







ANY OR ALL OF THE SWITCHES IN THE RELAY REGISTER), WHILE (WAIT) PROVIDES NECESSARY TIME DELAYS.

THESE ROUTINES ARE FORTRAN CALLABLE.

EQUIPMENT REQUIRED INCLUDES AN HP ANALOG X-Y RECORDER MODIFIED TO PROVIDE EXTERNAL PEN LOWERING AND RAISING, A DUAL CHANNEL 8-BIT DIGITAL-TO-ANALOG INTERFACE CARD, AND A 16-BIT RELAY REGISTER CARD (NON-INTERRUPT OR INTERRUPT).



CONTRIBUTION #: 200  
CLASS: 9  
CONTRIBUTOR: BJOERN LINDBERG  
HP, STOCKHOLM - SWEDEN

PART NUMBER: 22264B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

TELEX TO ASCII PHOTOREADER DRIVER

THIS DRIVER READS FIVE-LEVEL TELEX TAPES AND CONVERTS THE CODE TO ASCII. IT REPLACES BCS DRIVER D.01, HP20005A, AND CAN ONLY BE USED WITH A MODIFIED HP2737A PHOTOREADER. THE CALL TO THE DRIVER IS IDENTICAL TO OTHER IOC CALLS FOR ASCII OPERATIONS.



CONTRIBUTION #: 201  
CLASS: 405  
CONTRIBUTOR: DIETER SCHMIDTKE  
HP, FRANKFURT - GERMANY

PART NUMBER: 22265A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,DOS

FLOATING POINT RANDOM NUMBER GENERATOR

THIS FUNCTION GENERATES RANDOM NUMBERS BETWEEN (0) AND (1) IN FLOATING POINT AND RETURNS THE VALUES IN THE A AND B REGISTERS.



CONTRIBUTION #: 202  
CLASS: 720  
CONTRIBUTOR: CHARLES CHERNACK  
HP, EASTERN SALES REGION

PART NUMBER: 22266A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

MARK SENSE EDUCATIONAL TEST CARD SCORING PROGRAM

THIS PACKAGE CONSISTS OF TWO ASSEMBLER SUBROUTINES AND ONE FORTRAN MAIN PROGRAM TO READ HP9320-2062 EDUCATIONAL TEST SCORING MARK SENSE CARDS, CALCULATE INDIVIDUAL STUDENT SCORES AND OVERALL CLASS STATISTICS, AND PRINT THE RESULTS. THE FIRST CARD READ

CONTAINS THE CORRECT ANSWERS, AND EACH SUCCESSIVE CARD IS GRADED AGAINST THAT MASTER. INCORRECT ANSWERS ARE TABULATED FOR EACH STUDENT, AS WELL AS THE NUMBER OF TIMES EACH ANSWER IS CHOSEN FOR EACH MULTIPLE CHOICE QUESTION.

EQUIPMENT REQUIRED INCLUDES 8K MEMORY, AND HP2761-07 MARK SENSE READER, AND AN HP2752A TELEPRINTER.



CONTRIBUTION #: 203  
 CLASS: 212  
 CONTRIBUTOR: STROUD CUSTER  
 HP, EASTERN SALES REGION

PART NUMBER: 22267A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: MTS

#### MTS FORTRAN CHAIN

'CHAIN' IS A RELOCATABLE SUBROUTINE CONFIGURED INTO MTS FILE TWO WHICH PERMITS A FORTRAN PROGRAM TO CHAIN TO AN ABSOLUTE PROGRAM ON FILE ONE THROUGH A CALL STATEMENT.



CONTRIBUTION #: 204  
 CLASS: 304  
 CONTRIBUTOR: DAVID R. MC CLELLAN  
 HP, SOUTHERN SALES REGION

PART NUMBER: 22268B-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,MTS,DOS,RTE

#### DECIMAL ARITHMETIC AND MOVE/COMPARE ROUTINES

THE DECIMAL ARITHMETIC ROUTINES PERFORM ADDITION, SUBTRACTION, AND MULTIPLICATION OF ASCII NUMERIC CHARACTER STRINGS OF UP TO 64 CHARACTERS. MIXING OF SIGNED, UNSIGNED, FIXED POINT AND REAL STRINGS ARE ALLOWED IN THE SAME OPERATION. LEADING, TRAILING, AND INTERSPERSED NON-NUMERIC CHARACTERS ARE IGNORED, WHILE DECIMAL-POINT PLACEMENT AND SIGN HANDLING ARE AUTOMATIC. THE MOVE/COMPARE ROUTINES CALL THE DECIMAL ARITHMETIC TO MOVE OR COMPARE CHARACTER STRINGS. CHARACTERS ARE MOVED FROM LEFT TO RIGHT, AND OVERLAPPING IS PERMITTED. CHARACTERS ARE COMPARED FROM LEFT TO RIGHT, AND THE FIRST MISMATCH DETERMINES THE RELATION. A CONDITION CODE IS RETURNED TO INDICATE THAT THE SOURCE STRING IS LESS THAN, EQUAL TO, OR GREATER THAN THE COMPARISON STRING. TOGETHER THESE ROUTINES ALLOW TOTAL MANIPULATION OF ALPHA-NUMERIC CHARACTER STRINGS.

THESE ROUTINES ARE ALGOL OR FORTRAN CALLABLE.

ORDER #22268-13300      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 205  
CLASS: 212  
CONTRIBUTOR: EUGENE BURMEISTER  
HP, LOVELAND

PART NUMBER: 22269A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

PAPER TAPE TITLER

THIS FORTRAN-CALLABLE SUBROUTINE ALLOWS THE USER TO LABEL HIS PAPER TAPES UNDER PROGRAM CONTROL. CHARACTER SIZE IS EQUIVALENT TO THE WIDTH OF EIGHT-LEVEL PUNCHED PAPER TAPE.

ORDER #22269-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 206  
CLASS: 16  
CONTRIBUTOR: HENRY GIBBS-ROGERS  
COMPUTING, ETC.

PART NUMBER: 22270D-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: MTS

ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REVISION E

THESE TWO ROUTINES ENABLE THE ALGOL USER TO COMPILE, LOAD, AND EXECUTE ALGOL PROGRAMS ENTERED THROUGH ANY STANDARD DEVICE WITHOUT HAVING TO PUNCH OBJECT CODE ON PAPER TAPE UNDER MTS. IF THE SOURCE PROGRAM IS ENTERED FROM A KEYBOARD DEVICE USING MTS OVERLAY PROGRAM ONLINE, THEN PUNCHING TAPE, MARKING CARDS, ETC. CAN BE ELIMINATED ENTIRELY. BY USING SWITCH REGISTER OPTIONS, SIMULTANEOUS COMPILATION AND SOURCE/ASSEMBLY LISTINGS CAN BE OBTAINED. LOADING AND EXECUTION OF THE COMPILED PROGRAM IS ACCOMPLISHED THROUGH STANDARD MTS DIRECTIVES.

THE OPERATING SYSTEM IS DESIGNED TO WORK WITH REVISION E OF THE BCS RELOCATING LOADER.



CONTRIBUTION #: 207  
CLASS: 102  
CONTRIBUTOR: JOHN H. WELSCH  
HP LABORATORIES

PART NUMBER: 22272A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

DISC/DRUM UTILITY

THIS ABSOLUTE PROGRAM UNDER CONTROL OF THE SYSTEM TELEPRINTER ACCEPTS COMMANDS TO SAVE, RESTORE, AND VERIFY INFORMATION STORED ON THE DISC/DRUM WITH INFORMATION STORED ON MAGNETIC TAPE. IT IS USEFUL FOR CREATING A DISC/DRUM BACKUP COPY ON MAGNETIC TAPE. FOR

EFFICIENCY, THE TAPE RECORD LENGTH IS THE SAME AS THE TRACK LENGTH. SELECTED SECTORS MAY ALSO BE LISTED IN OCTAL ON THE TELEPRINTER.

EQUIPMENT REQUIRED INCLUDES 16K MEMORY, EAU, DMA, AND HP DISC OR DRUM, AND ANY HP MAGNETIC TAPE DRIVE.



CONTRIBUTION #: 208  
 CLASS: 22  
 CONTRIBUTOR: FRITZ JOERN  
 HP, FRANKFURT - GERMANY

PART NUMBER: 22273A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M

CLEAR JOB BINARY AREA IN DOS/DOS-M

THIS PROGRAM CLEARS THE JOB BINARY AREA IN DOS/DOS-M FOR FURTHER COMPILE AND LOAD OPERATIONS IN THE SAME JOB. IT IS PARTICULARLY HELPFUL WHEN COMPILATIONS WITH ERRORS WRITE RUBBISH ON THE JOB BINARY AREA.



CONTRIBUTION #: 209  
 CLASS: 105  
 CONTRIBUTOR: M. H. KENDALL III  
 WYLE LABORATORIES

PART NUMBER: 22274A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

4-2-2-1 BCD TO FLOATING POINT CONNVERSION FOR RTE

THESE TWO ROUTINES CONVERT 4-2-2-1 BCD DATA TO BINARY. THE DATA IS READ BY THE SUPPORTED DRIVER, DVR40 FROM A DSI CARD CONNECTED TO A FIVE-DIGIT COUNTER. INPUT IS FIVE DIGITS, TWENTY BITS, STORED IN TWO WORDS; OUTPUT IS A TWO-WORD FLOATING POINT NUMBER. THE RANGE AND FUNCTION RETURNED BY SOME INSTRUMENTS ARE IGNORED. IT CAN BE EASILY MODIFIED TO CONVERT DATA FROM AN EIGHT-DIGIT COUNTER.

THESE ROUTINES ARE FORTRAN CALLABLE.

ORDER #22274-13300

SOURCE ON CASSETTE

\$35.00



CONTRIBUTION #: 210  
 CLASS: 6  
 CONTRIBUTOR: M. H. KENDALL III  
 WYLE LABORATORIES

PART NUMBER: 22276A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

RTE CROSSBAR SCANNER DRIVER & CHANNEL CODE CONVERSION

DVR42 OPERATES UNDER THE I/O CONTROL MODULE OF THE RTE TO CONTROL THE HP2911 CROSSBAR SCANNER. THIS DRIVER IS RESPONSIBLE FOR CONTROLLING OUTPUT TO ANY NUMBER OF SCANNER CARDS SIMULTANEOUSLY. IT ACCEPTS BINARY WRITE AND CLEAR REQUESTS.

IT IS FORTRAN CALLABLE.

ORDER #22276-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 211  
CLASS: 110  
CONTRIBUTOR: RUDOLF BEUERLEIN  
HP, FRANKFURT - GERMANY

PART NUMBER: 22277A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

#### DOS-M FILE ACCESS AND STRING LOOKUP

SUBROUTINE (DISC) PROVIDES WORD-ORIENTED ACCESS TO SERIAL DISC FILES UNDER DOS-M. THE USER PROGRAM SPECIFIES ONLY THE RELATIVE WORD NUMBER WITHIN THE FILE AND THE ROUTINE CALCULATES THE PHYSICAL TRACK AND SECTOR ADDRESSES. IT BUFFERS USER'S REQUESTS THROUGH A ONE-SECTOR BUFFER. USER READ REQUESTS ARE PERFORMED AS LOGICAL READS (I.E. IF THE REQUIRED SECTOR IS ALREADY IN CORE, THE DISC IS NOT PHYSICALLY ACCESSED). NO LOGICAL WRITE IS ATTEMPTED. A FORTRAN PROGRAM IS INCLUDED THAT DEMONSTRATES THE USE OF SUBROUTINE (DISC) AS A STRING LOOKUP ROUTINE.



CONTRIBUTION #: 212  
CLASS: 212  
CONTRIBUTOR: TOM PREWITT  
DELCO ELECTRONICS

PART NUMBER: 22278A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

#### TAB FOR PREPARING FORTRAN TAPES

'IFTRAN' IS AN ONLINE ABSOLUTE PROGRAM FOR THE PREPARATION OF FORTRAN SOURCE TAPES. IT IS WRITTEN FOR A SYSTEM HAVING ONLY A TELEPRINTER AS THE OUTPUT DEVICE. EDIT FILE TAPES CAN ALSO BE PREPARED USING THIS PROGRAM.



CONTRIBUTION #: 213  
CLASS: 14  
CONTRIBUTOR: JOHN S. SHEMA  
MONTANA STATE UNIVERSITY

PART NUMBER: 22279A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 24000A

#### BASIC PLOT SUBROUTINES

THIS SERIES OF ABSOLUTE ASSEMBLY LANGUAGE SUBROUTINES OPERATE UNDER THE HP20392A BASIC OPERATING SYSTEM TO CONTROL A SIMPLE X-Y RECORDING SYSTEM. THE SIX SUBROUTINES ARE ACCESSED THROUGH A CALL STATEMENT TO INITIALIZE CHANNEL NUMBERS FOR THE DUAL D-A BOARD AND RELAY OUTPUT REGISTER BOARD, SET X-SCALE OR Y-SCALE VALUES, PLOT AN (X,Y) COORDINATE BY EITHER A STRAIGHT LINE OR POINT PLOT, RAISE OR LOWER THE PLOTTER PEN, AND GENERATE A DELAY WHILE THE CONTROLS ON THE X-Y RECORDER ARE BEING ADJUSTED.

EQUIPMENT REQUIRED IS ONE HP2752A TELEPRINTER, AN HP12555A DUAL CHANNEL D-A CONVERTER, AN HP12554A 16-BIT RELAY REGISTER INTERFACE CARD, AND AN HP X-Y ANALOG RECORDER.



CONTRIBUTION #:	214	PART NUMBER:	22280A-K01
CLASS:	207	PRICE:	\$10
CONTRIBUTOR:	DONALD C. DOUGHERTY	DATE CODE:	
	APPLIED RESEARCH LABORATOR	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS, SELF CONTAINED

#### ABSOLUTE CORE DUMP ROUTINE

THIS ROUTINE ALLOWS DUMPING SELECTED AREAS OF CORE ONTO TAPE IN A FORMAT COMPATIBLE FOR LOADING WITH THE BASIC BINARY LOADER. TWO VERSIONS ARE SUPPLIED TO THE USER; ONE ABSOLUTE FOR LOADING THROUGH THE BASIC BINARY LOADER, AND ONE RELOCATABLE FOR LOADING THROUGH THE BASIC CONTROL SYSTEM. NO EXTERNAL SUBPROGRAMS ARE CALLED.



CONTRIBUTION #:	215	PART NUMBER:	22281A-K01
CLASS:	13	PRICE:	\$10
CONTRIBUTOR:	JOSEPH L. LAU	DATE CODE:	
	AIRESEARCH MANUFACTURING	LANG:	ASSEMBLY RELOCATABLE
	COMPANY	OP SYS:	BCS

#### MINVERTER DRIVER

THIS PROGRAM ACQUIRES DATA FROM ANALOG SIGNALS THROUGH THE HP2310C MINVERTER SYSTEM. THE SYSTEM HAS A CAPABILITY OF 128 MULTIPLEXED INPUT CHANNELS WHICH TIME-SHARE AN ANALOG-TO-DIGITAL CONVERTER. THE OUTPUT OF THE ADC IS STORED IN A BUFFER WHICH CAN BE READ INTO MEMORY. A POSSIBLE SAMPLING RATE OF 20 KHZ CAN BE ACHIEVED IN MONITOR MODE. IT DIFFERS FROM D.76 AND (MCONV) IN THAT IT IS LOADED AS A SUBROUTINE AT RUN TIME, REQUIRES HALF AS MUCH STORAGE, AND CONTROLS THE SAMPLING SPEED.



CONTRIBUTION #: 216  
CLASS: 107  
CONTRIBUTOR: THOMAS J. WINKER  
HP, DSD

PART NUMBER: 22282A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

DOS-M LIBRARIAN

THE DOS-M LIBRARIAN ACCEPTS PAPER OR MAGNETIC TAPE INPUT TO SHORTEN, LENGTHEN, OR MODIFY RELOCATABLE LIBRARIES. THE USER COMMUNICATES WITH THE LIBRARIAN BY MEANS OF COMMANDS TYPED IN THROUGH THE SYSTEM CONSOLE. PROGRAM INPUT IS CREATED BY PREPARE TAPE SYSTEM (PTS) OR THE :DU COMMAND OF DOS-M AND OUTPUT IS ON PUNCHED PAPER TAPE.



CONTRIBUTION #: 217  
CLASS: 102  
CONTRIBUTOR: BILL WILLIAMS  
HP, DSD

PART NUMBER: 22284A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II/ASMB RELO  
OP SYS: DOS-M

DOS-M DUMP/RESTORE PROGRAM

THIS SET OF PROGRAMS ENABLES THE USER TO SAVE THE CONTENTS OF DOS-M SUBCHANNELS ON MAGNETIC TAPE USING EITHER THE 2870A (IOMEC), 2883A (ISS), OR 7900A (HP) DISC. THE SAVED DISC CONTENTS MAY LATER BE RESTORED TO THE SAME OR DIFFERENT SUBCHANNELS FROM MAGNETIC TAPE. A FEATURE IS INCLUDED TO VERIFY THE MAGNETIC TAPE FILE WITH THE CONTENTS OF THE DISC SUBCHANNEL.



CONTRIBUTION #: 218  
CLASS: 101  
CONTRIBUTOR: MICHAEL SWEET  
UNIVERSITY COLLEGE OF  
NORTH WALES

PART NUMBER: 22285C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

CONVERSATIONAL DOS-M DISC FILE EDITOR

THIS PROGRAM EDITS DOS-M USER SOURCE FILES BY INSTRUCTIONS FROM THE SYSTEM TELEPRINTER OR BATCH DEVICE. FILES OR PORTIONS OF FILES CAN BE MERGED AND LINES MAY BE DELETED, INSERTED, OR MODIFIED. ALL OCCURRENCES OF A CHARACTER STRING SUCH AS A LABEL, A VARIABLE NAME, AN ARRAY, ETC. CAN BE REPLACED BY NEW STRING USING A SINGLE COMMAND. THE USER IS FURTHER AIDED BY THE FLEXIBILITY OF SPECIFYING THE DESTINATION FILE IF DIFFERENT FROM THE SOURCE FILE, LISTING THE CURRENT LINE OR LINE NUMBER WHILE EDITING, EDITING IN A CONVERSATIONAL MODE, AND THE OPTIONAL RESCANNING OF THE DESTINATION FILE.



CONTRIBUTION #: 219  
 CLASS: 101  
 CONTRIBUTOR: B. R. BEADLE  
 GIDDINGS & LEWIS MACHINE  
 TOOL COMPANY

PART NUMBER: 22286A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: MTS,SIO

## D H SYMBOLIC EDITOR

THIS ABSOLUTE PROGRAM IS A FLEXIBLE EDITOR FOR FORTRAN AND ASSEMBLER SOURCE PROGRAMS. OPERATING CHARACTERISTICS ARE SIMILAR TO THE HP EDITOR, 20100, BUT INCLUDE THESE SPECIAL FEATURES; EDIT COMMANDS MAY BE ENTERED IN ANY ORDER AND ARE NOT RESTRICTED TO THE ASCENDING ORDER OF SOURCE STATEMENTS AFFECTED; SELECTED PARTS OF THE SOURCE PROGRAMS MAY BE EDITED AND LISTED SIMULTANEOUSLY; LINES TO BE EDITED MAY BE SPECIFIED BY LABEL OR LINE NUMBER; A HIERARCHY FOR PERFORMING EDIT OPERATIONS IS WELL DEFINED; AND A SCHEME FOR EDITING THE CURRENT EDIT FILE IS PROVIDED FOR THE NON-TYPIST PROGRAMMER.



CONTRIBUTION #: 220  
 CLASS: 212  
 CONTRIBUTOR: PETER FRYE  
 HP, BERLIN - GERMANY

PART NUMBER: 22287A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC

## CHAIN FROM PHOTOREADER IN HP BASIC

THIS PROGRAM ALLOWS A USER TO CHAIN PROGRAMS VIA THE PHOTOREADER IN HP BASIC, 20392, BY EXECUTING THE SCRATCH, PTAPE, AND RUN COMMANDS. THE STATEMENT CALL(63) HAS TO BE LOCATED IMMEDIATELY BEFORE THE END STATEMENT TO FACILITATE THE CHAINING FEATURE.



CONTRIBUTION #: 221  
 CLASS: 212  
 CONTRIBUTOR: FRITZ JOERN  
 HP, FRANKFURT - GERMANY

PART NUMBER: 22289A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL/ASMB RELOC  
 OP SYS: DOS,DOS-M,RTE

## ALGOL ARRAY TRANSFER FOR SEGMENTATION

THIS ROUTINE ALLOWS THE TRANSFER OF ARRAY DATA BETWEEN ALGOL MAIN AND SEGMENTS UNDER DOS, DOS-M, OR RTE. SINCE COMMON IS NOT NORMALLY AVAILABLE IN ALGOL, THIS ROUTINE ACCEPTS THE ADDRESSES OF UP TO 10 ALGOL ARRAYS AND SAVES THE ADDRESSES OF THE ARRAY TABLES. ANOTHER CALL ALLOWS THE SEGMENTS TO GET THESE ADDRESSES SO THAT IT MAY USE THE ORIGINAL ARRAY DIRECTLY. THUS, COMMON IS ESTABLISHED



BETWEEN A MAIN PROGRAM AND ITS SEGMENTS BY COPYING THE ORIGINAL  
ARRAY TABLE OF MAIN INTO A DUMMY ARRAY TABLE OF THE SEGMENT,

REQUIRES ALGOL COMPILER HP24129B.

ORDER #22289-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 222  
CLASS: 207  
CONTRIBUTOR: DAVE SNYDER  
HP, SANTA CLARA DIVISION

PART NUMBER: 22290A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

CORE PUNCH IN BBL FORMAT

THIS PROGRAM PUNCHES SELECTED AREAS OF CORE IN A FORMAT WHICH CAN  
BE RELOADED BY THE BASIC BINARY LOADER. THE USER INPUTS THE  
NECESSARY PARAMETERS THROUGH THE SWITCH REGISTER AT RUN TIME.  
PROVISIONS EXIST TO ALLOW PUNCHING AN ABSOLUTE TAPE WHICH WILL  
RELOAD TO ANOTHER PART OF THE CORE.

THIS FEATURE IS USEFUL FOR MOVING DATA.



CONTRIBUTION #: 223  
CLASS: 14  
CONTRIBUTOR: FRITZ JOERN  
HP, FRANKFURT - GERMANY

PART NUMBER: 22291C-K01  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN II/ASMB RELO  
OP SYS: DOS,DOS-M

DOS/DOS-M HP 2331 X-Y SCOPE DISPLAY

POINT, CHARACTER AND GRAPH DISPLAY ARE AVAILABLE IN CONNECTION  
WITH HP2331 X-Y SCOPE SUBSYSTEM. THE SOFTWARE GENERATES POINT  
COORDINATES (8 BIT FOR X, 8 BIT FOR Y) INTO A USER DEFINED BUFFER  
AND PROVIDES FOR IMAGE REFRESH OUT OF THE BUFFER EVERY 20 MSEC.  
CALLS ARE COMPATIBLE WITH BCS HP2331 SOFTWARE.



CONTRIBUTION #: 224  
CLASS: 18  
CONTRIBUTOR: HERB SHEAR  
ED DOUST  
HP, SCIENTIFIC INSTRUMENTS

PART NUMBER: 22292B-K01  
PRICE: \$20  
DATE CODE:  
LANG: ALGOL/ASMB RELOC  
OP SYS: BCS

ABSOLUTE OBJECT DECODER

DECODE IS A TWO-PASS ALGOL PROGRAM DESIGNED TO PRODUCE A  
PSEUDO-SOURCE LISTING AND/OR TAPE COMPLETE WITH LABELS; THE TAPE

WOULD ASSEMBLE BACK TO THE ORIGINAL ABSOLUTE. THE INVERSE ASSEMBLY WOULD BE RELATIVELY EASY TO EDIT INTO A FUNCTIONAL EQUIVALENT OF THE ORIGINAL SOURCE. THE GENERATION OF DEF, ABS, DEC, DEX, BSS, AND OCT ARE NOT WITHIN THE SCOPE OF THIS PROGRAM.



CONTRIBUTION #: 225  
 CLASS: 211  
 CONTRIBUTOR: HARVEY THACKSTON  
 HP, AMD

PART NUMBER: 22293-18900  
 PRICE: \$20  
 DATE CODE: 1618  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

#### OCTAL ASSEMBLY PROCESSOR AND UTILITY SYSTEM (OCTAPUS)

OCTAPUS IS A TROUBLESHOOTING AID WHICH ELIMINATES TIME CONSUMING TOGGLING FROM THE SWITCH REGISTER. IT IS A SELF-CONFIGURING, SELF-CONTAINED PROGRAM RESIDING WITHIN THE BOUNDS OF A SINGLE PAGE IN CORE. COMMUNICATION IS CONVERSATIONAL THROUGH THE TELEPRINTER. THE FOLLOWING FUNCTIONS CAN BE PERFORMED: ASSEMBLY INTO CORE, PUNCH ABSOLUTE TAPE FROM CORE, LOAD ABSOLUTE TAPE TO CORE, VERIFY ABSOLUTE TAPE TO CORE, LIST MEMORY BOUNDS OF ABSOLUTE TAPE, DUMP CORE TO TELEPRINTER (OCTAL AND INVERSE ASSEMBLY), JUMP TO ANY LOCATION IN CORE, AND SEARCH CORE FOR ANY OCTAL VALUE.



CONTRIBUTION #: 226  
 CLASS: 6  
 CONTRIBUTOR: DIETER SCHMIDTKE  
 HP, FRANKFURT - GERMANY

PART NUMBER: 22294A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M,RTE

#### DOS/DOS-M/RTE 3480 DVM DRIVER AND BCD CONVERSION

THIS DRIVER INPUTS BCD DATA FROM THE HP3480 DVM, AND (BCD) CONVERTS IT TO FLOATING POINT. THE INITIATOR WILL TEST FOR THE CORRECT CALLING SEQUENCE AND THEN START THE MEASUREMENT. THE CONTINUATOR RETURNS THE RAW DATA INTO A TWO-WORD ARRAY WHERE THE CONVERSION ROUTINE CONVERTS IT TO FLOATING POINT FORMAT.

THE DRIVER IS FORTRAN CALLABLE.

ORDER #22294-13300      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 227  
CLASS: 18  
CONTRIBUTOR: MICHEL VIRARD  
CANADIAN MARCONI COMPANY

PART NUMBER: 22295A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

### BCS INTERPRETER FOR FLOATING POINT OPERATIONS

THE INTERPRETER ACHIEVES SIGNIFICANT CORE SAVINGS FOR FLOATING POINT OPERATIONS AT THE EXPENSE OF EXECUTION TIME BY REPLACING ALL FLOATING POINT LIBRARY ROUTINES. UNDER BCS IT ACCEPTS BINARY OUTPUT FROM THE SPECIAL ASSEMBLER INCLUDED IN THIS PACKAGE WHICH TRANSLATES THE SEVEN ADDITIONAL OPCODES REQUIRED FOR INTERPRETIVE FLOATING POINT ARITHMETIC. THE SPECIAL ASSEMBLER IS AN UNCONFIGURED ABSOLUTE BINARY TAPE WHICH WILL OPERATE IN A 4K MEMORY. THE INTERPRETER IS OF PARTICULAR VALUE TO USERS WITH A MINIMUM CONFIGURATION.



CONTRIBUTION #: 228  
CLASS: 17  
CONTRIBUTOR: DON MACTAGGART  
CANADIAN MARCONI COMPANY

PART NUMBER: 22297A-K01  
PRICE: \$50  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

### OFFLINE RELOCATING LOADER

THIS RELOCATING LOADER PROGRAM RUNS IN A MINIMUM OF 4K SIO SYSTEM; IT ACCEPTS AS INPUT RELOCATABLE OBJECT PROGRAMS PRODUCED BY THE ASSEMBLER OR COMPILERS AND PRODUCES AS OUTPUT AN ABSOLUTE BINARY TAPE (WITH EXTERNAL REFERENCES RESOLVED) FOR ANY OTHER SPECIFIED TARGET COMPUTER WITH MEMORY UP TO 32K. LOWER AND UPPER BASE PAGE, MEMORY AND UPPER COMMON BOUNDS MAY BE SPECIFIED ON THE TELETYPE AT RUN TIME, AND ARE INDEPENDENT OF THE EXECUTING MACHINE SIZE. THE PROGRAMMER WHO NORMALLY CODES IN ABSOLUTE ASSEMBLY LANGUAGE AND DOES HIS OWN I/O OR USES AN SIO SYSTEM WILL FIND THIS OFFLINE LOADER USEFUL. HE CAN CODE IN RELOCATABLE FORMAT IN PAGE FREE MANNER, SINCE THE LOADER WILL ESTABLISH HIS BASE PAGE LINKAGES. NOTE, HOWEVER, THAT NEITHER THE FORMATTER NOR .IOC. ARE CONTAINED WITHIN THIS (LOADER), BUT THEY CAN BE LOADED, RELOCATED, AND LINKED BY THE OFFLINE LOADER TO PRODUCE A COMPLETE PROGRAM. RELOCATED PROGRAMS CAN EVEN BE MADE TO WORK IN AN SIO ENVIRONMENT BY SUBSTITUTING OCT 114102 FOR JSB 102B,I (FOR EXAMPLE). A FORTRAN PROGRAM WHICH DOES I/O WITHOUT THE FORMATTER CAN THUS GAIN 1 TO 1-1/2 K OF CORE SPACE.



CONTRIBUTION #: 229  
 CLASS: 903  
 CONTRIBUTOR: EUGENE BURMEISTER  
 HP, LOVELAND

PART NUMBER: 22298A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: RTE

### BATTLESHIP

BATTLESHIP IS A COMPUTER GAME FOR RTE IN WHICH FIVE SHIPS ARE RANDOMLY PLACED IN A MATRIX BY THE PROGRAM. THE LOCATION OF THESE SHIPS IS FOUND BY THE PLAYER WHO PROCEEDS BY TRIAL AND ERROR UNTIL A HIT IS ACHIEVED. THROUGH SUCCESSIVE (HITS), HE CAN RECONSTRUCT THE RANDOM MATRIX.

ORDER #22298-13300      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 230  
 CLASS: 102  
 CONTRIBUTOR: RICHARD STRAUSS  
 HP MEDICAL ELECTRONICS

PART NUMBER: 22299A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS, DOS-M

### DOS/DOS-M SOURCE STORAGE AND RETRIEVAL

THIS PROGRAM ALLOWS THE USER TO STORE AND RETRIEVE SOURCE FILES ON MAGNETIC TAPE UNDER CONTROL OF DOS OR DOS-M. UNLIKE THE (:DU COMMAND), IT WRITES ALL NECESSARY END-OF-FILE MARKS. ADDITIONALLY, THE USER MAY WRITE A FILE, PURGE A FILE, LIST A DIRECTORY OF FILES, SEARCH FOR A GIVEN FILE BY NAME AND END EXECUTION. THE SEARCH FEATURE IS FOLLOWED BY A RETURN TO THE DISC MONITOR, (:\*), SO THAT A USER MAY STORE (:ST,S) TO DISC. ALL FILES ARE NAMED AND DATED. THE PROGRAM IS SELF-CONFIGURING AND REQUESTS ALL NECESSARY PARAMETERS THROUGH THE SYSTEM CONSOLE.



CONTRIBUTION #: 231  
 CLASS: 207  
 CONTRIBUTOR: CHARLES CHERNACK  
 HP, EASTERN SALES REGION

PART NUMBER: 22300B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SIO

### QUICK FIXED HEAD SDUMP

THIS ABSOLUTE ASSEMBLY PROGRAM USES THE MAGNETIC TAPE AND TELEPRINTER SIO DRIVERS TO DUMP OR LOAD THE CONTENTS OF A FIXED HEAD DISC TO OR FROM MAGNETIC TAPE. THE PROGRAM CONTAINS ITS OWN INTERNAL DISC (SIO) DRIVER. SPEED IS OBTAINED BY WRITING ONE MAGNETIC TAPE RECORD PER LOGICAL DISC TRACK.

THE HARDWARE PARITY CHECK IN THE MAGNETIC TAPE CONTROLLER IS AUGMENTED BY A SOFTWARE CHECKSUM WRITTEN ONTO MAGNETIC TAPE, REQUIRES 16K CORE, ANY HP FIXED HEAD DISC, DMA, ANY HP MAGNETIC TAPE DRIVE, AND AN HP2752A TELEPRINTER.



CONTRIBUTION #:	232	PART NUMBER:	22301A-K01
CLASS:	15	PRICE:	\$10
CONTRIBUTOR:	DAVE MC CLELLAN	DATE CODE:	
	HP, SOUTHERN SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

HP 2870A CARTRIDGE DISC MEMORY DRIVER - FORTRAN CALLABLE

THIS FORTRAN CALLABLE DRIVER ACCEPTS REQUESTS TO PERFORM READ, WRITE, INITIALIZE DATA, CHECK DATA, CLEAR, AND STATUS OPERATIONS ON THE HP2870A CARTRIDGE DISC MEMORY IN A BCS ENVIRONMENT. THE DRIVER IS WRITTEN SO AS TO PERMIT CONCURRENT I/O OPERATIONS BY UTILIZING THE INTERRUPT SYSTEM. DMA CHANNEL ASSIGNMENTS ARE DYNAMIC, BUT I/O SELECT CODES ARE ASSIGNED AT ASSEMBLY TIME. THE DRIVER OPERATES MULTIPLE DRIVES ON A SINGLE CONTROLLER BY ACCEPTING A PHYSICAL UNIT NUMBER AS A PARAMETER IN THE CALLING PROGRAM.



CONTRIBUTION #:	233	PART NUMBER:	22304A-K01
CLASS:	13	PRICE:	\$10
CONTRIBUTOR:	KILE BAKER	DATE CODE:	
	MONTANA STATE UNIVERSITY	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

HP 5610A ANALOG-TO-DIGITAL DRIVER - FORTRAN CALLABLE

THERE ARE THREE ROUTINES IN THIS PACKAGE; TWO DRIVERS AND A TIME BASE GENERATOR SUBROUTINE WHICH DELAYS EXECUTION OF A PROGRAM IN THE BCS ENVIRONMENT. THE FIRST DRIVER IS DESIGNED TO COMMAND A SINGLE READING FROM THE A-D CONVERTER AND RETURN TO THE CALLING PROGRAM. THE SECOND DRIVER IS DESIGNED TO COMMAND READINGS FROM A NUMBER OF DIFFERENT CHANNELS WHERE THE RATE IS CONTROLLED BY THE TIME BASE GENERATOR.



CONTRIBUTION #:	234	PART NUMBER:	22305A-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	STEVEN A. STARK	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC 20392A

HP 2402A DIGITAL VOLTMETER DRIVER - BASIC CALLABLE

THIS DRIVER PROCESSES AND OUTPUTS THE PROGRAM CONTROL WORD TO THE DVM, PROGRAMMING IT FOR RANGE, FUNCTION AND MODE FOR HP20392

BASIC. THEN THE DRIVER ACCEPTS THE BCD DATA MEASURED BY THE DVM, CONVERTS IT TO FLOATING POINT AND RETURNS TO THE CALLING PROGRAM. ERROR RETURNS ARE PROVIDED FOR OVERLOAD OR INCOMPLETED CALLS.

EQUIPMENT REQUIRED INCLUDES 8K HP2402A DIGITAL VOLTMETER, HP12567A DVM PROGRAMMING INTERFACE KIT, AND AN HP12604B DATA SOURCE INTERFACE KIT.



CONTRIBUTION #: 235  
 CLASS: 405  
 CONTRIBUTOR: DR. ROLF ROBCKE  
 HP, FRANKFURT - GERMANY

PART NUMBER: 22308A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL/ASMB RELOC  
 OP SYS: BCS,MTS,DOS,DOS-M

#### GAUSSIAN RANDOM NUMBER GENERATOR

THIS ALGOL REAL PROCEDURE GAUSS(I) GENERATES GAUSSIAN (NORMAL) DISTRIBUTED RANDOM NUMBERS WITH MEAN ( $\mu=0$ ) AND VARIANCE  $\sigma^2=1$ . THE PROCEDURE REQUIRES TWO RANDOM NUMBERS  $X_1$  AND  $X_2$  CALLED FROM THE ASSEMBLY LANGUAGE FUNCTION RANDM2 WHICH GENERATES RANDOM NUMBERS IN THE INTERVAL (0,1). THE TEST CASE (GAUT) PLOTS THE DISTRIBUTION IN THE FORM OF A HISTOGRAM WITH MEAN ZERO AND VARIANCE ONE.

THIS PROCEDURE IS FORTRAN AND ALGOL CALLABLE.



CONTRIBUTION #: 236  
 CLASS: 212  
 CONTRIBUTOR: DR. ROLF ROBCKE  
 HP, FRANKFURT - GERMANY

PART NUMBER: 22310A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG:  
 OP SYS: BCS,DOS,DOS-M

#### FORTRAN/ALGOL ARRAY TRANSFER ROUTINE

THE TRANSFER OF ARRAYS BETWEEN A FORTRAN PROGRAM AND AN ALGOL PROCEDURE IS NORMALLY NOT POSSIBLE, BECAUSE THERE ARE NO ARRAY TABLES IN THE PROCEDURE FOR THE DUMMY ARRAY PARAMETERS. THIS ROUTINE CREATES SUCH ARRAY TABLES WHICH REFER TO EXTERNAL FORTRAN ARRAYS. THESE MAY BE IN NORMAL STORAGE OR IN COMMON. IN THE ALGOL PROCEDURE, THE DIMENSIONS CAN BE HANDLED DYNAMICALLY, SO YOU ARE ABLE TO CHANGE ARRAY DIMENSIONS AT RUN TIME. THE MAXIMUM NUMBER OF INDICES IS THREE WITH RESPECT TO FTN4. THE ARRAYS MAY BE OF TYPE REAL OR INTEGER.



CONTRIBUTION #: 237  
CLASS: 2  
CONTRIBUTOR: ENRICO P. MARIANI  
HP, MILAN - ITALY

PART NUMBER: 22311A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

BCS POWER FAIL TELEPRINTER DRIVER WITH AUTORESTART OPTION

THIS BCS TELEPRINTER DRIVER INCORPORATES A POWER FAIL ROUTINE FOR ANY HP21XX COMPUTER WITH POWER FAIL. IT SAVES AND RESTORES ALL THE REGISTERS INCLUDING THE SWITCH REGISTER. IF THE AUTOSTART OPTION IS AVAILABLE, THIS DRIVER WILL RESTART THE PROGRAM AT THE INTERRUPTED POINT AND RESTORE THE TELEPRINTER TO ITS PREVIOUS STATUS. IF THE FULL CAPABILITY OF THIS ROUTINE IS USED TO DRIVE A COMPLETE PAPER TAPE SYSTEM INCLUDING PHOTOREADER AND HIGH-SPEED PUNCH, THEN THIS DRIVER ALONE WILL REVIVE THE COMPLETE PAPER TAPE SYSTEM AFTER AUTO-RESTART.

EQUIPMENT REQUIRED IS ANY 4K HP COMPUTER WITH POWER FAIL, AN HP2752A OR 2754 TELEPRINTER, AND OPTIONALLY, AUTO-RESTART.



CONTRIBUTION #: 238  
CLASS: 15  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22313A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

HP 12551B RELAY REGISTER INTERFACE DRIVER - BASIC CALLABLE

THE ABSOLUTE MODIFICATION TO THE HP20392A BASIC SYSTEM OPENS OR CLOSES RELAY CONTACTS ON THE HP12551B RELAY REGISTER. IT CHECKS THE RANGE AND PROCESSES THE CONTACT NUMBER. THE DRIVER WAITS IN A LOOP TO ALLOW THE CONTACTS TO SETTLE BEFORE RETURNING TO THE CALLING PROGRAM.



CONTRIBUTION #: 239  
CLASS: 14  
CONTRIBUTOR: JOHN NOSLER  
UNIVERSITY OF OREGON

PART NUMBER: 22315A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,DOS,DOS-M

CONTINUOUS DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE

THIS FORTRAN CALLABLE I/O SUBROUTINE ENABLES THE CONTINUOUS DISPLAY OF A DATA ARRAY ONTO AN X-Y OSCILLOSCOPE VIA A DUAL 8-BIT DIGITAL-TO-ANALOG CONVERTER. UP TO 2000 POINTS CAN BE REFRESHED EVERY 20  $\mu$ S UNDER INTERRUPT CONTROL.

EQUIPMENT REQUIRED IS 8K CORE, AN HP12555A DUAL DIGITAL-TO-ANALOG CONVERTER, AND AN HP X-Y OSCILLOSCOPE AND INTERCONNECTION CABLE.



CONTRIBUTION #: 240  
 CLASS: 14  
 CONTRIBUTOR: JOHN NOSLER  
 UNIVERSITY OF OREGON

PART NUMBER: 22316A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,DOS,DOS-M

#### VARIABLE DISPLAY OF ARRAY DATA ON ANALOG X-Y SCOPE

THIS FORTRAN CALLABLE I/O SUBROUTINE DISPLAYS ARRAY DATA VIA A DUAL 8-BIT DIGITAL-TO-ANALOG CONVERTER ONTO AN X-Y USCILLOSCOPE UNDER INTERRUPT CONTROL. 256 POINTS OF A BUFFERED ARRAY ARE DISPLAYED CONSECUTIVELY. CALLING PARAMETERS ALLOW THE PROGRAMMER TO PAN ACROSS THE DATA, SPECIFY THE CHANNEL OF A VERTICAL CURSOR, AND TURN OFF THE CURSOR.

EQUIPMENT REQUIRED IS 4K CURE, AN HP12555A DUAL DIGITAL-TO-ANALOG CONVERTER, AND AN HP X-Y OSCILLOSCOPE AND INTERCONNECTION CABLE.



CONTRIBUTION #: 241  
 CLASS: 6  
 CONTRIBUTOR: M. H. KENDALL III  
 WYLE LABORATORIES

PART NUMBER: 22317A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

#### RTE HP 2310 ANALOG-TO-DIGITAL CONVERTER DISC STORAGE ROUTINE

THIS FORTRAN CALLABLE SUBROUTINE ALLOWS RTE TO USE MOST OF MEMORY AS A BUFFER TO INPUT DATA FROM THE HP2310 ANALOG-TO-DIGITAL CONVERTER AND OUTPUT IT TO THE DISC AT THE FULL SPEED OF THE MULTIVERTER WITH NO BREAK IN DATA. ALL SAMPLES ARE EVENLY SPACED AND THE NUMBER OF DATA POINTS TAKEN IS LIMITED ONLY BY THE SIZE OF THE DISC. THE MAXIMUM POSSIBLE THROUGHPUT RATE IS 80 KHZ.

EQUIPMENT REQUIRED IS A MINIMUM RTE SYSTEM, AN HP2310 ANALOG-TO-DIGITAL CONVERTER, AND AN HP2770 60 HZ OR 50 HZ DISC.

ORDER #22317-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 242  
 CLASS: 14  
 CONTRIBUTOR: BJOERN LINDBERG  
 HP, STOCKHOLM - SWEDEN

PART NUMBER: 22318A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 20392A

#### HP 1331C STORAGE SCOPE DRIVER - BASIC CALLABLE

THIS ROUTINE OPERATES WITH THE HP BASIC SYSTEM 20392A TO DISPLAY DATA ON THE HP1331C STORAGE SCOPE. THE MAT STATEMENT HAS BEEN



REPLACED BY DISP FOR (DISPLAY). DISP IS USED LIKE PRINT. A CALL STATEMENT ERASES THE SCREEN.

EQUIPMENT REQUIRED INCLUDES AN HP12555A DUAL DIGITAL-TO-ANALOG CONVERTER.



CONTRIBUTION #: 243  
CLASS: 16  
CONTRIBUTOR: DENNIS I. SMITH  
MONTANA STATE UNIVERSITY

PART NUMBER: 22319A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

DOS/DOS-M HP 2020 MAGNETIC TAPE DRIVER

THIS HP2020 MAGNETIC TAPE DRIVER OPERATES UNDER A STANDARD DOS OR DOS-M SYSTEM TO HANDLE INPUT/OUTPUT TRANSFERS AND SPECIAL CONTROL FUNCTIONS. ALL COMMUNICATION WITH THE DRIVER IS THROUGH CALLS TO EXEC. THEY ARE IDENTICAL TO HP3030 CALLS EXCEPT THAT BINARY TRANSFER REQUESTS ARE REJECTED BY THE DRIVER.



CONTRIBUTION #: 244  
CLASS: 212  
CONTRIBUTOR: DENNIS I. SMITH  
MONTANA STATE UNIVERSITY

PART NUMBER: 22320A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

DOS/DOS-M HP 2020/3030 MAGNETIC TAPE CONTROL PROGRAM

THIS PROGRAM ALLOWS A DOS OR DOS-M SYSTEM OPERATOR TO MANIPULATE AN HP2020 OR HP3030 MAGNETIC TAPE UNIT. PARAMETERS ENTERED WITH THE :PROG,LOADR COMMAND DETERMINE THE OPERATIONS TO BE PERFORMED: WRITE END-OF-FILE, FORWARD SPACE, BACK SPACE, REWIND, AND REWIND-STANDBY. UP TO FOUR OF THESE OPERATIONS CAN BE PERFORMED WITH ONE COMMAND.



CONTRIBUTION #: 245  
CLASS: 207  
CONTRIBUTOR: DR. J. SCHRAMA  
CENTRAL LABORATORY D.S.M.  
THE NETHERLANDS

PART NUMBER: 22322A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

ABSOLUTE OCTAL OR DECIMAL CORE DUMP

THIS ABSOLUTE PROGRAM DUMPS CORE TO THE TELEPRINTER IN DOUBLE SPACED RECORDS CONSISTING OF ONE OCTAL ADDRESS AND EIGHT OCTAL OR DECIMAL IMAGES OF WORD CONTENTS. THE TEST PROGRAM (CHARACTER FREQUENCY DISTRIBUTION IN TAPE) TOGETHER WITH (DUMP) IS USEFUL FOR DETECTING DEFECTS IN PAPER TAPE AND PAPER TAPE DEVICES AS WELL AS DEBUGGING AND SCANNING PROGRAMS WITHOUT ACCESSIBLE SOURCE.



CONTRIBUTION #: 246  
 CLASS: 505  
 CONTRIBUTOR: RODNEY C. WILLIAMS  
 WILLIAM L. MCLAIN  
 WAKE FOREST UNIVERSITY

PART NUMBER: 22325A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: RCS

#### COPPER-CONSTANTAN THERMOCOUPLE VOLTAGE - CELSIUS DGS CONVERSION

THIS SUBROUTINE ACCEPTS A VALUE OF THE VOLTAGE READ FROM A COPPER-CONSTANTAN THERMOCOUPLE IN MICROVOLTS AND RETURNS A TEMPERATURE VALUE IN DEGREES CENTIGRADE. THIS VALUE IS CORRECT TO .1 OF A CELSIUS DEGREE. THE METHOD FOR DETERMINING THE TEMPERATURE IS INTERPOLATION OF STANDARD THERMOCOUPLE TABLES AT 10 DEGREE INTERVALS.



CONTRIBUTION #: 247  
 CLASS: 18  
 CONTRIBUTOR: EUGENE DEMENT  
 MARTIN-MARIETTA CORP.

PART NUMBER: 22326A-K01  
 PRICE: \$110  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

#### DOS-M RELOCATABLE BASIC

RELOCATABLE BASIC FOR DOS-M IS ESSENTIALLY EQUIVALENT TO HP'S SINGLE TERMINAL BASIC SYSTEM, HP20392A. TWO ADDITIONAL COMMANDS HAVE BEEN ADDED TO THIS VERSION; PUNCH FOR HIGH-SPEED PUNCH OUTPUT, AND PLIST FOR LINE PRINTER OUTPUT. (LIST) GENERATES OUTPUT TO A TELEPRINTER OR CRT. THIS VERSION IS NON-EAU AND CANNOT ACCESS THE DISC TO SAVE USER PROGRAMS OR DATA FILES.

EQUIPMENT REQUIRED INCLUDES A 16K DOS-M, AND OPTIONALLY, AN HP2767 LINE PRINTER.



CONTRIBUTION #: 248  
 CLASS: 18  
 CONTRIBUTOR: PAUL GAVARINI - FRANCOIS  
 GAULLIER - FRANCOISE  
 MONS - HP, FRANCE

PART NUMBER: 22327E-K21  
 PRICE: \$25  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,DOS,DOS-M

#### SNOBOL COMPILER FOR DOS/DOS-M

SNOBOL IS A LANGUAGE TRANSLATER DESIGNED FOR THE MANIPULATION OF STRINGS. FEATURES OF THE LANGUAGE INCLUDE SYMBOLIC NAMING OF STRINGS AND PATTERN-MATCHING. IN ADDITION TO A BASIC SET OF PRIMITIVE STRING VALUED FUNCTIONS, THE SYSTEM INCLUDES THE FACILITY FOR DEFINING FUNCTIONS. THESE DEFINED FUNCTIONS FACILITATE THE PROGRAMMING RECURSIVE PROCEDURES. HEWLETT-PACKARD FRANCE SNOBOL EXTEND THE CAPABILITIES OF SNOBOL3; DECIMAL NUMBERS OF UNLIMITED PRECISION ARE ALLOWED, AND ARITHMETIC EXPRESSIONS WITHOUT PARENTHESES ARE EVALUATED ACCORDING TO A HIERARCHY OF OPERATIONS. DYNAMIC ALLOCATION OF THE NUMBER OF

DECIMAL DIGITS TO REPRESENT A NUMBER MAKE IT A PRACTICAL BUSINESS LANGUAGE. OTHER APPLICATIONS OF THE HP FRANCE SNOROL INCLUDE TYPESETTING, FORMATTING, EDITING, SEARCHING, SYMBOLIC MATHEMATICS, TEXT PREPARATION, NATURAL LANGUAGE TRANSLATION, LINGUISTICS, AND MUSIC ANALYSIS.

SPECIFY 800 OR 1600 BPI WHEN ORDERING 22327E-K21 \$25.00  
EXTENDED DOCUMENTATION ORDER 22327E-D00 5.00



CONTRIBUTION #: 249  
CLASS: 2  
CONTRIBUTOR: RICH NEILSEN  
HP, PALO ALTO

PART NUMBER: 22328C-K01  
PRICE: \$70  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

### BCS TELECOMMUNICATIONS DVR FOR SYNCHRONOUS & ASYNCHRONOUS DEVICES

D.50 IS DESIGNED TO INTERFACE TELECOMMUNICATION SYN. OR ASY. DEVICES USING IBM'S BINARY SYN. CONTROL LINE DISCIPLINE. THE DRIVER MAY BE USED FOR DATA COMMUNICATIONS BETWEEN TWO 2100 SERIES COMPUTERS, A 2100 SERIES COMPUTER AND AN IBM COMPUTER WITH A TELECOMMUNICATIONS ADAPTER, OR A 2100 SERIES AND ANY TERMINAL (OR OTHER COMPUTER) OPERATING UNDER BCS LINE DISCIPLINE (AS AN IBM2780). THE SYN. MODE OF THE DVR. IS REQUIRED WITH MOST IBM EQUIPMENT.

ALL REQUESTS TO D.50 MUST BE A STANDARD FORMATTED REQUEST TO .IOC, BUFFERED OR UNBUFFERED. THE FUNCTION PROCESSORS IN D.50 SERVICES REQUESTS TO CLEAR, READ, WRITE, HANDSHAKE, AUTO-ANSWER, RECEIVE TO SEND, SEND END OF FILE, AND EXTENDED STATUS.

D.50 WILL SUPPORT THREE DIFFERENT CHARACTER CODES-ASCII, EBCDIC, AND 6-BIT TRANSCODE. IN ADDITION, TRANSPARENT MODE IS PROVIDED WHERE DATA LINK CONTROL CHARACTERS MAY BE TRANSMITTED AS DATA WITHOUT TAKING ON CONTROL MEANING AS WOULD BE REQUIRED IN THE TRANSMISSION OF BINARY DATA. CONVERSATIONAL MODE IS ALSO PROVIDED WHERE BOTH TERMINALS ALTERNATELY SEND AND THEN RECEIVE DATA. COUPLED WITH HP'S 12621A AND 12622A SYN. INTERFACE BOARDS OR 12587A ASY. DATA SET INTERFACE KIT, 12539A TIME BASE GENERATOR, AND AN APPROPRIATE MODEM, THIS DRIVER WILL ALLOW AN HP2100 SERIES COMPUTER TO COMMUNICATE DIRECTLY WITH AN IBM OR BCS TERMINAL. THE CALLING PROGRAM INITIATES THE APPROPRIATE FUNCTION CALLS TO CARRY OUT DATA TRANSMISSIONS. INCLUDED WITH THIS DRIVER IS A CALLING PROGRAM WHICH MAKES A 2100 COMPUTER SIMULATE AN IBM 2780 TERMINAL. ALSO, THIS DRIVER WILL INTERFACE DIRECTLY WITH CONTRIBUTED PROGRAMS 22244 AND 22245 FOR 2100 TO 2100 SERIES COMPUTER COMMUNICATION. HP22453, HP2100 REMOTE JOB ENTRY MAY ALSO BE OF INTEREST TO USERS OF THIS PACKAGE.



CONTRIBUTION #: 250  
 CLASS: 21  
 CONTRIBUTOR: PAUL GAVARINI  
 JEAN ARBAN  
 HP, ORSAY - FRANCE

PART NUMBER: 22329A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: FTN II/FTN IV  
 OP SYS: BCS,MTS

## SCIENTIFIC SUBROUTINE PACKAGE

THIS PACKAGE OF 64 SCIENTIFIC SUBROUTINES SOLVES PROBLEMS IN POLYNOMIAL OPERATIONS, MATRICES, LINEAR AND NON-LINEAR EQUATIONS, FOURIER ANALYSIS, AND INTEGRATION AND DIFFERENTIATION. ADDITIONALLY A UNIFORM AND NORMAL RANDOM NUMBER GENERATOR AND THIRTEEN SPECIAL FUNCTIONS ARE INCLUDED. ALL ROUTINES ARE WRITTEN IN FORTRAN AND CAN BE USED WITH ANY HP 2100 FAMILY SYSTEM. SOME WERE ADAPTED TO HP FORTRAN II FROM EXISTING SCIENTIFIC SUBROUTINES (IBM 360) AND OTHERS WERE WRITTEN AT HP FRANCE.



CONTRIBUTION #: 251  
 CLASS: 110  
 CONTRIBUTOR: BILL WILLIAMS  
 HP, DSD

PART NUMBER: 22330B-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: DUS-M

## PSEUDO REPORT GENERATOR

THIS PROGRAM, OPERATING IN A DOS-M ENVIRONMENT, ENABLES THE USER TO DEFINE, CONSTRUCT, EDIT, AND LIST ASCII DATA FILES IN SELECTIVE OUTPUT FORMATS. FLEXIBLE DATA BASE DEFINITION ENABLES THE USER TO SPECIFY HOW MANY DATA FIELDS AS WELL AS THE NUMBER OF CHARACTERS PER FIELD UP TO A MAXIMUM LOGICAL RECORD LENGTH OF 256 CHARACTERS. KEY FIELDS MAY ALSO BE SPECIFIED AND LATER USED IN SELECTED LISTINGS. CONSIDERABLE FLEXIBILITY IS PROVIDED IN THE TYPE OF LISTING THAT MAY BE PRODUCED FROM THE DATA IN AN EXISTING DATA FILE. TYPICAL APPLICATIONS ARE PRODUCTION OF MAILING LISTS, PERSONNEL LISTS, ETC.



CONTRIBUTION #: 252  
 CLASS: 13  
 CONTRIBUTOR: STEVEN A. STARK  
 HP, EASTERN SALES REGION

PART NUMBER: 22331A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS

## DOS HP 2322A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER

THIS FORTRAN CALLABLE HP2322 A-D SUBSYSTEM DRIVER IS SELF-CONFIGURING AND OPERATES UNDER A MINIMUM DOS SYSTEM. THROUGH CALLS TO THE EXEC IT PROCESSES THE CHANNEL NUMBER CONVERTING BINARY TO BCD, AND OUTPUTS IT TO THE SCANNER. A DVM MEASUREMENT IS TAKEN AND CONTROL IS RETURNED TO THE EXEC.

EQUIPMENT REQUIRED IS AN HP2401C DVM, HP2911A/B CROSSBAR SCANNER, AND HP12604B DSI, AN HP12533A DVM PROGRAM INTERFACE, AND AN HP12535A SCANNER PROGRAM INTERFACE.



CONTRIBUTION #: 253

CLASS: 880

CONTRIBUTOR: DR. RICHARD J. WARD  
BOWLING GREEN STATE UNIV.

PART NUMBER: 22332A-K01

PRICE: \$10

DATE CODE:

LANG: FORTRAN II  
OP SYS: RCS

### THE EXECUTIVE GAME

THE EXECUTIVE GAME SIMULATES A SMALL INDUSTRY IN WHICH THERE ARE UP TO 9 COMPANIES MANUFACTURING AND SELLING A SINGLE PRODUCT. PARTICIPANTS ARE ORGANIZED INTO TEAMS WHICH OPERATE THEIR HYPOTHETICAL COMPANIES IN COMPETITION WITH ONE ANOTHER. THE PURPOSE OF THE EXECUTIVE GAME IS TO PROVIDE AN IMAGINARY BUSINESS ENVIRONMENT IN WHICH PARTICIPANTS CAN PRACTICE TOP-MANAGEMENT DECISION MAKING. THE GAME IS DIVIDED INTO TWO PROGRAMS, AND INFORMATION IS TRANSFERRED BETWEEN THE TWO PROGRAMS BY MEANS OF COMMON STORAGE. PART I ACCEPTS AND PROCESSES TEAM DECISIONS, AND PART II OUTPUTS INFORMATION ON COMPETITORS, AN OPERATING STATEMENT, A CASH FLOW STATEMENT, AN INCOME STATEMENT, AND A BALANCE SHEET FOR EACH TEAM. AN ADDITIONAL YEAREND PROGRAM EVALUATES EACH TEAM'S PERFORMANCE AT THE END OF EACH FOUR QUARTERS OF PLAY. A TEXT OF PLAYER'S INSTRUCTIONS IS PUBLISHED BY RICHARD D. IRWIN, INC. (HENSHAW AND JACKSON, THE EXECUTIVE GAME, 1966). THE EXECUTIVE GAME CAN BE A STIMULATING AND EFFECTIVE LEARNING TOOL FOR HIGH SCHOOL, UNDERGRADUATE, AND GRADUATE BUSINESS CLASSES, AND IN MANAGEMENT DEVELOPMENT PROGRAMS.

MINIMUM HARDWARE REQUIREMENTS INCLUDE AN 8K COMPUTER AND A TELETYPE.



CONTRIBUTION #: 254

CLASS: 218

CONTRIBUTOR: HARVEY E. THACKSTON  
HP, SOUTHERN SALES REGION

PART NUMBER: 22333A-K01

PRICE: \$10

DATE CODE:

LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

### HP 9300N DISC EXERCISER

THIS ABSOLUTE PROGRAM SIMULATES THE HARDWARE EXERCISER REQUIRED FOR ALIGNING THE HP9300N DISC DRIVE. A CONTROL PROGRAM CONSISTING OF COMMAND MNEMONICS AND PARAMETERS (IF REQUIRED) IS ENTERED THROUGH THE TELEPRINTER KEYBOARD. ONE MNEMONIC AND ITS PARAMETER (IF REQUIRED) IS TYPED ON EACH LINE FOLLOWED BY CARRIAGE RETURN. THE PROGRAM IS THEN EXECUTED BY TYPING (EX) AND CARRIAGE RETURN.



CONTRIBUTION #: 255

CLASS: 302

CONTRIBUTOR: JAROSLAV DEDEK  
TECHINAL UNIVERSITY,  
CZECHOSLOVAKIA

PART NUMBER: 22334A-K01

PRICE: \$10

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

## THREE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES

THIS PACKAGE OF FIVE SUBROUTINES ALLOWS A USER TO PERFORM THREE-WORD EXTENDED PRECISION ARITHMETIC OPERATIONS. THE EXTENDED REAL NUMBERS HAVE A 38 BIT MANTISSA PLUS A SIGN BIT.

THESE ROUTINES ARE ALGOL, FORTRAN, OR ASSEMBLER CALLABLE.



CONTRIBUTION #: 256

CLASS: 302

CONTRIBUTOR: ANATOL MALIJEVSKY  
PETER VONKA  
CZECHOSLOVAKIA

PART NUMBER: 22335A-K01

PRICE: \$10

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

## FIVE-WORD EXTENDED PRECISION ARITHMETIC ROUTINES

THIS PACKAGE OF SIX SUBROUTINES ALLOWS A USER TO PERFORM FIVE-WORD EXTENDED PRECISION ARITHMETIC OPERATIONS. EACH REAL NUMBER HAS A 63 BIT MANTISSA PLUS SIGN AND AN EXPONENT OF 7 BITS PLUS SIGN AND AN EXPONENT OF 7 BITS PLUS SIGN. ARITHMETIC OPERATIONS ARE ROUNDED.

THESE ROUTINES ARE CALLABLE FROM ALGOL, FORTRAN, AND ASSEMBLER.



CONTRIBUTION #: 257

CLASS: 6

CONTRIBUTOR: GORDON A. GREENLEY  
HP, COLORADO SPRINGS DIV

PART NUMBER: 22336A-K01

PRICE: \$20

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

## HP 1900 PROGRAMMABLE PULSE GENERATOR - FORTRAN CALLABLE

THIS BCS NON-IOC DRIVER FOR THE HP1900 PULSE GENERATOR ALLOWS THE USER TO PROGRAM ANY NUMBER OF UNITS IN THE 1900 FAMILY - 1905, 1908, OR 1917. NINE ADDITIONAL WORDS OF CORE ARE REQUIRED FOR EACH UNIT.

EQUIPMENT REQUIRED INCLUDES 4K AND AN HP2752A TELEPRINTER, HP14542A I/O KIT, AND HP1900/6936S PROGRAMMABLE PULSE GENERATOR.



CONTRIBUTION #: 258  
CLASS: 6  
CONTRIBUTOR: GORDON GREENLEY  
HP, COLORADO SPRINGS DIV

PART NUMBER: 22337A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: HP BASIC 20392A

HP1900 PROGRAMMABLE PULSE GENERATOR DRIVER - BASIC CALLABLE

THIS ABSOLUTE MODIFICATION TO HP BASIC 20392A ALLOWS THE USER TO PROGRAM ANY NUMBER OF HP1900 PULSE GENERATORS - 1905, 1908, 1917. NINE ADDITIONAL WORDS ARE REQUIRED FOR EACH GENERATOR.

EQUIPMENT REQUIRED INCLUDES AN HP12566A INTERFACE KIT, 8K, AN HP2752A TELEPRINTER, AND AN HP1900/6936S PROGRAMMABLE PULSE GENERATOR.



CONTRIBUTION #: 259  
CLASS: 8  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22338A-K01  
PRICE: \$60  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

DISC BASIC EXECUTIVE

THIS ABSOLUTE PROGRAM OPERATES IN CONJUNCTION WITH HP BASIC 20392A TO PROVIDE THE ADDED CAPABILITY OF USER PROGRAM STORAGE AND RETRIEVAL IN A SINGLE TERMINAL ENVIRONMENT. THIS DISC BASIC EXECUTIVE IS INTENDED AS A SUBSTITUTE FOR THE STANDARD PREPARE BASIC SYSTEM. IT IS COMPRISED OF A SYSTEM GENERATOR, I/O DRIVERS, AND A SIMPLE EXECUTIVE.

EQUIPMENT REQUIRED INCLUDES 8K CPU, HP2752A TELEPRINTER, AN HP2870 MOVING HEAD DISC, AND AN HP12578A OR HP12607A DIRECT MEMORY ACCESS.



CONTRIBUTION #: 260  
CLASS: 6  
CONTRIBUTOR: STEVEN A. STARK  
HP, EASTERN SALES REGION

PART NUMBER: 22339A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS

DOS HP2320A LOW-SPEED ANALOG-TO-DIGITAL SUBSYSTEM DRIVER

THIS FORTRAN CALLABLE DRIVER FOR THE HP2320A LOW SPEED ANALOG-TO-DIGITAL SUBSYSTEM IS SELF-CONFIGURING AND OPERATES ON A MINIMUM DOS. THROUGH CALLS TO THE EXEC, THE DRIVER PROCESSES THE CHANNEL NUMBER, CONVERTS IT FROM BINARY TO BCD AND OUTPUTS IT TO THE

SCANNER. THE DRIVER THEN TAKES A DVM MEASUREMENT AND RETURNS TO THE EXEC.

EQUIPMENT REQUIRED IS AN HP2402A DVM, HP2911A/B CROSSBAR SCANNER, HP12604B DSI, HP12576B-01 DVM PROGRAM INTERFACE, AND AN HP12535A SCANNER PROGRAM INTERFACE.



CONTRIBUTION #: 261  
 CLASS: 207  
 CONTRIBUTOR: TED SLATER  
 SIMON FRAZER UNIVERSITY  
 CANADA

PART NUMBER: 22340A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: ALGOL/ASMB RELOC  
 OP SYS: BCS,MTS

### 360 FORMAT MAGNETIC TAPE DUMP

THIS PROGRAM ACCEPTS ASCII PAPER TAPE OR IBM 029 PUNCHED CARDS AS INPUT AND DUMPS IMAGES TO AN OS/360 COMPATIBLE NINE-TRACK MAG TAPE. OUTPUT MAY BE ASCII OR EBCDIC CODE, STANDARD LABELED OR UNLABELED MAG TAPES WITH FIXED OR VARIABLE BLOCKED RECORDS. IT OPERATES UNDER CONTROL OF BCS.

EQUIPMENT REQUIRED INCLUDES 16K CORE, ANY HP PHOTOREADER OR HP2761 CARD READER, AND AN HP7970 NINE TRACK MAGNETIC TAPE UNIT.



CONTRIBUTION #: 262  
 CLASS: 108  
 CONTRIBUTOR: GEORGE ANZINGER  
 HP, AMD

PART NUMBER: 22341A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,MTS,DOS/M,RTE

### FTN IV CORE SAVER

THIS SUBROUTINE ALLOWS THE FORTRAN IV PROGRAM THAT USES ONLY FORTRAN II I/O FUNCTIONS TO USE THE FORTRAN II FORMATTER AND THUS SAVE A CONSIDERABLE NUMBER OF WORDS. THE SAVINGS IN RTE/DOS ARE A MAXIMUM OF  $1562_8 = 882_{10}$  WORDS. IN BCS THE SAVINGS ARE A MAXIMUM OF  $1213_8 = 651_{10}$  WORDS.

ORDER #22341-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 263  
 CLASS: 17  
 CONTRIBUTOR: JERRY W. ALLEN  
 HP, NEELY SALES REGION

PART NUMBER: 22342A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

### DOS-M HARDWARE BOOT



THIS PROGRAM ALLOWS THE USER TO BOOT UP A DOS-M SYSTEM WITH AN HP2670 OR HP7900 DISC FROM THE HARDWARE PROTECTED AREA OF MEMORY. THUS, THERE IS NO NEED TO LOAD IN THE NORMAL PAPER TAPE BOOT.

(THE PAPER TAPE BBL IS OF COURSE DESTROYED.)



CONTRIBUTION #: 264  
CLASS: 107  
CONTRIBUTOR: JIM KATZMAN  
AMDAHL CORPORATION

PART NUMBER: 22343A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ALGOL  
OP SYS: BCS,MTS,DOS

FIELD SORT

THIS ALGOL PROCEDURE SORTS ASCII OR INTEGER DATA INTO ALPHABETIC AND/OR NUMERIC ORDER. THE USER SPECIFIES THE NUMBER OF RECORDS TO BE SORTED, THE RECORD LENGTH, AND THE FIELD ON WHICH THE SORT IS TO BE PERFORMED. THE REMAINING DATA IN EACH RECORD IS CARRIED ALONG UNCHANGED BY FIELD-SORT. SORTING IS CONDUCTED (IN PLACE) CONSEQUENTLY THE SORTED DATA REPLACES THE UNSORTED DATA IN CORE STORAGE.



CONTRIBUTION #: 265  
CLASS: 17  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22344A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

ON-LINE SYSTEM LOAD FOR MOVING HEAD RTE

THIS PROGRAM ALLOWS THE USER TO START UP A MOVING-HEAD RTE SYSTEM FROM ANOTHER RTE SYSTEM (WITH A FIXED-HEAD OR MOVING HEAD DISC) WITHIN THE SAME HARDWARE CONFIGURATION WITHOUT HALTING THE COMPUTER AND LOADING A PAPER TAPE BOOTSTRAP. THE I/O CHANNELS OF THE MOVING-HEAD DISC, THE SUBCHANNEL NUMBER AND THE STARTING TRACK NUMBER OF THE SYSTEM TO BE STARTED ARE SPECIFIED IN THE PROGRAM DIRECTIVE. A TYPICAL DIRECTIVE MIGHT BE (:ON,RTEM,22,1,100).

ORDER #22344-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 266  
CLASS: 17  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22345A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

ON-LINE MOVING HEAD RTE BOOTSTRAP FROM DOS-M OR DOS

THIS PROGRAM ALLOWS THE USER TO START UP A MOVING-HEAD RTE SYSTEM FROM A DOS OR DOS-M SYSTEM WITHIN THE SAME HARDWARE CONFIGURATION

WITHOUT HALTING THE COMPUTER AND LOADING A PAPER TAPE BOOTSTRAP, THE I/O CHANNELS OF THE MOVING-HEAD DISC, THE SUBCHANNEL NUMBER AND THE STARTING TRACK NUMBER OF THE SYSTEM TO BE STARTED ARE SPECIFIED IN THE PROGRAM DIRECTIVE. A TYPICAL DIRECTIVE MIGHT BE (:PR,RTEM,22,1,100).



CONTRIBUTION #: 267  
 CLASS: 212  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22346A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M

#### DOS/DOS-M ASSEMBLY LANGUAGE COMMENT INSERTER

THIS ASSEMBLY LANGUAGE COMMENT INSERTER READS A SOURCE ASSEMBLY LANGUAGE PROGRAM FROM A DISC FILE (OR PAPER TAPE OR MAG TAPE), PRINTS EACH STATEMENT ON THE TELEPRINTER ALLOWING THE USER TO ADD COMMENTS IF DESIRED AND THEN OUTPUTS THE COMMENTED SOURCE TO PAPER TAPE OR MAGNETIC TAPE. IN CASE THE OUTPUT DEVICE IS A MAG TAPE, THE PROGRAM DOES THE NECESSARY HANDLING OF THE MAG TAPE AND, UPON COMPLETION OF THE PROGRAM THE COMMENTED SOURCE IS READY TO BE STORED ON THE DISC USING A (:ST,S) COMMAND. PREVIOUSLY COMMENTED LINES ARE DUPLICATED WITHOUT TELETYPE OUTPUT. A SWITCH OPTION ALLOWS DUPLICATING SECTIONS WITHOUT ADDING COMMENTS. THIS PROGRAM IS SIMILAR IN OPERATION TO 22105 BUT WITH THE ABOVE ADDITIONAL FEATURES.



CONTRIBUTION #: 268  
 CLASS: 108  
 CONTRIBUTOR: ROLAND JAHN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22347A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II/ASMB RELO  
 OP SYS: DOS,DOS-M

#### DOS/DOS-M SOURCE FILE VERIFY PROGRAM

THIS PROGRAM PROVIDES THE CAPABILITY OF COMPARING A SOURCE PROGRAM AGAINST A SOURCE FILE ON DOS OR DOS-M. THE USER PROVIDES THE LOGICAL UNIT OF THE INPUT DEVICE AND THE NAME OF THE SOURCE FILE. THE PROGRAM READS THE TAPE AND COMPARES IT WITH THE DISC FILE, RECORD BY RECORD. IF A LINE IS FOUND THAT DOES NOT AGREE, THE DISC AND TAPE VERSION ARE PRINTED OUT. A FINAL STATEMENT IS MADE THAT THE VERIFY IS (GOOD) OR (NOT GOOD). BY USING THIS PROGRAM WITH THE STANDARD DOS/DOS-M FEATURES, (:ST,S) AND (:DU), ONE CAN DUPLICATE SOURCE TAPES AND VERIFY THE READ AND PUNCH OPERATIONS.



CONTRIBUTION #: 269  
CLASS: 904  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22348A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS,MTS,DOS,DOS-M

X-Y PLOTTER FOR 11-INCH PAGE PRINTER

THIS PROGRAM PLOTS X-Y GRAPHS ON AN 11-INCH PAGE PRINTER FROM A GIVEN SET OF DATA POINT. THE DATA IS INPUT FREE FIELD, ORDERED, AND SCALED IN BOTH DIMENSIONS BY THE PROGRAM TO FIT ON ONE PAGE. TWO VERSIONS OF THE PROGRAM ARE INCLUDED; ONE FORMATTED FOR OUTPUT TO AN HP2767 LINE PRINTER, AND THE OTHER FOR A TELEPRINTER. THIS PROGRAM ALLOWS A QUICK DISPLAY OF DATA WITH THE LIMITED RESOLUTION OF A CHARACTER PRINTER. UP TO 100 SAMPLES OF 10 DIFFERENT VARIABLES CAN BE INPUT WITH THE LINE PRINTER VERSION. UP TO 120 SAMPLES OF 4 DIFFERENT VARIABLES CAN BE INPUT WITH THE TELEPRINTER VERSION.

EQUIPMENT REQUIRED INCLUDES 8K CORE, ANY HP TELEPRINTER, AND, OPTIONALLY, ANY HP PHOTOREADER AND AN HP2767 LINE PRINTER.



CONTRIBUTION #: 270  
CLASS: 17  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22349A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

DOS-M BOOTSTRAP PROGRAM FOR DOS-M OR DOS

THIS PROGRAM ALLOWS THE USER TO START UP A DOS-M SYSTEM FROM ANOTHER DOS-M OR DOS SYSTEM WITHIN THE SAME HARDWARE CONFIGURATION WITHOUT HALTING THE COMPUTER AND LOADING A PAPER TAPE BOOTSTRAP. THE I/O CHANNELS OF THE MOVING-HEAD DISC AND THE SUBCHANNEL NUMBER ARE SPECIFIED IN THE PROGRAM DIRECTIVE. A TYPICAL PROGRAM DIRECTIVE MIGHT BE, (:PR,DOSM,22,1).

THIS PROGRAM WORKS IN A SYSTEM WITH OR WITHOUT MEMORY PROTECT.



CONTRIBUTION #: 271  
CLASS: 17  
CONTRIBUTOR: ROLAND JAHN  
HP, MEDICAL ELECTRONICS

PART NUMBER: 22350A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

DOS-M BOOTSTRAP PROGRAM FROM RTE

THIS PROGRAM ALLOWS THE USER TO START UP A DOS-M SYSTEM FROM AN RTE SYSTEM (WITH A FIXED-HEAD OR MOVING-HEAD DISC) WITHIN THE SAME HARDWARE CONFIGURATION WITHOUT HALTING THE COMPUTER AND LOADING A

PAPER TAPE BOOTSTRAP. THE I/O CHANNELS OF THE MOVING-HEAD DISC AND THE SUBCHANNEL NUMBER ARE SPECIFIED IN THE PROGRAM DIRECTIVE. A TYPICAL DIRECTIVE MIGHT BE, (:ON,DOSM,22,1).

ORDER #22350-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 272  
 CLASS: 212  
 CONTRIBUTOR: ALLAN P. SHERMAN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22351A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II/ASMB RELO  
 OP SYS: DOS,DOS-M

#### ASCII STRING SEARCH FROM DISC FILE

THIS PROGRAM SEARCHES A SOURCE FILE ON THE DISC FOR ALL OCCURRENCES OF A SPECIFIED STRING OF CHARACTERS AS INPUT FROM THE SYSTEM CONSOLE OR BATCH DEVICE. THE MAXIMUM STRING LENGTH IS 72 CHARACTERS. THE LOCATED STRINGS ARE LISTED ON THE LINE PRINTER OR SYSTEM CONSOLE BY LINE NUMBER AND POSITION WITHIN THE LINE, AND THE LINE ITSELF IS PRINTED. NON-PRINTING CHARACTERS ARE LISTED IN OCTAL.

REQUIRES A MINIMUM DOS OR DOS-M SYSTEM.



CONTRIBUTION #: 273  
 CLASS: 212  
 CONTRIBUTOR: ALLAN P. SHERMAN  
 HP, MEDICAL ELECTRONICS

PART NUMBER: 22352A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II/ASMB RELO  
 OP SYS: DOS,DOS-M

#### ASCII STRING SEARCH FROM PHOTOREADER

THIS PROGRAM SEARCHES A SOURCE TAPE FOR ALL OCCURRENCES OF A SPECIFIED STRING OF CHARACTERS AS INPUT FROM THE TELEPRINTER. THE MAXIMUM STRING LENGTH IS 72 CHARACTERS AND NONPRINTING CHARACTERS ARE LISTED IN OCTAL. THE LOCATED STRINGS ARE IDENTIFIED BY LINE NUMBER AND POSITION WITHIN THE LINE, AND THE LINE ITSELF IS LISTED ON THE TELEPRINTER OR LINE PRINTER.



CONTRIBUTION #: 274  
 CLASS: 9  
 CONTRIBUTOR: THOMAS J. WINKER  
 HP, DSD

PART NUMBER: 22353A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M

#### DOS/DOS-M PHOTOREADER DRIVER TO READ ABSOLUTE BINARY TAPES

THIS SPECIAL DOS-M PHOTOREADER DRIVER CAN READ ABSOLUTE BINARY FORMAT TAPES AS WELL AS NORMAL RELOCATABLE AND SOURCE FORMATS. THE READ IS ACCOMPLISHED IN FORTRAN THROUGH A SPECIAL (CALL EXEC).

THE TAPE IS READ INTO A USER BUFFER AREA, TO STORE THE ABSOLUTE BINARY INTO A USER FILE USE HP22354, (DOS-M STORE ABSOLUTES). THIS DRIVER IS PARTICULARLY USEFUL FOR REPRODUCING ABSOLUTE TAPES.



CONTRIBUTION #: 275  
CLASS: 108  
CONTRIBUTOR: THOMAS J. WINKER  
HP, DSD

PART NUMBER: 22354B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

DOS-M STORE ABSOLUTES

THIS PROGRAM (STAB) USES THE CONTRIBUTED PHOTOREADER DRIVER, HP22353 TO READ AN ABSOLUTE OBJECT TAPE INTO A USER BUFFER AREA AND THEN STORES THE TAPE IN A DISC FILE OF TYPE BD, BINARY DATA. THIS FILE IS CREATED UNDER PROGRAM CONTROL WITH THE CORRESPONDING DIRECTORY ENTRY.



CONTRIBUTION #: 276  
CLASS: 108  
CONTRIBUTOR: THOMAS J. WINKER  
HP, DSD

PART NUMBER: 22355A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

DOS-M PAPER TAPE/DISC VERIFY

THIS PROGRAM ALLOWS A USER TO VERIFY PAPER TAPES OF ANY FORMAT AGAINST A DISC FILE UNDER DOS-M. IF USED IN CONJUNCTION WITH THE CONTRIBUTOR PHOTOREADER DRIVER, HP22353, AND THE DOS-M STORE ABSOLUTES, HP22354, THIS PROGRAM WILL VERIFY ABSOLUTE OBJECT TAPE AGAINST A BINARY DATA FILE.



CONTRIBUTION #: 277  
CLASS: 102  
CONTRIBUTOR: THOMAS J. WINKER  
HP, DSD

PART NUMBER: 22356A-K01  
PRICE: \$30  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

PACKED MAGNETIC TAPE STORAGE AND RETRIEVAL FOR DOS-M

TWO SEPARATE PROGRAMS STORE AND RETRIEVE (PACKED) SOURCE, RELOCATABLE, AND ABSOLUTE CODE ON MAGNETIC TAPE UNDER DOS-M. EACH RECORD IS PACKED WITH A MAXIMUM OF 2048 WORDS. APPROXIMATELY 50 SOURCE PROGRAMS CAN BE STORED ON ONE 600' REEL OF TAPE. EACH FILE CONTAINS ONE PROGRAM AND IS LABELED AT THE BEGINNING. INPUT AND OUTPUT MAY BE CARDS, PAPER TAPE OR DISC.



CONTRIBUTION #: 278  
 CLASS: 17  
 CONTRIBUTOR: JERRY W. ALLEN  
 HP, NEELY SALES REGION

PART NUMBER: 22357A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

#### MTS BOOT FROM DOS-M

THIS PROGRAM ALLOWS A USER IN THE DOS-M ENVIRONMENT TO BOOT IN THE MAGNETIC TAPE SYSTEM. THUS, WITH THE DOS-M BOOT PROGRAM ON MAG TAPE HE CAN THEN SWITCH BACK TO DOS-M. THE END RESULT BEING THE ELIMINATION OF LOADING PAPER TAPE BOOTS AND A MUCH SMOOTHER OPERATOR PROCEDURE.

REQUIRES 16K CORE MEMORY (BUT MAY BE MODIFIED FOR 8K), AND HP22354 DOS-M STORE ABSOLUTES.



CONTRIBUTION #: 279  
 CLASS: 108  
 CONTRIBUTOR: THOMAS J. WINKER  
 HP, DSD

PART NUMBER: 22358A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M,RTE

#### EASY MAGNETIC TAPE I/O AND STATUS INFORMATION

THIS UTILITY IS USED IN A DOS/DOS-M OR RTE ENVIRONMENT TO ELIMINATE THE TEDIOUS PROGRAMMING REQUIRED TO ACHIEVE MAGNETIC TAPE DATA TRANSFER OR STATUS INFORMATION. IT CHECKS FOR ON-LINE CONDITION, WRITE RING PRESENT, END OF TAPE, AND CALLS EXEC FOR DATA TRANSFERS AND STATUS. BY CHECKING THE INDICATORS RETURNED BY THIS ROUTINE THE USER MAINTAINS THE FLEXIBILITY OF BRANCHING IN HIS OWN PROGRAM.

ORDER #22358-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 280  
 CLASS: 108  
 CONTRIBUTOR: THOMAS J. WINKER  
 HP, DSD

PART NUMBER: 22359A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M

#### HANDI-0

THIS GROUP OF NINE UTILITY PROGRAMS ALLOWS THE DOS-M USER TO PAGE THE LINE PRINTER, PRODUCE LEADER ON THE PUNCH, WRITE A (::) TO MAGNETIC TAPE, REWIND MAGNETIC TAPE, BACK SPACE MAGNETIC TAPE FILE(S), BACKSPACE MAGNETIC TAPE RECORD(S), FORWARD SPACE MAGNETIC TAPE FILE(S), FORWARD SPACE MAGNETIC TAPE RECORD(S), AND CONVERT CARD INPUT TO PAPER OR MAGNETIC TAPE ELIMINATING TRAILING SPACES. ALL NECESSARY CALLS ARE PERFORMED BY THE PROGRAM.



CONTRIBUTION #: 281  
CLASS: 106  
CONTRIBUTOR: THOMAS J. WINKER  
HP, DSD

PART NUMBER: 22360A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,DOS-M

DOS-M PAPER TAPE REPRODUCER

THIS PAPER TAPE REPRODUCER FOR DOS-M USES A DOUBLE BUFFER TO ACHIEVE MAXIMUM SPEED ON INPUT/OUTPUT DEVICES. WHEN USED WITH THE CONTRIBUTED PHOTOREADER DRIVER, HP22353, ABSOLUTE BINARY TAPES CAN BE REPRODUCED AS WELL AS SOURCE AND RELOCATABLE BINARY. CHECKSUMS ARE COMPUTED ON RELOCATABLE AND ABSOLUTE BINARY FORMAT TAPES.



CONTRIBUTION #: 282  
CLASS: 12  
CONTRIBUTOR: NEAL KELLY  
HP, EASTERN SALES REGION

PART NUMBER: 22361A-K01  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV/ASMB RELO  
OP SYS: DOS-M

DOS-M BINARY FILE DATA ACQUISITION

THIS PROGRAM PROVIDES CONTINUOUS ANALOG DATA ACQUISITION FROM A MULTIPLEXED ADC TO A DOS-M BINARY FILE. SIX CHANNELS OF ANALOG INFORMATION ARE SAMPLED WITH THE HP23106 MULTIVERTER UNDER CONTROL OF THE HP12539A TIME BASE GENERATOR USING SAMPLING INTERVALS OF ONE MILLISECOND OR GREATER. THE DIGITIZED INFORMATION OBTAINED AT UP TO 6000 SAMPLES PER SECOND MAY BE FED CONTINUOUSLY TO A CRT DISPLAY OR TO A DOS-M BINARY FILE ON A 2870A DISC STORE. THE MAIN FORTRAN PROGRAM INTERFACES THE OPERATOR OBTAINING DISC LABELS, FILE NAME AND SAMPLING INTERVALS-BEFORE CALLING THE ASSEMBLY LANGUAGE SUBROUTINE WHICH HANDLES THE CONTINUOUS ANALOG DATA ACQUISITION AND DISPLAY OR STORAGE.

EQUIPMENT REQUIRED INCLUDES 16K CORE, AN HP2870 DISC, AN HP23106/12554A-M2 MULTI-CHANNEL ANALOG-TO-DIGITAL CONVERTER, AN HP12539A TIME BASE GENERATOR, AND AN HP12555 DUAL DIGITAL TO ANALOG CONVERTER.



CONTRIBUTION #: 283  
CLASS: 21  
CONTRIBUTOR: ERKKI ANTTILA  
TECHNICAL UNIVERSITY  
HELSINKI - FINLAND

PART NUMBER: 22362A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

STACK ROUTINES

THIS SET OF SUBROUTINES ALLOWS AN ASSEMBLY LANGUAGE PROGRAM TO PERFORM STACK OPERATIONS. THE PACKAGE CONTAINS THE FOLLOWING ROUTINES: CLRST, PUSH, PULL, AND REMOVE. CLRST CLEARS THE STACK

BY SETTING THE UPPER LIMIT FOR THE NUMBER OF ITEMS IN THE STACK IN THE FIRST LOCATION OF THE STACK. IT ALSO SETS THE POINTER IN THE SECOND POSITION TO POINT TO THE FIRST FREE LOCATION IN THE STACK (WHICH IS THE THIRD WORD OF THE STACK). THE UPPER LIMIT MUST BE STACK LENGTH-2. PUSH STORES AN ITEM ONTO THE STACK AND INCREMENTS THE POINTER. REMOVE REMOVES THE TOP ITEM FROM THE STACK BY DECREMENTING THE POINTER. THE PACKAGE SERVES AS A TOOL FOR RECURSIVE CALLS OF PROGRAMS.

THESE SUBROUTINES MAY BE CONFIGURED INTO THE USER'S SYSTEM LIBRARY UNDER DOS OR DOS-M. ERROR EXITS RESULT IN CALLS TO THE EXEC.



CONTRIBUTION #: 284  
 CLASS: 110  
 CONTRIBUTOR: ENRICO MARIANI  
 HP, MILAN - ITALY

PART NUMBER: 22364A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

#### EFMP RECORD READ/WRITE

THIS PROGRAM ALLOWS A USER TO READ OR WRITE INTEGER, OCTAL, OR ASCII RECORDS (OF N WORDS) ON ANY FILE IN THE EFMP ENVIRONMENT.



CONTRIBUTION #: 285  
 CLASS: 212  
 CONTRIBUTOR: GLYN HARRIS  
 HP, SLOUGH - ENGLAND

PART NUMBER: 22366A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M

#### ALGOL SEGMENT RETURN TO MAIN PROGRAM

SUBROUTINE SEGLINK PERMITS A USER TO LEAVE AN ALGOL MAIN PROGRAM AT ANY POINT, CALL IN A SEGMENT, EXECUTE THE SEGMENT, AND RETURN TO THE MAIN PROGRAM AT THE SAME POINT FOR FURTHER EXECUTION. USED IN CONJUNCTION WITH HP22289 ALGOL ARRAY TRANSFER, THIS PACKAGE PROVIDES FLEXIBLE AND POWERFUL CAPABILITIES TO THE ALGOL PROGRAMMER IN A DOS/DOS-M ENVIRONMENT.



CONTRIBUTION #: 286  
 CLASS: 2  
 CONTRIBUTOR: BILL ALEXANDER  
 HP, MIDWEST SALES REGION

PART NUMBER: 22367A-K01  
 PRICE: \$50  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### 8K BINARY SYNCHRONOUS CONTROLLED DATA COMMUNICATIONS PROGRAM

THIS PROGRAM PROVIDES DATA COMMUNICATIONS CAPABILITY BETWEEN TWO HEWLETT-PACKARD 2100 SERIES COMPUTERS. THIS UTILITY IS DESIGNED TO BE USED IN CONJUNCTION WITH D.50, 22328, A BCS TELE-COMMUNICATIONS DRIVER. INTERACTIVE COMMANDS AND MESSAGES ALLOW



THE OPERATOR TO SPECIFY THE TRANSMISSION CODE, ASCII OR EBCDIC, THROUGH A SYSTEM CONSOLE TELEPRINTER. THE USER MAY ALSO SPECIFY THE DIRECTION OF TRANSMISSION, THE SOURCE OR DESTINATION PERIPHERAL DEVICE, THE MODE OF TRANSMISSION, AND VARIOUS OTHER FUNCTIONS. ALL DATA TRANSMITTED IS COMPRESSED BEFORE TRANSMISSION AND EXPANDED UPON RECEPTION IN BLOCKED OR UNBLOCKED MODE.

EQUIPMENT REQUIRED INCLUDED 8K CORE, AN HP2752 OR 2754 TELEPRINTER, A BELL 202C MODEM, AND AN HP12539 TIME BASE GENERATOR.



CONTRIBUTION #: 287  
CLASS: 106  
CONTRIBUTOR: GEORGE ANZINGER  
HP, AMD

PART NUMBER: 22368A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: MTS,SIO

PAPER TAPE COPY

THIS ABSOLUTE PROGRAM PUNCHES AND VERIFIES PAPER TAPES OF ANY FORMAT. IT CAN ALSO COPY A FILE FROM A MAGNETIC TAPE OR DISC VIA THE APPROPRIATE SIO DRIVER. CHECKSUMS ARE VERIFIED VIA THE PHOTOREADER WHILE THE PUNCH OPERATION IS STILL IN PROGRESS. COPY ALSO ALLOWS A USER TO CONCATENATE TAPES.



CONTRIBUTION #: 288  
CLASS: 110  
CONTRIBUTOR: ENRICO MARIANI  
HP, MILAN - ITALY

PART NUMBER: 22369A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

DOS-M FILE WRITER

THIS PROGRAM ALLOWS A DOS-M USER TO WRITE INTEGERS, REALS, OR ASCII DATA ON A SPECIFIED PART OF A SPECIFIED FILE.

IT IS CONVERSATIONAL.



CONTRIBUTION #: 289  
CLASS: 101  
CONTRIBUTOR: KLAUS STAMER  
HP, FRANKFURT - GERMANY

PART NUMBER: 22371A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN IV/ASMB RELO  
OP SYS: DOS,DOS-M

QUOTATION MARKS CONVERSION IN DOS/DOS-M FILES

THIS PROGRAM CHANGES (') TO (') IN DOS/DOS-M FILES. IT REQUIRES DOS-M WORD ORIENTED FILE ACCESS AND STRING LOOKUP ROUTINE, HP22277.



CONTRIBUTION #: 290  
 CLASS: 2  
 CONTRIBUTOR: JERRY REAUGH  
 HP, DSD

PART NUMBER: 22372A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RCS

#### HP 2100 REMOTE BATCH TERMINAL TO A UNIVAC 1108

THIS PROGRAM ALLOWS AN HP2100 SERIES COMPUTER TO OPERATE AS A REMOTE BATCH TERMINAL TO A UNIVAC 1108. THE HP2100 SERIES COMPUTER SIMULATES THE OPERATION OF A UNIVAC 1004 AS A REMOTE BATCH TERMINAL TO A UNIVAC 1108 VIA STANDARD TELECOMMUNICATIONS TECHNIQUES. THE PROGRAM CONFORMS TO UNIVAC SPECIFICATIONS FOR THE 1108 OPERATING SYSTEMS, EXEC 11 AND EXEC 8. BASICALLY THIS PROGRAM OPERATES BY SENDING AND RECEIVING CONTROL INFORMATION AND DATA BUFFERS. THIS PROGRAM HANDLES ONLY THE COMMUNICATIONS LOGIC; IT RELIES ON EXTERNAL SUBROUTINES FOR ASSEMBLY OF DATA BUFFERS, COMPRESSION, AND CODE CONVERSION. DATA BUFFERS SENT AND RECEIVED CONSIST OF 320 OR 330 CHARACTERS OF COMPRESSED OR UNCOMPRESSED DATA. ALL DATA SENT AND RECEIVED IS IN EXCESS-THREE CODE, XS-3 (UNIVAC'S 1004 STANDARD). THE SUPPORTING DOCUMENTATION DETAILS UNIVAC'S COMMUNICATION TECHNIQUES, COMPRESSION TECHNIQUES, AND XS-3 CODE.

THIS PROGRAM OPERATES UNDER BCS IN AN 8K 2100 SERIES COMPUTER USING A 12618A SYNCHRONOUS DATA SET INTERFACE AND A 201A3 BELL DATA SET (200 BAUD SYNCHRONOUS).



CONTRIBUTION #: 291  
 CLASS: 2  
 CONTRIBUTOR: ENRICO P. MARIANI  
 HP, MILAN ITALY

PART NUMBER: 22373B-K01  
 PRICE: \$70  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS

#### ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE

THIS SMALL PACKAGE OF SOFTWARE WORKING IN THE EFMP ENVIRONMENT GIVES THE USER AN EASY WAY TO HANDLE RECORDS DIVIDED INTO ITEMS (FIELDS). IT CONSISTS OF PROGRAMS DESIGNED TO MAINTAIN A DIRECTORY FOR ITEMIZED FILES, SUBROUTINES THAT ALLOW EASY USE OF ITEMIZED FILES, AND GENERAL PURPOSE PROGRAMS FOR LISTING, CHECKING, ETC.

IT REQUIRES A 16K DOS-M SYSTEM WITH EFMP, THE EXTENDED FILE MANAGEMENT PACKAGE.



CONTRIBUTION #: 292  
CLASS: 2  
CONTRIBUTOR: ELIZABETH CALOYANNIS  
HP, ORSAY - FRANCE

PART NUMBER: 22374A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

A BCS ASYNCHRONOUS DATA SET INTERFACE DRIVER

THIS DRIVER ESTABLISHES DATA COMMUNICATIONS BETWEEN HP2100 SERIES COMPUTERS AND THE TC-380 OLIVETTI BUFFERED TERMINAL. IT ALLOWS THE HP COMPUTER TO INPUT OR OUTPUT CONTROL SIGNALS WITH THE FOLLOWING FEATURES; HALF-DUPLEX TRANSMISSION, 1200 BITS/SEC., EVEN PARITY, 8-BIT CHARACTERS, 1 START BIT, AND 1 STOP BIT. THE DRIVER ALSO INITIATES, CONTINUES, AND COMPLETES ALL DATA TRANSMISSION OR RECEPTION COMMANDS VIA AN HP12587 INTERFACE BOARD. ON READ REQUESTS, THE DRIVER RECEIVES CHARACTER PER CHARACTER ONE OLIVETTI FORMATTED BUFFER WITH A MAXIMUM OF 230 ISO CODE CHARACTERS. IT TRANSLATES THESE CHARACTERS INTO AN ASCII PACKED BUFFER OR AN XS-3 BUFFER PROPERLY FORMATTED FOR COMMUNICATION WITH A UNIVAC 1108 COMPUTER. ON WRITE REQUESTS, THE DRIVER TRANSLATES INTO ISO CODE AND SENDS ONE ASCII PACKED BUFFER OR ONE FORMATTED XS-3 BUFFER CHARACTER PER CHARACTER TO THE OLIVETTI TERMINAL. THE COMMUNICATION PROCEDURES ARE SELECTING AND POLLING. ONE USEFUL APPLICATION OF THIS DRIVER IS IN THE ENVIRONMENT WHERE AN HP MINICOMPUTER HANDLES I/O FOR A UNIVAC 1108 COMPUTER.



CONTRIBUTION #: 293  
CLASS: 22  
CONTRIBUTOR: GLEN WORSTELL  
HP, LOVELAND COLORADO

PART NUMBER: 22375A-K01  
PRICE: \$30  
DATE CODE:  
LANG: FTN IV/ASMB RELO&ABS  
OP SYS: DOS

REMOTE HP2100 ACCESS TO 32K DOS

THIS SYSTEM ALLOWS UP TO 11 REMOTE HP2100 COMPUTERS TO ACCESS PROGRAMS STORED ON A CENTRALLY LOCATED DOS SYSTEM. ALL PROGRAMS MUST BE STORED IN ABSOLUTE BINARY FORM. THE REMOTE COMPUTER MAY REQUEST A PROGRAM TRANSFER, A DATA TRANSFER TO A PREVIOUSLY RESERVED DATA FILE ON DOS, AND THE TIME OF DAY. ALL OTHER OPERATIONS, SUCH AS PROGRAM ADDITION, PROGRAM DELETION, FILE RESERVATION, ETC. ARE PERFORMED BY A DOS USER PROGRAM WHICH IS PART OF THIS PACKAGE.

EQUIPMENT REQUIRED INCLUDES A 32K DOS, AN HP2773A DRUM, AN I/O EXTENDER, DMA, AND EAU AS THE CENTRAL COMPUTER. UP TO ELEVEN 4K REMOTE COMPUTERS MAY BE INTERFACED USING 2 MICROCIRCUIT INTERFACE CARDS (HP12566A), AND 36 TWISTED-PAIR CONNECTING CABLES UP TO 300 FEET IN LENGTH (HP8120-1283).



CONTRIBUTION #: 294  
 CLASS: 107  
 CONTRIBUTOR: GEORGE W. TAYLOR  
 HP, NEELY SALES REGION

PART NUMBER: 22376A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: DOS,DOS-M

#### ASCII DISC FILE FIELD SORT

THIS PROGRAM GENERATES ASCII FILES UNDER DOS OR DOS-M AND ALLOWS THE USER TO SORT THE FILES ACCORDING TO ASCII HIERARCHY. THE SORT IS ACCOMPLISHED ACCORDING TO A USER SPECIFIED FIELD CONTAINING FROM 1 TO 10 CHARACTERS. FIELDS ARE SORTED FROM LEFT TO RIGHT. A MAXIMUM OF 1000 LINES MAY BE SORTED. THE SORT IS COMPLETELY CORE BASED AND REQUIRES 16K.



CONTRIBUTION #: 295  
 CLASS: 22  
 CONTRIBUTOR: BILL WILLIAMS  
 HP, DSD

PART NUMBER: 22377A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV/ASMB RELO  
 OP SYS: DOS-M

#### DOS-M DISC INITIALIZE PROTECT UTILITY

THIS SET OF PROGRAMS, OPERATING AS A (USER PROGRAM) UNDER DOS-M, ENABLES THE USER TO PERFORM THE FOLLOWING:

- A. DUMP A (PROTECTED) COPY OF THE CURRENT SYSTEM DISC ONTO ANOTHER SUBCHANNEL DISC.
- B. INITIALIZE ANY SUBCHANNEL DISC OTHER THAN CURRENT SYSTEM SUBCHANNEL DISC.
- C. PROTECT OR UNPROTECT SELECTED TRACKS ON ANY GIVEN SUBCHANNEL DISC.
- D. PRODUCE A STATUS REPORT ON ANY GIVEN SUBCHANNEL DISC, INDICATING THE CONDITION OF EACH TRACK WITH RESPECT TO BEING FLAGGED PROTECTED, UNPROTECTED, OR DEFECTIVE.

IT REQUIRES A MINIMUM DOS-M SYSTEM, VERSION HP24225C OR LATER AND AN HP2870 OR HP7900 DISC. IT WILL NOT WORK WITH THE HP2883 DISC.



CONTRIBUTION #: 296  
 CLASS: 701  
 CONTRIBUTOR: EUGENE BURMEISTER  
 HP, LOVELAND

PART NUMBER: 22378A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: RTE

#### RTE LOGBOOK

THE TWO FORTRAN PROGRAMS IN THIS PACKAGE ALLOW A USER TO (LOG): TIME-IN OF JOB, DESCRIPTION OF JOB, DAY, TIME-OUT OF JOB; AND GENERATE A PERIODIC SUMMARY REPORT WHICH INCLUDES THE NUMBER OF

WORKING DAYS, THE NUMBER OF COMPUTER HOURS AVAILABLE, ONE-LINE PRINTOUTS OF EACH JOB RUN ALONG WITH ITS RUN-TIME, TOTAL USER HOURS, TOTAL COMPUTER HOURS, AND OTHER INFORMATION PERTINENT TO AN RTE ENVIRONMENT.

REQUIRES 16K CORE.

ORDER #22378-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #:	297	PART NUMBER:	22379A-K01
CLASS:	14	PRICE:	\$10
CONTRIBUTOR:	JAMES L. MILLER	DATE CODE:	
	HP, MEDICAL ELECTRONICS	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	SIO

SIO LIST OUTPUT TO A STORAGE SCOPE

THIS DRIVER WILL PROVIDE LIST OUTPUT TO A STORAGE SCOPE OR TELEPRINTER USING STANDARD SIO MODULES. IT MAY BE USED IN AN 8K OR 16K ENVIRONMENT BY ASSEMBLING WITH AN N OR Z OPTION RESPECTIVELY.

EQUIPMENT REQUIRED INCLUDES AN HP12555A DUAL D/A CONVERTER OUTPUT CARD, AND A STORAGE SCOPE WITH REMOTE Z-AXIS AND ERASE CONTROL.



CONTRIBUTION #:	298	PART NUMBER:	22380D-K01
CLASS:	12	PRICE:	\$30
CONTRIBUTOR:	HANS BIESEL	DATE CODE:	
	HP, BOEBLINGEN - GERMANY	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	HP BASIC 20392A

HP BASIC DRIVER SYSTEM WITH BINARY DATA I/O

THE BASIC DRIVER SYSTEM WITH BINARY DATA I/O ENABLES THE USER TO CONTROL THE HP80501B AUDIO DATA PROCESSOR BY MEANS OF CONVERSATIONAL HP BASIC LANGUAGE. IT MODIFIES STANDARD HP BASIC 20392 AND ADDS THE FOLLOWING FEATURES: THE COMPILER CAN BE RESTARTED WITH OR WITHOUT DELETING THE STORED PROGRAM; THE SWITCH REGISTER CAN BE READ FROM BASIC LANGUAGE LEVEL ENABLING THE USER TO CONTROL THE ACTIONS OF THE PROGRAM; THE TELETYPE INTERRUPT MODE CAN BE SWITCHED OFF OR ON FROM BASIC ENABLING THE TELETYPE TO READ DATA FROM PAPER TAPE BECAUSE THE JUMP TO THE STOP-READY POINT IS INHIBITED; BINARY DATA ON PAPER TAPE CAN BE READ OR PUNCHED FROM BASIC LANGUAGE LEVEL. BASIC CALLABLE DRIVERS FOR THE FOLLOWING DEVICES OR INTERFACES ARE INCLUDED: HP12539A TIME BASE GENERATOR (PROVIDING 'ELAPSED TIME' AND/OR 'TIME-OF-DAY'); HP12555A D-TO-A CONVERTER (WITH 8 SERVICE ROUTINES FOR X-Y DISPLAY); HP12551B RELAY OUTPUT REGISTER; HP12564A A-TO-D

CONVERTER; HP 8064A REAL TIME ANALYZER WITH OR WITHOUT HP8065A EXTENSION (CONTROLLING THE ANALYZER AND READING SPECTRA). THE BASIC DRIVER SYSTEM INCLUDES A CONFIGURATOR THAT CAN CHANGE THE CONFIGURATION OR DELETE ROUTINES THAT ARE NOT REQUIRED, A SET OF ROUTINES FOR DIGITAL AND ANALOG DATA ACQUISITION, AND A ROUTINE FOR TRANSFER OF DATA ARRAYS. EXHAUSTIVE DIAGNOSTIC MESSAGES ARE PRINTED IN CASE OF HARDWARE TROUBLE OR PROGRAMMING ERRORS.



CONTRIBUTION #: 299  
 CLASS: 108  
 CONTRIBUTOR: DAVE SNYDER  
 HP, SANTA CLARA

PART NUMBER: 22381A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL/ASMB RELOC  
 OP SYS: BCS,MTS,DOS,DOS-M

#### RELOCATABLE MODULE LISTER

THIS PROGRAM ALLOWS A USER TO SELECTIVELY LIST THE FOLLOWING RECORDS FROM RELOCATABLE TAPES; NAM, ENT, EXT, DBL, AND END ALONG WITH THEIR RELOCATABLE ADDRESSES. THE LISTING MAY BE GENERATED IN EITHER SYMBOLIC OR OCTAL FORMAT UNDER BCS, MTS, DOS, OR DOS-M. ERRORS SUCH AS CHECKSUMS, PARITY, ETC., ARE ALSO LISTED.



CONTRIBUTION #: 300  
 CLASS: 107  
 CONTRIBUTOR: MARTIN SCHELL  
 HP, DSD

PART NUMBER: 22383A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL/ASMB RELOC  
 OP SYS: BCS

#### ALPHANUMERIC RECORD SORT

THIS PROGRAM PERFORMS A VERY RAPID ASCII CODE SORT IN AN 8K BCS ENVIRONMENT. THE PROGRAM USES TWO DISCS OR MAGNETIC TAPE FILES FOR SCRATCH AREA AND SORTED DATA OUTPUT. OPTIONALLY THE SORTED DATA MAY BE DUMPED TO THE LINE PRINTER, PAPER TAPE OR A THIRD DISC/MAG TAPE FILE WITH A SUBSTANTIAL IMPROVEMENT IN EXECUTION TIME. UP TO FOUR SEPARATE FIELDS MAY BE SELECTED IN ORDER OF SORTING SIGNIFICANCE. EACH FIELD MAY RANGE FROM A SINGLE COLUMN TO THE ENTIRE LENGTH OF THE RECORD.



CONTRIBUTION #: 301  
 CLASS: 517  
 CONTRIBUTOR: FRANK ROCHLITZER  
 HP, BOEBLINGEN - GERMANY

PART NUMBER: 22384A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### EFFECTIVE PERCEIVED NOISE LEVEL

THIS PROGRAM COMPUTES THE EFFECTIVE PERCEIVED NOISE LEVEL (EPNL)

OF AN AIRPLANE FROM THE TAKE-OFF OR LANDING PROFILE ACCORDING TO THE AMERICAN (FAA) AND ENGLISH REGULATIONS.

EQUIPMENT REQUIRED INCLUDES 8K MEMORY, AN HP12539 TIME BASE GENERATOR, AN HP2752 TELEPRINTER, ANY HP PHOTOREADER AND PUNCH, AN HP8064A ANALYZER, AND AN HP12589A INTERFACE KIT, AN HP12555 D/A CONVERTER, AND AN HP1208A X-Y DISPLAY.



CONTRIBUTION #: 302  
CLASS: 18  
CONTRIBUTOR: ROBERT A. SAUNDERS  
HP, AMD

PART NUMBER: 22385A-K01  
PRICE: \$70  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

SYMBOLIC MARCO ASSEMBLER FOR THE HP2100

THIS IS A SYMBOLIC ASSEMBLER WITH MACRO INSTRUCTIONS, GENERALIZED LITERALS, EXTENDED INTER-PROGRAM LINKAGE, AND NUMEROUS OTHER USEFUL ADDITIONS; IT IS INTENDED TO SERVE AS A REPLACEMENT FOR EXISTING HP ASSEMBLY PROGRAMS. THE SOURCE LANGUAGE IS SIMILAR BUT NOT IDENTICAL TO THAT OF THE STANDARD ASSEMBLER. IT MAY BE ASSEMBLED USING THE STANDARD HP ASSEMBLER.

THIS ASSEMBLER FUNCTIONS IN A STANDARD SIO ENVIRONMENT AND REQUIRES 8K CORE.



CONTRIBUTION #: 303  
CLASS: 112  
CONTRIBUTOR: HERBERT SHEAR  
HP, DSD

PART NUMBER: 22386A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ALGOL  
OP SYS: BCS,MTS,DOS/M,RTE

MULTIRECORD FORMATTED OUTPUT LISTER

THIS PROGRAM PROVIDES USER CAPABILITY TO OUTPUT MULTI-RECORD FORMATTED DATA STREAMS TO ONE OR MORE LIST DEVICES VIA USER COMMAND CONTROL UNDER DOS. OSTENSIBLY FOR LINE PRINTER LISTINGS OF PUNCHED CARDS, THE USER COMMAND SET ALLOWS SELECTIVE INPUT FROM SEVERAL DEVICES AND JUXTAPOSITION OF THESE INPUT FIELDS. THE COMMAND SET ALSO CONTROLS INSERTIONS OF SPACES, CHARACTERS, PORTIONS OF A CORE-MAVED RECORD, PAGE NUMBERS, PAGE HEADINGS, TOP OF FORM LINE SPACES, AND LINEFEEDS INTO THE DATA STREAM. THE USER MAY VARY OUTPUT RECORD LENGTH BY STRIPPING TRAILING BLANKS, OR PARTIALLY SUPPRESS A LISTING OF THE OUTPUT DATA STREAM VIA COMMAND CONTROL. THE COMMAND SET ITSELF MAY BE PARTIALLY INPUT THROUGH THE TERMINAL IN A CONVERSATIONAL MODE OR MIXED WITH THE INPUT DATA STREAM IN A CARD READER, PHOTOREADER, OR OTHER INPUT DEVICE.

ORDER #22386-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 304  
 CLASS: 2  
 CONTRIBUTOR: RICH NIELSEN  
 HP, CORPORATE

PART NUMBER: 22387A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,MTS

#### D.70 REVERSE CHANNEL TELECOMMUNICATIONS DRIVER

(D.70) IS AN INPUT/OUTPUT DRIVER, WRITTEN IN THE FORM OF A SUBROUTINE, DESIGNED TO OPERATE IN AN INTERRUPT CONTROLLED BCS ENVIRONMENT. IT INTERFACES HP2100 SERIES COMPUTERS TO TELECOMMUNICATION DEVICES UNDER AN ARQ (AUTOMATIC REQUEST FOR RESEND) LINE DISCIPLINE. REVERSE CHANNEL IS USED AS THE REQUEST FOR RESEND MEDIUM. THE DRIVER SUPPORTS HP'S ASYNCHRONOUS I/O BOARDS COUPLED TO ANY APPROPRIATE MODEM WITH REVERSE CHANNEL FEATURE (AS A BELL 202C). THE ARQ METHOD USED BY THIS DRIVER CAN CONSIDERABLY INCREASE THROUGHPUT RATES, ESPECIALLY FOR SHORT DATA BLOCKS. IN EFFECT, IT SIMULATES A PSEUDO FULL-DUPLEX LINE ON A HALF-DUPLEX CIRCUIT.

EQUIPMENT REQUIRED INCLUDES 8K CORE, AN HP12539 TIME BASE GENERATOR, AN HP12587A ASYNCHRONOUS DATA SET INTERFACE KIT, AND AN APPROPRIATE MODEM WITH THE REVERSE CHANNEL FEATURE, BELL 202C.



CONTRIBUTION #: 305  
 CLASS: 18  
 CONTRIBUTOR: FRANCOISE MONS  
 HP, ORSAY - FRANCE

PART NUMBER: 22388A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: SNOBOL  
 OP SYS: DOS,DOS-M

#### HP BASIC TO FORTRAN TRANLATOR FOR DOS/DOS-M

THIS PROGRAM TRANSLATES AN HP BASIC PROGRAM INTO A FORTRAN PROGRAM. IT TRANSLATES THE FOLLOWING STATEMENTS: DATA, LET, GO TO, INPUT, DIM, END, IF...THEN, READ, PRINT, GOSUB, RETURN, FOR, NEXT, RESTORE, DEF, AND STOP. LIMITATIONS ARE STATEMENTS CONSTRAINING MAT AND STRING CHARACTERS SUCH AS AS.

THE TRANSLATOR OPERATES IN A DOS OR DOS-M ENVIRONMENT WITH AT LEAST 24K OF CORE. IT IS WRITTEN IN SNOBOL AND REQUIRES THE CONTRIBUTED SNOBOL TRANSLATOR, HP22327.



CONTRIBUTION #: 306  
 CLASS: 18  
 CONTRIBUTOR: EUGENE DEMENT  
 MARTIN-MARIETTA CORP.

PART NUMBER: 22389A-K01  
 PRICE: \$80  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

#### DOS-M EAU RELOCATABLE BASIC

RELOCATABLE BASIC FOR DOS-M IS ESSENTIALLY EQUIVALENT TO HP'S SINGLE TERMINAL BASIC SYSTEM, HP20392A. TWO ADDITIONAL COMMANDS



HAVE BEEN ADDED TO THIS VERSION; PUNCH FOR HIGH-SPEED PUNCH OUTPUT, AND PLIST FOR LINE PRINTER OUTPUT. 'LIST' GENERATES OUTPUT TO A TELEPRINTER OR CRT. THIS VERSION IS EAU AND CANNOT ACCESS THE DISC TO SAVE USER PROGRAMS OR DATA FILES. A FORMAT FOR ADDING ASSEMBLY LANGUAGE SUBROUTINES TO BE REFERENCED BY A 'CALL' IS INCLUDED IN THE PROGRAMS DOCUMENTATION.



CONTRIBUTION #:	307	PART NUMBER:	22390A-K01
CLASS:	14	PRICE:	\$10
CONTRIBUTOR:	SERGIO MARSICH	DATE CODE:	
	ISTITUTO DI COSTRUZIONI	LANG:	FORTRAN II/ASMB RELO
	UNIVERSITA DI GENOVA/ITALY	OP SYS:	BCS,MTS

## HP7004 X-Y RECORDER LIBRARY

THIS SET OF ROUTINES DISPLAYS POINTS, STRAIGHT LINES, OR ARCS OF A CIRCLE OR PARABOLA BY INTERPOLATING BETWEEN POINTS ON AN HP7004 X-Y RECORDER. CHARACTERS OR NUMBERS ARE DISPLAYED IN INTEGER OR FLOATING POINT FORMAT. ANY PROGRAM WHICH RUNS IN THE HP2331A SUBSYSTEM ENVIRONMENT WILL RUN WITHOUT MODIFICATION IN THE HP7004 ENVIRONMENT USING THIS LIBRARY.

THESE SUBROUTINES ARE FORTRAN OR ASSEMBLER CALLABLE AND CAN BE USED WITH ANY STANDARD HEWLETT-PACKARD RELOCATABLE LIBRARY.



CONTRIBUTION #:	308	PART NUMBER:	22391A-K01
CLASS:	14	PRICE:	\$10
CONTRIBUTOR:	ROBERT O. SMITH	DATE CODE:	
	UNIVERSITY MISSISSIPPI	LANG:	ASSEMBLY ABSOLUTE
	MEDICAL CENTER	OP SYS:	SIO

## HP 1331C SIO SCOPE DISPLAY DRIVER

THIS DRIVER ROUTINE REPLACES THE TTY SIO DRIVER WHEN AN HP1331C X-Y DISPLAY IS AVAILABLE. IT PROVIDES FASTER OUTPUT THAN THE TTY WHEN HARD COPY IS NOT NECESSARY.

EQUIPMENT REQUIRED INCLUDES 8K OR 16K CORE, AN HP1331C OPTION 016 X-Y DISPLAY, AND AN HP12555A D/A INTERFACE CARD.



CONTRIBUTION #:	309	PART NUMBER:	22392A-K01
CLASS:	108	PRICE:	\$10
CONTRIBUTOR:	THAD SMITH III	DATE CODE:	
	NATION BUREAU OF STANDARDS	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

## RELOCATABLE OBJECT UTILITY LIBRARIAN

THIS PROGRAM READS RELOCATABLE OBJECT TAPES UNDER BCS AND OPTIONALLY LISTS PROGRAM LENGTH, LENGTH OF COMMON IN OCTAL, NAMES OF ENTRY POINTS, AND EXTERNAL REFERENCES. EACH PROGRAM MAY BE SELECTIVELY PUNCHED ONTO A LIBRARY TAPE.



CONTRIBUTION #: 310  
 CLASS: 101  
 CONTRIBUTOR: BRUCE T. LUCAS  
 NAVAL WEAPONS CENTER

PART NUMBER: 22393A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

#### ON-LINE EDITOR

THIS EDITOR PROGRAM ALLOWS THE USER TO PREPARE A SYMBOLIC FILE BY ENTERING IT DIRECTLY INTO AVAILABLE MEMORY FROM THE TTY. ALTERNATIVELY, A FILE MAY BE PREPARED OFF-LINE ON PAPER TAPE AND LOADED INTO MEMORY WITH A TAPE READER. EDITING OPERATIONS ARE CONVERSATIONAL, AND ARE PERFORMED ON-LINE USING THE TTY. THE PROCEDURES ARE SIMILAR TO THOSE USED IN CONSTRUCTING A (BASIC) PROGRAM. AVAILABLE EDITING OPERATIONS INCLUDE; DELETING, REPLACING, AND INSERTING LINES OR SERIES OF LINES. A LIMITED DEGREE OF CHARACTER EDITING IS POSSIBLE. THE FILE OR PORTIONS OF IT MAY BE LISTED ON THE TTY (WITH OR WITHOUT LINE NUMBERS), OR PUNCHED OUT ON EITHER THE TTY OR A HIGH SPEED PUNCH. THE PROGRAM IS CODED IN ABSOLUTE ASSEMBLY LANGUAGE, RESIDES ENTIRELY ON BASE PAGE, AND USES ITS OWN I/O DRIVERS. ONE PAGE OF MEMORY IS RESERVED FOR ADDRESS STORAGE. THE REMAINING AVAILABLE MEMORY IS USED TO STORE THE SYMBOLIC FILE, TWO ASCII CHARACTERS PER WORD.



CONTRIBUTION #: 311  
 CLASS: 2  
 CONTRIBUTOR: DON MACTAGGART  
 CANADIAN MARCONI COMPANY

PART NUMBER: 22394A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### CORE-SAVING TELEPRINTER I/O DRIVER & CODE CONVERSION ROUTINE

THIS DRIVER ALLOWS A FORTRAN COMPILED PROGRAM TO BYPASS THE FORMATTER, .IOC., AND STANDARD BCS DRIVERS FOR CONVERSATIONAL ASCII TEXT AND REAL DATA INPUT/OUTPUT ON A SINGLE TELEPRINTER. IT IS A COMPLETELY SELF-CONTAINED RELOCATABLE I/O SYSTEM WITH ASCII AND REAL CODE CONVERSION ROUTINES USING ONLY 600(10) WORDS. THUS CORE AMOUNTING TO 800(10) + .IOC. + DRIVERS ARE SAVED OVER THE USUAL FORMATTED READ/WRITE. IN A 4K MACHINE, THIS RESULTS IN THE USER HAVING AN EXTRA 1K AVAILABLE FOR RAW FORTRAN CODE. ALL RELOCATABLE BINARY CODE INCLUDING THIS DRIVER AND THE LIBRARY MUST BE LOADED AND PUNCHED ONTO AN ABSOLUTE TAPE WITHOUT .IOC., THE FORMATTER, OR THE BCS DRIVERS BY USING THE CONTRIBUTED OFFLINE RELOCATING LOADER, HP22297.



CONTRIBUTION #: 312  
 CLASS: 18  
 CONTRIBUTOR: DR. HAROLD STONE  
 JAMES PETERSON/ED PORTER  
 STANFORD UNIVERSITY

PART NUMBER: 22396B-K21  
 PRICE: \$25  
 DATE CODE:  
 LANG: 360 ASSEMBLY  
 OP SYS: IBM OS-360

## AN HP ASSEMBLER FOR THE IBM 360

(HPA) IS A TWO PASS ASSEMBLER FOR THE HP2100 SYMBOLIC ASSEMBLY LANGUAGE. IT IS WRITTEN IN IBM 360 ASSEMBLY LANGUAGE FOR EXECUTION ON THE IBM SYSTEM 360/67 UNDER OS/360. (HPA) RUNS IN A BATCH PROCESSING MODE AND CAN BE USED TO OBTAIN LISTINGS, ERROR MESSAGES, CROSS REFERENCE TABLES, AND OBJECT CODE FOR LOADING INTO THE HP2100 SERIES COMPUTERS. THE PROGRAM PRODUCES A BINARY OUTPUT FILE TO MAGNETIC TAPE, DISC, PUNCHED CARDS, PAPER TAPE, OR ANY STANDARD IBM OUTPUT DEVICE.



CONTRIBUTION #: 313  
 CLASS: 413  
 CONTRIBUTOR: WAYNE COVINGTON  
 HP, LOVELAND

PART NUMBER: 22397A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS, DOS-M

## COMBINATION GENERATOR

THIS SUBROUTINE GENERATES ALL COMBINATIONS OF (N) OBJECTS TAKEN (K) AT A TIME. THE OUTPUT IS A VECTOR OR 1-DIMENSIONAL FORTRAN ARRAY CONTAINING A PARTICULAR COMBINATION.

THIS SUBROUTINE AS SUPPLIED IS OPERABLE IN DOS OR DOS-M, BUT MAY BE USED UNDER BCS WITH TRIVIAL MODIFICATIONS.



CONTRIBUTION #: 314  
 CLASS: 22  
 CONTRIBUTOR: DAVID R. MCCLELLAN  
 HP, SOUTHERN SALES REGION

PART NUMBER: 22398B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

## RTE JOB CONTROL LANGUAGE FOR BATCH PROCESSING

RTE JOB PROCESSOR IS A FOREGROUND DISC RESIDENT ROUTINE FOR THE HP2005A, 2005B, OR 2005C REAL TIME EXECUTIVE WHICH PROVIDES A PRIMITIVE JOB CONTROL LANGUAGE FOR CONTROLLING THE EXECUTION OF PROGRAMS FROM A BATCH DEVICE SUCH AS A CARD READER, MAG TAPE OR TAPE READER. THE PROGRAM ACCEPTS DIRECTIVES FOR JOB, STATEMENT, END JOB, PAUSE, COMMENT, LOGICAL SOURCE DECLARATION, LOAD AND GO ASSIGNMENT, SCHEDULE REQUEST, AND JOB PROCESSOR TERMINATE. TYPICAL USES OF THIS PROGRAM MIGHT INCLUDE COMPILING, LOADING, AND EXECUTING A FORTRAN OR ASSEMBLY LANGUAGE PROGRAM IN THE BACKGROUND OF RTE, OR RUNNING A SERIES OF PROGRAMS TO PERFORM A SPECIFIC TASK (EITHER FOREGROUND OR BACKGROUND).

ORDER #22398-13300

SOURCE ON CASSETTE

\$35.00





CONTRIBUTION #: 318  
CLASS: 104  
CONTRIBUTOR: HANS R. BIESEL  
HP, BOEBLINGEN - GERMANY

PART NUMBER: 22404A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

SPACE SAVING ASCII STORAGE ROUTINES

THIS ROUTINE, USED IN THE ASSEMBLY LANGUAGE ENVIRONMENT, HANDLES ASCII STRING ELEMENTS CONTAINING 8 CHARACTERS. USUALLY SUCH A STRING IS STORED IN 4 COMPUTER WORDS. SINCE THE STANDARD ASCII CHARACTER SET CONTAINS ONLY 64 DIFFERENT CHARACTERS (40 TO 137 OCTAL), THESE 8-BIT CHARACTERS ARE UNNECESSARY. A STRING ELEMENT CONTAINING 8 CHARACTERS CAN BE STORED IN 3 COMPUTER WORDS, THUS SAVING 25% OF THE MEMORY SPACE ORIGINALLY REQUIRED. THIS PROGRAM CONSISTS OF 2 ROUTINES. ROUTINE 'COMPR' TRANSFERS A STRING ELEMENT (8 CHARACTERS) FROM A SOURCE BLOCK (4 WORDS) TO A DESTINATION BLOCK (3 WORDS). ROUTINE 'EXPND' INVERSELY TRANSFERS A STRING ELEMENT FROM A SOURCE BLOCK (3 WORDS) TO A DESTINATION BLOCK (4 WORDS). THE CALLS TO THE ROUTINES CAN BE EASILY CHAINED THUS TRANSFERRING STRINGS OF CHARACTER BLOCKS.



CONTRIBUTION #: 319  
CLASS: 6  
CONTRIBUTOR: HANS BIESEL  
HP, BOEBLINGEN - GERMANY

PART NUMBER: 22407B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

HP 3360A GAS CHROMATOGRAPH SYSTEM DRIVER - BASIC CALLABLE

THESE INSTRUMENT SYSTEM DRIVERS MODIFY HP BASIC 20392A TO WORK WITH THE HP3360A GAS CHROMATOGRAPH AND ADD SOME SPECIAL FEATURES. THE COMPILER CAN BE RESTARTED WITH OR WITHOUT SCRATCHING THE STORED PROGRAM, THE SWITCH REGISTER CAN BE READ FROM BASIC ENABLING THE USER TO CONTROL THE PROGRAM, A DRIVER CONTROLS UP TO 8 INTEGRATORS, HP3770/1/A/B AND READS DATA FROM THEM THROUGH THE HP18980A MULTIPLEXOR, DATA ACQUISITION IS PERFORMED IN INTERRUPT MODE, AND AN 8, 16, 40 BIT OUTPUT REGISTER CAN BE USED TO CONTROL ANY DEVICE OR SIGNAL LAMP.



CONTRIBUTION #: 320  
CLASS: 11  
CONTRIBUTOR: ED DOUST  
HP, CORPORATE

PART NUMBER: 22408A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

BASIC CALLABLE LINE PRINTER DRIVER

THIS ROUTINE PROVIDES THE HP BASIC SYSTEM 20392A WITH A LINE PRINTER CAPABILITY FOR THE HP2778A. A SPECIAL TECHNIQUE OF LINE PRINTER BUFFERING ALLOWS THE HP2778A TO OPERATE AT MAXIMUM SPEED AND UTILIZE THE FULL LINE PRINTER CARRIAGE WIDTH.



CONTRIBUTION #: 321  
 CLASS: 11  
 CONTRIBUTOR: WARREN NELSON  
 HP, NORTH BURNABY  
 CANADA

PART NUMBER: 22409A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 24160A

EDUCATIONAL BASIC HP 2767 LINE PRINTER DRIVER

THIS MODIFICATION TO EDUCATIONAL BASIC ALLOWS THE HP2767A LINE PRINTER TO BE USED AS THE LIST DEVICE ON THE HP2007A EDUCATIONAL SYSTEM.

OPTIONALLY, THE LINE PRINTER OR TELEPRINTER MAY BE CHOSEN AS THE LIST OUTPUT DEVICE THROUGH A SWITCH REGISTER SETTING. COMPLETE COMPATIBILITY WITH EDUCATIONAL BASIC IS MAINTAINED INCLUDING FLEXIBILITY FOR CORE SPECIFICATION. WITH THE MODIFICATION THE THROUGHPUT OF EDUCATIONAL BASIC IN THE BATCH MODE IS SIGNIFICANTLY INCREASED AND IS LIMITED ONLY BY THE SPEED OF THE CARD READER.



CONTRIBUTION #: 322  
 CLASS: 6  
 CONTRIBUTOR: MICHAEL NAUGHTON  
 HP, MIDWEST SALES REGION

PART NUMBER: 22410A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

RTE MULTIPROGRAMMER DRIVER (DVR61)

(DVR61) IS AN RTE DRIVER TO OPERATE THE HP3936A MULTIPROGRAMMER. THE DRIVER PERFORMS THREE SEPARATE FUNCTIONS. A RESET WILL RESET ALL CARDS IN THE 6936 SYSTEM. READING FROM THE DEVICE WILL INPUT A WORD FROM THE SWITCH REGISTER OF THE 6936 TO THE CALLING PROGRAM. THIS ALLOWS REMOTE CONTROL OF THE USERS SYSTEM. FINALLY, THE WRITE ROUTINE WILL OUTPUT CONTROL AND DATA WORDS FOR CONTROL OF DEVICES CONNECTED TO THE HP6936A.

THIS DRIVER IS FORTRAN CALLABLE.

ORDER #22410-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 323  
 CLASS: 11  
 CONTRIBUTOR: BILL ALEXANDER  
 HP, MIDWEST SALES REGION

PART NUMBER: 22411A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SIO

A.B. DICK VIDEOJET SIO LINE PRINTER DRIVER

THIS SIO DRIVER IS DESIGNED TO OPERATE THE A.B. DICK 9600 VIDEOJET PRINTER. IT INTERFACES HP2114, 2115, 2116 SERIES COMPUTERS USING THE HP12566 MICRO-CIRCUIT INTERFACE CARD WITH POSITIVE TRUE LOGIC. THIS DRIVER IS DESIGNED TO OPERATE ONLY WITH THE LINE PRINTER COMPATIBLE TELEPRINTER DRIVER. THE PUNCH PORTION OF THE

TELEPRINTER DRIVER IS OVERLAID BY THE VIDEOJET DRIVER. HENCE, A PUNCH DRIVER MUST ALSO BE PRESENT IN THE SOFTWARE CONFIGURATION WITH THIS DRIVER WHEN PUNCHING IS REQUIRED.

EQUIPMENT REQUIRED INCLUDES AN A.B. DICK 9600 VIDEOJET LINE PRINTER AND AN HP12566 MICRO-CIRCUIT INTERFACE CARD.



CONTRIBUTION #: 324  
CLASS: 405  
CONTRIBUTOR: HANS R. BIESEL  
HP, BOEBLINGEN - GERMANY

PART NUMBER: 22413A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

RANDOM INTEGER NUMBER GENERATOR

IRND(M) IS A FUNCTION SUBPROGRAM WHICH GENERATES PSEUDO RANDOM NUMBER INTEGERS IN THE RANGE  $0 < X < M - 1$ . THE GENERATING RANDOM NUMBER STRING IS NOT AUTOMATICALLY RESTARTED WHEN THE PROGRAM IS RESTARTED. THIS CAN BE ACHIEVED BY THE FORTRAN CALLABLE SUBROUTINE (STRND).



CONTRIBUTION #: 325  
CLASS: 16  
CONTRIBUTOR: LARRY L. WEAR  
HP, NEELY SALES REGION

PART NUMBER: 22414A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS

NON-DMA BCS HP3030 DRIVER

THIS IS A MODIFIED VERSION OF THE HP3030 BCS DRIVER. IT DOES NOT USE DMA AND IT TURNS OFF THE INTERRUPT SYSTEM DURING ALL DATA TRANSFERS. IT ALLOWS THE HP3030 TO BE USED IN A BCS OR MTS ENVIRONMENT WITH THE HP2100. THE DRIVER INITIATES, CONTINUES, AND COMPLETES ANY TAPE OPERATIONS INITIATED THROUGH INPUT/OUTPUT CONTROL, (.IOC.).



CONTRIBUTION #: 326  
CLASS: 18  
CONTRIBUTOR: KARL HELNESS  
HP, DSD

PART NUMBER: 22415B-K01  
PRICE: \$10  
DATE CODE:  
LANG: ALGOL  
OP SYS: DOS,DOS-M,RTE

DOS ABSOLUTE OBJECT DECODER

DOS ABSOLUTE OBJECT DECODER IS A DOS VERSION OF HP22292 BCS ABSOLUTE OBJECT DECODER. IT IS AN ALGOL PROGRAM DESIGNED TO PRODUCE A PSEUDO SOURCE FROM AN ABSOLUTE BINARY TAPE, COMPLETE WITH LABELS, WHICH WILL ASSEMBLE BACK TO THE ORIGINAL ABSOLUTE. SUCH A TAPE WOULD BE RELATIVELY EASY TO DECIPHER AND EDIT INTO A FUNCTIONAL EQUIVALENT OF THE ORIGINAL SOURCE.

DECODING IS BY WORD COMPARISON WITH THE CONSOLIDATED CODING SHEET. A PROGRAMMER MAY GENERATE A BINARY WORD BY ANY OF SEVERAL METHODS, DEPENDING ON HIS PURPOSE. DCODE TRIES TO CONVERT TO MACHINE INSTRUCTIONS IF POSSIBLE, OTHERWISE TO AN (OCT) CONSTANT. THE GENERATION OF DEF, ABS, ASC, DEC, DEX, AND BSS PSEUDO INSTRUCTIONS, EXPRESSION OPERANDS AND (OCT) OTHER THAN BY DEFAULT ARE NOT WITHIN THE SCOPE OF THIS PROGRAM.

ORDER #22415-13300

SOURCE ON CASSETTE

\$35.00



CONTRIBUTION #: 327  
 CLASS: 22  
 CONTRIBUTOR: THOMAS WINKER  
 HP, DSD

PART NUMBER: 22416A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

CREATE DOS-M DIRECTORY ENTRY UNDER PROGRAM CONTROL

SUBROUTINE (DIREN) PROVIDES THE DOS-M USER WITH A METHOD OF ESTABLISHING DIRECTORY ENTRIES FOR FILES CREATED UNDER PROGRAM CONTROL. THE USER WRITES DATA OF THE APPROPRIATE TYPE STARTING AT THE BEGINNING OF THE WORK AREA KEEPING COUNT OF THE NUMBER OF SECTORS USED. WHEN DATA STORAGE IS COMPLETE, A CALL TO THE APPROPRIATE ENTRY POINT OF (DIREN) CREATES THE NEW DIRECTORY ENTRY.

THIS SUBROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 328  
 CLASS: 18  
 CONTRIBUTOR: JOEL RUBENSTEIN  
 MARTIN-MARIETTA CORP.

PART NUMBER: 22417C-K01  
 PRICE: \$100  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

SUPER BASIC FOR DOS-M

SUPER BASIC FOR DOS-M IS ESSENTIALLY EQUIVALENT TO HP'S SINGLE TERMINAL BASIC SYSTEM HP20392A. SOME IMPORTANT DIFFERENCES INCLUDE THREE (3) ADDITIONAL COMMANDS: PUNCH FOR HIGH-SPEED PUNCH TAPE OUTPUT, PLIST FOR LINE PRINTER OUTPUT, AND LOAD FOR INPUTTING USER PROGRAMS FROM DOS-M SOURCE FILES. THIS PROGRAM USES THE DISC WORK AREA FOR TEMPORARY STORAGE ALLOWING A TOTAL USER PROGRAM AND ARRAY STORAGE OF 32K WORDS. SWITCH REGISTER CONTROL OUTPUT, TERMINATE EXECUTION, AND DELETE (REMARK) STATEMENTS. STATEMENT NUMBERS RANGE FROM 1 TO 32767. 'GOTO' AND 'GOSUB' STATEMENTS MAY BE FOLLOWED BY ARITHMETIC EXPRESSIONS OR LINE NUMBERS.

REQUIRES 8K OR 16K DOS-M WITH EAU.





CONTRIBUTION #: 329  
CLASS: 904  
CONTRIBUTOR: RODNEY C. WILLIAMS  
WILLIAM L. MCLAIN  
WAKE FOREST UNIVERSITY

PART NUMBER: 22425A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

THREE-DIMENSIONAL TRANSFORMATIONS USING EULER'S ANGLES

THIS FORTRAN CALLABLE SUBROUTINE TRANSFORMS THE COORDINATES (X, Y, Z) OF A DATA SET TO (X', Y', Z') USING EULER'S ANGLES. IT IS PARTICULARLY USEFUL IN OBTAINING PLANAR PROJECTIONS OF CRYSTAL STRUCTURES. REFERENCES CITED IN THE DOCUMENTATION GIVE A DETAILED EXPLANATION OF THE METHOD OF EULER'S ANGLES.

ONLY 8K OF CORE AND AN HP2752 TELEPRINTER ARE REQUIRED, BUT THE ROUTINE IS PARTICULARLY USEFUL IN CONJUNCTION WITH AN HP1300A DISPLAY SYSTEM. TWO TEST PROGRAMS DEMONSTRATE OUTPUT ON A TELEPRINTER AND AN HP1300A SCOPE.

CONTRIBUTION #: 330  
CLASS: 904  
CONTRIBUTOR: WILLIAM L. MCLAIN  
RODNEY C. WILLIAMS  
WAKE FOREST UNIVERSITY



PART NUMBER: 22426A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: BCS

LOGARITHMIC AXIS GENERATOR FOR THE CALCOMP 565

THE PURPOSE OF THIS PROGRAM IS TO GENERATE A LOGARITHMIC AXIS ON A CALCOMP PLOTTER. IT USES SEVERAL OF THE SUBROUTINES FROM THE HP PLOTTER LIBRARY. THE USER MAY SPECIFY LENGTH OF AXIS, NUMBER OF CYCLES, AXIS LABEL, AND X OR Y DIRECTION OF AXIS. MANY USERS MAY WISH TO CONVERT THIS PROGRAM TO A SUBROUTINE FOR USE IN MORE GENERAL GRAPHIC PROGRAMS. INSTRUCTIONS FOR THIS CONVERSION ARE ENCLOSED.

REQUIRES AN 8K 2100 COMPUTER.



CONTRIBUTION #: 331  
CLASS: 108  
CONTRIBUTOR: BJOERN LINDBERG  
HP, STOCKHOLM - SWEDEN

PART NUMBER: 22427A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

MEDIA CONVERSION

THIS PROGRAM CONVERTS ASCII CODE FROM ONE TYPE OF STORAGE MEDIA TO ANOTHER. CONVERSION MODES ALLOWED ARE: CARD TO MAG TAPE, CARD TO LIST AND CARD TO PAPER TAPE; MAG TAPE TO LIST AND MAG TAPE TO PAPER TAPE; PAPER TAPE TO LIST, PAPER TAPE TO MAG TAPE, AND PAPER TAPE TO PAPER TAPE. THE PROGRAM RESPONDS TO USER COMMANDS UNDER DOS-M AND IS COMPATIBLE WITH THE !STORE AND !DUMP DIRECTIVES.



CONTRIBUTION #: 332  
 CLASS: 212  
 CONTRIBUTOR: TONY CHAMBERS  
 HP, SLOUGH - ENGLAND

PART NUMBER: 22428A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: BCS,DOS-M

## ASSEMBLER JUSTIFICATION PROGRAM

THIS RELOCATABLE PROGRAM ACCEPTS AS INPUT ANY HP ASSEMBLER SOURCE TAPE. IT PRODUCES AS OUTPUT THE SAME ASSEMBLER STATEMENTS WITH THE LABEL, OPCODE, OPERAND, AND COMMENT FIELDS JUSTIFIED. SPECIAL FEATURES INCLUDE SWITCH REGISTER OPTIONS FOR EASY OPERATION UNDER BCS OR DOS-M.



CONTRIBUTION #: 333  
 CLASS: 110  
 CONTRIBUTOR: ENRICO P. MARIANI  
 HP, MILAN - ITALY

PART NUMBER: 22429A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

## EFMP FILE TRANSFER

THIS PROGRAM TRANSFERS THE CONTENTS OF AN EFMP FILE TO A NEW DESTINATION FILE OR AN ALREADY EXISTING FILE. IT REQUIRES ANOTHER USER PROGRAM, HP22433.



CONTRIBUTION #: 334  
 CLASS: 107  
 CONTRIBUTOR: ENRICO P. MARIANI  
 HP, MILAN - ITALY

PART NUMBER: 22430A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV/ASMB RELO  
 OP SYS: BCS,DOS,RTE

## NUMERIC SORT

THERE ARE THREE SUBROUTINES IN THIS PACKAGE FOR A FAST (INCORE) SORT OF INTEGERS, REALS, AND DOUBLE PRECISION NUMBERS.

THE PACKAGE REQUIRES A MINIMUM OF 8K CORE, AND IS FORTRAN IV CALLABLE.

ORDER #22430-13300      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 335  
 CLASS: 212  
 CONTRIBUTOR: BJOERN LINDBERG  
 HP, STOCKHOLM - SWEDEN

PART NUMBER: 22431A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

DOS-M SEGMENT RETURN TO MAIN

THIS FORTRAN-ALGOL CALLABLE SUBROUTINE ALLOWS A USER IN THE DOS-M ENVIRONMENT TO RETURN TO A MAIN PROGRAM FROM A SEGMENT. OPTIONALLY THE LABEL AT WHICH EXECUTION WILL BE RESUMED MAY BE SPECIFIED.



CONTRIBUTION #: 336  
CLASS: 110  
CONTRIBUTOR: BJOERN LINDBERG  
HP, STOCKHOLM - SWEDEN

PART NUMBER: 22432B-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

EFMP DIRECTORY LISTER

THIS PROGRAM MAY BE USED TO LIST AN EXTENDED FILE MANAGEMENT PACKAGE DIRECTORY.



CONTRIBUTION #: 337  
CLASS: 105  
CONTRIBUTOR: UMBERTO PAOLUCCI  
HP, MILAN - ITALY

PART NUMBER: 22433A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS,BCS,RTE

ASCII/INTEGER CONVERSION ROUTINE

THIS FORTRAN CALLABLE FUNCTION CONVERTS A SUBSTRING OF ASCII CHARACTERS INTO AN INTEGER VALUE OR VICE VERSA.

ORDER #22433-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 338  
CLASS: 105  
CONTRIBUTOR: JAROSLAV DEDEK  
CZECHOSLOVAKIA

PART NUMBER: 22434A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

RANDOM NUMBER GENERATORS

TWO SUBROUTINES USING THE SAME ALGORITHM TO COMPUTE UNIFORMLY DISTRIBUTED PSEUDO-RANDOM NUMBERS AT THE INTERVAL (0,1) ARE INCLUDED IN THIS PACKAGE. ONE IS FORTRAN OR ALGOL CALLABLE. THE OTHER IS STRICTLY FOR USE WITH ASSEMBLER MAIN PROGRAMS AND IS MUCH FASTER. THE METHOD EMPLOYED IS DESCRIBED IN: 'APPLIED NUMERICAL METHODS', BY CARNAHAN, LUTHER, AND WILKES, P. 545.



CONTRIBUTION #: 339  
 CLASS: 516  
 CONTRIBUTOR: JAROSLAV DEDEK  
 CZECHOSLOVAKIA

PART NUMBER: 22435A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: BCS

## SECOND VIRIAL COEFFICIENTS

THIS PROCEDURE COMPUTES THE SECOND VIRIAL COEFFICIENTS  $B_{11}$ ,  $B_{22}$ , AND  $B_{12}$  OF GASES AND BINARY GAS MIXTURES BY THE O'CONNELL AND PRAUSNITZ METHOD. IT HOLDS THAT;

$$pV_R = RT + B * P$$

OR

$$\frac{pV}{RT} = z = 1 + B * \frac{P}{RT}$$

WHERE

$P$ - $V$ - $T$  ARE PRESSURE, MOLAR VOLUME, AND TEMPERATURE OF GAS OR GASEOUS MIXTURE,  $R = 0.082056 \text{ l} * \text{ATM} * \text{DEG-1} * \text{MOL-1}$  IS THE GAS CONSTANT, AND  $B$  IS EITHER THE SECOND VIRIAL COEFFICIENT OF PURE GAS (I.E.  $B_{11}$  OR  $B_{22}$ ), OR OF BINARY GASEOUS MIXTURE (I.E.,  $Y_2/1 * B_{11} + 2 * Y_1 * Y_2 * B_{12} + Y_2/2 * B_{22}$ , WHERE  $Y_1$  AND  $Y_2$  ARE THE MOLAR FRACTIONS OF THE COMPONENTS 1 AND 2, RESPECTIVELY).



CONTRIBUTION #: 340  
 CLASS: 903  
 CONTRIBUTOR: NORMAN D. LOVE  
 MARYVILLE COLLEGE

PART NUMBER: 22436A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

## HANGMAN

THIS PROGRAM WILL PLAY THE GAME OF 'HANGMAN' USING EIGHTY, FIVE LETTER WORDS WHICH ARE READ IN FROM THE HIGH-SPEED PAPER TAPE READER AS DATA. IT WILL ASK FOR LETTERS WHICH IT COMPARES WITH THE LETTERS OF THE WORD THE PLAYER CHOOSES. IF THE PLAYER GUESSES THE LETTERS OF THE CHOSEN WORD WITH LESS THAN SIX ERRORS, HE GETS TO CHOOSE ANOTHER WORD. IF HE HAS SIX ERRORS A PICTURE OF A GALLOWS AND A STICK MAN HANGING IS PRINTED ALONG WITH THE WORD HE WAS GUESSING. HE THEN GETS TO CHOOSE ANOTHER WORD AND CONTINUES PLAYING.

REQUIRES 8K OF CORE.



CONTRIBUTION #: 341  
 CLASS: 407  
 CONTRIBUTOR: DR. W. R. LEVICK  
 AUSTRALIAN NATIONAL  
 UNIVERSITY

PART NUMBER: 22437A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: DOS

## WILCOXON-MANN-WHITNEY TEST

THIS PROGRAM CALCULATES THE (RANK-SUM) (SU) FOR THE SMALLER OF TWO SETS OF STATISTICAL DATA. THE MEASURE IS USED AS A DISTRIBUTION-

INDEPENDENT TEST OF THE NULL HYPOTHESIS THAT TWO SETS OF DATA ARE DRAWN FROM THE SAME POPULATION. SPECIAL CONSIDERATION WAS GIVEN TO THE PROCEDURE FOR ASSIGNING RANK IN THE CASE OF MULTIPLE TIES SO AS TO AVOID BIASING THE (RANK-SUM).

EQUIPMENT REQUIRED INCLUDES A 16K HP2116B FIXED-HEAD DISC OPERATING SYSTEM WITH EAU AND DMA.



CONTRIBUTION #: 342  
CLASS: 18  
CONTRIBUTOR: DENNIS I. SMITH  
MONTANA STATE UNIVERSITY

PART NUMBER: 22438A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

DOS-M RELOCATABLE REVERSE ASSEMBLER

THIS PROGRAM WILL REVERSE ASSEMBLE (PRODUCE AN ASSEMBLY TYPE LISTING) FROM RELOCATABLE OBJECT CODE LOCATED IN DISC FILES, THE 'JBIN' AREA OF THE DISC, THE DISC-RESIDENT LIBRARY, MAGNETIC TAPE, OR PAPER TAPE. THE RELOCATABLE OBJECT CODE MAY HAVE BEEN PRODUCED BY EITHER THE ASSEMBLER OR A COMPILER USING A DOS-M SYSTEM.



CONTRIBUTION #: 343  
CLASS: 18  
CONTRIBUTOR: DENNIS I. SMITH  
MONTANA STATE UNIVERSITY

PART NUMBER: 22439A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

8K SIO RELOCATABLE REVERSE ASSEMBLER

THIS PROGRAM WILL REVERSE ASSEMBLE (PRODUCE AN ASSEMBLY TYPE LISTING) FROM RELOCATABLE OBJECT CODE LOCATED ON PAPER TAPE. THE RELOCATABLE OBJECT CODE MAY HAVE BEEN PRODUCED BY EITHER THE ASSEMBLER OR A COMPILER.



CONTRIBUTION #: 344  
CLASS: 18  
CONTRIBUTOR: DENNIS I. SMITH  
MONTANA STATE UNIVERSITY

PART NUMBER: 22440A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

8K SIO ABSOLUTE REVERSE ASSEMBLER

THIS PROGRAM WILL REVERSE ASSEMBLE (PRODUCE AN ASSEMBLY TYPE LISTING) FROM ABSOLUTE OBJECT CODE LOCATED ON PAPER TAPE. THE ABSOLUTE OBJECT CODE MAY HAVE BEEN PRODUCED BY EITHER THE ASSEMBLER OR THE BCS RELOCATING LOADER.



CONTRIBUTION #: 345  
 CLASS: 8  
 CONTRIBUTOR: HOWARD MORRIS

PART NUMBER: 22441A-K01  
 PRICE: \$90  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,MTS

#### PSEUDO MULTIPROGRAMMING EXECUTIVE FOR BCS

THE OBJECTIVE OF MTE IS TO EFFECT MULTI-PROGRAMMING IN CONJUNCTION WITH THE BASIC CONTROL SYSTEM ENVIRONMENT. IT PROVIDES THE OPERATOR WITH FACILITIES TO MAINTAIN THE SYSTEM TIME AND DATE, EXECUTE PROGRAMS, SUSPEND AND ACTIVATE PROGRAM EXECUTION, ABORT PROGRAMS, OBTAIN THE SYSTEM'S STATUS. PROGRAMS MAY USE MTE TO ACCESS THE SYSTEM TIME AND DATE, ALLOCATE AND DEALLOCATE PERIPHERALS, RELINQUISH THE CPU UNTIL I/O OPERATION IS COMPLETED, LOCK SUBROUTINES, AND WAIT UNTIL A PREVIOUSLY LOCKED SUBROUTINE IS FREE. THERE ARE TWO MAJOR LIMITATIONS TO MTE. IT HAS NO FACILITIES TO LOAD PROGRAMS INTO MEMORY AND IT DOES NOT ACTIVELY TAKE THE CPU FROM THE CURRENTLY EXECUTING PROGRAM.

MTE REQUIRES A TIME BASE GENERATOR AND A TELETYPE. OPTIONALLY IT CAN OPERATE UNDER A MAGNETIC TAPE SYSTEM.



CONTRIBUTION #: 346  
 CLASS: 6  
 CONTRIBUTOR: HANS BIESEL  
 HP, BOEBLINGEN - GERMANY

PART NUMBER: 22442A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 20392A

#### BD.1 BASIC DRIVER FOR HP 8054A REAL TIME ANALYZER

THIS BASIC DRIVER CAN BE USED TO OPERATE THE HP8054A REAL TIME ANALYZER (WITH HP8060A EXTENSION OPTIONALLY) THROUGH THE USE OF THE HP15163A, OPTION 01 INTERFACE KIT. IT IS A MODIFICATION OF THE HP20392A BASIC COMPILER WHICH ALLOWS THE USER TO PROGRAM THE FOLLOWING OPTIONS IN A CONVERSATIONAL BASIC LANGUAGE:

1. SET ONE OF ELEVEN MEASURING RANGES OF THE ANALYZER.
2. READ ONE CYCLE OF 24 (OR 36) OUTPUT LEVELS FROM THE ANALYZER.

THE DRIVER INCLUDES A CONFIGURATION ROUTINE THAT IS RELEASED AT RUN TIME.



CONTRIBUTION #: 347  
 CLASS: 18  
 CONTRIBUTOR: LARRY BYLER  
 HP, DSD

PART NUMBER: 22443A-K01  
 PRICE: \$110  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS,DOS-M,RTE

#### DOS/RTE ALGOL COMPILER

THIS PACKAGE PROVIDES THE USER WITH A MODIFIED HP24129 ALGOL COMPILER. THE MODIFICATION OUTPUTS A MORE READABLE OBJECT CODE

LISTING THAN THE UNMODIFIED ALGOL COMPILER. FOR ANY GIVEN OPERATING SYSTEM THE ALGOL COMPILER REQUIRES AT LEAST 8K MORE OF CORE THAN THE MINIMUM FOR THAT SYSTEM. THUS, THE CODE FOR OBJECT LISTING IS MINIMIZED. FOR USERS WITH MORE CORE, THIS VERSION OF THE COMPILER WILL GIVE A PSEUDO-ASSEMBLY LANGUAGE FORMATTED OBJECT CODE LISTING.

ORDER #22443-13300

SOURCE CASSETTE PACKAGE

\$350.00



CONTRIBUTION #: 348  
 CLASS: 212  
 CONTRIBUTOR: JOHN GALBREATH  
 HP, DSD

PART NUMBER: 22444A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: DOS, DOS-M, RTE

## COMMENT INSERTER FOR ASSEMBLER PROGRAMS

THIS PROGRAM ASSISTS IN ADDING COMMENTS TO ASSEMBLY LANGUAGE SOURCE PROGRAMS.

ONE RECORD OF THE SOURCE PROGRAM IS READ BY THE PHOTOREADER AND PRINTED ON THE TELETYPE. THE TELETYPE IS THEN TABULATED TO COLUMN 21 OR THREE SPACES PAST THE LAST CHARACTER IN THE SOURCE PROGRAM RECORD, WHICHEVER IS GREATER. THE USER NOW TYPES THE COMMENT TO BE ADDED, FOLLOWED BY A CARRIAGE RETURN AND LINE FEED (IF NO COMMENT THEN TYPE SPACE, CARRIAGE RETURN, LINE FEED). THE ENTIRE RECORD WILL NOW BE PUNCHED. THE STEPS ABOVE WILL BE REPEATED FOR EACH RECORD OF THE SOURCE PROGRAM.

TO TERMINATE WITH TRAILER, TYPE A SLASH: '/'.

HARDWARE REQUIRED IS: COMPUTER, TAPE READER, TAPE PUNCH, TELETYPE.

ORDER #22444-13300

SOURCE ON CASSETTE

\$35.00



CONTRIBUTION #: 349  
 CLASS: 22  
 CONTRIBUTOR: STANTON L. NELSON  
 HP, NEELY SALES REGION

PART NUMBER: 22445A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

## RTE TRACK ASSIGNMENT TABLE LOG

THIS PROGRAM IS USEFUL AS A UTILITY ROUTINE IN THE REAL TIME EXECUTIVE SYSTEM. ITS FUNCTION IS TO LIST OUT THE TRACK ASSIGNMENTS OF THE RTE SYSTEM AND AUXILIARY DISCS (LU2 AND LU3) AT THE TIME OF EXECUTION. IT DOES THIS BY INTERROGATING THE RTE TRACK ASSIGNMENT TABLE (TAT). IF A TRACK IS ASSIGNED TO THE SYSTEM, 'SYSTEM' IS PRINTED; IF ALLOCATED AS GLOBAL, 'GLOBAL' IS

PRINTED; IF ALLOCATED AS OWN, THE NAME AND TYPE OF THE PROGRAM TO WHICH IT IS ASSIGNED IS PRINTED; AND IF NOT ASSIGNED, 'AVAIL' IS PRINTED.

ORDER #22445-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #:	350	PART NUMBER:	22446A-K01
CLASS:	22	PRICE:	\$10
CONTRIBUTOR:	S. ZAMOSCIANYK	DATE CODE:	
	RAYTHEON COMPANY	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	MTS

#### MAGNETIC TAPE SYSTEM PROGRAM CATALOG

THIS PROGRAM, DESIGNED FOR A MAGNETIC TAPE SYSTEM, PRINTS A CATALOG OF THE NAMES OF THE ABSOLUTE PROGRAMS RESIDING ON THE FIRST FILE OF THE USER'S SYSTEM MAG TAPE. IT ALSO PRINTS THE NAMES OF THE RELOCATABLE LIBRARY PROGRAMS STORED ON THE SECOND FILE TOGETHER WITH A LISTING OF ALL ENTRY POINTS AND EXTERNAL NAMES THAT ARE REFERENCED BY EACH RELOCATABLE PROGRAM.



CONTRIBUTION #:	351	PART NUMBER:	22447A-K01
CLASS:	6	PRICE:	\$10
CONTRIBUTOR:	RICHARD BRANDT	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

#### HP 5360 COMPUTING COUNTER DRIVER

THIS BCS DRIVER ALLOWS THE USER TO CALL THE HP5360 COMPUTING COUNTER FROM A FORTRAN PROGRAM. PROGRAMMING STEPS CAN BE PASSED TO THE COUNTER BY MEANS OF AN INTEGER ARRAY AND DATA CAN BE PASSED TO AND FROM THE COUNTER BY MEANS OF TWO FLOATING POINT ARRAYS. STATUS IS RETURNED.

EQUIPMENT REQUIRED INCLUDES THE HP5360 COMPUTING COUNTER (25000-60030) INTERFACE CARD AND THE (25000-60033) INTERFACE CABLE.



CONTRIBUTION #:	352	PART NUMBER:	22448A-K01
CLASS:	17	PRICE:	\$10
CONTRIBUTOR:	DOUG BASKINS	DATE CODE:	
	HP, EASTERN SALES REGION	LANG:	FORTRAN II/ASMB RELO
		OP SYS:	DOS-M

#### CORE RESIDENT DOS-M BOOTSTRAP

THIS PROGRAM WILL INSTALL IN MEMORY A COMBINATION PAPER TAPE/DISC



LOADER FOR AN HP7900/7901 OR HP2870 DUS-M SYSTEM, THUS ELIMINATING THE NEED FOR THE PAPER TAPE DUS-M BOOTSTRAP. ONCE IN CORE, IT WILL BRING UP SUB-CHANNEL 0-7 OF A DUS-M SYSTEM.



CONTRIBUTION #: 353  
CLASS: 18  
CONTRIBUTOR: PETER SCHORER  
HP, SANTA CLARA

PART NUMBER: 22449A-K01  
PRICE: \$30  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

TYPE 3 LANGUAGE GENERATOR

THIS ABSOLUTE ASSEMBLY PROGRAM GENERATES TYPE 3 LANGUAGES (ALSO KNOWN AS 'REGULAR LANGUAGES'), FROM THE SET OF PRODUCTIONS (THE GRAMMAR) ENTERED BY THE USER. THE TYPE 3 LANGUAGES ARE THE SIMPLEST OF THE FOUR CLASSES OF FORMAL LANGUAGES ESTABLISHED BY NOAM CHOMSKY. MOST PROGRAMMING LANGUAGES, FOR EXAMPLE, ARE THE NEXT LEVEL UP IN COMPLEXITY: TYPE 2, OR (CONTEXT FREE) LANGUAGES. A (LANGUAGE) HERE MEANS A 'SET OF STRINGS'. AMONG THE TYPE 3 LANGUAGES THAT CAN BE GENERATED WITH THIS PROGRAM ARE THE NUMBER SYSTEMS UP TO BASE 7 AND SOME OF THE SUBSETS OF THE SET OF WELL-FORMED (IN THE ALGEBRAIC SENSE) PARENTHESES. THE PROGRAM WAS ORIGINALLY DESIGNED AS AN EDUCATIONAL AID, NAMELY, TO CHECK THE ANSWERS TO PROBLEMS IN WHICH STUDENTS ARE ASKED TO FIND A GRAMMAR THAT WILL GENERATE A GIVEN SET OF STRINGS. IT ALSO INCLUDES THE CAPABILITY FOR SUBSTITUTING ENGLISH WORDS FOR TERMINALS, AND THUS PERMITS GENERATION OF SETS OF SIMPLE ENGLISH SENTENCES.

THIS SELF-CONTAINED PROGRAM REQUIRES 16K OF CORE AND A TELETYPE.



CONTRIBUTION #: 354  
CLASS: 6  
CONTRIBUTOR: RICHARD BRANDT  
HP, EASTERN SALES REGION

PART NUMBER: 22450A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

PRIVILEGED RTE DRIVER FOR THE HP 8054 AUDIO ANALYZER (DVR75)

THIS PRIVILEGED RTE DRIVER, DVR 75, CONTROLS THE HP8054A AUDIO ANALYZER ON READ/WRITE REQUESTS. IT REQUIRES THE HP15163A DATA SOURCE INTERFACE CARD WITH CABLE AND THE HP12620A BREADBOARD INTERFACE CARD.

ORDER #22450-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 355  
 CLASS: 20  
 CONTRIBUTOR: TED SLATER  
 SIMON FRASER UNIVERSITY

PART NUMBER: 22451A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II/ASMB RELO  
 OP SYS: BCS

#### RELAY TIMER FOR HP 12551B RELAY REGISTER INTERFACE

THIS PACKAGE PROVIDES A METHOD FOR CONTROLLING THE TIME DURATION FOR EACH SET OF RELAY REGISTER CONTACT CLOSURE CONFIGURATIONS FOR THE HP12551B RELAY REGISTER INTERFACE. DURATION TIMES ARE SPECIFIED THROUGH SETS OF EXECUTION CONTROL PARAMETERS AND MEASURED USING AN HP12539A TIME BASE GENERATOR INTERFACE (TBG). THE CONTRIBUTED PROGRAM TITLED MTS/BCS SYSTEM ABSOLUTE DUMP, (HP22257) IS USED BY THIS PACKAGE.

EQUIPMENT REQUIRED INCLUDES THE BCS WITH 8K CORE STORAGE, A TELETYPE, HP12539A TIME BASE GENERATOR, HP12551B RELAY REGISTER INTERFACE, AND HP2761 MARK SENSE CARD READER.



CONTRIBUTION #: 356  
 CLASS: 8  
 CONTRIBUTOR: TED SLATER  
 SIMON FRASER UNIVERSITY

PART NUMBER: 22452A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### BCS - FORTRAN/ALGOL MEMORY ALLOCATION ROUTINES

THIS ROUTINE DETERMINES THE ADDRESS AND LENGTH OF THE LARGEST BLOCK OF AVAILABLE MEMORY AND PASSES THIS INFORMATION AS PARAMETERS TO A SUBPROGRAM. IT IS A PSEUDO MAIN PROGRAM WHICH OPERATES IN A MINIMUM BCS PROGRAMMING SYSTEM AND REQUIRES ONLY A TELETYPE. IT HAS TWO VERSIONS, WHICH ALLOWS THE USER TO CODE THE SUBPROGRAMS IN EITHER FORTRAN OR ALGOL.



CONTRIBUTION #: 357  
 CLASS: 2  
 CONTRIBUTOR: RICH NIELSEN  
 HP, PALO ALTO

PART NUMBER: 22453B-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,MTS

#### HP 2100 REMOTE JOB ENTRY TO IBM HOST CPU

(HPRJE) IS A PROGRAM DESIGNED TO ALLOW MEDIUM- TO HIGH-SPEED REMOTE JOB ENTRY FUNCTIONS TO BE CARRIED OUT BETWEEN AN IBM (HOST) COMPUTER AND AN HP2100 SERIES COMPUTER. THE PROGRAM SIMULATES THE FUNCTION OF AN IBM 2780 TERMINAL WHICH IS ONE OF IBM'S POPULAR MEDIUM-SPEED RJE TERMINALS.

IN PARTICULAR, THE FUNCTIONS AVAILABLE WITH (HPRJE) ARE AS FOLLOWS:

1. JOB ENTRY. A FILE OF DATA, AS A COBOL SOURCE COMPILE, IS TRANSMITTED TO THE IBM (HOST) CPU FOR PROCESSING.
2. JOB RETRIEVAL. OUTPUT FILES FROM ENTERED JOBS ARE RECEIVED FROM THE IBM (HOST) CPU AND SPOOLED TO TAPE IN LINE PRINTER FORMAT.
3. JOB STATUS & CONTROL. STATISTICS ON ENTERED JOBS, AS PROCESSING QUEUES, AND JOB CONTROL FUNCTIONS, AS JOB CANCELLATION, ARE AVAILABLE UPON REQUEST FROM THE HP2100 SYSTEM'S CONSOLE.
4. CARD TO TAPE. (HPRJE) WILL READ CARDS AND WRITE TO MAG TAPE, THUS, GENERATING AN INPUT FILE FOR TRANSMISSION TO THE (HOST) CPU.
5. FILE PRINT. (HPRJE) WILL PRINT JOB FILES RECEIVED FROM THE (HOST) CPU.



CONTRIBUTION #: 358

CLASS: 207

CONTRIBUTOR: T. J. BALLEW  
HP, SOUTHERN SALES REGION

PART NUMBER: 22454C-K01

PRICE: \$10

DATE CODE:

LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

#### QUICK DUMP FOR HP 7900A MOVING HEAD DISC

THIS ABSOLUTE ASSEMBLY PROGRAM WILL DUMP OR LOAD DATA FROM AN HP7900A MOVING HEAD DISC TO OR FROM A MAG TAPE UNIT. SIO DRIVERS ARE EXPECTED FOR THE MAG TAPE AND FOR A TELETYPE. THE PROGRAM HAS A VERIFY OPTION AND WILL DUMP AN OPTIONAL NUMBER OF TRACKS.

EQUIPMENT REQUIRED INCLUDES 16K CORE, AN HP7900A MOVING HEAD DISC, ANY HP MAG TAPE DRIVE, AN HP TELEPRINTER, AND DMA.



CONTRIBUTION #: 359

CLASS: 212

CONTRIBUTOR: ROGER BAKER/JOHN WOELLER  
JONES & HENRY ENGINEERS  
LIMITED

PART NUMBER: 22455A-K01

PRICE: \$40

DATE CODE:

LANG: FORTRAN/ASMB RELOC  
OP SYS: RCS

#### HP IDEAL COMMERCIAL SUBROUTINE LIBRARY

THIS SET OF 18 ASSEMBLY AND 1 FORTRAN ROUTINE PROVIDES THE MEANS OF BUSINESS APPLICATION PROGRAMMING WITH LITTLE FORTRAN EXPERIENCE, MAKING HP FORTRAN AN EASY AND POWERFUL COMMERCIAL LANGUAGE. THIS SET IS EASY TO LEARN, EASY TO USE, EFFICIENT, FAST, ACCURATE, AND PROVIDES EDITING CAPABILITIES. ERROR DETECTION IS PROVIDED IN APPROPRIATE ROUTINES. PROGRAMS WERE DEVELOPED USING DOS-M SYSTEM, BUT COULD RUN IN A 4K RCS ENVIRONMENT.



CONTRIBUTION #: 360

CLASS: 22

CONTRIBUTOR: TED SLATER  
SIMON FRASER UNIVERSITY  
CANADA

PART NUMBER: 22457B-K01

PRICE: \$20

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

## DEFINE AND FILL FILES FROM DOS-M USER PROGRAM

THESE ROUTINES, CALLABLE FROM FORTRAN OR ASSEMBLER USER PROGRAMS, ALLOW ACCESS TO ANY AREA ON THE CURRENT USER DISC SUBCHANNEL FOR I/O TRANSFER. THEY CAN BE USED TO DEFINE AND FILL ANY ONE OF THE FOLLOWING TYPES OF DOS-M USER FILES: RELOCATABLE BINARY, ASCII SOURCE STATEMENTS, BINARY DATA, AND ASCII DATA.

EAU ON A MINIMUM DOS-M SYSTEM IS SUFFICIENT FOR THIS PACKAGE.



CONTRIBUTION #: 361

CLASS: 16

CONTRIBUTOR: AL WALTHERS  
HP, DSD

PART NUMBER: 22458A-K01

PRICE: \$10

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS, DOS-M

## DOS/DOS-M HP 7970 7-TRACK MAGNETIC TAPE DRIVER (DVR24) WITH DMA

THIS DOS AND DOS-M DRIVER CONTROLS I/O OPERATIONS FOR UP TO FOUR HP7970 7-TRACK MAGNETIC TAPE UNITS USING DMA.

EQUIPMENT REQUIRED IS ONE HP7970 7-TRACK MAGNETIC TAPE UNIT WITH INTERFACE KIT AND THE DIRECT MEMORY ACCESS OPTION FOR THE MINIMUM DOS-M SYSTEM.



CONTRIBUTION #: 362

CLASS: 607

CONTRIBUTOR: ROGER BAKER  
JONES & HENRY ENGINEERS  
LIMITED

PART NUMBER: 22460A-K01

PRICE: \$50

DATE CODE:  
LANG: FORTRAN/ASMB RELOC  
OP SYS: DOS-M

## CONTINUOUS SYSTEM MODELING PROGRAM (CSMP)

(CSMP) IS A SET OF ROUTINES WHICH PROVIDE THE ENGINEER AND SCIENTIST A SIMPLE YET VERSATILE MEANS FOR SIMULATING CONTINUOUS PROCESSES. IT PROVIDES A BLOCK-ORIENTED LANGUAGE HAVING A LARGE COMPLEMENT OF FUNCTIONAL ELEMENTS FOR SPECIFYING THEIR INTERCONNECTION.

IT IS OPERABLE UNDER A DOS-M ENVIRONMENT ON A 16K MINIMUM MACHINE.

INPUT IS ON CARDS, INITIALLY, AND THEN CAN BE TRANSFERRED TO PAPER TAPE THROUGH THE USES OF THE PROGRAM. OUTPUT IS 120 CHARACTERS WIDE AND SHOULD BE ON A LINE PRINTER.

EXTENDED DOCUMENTATION - ORDER #22460A-000 \$5.00



CONTRIBUTION #: 363

CLASS: 16

CONTRIBUTOR: NORMAN LOVE  
MARYVILLE COLLEGE

PART NUMBER: 22461A-K01

PRICE: \$10

DATE CODE:

LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

FILE AND REWIND FOR THE TENNECOMP TP-1371 MINIDEK SYSTEM

THESE FORTRAN CALLABLE SUBROUTINES ALLOW A PROGRAM TO DUMP AN ARRAY FROM MEMORY ONTO A MAGNETIC TAPE CASSETTE OR TO READ FROM MAGNETIC TAPE CASSETTE INTO AN ARRAY IN MEMORY.

IT REQUIRES A MINIMUM BCS SYSTEM WITH A TENNECOMP TP-1371 MINIDEK SYSTEM.



CONTRIBUTION #: 364

CLASS: 16

CONTRIBUTOR: NORMAN LOVE  
MARYVILLE COLLEGE

PART NUMBER: 22462A-K01

PRICE: \$10

DATE CODE:

LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 24160A

READ/WRITE ROUTINES FOR THE TENNECOMP TP-1371 MINIDEK SYSTEM

THESE BASIC CALLABLE SUBROUTINES ALLOW A USER TO STORE AND RETRIEVE DATA FROM A MAGNETIC TAPE CASSETTE. THE USER HAS CONTROL OF HOW MUCH MEMORY IS USED, WHICH TRACK ON THE TAPE, AND WHICH TRANSPORT IS USED, AND WHETHER THE FUNCTION IS READ OR WRITE.

REQUIREMENTS ARE AN HP COMPUTER WITH EDUCATIONAL BASIC VERSION HP24160A AND TENNECOMP TP-1371 MINIDEK SYSTEM.



CONTRIBUTION #: 365

CLASS: 207

CONTRIBUTOR: T. J. BALLEW  
HP, SOUTHERN SALES REGION

PART NUMBER: 22463A-K01

PRICE: \$10

DATE CODE:

LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

HP 7900 DISC TO DISC DUMP

THIS SET OF PROGRAMS WILL ALLOW THE OPERATOR TO TRANSFER DATA BETWEEN THE FIXED AND REMOVEABLE PLATTERS OF AN HP7900A MOVING HEAD DISC. PROTECTED AND DEFECTIVE CYLINDER FLAGS ARE TRANSFERRED TO THE DESTINATION DISC. ANY CONTIGUOUS BLOCK OF TRACKS CAN BE

TRANSFERRED OR VERIFIED. ALL DATA WRITTEN ON A DISC TRACK IS READ AND COMPARED WITH ORIGINAL DATA DURING A COPY OPERATION. THE OPERATOR CAN CHOOSE TO PATCH UP TO TWENTY RANDOM LOCATIONS DURING A TRANSFER.

IT OPERATES UNDER BCS AND REQUIRES 16K WITH DMA.



CONTRIBUTION #: 366  
 CLASS: 14  
 CONTRIBUTOR: C. J. DERRETT  
 MEDICAL RESEARCH COUNCIL  
 ENGLAND

PART NUMBER: 22464A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 20392A

TEKTRONIX 4010 VIDEO DISPLAY UNIT DRIVER - BASIC CALLABLE

THIS BASIC CALLABLE DRIVER CONTROLS INPUT AND OUTPUT FROM A TEKTRONIX 4010 VIDEO DISPLAY UNIT. IT CAN BE USED FOR VECTOR OUTPUT, TO POSITION AN ALPHANUMERIC CHARACTER, TO ERASE THE VDU SCREEN, TO POSITION INPUT USING THE CROSS HAIR CURSOR, AND TO INPUT THE CURRENT DISPLAY POSITION.

THE DRIVER IS DESIGNED FOR USE WITH 8K HP2100 SERIES COMPUTER, HP20392A BASIC SYSTEM, AND THE 4010 VDU INTERFACED WITH A MODIFIED HP12531C TELETYPE.



CONTRIBUTION #: 367  
 CLASS: 22  
 CONTRIBUTOR: DR. ROLF ROBCKE  
 HP, FRANKFURT - GERMANY

PART NUMBER: 22465A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSMEBLY RELOCATABLE  
 OP SYS: BCS,MTS

EXTENDED PRECISION ADAPTER FOR BCS

THESE ADAPTER ROUTINES ALLOW A USER IN THE BCS ENVIRONMENT TO CALL EXTENDED PRECISION ROUTINES FROM THE FORTRAN IV LIBRARY (HP24149) FOR AN ACCURACY OF 23 BITS. IT IS LOADED BEFORE THE LIBRARY AND CAN CALL THE FOLLOWING FUNCTIONS: SIN, COS, ARCTAN, EXP, LN(=ALOG).

THERE ARE TWO TAPES INCLUDED IN THIS PACKAGE; THE SOURCE TAPES FOR ADAPTER ROUTINES, AND THE RELOCATABLE BINARY TAPE CONTAINING THE ADAPTER ROUTINES AND THE EXTENDED PRECISION ROUTINES OF THE FORTRAN IV LIBRARY. THEY ARE FORTRAN, ALGOL, AND ASSEMBLER CALLABLE.



CONTRIBUTION #: 368  
CLASS: 13  
CONTRIBUTOR: KLAUS STAMER  
HP, FRANKFURT - GERMANY

PART NUMBER: 22466C-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

HP 2311A SUBSYSTEM DRIVER

THIS IS A SPECIAL DOS-M DRIVER FOR THE HP2311A HIGH-SPEED DATA ACQUISITION SUBSYSTEM. IT HAS A NEW NON DMA RANDOM MODE, AND DOES NOT INCLUDE THE HP2310 FUNCTIONS OF THE RTE DRIVER. THE CALLING SEQUENCE IS RTE COMPATIBLE WHICH REQUIRES THE DRIVER TO BE CORE RESIDENT. ITS MEASURING MODES INCLUDE: DIGITAL ENCODE, DIGITAL PACE, SEQUENTIAL ENCODE, SEQUENTIAL PACE, DIGITAL FREE RUN, SEQUENTIAL FREE RUN, AND RANDOM.



CONTRIBUTION #: 369  
CLASS: 104  
CONTRIBUTOR: ARTHUR J. LEVY  
GENERAL ELECTRIC  
COMPANY

PART NUMBER: 22467A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,DOS,DOS-M

INTEGER EXTRACTION FROM A STRING OF TEXT

THIS FORTRAN CALLABLE PROGRAM SEARCHES A STRING OF ASCII TEXT AND RETURNS THE VALUE OF THE FIRST INTEGER ENCOUNTERED. THUS IT ALLOWS A FREE FIELD FOR MIXED HOLLERITH-INTEGERS INPUT.



CONTRIBUTION #: 370  
CLASS: 22  
CONTRIBUTOR: SUSAN JEAN TEMPLE  
MONTANA STATE UNIVERSITY

PART NUMBER: 22468A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS

EXPAND/CONTRACT DOS-M FILES

SUBROUTINE (CHNGE) IS A FORTRAN CALLABLE, RELOCATABLE ASSEMBLY LANGUAGE ROUTINE WHICH CAN EXPAND OR CONTRACT AN ASCII OR BINARY DATA FILE ON DOS-M WITHOUT DESTROYING THE EXISTING DATA ON THE FILE. ALL FOLLOWING FILES ON THE DISC ARE MOVED UP OR BACK, AND THE DIRECTORY IS ADJUSTED ACCORDINGLY.



CONTRIBUTION #: 371  
CLASS: 207  
CONTRIBUTOR: DENNIS I. SMITH  
MONTANA STATE UNIVERSITY

PART NUMBER: 22469A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

HP 2870 DISC TO DISC DUMP

THIS ABSOLUTE ASSEMBLY PROGRAM COPIES ONE SUBCHANNEL OF AN HP2870

DISC TO ANOTHER SUBCHANNEL. DURING THE DUMP THE APPROPRIATE TRACKS ARE PROTECTED, AND AFTER THE DUMP A VERIFY OPTION COMPARES THE INFORMATION ON THE TWO SELECTED CHANNELS. THE PROGRAM FUNCTIONS WITH THE USER'S CONFIGURED SID ENVIRONMENT.

THE EQUIPMENT REQUIRED IS 8K CORE, AN HP TELEPRINTER, DMA, AND AN HP2870 CARTRIDGE DISC UNIT.



CONTRIBUTION #: 372  
 CLASS: 14  
 CONTRIBUTOR: GRANT MUNSEY  
 HP, NEELY SALES REGION

PART NUMBER: 22471A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

HP 7210 PLOTTER DRIVER FOR DOS-M

THIS PROGRAM IS A DRIVER FOR THE HP7210 PLOTTER. THE DRIVER DOES NOT REQUIRE DMA AND IS SHORT SO THAT IT MAY BE MADE CORE RESIDENT WITHOUT SIGNIFICANTLY DECREASING THE USER AREA OF A DOS-M SYSTEM. THE PROGRAM WHICH CALLS THE DRIVER IS RESPONSIBLE FOR GENERATING THE PROPER COMMAND WORD SEQUENCE, SINCE THE DRIVER DOES NOT CHECK THE SEQUENCE FOR LEGALITY. THE DRIVER RETURNS STATUS AT THE COMPLETION OF EACH CALL.



CONTRIBUTION #: 373  
 CLASS: 13  
 CONTRIBUTOR: GRANT MUNSEY  
 HP, NEELY SALES REGION

PART NUMBER: 22472A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

HP 2310/2311 SUBSYSTEM DRIVER FOR DOS-M

THIS PROGRAM IS A DOS-M DRIVER FOR THE HP2310/2311 HIGH-SPEED DATA ACQUISITION SUBSYSTEMS. IT USES A DMA CHANNEL TO INPUT DATA. ENCODE TO THE SUBSYSTEM CAN BE COMPUTER, INTERNALLY, OR PACER GENERATED, AND CHANNEL SELECTION CAN BE RANDOM OR SEQUENTIAL.



CONTRIBUTION #: 374  
 CLASS: 14  
 CONTRIBUTOR: GRANT MUNSEY  
 HP, NEELY SALES REGION

PART NUMBER: 22473B-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

HP 7210 PLOTTER DRIVER FOR RTE

THIS PROGRAM IS A DRIVER FOR THE HP7210 PLOTTER. THE DRIVER DOES NOT REQUIRE DMA AND IS SHORT SO THAT IT MAY BE MADE CORE RESIDENT WITHOUT SIGNIFICANTLY DECREASING THE USER AREA OF AN RTE SYSTEM.



THE PROGRAM WHICH CALLS THE DRIVER IS RESPONSIBLE FOR GENERATING THE PROPER COMMAND WORD SEQUENCE SINCE THE DRIVER DOES NOT CHECK THE SEQUENCE FOR LEGALITY. THE DRIVER RETURNS STATUS AT THE COMPLETION OF EACH CALL.

ORDER #22473-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 375 PART NUMBER: 22474A-K01  
CLASS: 904 PRICE: \$30  
CONTRIBUTOR: GRANT MUNSEY DATE CODE:  
HP, NEELY SALES REGION LANG: FORTRAN II/ASMB RELO  
OP SYS: RTE,DOS-M

HP 7210 PLOTTER LIBRARY

THESE PROGRAMS, WHEN USED WITH THE DOS-M OR RTE 7210 PLOTTER DRIVER (HP22471 AND HP22473 RESPECTIVELY), GREATLY SIMPLIFY THE PROGRAMMING REQUIRED TO DO THE FOLLOWING: PLOT LINES OR POINTS, SCALE AND PLOT DATA, AXIS GENERATION, AND PLOT CHARACTERS AND NUMBERS.

ORDER #22474-13300 SOURCE CASSETTE PACKAGE \$70.00



CONTRIBUTION #: 376 PART NUMBER: 22475A-K01  
CLASS: 13 PRICE: \$10  
CONTRIBUTOR: HORST METZ DATE CODE:  
HP, MUNICH - GERMANY LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

HP 2311A SUBSYSTEM DRIVER - BASIC CALLABLE

THIS PROGRAM IS A DRIVER FOR THE HP2311 HIGH-SPEED DATA ACQUISITION SUBSYSTEM, CALLABLE FROM HP BASIC VERSION 20392. IT ALLOWS SINGLE CHANNEL (OR RANDOM) MODE AND SEQUENTIAL MODE, DOES NOT USE DMA AND DOES NOT OVERLAY MATRIX ROUTINE. DURING DRIVER EXECUTION THE INTERRUPT SYSTEM IS DISABLED.



CONTRIBUTION #: 377 PART NUMBER: 22476A-K01  
CLASS: 18 PRICE: \$20  
CONTRIBUTOR: DR. J. SCHRAMA DATE CODE:  
CENTRAL LABORATORY D.S.M. LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

MULTI-PURPOSE SUBROUTINE PACKAGE FOR HP BASIC 20392A

THIS PACKAGE CONSISTS OF TEN BASIC CALLABLE SUBROUTINES WHICH OPERATE UNDER A MODIFIED VERSION OF 20392A BASIC SYSTEM. THE SUBROUTINES ARE WRITTEN IN ASSEMBLY LANGUAGE AND PROVIDE SUCH CAPABILITIES AS RUN-TIME BYTE-, INTERGER-, AND STRING

MANIPULATIONS, ASCII DATA INPUT, TABLE READ-IN AND LOOK-UP, AND CALLS TO A SUBSET OF MACHINE INSTRUCTIONS.  
THE FUNCTIONS ACCESSIBLE AT RUN-TIME INCLUDE:

1. A STRUCTURED TABLE OF ASCII-STRINGS, INTEGERS, AND REALS CAN BE ESTABLISHED IN COMMON.
2. A STRING OF BYTES CAN BE MOVED FROM ANYWHERE IN CORE TO THE ARRAY OR COMMON AREA IN BASIC.
3. NUMBERS CAN BE FIXED OR FLOATED.
4. MEMORY REFERENCE INSTRUCTIONS CAN BE APPLIED TO TWO INTEGERS IN A BASIC VARIABLE.

A SET OF VERIFICATION PROGRAMS IN BASIC ACCOMPANY THIS PACKAGE. OF GENERAL INTEREST IS A PROGRAM FOR CONVERTING A BASIC SOURCE TAPE INTO A FOLDABLE TAPE AND A PROGRAM FOR LISTING CORE CONTENTS AT RUN TIME.

EQUIPMENT REQUIRED IS AN HP BASIC SYSTEM VERSION 20392A WITH 8K OF CORE STORAGE, A TELEPRINTER, AND FOR COMPLETE CAPABILITIES, A PHOTOREADER.



CONTRIBUTION #: 378  
CLASS: 22  
CONTRIBUTOR: R. A. GRAY  
UNIVERSITY OF CALIFORNIA

PART NUMBER: 22477A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

#### FLOATING POINT OVERLAY FOR HP BASIC

THIS PROGRAM PROVIDES AN OVERLAY FOR BASIC (HP20392) WHICH TAKES ADVANTAGE OF THE FLOATING POINT HARDWARE OPTION ON THE HP2100 COMPUTER. THE OVERLAY RESULTS IN FLOATING POINT MACHINE CODE REPLACING BASIC ARITHMETIC SUBROUTINES. THE IMPROVEMENT IN RUNNING TIME IS ON THE ORDER OF FIVE AS COMPARED TO THE NON-FLOATING POINT VERSION OF BASIC. THIS OVERLAY IS COMPATIBLE WITH PREVIOUSLY WRITTEN USER ASSEMBLY ROUTINES BECAUSE BASE PAGE LINKAGE ADDRESSES ARE NOT ALTERED.



CONTRIBUTION #: 379  
CLASS: 107  
CONTRIBUTOR: MARLIN SCHELL  
HP, DSD

PART NUMBER: 22479A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ALGOL/ASMB RELOC  
OP SYS: DOS, DOS-M

#### ALPHANUMERIC DISC FILE SORT

OPERATING UNDER 16K DOS OR DOS-M, THIS PROGRAM PERFORMS A RAPID ASCII CODE SORT AND GENERATES AN ASCII FILE IN WHICH THE SORTED DATA IS STORED. THE PROGRAM WILL MERGE INPUT FROM ANY NUMBER OF USER SOURCE FILES AS WELL AS FROM OTHER INPUT DEVICES. SORTED DATA CAN BE DUMPED TO MAGNETIC TAPE DURING SORT EXECUTION OR AT

SOME LATER TIME. UP TO FOUR SEPARATE FIELDS MAY BE SELECTED IN ORDER OF SORTING SIGNIFICANCE, AND MAY BE SORTED IN EITHER ASCENDING OR DESCENDING ORDER. EACH FIELD, INDICATED BY COLUMN NUMBERS, MAY RANGE FROM A SINGLE COLUMN TO THE ENTIRE LENGTH OF THE RECORD.

THIS PROGRAM REQUIRES AN HP7900, HP2870, OR HP2883 DISC.



CONTRIBUTION #:	380	PART NUMBER:	22480B-K01
CLASS:	207	PRICE:	\$10
CONTRIBUTOR:	TED SLATER	DATE CODE:	
	SIMON FRASER UNIVERSITY	LANG:	ASSEMBLY ABSOLUTE
	CANADA	OP SYS:	SELF CONTAINED

DUMP FROM DOS-M MAG TAPE STORAGE AND RETRIEVAL (HP 22198) FORMAT

UTILITY PROGRAM TO BE LOADED OVER HALTED DOS-M, WHICH WILL DUMP SELECTED SOURCE FILES (SS) FROM THE DOS-M TO A 9-TRACK HP7970/3030 IN A FORMAT COMPATIBLE WITH THE MAGNETIC TAPE STORAGE AND RETRIEVAL PROGRAM (HP22198). THE UTILITY MAY BE USED TO APPEND TO AN EXISTING MAG TAPE.

THE (SS) FILE MUST BE LESS THAN 237 SECTORS LONG, AND A 16K COMPUTER IS REQUIRED. THE PROGRAM MUST BE CONFIGURED AFTER LOADING FOR THE MAG TAPE AND DISC SELECT CODE, BUT IT WILL USE DOS-M BASE PAGE CONSTANTS TO FIND THE SYSTEM DIRECTORY TRACK AND TO HANDLE THE HP2870/7900 DISC DRIVES.

REQUIRES DMA.



CONTRIBUTION #:	381	PART NUMBER:	22481B-K01
CLASS:	207	PRICE:	\$10
CONTRIBUTOR:	TED SLATER	DATE CODE:	
	SIMON FRASER UNIVERSITY	LANG:	ASSEMBLY ABSOLUTE
	CANADA	OP SYS:	SELF CONTAINED

LOAD DOS-M FROM MAG TAPE STORAGE AND RETRIEVAL (HP 22198) FORMAT

THIS ABSOLUTE ASSEMBLY PROGRAM LOADS SOURCE FILES OVER A (HALTED) 16K DOS-M SYSTEM FROM A 9-TRACK MAGNETIC TAPE WHICH HAS BEEN PREVIOUSLY PREPARED BY THE MAGNETIC TAPE STORAGE RETRIEVAL PROGRAM, HP22198. ANY NUMBER OF TAPE RECORDS MAY BE CONCATENATED TO FORM A SINGLE SOURCE FILE ON DOS-M.

THE 16K DOS-M SYSTEM MUST HAVE DMA, AN HP3030 OR 7970 MAGNETIC TAPE UNIT, AN HP2870 AND 7900 DISC DRIVE, AND A TELEPRINTER.



CONTRIBUTION #:	382	PART NUMBER:	22482A-K01
CLASS:	102	PRICE:	\$20
CONTRIBUTOR:	H. MARK GROVE	DATE CODE:	
	WALTER REED ARMY MEDICAL	LANG:	ASSEMBLY ABSOLUTE
	CENTER	OP SYS:	SELF CONTAINED

### HP 2020B MAGNETIC TAPE STORAGE & RETRIEVAL

THIS INDEPENDENT PROGRAM IS A MODIFICATION OF MAGNETIC TAPE STORAGE AND RETRIEVAL, HP22198, FOR USE WITH THE HP2020B MAGNETIC TAPE UNIT. IT PROVIDES THE FOLLOWING FUNCTIONS:

- A. RECORDS PUNCHED TAPE IMAGES ON MAG TAPE. IF ADDITIONAL IMAGES ARE SUBSEQUENTLY RECORDED, THE END-OF-FILE MARK IS REMOVED AND A NEW ONE IS PLACED AFTER THE NEW MATERIAL.
- B. UNDER MANUAL CONTROL, REMOVES THE LAST RECORD WRITTEN ON MAG TAPE.
- C. VERIFIES THAT DATA RECORDED ON THE MAG TAPE IS IDENTICAL WITH THE CONTENTS OF A SPECIFIED CORE STORAGE AREA.
- D. MAKES A PUNCHED TAPE DUPLICATING DATA ON THE MAG TAPE.
- E. LISTS DATA FROM THE MAG TAPE ON A LINE PRINTER OR TELEPRINTER.
- F. READS THE MAG TAPE AND LISTS ON A LINE PRINTER OR TELEPRINTER A DIRECTORY OF PROGRAM RECORDED ON THE TAPE.

EQUIPMENT REQUIRED IS AN HP2100 SERIES COMPUTER WITH 8K OF CORE STORAGE FOR LIMITED CAPABILITY OR 16K FOR COMPLETE CAPABILITIES, THE DIRECT MEMORY ACCESS OPTION FOR THE COMPUTER, ONE HP2020B MAG TAPE UNIT, ONE HP2767A OR 2778A PRINTER (OR TELETYPEWRITER), ONE PHOTOREADER, AND ONE TELEPRINTER OR CONSOLE.



CONTRIBUTION #:	383	PART NUMBER:	22483B-K01
CLASS:	102	PRICE:	\$30
CONTRIBUTOR:	TONY TURNER	DATE CODE:	
	HARRY KLINE	LANG:	FTN IV/ASMB RELOC
	HP, DSD	OP SYS:	DOS-M

### APPLICATIONS DATA MANAGEMENT PACKAGE (ADM) - DOS-M

(ADM) IS A COLLECTION OF SUBROUTINES & PROGRAMS WHICH ASSIST THE USER IN PERFORMING DATA MANAGEMENT FUNCTIONS ON DOS-M.

#### CAPABILITIES:

- A. SERIAL OR DIRECT ACCESS-BLOCK RECS IN A DISC SECTOR. BOTH STORAGE & RETRIEVAL ARE BY RELATIVE RECORD ADDRESS.
- B. SEQUENTIAL ACCESS-SORT RECS UP TO 9 FIELDS IN ASCENDING OR DESCENDING ORDER. RETRIEVAL IS THEN SEQUENTIAL.
- C. SELECTED ACCESS-SELECT ONLY THOSE RECS WHOSE FIELD VALUES MEET A SET OF CONDITIONS SPECIFIED BY THE USER. ACCESS MAY BE SERIAL, SEQUENTIAL OR INDEXED.
- D. HASH INDEX-RECORDS ARE ACCESSED THROUGH A HASH INDEX KEPT BY (ADM) SUBROUTINES. STORAGE & RETRIEVAL IS ACCOMPLISHED BY KEY FIELD TRANSFORMATION WHICH PROVIDES A POINTER TO THE RECORD CONTAINING THAT KEY FIELD VALUE.

- E. SEQUENTIAL INDEX-A BINARY SEARCH IS CONDUCTED FOR A RECORD WHOSE KEY FIELDS ARE SPECIFIED TO BE >, =, OR < THAN VALUES SUPPLIED BY THE USER. THIS METHOD HAS ADVANTAGES OVER HASH INDEX WHEN THE KEY FIELD IS NOT KNOWN OR WHEN THERE IS MORE THAN ONE. HOWEVER, IT REQUIRES MORE SEEKS.
  - F. I/O DEVICES - INPUT DATA CAN COME FROM CARDS OR MAG TAPE; OUTPUT TO CONSOLE OR PRINTER. TRANSFER OF DATA FROM TAPE TO DISC TO PRINTER CAN BE ACCOMPLISHED WITH RECORD SELECTION AND FORMATTING.
  - G. FIELDS ARE ASCII CHARACTER STRINGS. THEY NEED NOT BEGIN OR END ON WORD BOUNDARIES. NUMERIC STRINGS MAY BE ADDED, SUBTRACTED OR MULTIPLIED USING (ADM) SUBROUTINES.
  - H. DATA SETS MAY BE TRANSFERRED FROM ONE DISC TO ANOTHER AND PROGRAM SEGMENT OVERLAYS MAY BE ACCOMPLISHED WITHOUT UNNECESSARY SYSTEM SEEKS.
  - I. DATA SET OR CONDITIONALLY SELECTED SUBSET MAY BE COPIED OR CONCATENATED TO ANOTHER DATA SET ON DISC OR ON AN I/O DEVICE.
  - J. FIELDS ARE REFERENCED BY NAME.
- \*\*\*\*\*EXTENDED DOCUMENTATION      ORDER #22483B-DW0      \$5.00      \*\*\*\*\*



CONTRIBUTION #: 384  
 CLASS: 102  
 CONTRIBUTOR: MAURICE C. COTE  
 HP, EASTERN SALES REGION

PART NUMBER: 22484A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV/ASMB RELO  
 OP SYS: DOS-M

#### DOS-M USER FILE DESCRIPTION DIRECTORY

THIS PROGRAM, OPERATING UNDER DOS-M, IS DESIGNED TO MAINTAIN A DISC FILE CONTAINING THE SYMBOLIC NAMES OF SELECTED USER FILES TOGETHER WITH AS MANY AS 64 CHARACTERS OF DESCRIPTIVE INFORMATION ON EACH FILE. THE FILE MAY BE LISTED SELECTIVELY BY FILE NAME OR COMPLETELY ON ANY OUTPUT DEVICE. ENTRIES INTO THE DIRECTORY ARE MADE BY FILE NAME AND PURGED FILES ARE AUTOMATICALLY REMOVED FROM THE DIRECTORY.



CONTRIBUTION #: 385  
 CLASS: 22  
 CONTRIBUTOR: D. A. BETTS  
 UNIVERSITY OF CALGARY  
 CANADA

PART NUMBER: 22485A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN IV/ASMB RELO  
 OP SYS: DOS

#### DOS-M DIRECTORY LISTING PROGRAM WITH MASKING FACILITY

THIS PROGRAM PROVIDES THE DOS-M USER WITH A MASKING FACILITY TO CONTROL DIRECTORY LISTINGS. THE USER INPUTS A FILE NAME OF THE FORM XX\*\*, \*X\*X, ETC., WHERE AN ASTERISK DENOTES A MASKED POSITION. THIS CAN, FOR EXAMPLE, RESULT IN A LISTING OF ALL PROGRAMS BEGINNING WITH (DBC).



CONTRIBUTION #: 386  
 CLASS: 110  
 CONTRIBUTOR: DR. ROLF ROBCKE  
 HP, FRANKFURT - GERMANY

PART NUMBER: 22486A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

#### EFMP READ/WRITE WITH FORTRAN IV INPUT/OUTPUT LISTS

THIS PACKAGE IS A (SOFTWARE INTERFACE) BETWEEN THE FORTRAN IV USER AND THE EXTENDED FILE MANAGEMENT PACKAGE. IT ALLOWS THE USER TO DEFINE DISC FILES BY SPECIFYING NUMBER OF RECORD, RECORD LENGTH AND DISC PACK; AND TO USE FORTRAN IV READ/WRITE STATEMENTS. IN ADDITION IT WILL CHECK FOR AN END-OF-FILE CONDITION, PROVIDE A TRANSMISSION LOG, AND PURGE FILES. THIS PACKAGE SIMPLIFIES SIMULATION OF THE DISC I/O STATEMENTS OF IBM AND CDC COMPUTERS ON THE HP2100 SERIES. BOTH RANDOM AND SEQUENTIAL ACCESS ARE PROVIDED.



CONTRIBUTION #: 387  
 CLASS: 515  
 CONTRIBUTOR: ROGER BAKER/JOHN WOELLER  
 JONES & HENRY ENGINEERS  
 LIMITED

PART NUMBER: 22487A-K01  
 PRICE: \$80  
 DATE CODE:  
 LANG: FTN IV/ASMB RELOC  
 OP SYS: DOS-M

#### CIVIL ENGINEERING COORDINATE GEOMETRY (COGO)

HP (COGO) PROVIDES CIVIL ENGINEERS WITH AN EASY-TO-LEARN PROGRAMMING TOOL FOR SOLVING COORDINATE GEOMETRY PROBLEMS. ENGINEERS CAN STATE PROBLEMS IN FAMILIAR TERMINOLOGY SUCH AS AZIMUTH, DEFLECTION, AND TRAVERSE ADJUSTMENT, THUS NO PROGRAMMING IN THE USUAL SENSE, IS NECESSARY. THE PROGRAMMING SYSTEM IS DESIGNED SPECIFICALLY FOR COMPUTATION PROBLEMS IN AREAS SUCH AS CONTROL SURVEYS, HIGHWAY DESIGN, SUBDIVISION WORK, LAND SURVEYING, RIGHT-OF-WAY SURVEYS, INTERCHANGE DESIGN, BRIDGE GEOMETRY AND CONSTRUCTION LAYOUT. HOWEVER, (COGO) MAY BE USED IN OTHER APPLICATION AREAS.

THIS PROGRAM RUNS ON A 16K DOS-M SYSTEM WITHOUT EFMP.

EXTENDED DOCUMENTATION - ORDER #22487A-D00 \$5.00



CONTRIBUTION #: 388  
 CLASS: 17  
 CONTRIBUTOR: FRANCOIS GAULLIER  
 HP, ORSAY - FRANCE

PART NUMBER: 22488A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II/ASMB RELO  
 OP SYS: DOS-M

#### DOS-M ABSOLUTE BINARY TAPE LOADER

THIS SET OF PROGRAMS, OPERATING AS A USER PROGRAM UNDER DOS-M,

ENABLES THE USER TO PERFORM THE FOLLOWING OPERATIONS: STORE ABSOLUTE BINARY TAPE IN DOS-M USER FILES OF TYPE B AND LOAD PROGRAMS FROM THESE FILES INTO CORE.

THE PACKAGE REQUIRES AN HP7900 DISC.



CONTRIBUTION #: 389  
CLASS: 2  
CONTRIBUTOR: MICHAEL W. LESKO  
HP, MIDWEST SALES REGION

PART NUMBER: 22489A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

CORE SIZE INDEPENDENT TELEPRINTER SIO DRIVER (LP COMPATIBLE)

THIS ONE HP2752/54 TELETYPEWRITER SIO DRIVER CAN REPLACE ALL THE DIFFERENT CORE SIZE VERSIONS OF SUCH SIO DRIVERS. IT HAS THE ABILITY TO AUTOMATICALLY DETERMINE THE MEMORY SIZE OF ANY HP2100 SERIES COMPUTER DURING THE NORMAL SIO CONFIGURATION PROCESS. THIS IS ACHIEVED BY A SELF-CONTAINED MODIFICATION TO THE CONFIGURATION SECTION OF THE STANDARD SIO DRIVER. THE ENTIRE PROCESS IS TRANSPARENT TO THE USER AND ACTS AS IF HE HAD LOADED AND CONFIGURED THE SPECIFIC DRIVER FOR HIS MEMORY SIZE.



CONTRIBUTION #: 390  
CLASS: 9  
CONTRIBUTOR: MICHAEL W. LESKO  
HP, MIDWEST SALES REGION

PART NUMBER: 22490A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

CORE SIZE INDEPENDENT PHOTO READER SIO DRIVER

THIS ONE HP2737/48/58 HIGH SPEED PAPER TAPE READER SIO DRIVER CAN REPLACE ALL THE DIFFERENT CORE SIZE VERSIONS OF PHOTOREADER SIO DRIVERS. IT HAS THE ABILITY TO AUTOMATICALLY DETERMINE THE MEMORY SIZE OF ANY HP2100 SERIES COMPUTER DURING THE NORMAL SIO CONFIGURATION PROCESS. THIS IS ACHIEVED BY SELF-CONTAINED MODIFICATION TO THE CONFIGURATION SECTION OF THE STANDARD SIO DRIVER. THE ENTIRE PROCESS IS TRANSPARENT TO THE USER AND ACTS AS IF HE HAD LOADED AND CONFIGURED THE SPECIFIC DRIVER FOR HIS SIZE MEMORY.



CONTRIBUTION #: 391  
CLASS: 9  
CONTRIBUTOR: MICHAEL W. LESKO  
HP, MIDWEST SALES REGION

PART NUMBER: 22491A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

CORE SIZE INDEPENDENT PAPER TAPE PUNCH SIO DRIVER

THIS ONE HP2753A/B OR HP2895A PAPER TAPE PUNCH SIO DRIVER CAN REPLACE ALL THE DIFFERENT CORE SIZE VERSIONS OF PUNCH SIO DRIVERS.

IT HAS THE ABILITY TO AUTOMATICALLY DETERMINE THE MEMORY SIZE OF ANY HP2100 SERIES COMPUTER DURING THE NORMAL SIO CONFIGURATION PROCESS. THIS IS ACHIEVED BY A SELF-CONTAINED MODIFICATION TO THE CONFIGURATION SECTION OF THE STANDARD HP SIO DRIVER. THE ENTIRE PROCESS IS TRANSPARENT TO THE USER AND ACTS AS IF HE HAD LOADED AND CONFIGURED THE SPECIFIC DRIVER FOR HIS MEMORY SIZE.



CONTRIBUTION #: 392  
 CLASS: 880  
 CONTRIBUTOR: RICHARD J. WARD/BOWLING  
 GREEN STATE - PHIPPS &  
 GALE/NYU - BUFFALO

PART NUMBER: 22492A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN II/ASMB RELO  
 OP SYS: DOS-M

#### THE EXECUTIVE GAME FOR DOS-M

THIS PROGRAM IS A DOS-M ADAPTATION OF THE EXECUTIVE GAME, HP22332. IT SIMULATES A SMALL INDUSTRY IN WHICH THERE ARE UP TO 9 COMPANIES MANUFACTURING AND SELLING A SINGLE PRODUCT. PARTICIPANTS ARE ORGANIZED INTO TEAMS WHICH OPERATE THEIR HYPOTHETICAL COMPANIES IN COMPETITION WITH ONE ANOTHER. THE PURPOSE OF THE GAME IS TO PROVIDE AN IMAGINARY BUSINESS ENVIRONMENT IN WHICH PARTICIPANTS CAN PRACTICE TOP MANAGEMENT DECISION MAKING. THE GAME IS DIVIDED INTO TWO PROGRAMS, GAME 1 AND GAME 3. GAME 1 ACCEPTS AND PROCESSES TEAM DECISIONS, AND OUTPUTS INFORMATION ON COMPETITORS, AN OPERATING STATEMENT, A CASH FLOW STATEMENT, AN INCOME STATEMENT AND A BALANCE SHEET FOR EACH TEAM. GAME 3 EVALUATES EACH TEAM'S PERFORMANCE AT THE END OF EACH FOUR QUARTERS OF PLAY. A TEXT OF PLAYER'S INSTRUCTIONS IS PUBLISHED BY RICHARD D. IRWIN, INC. (HENSHAW AND JACKSON, THE EXECUTIVE GAME, 1972). THE EXECUTIVE GAME CAN BE A STIMULATING AND EFFECTIVE LEARNING TOOL FOR HIGH SCHOOL, UNDERGRADUATE, AND GRADUATE BUSINESS CLASSES, AND IN MANAGEMENT DEVELOPMENT PROGRAMS.

MINIMUM HARDWARE REQUIREMENTS INCLUDE A 16K COMPUTER, A MOVING HEAD DISC, DMA, EAU, AND A TELETYPE.



CONTRIBUTION #: 393  
 CLASS: 8  
 CONTRIBUTOR: STANLEY M. SEGAL  
 HP, SOUTHERN SALES REGION

PART NUMBER: 22493A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: FORTRAN  
 OP SYS: DOS-M

#### CREATE DSGEN MAGNETIC TAPE

THIS PROGRAM GENERATES A MAGNETIC TAPE IN THE FORM REQUIRED BY THE DISC GENERATOR (DSGEN). BY ALLOWING A USER TO STORE THE SYSTEM LIBRARY ON ANY USER DISC AND THEN SELECTIVELY DUMP TO MAGNETIC TAPE, THIS PROGRAM SIMPLIFIES SYSTEM GENERATION; IT IS NOT



NECESSARY TO MAINTAIN A SEPARATE DISC LIBRARY (REQUIRED IF GENERATION IS DONE FROM DISC), AND IT IS NOT NECESSARY TO USE PAPER TAPE TO CREATE THE LIBRARY ON TAPE.

THE PROGRAM OPERATES UNDER DOS-M, USING AN HP7900 DISC DRIVE FOR INPUT AND AN HP7970 MAGNETIC TAPE UNIT FOR OUTPUT.



CONTRIBUTION #: 394  
CLASS: 18  
CONTRIBUTOR: W. R. BRODERICK  
LONDON BOROUGH OF  
HAVERING, ENGLAND

PART NUMBER: 22494B-K01  
PRICE: \$110  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

HAVERING EDUCATIONAL BASIC FOR DOS-M

HAVERING BASIC FOR DOS-M IS ESSENTIALLY EQUIVALENT TO HP'S SINGLE TERMINAL EDUCATIONAL BASIC SYSTEM HP24160. SOME IMPORTANT DIFFERENCES INCLUDE TWO (2) ADDITIONAL COMMANDS: BYE TERMINATES THE USE OF BASIC AND RETURNS THE USER TO DOS-M, REN, RENUMBERS THE USER'S PROGRAM. TWO (2) ADDITIONAL STATEMENTS HAVE BEEN INTRODUCED: PTAPE, IS USED THE SAME WAY AS INPUT BUT THE PAPER TAPE READER IS USED INSTEAD OF THE TELETYPE, PUNCH, IS USED IN THE SAME WAY AS PRINT BUT PRODUCES PAPER TAPE OUTPUT. THERE ARE ALSO THREE (3) ADDITIONAL MATRIX INPUT/OUTPUT STATEMENTS: MAT, PUNCH PUNCHES A COPY OF A MATRIX, MAT INPUT AND MAT PTAPE READ A MATRIX FROM THE TELETYPE AND PAPER TAPE READER RESPECTIVELY. THE COMMANDS GET, SAVE, AND KILL PROVIDE FACILITIES FOR KEEPING A PROGRAM LIBRARY ON DISC IN DOS-M ASCII DATA FILES.



CONTRIBUTION #: 395  
CLASS: 108  
CONTRIBUTOR: FRANCO E. BERTORA  
UNIVERSITY OF GENOVA  
ITALY

PART NUMBER: 22495A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

FORTRAN FORMATTED READ FROM DOS-M S-TYPE USER FILES

THIS RELOCATABLE SUBROUTINE ENABLES FORTRAN PROGRAMS TO READ DATA PREVIOUSLY STORED ON SOURCE TYPE DOS-M USER FILES. THIS ALLOWS THE USE OF THE FILE EDITING AND MANAGING CAPABILITIES OF THE DOS-M OPERATING SYSTEM FOR DATA FILES AS WELL AS FOR SOURCE FILES.



CONTRIBUTION #: 396  
CLASS: 18  
CONTRIBUTOR: DAVE MACKIE  
HP, DSD

PART NUMBER: 22496A-K01  
PRICE: \$40  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS,DOS-M

CDC USER 200 TERMINAL SIMULATOR

OPERATING IN A BCS, MTS, OR DOS-M ENVIRONMENT THIS PACKAGE OF ASSEMBLY LANGUAGE ROUTINES AND DRIVERS SIMULATES THE CDC USER 200

TERMINAL; THUS, IT PROVIDES A CONNECTION BETWEEN AN HP COMPUTER AND A CDC 6600 COMPUTER. ALL OPERATION IS HALF DUPLEX OVER TELEPHONE LINES. THE HP12618A SYNCHRONOUS COMMUNICATIONS CARDS ENABLE SPEEDS OF UP TO 9.6K BAUDS, AND THE HP2600A VISUAL DISPLAY UNIT ALLOWS FUNCTIONS TO BE EFFECTED FROM THE KEYBOARD RATHER THAN THE SWITCH REGISTER. AN ON-LINE CONFIGURATOR WAS ADDED SO THAT AUTOMATIC SWITCHING OF PERIPHERALS COULD BE PROVIDED.

THIS PACKAGE WILL OPERATE WITH THE CDC TELESCOPE, IMPORT/EXPORT, OR TELECOM OPERATING SYSTEMS. EQUIPMENT REQUIRED INCLUDES 8K OF CORE, AN HP2778A, HP2767A, OR DP2410 LINE PRINTER, A DP SR300 OR MDS 6002 CARD READER, AN HP2600A OR HP2752A CONSOLE, HP12618A COMMUNICATIONS CARDS, AND OPTIONALLY AN HP2753A OR HP8100 TAPE PUNCH.



CONTRIBUTION #: 397  
 CLASS: 602  
 CONTRIBUTOR: ALBERTO MIANO  
 HP, MILAN - ITALY

PART NUMBER: 22497A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS, DOS-M

PERT FOR DOS/DOS-M

'PERT' (PROGRAM EVALUATION AND REVIEW TECHNIQUE) CALCULATES THE MINIMUM TIME REQUIRED TO COMPLETE A PROJECT FROM THE INITIAL EVENT TO THE FINAL EVENT. THE PROJECT CAN BE REPRESENTED GRAPHICALLY BY A NETWORK CONSISTING OF EVENTS AND ACTIVITIES.

AN EVENT IS DEFINED AS A POINT IN TIME INDICATING THE BEGINNING OR THE END OF A SPECIFIC ACTIVITY, BUT NOT THE EXECUTION OF IT. AN ACTIVITY THEN, IS A PART OF THE PROJECT WHICH DEVELOPS BETWEEN TWO SUCCESSIVE EVENTS.

THE PROGRAM COMPUTES THE MINIMUM TIME (TE) NEEDED FOR EACH EVENT; THE MAXIMUM TIME (TL) EACH EVENT CAN TAKE WITHOUT INCREASING THE (TE) OF THE FINAL EVENT; AND THE DIFFERENCE (SLACK) BETWEEN THE TWO TIMES, ( $S = TL - TE$ ). WITH THESE FIGURES, A CRITICAL PATH OF THE PROJECT CAN BE IDENTIFIED, WITH  $S=0$  FOR ALL EVENTS. ANY DELAY OF AN ACTIVITY ON THE CRITICAL PATH CAUSES AN INCREASE IN THE TIME DURATION OF THE ENTIRE PROJECT.

PERT WILL ACCEPT UP TO 3000 ACTIVITIES AND 2500 EVENTS.

IT REQUIRES A 24K DOS OR DOS-M SYSTEM.



CONTRIBUTION #: 398  
 CLASS: 518  
 CONTRIBUTOR: ROGER BAKER/JOHN WOELLER  
 JONES & HENRY ENGINEERS  
 LIMITED

PART NUMBER: 22498B-K21  
 PRICE: \$30  
 DATE CODE:  
 LANG: FORTRAN IV/ASMB RELO  
 OP SYS: DOS-M

STRUCTURAL ENGINEERING SYSTEM SOLVER (STRESS)

STRUCTURAL ENGINEERING SYSTEM SOLVER (STRESS) GIVES STRUCTURAL ENGINEERS COMPUTER PROBLEM SOLVING ADVANTAGES WITHOUT REQUIRING

COMPUTER PROGRAMMING IN THE USUAL SENSE. IT IS A PROGRAMMING SYSTEM COMPOSED OF TWO PARTS; A LANGUAGE FOR DESCRIBING A PROBLEM TO THE COMPUTER AND A PROGRAM FOR INTERPRETING THIS LANGUAGE AND SOLVING THE PROBLEM. THE LANGUAGE USES A VOCABULARY FAMILIAR TO STRUCTURAL ENGINEERS, ALLOWING THEM TO INPUT PROBLEMS BY SPECIFYING THE TYPE AND SIZE, THE PHYSICAL DIMENSIONS, AND THE LOADS OF A STRUCTURE. STRESS WILL OUTPUT INFORMATION ON STRUCTURES WITH PRISMATIC MEMBERS IN TWO OR THREE DIMENSIONS AND WITH EITHER PINNED OR RIGID JOINTS. THE EFFECTS OF CONCENTRATED OR OR DISTRIBUTED LOADS, DISPLACEMENT, AND TEMPERATURE ARE ALSO ANALYZED.

STRESS CONSISTS OF FORTRAN AND ASSEMBLY LANGUAGE ROUTINES WHICH ARE OPERABLE UNDER A DOS-M ENVIRONMENT ON A 16K (MINIMUM) MACHINE. INPUT IS ON CARDS AND OUTPUT IS ON A 120 COLUMN LINE PRINTER.



CONTRIBUTION #: 399  
CLASS: 112  
CONTRIBUTOR: PRENTISS R. MOONEY

PART NUMBER: 22500A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS, DOS-M

DOS-M RELOCATABLE PROGRAM TAPE EDITOR

'RED' IS A PROGRAM DESIGNED TO EXTEND AND COMPLEMENT THE DOS-M RELOCATABLE PROGRAM HANDLING CAPABILITIES. ALTHOUGH DESIGNED PRINCIPALLY FOR MAGNETIC TAPE TO MAGNETIC TAPE OPERATION, ITS PROGRAM INPUT MAY BE FROM ANY DEVICE. IT IS ESPECIALLY USEFUL FOR MAINTAINING A RELOCATABLE (USER LIBRARY) FILE ON THE USER DISC. PROGRAMS MAY BE PLACED IN A SINGLE FILE (SAVING SPACE), (:DUMPED TO MAGNETIC TAPE, EDITED WITH 'RED', THEN RE-:STORED).



CONTRIBUTION #: 400  
CLASS: 207  
CONTRIBUTOR: LARRY BYLER  
HP, DSD

PART NUMBER: 22501A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: MTS, SIO

HEXADECIMAL/OCTAL LIST OF ANSI-COMPATIBLE MAGNETIC TAPE (TDUMP)

OPERATING AS A STAND ALONE PROGRAM OR UNDER A MAGNETIC TAPE SYSTEM, THIS PROGRAM READS AN ANSI-COMPATIBLE 9-TRACK MAGNETIC TAPE, CONVERTS THE INFORMATION INTO HEXADECIMAL OR OCTAL CHARACTERS, AND PRINTS IT ON THE LIST DEVICE. ALSO PRINTED IS THE FILE COUNT, RECORD COUNT, AND BYTE NUMBER COUNT. PRIOR TO PRINTING, THE MAGNETIC TAPE CAN BE POSITIONED TO ANY RECORD BY THE USE OF SWITCH REGISTER OPTIONS. IF THE LENGTH OF THE RECORD EXCEEDS AVAILABLE CORE, A MESSAGE IS PRINTED, AND AS MUCH OF THE RECORD AS FITS IS DUMPED.

DEPENDING ON CONTROL STATEMENT PARAMETERS, THE OUTPUT LIST FORMAT

CAN BE 72 OR 120 CHARACTERS PER LINE. THIS ALLOWS THE LIST DEVICE TO BE THE HP2778 OR HP2767 LINE PRINTER, THE HP2752 OR HP2754 TELETYPE, OR THE HP2600 CRT.

THE PROGRAM REQUIRES AN HP7970 TAPE DRIVE WITH APPROPRIATE INTERFACE AND DMA.



CONTRIBUTION #: 401  
 CLASS: 401  
 CONTRIBUTOR: ENRICO P. MARIANI  
 HP, MILAN - ITALY

PART NUMBER: 22503A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

#### IEFMP LOAD SUBSYSTEM

THIS PACKAGE IS A SUBSYSTEM OF THE ITEMIZED EXTENDED FILE MANAGEMENT PACKAGE, HP22373. IT CONSISTS OF A MAIN CALLING PROGRAM AND FOUR SEGMENTS, AND IS DESIGNED TO LOAD IEFMP FILES FROM INPUT DEVICES SUCH AS CARD READERS. BEFORE A FILE IS LOADED, AN ENTRY IN THE DIRECTORY FILE 'DIRLO' MUST BE MADE. THIS ENTRY GIVES THE INPUT FORMAT AND POSITION OF EACH ITEM OF THE FILE TO BE LOADED. IT IS ALSO POSSIBLE TO SPECIFY IN THE ENTRY A CONTROL CHARACTER. THE SUBSYSTEM CHECKS FOR THE CONTROL CHARACTER TO DETERMINE IF THE INPUT IS CORRECT. 'DIRLO' ENTRIES CAN BE LISTED AND ALSO DELETED WHEN NO LONGER NEEDED.

THIS PACKAGE WILL OPERATE IN A DOS-M SYSTEM WITH AT LEAST 16K MEMORY.



CONTRIBUTION #: 402  
 CLASS: 104  
 CONTRIBUTOR: R. J. ROWLANDS  
 CSIRO DIVISION OF PROTEIN  
 CHEMISTRY AUSTRALIA

PART NUMBER: 22504A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,DOS,DOS-M

#### CHARACTER PACKING AND UNPACKING

THIS PACKAGE OF FOUR FORTRAN CALLABLE SUBROUTINES ALLOWS SIMPLE MANIPULATION OF CHARACTERS INTO PACKED AND UNPACKED FORMATS. CHARACTERS CAN BE UNPACKED INTO SUCCESSIVE WORDS, EITHER RIGHT JUSTIFIED WITH A PRECEDING ZERO OR LEFT JUSTIFIED FOLLOWED BY A BLANK, AND PACKED FROM EITHER OF THESE FORMS. THIS ALLOWS CARD IMAGES TO BE READ USING (A2) FORMAT, UNPACKED SO THAT INDIVIDUAL CHARACTERS CAN BE TESTED, AND REPACKED TWO CHARACTERS PER WORD.



CONTRIBUTION #: 403  
CLASS: 14  
CONTRIBUTOR: WIM ROELANDTS  
HP, BRUSSELS - BELGIUM

PART NUMBER: 22505A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE HP 1331C STORAGE SCOPE DRIVER (DVR47)

THIS RTE DRIVER ALLOWS POINTS TO BE OUTPUT AND ERASED ON THE HP1331C STORAGE SCOPE. THE DRIVER DOES NOT WORK UNDER INTERRUPT, THEREFORE, THE NUMBER OF POINTS OUTPUT SHOULD BE KEPT SMALL IN ORDER NOT TO BLOCK HIGHER PRIORITY DEVICES. THE CONTRIBUTED PACKAGE HP22506 IS A SET OF SUBROUTINES DESIGNED TO WORK WITH THIS DRIVER.

THE ONLY EQUIPMENT REQUIRED BESIDES THE SCOPE IS THE HP12555A/B INTERFACE.

ORDER #22505-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 404  
CLASS: 14  
CONTRIBUTOR: WIM ROELANDTS  
HP, BRUSSELS - BELGIUM

PART NUMBER: 22506A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE HP 1331C STORAGE SCOPE LIBRARY

THIS PACKAGE CONSISTS OF FIVE FORTRAN CALLABLE SUBROUTINES DESIGNED TO USE AN HP1331C STORAGE SCOPE DISPLAY IN AN RTE ENVIRONMENT. THE SUBROUTINES PERMIT THE USER TO OUTPUT POINTS, LINES, AND CHARACTERS ON THE DISPLAY, AND ALSO TO DO AN ERASE WITH AUTOMATIC SUSPENSION OF THE PROGRAM.

THE PACKAGE REQUIRES THE HP12555A DUAL D/A INTERFACE AND THE CONTRIBUTED RTE HP1331C SCOPE DRIVER, HP22505.

ORDER #22506-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 405  
CLASS: 13  
CONTRIBUTOR: WIM ROELANDTS  
HP, BRUSSELS - BELGIUM

PART NUMBER: 22507A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

CONVERSION ROUTINE FOR HP 2058E SUBSYSTEM RTE DRIVER

THIS SUBROUTINE DOES A SERIES OF MEASUREMENTS ON AN HP2058E OPTION 167 SUBSYSTEM (HP3480A VOLTMETER - HP3485A SCANNER), AND

THEN DOES THE CONVERSION OF THE DATA TO FLOATING POINT.

THE SUBROUTINE USES THE HP2058E SCANNER SUBSYSTEM RTE DRIVER (DVR57), CONTRIBUTED PROGRAM HP22508.

ORDER #22507-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #:	406	PART NUMBER:	22508A-K01
CLASS:	13	PRICE:	\$10
CONTRIBUTOR:	WIM ROELANDTS	DATE CODE:	
	HP, BRUSSELS - BELGIUM	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	RTE

HP 2058E SCANNER SUBSYSTEM RTE DRIVER (DVR57)

THIS IS AN RTE DRIVER FOR THE HP2058E OPTION 167 SCANNER SUBSYSTEM (HP3480A VOLTMETER WITH HP3485A SCANNER). THE DRIVER PERMITS YOU TO DO A SERIES OF MEASUREMENTS ON THE SAME (DIGITISE) OR DIFFERENT (SEQUENTIAL) CHANNELS. THE DRIVER WORKS UNDER DMA TO OBTAIN THE MAXIMUM SPEED OF THE SUBSYSTEM (1000 MEASUREMENTS/SEC.).

ORDER #22508-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #:	407	PART NUMBER:	22509A-K01
CLASS:	14	PRICE:	\$10
CONTRIBUTOR:	WIM ROELANDTS	DATE CODE:	
	HP, BRUSSELS - BELGIUM	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	DOS, DOS-M

DOS/DOS-M HP 1331C STORAGE SCOPE LIBRARY

THIS PACKAGE CONSISTS OF FOUR FORTRAN CALLABLE SUBROUTINES DESIGNED TO USE HP1331C STORAGE SCOPE DISPLAY IN A DOS/DOS-M ENVIRONMENT. THE SUBROUTINES PERMIT THE USER TO OUTPUT POINTS, LINES, AND CHARACTERS ON THE DISPLAY. THERE IS ALSO AN ERASE SUBROUTINE, WHICH WAITS ONE SECOND BEFORE RETURNING TO THE CALLING PROGRAM.

THE PACKAGE REQUIRES THE CONTRIBUTED DOS/DOS-M HP1331C SCOPE DRIVER, HP22510, AND ALSO THE HP12555A/B DUAL D/A INTERFACE.



CONTRIBUTION #:	408	PART NUMBER:	22510A-K01
CLASS:	14	PRICE:	\$10
CONTRIBUTOR:	WIM ROELANDTS	DATE CODE:	
	HP, BRUSSELS - BELGIUM	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	DOS, DOS-M

DOS/DOS-M HP 1331C STORAGE SCOPE DRIVER (DVR47)

THIS DOS/DOS-M DRIVER ALLOWS POINTS TO BE OUTPUT AND ERASED ON

THE HP1331C STORAGE SCOPE. THE DRIVER DOES NOT WORK UNDER INTERRUPT, THEREFORE, THE NUMBER OF POINTS OUTPUT SHOULD BE KEPT SMALL IN ORDER NOT TO BLOCK HIGHER PRIORITY DEVICES.

THE CONTRIBUTED PACKAGE HP22509 IS A SET OF SUBROUTINES DESIGNED TO WORK WITH THIS DRIVER. THE ONLY EQUIPMENT REQUIRED BESIDES THE SCOPE IS THE HP12555A/B INTERFACE.



CONTRIBUTION #:	409	PART NUMBER:	22511A-K01
CLASS:	306	PRICE:	\$10
CONTRIBUTOR:	R. J. ROWLANDS	DATE CODE:	
	CSIRO DIVISION OF PROTEIN	LANG:	ASSEMBLY RELOCATABLE
	CHEMISTRY - AUSTRALIA	OP SYS:	DOS,DOS-M,RTE

INVERSE SIN AND COS ROUTINE

THE TWO ENTRY POINTS OF THIS ROUTINE, 'ASINE' AND 'ACOS', WILL RETURN, AS A NORMAL PRECISION REAL VALUE, THE INVERSE 'SIN' AND 'COS' OF AN ARGUMENT. THE FUNCTION IS CALLABLE FROM FORTRAN AND ASSEMBLY LANGUAGE AND WILL OPERATE IN A DOS, DOS-M, OR RTE ENVIRONMENT.



CONTRIBUTION #:	410	PART NUMBER:	22512A-K01
CLASS:	16	PRICE:	\$20
CONTRIBUTOR:	DAVE MACKIE	DATE CODE:	
	HP, DSD	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS,DOS-M

DOS-M DRIVER PACKAGE FOR ACCESSING FRONT-END MAGNETIC TAPE

THIS PACKAGE ALLOWS A DOS-M MAIN COMPUTER TO ACCESS A MAGNETIC TAPE ATTACHED TO A 16K FRONT-END COMPUTER. THE PACKAGE CONSISTS OF TWO DRIVERS WHICH COMMUNICATE VIA THE STANDARD HP INTERCONNECT LINK. ONE OF THE DRIVERS IS THE DOS-M DRIVER DVR21. IT IS INVOKED EITHER BY AN 'EXEC' SUBROUTINE CALL OR BY A CONSOLE COMMAND TO PERFORM I/O OPERATION ON THE FRONT-END MAGNETIC TAPE. THE SECOND DRIVER OPERATES IN THE FRONT-END COMPUTER AND INTERFACES WITH THE BCS MAGNETIC TAPE DRIVER.



CONTRIBUTION #:	411	PART NUMBER:	22515A-K01
CLASS:	18	PRICE:	\$10
CONTRIBUTOR:	JURIS BREMPERIS	DATE CODE:	
	HP, DSD - CUPERTINO	LANG:	MICROASSEMBLY
		OP SYS:	BCS,SELF CONTAINED

PSEUDO-DMA INPUT (MULTI-CHANNEL)

THIS MICROPROGRAM SIMULATES 'DMA' INPUT, ALLOWING THE USER TO DEFINE THE NUMBER OF PSEUDO-DMA CHANNELS. WHEN A DEVICE INTERRUPT IS REQUESTED, CONTROL IS TRANSFERRED DIRECTLY TO THE 2100'S MICROPROCESSOR WHERE THE DIRECT MEMORY ACCESS FUNCTIONS HAVE BEEN

SIMULATED. EACH PSEUDO-DMA CHANNEL DEFINED REQUIRES TWO CORE LOCATIONS, FOR WORD COUNT AND CORE ADDRESS.

THE USE OF THIS MICROPROGRAM OFFERS MORE THAN A 600 PERCENT INCREASE IN INTERRUPT HANDLING EFFICIENCY OVER CONVENTIONAL TECHNIQUES.



CONTRIBUTION #: 412  
CLASS: 412  
CONTRIBUTOR: JURIS BREMPERIS  
HP DSD

PART NUMBER: 22516A-K01  
PRICE: \$10  
DATE CODE:  
LANG: MICROASSEMBLY  
OP SYS: BCS, SELF CONTAINED

#### WORD MOVE (INTERRUPTABLE)

THE MICROPROGRAM MOVES A USER SPECIFIED NUMBER OF CONTIGUOUS WORDS FROM A SOURCE TO A DESTINATION CORE AREA FIVE TIMES FASTER THAN THE PREVIOUSLY AVAILABLE TECHNIQUES.



CONTRIBUTION #: 413  
CLASS: 408  
CONTRIBUTOR: R. J. ROWLANDS  
CSIRO DIV. OF PROTEIN CHEM  
AUSTRALIA

PART NUMBER: 22517A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS, DOS-M

#### NORMAL DISTRIBUTION

THIS FUNCTION RETURNS THE PROBABILITY OF EXCEEDING THE ABSOLUTE VALUE OF AN ARGUMENT, WHICH IS NORMALLY DISTRIBUTED WITH MEAN 0 AND VARIANCE 1. THE FUNCTION IS BASED ON A POLYNOMIAL TYPE APPROXIMATION WHICH GIVES A MAXIMUM ERROR OF  $3 \times 10^{-7}$  (BETTER THAN MACHINE ACCURACY). UNLIKE THE NORMAL DISTRIBUTION INCLUDED IN THE HP22143 PACKAGE, WHICH LIMITS THE ARGUMENT TO LESS THAN 6.0, THIS FUNCTION ALLOWS ALL VALUES OF THE ARGUMENT. IT OPERATES IN A DOS OR DOS-M ENVIRONMENT AND IS CALLABLE FROM FORTRAN AND ASSEMBLY LANGUAGE.



CONTRIBUTION #: 414  
CLASS: 408  
CONTRIBUTOR: R. J. ROWLANDS  
CSIRO DIV. OF PROTEIN CHEM  
AUSTRALIA

PART NUMBER: 22518A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS, DOS-M

#### VARIANCE RATIO DISTRIBUTION

FOR GIVEN DEGREES OF FREEDOM, THIS FUNCTION RETURNS THE PROBABILITY OF EXCEEDING A GIVEN VALUE OF VARIANCE RATIO (F DISTRIBUTION). THE FUNCTION IS ACCURATE TO BETTER THAN FIVE DECIMAL PLACES, WHICH IS IMPORTANT FOR LOWER PROBABILITIES, AND IS BASED ON A NUMERIC INTEGRATION OF THE EXACT INTEGRAL. ONE OF THE



PROBABILITY SUBPROGRAMS, HP22143, IS SIMILAR TO HP22518, EXCEPT THAT IT IS ACCURATE TO FOUR DECIMAL PLACES, IS SOMEWHAT FASTER, AND IS BASED ON AN APPROXIMATION TO THE FUNCTION.

THIS FUNCTION OPERATES IN A DOS-M ENVIRONMENT AND IS CALLABLE FROM FORTRAN AND ASSEMBLY LANGUAGE.



CONTRIBUTION #: 415

CLASS: 17

CONTRIBUTOR: R.J. ROWLANDS

CSIRO DIV. OF PROTEIN CHEM  
AUSTRALIA

PART NUMBER: 22519A-K01

PRICE: \$10

DATE CODE:

LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

DOS-M AUTOLOAD ROUTINE

IF RUN DIRECTLY BEFORE TURNING OFF THE COMPUTER, THIS PROGRAM ALLOWS AN AUTOMATIC RESTART OF A DOS-M SYSTEM. THE PROGRAM STORES A BOOTSTRAP IN CORE FROM LOCATION 17663 TO 17076, AND IT ALSO STORES A START INSTRUCTION IN THE POWER FAIL TRAP CELL. IT THEN EXECUTES A HALT. WHEN POWER IS RESTORED TO THE COMPUTER, THE SYSTEM WILL AUTOMATICALLY BE RELOADED ONCE THE DISC (HP2780 OR HP7900) IS READY. IF POWER FAIL HARDWARE IS NOT PRESENT, THE BOOTSTRAP CAN BE MANUALLY STARTED.



CONTRIBUTION #: 416

CLASS: 106

CONTRIBUTOR: DONALD C. DOUGHERTY  
APPLIED RESEARCH LABS.

PART NUMBER: 22520A-K01

PRICE: \$20

DATE CODE:

LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

TAPE PUNCH AND VERIFY ROUTINE

THE TAPE PUNCH AND VERIFY ROUTINE IS DESIGNED TO ALLOW THE USER TO READ A MASTER TAPE INTO CORE AND THEN PUNCH AND VERIFY ADDITIONAL COPIES WITHOUT FURTHER USE OF THE MASTER TAPE. ANY 8-LEVEL TAPE, WHETHER ASCII OR BINARY, MAY BE COPIED AND VERIFIED. INPUT OF THE MASTER TAPE IS TERMINATED WHEN 100 CONSECUTIVE BLANK FEED FRAMES ARE READ, ALTHOUGH PROVISION IS MADE TO ALLOW THE USER TO CONTINUE INPUT IF MORE THAN ONE ASCII TAPE IS TO BE INCLUDED OR IF 100 BLANK FRAMES ARE ENCOUNTERED IN THE MIDDLE OF A BINARY TAPE. ONCE THE ROUTINE IS ENTERED, ALL USER DECISIONS ARE MADE FROM THE SWITCH REGISTER.

THE ADVANTAGES OF THIS ROUTINE OVER SIMILAR PUNCH/VERIFY ROUTINES ARE ITS EASE OF OPERATION AND ITS MINIMAL SIZE (IT ENDS AT OCTAL LOCATION 77, EXCLUSIVE OF THE RELEASABLE CONFIGURATION SECTION). IN ADDITION, THIS ROUTINE ALLOWS THE USER WHO DOES NOT HAVE BOTH A HIGH SPEED READER AND A HIGH SPEED PUNCH TO UTILIZE AN I/O TELEPRINTER, EITHER ASR-33 OR ASR-35, FOR THE MISSING HIGH SPEED DEVICE. APPROPRIATE TELEPRINTER FUNCTION SELECT CODES ARE INCLUDED TO ALLOW PUNCHING WITHOUT PRINTING ON THE ASR-35, WHICH IS IMPORTANT WHEN BINARY TAPES ARE BEING DUPLICATED.



CONTRIBUTION #: 417  
 CLASS: 11  
 CONTRIBUTOR: D.J. MECHAM  
 HUGHES AIRCRAFT COMPANY

PART NUMBER: 22523A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

BCS ODEC LINE PRINTER DVR.(D.16)

THIS RELOCATABLE PROGRAM IS A BCS INTERRUPT DRIVER FOR THE 'ODEC' LINE PRINTER, MODEL 801. ALL ASCII ALPHA, NUMERIC, AND SPECIAL CHARACTERS CAN BE PRINTED, WITH A MAXIMUM OF 72 CHARACTERS PER LINE AND 62 LINES PER PAGE. THE FIRST CHARACTER OF A STRING IS INTERPRETED AS A CONTROL CHARACTER, UNLESS A CONCATENATION COMMAND HAS PREVIOUSLY BEEN GIVEN.



CONTRIBUTION #: 418  
 CLASS: 212  
 CONTRIBUTOR: JAMES D. REED  
 HUGHES AIRCRAFT COMPANY

PART NUMBER: 22524A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

RTE ALPHANUMERIC TAPE LABEL GENERATOR

OPERATING IN A RTE ENVIRONMENT, THIS PROGRAM PROVIDES A MEANS OF LABELING A PAPER TAPE BY GENERATING A BLOCK-LETTERING LEADER OR TRAILER ON THE TAPE.

ORDER #22524-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 419  
 CLASS: 102  
 CONTRIBUTOR: WIM ROELANDTS  
 HP, BELGIUM  
 BRUSSELS

PART NUMBER: 22525A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

READ/WRITE DOS-M FILES IN RTE ENVIRONMENT

THIS ROUTINE, OPERATING IN A RTE ENVIRONMENT, ENABLES THE USER TO READ AND WRITE ON DOS-M FILES. THE FILES MUST HAVE BEEN PREVIOUSLY CREATED BY A DOS-M SYSTEM. THE ROUTINE CHECKS THE DOS-M DIRECTORY TO DETERMINE THE ORIGIN AND THE LENGTH OF THE FILE, AND THEN READS OR WRITES DATA ON THE FILE. TRACK SWITCHING IS AUTOMATICALLY DONE AND TESTS ARE MADE TO BE SURE THE USER STAYS WITHIN THE FILE. THE DISC CONTAINING THE DOS-M FILE MUST BE DECLARED AS A PERIPHERAL DISC IN THE RTE SYSTEM. THIS ROUTINE IS PARTICULARLY USEFUL WHEN DATA ACQUISITION IS DONE IN A RTE SYSTEM, AND LATER THE DATA MUST BE USED IN A DOS-M SYSTEM BECAUSE MORE CORE IS REQUIRED TO PROCESS IT.

ORDER #22525-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 420  
CLASS: 211  
CONTRIBUTOR: THOMAS J. ANDREWS

PART NUMBER: 22526A-K01  
PRICE: \$10  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

DOS-M FORTRAN IV CROSS REFERENCE TABLE GENERATOR

OPERATING IN A 16K DOS-M SYSTEM THIS PROGRAM GENERATES A CROSS REFERENCE TABLE FOR FORTRAN IV PROGRAMS, SIMILAR IN FORM TO THAT PRODUCED FOR ASSEMBLY LANGUAGE PROGRAMS. EACH PROGRAM AND SUBPROGRAM IS HANDLED SEPARATELY. PROGRAM SOURCE STATEMENTS MAY COME FROM I/O DEVICES OR FROM DISC SOURCE FILES.



CONTRIBUTION #: 421  
CLASS: 211  
CONTRIBUTOR: LARRY LOTITO  
HP, DATA SYSTEMS DIV.

PART NUMBER: 22527A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

DEBUG FOR ABSOLUTE/BCS PROGRAMS

THIS SMALL PROGRAM IS INTENDED FOR ON-LINE INTER-ACTIVE DEBUGGING OF ABSOLUTE AND BCS PROGRAMS. IT IS ALSO USEFUL FOR PREPARATION OF SMALL TEST PROGRAMS AND FOR DUMPING OF PATCHED PROGRAMS ONTO PAPER TAPE.

A PARTICULARLY USEFUL FEATURE OF THIS PROGRAM IS THE ABILITY TO SET UP TO SIX TRAPS IN A PROGRAM SIMULTANEOUSLY. WHEN A TRAP CELL IS REACHED DURING THE EXECUTION OF THE PROGRAM, THE A, B, OVERFLOW AND EXTEND REGISTERS ARE DISPLAYED AND THE MACHINE HALTS. IN ADDITION TO SETTING TRAPS, 'DEBUG' ALLOWS THE USER TO OPEN SPECIFIED LOCATIONS AND INPUT IN OCTAL OR ASCII; DUMP MEMORY IN OCTAL OR ASCII; COMPARE MEMORY WITH MASKING; OPEN AND DISPLAY REGISTERS; AND BEGIN EXECUTION AT ANY DESIRED LOCATION.



CONTRIBUTION #: 422  
CLASS: 102  
CONTRIBUTOR: JACQUES SANSDRAP  
CLINIQUE UNIV. ST. PIERRE  
BELGIUM

PART NUMBER: 22528A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

SERIAL ACCESS TO DOS-M FILES

THIS SUBROUTINE ALLOWS A DOS-M USER TO SERIALY ACCESS DISC FILES, THUS MAKING PACKING AND UNPACKING OF FILES POSSIBLE. UP TO TEN FILES CAN SIMULTANEOUSLY BE OPENED TO THE SUBROUTINE, AND FOR EACH OPENED FILE, THE USER MUST PROVIDE A BUFFER OF AT LEAST ONE SECTOR (LARGER FOR FASTER PROCESSING). READ AND WRITE OPERATIONS ON THE FILES ARE PERFORMED ON A LOGICAL BASIS. STATUS AND CONTROL OPERATIONS ALLOW THE USER TO SPECIFY THE RELATIVE WORD WITHIN A FILE THAT HE WANTS TRANSFERRED. ONCE A FILE IS OPENED TO THIS SUBROUTINE, IT IS NO LONGER REFERENCED BY NAME, BUT BY AN INDEX.



CONTRIBUTION #: 423  
 CLASS: 18  
 CONTRIBUTOR: GLEN WORSTELL  
 HP, LOVELAND

PART NUMBER: 22529A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: BCS,DOS-M,RTE

INTEL 8008 ASSEMBLER FOR HP 2100

THIS PROGRAM, 'ASMI', RUNS ON AN HP2100 SERIES COMPUTER AND ASSEMBLES 'INTEL' 8008 MICRO-COMPUTER SOURCE CODE. IT IS A TWO PASS ASSEMBLER WHICH WILL RUN IN A DOS-M, RTE, OR BCS ENVIRONMENT. AN 8K COMPUTER IS REQUIRED FOR BCS, 12K FOR DOS-M. THE INPUT TO 'ASMI' IS A PAPER TAPE SOURCE CONTAINING SYMBOLIC LANGUAGE INSTRUCTIONS. THE OUTPUT IS A LINE PRINTER (OR TELETYPE) LISTING OF THE SYMBOL TABLE, THE CODE GENERATED BY THE ASSEMBLER, AND THE SOURCE CODE. IT WOULD BE EASY TO MODIFY THE PROGRAM TO PUNCH THE OUTPUT CODE IN (INTEL) 'BNPF' FORMAT.

ORDER #22529-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 424  
 CLASS: 102  
 CONTRIBUTOR: LARRY BYLER  
 HP, DATA SYSTEMS DIV.

PART NUMBER: 22530B-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

CHERNACK(HP22198) M T SOURCE FORMAT TO DOS-M SOURCE FILE (CHERN)

OPERATING UNDER DOS-M, (CHERN) READS A TAPE RECORD PREVIOUSLY PREPARED BY THE MAG TAPE STORAGE AND RETRIEVAL PROGRAM (HP22198). IT REFORMATS THE RECORD INTO DOS-M SOURCE FILE AND OPTIONALLY CALLS THE LANGUAGE TRANSLATOR (ASMB, FTN4, OR ALGOL) SPECIFIED IN THE SOURCE FILE CONTROL STATEMENT. FOLLOWING ASSEMBLY OR COMPILATION THE SOURCE FILE IS NOT RETAINED, UNLESS THE USER SPECIFIES THE CORRECT OPTION AND A NAME FOR THE FILE. THE MAIN PURPOSES OF (CHERN) IS TO OBTAIN SOURCE PROGRAM LISTINGS FROM 22198 FORMAT WITHOUT THE INTERMEDIATE STEP OF DUMPING TO PAPER TAPE. THIS PROGRAM CANNOT BE USED TO STORE BINARY FILES.

(CHERN) REQUIRES A NINE TRACK MAGNETIC TAPE UNIT AND WILL RUN ON ALL MEMORY SIZES OF DOS-M. THE LENGTH OF THE SOURCE PROGRAM WHICH (CHERN) CAN PROCESS DEPENDS ON THE MEMORY AVAILABLE AFTER THE INITIALIZATION SECTION OF (CHERN) IS RELEASED. THEREFORE SYSTEMS WITH 16K WILL BE LIMITED TO PROCESSING 22198 RECORDS OF APPROXIMATELY 10000 WORDS. OPTION PARAMETERS FOR (CHERN) MAY BE ENTERED WITH THE (:PROG) DIRECTIVE, INTERACTIVELY AT THE KEYBOARD, OR FROM A BATCH DEVICE. IF A 22198 TAPE CONTAINS MORE THAN ONE RECORD PER COMPLETE PROGRAM, (CHERN) WILL CONCATENATE THESE RECORDS INTO ONE FILE UNTIL A VALID 'END' LINE IS FOUND. IF ONE RECORD ON A 22198 TAPE CONTAINS MORE THAN ONE PROGRAM, (CHERN) WILL STORE ALL OF THE PROGRAMS IN ONE DOS-M FILE.

CONTRIBUTION #: 425  
 CLASS: 303  
 CONTRIBUTOR: PER CHRISTIANSSON  
 LUND INSTITUTE OF TECH.  
 SWEDEN

PART NUMBER: 22531A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 20392A

## COMPLEX ARITHMETIC FOR HP BASIC

THIS BASIC CALLABLE SUBROUTINE ALLOWS ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION OF COMPLEX NUMBERS. IT ALSO ALLOWS A NUMBER OF THE FORM  $X1 + iX2$  TO BE CONVERTED TO THE FORM  $L1 * e^{i\phi}$  AND VICE VERSA. THE CONTRIBUTED PROGRAM HP22078, HIGH SPEED PUNCH DRIVER - BASIC CALLABLE, CAN BE USED WITH THIS SUBROUTINE.



CONTRIBUTION #: 426  
 CLASS: 607  
 CONTRIBUTOR: TED OLENCKI/JOHN PILCH  
 FAIRLEIGH DICKINSON UNIVER

PART NUMBER: 22532A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

## SYSTEM SIMULATION PROGRAM (SSP)

SYSTEM SIMULATION PROGRAM (SSP) IS USED FOR THE SIMULATION OF CONTINUOUS SYSTEM DESCRIBED BY ORDINARY DIFFERENTIAL EQUATIONS OF THE INITIAL VALUE TYPE. (SSP) EMPLOYS THE BLOCK DIAGRAM TECHNIQUE OF ANALOG SIMULATION AND USES A SECOND ORDER PREDICTOR-CORRECTOR INTEGRATION SCHEME. IT RUNS IN A 16K DOS-M ENVIRONMENT WITH A MINIMUM OF 10K PROGRAM AREA.

(SSP) IS CAPABLE OF HAVING UP TO 150 BLOCKS OF WHICH A MAXIMUM OF 25 MAY BE INTEGRATORS, 10 DIFFERENTIATORS AND 30 USER DEFINED PROGRAMMED FUNCTION BLOCKS.

PROGRAM INPUT CAN BE FROM PAPER TAPE, CARDS, OR ANY COLUMN LINE PRINTER; HOWEVER, OUTPUT WILL ALSO FIT ON A 72 COLUMN TELETYPE. A SPECIAL MARKED CARD WAS ALSO DESIGNED TO EASE THE PROBLEM OF PROGRAM PREPARATION. THIS CARD ALLOWS THE PROGRAMMER WITHOUT THE AVAILABILITY OF CARD OR PAPER TAPE PUNCHING EQUIPMENT TO USE THE (SSP) PROGRAM.



CONTRIBUTION #: 427  
 CLASS: 17  
 CONTRIBUTOR: H.F. LETTS  
 HP, SOUTHERN SALES REGION

PART NUMBER: 22533A-K01  
 PRICE: \$10  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

## RESTORE BASIC BINARY LOADER (PBOOT)

OPERATING IN A DOS-M ENVIRONMENT, THIS PROGRAM, (PBOOT), INSTALLS THE HP STANDARD BASIC BINARY LOADER IN PROTECTED MEMORY. IT IS PARTICULARLY USEFUL AS A COMPLEMENT TO HP22448, CORE RESIDENT DOS-M BOOTSTRAP, WHICH INSTALLS A DOS-M BOOTSTRAP IN PROTECTED CORE. ONCE A SYSTEM IS BROUGHT UP WITH THE CORE RESIDENT BOOTSTRAP, (PBOOT) EASILY RESTORES PROTECTED CORE WITH THE STANDARD PAPER TAPE LOADER.



CONTRIBUTION #: 428

CLASS: 7

CONTRIBUTOR: R. J. ROWLANDS  
CSIRO DIVISION OF PROTEIN  
CHEMISTRY

PART NUMBER: 22534A-K01

PRICE: \$40

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

## MODIFIED DOS-M WITH FORTRAN READ/WRITE OF DISC FILES

THIS PACKAGE PROVIDES SEVERAL MODIFICATIONS TO THE DOS-M SYSTEM, REVISION F. THE MAIN FEATURE OF THE REVISED SYSTEM IS THE ABILITY TO READ AND WRITE DISC FILES USING FORTRAN I/O STATEMENTS. THE FILES CREATED OR USED IN THIS WAY ARE (SS) TYPE FILES AND CAN BE LISTED AND EDITED USING THE DOS-M DIRECTIVES (:LI,S AND :ED). TO ACHIEVE THESE CAPABILITIES, THE USER FILES ARE TREATED AS A SEPARATE PERIPHERAL, WITH THEIR OWN DRIVER, DVR37, AND THEIR OWN EGT ENTRY. IN OPERATION THE FILES ARE EQUATED TO LOGICAL UNIT NUMBERS AND CAN THEN BE TREATED IN AN ANALOGOUS WAY TO MAGNETIC TAPE, WITH REWIND, END FILE, AND BACKSPACE AVAILABLE. OTHER MODIFICATIONS TO THE DOS-M SYSTEM PROVIDE A CONSIDERABLE INCREASE IN CONVENIENCE TO THE AVERAGE USER. THEY INCLUDE THE CAPABILITY TO REPLACE RUN TIME ERROR MESSAGES FROM THE LIBRARY WITH EXPLICIT DESCRIPTIONS OF THE FAULT AND ASSIGN LOGICAL UNIT NUMBER 6 TO THE SYSTEM TELETYPE AT THE START OF A JOB. OPTION K01 FOR THIS PACKAGE CONSISTS OF THE FOLLOWING: SOURCE FOR DVR37, \$ERRM, ERR0, \$EX25 AND EDIT FILES FOR LOADR, DISCM, \$EX12, JOBPR. OPTION B01 CONSISTS OF THE BINARY FOR ALL OF THE ABOVE MENTIONED MODULES.

THE ONLY REQUIRED EQUIPMENT IS THE NORMAL 16K DOS-M WITH EAU.



CONTRIBUTION #: 429

CLASS: 112

CONTRIBUTOR: LARRY W. SMITH  
HP, NEELY SALES REGION

PART NUMBER: 22535B-K01

PRICE: \$10

DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

## MAGNETIC TAPE COPY

THIS ABSOLUTE PROGRAM COPIES ONE MAGNETIC TAPE ONTO ANOTHER. IT HAS EXTENSIVE ERROR RECOVERY AND A LARGE INPUT BUFFER, VARYING WITH DIFFERENT MEMORY SIZES. THE PROGRAM WILL COPY ANY TRACK TAPE (IF APPROPRIATE SIO DRIVERS ARE USED), OR ANY TAPE GENERATED BY THE CONTRIBUTED PROGRAM HP22198. INCLUDED IN THE PROGRAM IS A ROUTINE WHICH ALLOWS THE USER TO POSITION THE TAPE TO ANY FILE AND RECORD BEFORE COPYING.

EQUIPMENT REQUIRED IS AN HP2100 SERIES COMPUTER, A TELETYPE, AND TWO MAGNETIC TAPE UNITS.



CONTRIBUTION #: 430  
CLASS: 110  
CONTRIBUTOR: DENNIS J. BARKLEY  
NAVAL WEAPONS STATION

PART NUMBER: 22537A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

DOS-M ASCII FILE RETRIEVAL SUBROUTINE

THIS SUBROUTINE ALLOWS A DOS-M USER TO CALL ANY ASCII CHARACTER FORMATTED USER FILE. THUS IT MAKES POSSIBLE USER PROGRAM DATA FILE MANIPULATIONS SUCH AS STORE, LIST, AND EDIT. THE ROUTINE CAN CALL ALL LINES OF A FILE OR SPECIFIED LINES. IT RETURNS ASCII DATA IN 2 CHARACTER/WORD FORM, OR IT RETURNS ANY NUMBERS IN INTEGER OR FLOATING POINT FORM. ALSO RETURNED IS THE TOTAL NUMBER OF BUFFER WORDS USED.

THE SUBROUTINE IS CALLABLE FROM FORTRAN AND ASSEMBLY LANGUAGE. IT REQUIRES AN HP2116/2100 COMPUTER WITH EAU.



CONTRIBUTION #: 431  
CLASS: 11  
CONTRIBUTOR: H. F. LETTS  
HP, SOUTHERN SALES REGION

PART NUMBER: 22538A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

DOS-M CENTRONICS 101-A LINE PRINTER DRIVER (DVR00)

THIS DOS-M DRIVER CONTROLS OUTPUT OPERATIONS FOR A CENTRONICS 101A LINE PRINTER WITH A SERIAL OR PARALLEL INTERFACE AND WITHOUT THE AUTOMATIC LINE FEED OPTION. IT IS DESIGNED TO UTILIZE THE SPECIAL FUNCTIONS OF THIS LINE PRINTER SUCH AS VERTICAL TAB, FORM FEED, ELONGATED CHARACTERS AND OVERPRINTING. ONLY ASCII CHARACTERS CAN BE OUTPUT.

THE DRIVER WILL NOT SUPPORT A TELETYPE OR THE SYSTEM CONSOLE.



CONTRIBUTION #: 432  
CLASS: 2  
CONTRIBUTOR: H. F. LETTS  
HP, SOUTHERN SALES REGION

PART NUMBER: 22539A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

DOS-M SYSTEM TELEPRINTER WITH PAPER TAPE I/O (DVR00)

THIS DRIVER, A MODIFIED VERSION OF THE STANDARD DOS-M TELETYPE DRIVER, ALLOWS THE SYSTEM CONSOLE TELETYPE TO BE USED FOR PAPER TAPE I/O. SET BIT 15 OF THE SWITCH REGISTER DISPLAY BEFORE

EXECUTING A DIRECTIVE SUCH AS (:STORE,R,PROG,1) AND NO OPERATOR ATTENTION WILL BE GENERATED BY THE TAPE READER. BOTH BINARY AND ASCII RECORDS CAN BE INPUT AND OUTPUT ON THE TELETYPE.

THIS DRIVER REQUIRES ONLY A MINIMUM DOS-M.



CONTRIBUTION #:	433	PART NUMBER:	22540A-K01
CLASS:	7	PRICE:	\$20
CONTRIBUTOR:	BILL BEALS/DARRELL TAPP, H. F. LETTS HP, SOUTHERN SALES REGION	DATE CODE:	LANG: ASSEMBLY RELOCATABLE OP SYS: DOS-M

DOS-M HAZELTINE 2000 TERMINAL DRIVER (DVR00)

THIS DRIVER, A MODIFIED VERSION OF THE STANDARD DOS-M TELETYPE DRIVER, SUPPORTS THE HAZELTINE 2000 TERMINAL. IT ALSO ALLOWS THE SYSTEM CONSOLE TO BE USED FOR PAPER TAPE I/O. ONLY A MINIMUM DOS-M IS REQUIRED.

TWO MODES OF OPERATION ARE PROVIDED FOR THE HAZELTINE 2000 TERMINAL: TELETYPE MODE FOR HALF DUPLEX AND BLOCK MODE FOR BATCH. IF THIS DRIVER IS TO SUPPORT THE SYSTEM CONSOLE, IT MUST BE CORE RESIDENT. SET BIT 15 OF THE SWITCH REGISTER DISPLAY BEFORE EXECUTING A DIRECTIVE SUCH AS (:STORE,R,PROG,1) AND NO OPERATOR ATTENTION WILL BE GENERATED BY THE TAPE READER. BOTH BINARY AND ASCII RECORDS CAN BE INPUT AND OUTPUT ON THE CONSOLE.



CONTRIBUTION #:	434	PART NUMBER:	22542A-K01
CLASS:	207	PRICE:	\$20
CONTRIBUTOR:	DENNIS E. SPANOGLE HP, NEELY SALES REGION	DATE CODE:	LANG: ASSEMBLY ABSOLUTE OP SYS: SIO

HP 2870/7900 DISC/MAGNETIC TAPE UTILITY (MADIU)

THIS ABSOLUTE ASSEMBLY PROGRAM USES THE MAGNETIC TAPE AND TELEPRINTER SIO DRIVERS TO PERFORM DISC TO DISC, DISC TO MAGNETIC TAPE, AND MAGNETIC TAPE TO DISC COPIES. IT IS DESIGNED TO WORK WITH AT LEAST 16K CORE, DMA, AND AN HP2870 OR HP7900 DISC. UP TO FOUR DISC DRIVERS (SUBCHANNEL 0 THRU 7) CAN BE USED, AND THE MAGNETIC TAPE CAN HAVE UP TO 7 FILES WITH AUTOMATIC FILE POSITIONING.

THE OPERATOR COMMUNICATES WITH THE PROGRAM BY ANSWERING QUESTIONS ON THE TELETYPE. THE OPTIONS AVAILABLE ARE:

DU - DUMP DISC TO MAGNETIC TAPE  
 LO - LOAD DISC FROM MAGNETIC TAPE WITH AUTOMATIC VERIFY  
 VE - VERIFY DISC WITH MAGNETIC TAPE  
 CO - COPY DISC TO DISC WITH AUTOMATIC VERIFY  
 TE - TERMINATE



SEVERAL ERROR HALTS ARE INCLUDED IN THIS PROGRAM TO INSURE PROPER HARDWARE OPERATION. DISCS WITH CYLINDERS FLAGGED DEFECTIVE CAN NOT BE COPIED OR DUMPED. PROTECTED CYLINDERS ARE COPIED AS PROTECTED.



CONTRIBUTION #: 435  
CLASS: 105  
CONTRIBUTOR: UNIVERSITY OF LETHBRIDGE  
CANADA

PART NUMBER: 22544A-K01  
PRICE: \$50  
DATE CODE:  
LANG: ABSOLUTE ASSEMBLY  
OP SYS: SIO

16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAG TAPE

THIS INDEPENDENT PROGRAM READS A DUMP MAGNETIC TAPE FROM AN HP2000C (VERSION B), HP2000C HIGH-SPEED (VERSION C), OR HP2000F (VERSION B) TIME-SHARED BASIC SYSTEM INTO A 16K STAND-ALONE SYSTEM. UNDER OPERATOR COMMAND IT WILL: A) PRODUCE A DIRECTORY OF THE PROGRAMS OR FILES ON THE TAPE, B) LIST ON THE PRINTER PROGRAMS FROM THE TAPE (IN TITLED, HEADED, AND PAGE NUMBERED FORM), AND C) PUNCH A SPECIFIED PROGRAM FROM THE TAPE (LABELED T/S LOADABLE FORM). ALL PROGRAMS ON THE TAPE OR ALL PROGRAMS OF ONE USER CAN BE LISTED WITH A SINGLE OPERATOR COMMAND. AFTER PUNCHING A PROGRAM, THE NEXT PROGRAM MAY BE PUNCHED WITH A COMMAND CONSISTING OF A SINGLE KEYSTROKE.

EQUIPMENT REQUIRED IS AN HP2116/2100 COMPUTER WITH 16K, EAU, AND DMA, AN HP7970A MAGNETIC TAPE UNIT, AN HP2753A PAPER TAPE PUNCH, AN HP2752A/2754B TELEPRINTER, AN HP2767A LINE PRINTER (OR EQUIVALENT), AND A PAPER TAPE READER.



CONTRIBUTION #: 436  
CLASS: 9  
CONTRIBUTOR: DAVID P. ROST  
CARDION ELECTRONICS

PART NUMBER: 22545A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

PHOTOREADER DATA INPUT FOR HP 20392A BASIC

THIS SUBROUTINE ALLOWS A SINGLE TERMINAL BASIC USER TO ENTER DATA FROM THE PHOTOREADER DURING THE EXECUTION OF A BASIC PROGRAM. THE SUBROUTINES, ACCESSED BY A 'CALL' STATEMENT, MODIFIES THE HP20392A BASIC COMPILER, PASSES THE INPUT DATA AS REQUESTED, AND THEN RESTORES THE COMPILER.

EACH INPUT DATA POINT MUST BE TERMINATED BY A COMMA OR A CARRIAGE RETURN. INPUT CONTROL CHARACTERS ARE THE SAME AS THOSE USED DURING KEYBOARD INPUT: LEFT ARROW DELETES THE PREVIOUS CHARACTER AND ESCAPE OR ALT MODE DELETES THE ENTIRE LINE UP TO THE PREVIOUS COMMA OR CARRIAGE RETURN. THE MAXIMUM INPUT RECORD IS 72 CHARACTERS.

BOTH AN ERROR ROUTINE AND A STOP ROUTINE ARE INCLUDED. THESE ARE

EXECUTED THROUGH THE 'CALL' SO THAT RESTORATION OF THE COMPILER IS ASSURED.

NECESSARY HARDWARE IS A MINIMUM 8K CORE, A TELETYPE, AND A PHOTOREADER.



CONTRIBUTION #: 437  
 CLASS: 318  
 CONTRIBUTOR: JAN PLISEK  
 RESEARCH INSTITUTE  
 CZECHOSLOVAKIA

PART NUMBER: 22546A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS FOR BCS

OPERATING IN A BCS ENVIRONMENT THIS SUBROUTINE SOLVES A SYSTEM OF FIRST ORDER ORDINARY DIFFERENTIAL EQUATIONS WITH GIVEN INITIAL VALUES. THE FOURTH-ORDER RUNGE-KUTTA-MERSON METHOD OF INTEGRATION IS USED, WITH THE INCREMENT AUTOMATICALLY ADJUSTED BY HALVING OR DOUBLING TO ACHIEVE THE DESIRED PRECISION OF RESULTS. A TEST PROGRAM IS INCLUDED WITH THIS PACKAGE WHICH IS GENERAL ENOUGH TO SOLVE DIFFERENT SYSTEMS OF UP TO THIRTY FIRST ORDER ORDINARY DIFFERENTIAL EQUATIONS WITH GIVEN INITIAL VALUES.

THE ONLY EQUIPMENT REQUIRED IS 8K OF CORE AND A TELETYPE.

THE SUBROUTINE IS FORTRAN CALLABLE.



CONTRIBUTION #: 438  
 CLASS: 17  
 CONTRIBUTOR: H. F. LETTS  
 HP, SOUTHERN SALES REGION

PART NUMBER: 22547A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: MTS

#### DOS-M ONLINE BOOT FROM MTS

THIS PROGRAM ALLOWS THE USER TO DYNAMICALLY CHANGE HIS SOFTWARE OPERATING ENVIRONMENT FROM MTS TO DOS-M. THE USER SPECIFIES, ON-LINE, THE I/O CHANNEL OF THE DISC (HP2070 OR HP7000) AND THE SUBCHANNEL OF THE DOS-M SYSTEM (EITHER '0' OR '1').

THE BOOTSTRAP REQUIRES THE MINIMUM MTS.



CONTRIBUTION #: 439  
CLASS: 14  
CONTRIBUTOR: EAUWOUD GOUDRIAAN  
NATO ASW RESEARCH CENTRE

PART NUMBER: 22548A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

TEKTRONIX T4002 PLOTTER LIBRARY FOR RTE

THIS PACKAGE ALLOWS BASIC PLOT FUNCTIONS TO BE PERFORMED ON THE TEKTRONIX T4002 GRAPHIC COMPUTER TERMINAL IN AN RTE ENVIRONMENT. IT IS A MODIFIED AND EXTENDED VERSION OF A PACKAGE DEVELOPED BY TEKTRONIX, INC. FOR THE HP BCS OPERATING SYSTEM. THE FUNCTIONS PROVIDED BY THIS RTE PLOTTER LIBRARY ALLOWS THE USER TO PLOT POINTS, LINES, AND CHARACTERS; OUTPUT IN ITALICS, DOUBLE SIZED, OR DOUBLE INTENSIFIED; AND USE THE GRAPHIC CURSOR.

MEMORY REQUIREMENTS FOR THE LIBRARY ARE 334 OCTAL WORDS.

ORDER #22548-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 440  
CLASS: 106  
CONTRIBUTOR: STEPHEN S. MACKENZIE  
HP, SOUTHERN SALES REGION

PART NUMBER: 22549A-K01  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

DOS-M MAGNETIC TAPE COPY

OPERATING IN A DOS-M ENVIRONMENT WITH AT LEAST 24K, THIS PROGRAM WILL COPY ONE MAGNETIC TAPE OF ANY FORMAT TO ANOTHER MAGNETIC TAPE. FILE MARKS AND RECORDS MAY BE MIXED IN ANY SEQUENCE ON THE INPUT TAPE. ALTHOUGH WRITTEN IN FORTRAN IV, THE PROGRAM USES LITTLE LOGIC FROM THE FORTRAN LIBRARY AND FORMATTER, SINCE DOS-M EXEC CALLS ARE USED WHEREVER POSSIBLE. ONLY FIVE ROUTINES FROM THE FORTRAN LIBRARY ARE USED: CLRIO, IOR, IAND, RMPAR, AND GETAD. THE RESULT IS THAT THE PROGRAM CAN, WITH A SYSTEM OCCUPYING AS MUCH AS 7K, COPY A RECORD UP TO 16,000 WORDS IN LENGTH. DUE TO THE LARGE BUFFER SIZE REQUIRED TO HANDLE 16,000 WORD RECORDS, I/O IS NOT OVERLAPPED.



CONTRIBUTION #: 441  
CLASS: 106  
CONTRIBUTOR: AGUSTIN BRAVO  
HP, MEXICO/TORRES ADALID

PART NUMBER: 22550A-K01  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

EFMP FILE SORT

OPERATING IN A 16K DOS-M ENVIRONMENT THIS PACKAGE SORTS INTEGER OR ASCII EFMP FILES IN ASCENDING ORDER. UP TO NINE KEYS CAN BE SELECTED IN ORDER OF SORTING SIGNIFICANCE. THESE KEYS ARE IDENTIFIED BY WORD NUMBER WITHIN EACH RECORD OF THE FILE, AND CAN

BE A MAXIMUM OF FORTY WORDS LONG.  
 THE RESULT OF A SORT IS A TAG EFMP FILE WHICH CONSISTS OF A ONE  
 WORD RECORD FOR EACH RECORD IN THE SORTED FILE (MAXIMUM 32767).  
 WHEN ACCESSED SEQUENTIALLY, THE TAG FILE PROVIDES THE ORDER IN  
 WHICH THE ORIGINAL FILE MUST BE READ TO BE SORTED AS SPECIFIED.  
 THE SORT PROGRAM CAN BE RUN INDEPENDENTLY OR CAN BE CALLED BY  
 A FORTRAN PROGRAM WHICH PASSES THE NECESSARY PARAMETERS VIA THE  
 COMMON AREA.



CONTRIBUTION #: 442  
 CLASS: 107  
 CONTRIBUTOR: CARL DAVIDSON  
 HP, DATA SYSTEMS DIV.

PART NUMBER: 22553A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ALGOL/ASSEMBLY RELOC  
 OP SYS: TODS

#### TODS INDEX

THIS PROGRAM RELACES FORMER 'INDEX' PROGRAM 22553. 'INDEX' SORTS  
 ALPHANUMERIC RECORDS, INPUT IN ASCII FORMAT AND PRINTS THEM ON THE  
 LIST DEVICE IN ALPHABETIC ORDER. IT OPERATES IN THE TEST-ORIENTED  
 DISC SYSTEM (TODS) ENVIRONMENT AND UTILIZES THE DISC STORAGE  
 CAPABILITIES. MATERIAL TO BE SORTED IS READ FROM EITHER A TYPE  
 (S) DISC SOURCE FILE, A TTY OR CRT, ANY LOGICAL UNIT SPECIFIED BY  
 THE OPERATOR OR A PUNCHED TAPE READER. THE SOURCE BY WHICH THE  
 MATERIAL TO BE SORTED IS READ IS SPECIFIED BY THE OPERATOR AT  
 EXECUTION TIME.

'INDEX' WAS DESIGNED FOR A SYSTEM WITH THE FOLLOWING HARDWARE:  
 HP2100 SERIES COMPUTER; (WITH 4K MEMORY); HP2752A OR 2754B  
 TELEPRINTER OR AN HP2600A CRT TERMINAL; HP7900A DISC DRIVE; AND  
 AN HP2767A LINE PRINTER. AN HP2748A PUNCHED TAPE READER IS  
 OPTIONAL.



CONTRIBUTION #: 443  
 CLASS: 22  
 CONTRIBUTOR: DAVE HINDERS  
 HP, DSD - CUPERTINO

PART NUMBER: 22554A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: FTN IV/ASMB RELOC.  
 OP SYS: DOS-M, DOS-III

#### DOS-M/DOS-III UTILITIES

THIS PACKAGE OF THREE DOS-M/DOS-III UTILITIES PROVIDES THE  
 CAPABILITY TO PATCH THE CORE RESIDENT SYSTEM AND TO MODIFY EQT  
 ENTRIES (DOS III ONLY). THE PROGRAM UPDAT INITIALIZES AND UPDATES  
 OVERLAY FILES. OVRLY WILL PATCH THE CORE RESIDENT SYSTEM FROM  
 BINARY FILES PREPARED BY UPDAT OR FROM ABSOLUTE PROGRAM FILES  
 (DOS III ONLY).  
 MEQTS ACCEPTS EQT PARAMETERS FROM THE SYSTEM CONSOLE AND USES THE  
 INFORMATION TO UPDATE AN OVERLAY FILE. THE UPDATED OVERLAY FILE  
 CAN THEN BE LOADED USING OVRLY. BECAUSE IT FACILITATES CHANGING

I/O DRIVERS, THE PRIMARY USAGE OF THIS PROGRAM IS IN DRIVER DEVELOPMENT AND DEBUGGING.

THIS PACKAGE REQUIRES ONLY THE MINIMUM DOS-M OR DOS-III CONFIGURATION.



CONTRIBUTION #: 444  
CLASS: 2  
CONTRIBUTOR: H. F. LETTS  
HP/HOUSTON

PART NUMBER: 22555A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

SIO DRIVER FOR TTY AND CRT IN SAME SYSTEM

IF A SYSTEM CONFIGURATION CONTAINS BOTH A CRT AND A TTY, THE USER IS SHUNT AN SIO DRIVER. THIS DRIVER OVERLAYS THE LINE PRINTER DRIVER AREA IN THE HP SIO TTY DRIVER AND ALLOWS THE USER TO UTILIZE BOTH HIS CRT AND HIS TTY. AN APPLICATION OF THIS PROGRAM MIGHT BE A MAGNETIC TAPE OPERATING SYSTEM WITH CRT, TTY, PAPER TAPE READER AND PAPER TAPE PUNCH.

THIS PROGRAM WILL OPERATE WITH 8K OR 16K CORE AS IS. EASY MODIFICATIONS ALLOW IT TO OPERATE WITH OTHER CORE CONFIGURATIONS.



CONTRIBUTION #: 445  
CLASS: 16  
CONTRIBUTOR: S. ZAMOSCIANYK  
RAYTHEON COMPANY

PART NUMBER: 22556A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: MTS

ALGOL OPERATING SYSTEM FOR MTS AND BCS LOADER, REV.G/H

THIS PACKAGE ENABLES ALGOL SOURCE PROGRAMS TO BE COMPILED AND EXECUTED IN A MAG TAPE SYSTEM ENVIRONMENT WITHOUT THE INTERMEDIATE STEP OF PUNCHING OBJECT CODE. THE PACKAGE CONSISTS OF THREE PROGRAMS, FILE3, LOADF3, AND RESTR. FILE3 AND LOADF3 ARE ABSOLUTE PROGRAMS WHICH OVERLAY RESPECTIVELY, THE ALGOL COMPILER AND THE BASIC CONTROL SYSTEM (BCS). THEIR FUNCTION IS TO WRITE THE RELOCATABLE BINARY OBJECT OF AN ALGOL PROGRAM ONTO THE THIRD PHYSICAL FILE OF THE USER'S SYSTEM TAPE DURING COMPILATION. DURING LOADING OF THE PROGRAM THEY READ THIS BINARY CODE FROM THE THIRD FILE. BY AUTOMATING THE COMPILE, LOAD, AND GO PROCESSES, THESE OVERLAYS ENABLE THE USER TO REALIZE MORE FULLY THE ADVANTAGES PROVIDED BY A MAG TAPE SYSTEM. THE ALGOL CALLABLE LIBRARY PROGRAM RESTR IS AUTOMATICALLY LOADED FROM THE SECOND FILE OF THE SYSTEM TAPE IF, AT RUN-TIME, AN ALGOL PROGRAM ACCESSES THE PAPER TAPE READER. THIS PACKAGE WAS WRITTEN TO OPERATE WITH THE ALGOL COMPILER, REV.

B (HP24044B) AND THE BCS RELOCATING LOADER, REV. G OR H (HP20018G/H), WITH A MINIMUM OF 8K CORE. THE OVERLAYS SHOULD BE USED WITH A BASIC CONTROL SYSTEM INCORPORATING A FILE PROTECT FEATURE.



CONTRIBUTION #:	446	PART NUMBER:	22557A-K01
CLASS:	207	PRICE:	\$20
CONTRIBUTOR:	T. J. BALLEW	DATE CODE:	
	HP, SOUTHERN SALES REGION	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	SIO

8K SDUMP FOR HP 7900A MOVING HEAD DISC

THIS ABSOLUTE ASSEMBLY LANGUAGE PROGRAM WILL LOAD AN HP7900A MOVING HEAD DISC FROM A MAGNETIC TAPE, AND WILL ALSO DUMP AN OPTIONAL NUMBER OF TRACKS FROM THE DISC TO TAPE. THE PROGRAM INCLUDES A VERIFY OPTION.

SIO DRIVERS ARE EXPECTED FOR THE MAGNETIC TAPE AND FOR A TTY. EQUIPMENT REQUIRED INCLUDES 8K OF CORE, AN HP7900A MOVING HEAD DISC, ANY HP MAGNETIC TAPE UNIT, A TELETYPE, AND DMA.



CONTRIBUTION #:	447	PART NUMBER:	22559A-K01
CLASS:	106	PRICE:	\$20
CONTRIBUTOR:	PAUL DUNPHY	DATE CODE:	
	EAST CHEZZETCOOK, NOVA SCO	LANG:	ASSEMBLY ABSOLUTE
		OP SYS:	SIO

PAPER TAPE/OPTICAL CARD COPY PROGRAM

THIS PROGRAM IS DESIGNED TO DUPLICATE SOURCE PROGRAMS WRITTEN IN FORTRAN, ALGOL OR ASSEMBLY LANGUAGE. INPUT CAN BE FROM THE PHOTO READER OR AN OPTICAL CARD READER. OUTPUT IS A PUNCHED PAPER TAPE, A LISTING, OR BOTH, DEPENDING ON THE OPTION SELECTED BY THE USER. ALTHOUGH NOT DESIGNED FOR THIS PURPOSE, THIS PROGRAM WILL ALSO REPRODUCE ABSOLUTE BINARY TAPES.

THE PROGRAM USES SIO DRIVERS AND IS SELF-CONFIGURING. IT WAS WRITTEN FOR A SYSTEM WITH THE FOLLOWING HARDWARE: HP2114 COMPUTER WITH 4K MEMORY, A TELETYPE, HP2737A PAPER TAPE READER, AND AN HP2761A OPTICAL CARD READER.



CONTRIBUTION #: 448  
CLASS: 22  
CONTRIBUTOR: ALAN T. PARE  
HP, DATA SYSTEMS

PART NUMBER: 22560A-K21  
PRICE: \$35  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

HP2000 SERIES TSB COLD DUMP TAPE ANALYZER (CDTA)

THE HP2000 SERIES TSB COLD DUMP TAPE ANALYZER IS USED TO GENERATE A HARD COPY FORM OF THE DATA DUMPED TO MAGNETIC TAPE BY THE SYSTEM COLD DUMP ROUTINE AT THE TIME OF A SYSTEM FAILURE. THE ANALYSIS OF CAPTURED DATA IS MINIMAL IN THIS VERSION BUT WILL BE EXPANDED IN FUTURE REVISIONS. THE COLD DUMP ANALYZER OUTPUT CONSISTS OF THE FOLLOWING SYSTEM AREAS: SYSTEM AND I/O PROCESSOR MEMORY CONTENTS, USER SWAP TRACKS, FUSS TABLE, DIREC TABLE ENTRIES, DIRECTORY TRACKS, IDEC TABLE ENTRIES, AND ID TRACKS.

THIS PROGRAM IS SELF-CONTAINED AND REQUIRES THE FOLLOWING HARDWARE: ASR33 OR ASR35 CONSOLE, HP2114, 2115, 2116 OR 2100 COMPUTER, HP2610/2614, 2767, OR 2778 LINE PRINTER, AND AN HP7970 MAGNETIC TAPE UNIT.

SPECIFY 800 OR 1600 BPI WHEN ORDERING.



CONTRIBUTION #: 449  
CLASS: 106  
CONTRIBUTOR: S. S. MAC KENZIE  
HP, GEORGIA/ATLANTA

PART NUMBER: 22561A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

LIST/POSITION DOS-M NON-DISC FILES

THIS PROGRAM WAS DESIGNED TO PROVIDE A CONVENIENT METHOD OF TRANSFERRING DOS-M SOURCE CODE FILES FROM ONE DEVICE TO ANOTHER. IT PROVIDES THE NECESSARY DEVICE-DEPENDENT FUNCTIONS, SUCH AS REWINDING INPUT AND OUTPUT MAGNETIC TAPES, PRODUCING PAPER TAPE LEADER, AND WRITING FILE MARKS ON MAGNETIC TAPE. THE PROGRAM CAN BE USED TO DIRECTLY LIST A FILE ON A LINE PRINTER OR A TELETYPE WITHOUT FIRST STORING IT ON DISC. FILES CAN BE LISTED WITHOUT LINE NUMBERS OR WITH SEQUENCE NUMBERS AS IN THE STANDARD DOS-M (:LIST) FORMAT. IT IS ALSO POSSIBLE TO DELETE LINE NUMBERS FROM A FILE WHEN LISTING. INCLUDED IN THE PROGRAM IS THE OPTION TO POSITION INPUT AND OUTPUT FILES TO A GIVEN FILE (BY FILE NUMBER - THE PROGRAM DOES NOT MAINTAIN A DIRECTORY). A SPECIAL PROVISION HAS BEEN MADE TO ALLOW FOR POSITIONING OF A FILE WITHOUT PERFORMING ANY TRANSFERS. THUS, IT IS POSSIBLE TO USE THIS PROGRAM TO POSITION FILES BEFORE EXECUTING THE DOS-M DIRECTIVES :STORE, :DUMP, AND :LIST. IN-CORE BUFFERS ARE SET UP FOR BOTH INPUT AND OUTPUT DEVICES, AND I/O IS DONE WITHOUT WAIT. THE ONLY REQUIRED HARDWARE IS A MINIMUM DOS-M SYSTEM.



CONTRIBUTION #: 450

CLASS: 720

CONTRIBUTOR: W. R. BRODERICK  
LONDON BOROUGH OF HAVERING

PART NUMBER: 22562A-K01

PRICE: \$20

DATE CODE:

LANG: FORTRAN IV  
OP SYS: DOS-M

## ADMINISTRATION OF A SCHOOL'S OPTIONS SCHEME ON DOS-M

THIS PACKAGE WAS DESIGNED BY THE EDUCATIONAL COMPUTER CENTER IN THE LONDON BOROUGH OF HAVERING AS A SCHOOL MANAGEMENT AID. GIVEN THE PROPER INFORMATION IT PRODUCES LISTS WHICH ENABLE HEAD TEACHERS, THEIR DEPUTIES, HOUSE MASTERS, FORM MASTERS, AND HEADS OF DEPARTMENTS TO MAKE DECISIONS ON THE SUITABILITY OF STUDENTS FOR CLASSES AID TO ASSESS THE NUMERICAL VIABILITY OF COURSES. INPUT TO THE PROGRAM SHOULD INCLUDE THE NAME OF THE SCHOOL, A SET OF CODES FOR ITS CLASSES AND HOUSES, A DESCRIPTION OF THE CLASSES OFFERED TO STUDENTS, AND A LIST OF THE STUDENTS AND THEIR CHOICES OF SUBJECTS. WITH THIS INFORMATION THE PROGRAM WILL OUTPUT THE FOLLOWING:

1. A DATA ERROR REPORT.
2. A SUMMARY OF THE STUDENTS CHOICES.
3. A SUMMARY OF THE NUMBER OF STUDENTS PER CLASS AND PER HOUSE.
4. A LIST FOR EACH CLASS MASTER AND EACH HOUSE MASTER OF THE STUDENTS IN HIS CLASS OR HOUSE AND THEIR CHOSEN SUBJECTS.
5. A LIST OF THE SUBJECTS OFFERED AND THE TOTAL NUMBER OF STUDENTS OPTING FOR EACH SUBJECT.
6. FOR EACH SUBJECT A LIST OF THE STUDENTS OPTING FOR THAT SUBJECT AND THEIR CLASS AND HOUSE GROUPS.

EQUIPMENT REQUIRED FOR THIS PACKAGE INCLUDES A DOS-M SYSTEM WITH A TELETYPE, PHOTOREADER, PUNCH AND LINE PRINTER.



CONTRIBUTION #: 451

CLASS: 720

CONTRIBUTOR: VIC HAMMOND  
LONDON BOROUGH OF HAVERING

PART NUMBER: 22564A-K01

PRICE: \$20

DATE CODE:

LANG: FORTRAN IV  
OP SYS: DOS-M

## INDIVIDUALIZED STUDENTS EXAMINATION TIMETABLES

THIS PROGRAM WAS DESIGNED TO PRODUCE INDIVIDUAL TIME TABLES FOR STUDENTS TAKING EXAMINATIONS. EVEN THOUGH THE PROGRAM IS FOR A SPECIFIC PURPOSE IT IS GENERAL ENOUGH TO BE EASILY ADAPTED TO SIMILAR PROBLEMS, E.G., FOR ENTRANTS IN A REGIONAL SPORTS COMPETITION. THE PROGRAM OPERATES IN ANY SIZE DOS-M, USES A LINE PRINTER AS THE OUTPUT DEVICE, AND THE PHOTOREADER AS THE INPUT DEVICE.

DATA REQUIRED BY THE PROGRAM INCLUDES A MASTER TIMETABLE OF ALL EXAMINATIONS GIVING THE DESCRIPTION, DATE, TIME, AND ASPECT OF EACH. ALSO NEEDED IS THE NAME OF THE STUDENTS AND THE SUBJECTS EACH HAS CHOSEN. THE PROGRAM WILL LIST FOR EACH STUDENT THE EXAMINATIONS HE MUST ATTEND SORTED INTO CHRONOLOGICAL ORDER.





CONTRIBUTION #: 452

CLASS: 801

CONTRIBUTOR: W. R. BRODERICK  
LONDON BOROUGH OF HAVERING

PART NUMBER: 22565A-K01

PRICE: \$20

DATE CODE:

LANG: FORTRAN IV  
OP SYS: DOS-M

GENERATE ARITHMETIC WORKSHEETS UNDER DOS-M

THIS DOS-M PACKAGE WAS DESIGNED TO PRODUCE INDIVIDUAL ARITHMETIC WORKSHEETS FOR STUDENTS. EACH WORKSHEET IS DIFFERENT AND ANSWERS TO ALL QUESTIONS ARE GIVEN. THE TEACHER SPECIFIES THE TYPE OF PROBLEM TO BE COVERED - ADDITION, SUBTRACTION, MULTIPLICATION, OR DIVISION - AND THE NUMBER OF PROBLEMS TO BE ON THE WORKSHEET. THE LEVEL OF DIFFICULTY CAN BE CONTROLLED BY SPECIFYING THE RANGE OF NUMBERS TO BE USED IN THE PROBLEMS FROM 1 TO 99. THE TEACHER CAN ALSO INPUT A REFERENCE NUMBER TO HELP IDENTIFY THE CHILD FOR WHOM THE WORKSHEET IS REQUIRED.

THERE ARE TWO PROGRAMS IN THIS PACKAGE. ONE PROGRAM PRINTS THE PROBLEMS IN A VERTICAL FORMAT, THE OTHER HORIZONTAL.

A MINIMUM DOS-M ENVIRONMENT WITH TIME BASE GENERATOR IS REQUIRED.



CONTRIBUTION #: 453

CLASS: 904

CONTRIBUTOR: EEUWOUD GOUDRIAAN  
NATO ASW RESEARCH CENTRE  
ITALY

PART NUMBER: 22569A-K01

PRICE: \$50

DATE CODE:

LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY

THIS SET OF SUBROUTINES, USED IN AN RTE ENVIRONMENT, GENERATES PLOT CODES & SYMBOLS FOR THE CALCOMP 565 PLOTTER OR THE TEKTRONIX T4002 GRAPHICS COMPUTER TERMINAL. AT PROGRAMMING AND/OR EXECUTION TIME THE USER IS ABLE TO DETERMINE TO WHICH DEVICE THE GRAPH IS TO BE SENT. THIS MAKES IT POSSIBLE TO REPRODUCE A PLOT, MADE ORIGINALLY ON THE TEKTRONIX SCREEN, ON THE CALCOMP PLOTTER DEVICE OR VICE VERSA.

THIS PACKAGE IS A REVISED AND EXTENDED VERSION OF THE STANDARD CALCOMP PLOTTER LIBRARY, HP20810. ONLY THE SUBROUTINES PLOT AND SYMB HAVE BEEN CHANGED AND ARE INCLUDED IN THE SOURCE TAPES PROVIDED. THE SUBROUTINES SCALE, AXIS, NUMB, AND LINE HAVE NOT BEEN MODIFIED AND MUST BE OBTAINED FROM THE STANDARD LIBRARY HP20810. BESIDES THE PLOTTERS, THE ONLY NECESSARY EQUIPMENT IS A MINIMUM RTE SYSTEM.

ORDER #22569-13300

SOURCE CASSETTE PACKAGE

\$140.00



CONTRIBUTION #: 454  
 CLASS: 22  
 CONTRIBUTOR: WIM ROELANDTS  
 HP, BELGIUM  
 BRUSSELS

PART NUMBER: 22575A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

## LIST THE RTE TABLES

THIS PROGRAM WILL LIST THE DEVICE REFERENCE TABLE, THE EQUIPMENT TABLE, AND THE PROGRAM ID TABLE OF A REAL TIME SYSTEM. ONLY A MINIMUM RTE ENVIRONMENT IS REQUIRED. FOR THE DEVICE REFERENCE TABLE THE PROGRAM PRINTS EACH LOGICAL UNIT NUMBER WITH ITS CORRESPONDING EQT AND SUBUNIT NUMBERS. FOR THE EQUIPMENT TABLE THE FOLLOWING IS PRINTED: EQUIPMENT TABLE NUMBER, SELECT CODE, DRIVER FOR THE DEVICE, A 'D' IS DMA IS USED, A 'B' IF BUFFERED, LAST USED SUBUNIT NUMBER, STATUS, AND TIME OUT FOR THE DEVICE. FOR THE PROGRAM ID TABLE THE FOLLOWING IS PRINTED FOR EACH PROGRAM: PROGRAM NAME, PROGRAM TYPE, PRIORITY, STATUS, AND SUB-STATUS (WAIT, SUSPEND, DORMANT, OR ABORT), TIME RESOLUTION CODE, TIME MULTIPLE, NEXT EXECUTION TIME, A 'T' IF PROGRAM IS IN TIME LIST AND A 'P' IF PROGRAM HAS BEEN LOADED DURING GENERATION. IF A PROGRAM IS DISC RESIDENT, MAIN CORE LIMITS, BASE PAGE LIMITS AND A PROGRAM DISC ADDRESS ARE ALSO PRINTED.

ORDER #22575-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 455  
 CLASS: 22  
 CONTRIBUTOR: ROGER COOPER  
 HP/SLOUGH

PART NUMBER: 22577A-K01  
 PRICE: \$80  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

## DOS-M REMOTE BATCH TERMINAL TO UNIVAC 1108, EXEC 8 (H1004)

H1004 ENABLES A DOS-M SYSTEM TO ACT AS REMOTE COMPUTER TO A UNIVAC 1108 RUNNING UNDER EXEC 8. H1004 EMULATES THE UNIVAC 1004 LINE PROTOCOL AND CAN TRANSMIT FROM CARD, PAPER TAPE OR DOS-M SOURCE FILES AND RECEIVE TO LINEPRINTER, TAPE PUNCH, OR DOS-M FILE. THE FILE CAPABILITY IS PARTICULARLY USEFUL FOR EDITING OR ADDING JOB CARDS BEFORE TRANSMISSION AND FOR MANIPULATION SUCH AS SCALING BEFORE PLOTTING AFTER RECEPTION. H1004 TAKES FULL ADVANTAGE OF ALL THE UNIVAC TRANSMISSION TECHNIQUES INCLUDING DATA COMPRESSION AND SIMULTANEOUS PERIPHERAL OPERATION. H1004 CONTAINS ITS OWN RELOCATABLE DRIVERS AND SO IT CAN ALSO BE LOADED UNDER BCS ON THE HP2100'S WITH 16K. THIS PACKAGE HAS BEEN OPERATING IN THE UNITED KINGDOM AT THE NATIONAL PHYSICAL LABORATORY.



CONTRIBUTION #: 456  
CLASS: 213  
CONTRIBUTOR: BRYAN DAVIS  
HP/ROCKVILLE

PART NUMBER: 22579A-K01  
PRICE: \$90  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

PAPER TAPE SYSTEM DIAGNOSTIC

THIS PROGRAM PROVIDES A CONTROLLED ENVIRONMENT WHERE A PUNCH OR READ DEVICE CAN BE CHECKED UNDER SIMULATED OPERATING CONDITIONS. VARIABLES IN OPERATING SYSTEMS THAT CAN BE SIMULATED ARE DATA DELAYS BETWEEN RECORDS AND SOFTWARE OVERHEAD BETWEEN DATA CHARACTERS. THE DIAGNOSTIC HAS SIX SECTIONS: CONFIGURATOR, CONTROL, PUNCHING, CLERIFYING AND ERROR ACCUMULATION, AND LINE PRINTER TESTING.

DEVICES THAT CAN BE TESTED: 2838A, 2852A, 2853A/B, 2767A, 2610A, 2600A, 2614A, AND 2895A/B. PUNCHES AND READERS MAY BE 5, 7, OR 8 LEVEL DEVICES. A MINIMUM 8K IS REQUIRED.



CONTRIBUTION #: 457  
CLASS: 108  
CONTRIBUTOR: JAMES D. REED  
HUGHES AIRCRAFT COMPANY

PART NUMBER: 22580A-K01  
PRICE: \$30  
DATE CODE:  
LANG: ASMB/RELOC-FTN IV  
OP SYS: RTE

RTE BINARY TAPE/FILE UTILITY (BEDIT)

THE RTE UTILITY PROGRAM 'BEDIT' IS DESIGNED TO TAKE BINARY RELOCATABLE PROGRAMS AND SUBROUTINES FROM PAPER TAPES OR FILE MANAGER FILES AND REARRANGE THEM. THE NEW ARRANGEMENT CAN BE DIRECTED TO PAPER TAPE OR A FILE MANAGER FILE. 'BEDIT' WILL ALSO LIST THE NAME AND, OPTIONALLY, THE 'ENT' AND 'EXT' POINTS OF ALL RELOCATABLES ON A PAPER TAPE OR IN A RELOCATABLE FILE MANAGER FILE.

A MINIMUM RTE SYSTEM IS REQUIRED TO RUN THIS UTILITY. IT WILL EXECUTE AS IS WITHOUT THE RTE FILE MANAGER, IF DUMMY SUBROUTINES ARE SUPPLIED TO SATISFY THE REFERENCES TO THE FILE MANAGER LIBRARY.

ORDER #22580-13300

SOURCE CASSETTE PACKAGE

\$70.00



CONTRIBUTION #: 458  
 CLASS: 207  
 CONTRIBUTOR: GEORGE TAYLOR  
 HP, DSO

PART NUMBER: 22581A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

#### HP 2883A DISC TO DISC DUMP

THIS SELF-CONTAINED PROGRAM WILL DUMP TIME-SHARE INFORMATION FROM ONE HP2883A TO ANOTHER HP2883A DISC. IT WAS DEVELOPED TO SUPPLEMENT, NOT REPLACE, THE SLEEP AND HIBERNATE PROCEDURES FOR A 2000C OR 2000F TIME-SHARE SYSTEM. AN IMAGE OF THE DISC IS MADE ON THE COPY DISC. NO DISC REPACKING IS ACCOMPLISHED. THE PROGRAM PROVIDES TTY COMMUNICATION WITH THE USER TO ALLOW FOR DESIGNATION OF SOURCE AND DESTINATION DISCS. THE DISC LABELS ARE CHECKED TO ASSURE THAT THE DISCS HAVE BEEN LABELED FOR TIME-SHARE AND THAT THE SOURCE AND DESTINATION DISC LABELS MATCH. A SWITCH OPTION IS PROVIDED WHICH ELIMINATES ALL LABEL CHECKING. A SECOND SWITCH OPTION ELIMINATES THE DATA VERIFICATION PHASE.

ORDER #22582-13300

SOURCE CASSETTE PACKAGE

\$35.00



CONTRIBUTION #: 459  
 CLASS: 904  
 CONTRIBUTOR: PETAR VRKLJAN  
 HP, SWITZERLAND/ZURICH

PART NUMBER: 22582A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,MTS,DOS-M,RTE

#### UPPER/LOWER CASE CHARACTER GENERATOR FOR HP 7210 PLOTTER

THIS PACKAGE OF ROUTINES PROVIDES THE CAPABILITY TO PLOT CHARACTERS IN UPPER AND LOWER CASE, AND FLOATING POINT NUMBERS IN 'F' FORMAT ON THE HP7210 PLOTTER. THE ROUTINE 'ZPLOT' GENERATES SINGLE CAPITAL AND SMALL CHARACTERS AND HANDLES THE TRANSFORMATION OF FLOATING POINT NUMBERS. IT CAN BE USED ALONE OR IN CONJUNCTION WITH THE ROUTINE 'TPLOT'.

'TPLOT' TRANSLATES THE TEXT CONTAINED IN A FORMAT STATEMENT OR IN THE DIMENSION OR COMMON AREA OF A PROGRAM TO A FORM USEABLE BY 'ZPLOT', AND THEN CALLS 'ZPLOT' TO GENERATE THE CHARACTERS. THE TEXT CAN BE IN UPPER OR LOWER CASE WITH LEFT ARROWS AND UP ARROWS SIGNIFYING WHICH CHARACTERS ARE TO BE PLOTTED AS SMALL LETTERS AND CAPITALS RESPECTIVELY. 'TPLOT' WAS WRITTEN TO BYPASS THE FORMATTER AND THEREBY SAVE A LARGE AREA OF CORE. ALSO INCLUDED IN THIS PACKAGE ARE THREE ROUTINES WHICH LINK 'ZPLOT' TO THE CORRESPONDING STANDARD PLOTTER DRIVER OF THE OPERATING SYSTEM BEING USED. THE SYSTEMS ALLOWED ARE BCS, MTS, DOS, DOS-M, RTE, AND RTE-C WITH A MINIMUM OF 4K CORE REQUIRED FOR BCS.



CONTRIBUTION #: 460  
 CLASS: 18  
 CONTRIBUTOR: JON L. SELDEN  
 HP, DATA SYSTEMS DIV.

PART NUMBER: 22585A-K01  
 PRICE: \$150  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M, DOS-III

### DOS-M/DOS III MULTI-FILE ASMB.& XREF SYMBOL TABLE GENERATOR

THERE ARE TWO RELATED PROGRAMS IN THIS PACKAGE, A DOS-M/DOS-III MULTI-FILE ASSEMBLER AND A DOS-M/DOS-III MULTI-FILE CROSS REFERENCE SYMBOL TABLE GENERATOR.

THE ASSEMBLER REPLACES THE STANDARD DOS-M ASSEMBLER AND EXPANDS ITS CAPABILITIES BY ALLOWING A SINGLE ASSEMBLY TO BE MADE FROM MULTIPLE DISC SOURCE FILES. WITH THE STANDARD ASSEMBLER, IF THE END OF DISC SOURCE FILE IS DETECTED BEFORE THE PROGRAM 'END' STATEMENT IS READ, AN ERROR MESSAGE IS PRINTED AND THE ASSEMBLY IS TERMINATED. WHEN THIS OCCURS WITH THE MULTI-FILE ASSEMBLER AN INPUT REQUEST IS ISSUED TO THE STANDARD INPUT DEVICE (L.U.#5) TO READ THE NAME OF THE NEXT DISC SOURCE FILE TO BE USED IN THE ASSEMBLY. THIS CONTINUES UNTIL AN 'END' STATEMENT IS FOUND IN A SOURCE FILE OR UNTIL THE NAME OF A NON-EXISTENT FILE ON (L.U.#5). ANY NUMBER OF DISC FILES MAY THUS BE ASSEMBLED AS ONE PROGRAM, WITH, 'TAPE' AND LINE NUMBERS ON THE PROGRAM LISTING CORRESPONDING TO THE INDIVIDUAL SOURCE FILE.

THE MULTI-FILE ASSEMBLER WILL NOT WORK WITH THE HP SUPPORTED CROSS REFERENCE SYMBOL TABLE GENERATOR.

THIS CROSS REFERENCE SYS. TABLE GENERATOR MAY BE USED ALONE OR IN CONJUNCTION WITH THE DOS-M/DOS-III MULTI-FILE ASSEMBLER TO ALLOW CROSS REFERENCE LISTINGS TO BE GENERATED FOR PROGRAMS WHICH ARE COMPOSED OF SEVERAL DISC SOURCE FILES.

WITH THE STANDARD CROSS REF. SYMBOL TABLE GENERATOR, IF THE END OF A DISC SOURCE FILE IS DETECTED BEFORE THE PROGRAM 'END' STATEMENT IS READ, AN ERROR MESSAGE IS PRINTED AND THE CROSS REFERENCE IS TERMINATED. WHEN THIS OCCURS WITH THE MULTI-FILE 'XREF', AN INPUT REQUEST IS ISSUED TO THE STANDARD INPUT DEV.(L.U.#5) TO READ THE NAME OF THE NEXT DISC SOURCE FILE TO BE USED IN THE X-REF. THIS CONTINUES UNTIL AN 'END' STATEMENT IS FOUND IN A SOURCE FILE OR UNTIL THE NAME OF A NON-EXISTENT FILE IS READ ON L.U.#5. ANY # OF DISC FILES MAY THUS BE REF'ED AS ONE PROGRAM, WITH 'TAPE' AND LINE NUMBERS OF THE LISTING CORRESPONDING TO THE INDIVIDUAL SOURCE FILES.       REQUIRES A MINIMUM DOS-M SYSTEM.



CONTRIBUTION #: 461  
 CLASS: 15  
 CONTRIBUTOR: RUDOLF ALBRECHT  
 EUROPEAN SO. OBSERVATORY  
 AUSTRIA

PART NUMBER: 22586A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

### VIRTUAL ARRAY HANDLER

THE FOUR SUBROUTINES CONTAINED IN THIS PACKAGE HANDLE DATA SETS WHICH ARE TOO LARGE TO FIT INTO CORE. THIS IS ACCOMPLISHED BY

MEANS OF A VIRTUAL ARRAY WHICH EXTENDS 'OUT OF CORE' INTO THE DISC. A SMALL (1K) CORE AREA ACTS AS A WINDOW WHICH AUTOMATICALLY MOVES ALONG THE DISC FILE (IN INCREMENTS OF 1K).

HARDWARE REQUIREMENTS ARE A MINIMUM DOS-M SYSTEM.



CONTRIBUTION #: 462

CLASS: 905

CONTRIBUTOR: PETER C. BRICKEY  
HP, DATA SYSTEMS DIV.

PART NUMBER: 22587A-K01

PRICE: \$10

DATE CODE:

LANG: ASSEMBLY MICROPROCES  
OP SYS: DOS

MICRO-CODED DOS-M ROUTINES .PWR2 AND .FLUN

THESE TWO MICROPROGRAMS ARE DESIGNED TO REPLACE THE STANDARD DOS-M LIBRARY ROUTINES .PWR2 AND .FLUN. .PWR2 CALCULATES  $x:2^n$  FOR A REAL X AND AN INTEGER N. THE MICROCODE VERSION OF .PWR2 IS APPROXIMATELY 22 TIMES FASTER THAN THE STANDARD VERSION. .FLUN UNPACKS A REAL X, PLACING THE EXPONENT IN REGISTER A AS A SIGNED INTEGER AND THE LOWER PART OF THE MANTISSA IN REGISTER B. THE MICROCODE VERSION OF .FLUN IS APPROXIMATELY 10 TIMES FASTER THAN THE STANDARD VERSION.

THESE MICROPROGRAMS ARE NOT CALLABLE IN BCS. EQUIPMENT REQUIRED INCLUDES 8K CORE AND WCS.



CONTRIBUTION #: 463

CLASS: 2

CONTRIBUTOR: HANS R. BIESEL  
HP GMBH

PART NUMBER: 22588A-K01

PRICE: \$30

DATE CODE:

LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

MULTI-TERMINAL BCS DRIVER (D.00C)

D.00C IS A MULTI-TERMINAL BCS DRIVER CAPABLE OF OPERATING SIMULTANEOUSLY ANY NUMBER OF TELETYPES, TAPE READERS, TAPE PUNCHES AND EQUIVALENT DEVICES. IT IS DESIGNED TO TAKE THE PLACE OF THE STANDARD BCS DRIVERS D.00, D.01, AND D.02. IT USES INDIVIDUAL CONTINUATOR ENTRIES FOR EACH DEVICE AND A COMMON PROCESSOR ROUTINE. IN ADDITION TO THE STANDARD BCS FEATURES, D.00C PROVIDES AN OPERATION-ATTENTION MODE, WHICH OPERATES INDIVIDUALLY FOR EACH DEVICE. D.00C ALSO ALLOWS THE FOLLOWING CHARACTERS IN ASCII INPUT MODE: CONTROL (A) DELETES A CHARACTER, CARRIAGE-RETURN TERMINATES A RECORD, AND RUB-OUT DELETES A RECORD. THIS DRIVER CAN BE USEFUL IN DEDICATED DATA PROCESSING SYSTEMS WHERE A NUMBER OF OPERATORS HAVE FULL ACCESS TO A PROGRAM. TO SIMPLIFY PROGRAMMING FOR SUCH A TIME-SHARED MODE, A SET OF FORTRAN CALLABLE UTILITY ROUTINES IS INCLUDED IN THIS PACKAGE. THESE UTILITIES USE THE CONTRIBUTED PROGRAM HP22591A, STRIPPED FORTRAN FORMATTER FOR INTERNAL CONVERSION (STRIF).



CONTRIBUTION #: 464  
CLASS: 112  
CONTRIBUTOR: F. MONS/F. GAULLIER  
HP, FRANCE/ORSAY

PART NUMBER: 22589A-K01  
PRICE: \$30  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

64-BIT INTEGER LIBRARY - FORTRAN CALLABLE

THIS LIBRARY PROVIDES THE CAPABILITY OF HANDLING INTEGER NUMBERS OF UP TO TWENTY DIGITS IN FORTRAN PROGRAMS. IT IS ESPECIALLY USEFUL IN PROGRAMS WHICH DEAL WITH LARGE NUMBERS AND REQUIRE PRECISION EVEN ON THE LEAST SIGNIFICANT DIGITS, SUCH AS BOOK-KEEPING PROGRAMS. IT WAS DESIGNED TO OPERATE ON ANY DOS OR DOS-M SYSTEM WITH A FORTRAN COMPILER.

THE USER NEEDS ONLY TO DECLARE THE APPROPRIATE VARIABLES IN HIS FORTRAN PROGRAM AS COMPLEX VARIABLES. FOUR CONSECUTIVE WORDS WILL BE GIVEN TO EACH, AND FORMULAS CONTAINING THESE VARIABLES WILL GENERATE CALLS TO THE DIFFERENT SUBROUTINES OF THE 64-BIT INTEGER LIBRARY. THESE LIBRARY SUBROUTINES HAVE THE SAME NAMES AS THE STANDARD COMPLEX SUBROUTINES.

THIS LIBRARY ALSO INCLUDES TWO ROUTINES TO CONVERT NUMBERS IN ASCII FORMAT TO FOUR-WORD BINARY FORMAT AND VICE VERSA.



CONTRIBUTION #: 465  
CLASS: 5  
CONTRIBUTOR: JAMES D. REED  
HUGHES AIRCRAFT COMPANY

PART NUMBER: 22590A-K01  
PRICE: \$40  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE CROSS-REFERENCE GENERATOR

FROM AN ASSEMBLY LANGUAGE SOURCE PROGRAM, THIS PACKAGE PRODUCES AND PRINTS AN ALPHABETIZED CROSS-REFERENCE LIST OF ALL SYMBOLS APPEARING IN THE PROGRAM. EACH SYMBOL IS FOLLOWED BY THE SEQUENCE NUMBER OF THE STATEMENT IN WHICH IT IS DEFINED, AND BY THE SEQUENCE NUMBERS OF ALL STATEMENTS REFERRING TO THE SYMBOL. IF THE PROGRAM IS MORE THAN ONE TAPE LONG, THE 4-DIGIT SEQUENCE NUMBER IS FOLLOWED BY A SLASH AND THE NUMBER OF THE TAPE ON WHICH IT APPEARS.

THE CROSS REFERENCE GENERATOR WILL OPERATE IN A MINIMUM RTE SYSTEM.

ORDER #22590-13300

SOURCE CASSETTE PACKAGE

\$70.00



CONTRIBUTION #: 466  
 CLASS: 105  
 CONTRIBUTOR: HANS R. BIESEL  
 HP GMBH

PART NUMBER: 22591A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

### STRIPPED FORTRAN FORMATTER FOR INTERNAL CONVERSION (STRIF)

'STRIF' IS A STRIPPED VERSION OF THE FORTRAN FORMATTER FOR USE WITH BCS. IT HANDLES INTERNAL CONVERSION ONLY; IT READS ASCII CODE FROM A CORE BUFFER, CONVERTS IT TO BINARY AND STORES THE RESULTS IN A DESTINATION CORE BUFFER, OR VICE VERSA. THIS IS DONE BY THE STANDARD FORMATTER ALSO, BUT 'STRIF' IS SPECIALIZED FOR THIS PURPOSE. THE INPUT/OUTPUT HANDLING ROUTINES AND SOME CODE CONVERSION ROUTINES ARE DELETED SO THAT THE FORMATTER IS DECREASED FROM 1360 TO 760 WORDS. THE SPECIFICATIONS AND CALLING SEQUENCES OF 'STRIF' ARE ESSENTIALLY THE SAME AS THOSE OF THE STANDARD FORMATTER. THE DIFFERENCES INCLUDE THE FOLLOWING:

- A. THE ASCII BUFFER ADDRESS MAY BE INDIRECT (ANY LEVEL).
- B. ON INPUT 'STRIF' READS ONLY FREE FIELD FORMAT.
- C. 'STRIF' RECOGNIZES A CARRIAGE RETURN CHARACTER AS THE END OF RECORD MARK ON INPUT.
- D. ON OUTPUT 'STRIF' DOES NOT PROCESS THE FORMATS H, @, R, 0.

THIS SUBROUTINE IS DESIGNED MAINLY FOR USE IN ASSEMBLY LANGUAGE PROGRAMS. HOWEVER, TWO SPECIAL CONTRIBUTED DRIVERS ARE AVAILABLE, TOGETHER WITH UTILITY ROUTINES, WHICH ALLOW 'STRIF' TO BE EASILY CALLED FROM FORTRAN PROGRAMS. THESE DRIVERS ARE MULTI-TERMINAL BCS DRIVER (D.00C), HP22588 AND MULTI-TERMINAL NON-BCS DRIVER (INOUT), HP22633.



CONTRIBUTION #: 467  
 CLASS: 22  
 CONTRIBUTOR: P. E. THURSTON  
 HP, ENGLAND/SLOUGH

PART NUMBER: 22592A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

### MAKE RTE DRIVERS DISC RESIDENT (DVR67)

THIS LINKING DRIVER, DVR67, ENABLES STANDARD HP OR USER WRITTEN RTE DRIVERS TO BE DISC RESIDENT, AND THUS IT CAN SAVE VALUABLE CORE STORAGE. THE LINKING DRIVER IS INCORPORATED INTO A STANDARD RTE AT GENERATION TIME. DRIVERS NEED NO MODIFICATION TO USE DVR67; HOWEVER, THEY MUST BE LOADED AFTER AN ASSEMBLY LANGUAGE SUBROUTINE WHICH PROVIDES THE LINK TO DVR67. DVR67 IS DEVICE INDEPENDENT AND SO PROVIDES THE USEFUL FACILITY OF ALLOWING NEW PERIPHERALS AND THEIR DRIVERS TO BE ADDED WITHOUT GENERATING A NEW SYSTEM. PROTOTYPE PERIPHERAL DRIVERS CAN BE TESTED; AND IF ERROR IS FOUND, THE DRIVER CAN BE CORRECTED, COMPILED, AND LOADED WITHOUT REGENERATING.

ORDER #22592-13300 SOURCE ON CASSETTE \$35.00





CONTRIBUTION #: 468  
CLASS: 102  
CONTRIBUTOR: GRANT HALLMAN  
HP CANADA

PART NUMBER: 22593A-K01  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

MAIL LIST PROCESSOR

THE MAIL PROCESSOR IS A PROGRAM DESIGNED TO PERFORM PRINTING OF MAILING LISTS. IT USES A HIGH SPEED LINE PRINTER TO PRINT LISTS OF ADDRESSES ON GUMMED LABEL PAPER READY FOR STICKING ON TO ENVELOPES. THESE ADDRESSES CAN BE AUTOMATICALLY SELECTED FROM AMONG ALL THE ADDRESSES STORED IN THE SYSTEM, ACCORDING TO HIGHLY SPECIFIC AND FLEXIBLE CRITERIA.

THERE ARE MANY PROGRAMS HAVING THE FUNCTION OF PRINTING MAILING LISTS. THIS PROGRAM OFFERS THE FOLLOWING ADVANTAGES. IT IS DESIGNED TO MAKE FULL USE OF WHATEVER EQUIPMENT IS AVAILABLE IN A DOS-M SYSTEM: A DATA BASE ON THE DISC, HARDCOPY ON LINE PRINTER OR TELETYPE, DATA STORAGE ON MAGNETIC TAPE AND/OR PAPER TAPE, AND EASY INTERACTION WITH AN OPERATOR USING THE SYSTEM CONSOLE. THE SYSTEM HAS BEEN DESIGNED TO BE USED BY SOMEONE INEXPERIENCED IN THE USE OF COMPUTERS OR PROGRAMMING. USING THE FEW SIMPLE DOCUMENTED COMMANDS, ANYONE WITH A REASONABLE TYPING SKILL CAN GENERATE A DATA BASE FOR A POWERFUL AND FLEXIBLE ADDRESS-RETRIEVAL SYSTEM.

ALTHOUGH THE SYSTEM HAS BEEN DESIGNED FOREMOST FOR THE PREPARATION OF MAILING LISTS, THIS IS ONE OF A NUMBER OF POSSIBLE INFORMATION RETRIEVAL APPLICATIONS.



CONTRIBUTION #: 469  
CLASS: 18  
CONTRIBUTOR: WILLIAM F. DECKER  
UNIVERSITY OF IOWA  
COMPUTER CENTER

PART NUMBER: 22594A-K21  
PRICE: \$60  
DATE CODE:  
LANG: 360 ASSEMBLY  
OP SYS: IBM OS-360

IBM U.S. CROSS ASSEMBLER FOR HP 2100 COMPUTER

THIS PROGRAM ASSEMBLES HP2100 ASSEMBLY LANGUAGE PROGRAMS IN ANY IBM OPERATING SYSTEM, AND IS DESIGNED TO BE COMPATIBLE WITH HP ASSEMBLERS. IT PRODUCES BINARY OUTPUT IDENTICAL TO THAT PRODUCED BY HP ASSEMBLERS AND A COMPLETE CROSS REFERENCED LISTING OF ASSEMBLED PROGRAMS. THIS CROSS ASSEMBLER IS BASED ON THE PREVIOUSLY CONTRIBUTED PROGRAM HP22396A. THE SUPPORT OF LITERALS AND FLOATING POINT NUMERICS, AND THE EAU AND FLOATING POINT INSTRUCTION SETS, PLUS THE USE OF IMPROVED SYMBOL TABLE MANAGEMENT ARE ADDED FEATURES OF THIS NEW CROSS ASSEMBLER.

SPECIFY 800 OR 1600 DPI ON ORDER OF 22594A-K21.



CONTRIBUTION #: 470  
 CLASS: 13  
 CONTRIBUTOR: P. BIGOLARO/F. DEPONTE  
 LAB. PER LA TECNICA  
 DEL FREDDO/ITALY

PART NUMBER: 22598A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: HP BASIC 20392A/B

### HP 2321A SUBSYSTEM DRIVER BASIC CALLABLE

THIS HP2321A LOW-SPEED DATA ACQUISITION SUBSYSTEM DRIVER IS COMPATIBLE WITH HP BASIC 20392, REV. A AND B. THE DRIVER MAKES ONE MEASURE ON ONE CHANNEL EACH TIME IT IS CALLED. THE CHANNEL NUMBER, DVM PROGRAMMING WORD, AND SCANNER DELAY ARE SPECIFIED IN THE CALLING SEQUENCE; AND ON RETURN, THE DRIVER GIVES DATA AND SUBSYSTEM STATUS. IF MORE THAN 20 SECONDS ELAPSE FROM THE START OF THE READING, THE RETURN IS MADE TO THE CALLING PROGRAM.



CONTRIBUTION #: 471  
 CLASS: 20  
 CONTRIBUTOR: JAMES D. REED  
 HUGHES AIRCRAFT COMPANY

PART NUMBER: 22600A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

### RTE DEBUG WITH TRACE

THIS RTE DEBUGGING ROUTINE PROVIDES THE FOLLOWING PROGRAMMING AIDS:

1. PRINT (DUMP ON LIST DEVICE) SELECTED AREAS OF MEMORY IN OCTAL OR ASCII FORMAT.
2. TRACE (ON LIST DEVICE) PORTIONS OF THE PROGRAM DURING EXECUTION.
3. MODIFY THE CONTENTS OF SELECTED AREAS IN MEMORY.
4. MODIFY SIMULATED COMPUTER REGISTERS.
5. INSTRUCTION AND OPERAND BREAK POINTS.
6. INITIATE EXECUTION AT ANY POINT IN PROGRAM.
7. DEBUGGING ROUTINE RESTART.
8. SPECIFYING RELOCATABLE PROGRAM BASE.
9. TERMINATING PROGRAM BEING DEBUGGED.

THE ROUTINE IS IDENTICAL IN OPERATION TO THE STANDARD HP BCS DEBUG ROUTINE.

ORDER #22600-13300

SOURCE CASSETTE PACKAGE

\$70.00



CONTRIBUTION #: 472  
CLASS: 6  
CONTRIBUTOR: DENNIS J. BARKLEY  
NAVAL WEAPONS STATION

PART NUMBER: 22602A-K01  
PRICE: \$30  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

HP 5327B UNIV. TIMER/COUNTER/DVM DVR BASIC CALLABLE

THIS BASIC-CALLABLE DRIVER ACQUIRES 8-4-2-1 BCD MEASUREMENTS FROM AN HP5327B COUNTER/TIMER/DIGITAL VOLTMETER. THE MEASUREMENTS ARE NORMALIZED TO HERTZ, SECONDS, UNIT NUMBER OF EVENTS, OR VOLTS AND THEN RETURNED TO THE CALLING PROGRAM. DVM OVERFLOW OR MEASUREMENT TIMING ERRORS ARE ALSO RETURNED TO THE CALLING PROGRAM. OTHER ERRORS WILL CAUSE A RETURN TO THE BASIC 'READY' MODE WITH A PRINT-OUT OF THE ERROR TYPE AND SOURCE LINE NUMBER. THIS DRIVER UTILIZES 4 CALLS TO ESSENTIALLY CONTROL ALL PROGRAMMABLE FEATURES OF THIS INSTRUMENT. THIS DRIVER OPERATES UNDER THE HP20392A BASIC OPERATING SYSTEM. THIS PROGRAM OPERATES UNDER THE HP20392A BASIC OPERATING SYSTEM AND REQUIRES THE FOLLOWING HARDWARE: HP2100/2116 COMPUTER WITH EAU; HP10542A REMOTE PROGRAMMING INTERFACE KIT; HP12556B 40-BIT OUTPUT REGISTER INTERFACE KIT; HP12604B DATA SOURCE INTERFACE KIT; HP2754 SYSTEM TERMINAL OR EQUIVALENT; HP5327B COUNTER TIMER DVM (WITH/REMOTE OPTIONS) - 7-DIGIT, 8-DIGIT, OR H03 VERSIONS.



CONTRIBUTION #: 473  
CLASS: 905  
CONTRIBUTOR: FABIO FUMI  
HP, ITALY/MILAN

PART NUMBER: 22603A-K01  
PRICE: \$40  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

ON-LINE ACCESS TO HP WCS (MICROBASIC)

MICROBASIC IS AN INTERPRETER WHICH ALLOWS ON-LINE ACCESS TO HP WRITEABLE CONTROL STORE. COMMUNICATION WITH WCS IS POSSIBLE BY MEANS OF A CONVERSATIONAL LANGUAGE SIMILAR TO THE STANDARD HP MICROASSEMBLY LANGUAGE AND THROUGH DIRECTIVES. DIAGNOSTIC CHECKS ARE PERFORMED DURING MICROPROGRAM LOAD FROM TELETYPE AS WELL AS DURING MICROPROGRAM LIST; NO DIAGNOSTIC CHECKS OCCUR DURING PAPER TAPE LOADING, DUMPING OR DISPLAY OPERATIONS. TO ACCOMPLISH MAXIMUM FLEXIBILITY MOST DIAGNOSTICS ARE WARNINGS ONLY. EXCEPT FOR SOME UNACCEPTABLE CASES, A WRONG INSTRUCTION IS LOADED EVEN IF NON-EXECUTABLE, THUS ALLOWING THE PROGRAMMER (WARNED!) TO PERFORM FORBIDDEN OR UNSUGGESTED OPERATIONS ON HIS OWN RESPONSIBILITY. SINCE MICROBASIC IS MOSTLY DEDICATED TO MICROPROGRAMMING WITHIN ONE CONTROL STORE MODULE, JMP AND JSB TARGET ADDRESSES ARE AUTOMATICALLY ADAPTED TO THE SPECIFIED MODULE. HOWEVER, IT IS POSSIBLE, WITHOUT EFFECTING LOADING, TO CHANGE THE SPECIFIED MODULE IN ORDER TO ESTABLISH ANOTHER JMP OR JSB ADDRESS. FOR THE

SAME REASONS ALL ADDRESSES ARE MODULE-RELATIVE AND NO LABEL SPECIFICATIONS CAN OCCUR.

EQUIPMENT REQUIREMENTS INCLUDE AN HP2100 COMPUTER WITH AT LEAST 4K CORE, WCS, A TELETYPE OR CRT, AND OPTIONALLY AN 8100A FACIT TAPE PUNCH AND A 2748A PUNCHED TAPE READER.



CONTRIBUTION #: 474  
 CLASS: 705  
 CONTRIBUTOR: PORTALUPI PIERANGELO  
 HP, ITALY/MILAN

PART NUMBER: 22604A-K01  
 PRICE: \$50  
 DATE CODE:  
 LANG: FTN IV/ASSEMBLY, REL  
 OP SYS: DOS-M

#### BILL OF MATERIAL PACKAGE

THIS BILL OF MATERIAL PACKAGE PROVIDES MANUFACTURING ORGANIZATIONS WITH AN ECONOMICAL MEANS OF MAINTAINING AND RETRIEVING ACCURATE, UP-TO-DATE PRODUCT STRUCTURE INFORMATION. OPERATING IN A 16K DOS-M ENVIRONMENT, WITH EFMP, THE PROGRAMS CREATE A CENTRAL INFORMATION SYSTEM THAT CAN SERVE MANY DIFFERENT FUNCTIONAL AREAS IN A MANUFACTURING COMPANY. USERS CAN LOAD, MAINTAIN, REORGANIZE, AND ACCESS IN A USEFUL MANNER FILES WHICH DESCRIBE THEIR PRODUCTS. IN THIS SYSTEM ALL DATA IS RECORDED ON TWO DIRECT ACCESS FILES. THE PART NUMBER MASTER FILE CONTAINS ONE RECORD FOR EACH PART NUMBER. EACH RECORD MIGHT INCLUDE DESCRIPTIVE DATA, INVENTORY ON HAND, REQUIREMENTS AND PLANNED ORDERS BY TIME PERIODS, LEAD-TIMES, COST DATA, AND LOW-LEVEL CODES. THE PRODUCT STRUCTURE FILE CONTAINS ONE RECORD FOR EACH ASSEMBLY COMPONENT. USING SEQUENCES OF CHAINS, THIS FILE LINKS TOGETHER ALL THE COMPONENTS OF AN ASSEMBLY AND ALL THE DIRECT USAGES OF AN ASSEMBLY. THE PRODUCT STRUCTURE FILE LOAD AND MAINTENANCE PROGRAMS USE LOW LEVEL CODES TO RECOGNIZE A CONTINUITY ERROR, WHERE AN ASSEMBLY CONTAINS ITSELF AS A COMPONENT DIRECTLY OR INDIRECTLY. THERE ARE SIX TECHNIQUES FOR RETRIEVING AND OUTPUTTING PRODUCT STRUCTURE DATA: SINGLE-LEVEL EXPLOSION, INDENTED EXPLOSION, SUMMARIZED EXPLOSION, SINGLE-LEVEL IMPLOSION, INDENTED IMPLOSION, AND SUMMARIZED IMPLOSION. THE EXPLOSION TECHNIQUES USE THE PRODUCT STRUCTURE RECORDS IN ASSEMBLY SEQUENCE AND THE IMPLOSION TECHNIQUES USE THE RECORDS IN WHERE-USED SEQUENCE.



CONTRIBUTION #: 475  
 CLASS: 22  
 CONTRIBUTOR: LYLE WEIMAN  
 HP AMD

PART NUMBER: 22606A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

#### RTE DISC PROGRAM PATCH UTILITY

'PMOD' ALLOWS PATCHES TO BE MADE TO DISC-RESIDENT (FOREGROUND OR BACKGROUND) PROGRAMS. INFORMATION SUPPLIED TO 'PMOD' IS READILY

OBTAINED FROM THE CORE MAP; TRACK AND SECTOR ADDRESSES ARE COMPUTED FROM THE NAME OF THE PROGRAM (OR SEGMENT) AND THE STARTING DISC ADDRESS.

IT REQUIRES A MINIMUM RTE SYSTEM.

ORDER #22606-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 476 PART NUMBER: 22607A-K01  
CLASS: 105 PRICE: \$20  
CONTRIBUTOR: LYLE WEIMAN DATE CODE:  
HP/DATA SYSTEMS DIV. LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M,RTE

MFORM: FORMATTER FOR ASCII CONVERTED INTEGERS

THIS ROUTINE IS INTENDED TO BE A REPLACEMENT FOR THE FORMATTER IN THOSE APPLICATIONS WHERE AN INTEGER IS TO BE CONVERTED INTO ASCII (DECIMAL) AND OUTPUT WITHIN A MESSAGE, SUCH AS AN ERROR CODE.

MINIMUM DOS OR RTE IS THE HARDWARE REQUIREMENTS.

ORDER #22607-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 477 PART NUMBER: 22608C-K21  
CLASS: 18 PRICE: \$100  
CONTRIBUTOR: JON L. SELDEN DATE CODE:  
HP/DATA SYSTEMS DIV. LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M,DOS-III

HP 2000F BASIC FOR DOS-M/DOS III

DOS-M/DOS-III BASIC IS ESSENTIALLY A SINGLE TERMINAL VERSION OF HP2000F TIME-SHARED BASIC. IT RUNS UNDER THE DOS-M OR DOS-III OPERATING SYSTEM, GIVING THE USER OF THESE SYSTEMS A POWERFUL, YET EASY TO USE COMPUTING FACILITY. FEATURES OF DOS-M/DOS-III BASIC NOT FOUND IN OTHER DOS-M BASIC'S INCLUDE: STRING VARIABLES, FORMATTED OUTPUT, USER PROGRAM DISC STORAGE AND RETRIEVAL, USER DATA FILES, PROGRAM CHAINING, ERROR MESSAGES INSTEAD OF ERROR NUMBERS, LINE PRINTER SUPPORT, BETTER PROGRAM EDITING FACILITIES, HIGH SPEED PAPER TAPE INPUT AND OUTPUT OF PROGRAMS, 'MIN' AND 'MAX' OPERATORS, MORE FLEXIBLE INPUT WITH ENTER STATEMENT, MULTI-BRANCH GOTO AND GOSUB STATEMENTS, ADDITIONAL FUNCTIONS, SOURCE INPUT FROM ANY INPUT DEVICE VIA 'LOAD' COMMAND, ETC. ANOTHER IMPORTANT CONSIDERATION IS THE PROVISION FOR RETRIEVING BASIC PROGRAM FROM 2000F TIME-SHARED SYSTEM DUMP TAPES. THIS GIVES THE DOS-M/DOS-III USER ACCESS TO A GREAT NUMBER OF USEFUL HP BASIC LIBRARY PROGRAMS AND ALLOWS EASY TRANSFER OF OTHER USER-DEVELOPED PROGRAMS FROM A TIME-SHARED SYSTEM TO A DOS ENVIRONMENT.

USER DATA FILES MAY ALSO BE TRANSFERRED FROM SYSTEM TO SYSTEM. TO MAKE THESE CONVERSIONS THE DOS-M/2000C TSB FILE HANDLER, HP24228, MUST BE USED IN CONJUNCTION WITH SPECIAL ROUTINES INCLUDED IN THIS PACKAGE. DVR00 (HP20895) MUST BE USED AS THE TELETYPE DRIVER. CURRENTLY, DOS-M/DOS-III BASIC REQUIRES AT LEAST 14K WORDS OF MEMORY IN ADDITION TO SYSTEM REQUIREMENTS. THEREFORE, A CPU WITH AT LEAST 24K WILL BE NECESSARY. (A 32K CPU GIVES THE USER MORE PROGRAM SPACE THAN IS AVAILABLE ON THE 2000F.)

STATE 800 OR 1600 BPI WHEN ORDERING 22608C-K21.



CONTRIBUTION #: 478  
 CLASS: 17  
 CONTRIBUTOR: ROBERT E. HOARD  
 PHILLIPS PETROLEUM CO.

PART NUMBER: 22610A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: DOS-M

#### CORE RESIDENT DOS-M DISC LOADER UTILITY

THIS PROGRAM PACKAGE INSTALLS A SPECIAL CORE RESIDENT DISC LOADER IN THE HARDWARE PROTECTED LOADER AREA, AND INITIALIZES FOUR SINGLE SECTOR DISC FILES USED BY THE SPECIAL LOADER. ONCE INSTALLED, EITHER THE SPECIAL DISC LOADER OR THE STANDARD ABSOLUTE BINARY TAPE LOADER CAN BE SELECTED AND READ INTO HARDWARE PROTECTED CORE FROM DISC.

THIS PACKAGE OPERATES IN A MINIMUM DOS-M ENVIRONMENT WITH ALL DISC FILES RESIDING IN THE STANDARD USER AREA. WHEN EXECUTED, THE SPECIAL LOADER READS A 5-CHARACTER NAME FROM THE SYSTEM CONSOLE. IF THAT NAME IS 'PTAPE', THEN IT LOADS FROM PAPER TAPE AS THE STANDARD LOADER WOULD. IF NOT, THEN IT LOADS FROM DISC THE DOS-M BINARY DATA FILE WITH THAT NAME. ABSOLUTE BINARY PROGRAMS TO BE LOADED FROM DISC IN THIS MANNER ARE ORIGINALLY STORED ON DISC USING THE CONTRIBUTED STORE ABSOLUTE PROGRAM, HP22354, AND THE CONTRIBUTED PHOTOREADER DRIVER, HP22353. ANY DISC SUBCHANNEL CAN BE USED FOR THIS PURPOSE.

THIS PACKAGE, AUGMENTED BY THE ABOVE CONTRIBUTED PROGRAMS, THUS ALLOWS THE USER TO STORE SUCH ABSOLUTE PROGRAMS AS THE DOS-M BOOTSTRAP, MTS BOOTSTRAP, BCS SYSTEM, SID ROUTINE, DIAGNOSTIC ROUTINES, AND OTHER USER ROUTINES ON DISC IN A STANDARD DOS-M FORMAT, AND TO SELECTIVELY LOAD THEM INTO CORE BY NAME.



CONTRIBUTION #: 479  
CLASS: 102  
CONTRIBUTOR: ROBERT C. BASKIN  
XYNETICS, INC.

PART NUMBER: 22612A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE MAGNETIC TAPE FILE MANAGER

THE RTE MAGNETIC TAPE FILE MANAGER IS A RELATIVELY SMALL (450 WORDS) DISC RESIDENT PROGRAM WHICH ENABLES THE USE OF MAG TAPE FOR PROGRAM STORAGE AND RECALL, AT THE SOURCE OR BINARY LEVEL, BY PROGRAM NAME. IN ADDITION, NO MODIFICATION IS REQUIRED TO THE RTE SYSTEM, NOR ARE ANY OF THE SYSTEM RESOURCES AFFECTED. PROVISIONS ARE AVAILABLE FOR LOADING A SOURCE, RELOCATABLE, OR EXECUTABLE MODULE FROM TAPE; STORING A SOURCE OR RELOCATABLE MODULE ONTO TAPE; GETTING A DIRECTORY LISTING OF THE CONTENTS OF A TAPE; REWINDING THE TAPE; DUMPING A MODULE TO TAPE IN DOS-M FORMAT; AND INITIALIZING A NEW TAPE.

ORDER #22612-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 480  
CLASS: 22  
CONTRIBUTOR: R. S. MACKENZIE  
HP SCOTLAND/  
SO. QUEENSFERRY

PART NUMBER: 22614A-K01  
PRICE: \$20  
DATE CODE:  
LANG: FTN IV/ASSEMBLY RELO  
OP SYS: DOS-M

SUMMARY OF DOS-M SOURCE FILES

OPERATING IN A MINIMUM DOS-M ENVIRONMENT, THIS PROGRAM GENERATES A SUMMARY OF ALL SOURCE PROGRAMS ON A SPECIFIED SUBCHANNEL. THE FOLLOWING INFORMATION IS PRINTED FOR EACH FILE: PROGRAM NAME, PROGRAM LENGTH IN SECTORS AND LINES, FIRST FIVE LINES OF CODE (INCLUDING CONTROL STATEMENTS IF PRESENT), AND THE LAST LINE OF THE PROGRAM.

ON SYSTEMS WITH SEVERAL USERS, IT IS OFTEN NECESSARY TO PURGE SOURCE FILES. THIS PROGRAM ELIMINATES THE TIME CONSUMING METHOD OF PARTIALLY LISTING EACH FILE TO DETERMINE ITS CONTENTS.



CONTRIBUTION #: 481  
CLASS: 18  
CONTRIBUTOR: W. R. BRODERICK  
LONDON BOROUGH OF HAVERING

PART NUMBER: 22615A-K01  
PRICE: \$30  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

DOS-M CESIL INTERPRETER

THIS 'CESIL' INTERPRETER INPUTS PROGRAMS WRITTEN IN THE PROGRAMMING LANGUAGE 'CESIL' FROM A PHOTOREADER, MARKED CARD READER, OR TELETYPE AND OUTPUTS TO A LINE PRINTER. PROGRAMS CAN BE ENTERED IN EITHER KEYBOARD OR BATCH MODE.

THE LANGUAGE 'CESIL' IS USED IN THE UNITED KINGDOM AS A LANGUAGE FOR ICL/CES (INTERNATIONAL COMPUTERS LIMITED/COMPUTER EDUCATION IN SCHOOLS) COURSES. IT PROVIDES A SMALL SET OF SIMPLE FUNCTIONS WHICH CAN BE QUICKLY LEARNED AND WHICH ENABLE THE BEGINNER TO BECOME FAMILIAR WITH THE BASIC COMPONENTS OF A COMPUTER. GIVEN SUFFICIENT PRACTICE IN THE USE OF 'CESIL', THE STUDENT MAY TURN TO THE STUDY OF MORE COMPLICATED COMPUTER LANGUAGE WITH A CONFIDENCE DERIVED FROM ACHIEVEMENT IN PROGRAM WRITING AND THE KNOWLEDGE OF HOW IN ESSENCE A COMPUTER WORKS.

DOS-M 'CESIL' INTERPRETER IS A DEVELOPMENT AND EXTENSION OF IBM 1130 'CESIL'. IT WAS DESIGNED TO RUN ON AN HP2116C WITH 24K, AN HP2780 DISC, AN HP2767 LINE PRINTER, A PHOTOREADER, INPUT MARKED CARD READER, AND TWO ON-LINE TELETYPES. HOWEVER, LOGICAL UNIT NUMBERS CAN BE SIMPLY REALLOCATED TO ENABLE THE SYSTEM TO RUN ON A MORE RESTRICTED CONFIGURATION.



CONTRIBUTION #: 482  
 CLASS: 905  
 CONTRIBUTOR: RICHARD A. KONING  
 SCOPE ELECTRONICS, INC.

PART NUMBER: 22618A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY MICROPROCES  
 OP SYS: BCS,DOS-M

#### MICROCODED FAST FOURIER TRANSFORM

THIS MICROCODED INTEGER SUBROUTINE PERFORMS A FAST FOURIER TRANSFORM ON EITHER REAL OR COMPLEX INPUT DATA IN A BCS OR DOS-M ENVIRONMENT. THE TRANSFORM IS DONE IN PLACE, DESTROYING THE INPUT DATA. THE ARRAY LENGTHS OF THE INPUT DATA MUST BE A POWER OF TWO.

THIS SUBROUTINE IS CALLABLE EITHER FROM FORTRAN OR ASSEMBLER, WITH INTEGER ARGUMENTS ONLY. PRE-SCALING OF INPUT DATA SHOULD BE PERFORMED BY THE USER TO INSURE THAT NO OVERFLOW WILL BE GENERATED.



CONTRIBUTION #: 483  
 CLASS: 21  
 CONTRIBUTOR: NORTON BELL  
 HP/SCIENTIFIC

PART NUMBER: 22620A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### BCS SUBROUTINES FOR KEYBOARD COMMUNICATIONS

THIS SET OF SUBROUTINES PROVIDES KEYBOARD COMMUNICATIONS FOR THE ASSEMBLY LANGUAGE PROGRAMMER WORKING WITH A BCS ENVIRONMENT. THE SUBROUTINES GENERATE CALLS TO 'IOC' OR TO THE FORMATTER USING LOGICAL UNITS 1 AND 2. FUNCTIONS PERFORMED BY THE SUBROUTINES INCLUDE:

1. READING A 'YES', 'NO', OR NUMERIC REPLY FROM THE KEYBOARD.
2. READING ASCII CHARACTERS FROM THE KEYBOARD TO A BUFFER.
3. PRINTING THE 2N OR 2N-1 CHARACTERS THAT FOLLOW ON UNIT 2.



4. INITIALIZING A BUFFER TO A GIVEN LENGTH WITH A GIVEN NUMBER.
5. READING N NUMBERS FROM THE KEYBOARD IN FREE-FIELD FORMAT.
6. PRINTING INTEGER OR REAL NUMBERS IN A SPECIFIED FORMAT.
7. CLEARING I/O REQUESTS.

ALSO INCLUDED IN THE PACKAGE IS A POWER FAIL ROUTINE.

THE CORE REQUIREMENTS FOR THE SUBROUTINES ARE 256 DECIMAL WORDS OF MAIN AND 50 WORDS OF BASE PAGE.



CONTRIBUTION #: 484  
CLASS: 3  
CONTRIBUTOR: MICHEAL YOUNG  
HP/FULLERTON

PART NUMBER: 22622A-K01  
PRICE: \$10  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS

#### BCS HP7260A CARD READER DRIVER

THIS SUBROUTINE DRIVER ALLOWS INPUT TO A BCS SYSTEM FROM A REMOTE HP7260A CARD READER OVER 202C MODEMS. IT USES THE 12587 INTERFACE CARD IN HALF DUPLEX MODE, WITHOUT REVERSE CHANNEL. ONLY ASCII DATA IS PERMITTED.



CONTRIBUTION #: 485  
CLASS: 905  
CONTRIBUTOR: RICHARD A. KONING  
SCOPE ELECTRONICS, INC

PART NUMBER: 22624A-K01  
PRICE: \$20  
DATE CODE:  
LANG: MICROPROCESSOR/ASMB  
OP SYS: BCS,DOS-M

#### MICROCODED FAST FOURIER TRANSFORM WITH AUTOMATIC RESCALING

THIS MICROCODED INTEGER SUBROUTINE PERFORMS A FAST FOURIER TRANSFORM ON EITHER REAL OR COMPLEX INPUT DATA IN A BCS OR DOS-M ENVIRONMENT. THE TRANSFORM IS PERFORMED IN PLACE, DESTROYING THE INPUT DATA. THE ARRAY LENGTHS OF THE INPUT DATA MUST BE A POWER OF 2. AUTOMATIC RESCALING OCCURS IF AN OVERFLOW IS DETECTED.

THE SUBROUTINE IS CALLABLE FROM ASSEMBLY LANGUAGE OR FORTRAN. EQUIPMENT REQUIRED INCLUDES 8K CORE AND WCS.



CONTRIBUTION #: 486  
CLASS: 18  
CONTRIBUTOR: PIERRE SENANT  
HP/ORSAY

PART NUMBER: 22625A-K01  
PRICE: \$30  
DATE CODE:  
LANG: SNOBOL  
OP SYS: DOS-M

#### IBM 1130 FORTRAN TO HP2100 FORTRAN TRANSLATOR

THIS DOS-M PROGRAM FACILITATES THE TRANSLATION OF IBM 1130 FORTRAN PROGRAMS TO HP2100 FORTRAN PROGRAMS. THE TRANSLATOR PROVIDES FOR DISC I/O, EXTENDED PRECISION, COMMON PROCESSING, AND SEGMENTATION.

IT IS A TWO-PASS PROGRAM ALLOWING INPUT FROM A PHOTOREADER, CARD READER, MAGNETIC TAPE OR DISC. OUTPUT CAN BE TO A PUNCH, LINE PRINTER, TELEPRINTER, MAGNETIC TAPE. DISC I/O IS PERFORMED BY A SPECIALLY WRITTEN PACKAGE WHICH ENABLES FORTRAN PROGRAM TO READ/WRITE DOS-M DATA FILES TO/FROM DISC WITH READ AND WRITE STATEMENTS. WITH THIS PACKAGE FORMATTED DISC I/O CAN BE COMPLETELY TRANSLATED (UNFORMATTED DISC I/O IS NOT). THE I/O PACKAGE IS PART OF A RELOCATABLE LIBRARY SUPPLIED WITH THE TRANSLATOR.

THE TRANSLATOR OPERATES IN A DOS-M SYSTEM WITH A MINIMUM OF 24K OF CORE. IT IS WRITTEN IN SNOBOL LANGUAGE, AND THEREFORE REQUIRES THE CONTRIBUTED SNOBOL COMPILER FOR DOS/DOS-M, HP22327.



CONTRIBUTION #: 487  
 CLASS: 22  
 CONTRIBUTOR: GRANT SHAW  
 HP, DSD

PART NUMBER: 22626A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

#### SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN)

THE SLEEP/HIBERNATE ANALYSIS (SHAN) PROGRAM IS DESIGNED TO EXAMINE USER FILES ON MAGNETIC TAPES PRODUCED BY THE 200WF SYSTEM. 'SHAN' PRINTS AN ERROR MESSAGE UPON ENCOUNTERING ANY OF THE FOLLOWING CONDITIONS WITH A USER FILE:

1. A WORD WHICH IS NOT ANY OF THE FOLLOWING:
  - A. LOGICAL END OF RECORD. (-2)
  - B. LOGICAL END OF FILE. (-1)
  - C. FIRST WORD OF STRING. (ONLY BIT 9 SET OF UPPER BYTE.)
  - D. NORMALIZED FLOATING POINT NUMBER. (BITS 14 AND 15 NOT EQUAL IN FIRST WORD.)
  - E. FLOATING POINT ZERO. (ALL BITS OF BOTH WORDS OFF.)
  - F. CONTAINED WITHIN A STRING.
2. A STRING WHOSE LENGTH IS LESS THAN ZERO OR GREATER THAN 72 CHARACTERS.
3. A STRING WHICH EXTENDS BEYOND THE END OF THE LOGICAL RECORD.
4. A STRING CHARACTER WITH BIT 8 SET.
5. A FLOATING POINT NUMBER WHOSE FIRST WORD IS THE LAST WORD OF THE LOGICAL RECORD.
6. A FILE WHOSE ACTUAL LENGTH IS NOT EQUAL TO THE LENGTH SPECIFIED IN THE DIRECTORY.

AS 'SHAN' PROCESSES THE TAPE, IT LISTS EACH USER FILE ON THE LINE PRINTER TOGETHER WITH ANY ASSOCIATED ERRORS. ONLY THE FIRST TEN OR ELEVEN ERRORS DETECTED IN A GIVEN FILE ARE LISTED INDIVIDUALLY. ALL ERRORS ARE INCLUDED IN THE ERROR COUNT WHICH IS ALSO PRINTED FOR EACH USER FILE FOR WHICH ERRORS HAVE BEEN DETECTED. PROGRAM FILE NAMES ARE ALSO LISTED.

OPERATES UNDER DOS-M. SEE 22681-\*\*\*51, SHAN II WHICH OPERATES UNDER BCS. HARDWARE REQUIREMENTS FOR 'SHAN' ARE: MAG TAPE DRIVE COMPATIBLE WITH DRIVE USED BY 2000F, CONSOLE TERMINAL AND LP.



CONTRIBUTION #:	488	PART NUMBER:	22627A-K01
CLASS:	701	PRICE:	\$20
CONTRIBUTOR:	ED DOUST	DATE CODE:	
	HP, SCIENTIFIC INSTRUMENTS	LANG:	ASSEMBLY RELOCATABLE
	DIVISION	OP SYS:	DOS-M

## DOS-M JOB ACCOUNTING SYSTEM

THIS SYSTEM IS A THREE-PROGRAM NETWORK WHICH PROVIDES A SIMPLE METHOD OF ACCOUNTING FOR JOB TIMES ON A DOS-M SYSTEM. ALL THE NECESSARY INFORMATION FOR THE ACCOUNTING SYSTEM (CURRENT SYSTEM DATE, CURRENT JOB NAME, AND JOB TIME ELAPSED) IS STORED BY DOS-M, IN THE SYSTEM BUFFER AREA. THE THREE PROGRAMS MAKE USE OF THIS INFORMATION AND STORE SELECTED PORTIONS OF IT IN A SPECIAL DATA FILE. OUTPUT FROM THE ACCOUNTING SYSTEM LISTS EACH JOB WITH ITS TOTAL ELAPSED TIME AND THE PERCENTAGE OF TOTAL TIME IT REPRESENTS.

THE ACCOUNTING SYSTEM RUNS UNDER A STANDARD DOS-M ON AN HP2100 SERIES COMPUTER WITH AN HP7900 DISC AND TELETYPE OR DISPLAY TERMINAL.



CONTRIBUTION #:	489	PART NUMBER:	22629A-K01
CLASS:	3	PRICE:	\$20
CONTRIBUTOR:	KEVIN O'MEARA	DATE CODE:	
	MEDICAL RESEARCH COUNCIL	LANG:	ASSEMBLY RELOCATABLE
	LONDON	OP SYS:	RTE

## RTE NON-DMA DRIVER FOR HP5401B MULTICHANNEL ANALYSER

THIS RTE DRIVER HANDLES INPUT AND OUTPUT FOR THE HP5401B MULTI-CHANNEL ANALYSER, OPTION 08. IT IS A NON-BUFFERED, NON-DMA DRIVER WHICH WILL WRITE ASCII CODE AND READ ASCII OR BINARY CODE.

ORDER #22629-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #:	490	PART NUMBER:	22631A-K01
CLASS:	17	PRICE:	\$40
CONTRIBUTOR:	RAINER R. EBERLE	DATE CODE:	
	INSTITUT FUR KERntechnik	LANG:	ASSEMBLY RELOCATABLE
		OP SYS:	BCS

## BCS LOADER WITH TELETYPE/LINE PRINTER OUTPUT

BCS PERFORMS TWO MAIN FUNCTIONS: 1) RELOCATES AND LINKS SUB-ROUTINES TO MAIN PROGRAMS, AND 2) EXECUTES PROGRAMS. STARTING WITH RELOCATABLE CODE PRODUCED BY AN ASSEMBLER OR

COMPILER, THERE ARE TWO POSSIBLE METHODS TO ACCOMPLISH FUNCTION 1 AND REACH FUNCTION 2:

- A. BCS RELOCATES THE CODE (INCLUDING SUBROUTINES) INTO CORE MEMORY DIRECTLY AND THEN EXECUTES IT.
- B. BCS RELOCATES THE CODE (INCLUDING SUBROUTINES) AND PUNCHES IT ONTO AN ABSOLUTE TAPE ALONG WITH THE NECESSARY SYSTEM ROUTINES, DRIVERS, TABLES, ETC. THIS ABSOLUTE TAPE CAN THEN BE LOADED INTO CORE THROUGH BBL OR BBDL AND EXECUTED. (PUNCH OUTPUT IS ASSUMED TO BE ON AN HP2754B - ASR-35 OR A HIGH SPEED PUNCH. OUTPUT ON THE PUNCH UNIT OF AN HP2752A - ASR-33 IS NOT IMPLEMENTED.)

METHOD (A) IS FASTER, BUT DOES NOT PROVIDE A PERMANENT, RUNNABLE COPY OF THE PROGRAM. NOT ONLY DOES THE PROGRAM CODE HAVE TO BE RELOCATED EACH TIME THE PROGRAM IS TO BE RUN, BUT LESS CORE IS AVAILABLE BECAUSE THE RELOCATING LOADER OCCUPIES A PART OF MEMORY. METHOD (B) TAKES LONGER THE FIRST TIME, BUT PROVIDES A PERMANENT COPY OF THE PROGRAM THAT CAN BE EXECUTED. ALSO, MORE CORE IS AVAILABLE SINCE THE PROGRAM CAN AT RUN-TIME USE THE SPACE OCCUPIED BY THE RELOCATING LOADER AT LOAD-TIME.



CONTRIBUTION #: 491  
 CLASS: 2  
 CONTRIBUTOR: HANS BIESEL  
 HP, GMBH

PART NUMBER: 22633A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### MULTI-TERMINAL NON-BCS DRIVER (INOUT)

'INOUT' IS A MULTI-TERMINAL NON-BCS DRIVER WITH OPERATOR-ATTENTION CAPABILITY. IT CAN SIMULTANEOUSLY CONTROL INPUT/OUTPUT OPERATIONS ON ANY NUMBER OF TELETYPES, TAPE READERS, TAPE PUNCHES, AND EQUIVALENT DEVICES. COMMON ENTRIES ARE PROVIDED FOR INPUT/OUTPUT, STATUS, CLEAR, OPERATOR-ATTENTION-MODE-ON, OPERATOR-ATTN-MODE OFF, AND OPERATOR-ATTN-STATUS REQUESTS. INDIVIDUAL CONTINUATOR ENTRIES FOR EACH DEVICE LEAD TO A COMMON PROCESSOR ROUTINE. THE FORMAT OF DATA RECORDS IS ESSENTIALLY THE SAME AS IN STANDARD BCS, BUT 'INOUT' OFFERS SOME CONVENIENCE BY COMPARISON. 'INOUT' MUST BE LOADED WITH THE CONTRIBUTED ABSOLUTE RELOCATING LOADER (ABL0D), HP22634. IT CAN BE COMBINED WITH STANDARD BCS OR USED AS A SELF-CONTAINED INPUT/OUTPUT SYSTEM, IN WHICH CASE THE MEMORY REQUIREMENTS ARE GREATLY REDUCED. BECAUSE 'INOUT' IS NOT CALLABLE THROUGH .IOC., INTERNAL CONVERSION MUST BE DONE WHEN ASCII-TO-BINARY CONVERSIONS AND VICE VERSA ARE REQUIRED. THIS IS SIMPLIFIED BY THE CONTRIBUTED PROGRAM HP22591, STRIPPED FORTRAN FORMATTER FOR INTERNAL CONVERSION (STRIF). ALTHOUGH 'INPUT' IS DESIGNED MAINLY FOR PROGRAMS IN ASSEMBLY LANGUAGE, A SET OF UTILITY ROUTINES IS INCLUDED IN THIS PACKAGE WHICH PROVIDES FORTRAN-CALLABLE REQUESTS. THESE ROUTINES USE THE ABOVE MENTIONED FORMATTER STRIF.



CONTRIBUTION #: 492  
CLASS: 17  
CONTRIBUTOR: HANS BIESEL  
HP, GMBH

PART NUMBER: 22634A-K01  
PRICE: \$40  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

ABSOLUTE RELOCATING LOADER (ABL00)

'ABL00' IS AN ABSOLUTE VERSION OF THE BCS RELOCATING LOADER (NON-4K VERSION). IT USES SIO DRIVERS, READS THE RELOCATABLE LIBRARY FROM PAPER TAPE OR MAGNETIC TAPE, AND CAN BE INCORPORATED IN AN MTS. 'ABL00' READS OBJECT TAPES, RELOCATES THEM, PUNCHES AN ABSOLUTE TAPE, AND PRINTS A CORE ALLOCATION LIST ON THE LIST DEVICE. THIS LIST DEVICE CAN BE THE LINE PRINTER. THE ABSOLUTE PROGRAM PRODUCED BY 'ABL00' CAN RUN ON A COMPUTER WHOSE MEMORY SIZE AND CONFIGURATION ARE DIFFERENT FROM THAT OF THE GENERATING SYSTEM, AND THE ABSOLUTE PROGRAM CAN USE ANY INPUT/OUTPUT SYSTEM SUCH AS SIO, BCS, OR A USER-WRITTEN SYSTEM. THE USER OF 'ABL00' SPECIFIES A MEMORY ALLOCATION TABLE. THE BASE PAGE AREA, INCLUDING LINKAGE AREA, CAN BE ESTABLISHED ANYWHERE FROM ADDRESS 3 TO ADDRESS 1777. THE PROGRAM AREA CAN START ON BASE PAGE, BEHIND THE LINKAGE AREA. THUS, THE TARGET CORE SPACE CAN BE FILLED WITHOUT ANY OVERHEAD, AND THE OUTPUT SEGMENTS CAN BE INTERMIXED WITH OTHER RELOCATED SEGMENTS OR WITH ABSOLUTE PROGRAMS.

THE ONLY HARDWARE REQUIRED TO RUN 'ABL00' IS 4K OF CORE AND A TELETYPE.



CONTRIBUTION #: 493  
CLASS: 102  
CONTRIBUTOR: TONY THOMSON  
HP, LONDON - ENGLAND

PART NUMBER: 22635A-K01  
PRICE: \$30  
DATE CODE:  
LANG: FORTRAN IV, ASMB REL  
OP SYS: DOS-M

DOS-M/2000E TIME-SHARED BASIC FILE HANDLER

THE DOS-M/2000E TIME-SHARED BASIC FILE HANDLER PROGRAM CREATES DOS-M USER FILES ON DISC FROM EITHER AN HP 2000E USER OR SLEEP DISC. THE FILE HANDLER TRANSFERS DATA FILES FROM THE TSB DISCS TO DOS-M IN A FORMAT READILY ACCESSIBLE BY A USER PROGRAM. THE DATA FILES ARE UNINTERLEAVED AND THEN STORED ON THE DISC IN 2000F RECORDS (I.E., 128 WORD RECORDS IN 256-WORD BLOCKS). THIS IS DONE SO THAT THE CURRENT 2000C/F FILE INTERFACE PACKAGE (HP24240A) CAN BE USED TO WORK ON THE DOS-M FILES. THE FILE HANDLER WILL ALSO WRITE APPROPRIATELY CONSTRUCTED DOS-M FILES TO 2000E DISCS, IN A FORMAT ACCEPTABLE TO THE 2000E TIME SHARED BASIC SYSTEM.

THE PROGRAM REQUIRES A DOS-M SYSTEM WITH A MINIMUM OF 16K CORE. IT CAN ALSO BE RUN ON A DOS III SYSTEM.



CONTRIBUTION #: 494  
 CLASS: 12  
 CONTRIBUTOR: PAUL THURSTON  
 HP, SLOUGH

PART NUMBER: 22638A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

### SPECIAL PRIVILEGED RTE DRIVER FOR HP2313 SUBSYSTEM

THIS DRIVER ENABLES THE HP2313 DATA ACQUISITION SUBSYSTEM TO BE USED UNDER RTE FOR CONTINUOUS FAST DATA ACQUISITION. READINGS ARE TAKEN IN GROUPS OF THREE OR MORE RANDOM HIGH LEVEL MULTIPLEXER (+10 VOLTS) CHANNELS. THE TIME BETWEEN TWO READINGS IN ONE GROUP IS FIXED AT 30 MICROSECONDS. ALL THE READINGS WITHIN A GROUP ARE REPEATED AFTER A PRECISE PROGRAMMABLE DELAY (t) WHICH MAY BE BETWEEN 500 AND 2550 MICROSECONDS (THERE IS A VERSION OF THIS DRIVER FROM 500 TO 25960 MICROSECONDS AVAILABLE ON SPECIAL REQUEST FROM THE AUTHOR) WITH A 10 MICROSECOND RESOLUTION.

I.E. CHANNEL 1 4 2 3      1 4 2 3      1 4 2 3      1 4 2 3      ETC.  
           . . . .      . . . .      . . . .      . . . .  
           ----t----

FOR SPEED REASONS, THE DRIVER REQUIRES DOUBLE BUFFERS WITHIN THE CALLING PROGRAM. THESE BUFFERS NEED TO BE APPROXIMATELY 1000 WORDS EACH FOR CONTINUOUS THROUGHPUT TO MAGNETIC TAPE AT ABOUT  $4 \times 2000 = 8$  kHz. THE DRIVER DOES NOT USE DMA OR THE LAST ADDRESS DETECTOR CARD IN THE HP2313. THE ONLY NECESSARY HARDWARE REQUIREMENTS ARE A MINIMUM RTE SYSTEM AND THE HP2312 WITH PROGRAMMABLE PACER.

ORDER #22638-13300      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 495  
 CLASS: 21  
 CONTRIBUTOR:

PART NUMBER: 22641A-K01  
 PRICE: \$70  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS, DOS-M, DOS-III

### TRIPLE WORD ROUTINE

THIS PACKAGE OF EIGHT ROUTINES ALLOWS TRIPLE WORD FUNCTIONS TO BE EXECUTED IN A DOS-M, DOS III, OR BCS ENVIRONMENT. A USER CAN CONVERT FROM 3 CHARACTERS PER WORD TO 2 CHARACTERS PER WORD, AND VICE VERSA; CONVERT A TRIPLE WORD INTEGER VALUE TO ASCII FORMAT, AND VICE VERSA; ADD AND SUBTRACT TRIPLE WORD INTEGERS; AND DIVIDE AND MULTIPLY A TRIPLE WORD INTEGER BY A SINGLE WORD INTEGER. THESE ROUTINES REQUIRE 16K OF CORE.



CONTRIBUTION #: 496  
CLASS: 18  
CONTRIBUTOR: J. B. MC ALISTER  
LTV AEROSPACE CORP.

PART NUMBER: 22642A-K01  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN II  
OP SYS: RCS

LANGUAGE PARSING

THIS PROGRAM READS A GRAMMER, EXPRESSED IN PRODUCTION NOTATION, THEN READS ONE OR MORE STRINGS OF 1-60 CHARACTERS, TESTING EACH STRING TO DETERMINE IF IT IS IN THE LANGUAGE GENERATED BY THE GRAMMER. IF IT IS, A SYNTAX TREE IS PRODUCED. THE PROGRAM IS OPERABLE IN RCS. EQUIPMENT REQUIRED IS 8K OF CORE STORAGE, A PHOTOREADER AND TELETYPE.



CONTRIBUTION #: 497  
CLASS: 107  
CONTRIBUTOR: BARBARA BOWERS  
HP, DSD

PART NUMBER: 22644A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE QUICK CORE SORT (QSORT)

'QSORT' IS AN EXTERNAL SUBROUTINE WHICH SORTS AN ARRAY OF RECORDS IN CORE. THE SUBROUTINE USES A PARTITION-EXCHANGE SORT TECHNIQUE (QUICKSORT) WHICH IS A VERY FAST METHOD OF SORTING UNORDERED ITEMS. THE ARRAY IS SORTED IN PLACE INTO ASCENDING ORDER; AND IT CAN BE SORTED ON ONLY ONE FIELD.

THIS SUBROUTINE OPERATES IN A MINIMUM RTE ENVIRONMENT AND IS CALLABLE FROM ASSEMBLY LANGUAGE.

ORDER #22644-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 498  
CLASS: 22  
CONTRIBUTOR: AL PARE  
PETER BRICKEY  
HP, DSD

PART NUMBER: 22645A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SELF CONTAINED

2000E TIME-SHARE BASIC PATCH UTILITY

THE 2000E TSB PATCH UTILITY IS USED TO IMPLEMENT PATCHES TO THE 2000E SYSTEM BY MEANS OF A SIMPLE CONVERSATIONAL INTERACTION WITH THE USER. THIS UTILITY MAY BE USED WITH THE FOLLOWING INTENTIONS:

1. MODIFY/DISPLAY SYSTEM LOCATIONS.
2. MODIFY/DISPLAY LOADER/UTILITY LOCATIONS.
3. MODIFY/DISPLAY SYSTEM TABLES.
4. MODIFY/DISPLAY ANY WORDS(S) RELATIVE TO A SPECIFIC TRACK AND SECTOR.



CONTRIBUTION #: 499  
 CLASS: 5  
 CONTRIBUTOR: DAVID SNYDER  
 HP, SANTA CLARA

PART NUMBER: 22646B-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

#### BCS ACTIVITY PROFILE GENERATOR (ACP)

THIS SUBROUTINE ANALYZES EXISTING PROGRAMS FOR THE PURPOSE OF INCREASING THEIR SPEED. IT OPERATES ON A 2100 SERIES COMPUTER IN ANY SIZE BCS SYSTEM, AND IT DETERMINES WHAT AREAS OF CODE ARE USED AND HOW MUCH EACH AREA AFFECTS SYSTEM TIMING. ACP MAY BE APPLIED TO LARGE COMPLEX PROGRAMS (E.G., BASIC, FORTRAN, PAYROLL, CAD, ETC.) OR TO SMALL SUBROUTINES (E.G., TRIGONOMETRIC FUNCTIONS, MATRIX INVERSION, DATA ACCESS PROCEDURES, ETC.)

SPECIFICALLY, THIS SUBROUTINE MONITORS THE PROGRAM ADDRESS REGISTER (P-REGISTER) WHILE A USER PROGRAM RUNS. THE RESULTING HISTOGRAM OF P-REGISTER VALUES LOCALIZES AREAS WITH HIGHEST SYSTEM PERFORMANCE LEVERAGE AND PREDICTS RELIABLY WHAT SYSTEM PERFORMANCE INCREMENT TO EXPECT BY USING MICROCODE (OR ASSEMBLY LANGUAGE, OR PROGRAM REORGANIZATION).

THIS TOOL WAS USED TO OBTAIN A SOLID FACTOR OF 100 IMPROVEMENT IN SPEED IN AN (ALREADY OPTIMIZED) ASSEMBLY LANGUAGE PROGRAM (5451 FOURIER ANALYZER).



CONTRIBUTION #: 500  
 CLASS: 8  
 CONTRIBUTOR: GRANT MUNSEY  
 HP, NEELY SALES REGION

PART NUMBER: 22647A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

#### PATCH/MERGE ABSOLUTE BINARY TAPES

THIS SELF-CONTAINED PROGRAM PROVIDES A MEANS OF ADDING ABSOLUTE RECORDS ONTO AN EXISTING BINARY TAPE. IT WAS DESIGNED FOR USE WITH THE 2000 SERIES TIME-SHARE SYSTEM TAPES AND ALLOWS PATCHES TO BE INSERTED AT THE END OF THE CORE RESIDENT SECTION OF CODE OR AT THE END OF ANY LIBRARY CODE SEGMENT. THE PROGRAM CAN ALSO BE USED TO ADD PATCHES TO THE END OF ANY ABSOLUTE BINARY TAPE.

EQUIPMENT REQUIRED INCLUDES A 2100 SERIES COMPUTER WITH AT LEAST 4K MEMORY, A PHOTO-READER, PUNCH, AND TELETYPE.





CONTRIBUTION #: 501  
CLASS: 107  
CONTRIBUTOR: GLYN HARRIS  
HP, ENGLAND/SLOUGH

PART NUMBER: 22649A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY MICROPROCES  
OP SYS: BCS

MICROCODED INTEGER SORT

THIS MICROCODED ROUTINE SORTS AN INTEGER ARRAY INTO ASCENDING NUMERICAL ORDER. THE PROCEDURE USED FOR THE SORT WAS PROPOSED BY D. A. SHELL IN 1959 (COMM. ACM 2(1959), 30-32). INCLUDED IN THE PACKAGE IS A SIMULATION OF THE MICROPROGRAM IN BASIC TO ENABLE THE CODE TO BE EASILY FOLLOWED.

THIS PROGRAM REQUIRES AN HP2100 WITH 8K CORE AND WRITABLE CONTROL STORE.



CONTRIBUTION #: 502  
CLASS: J  
CONTRIBUTOR: ALLAN SHERMAN  
HP/MED

PART NUMBER: 22653A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS,DOS-M,RTE

READ TIME FROM HP 5666A CLOCK

THIS IS A FORTRAN CALLABLE SUBROUTINE WHICH ALLOWS READING THE MONTH, DAY, HOUR, MINUTE AND SECOND FROM AN HP 5666A CLOCK. THE SELECT CODE OF THE CLOCK INTERFACE IS A CONSTANT DECLARED IN THE SOURCE CODE. THIS ROUTINE REQUIRES THAT MEMORY PROTECT IF PRESENT BE TURNED OFF.

ORDER #22653-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 503  
CLASS: 108  
CONTRIBUTOR: JOHN B. PHILLIPS  
UNIV. OF ARIZONA

PART NUMBER: 22654A-K01  
PRICE: \$40  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

EAU AND FLOATING POINT EXTERNAL REFERENCE OPTIMIZER

THIS PROGRAM WILL EDIT ANY DOS-M RELOCATABLE BINARY FILE OR JOB BINARY AREA TO REPLACE ALL OCCURRENCES OF AN EXTERNAL REFERENCE WITH AN ABSOLUTE OPERATION CODE. IN PARTICULAR, A MATHEMATICAL LIBRARY OR USER PROGRAM CAN BE EDITED TO REPLACE EXTERNAL REFERENCES TO EAU AND/OR FLOATING POINT SUBROUTINES WITH THE OPERATION CODES TO PERFORM THE ARITHMETIC IN LINE. THIS ELIMINATES THE NEED FOR LIBRARY ROUTINES TO REPLACE THESE CALLS AT RUN TIME. THIS PROGRAM ALSO CAN BE USED TO COMBINE SEPARATE RELOCATABLE BINARY FILES INTO A SINGLE FILE. THE ONLY HARDWARE REQUIREMENTS ARE THOSE NECESSARY FOR A MINIMUM DOS-M.



CONTRIBUTION #: 504  
 CLASS: 22  
 CONTRIBUTOR: MAURICE COTE  
 HP/ESK MASS.

PART NUMBER: 22655A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

#### DESCRIPTION DIRECTORY FOR RTE FILE MANAGER FILES

THIS PROGRAM IS DESIGNED TO MAINTAIN A DISC FILE CONTAINING THE SYMBOLIC NAMES OF SELECTED RTE FILE MANAGER FILES TOGETHER WITH AS MANY AS 64 CHARACTERS OF DESCRIPTIVE INFORMATION ON EACH FILE. THE ENTIRE FILE MAY BE LISTED ALPHABETICALLY OR SELECTIVELY BY FILE NAME. ENTRIES CAN BE COMPARED TO THE FILE MANAGER DIRECTORY TO OBTAIN A LIST OF FILE MANAGER FILES NOT INCLUDED IN THIS DIRECTORY, AND IN ADDITION, PURGED FILES CAN BE DELETED FROM THIS DIRECTORY.

THE PROGRAM CONSISTS OF A MAIN CONTROL PROGRAM AND 3 SEGMENTS REQUIRING A TOTAL OF 603070 WORDS OF BACKGROUND MEMORY. THIS CONFIGURATION CAN EASILY BE EDITED TO INCLUDE MORE OR LESS ENTRIES DEPENDING UPON THE BACKGROUND MEMORY ALLOCATION.

THE HARDWARE REQUIRED FOR THIS PROGRAM IS A STANDARD HP 9600E/F OR EQUIVALENT. THE ADDITION OF AN HP 2600 CRT AND A LINE PRINTER SUBSYSTEM IS BENEFICIAL.

ORDER #22655-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 505  
 CLASS: 901  
 CONTRIBUTOR: MASTRIPIERO SERGIO  
 HP/MILAN

PART NUMBER: 22657A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

#### DEMO THROUGHPUT RATE OF HP 2100 WITH HP 7900A DISC

THIS PROGRAM DEMONSTRATES HOW IT IS POSSIBLE TO REACH A THROUGHPUT RATE OF 100 KHZ USING AN HP2100 COMPUTER AND AN HP7900A DISC DRIVE. THE PROGRAM REQUIRES TWO HP2100 COMPUTERS. ONE IS USED TO SUPPLY A SYNCHRONOUS STREAM OF DATA, AND THE OTHER WRITES THIS DATA ON THE DISC.

THE PROGRAM MAKES USE OF THE OBSERVATION THAT WHILE A SEEK IS PERFORMED, THE DISC ROTATES ABOUT SEVEN SECTORS. TRACK 0 IS WRITTEN ON FROM SECTOR 1 THROUGH SECTOR 47, AND THEREAFTER THE STARTING SECTOR ADDRESS OF CONTIGUOUS TRACKS IS OFFSET BY SEVEN. ALL DATA TRANSFERRED IS CHECKED FOR ERRORS.

THE COMPUTER WHICH WRITES THE DATA MUST HAVE AT LEAST 16K CORE, DMA AND EAU. OTHER EQUIPMENT REQUIRED INCLUDES AN HP2610A LINE PRINTER, TWO 16-BIT MICROCIRCUIT CARDS, AND A CABLE.



CONTRIBUTION #: 506  
CLASS: 18  
CONTRIBUTOR: GENE STUDIEN  
HP/MEDICAL

PART NUMBER: 22658A-K21  
PRICE: \$85  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS,DOS/M,RTE

RTE/DOS FORTRAN IV COMPILER

THE RTE/DOS FORTRAN IV COMPILER (10K COMPILER AREA) WITH CROSS REFERENCE GENERATOR IS ADAPTED FROM THE HP SUPPORTED RTE/DOS FORTRAN IV COMPILER, HP PROGRAM NUMBER 24177B. IT COMPILES EXACTLY THE SAME SOURCE CODE (AS SPECIFIED BY THE HP FORTRAN IV REFERENCE MANUAL) AND PRODUCES EXACTLY THE SAME OBJECT CODE AS THE HP24177B COMPILER. HOWEVER, THE PRESENCE OF A 'C' ON THE FTN4 (OR FTN) CONTROL STATEMENT WILL CAUSE A CROSS REFERENCE LIST TO BE PRODUCED FOR EACH PROGRAM UNIT (PROGRAM, SUBROUTINE, OR FUNCTION) IN THE COMPILATION. THE CROSS REFERENCE LISTING SERVES AS A USEFUL PROGRAMMING AND DEBUGGING AID, PARTICULARLY IN ANALYZING LOGIC PATHS IN A PROGRAM. THIS VERSION OF THE HP FORTRAN IV COMPILER GIVES FORTRAN IV PROGRAMMERS THE SAME TOOL ALREADY AVAILABLE FOR HP ASSEMBLY LANGUAGE PROGRAMMERS.

THE HARDWARE REQUIREMENTS ARE THE SAME AS FOR THE HP24177B COMPILER, THAT IS, A DOS, DOS-M OR RTE CONFIGURATION WITH A MINIMUM 10K USER AREA (DOS) OR BACKGROUND (RTE). THE COMPILER IS APPROXIMATELY 150 WORDS LARGER THAN 24177B SINCE MOST OF THE PROGRAMMING IS IN THE ADDITIONAL SEGMENT, F4.3. COMPILATION SPEED REMAINS THE SAME.

ORDER #22658-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 507  
CLASS: 18  
CONTRIBUTOR: WILLIAM F. DECKER  
UNIV. OF IOWA

PART NUMBER: 22659A-K21  
PRICE: \$60  
DATE CODE:  
LANG: PL/1  
OP SYS: IBM OS-360

IBM U.S. CROSS MICROASSEMBLER FOR HP 2100 COMPUTER

THIS PROGRAM ASSEMBLES HP2100 MICROPROGRAMS IN ANY IBM OPERATING SYSTEM. THE PROGRAM IS DESIGNED TO BE COMPATIBLE WITH HP MICRO-ASSEMBLERS AND PRODUCES IDENTICAL LISTINGS AND BINARY OUTPUT TO THAT PRODUCED BY THE HP COUNTERPARTS.

BECAUSE MOST IBM SYSTEMS DO NOT HAVE A PAPER TAPE PUNCH DEVICE, BINARY OUTPUT FROM THIS PROGRAM MUST BE DIRECTED TO SOME OTHER MEDIUM AND THEN TRANSCRIBED TO PAPER TAPE.

CERTAIN ASSEMBLER CONTROL STATEMENTS HAVE NO MEANING IN AN O.S. ENVIRONMENT AND ARE NOT SUPPORTED BY THIS PROGRAM: \$INPUT, \$PASS2, \$LIST, \$OUTPUT, \$FILE, \$NOLIST, AND \$NOPUNCH.



CONTRIBUTION #: 508  
 CLASS: 903  
 CONTRIBUTOR: KEN POCEK  
 HP/PALO ALTO

PART NUMBER: 22060A-K01  
 PRICE: \$40  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

## CHESS

THIS PROGRAM WILL PLAY CHESS BY GENERATING A (BEST MOVE) FROM A MINIMAX GAME TREE. IT IS DIVIDED INTO TWO DISTINCT PHASES - POSITIONAL ANALYSIS AND TACTICAL ANALYSIS. THE POSITIONAL ANALYSIS SECTION CONTAINS ALL OF THE CHESS SPECIFIC HEURISTICS. IT ASSIGNS POINTS TO EACH MOVE BASED ON A SERIES OF PROGRAMMED GUIDELINES (SUCH AS, ASSIGN 50 POINTS TO P-K4 DURING OPENING). THE GUIDELINES ALSO INCLUDE POINT AWARDS FOR CENTER CONTROL, ATTACKING THE OPPONENT'S KING, ETC. AFTER EACH POSSIBLE MOVE IS ASSIGNED A TOTAL POINT VALUE, THE MOVES ARE SORTED SO THAT THE HIGHEST POINT VALUE MOVES ARE CONSIDERED FIRST BY THE TACTICAL ANALYSIS PHASE. THE TACTICAL ANALYSIS PHASE THEN BUILDS A MOVE TREE WHICH LOOKS THREE HALF MOVES AHEAD. AT EACH BOTTOM OF THE MOVE TREE (AT DEPTH = 3), THE MATERIAL (VALUE OF CHESS PIECES) GAINED OR LOST DURING THE THREE HALF MOVES IS CALCULATED. THE MINIMAX ALGORITHM WITH ALPHA-BETA PRUNING IS APPLIED ONLY ON THAT MATERIAL GAIN OR LOSS. EACH MOVE IS EVALUATED IN TURN UNTIL A BEST MOVE IS FOUND AND EXECUTED. THE PROGRAM FALLS IN THE (BRUTE-FORCE) CLASS OF CHESS PLAYING PROGRAMS. BY LOOKING AT EACH MOVE THREE HALF MOVES AHEAD, IT MAY CONSIDER AS MANY AS TEN THOUSAND TO A HUNDRED THOUSAND COMBINATIONS IN ITS SEARCH. THE HP2100 COMPUTER DOES THIS IN AN AVERAGE TIME OF ONE TO THREE MINUTES.

THE PROGRAM WAS DESIGNED FOR A DOS-M SYSTEM WITH 16K CORE MEMORY. HOWEVER, WITH SLIGHT MODIFICATIONS, IT WILL RUN ON BCS AND TODS SYSTEMS ALSO.



CONTRIBUTION #: 509  
 CLASS: 905  
 CONTRIBUTOR: DAVID SNYDER  
 HP, SANTA CLARA DIV.

PART NUMBER: 22661A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY MICROPROCES  
 OP SYS: BCS

## FAST MICROCODED MULTIPLY INSTRUCTION

THIS MICROCODED INSTRUCTION IS LIKE THE STANDARD HP2100 MULTIPLY INSTRUCTION (OPCODE 100200) EXCEPT THAT IT IS TWICE AS FAST (I.E., 5.9 MICROSECONDS INSTEAD OF 10.8 MICROSECONDS). BOTH INSTRUCTIONS MULTIPLY TWO 16 BIT SIGNED OPERANDS AND PRODUCE IDENTICAL 32 BIT RESULTS.

THIS INSTRUCTION IS USEFUL WHEN INTEGER MULTIPLIES FORM AN APPRECIABLE FRACTION OF A PROGRAM'S EXECUTION TIMING.

THIS PROGRAM REQUIRES AN HP2100 WITH WRITABLE CONTROL STORE.



CONTRIBUTION #: 510  
CLASS: 905  
CONTRIBUTOR: DAVID SNYDER  
HP, SANTA CLARA DIV.

PART NUMBER: 22662A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY MICROPROCES  
OP SYS: BCS

BURST MODE OUTPUT INSTRUCTION

THIS MICROCODED INSTRUCTION PROVIDES BURST OUTPUT AT A SPEED OF 500 KHZ, I.E., HALF AS FAST AS A FULL HARDWARE DMA. IT IS FULLY INTERRUPTABLE.

IT TRANSFERS TWO WORDS EVERY FOUR MEMORY CYCLES USING OTA AND STC INSTRUCTIONS IN OTA-OTA-STC SEQUENCE. IT DOES NOT TEST OR WAIT FOR THE DEVICE FLAG. IT IS TYPICALLY USED AS A (BASIC BINARY LOADER) TO DYNAMICALLY LOAD WRITABLE CONTROL STORE (WCS) WITHOUT THE USUAL HIGH OVERHEAD OF TIME AND WITHOUT REQUIRING ACCESS TO ONE OF THE CRITICAL DMA RESOURCES.

IT CAN BE USED AS A MODEL FOR HIGH SPEED BURST INPUT OR OUTPUT FOR DEVICES WITH MORE COMPLICATED I/O PROTOCOLS.

THIS PROGRAM REQUIRED AN HP2100 WITH WRITABLE CONTROL STORE. BCS OPERATING SYSTEM.



CONTRIBUTION #: 511  
CLASS: 905  
CONTRIBUTOR: JIM MILLER/JURIS BREMPERIS  
HP, DATA SYSTEMS DIV.

PART NUMBER: 22663A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY MICROPROCE  
OP SYS: BCS,DOS-M

BYTE DATA MANIPULATION WITH MICROCODED ROUTINES

THIS PACKAGE OF SEVEN MICROCODED ROUTINES ALLOWS USERS TO:

- A. MOVE WORDS FROM CORE TO CORE (NON-INTERRUPTABLE AND INTERRUPTABLE).
- B. LOAD AN 8-BIT BYTE IN THE RIGHT HALF OF THE A REGISTER (BITS 7-0).
- C. STORE A BYTE INTO CORE.
- D. MOVE A STRING OF BYTES FROM CORE TO CORE (INTERRUPTABLE).
- E. SEARCH A BYTE STRING FOR A PARTICULAR BYTE (INTERRUPTABLE).
- F. COMPARE BYTE STRINGS.

THE LOCATION AND DESIGN OF THE PRIMARY AND SECONDARY MAPPING TABLES AND THE PLACEMENT OF THESE MICROPROGRAMS ARE COMPATIBLE WITH THE HP12907A FAST FORTRAN PROCESSOR (FFP) MICROCODE OPTION.



CONTRIBUTION #: 512  
 CLASS: 101  
 CONTRIBUTOR: JAMES D. REED  
 HUGHES AIRCRAFT CO.

PART NUMBER: 22664A-K01  
 PRICE: \$70  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

#### RTE CONVERSATIONAL SUPER EDITOR

'EDIT' IS AN RTE CONVERSATIONAL EDITOR. THE EDIT COMMANDS MAY BE ENTERED IN NON-SEQUENTIAL ORDER FROM ANY LOGICAL UNIT DEVICE, LS TRACKS OR A FILE MANAGER PACKAGE (FMP) FILE.

THE SOURCE TO BE EDITED MAY BE APPENDED FROM ANY INPUT LOGICAL UNIT, LS TRACKS OR AN FMP FILE.

SOURCES OR PORTIONS MAY BE MERGED WITH THE SOURCE BEING EDITED. LINES MAY BE DELETED, INSERTED, MOVED OR REPLACED IN ANY ORDER IN THE EDIT FILE.

CHARACTER STRINGS MAY BE EDITED WITHIN A SINGLE LINE, A GROUP OF LINES OR WITHIN THE ENTIRE SOURCE.

THE EDITED FILE OR ANY PORTION OF IT MAY BE LISTED WITH LINE NUMBERS ON ANY LOGICAL UNIT OR FMP FILE.

THE EDITED FILE OR ANY PORTION OF IT MAY BE OUTPUTTED TO ANY LOGICAL UNIT, LS TRACKS OR FMP FILE.

THE LS TRACK(S) ASSIGNMENT IS MADE BY THE EDITOR ON OUTPUT AND LS TRACKS(S) ARE RELEASED ON INPUT.

THIS EDIT REQUIRES 6.9K OF BACKGROUND AND THE RTE FILE MANAGER SOFTWARE PACKAGE.

ORDER #22664-13300

SOURCE CASSETTE PACKAGE

\$210.00



CONTRIBUTION #: 513  
 CLASS: 708  
 CONTRIBUTOR: DAN JORGENSEN/ED DEFORE  
 HP, DATA SYSTEMS DIV.

PART NUMBER: 22665A-K21  
 PRICE: \$60  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-III

#### TCS ORDER PROCESSING DEMONSTRATION

THIS PROGRAM WAS DESIGNED TO DEMONSTRATE THE CAPABILITIES OF TCS/DOS IN A MULTITERMINAL/MULTITASKING ENVIRONMENT. THE DEMONSTRATION PROGRAM IS BASED UPON THE SAMPLE APPLICATION EXAMPLES DISCUSSED IN THE TCS APPLICATIONS MANUAL (HP 5951-7310): ORDER ENTRY, GOODS RECEIVING, AND INVOICING. THE FLOW OF DATA AND ORGANIZATION OF CODE IN THESE EXAMPLES IS REPRESENTATIVE OF THE NATURE OF MANY OTHER I/O PROCESSING APPLICATIONS SUCH AS INVENTORY CONTROL, RESERVATION PROCESSING, CREDIT VERIFICATION AND HOSPITAL

ADMISSIONS CONTROL. THEREFORE THE PROGRAM IS A VALUABLE MODEL FOR USE IN UNDERSTANDING OR IMPLEMENTING A TCS APPLICATION.

THIS PACKAGE CONSISTS OF A MAIN PROGRAM WITH THREE SEGMENTS, AND ALSO A PROGRAM WHICH PREPARES A SYSTEM FOR THE DEMONSTRATION. EQUIPMENT REQUIRED INCLUDES A DOS III SYSTEM WITH 16K WORDS, AN HP7900, 7901, OR 2883 DISC SUBSYSTEM, ONE 12800 OR 12531 I/O BOARD FOR EACH TERMINAL DEVICE, AN HP7970 MAGNETIC TAPE SUBSYSTEM, AND A LINE PRINTER.

SPECIFY 800 OR 1600 BPI WHEN ORDERING.



CONTRIBUTION #: 514  
CLASS: 218  
CONTRIBUTOR: LARRY W. SMITH  
HP, DATA SYSTEMS DIV.

PART NUMBER: 22667A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RCS

SERIAL DEVICE TIMING STUDY PROGRAM

THIS PROGRAM MEASURES THE RESPONSE TIME OF A SERIAL DEVICE BETWEEN SUCCESSIVE INPUTS OR OUTPUTS. IT MEASURES THE ABSOLUTE TIME AND THUS GIVES THE USER A MEANS OF CALIBRATING AND POSSIBLY DETERMINING A FUTURE DEVICE MALFUNCTION.

THE ROUTINE REQUIRES 8K OF CORE AND A TELETYPE, AND A LINE PRINTER IS RECOMMENDED FOR DATA OUTPUT. DEVICES WHICH REQUIRE TWO CHANNELS FOR OPERATION CANNOT BE HANDLED BY THE PROGRAM.



CONTRIBUTION #: 515  
CLASS: 22  
CONTRIBUTOR: P.E. THURSTON  
HP, ENGLAND/SLOUGH

PART NUMBER: 22668A-K01  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE LIBRARY SPEED IMPROVEMENTS

THIS PACKAGE CONSISTS OF TWO SUBROUTINES WHICH TOGETHER RESULT IN VAST IMPROVEMENTS TO THE EXECUTION TIMES OF TYPE 6 RTE LIBRARY SUBROUTINES. ON FLOATING POINT HP2100 COMPUTERS MANY OF THE ARITHMETIC SUBROUTINES (E.G., SIN, COS) RUN UP TO TWICE AS FAST, AND ON NON FLOATING POINT MACHINES THE IMPROVEMENT IS UP TO THREE TIMES AS FAST.

TO BE EFFECTED, THE TYPE 6 SUBROUTINES MUST NOT BE IN THE CORE RESIDENT LIBRARY AREA, AND THEY MUST BE LOADED ON-LINE.

THE ONLY HARDWARE REQUIREMENTS ARE THOSE FOR A STANDARD RTE.

ORDER #22668-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 516  
 CLASS: 905  
 CONTRIBUTOR: FREDERIC B. WALSH  
 HP, MIDWEST SALES REGION

PART NUMBER: 22670A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY MICROPROCES  
 OP SYS: ANY

#### MICROPROGRAMMED INDEX REGISTER INSTRUCTIONS

THESE MICROPROGRAMMED INDEX INSTRUCTIONS PROVIDE THE CAPABILITY TO USE THE MEMORY REFERENCE GROUP INSTRUCTIONS IN AN INDEX REGISTER MODE AS WELL AS IN THE NORMAL INSTRUCTION MODE. THE MICROCODED INSTRUCTIONS WILL NOT INTERFERE WITH THE PROPER OPERATION OF ANY HP STANDARD SOFTWARE OR OPERATING SYSTEM.

THE B REGISTER AND THE CORE LOCATION 3 ARE USED AS THE TWO INDEX REGISTERS. INDEX VALUES MAY BE POSITIVE, NEGATIVE, OR ZERO. THE INDEX INSTRUCTIONS ARE CALLED FROM ASSEMBLY LANGUAGE PROGRAMS BY EXECUTING THE RAM MNEMONIC WHICH TRANSFERS CONTROL TO THE CORRECT ENTRY POINT IN THE MICROPROCESSOR. THE MICROCODE TESTS FOR AUTO-INCREMENT MODE, FETCHES THE CONTENTS OF THE WORD FOLLOWING THE RAM, AND PROCESSES MULTI-LEVEL INDIRECTS IF REQUIRED.

ORDER #22670-13300 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 517  
 CLASS: 905  
 CONTRIBUTOR: RICHARD A. KONING  
 SCOPE ELECTRONICS, INC.

PART NUMBER: 22673A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY MICROPROCES  
 OP SYS: DOS-M

#### MICROCODED BIT MANIPULATIONS (SET, CLEAR, TEST)

THIS MICROCODED SUBROUTINE MANIPULATES ANY BIT OF ANY SPECIFIED 16-BIT WORD PASSED AS A PARAMETER. THE BIT MAY BE SET, CLEARED, OR TESTED TO BE SET OR CLEARED.

THE SUBROUTINE IS CALLABLE FORM FORTRAN OR ASSEMBLY LANGUAGE, AND RUNS IN A MINIMUM DOS-M WITH WCS.



CONTRIBUTION #: 518  
 CLASS: 17  
 CONTRIBUTOR: KEN MACY  
 HP, DATA SYSTEMS DIV.

PART NUMBER: 22677A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M, DOS-III

#### DOS-III UTILITY

'KLBOT' IS A MODIFIED VERSION OF THE PROGRAM OVRLY (HP 22554 - PART OF THE CONTRIBUTED PACKAGE UPDAT, MEQTS, OVERLY). IT ENABLES A USER TO LOAD THE COMMUNICATINS PROCESSOR (FRONT-END) OF A TIME SHARE SYSTEM WITH AN ABSOLUTE DOS DISC FILE.



HARDWARE REQUIREMENTS INCLUDE A MINIMUM DOS-III CONFIGURATION, FRONT END PROCESSOR, HP PROCESSOR INTERCONNECT KIT - #12875, AND A LINE PRINTER AND INTERFACE KIT.



CONTRIBUTION #: 519  
 CLASS: 401  
 CONTRIBUTOR: RICHARD BLAKE  
 VAST INCORPORATED

PART NUMBER: 22679A-K01  
 PRICE: \$30  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: BCS

#### CURVE FITTING - WEIGHTED AVERAGING

'FOCUS' MERITS CONSIDERATION AS A CURVE FITTING METHOD, WHEN WORKING WITH DATA THAT DOES NOT APPROXIMATE A RECOGNIZABLE FUNCTION. AS LONG AS THERE IS SUFFICIENT DATA, 'FOCUS' WILL WORK, UNCHANGED, ON A VARIETY OF DATA PATTERNS. IT WILL QUICKLY FIT DATA WITHOUT EITHER CONVERGENCE OR ACCURACY PROBLEMS. 'FOCUS' TAKES THE WRINKLES OUT OF OTHERWISE ERRATIC DATA BY USING A WEIGHTED AVERAGE. WEIGHTS USED ARE  $w_1=1$ ,  $w_2=2$ , AND  $w_3=1$ .

$$P(n) = \frac{W_1 P(n-1) + W_2 P(n) + W_3 P(n+1)}{W_1 + W_2 + W_3}$$

LACKING ENOUGH NEIGHBORS, END POINTS REQUIRE SPECIAL ATTENTION. FOR THE FIRST POINT,  $w_1$  IS SET TO 0, AND THE LAST POINT USES  $w_3=0$ . THE AVERAGING IS REPEATED FOR EACH POINT A SPECIFIED NUMBER OF TIMES. THE USER OF 'FOCUS' SHOULD ADJUST THAT NUMBER TO THEIR APPLICATION. THE DATA BEGINS TO LOSE SIGNIFICANCE AS THE AVERAGING CONTINUES. ULTIMATELY, A STRAIGHT LINE ON THE ABSOLUTE AVERAGE WOULD RESULT.

HARDWARE REQUIREMENT INCLUDE 4K AND A TELETYPE. HP 7210A IS OPTIONAL. BCS OPERATING SYSTEM.



CONTRIBUTION #: 520  
 CLASS: 212  
 CONTRIBUTOR: RICK SCHWARTZ  
 HP/VANCOUVER

PART NUMBER: 22680A-K01  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

#### MICROPROGRAM SOURCE FORMATTER

THIS PROGRAM, AND ITS ASSOCIATED SUBROUTINES, FUNCTIONS TO ALLOW A MICROPROGRAMMER TO CREATE SOURCE MICROPROGRAMS IN A FREE-FIELD FORMAT. FREE-FIELD INPUT IS CONVERTED TO FIXED-FIELD, PUNCHED PAPER TAPE OUTPUT WITH THE CORRECT FIELD FORMAT REQUIRED BY THE HP MICROASSEMBLER. INPUT IS ACCEPTED FROM RECORD-ORIENTED DEVICES

SUCH AS TELETYPE, CARD READER, OR PAPER TAPE READER. THE LOGICAL UNIT NUMBER OF THE INPUT DEVICE IS SPECIFIED BY THE USER.

HARDWARE REQUIREMENTS INCLUDE 12K AND HIGH-SPEED PAPER TAPE PUNCH, DOS-M OPERATING SYSTEM.



CONTRIBUTION #: 521  
 CLASS: 720  
 CONTRIBUTOR: NORMAN THOMPSON  
 TIES/MINN.

PART NUMBER: 22681-10910  
 PRICE: \$60  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

### COMPREHENSIVE ACHIEVEMENT MONITORING (CAM)

'CAM' IS A DOS-M PROGRAM DESIGNED TO GIVE TEACHERS AND STUDENTS INFORMATION FOR CLASSROOM DECISION MAKING. TEACHERS CAN TELL WHAT CORSE MATERIAL THEIR STUDENTS ALREADY KNOW AND WHAT MATERIAL THEY HAVE FORGOTTEN; WHICH STUDENTS NEED-SPECIAL HELP; AND WHICH EDUCATIONAL TECHNIQUES ARE MOST EFFECTIVE. TO USE 'CAM', TEACHERS PREPARE A LIST OF OBJECTIVES TO BE COVERED IN THE COURSE. EXAMS ARE GIVEN TO TEST OBJECTIVES. 'CAM' SCORES THE TESTS, PRINTS OUT REPORTS FOR STUDENTS AND TEACHER. SEVERAL DIFFERENT REPORTS CAN BE OUTPUT BY 'CAM'. THE TEACHER RECEIVES A SUMMARY REPORT SUMMARIZING GROUPS OF STUDENTS ON A SPECIFIC OBJECTIVE OR GROUP OF OBJECTIVES. A TEACHER CAN ALSO RECEIVE A TEST FORM EVALUSTION TO AID PROOFREADING TEST FORMS. IN ADDITION, 'CAM' CAN PRINT A STUDENT ANALYSIS WHICH LISTS THE UNITS COMPLETED BY THE SPECIFIED STUDENT AND THE PERCENTAGE OF QUESTIONS THIS STUDENT ANSWERED CORRECTLY ON PRE-TEST, POST-TEST, AND RETENTION MATERIAL. AN ITEM ANALYSIS IS AVAILABLE FOR USE IN ITEM OR CURRICULUM REVISION. 'CAM' IS A GOOD EXAMPLE OF AN ACHIEVEMENT MONITORING SYSTEM; HOWEVER, IT IS QUITE A COMPLEX SYSTEM. ENOUGH DOCUMENTATION IS PROVIDED WITH THE SOFTWARE TO RUN 'CAM', BUT ITS COMPLETE IMPLEMENTATION DEPENDS ON A QUALIFIED STAFF OF ANALYSIS.

HARDWARE CONFIGURATION PRESENTLY BEING USED TO RUN 'CAM' PROGRAMS INCLUDES: AN HP2000C SYSTEM, DOS-M OPERATING SYSTEM WITH 32K, HP 2883 DISC (23 MIL. BYTES), HP7970A MAGNETIC TAPE UNIT, HP 2767A LINE PRINTER, HP 2761A CARD READER, AND AN ASR-35 TTY. THE DISC IS DIVIDED INTO 4 SUBCHANNELS UNDER DOS-M. THE SYSTEM IS ON SUBCHANNEL 0, AND ALL 'CAM' PROGRAMS AND FILES EXCEPT ONE ARE CONTAINED ON SUBCHANNEL 1. SUBCHANNEL 2 NOT USED, AND SUBCHANNEL 3 IS USED FOR A NEW FILE COPIED TO MAG TAPE AFTER THE COMPLETION OF A 'CAM' RUN.

SPECIFY 800 OR 1600 BPI WHEN ORDERING.



CONTRIBUTION #: 522  
CLASS: 103  
CONTRIBUTOR: LARRY W. SMITH  
HP, DATA SYSTEMS DIV.

PART NUMBER: 22681-18911  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS,MTS,DOS-M,RTE

2100 BYTE MANIPULATION ROUTINES

THIS SET OF 8 FORTRAN, ALGOL, OR ASSEMBLY CALLABLE ROUTINES PROVIDE THE USER WITH STRING OR BYTE OPERATION CAPABILITY ON AN ARRAY. THEY PARALLEL MOST OF THE HP3000 HARDWARE INSTRUCTION CAPABILITIES AND OFFER THE USER MAXIMUM BYTE MANIPULATION. ALL ROUTINES ARE COMPLETELY MODULARIZED AND COMPRISE ONLY 295 DECIMAL WORDS OF STORAGE. THE ROUTINES INCLUDE LDB (LOAD BYTE) STB (STORE BYTE), SCU (SCAN BYTES UNTIL), SCW (SCAN BYTES WHILE), MVBU (MOVE BYTES UNTIL), MVBW (MOVE BYTES WHILE), CMPB (COMPARE BYTES).

HARDWARE REQUIREMENTS ARE 2114, 2115, 2116, 2100, OR 21MX COMPUTER SERIES.

ORDER #22681-13311 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 523  
CLASS: 20  
CONTRIBUTOR: JAMES D. REED  
HUGHES AIRCRAFT/TUCSON

PART NUMBER: 22681-18912  
PRICE: \$50  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE MICRO DEBUG EDITOR

'RTMDE' FACILITATES LOADING AND DEBUGGING A USERS WRITABLE CONTROL STORE (WCS) MICRO PROGRAM IN A REAL TIME EXECUTIVE (RTE) OPERATING SYSTEM. SPECIFICALLY IT ALLOWS A USER TO LOAD OR READ WCS; EXECUTE A MICROCODE PROGRAM WITH BREAKPOINTS THAT WILL DISPLAY THE FIRMWARE REGISTERS; AND GENERATE MASK TAPES THAT ARE USED TO PROGRAM PROM CHIPS.

RTMDE INCORPORATES ALL OF THE FEATURES OF THE DOS MICRO-DEBUG-EDITOR. A MINIMUM RTE CONFIGURATION WITH ONE OR MORE WCS MODULES ARE THE HARDWARE REQUIREMENTS.

ORDER #22681-13312 SOURCE CASSETTE PACKAGE \$140.00



CONTRIBUTION #: 524  
 CLASS: 14  
 CONTRIBUTOR: HARRY KLINE  
 INTERMEDIA SYSTEMS  
 CUPERTINO

PART NUMBER: 22681-18913  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

DVR44-RTE DVR FOR INTERMEDIA SYS.4406&4416 GRAPHIC VIDEO GEN

DVR 44 IS AN RTE DRIVER FOR THE INTERMEDIA SYSTEMS 4406 GRAPHIC VIDEO GENERATOR (HP 5662B) AND FOR THE INTERMEDIA SYSTEMS 4416 GRAPHIC VIDEO GENERATOR. AN RTE PROGRAM CAN CALL THE DRIVER TO DISPLAY GRAPHICAL INFORMATION VIA THE 4406/4416 GVG ON A VIDEO MONITOR. THE BASIC FUNCTIONS AVAILABLE IN THE DRIVER ARE: SET POINTS, CLEAR POINTS, ERASE SCREEN, AND SELECT VIDEO POLARITY.

HARDWARE REQUIREMENTS INCLUDE DMA; INTERMEDIA SYSTEMS 4406 OR 4416 GRAPHIC VIDEO GENERATOR; CONNECTOR AND 75 OHM COAXIAL CABLE ASSEMBLY; VIDEO MONITOR.

ORDER #22681-13313 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 525  
 CLASS: 20  
 CONTRIBUTOR: JAMES D. REED  
 HUGHES AIRCRAFT/TUCSON

PART NUMBER: 22681-18914  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

RTE ACTIVITY PROFILE GENERATOR

'RAPG' ACCUMULATES A SPECTRUM FROM THE P-REGISTER TO PROVIDE AN ACTIVITY PROFILE FOR PROGRAM TIMING ANALYSIS. THE ANALYSIS WILL INDICATE WHAT AREAS CAN BE MICROCODED OR RECORDED TO IMPROVE EXECUTION TIME.

THE CORE REGION OF INTEREST IS PARAMETER DEFINED WHEN 'RAPG' IS INVOKED. THE CORE AREA IS BROKEN UP INTO 50 CELLS PLUS 1 CELL ABOVE AND BELOW THE DEFINED AREA. CELLS ARE MAINTAINED IN COMMON SO THAT THEY MAY BE ACCESSED BY AN ANALYSIS PROGRAM.

HARDWARE REQUIREMENTS INCLUDE A MINIMUM RTE SYSTEM.

ORDER #22681-13314 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 526  
 CLASS: 20  
 CONTRIBUTOR: JAMES D. REED  
 HUGHES AIRCRAFT/TUCSON

PART NUMBER: 22681-18915  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

DVR 33 - RTE WRITE CONTROL STORE DRIVER

DVR 33 OPERATES UNDER CONTROL OF THE I/O CONTROL MODULE OF THE REAL-TIME-EXECUTIVE. THIS DRIVER PERFORMS THE FOLLOWING FUNCTIONS

BETWEEN A USER'S PROGRAM AND A WRITEABLE CONTROL STORE (WCS) MODULE:

1. WRITE UNCONDITIONALLY (BIT 10 SET IN CONTROL WORD OF THE EXEC CALL) AND SET (IN USE) FLAG.
2. WRITE ONLY IF (IN USE) FLAG IS NOT SET AND SET (IN USE) FLAG. IF (IN USE) FLAG IS SET, REJECT REQUEST.
3. READ FROM WCS MODULE INTO USER'S BUFFER.
4. RESET (IN USE) FLAG.

WRITE REQUESTS MAY BE MADE UNDER DMA CONTROL, READ REQUESTS ARE ALWAYS NON DMA.

STANDARD RTE IS THE HARDWARE REQUIREMENT FOR THIS DRIVER.

ORDER #22681-13315 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 527  
CLASS: 2  
CONTRIBUTOR: JIM SEVERS  
HP/NEELY ENGLEWOOD

PART NUMBER: 22681-18916  
PRICE: \$50  
DATE CODE:  
LANG: FTN II; ASSEMBLY RELO  
OP SYS: BCS, MTS

BCS TERMINAL COMMUNICATIONS VIA THE DIAL-UP PHONE NETWORK

THIS SET OF ROUTINES ALLOW TERMINAL COMMUNICATIONS IN A BCS ENVIRONMENT WHERE IT IS DESIRABLE TO BE ABLE TO CALL THE COMPUTER OR HAVE IT CALL YOU OVER THE DDD SWITCHED PHONE SYSTEM. THE PACKAGE CONSISTS OF TWO BCS DRIVERS FOR THE MODEM AND AUTO CALLING UNIT, A FORTRAN INTERFACE ROUTINE, AND A VERIFICATIONS ROUTINE. THE MODEM DRIVER IS A MODIFIED VERSION OF THE BCS TTY DRIVER WHICH HANDLES THE EXTENDED STATUS CHECKING REQUIRED WITH THE MODEM INTERFACE. SINCE THE ROUTINES WERE DESIGNED TO BE USED IN AN UNATTENDED DACE/BCS/BUFFERED IOC ENVIRONMENT, THE MODEM DRIVER GIVES IMMEDIATE COMPLETION FOR I/O CALLS MADE WHEN THE PHONE CONNECTION IS LOST. THIS ALLOWS FORTRAN READ/WRITE CALLS TO BE MADE WITHOUT THE DANGER OF HALTING THE COMPUTER IN THE FORMATTER.

EQUIPMENT REQUIRED IS HP 12587B, HP 12589A, TTY, 4K, BELL 103A3 OR EQUIVALENT, BELL 801A6, AND A TERMINAL WITH MODEM. IF AUTO CALL-OUT IS NOT REQUIRED, THE ACU (801) AND ITS INTERFERENCE (12589) MAY BE DELETED.



CONTRIBUTION #: 528  
CLASS: 217  
CONTRIBUTOR: GRANT HALLMAN  
HP, CANADA - ONTARIO

PART NUMBER: 22681-18917  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-IIIB

MUXT: ASCII MESSAGES VIA 12920 MULTIPLEXOR & LOGICAL DVR ATD01

THIS PROGRAM TRANSMITS AND RECEIVES ASCII MESSAGES VIA THE 12920 MULTIPLEXER AND LOGICAL DRIVER ATD01. IT OPERATES IN DOS-III B.

IT INTERACTS WITH THE OPERATOR WHO MAY SPECIFY MESSAGE TEXT, PART NUMBER, IN/OUTPUT AND TERMINAL TYPE. IT MAY ALSO BE USED WITH THE 12587 I/F AND AT001.

HARDWARE REQUIREMENTS INCLUDE MINIMUM DOS-IIIB AND 12920 OR 12587 INTERFACE.



CONTRIBUTION #: 529  
 CLASS: 108  
 CONTRIBUTOR: JOHN HAWKES  
 HP, DSD - CUPERTINO

PART NUMBER: 22681-18918  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-IIIB

### 3000 TO DOS-IIIB SOURCE FILE CONVERSION

THE PROGRAM 'RSTOR' READS AN HP 3000 STORE/RESTORE MAG TAPE CONTAINING SOURCE FILES (ARBITRARILY INTERMIXED WITH OTHER STORED FILES), PICKING UP ANY STORED FILE WITH A RECORD SIZE OF 40 WORDS OR LESS, AND CONVERTING THE FILE TO PROPER DOS-IIIB SOURCE FILE FORMAT. TRAILING BLANKS ON RECORDS WILL BE STRIPPED. THE FIRST FIVE CHARACTERS OF THE 3000 FILE NAME ARE USED AS THE DOS-IIIB FILE NAME. IN THE EVENT OF DUPLICATE FILE NAMES, THE PROGRAM INTERACTS WITH THE OPERATOR AT THE SYSTEM CONSOLE TO ASK FOR INSTRUCTIONS ABOUT PURGING THE EXISTING DOS-IIIB FILE OR RENAMING THE NEW FILE.

HARDWARE REQUIREMENTS INCLUDE BASIC DOS-IIIB WITH 7900/7901 DISC, AND MAG TAPE.



CONTRIBUTION #: 530  
 CLASS: 901  
 CONTRIBUTOR: J.B. MCALISTER  
 LTV AEROSPACE CORP.

PART NUMBER: 22681-18919  
 PRICE: \$20  
 DATE CODE:  
 LANG: FORTRAN II  
 OP SYS: MCS

### PERPETUAL CALENDAR

THIS PROGRAM WILL PRODUCE, ON THE TELETYPE, LINE PRINTER, OR OTHER I/O DEVICE, A CALENDAR FOR THE YEAR SPECIFIED BY THE USER. THIS PROGRAM ASKS FOR RESPONSES BY THE USER ON THE TELETYPE AND THESE RESPONSES ARE THEN USED TO PRODUCE THE DESIRED CALENDAR.

HARDWARE REQUIREMENTS FOR PERPETUAL CALENDAR ARE 4K AND TELETYPE.



CONTRIBUTION #: 531  
CLASS: 11  
CONTRIBUTOR: DAVID K. MEANS  
HP/PALO ALTO

PART NUMBER: 22681-18920  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M,DOS-III

DVR 12 FOR 9866A THERMAL LINE PRINTER

THIS DRIVER PRODUCES PAGE FORMATTED PRINT ON THE 9866A THERMAL LINE PRINTER, AUTOMATICALLY TAKING CARE OF PAPER FORMATTING, INTERPRETATION OF CONTROL REQUESTS, ETC. EACH PAGE OF PRINTING IS DELIMITED BY DOTTED LINES, WHICH SERVE AS CUTTING LINES WHEN THE PRINTOUT IS CUT INTO PAGES.

HARDWARE REQUIREMENT IS A GND-TRUE MICROCIRCUIT INTERFACE (12566B) USED TO CONNECT THE 9866A TO THE COMPUTER.



CONTRIBUTION #: 532  
CLASS: 8  
CONTRIBUTOR: GRANT HALLMAN  
HP/CANADA-ONTARIO

PART NUMBER: 22681-18921  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M

OPTOR: OPTIMIZE BCS SYSTEM BASE PAGE LINKS

THIS PROGRAM IS DESIGNED TO ASSIST PLANNING OF A BCS OR SIMILAR CONFIGURATION. GIVEN THE LAST WORD OF AVAILABLE MEMORY AND THE NAMES AND SIZES OF UP TO 8 DRIVERS, THIS PROGRAM WILL CALCULATE THE OPTIMUM ORDER IN WHICH THE DRIVERS SHOULD BE LOADED IN ORDER TO MINIMIZE THE NUMBER OF SYSTEM BASE PAGE LINKS REQUIRED.

THE PROGRAM IS DESIGNED TO RUN UNDER DOS-III BUT CAN BE EASILY MODIFIED FOR OTHER SYSTEMS. THE UPPER LIMIT OF 8 DRIVERS CAN ALSO BE INCREASED WITHOUT MUCH DIFFICULTY; HOWEVER, THE EXECUTION TIME WILL INCREASE PROPORTIONAL TO THE FACTORIAL OF THE NUMBER OF DRIVERS HANDLED. (APPROXIMATELY 5 MINUTES FOR 8.) THIS IS DUE TO THE FACT THAT THE PROGRAM TRIES ALL (N) PERMUTATIONS OF THE N DRIVERS IN ORDER TO REPORT THE BEST PERMUTATION. THE HARDWARE REQUIREMENTS ARE THE SAME AS FTN-4.



CONTRIBUTION #: 533  
CLASS: 106  
CONTRIBUTOR: LARRY W. SMITH  
HP/DATA SYSTEMS DIV.

PART NUMBER: 22681-18922  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: BCS,MTS,DOS-M,RTE

MEMORY TO PAPER TAPE ABL FORMAT

THIS 79<sub>10</sub> WORD ROUTINE DUMPS SELECTIVE POSITIONS OF CORE TO A PAPER TAPE DEVICE IN STANDARD ABL FORMAT. RECORDS ARE DUMPED IN FULL RECORD LENGTH (RL=377 ) WITH NO BLANK FEED FRAMES BETWEEN

RECORDS. THUS, NO TAPE IS WASTED AND PUNCHING SPEED IS INCREASED THE ROUTINE IS SELF-CONFIGURING AND CAN FIT INTO THE ABL REGION IF THE SELF-CONFIGURATION PART IS OMITTED.

EQUIPMENT REQUIREMENT IS A 2100 SERIES COMPUTER WITH 4K CORE OF STORAGE AND A TELETYPE.

ORDER #22681-13322      OSOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 534  
CLASS: 904  
CONTRIBUTOR: LARRY W. SMITH  
HP/DATA SYSTEMS DIV.

PART NUMBER: 22681-18923  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M, DOS-III, RTE

#### CERTIFICATE DRAFTING PROGRAM (CDP)

OPERATING IN A DOS-M, DOS-III, OR RTE ENVIRONMENT WITH AN HP7210 PLOTTER, THIS PROGRAM ALLOWS THE USER TO DESIGN AND PLOT COURSE GRADUATION CERTIFICATES, SIGNS, POSTERS, AND PROPOSALS. THE PROGRAM IS COMPLETELY OPERATOR ORIENTED, REQUIRING NO PRIOR KNOWLEDGE OF PROGRAMMING. A TOTAL OF 30 CONVERSATIONAL COMMANDS ARE AVAILABLE. THE PROGRAM CAN BE USED TO DRAW STRAIGHT LINES AS WELL AS TO PRINT CHARACTERS AT ANY ANGLE AND OFFSET. OTHER CAPABILITIES INCLUDE: AUTOMATIC HEADER CENTERING; FLOWCHART SYMBOL PLOTTING; VARIABLE CHARACTER HEIGHT; CHARACTER STRING PLOTTING; CHARACTER SHADING, TRACING, ANGLING, AND ROTATING; ALL COORDINATES ARE EXPRESSED IN INCHES OR METRIC UNITS; CONSOLE SESSION ACCOUNT; COMMAND BATCHING; UNLIMITED DESIGN APPLICATIONS; DYNAMIC LOGICAL UNIT ASSIGNMENT; PLOTTER VARIABLE FORMS. ADDITIONAL REQUIRED SOFTWARE IS THE PLOTTER LIBRARY (20810B), THE DOS PLOTTER DRIVER DVR 10 (20581A) OR RTE PLOTTER DRIVER DVR 10 (20581A) OR RTE PLOTTER DRIVER DVR 10 (72009A).

FOR COMPILATION AND EXECUTION 24K WORDS ARE REQUIRED. TWO DMA CHANNELS MUST BE AVAILABLE AND THE HP2767 LINE PRINTER IS RECOMMENDED.

ORDER #22681-13323      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #: 535  
CLASS: 14  
CONTRIBUTOR: PHILIP LOARD  
MEDICAL RESEARCH COUNCIL  
LONDON

PART NUMBER: 22681-18924  
PRICE: \$50  
DATE CODE:  
LANG: FTN II; ASSEMBLY RELO  
OP SYS: DOS-M

#### DOS-M TEKTRONIX 4010 DRIVER AND GRAPH PACKAGE

THIS PACKAGE CONSISTS OF THREE PARTS:

1. DVROO, A DOS-M SYSTEM DEVICE DRIVER FOR THE TEKTRONIX 4010 KEYBOARD DISPLAY. IN ADDITION TO ALL THE ASCII INPUT/OUTPUT FACILITIES OF THE DOS-M SYSTEM TELETYPE



DRIVER, THIS DRIVER FULLY EXPLOITS THE GRAPHICS AND CURSOR-POSITION INPUT FACILITIES OF THE 4010 BY THE USE OF BINARY READ/WRITE EXEC CALLS. DATA PAIRS SPECIFYING THE X AND Y COORDINATES BETWEEN WHICH LINES ARE TO BE DRAWN CAN BE PACKED IN SINGLE WORDS OR UNPACKED IN TWO WORDS, EITHER LEFT OR RIGHT JUSTIFIED. THE X COORDINATE CAN BE SUPPLIED, OR IMPLIED VALUES STARTING FROM ZERO AND INCREMENTED BY ONE CAN BE USED. CONTROL CALLS ARE USED TO ERASE THE SCREEN; RESET THE ASCII SCREEN POSITION TO THE TOP LEFT; OUTPUT A SERIES OF LINE FEEDS, LINE BACKUPS, SPACES FORWARD AND BACKWARDS; UNDERLINE; AND ACTIVATE THE HARD COPY UNIT AND ALTERNATIVE CHARACTER SETS.

2. TWO FORTRAN PROGRAMS AND SUBROUTINES TO TEST THE FACILITIES OF DVR00.
3. A SET OF FORTRAN SUBROUTINES, BASED ON CALCOMP ROUTINES, EXPLOITING DVR00. THESE ROUTINES ALLOW THE USER TO SORT AND SCALE DATA, PRODUCE GRAPHS AND DRAW HISTOGRAMS ON THE 4010.

THE DRIVER AND SUBROUTINES WILL OPERATE IN A MINIMUM DOS-M ENVIRONMENT.



CONTRIBUTION #: 536

CLASS: 107

CONTRIBUTOR: BARBARA BOWERS  
HP, DATA SYSTEMS DIV.

PART NUMBER: 22681-10925

PRICE: \$35

DATE CODE:

LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

#### RTE DISC FILE SORT (DSORT)

'DSORT' IS AN EXTERNAL SUBROUTINE DESIGNED TO SORT LARGE FILES ON DISC IN OPTIMUM TIME. INPUT TO 'DSORT' CAN BE FROM DISC, PAPER TAPE, MAGNETIC TAPES, OR CARDS; AND THE MAXIMUM INPUT RECORD LENGTH MUST BE LESS THAN OR EQUAL TO 64 WORDS. AN OPTION IS AVAILABLE TO WRITE THE SORTED OUTPUT FILE OVER THE INPUT FILE. FILES ARE SORTED IN ASCENDING ORDER ON ONLY ONE FIELD.

'DSORT' LINKS TO A CORE SORT SUBROUTINE, 'QSORT', TO SORT SEGMENTS OF THE INPUT FILE, AND PERFORMS TWO-WAY MERGES ON THE SORTED SEGMENTS. 'QSORT' IS INCLUDED IN THIS PACKAGE AND IS ALSO AVAILABLE SEPARATELY AS HP 22644.

THE ONLY HARDWARE REQUIREMENTS ARE A MINIMUM RTE SYSTEM WITH A DISC OR VRC DRUM. 'DSORT' IS CALLABLE FROM ASSEMBLY LANGUAGE.

ORDER #22681-13325

SOURCE CASSETTE PACKAGE

\$70.00



CONTRIBUTION #: 537  
 CLASS: 109  
 CONTRIBUTOR: BOB ALLEY  
 HP, PALO ALTO

PART NUMBER: 22681-18926  
 PRICE: \$30  
 DATE CODE:  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

## DOS-M UTILITY PROGRAM GROUP

THIS PACKAGE CONSISTS OF SEVERAL GENERAL PURPOSE DOS-M UTILITY PROGRAMS AND SUBROUTINES. IT WAS DESIGNED MAINLY AS A CONVENIENT TOOL FOR MOVING FILES FROM ONE I/O DEVICE TO ANOTHER (CARD READER, LINE PRINTER, MAGNETIC TAPE, DISC, EFMP DISC). IN ADDITION IT PROVIDES THE FOLLOWING MAGNETIC TAPE CAPABILITIES: FILE ANALYSIS, FILE SAMPLING, ASCII/EBCDIC CONVERSION, FILE/RECORD POSITIONING, REWIND, AND TAPE-MARK WRITE.

SPECIAL SUBROUTINES ARE USED TO ACCOMPLISH THE ABOVE CAPABILITIES. THESE SUBROUTINES CAN ALSO BE INCORPORATED INTO USER PROGRAMS TO PERFORM LOGICAL READ/WRITE OF BLOCKED MAGNETIC TAPE FILES, LOGICAL READ/WRITE OF DISC FILES, AND ASCII/EBCDIC CHARACTER SET CONVERSION.

THE NECESSARY HARDWARE REQUIREMENTS INCLUDE A DOS-M WITH 16K, TELETYPE, CARD READER, HP 7900 DISC DRIVE, LINE PRINTER, AND AN HP3030 MAGNETIC TAPE UNIT. FOR CERTAIN FUNCTIONS A SECOND HP3030 (MAG TAPE TO MAG TAPE COPY) OR EFMP (EFMP FILE COPY) IS ALSO REQUIRED.



CONTRIBUTION #: 538  
 CLASS: 17  
 CONTRIBUTOR: WESLEY R. WHITE  
 UNIVERSITY OF KANSAS

PART NUMBER: 22681-18927  
 PRICE: \$70  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SID

## EXTENDED OFFLINE RELOCATING LOADER (SALOD)

SALOD HAS THE CAPABILITIES OF THE BCS LOADER, HP 22018, AND OF THE CONTRIBUTED OFFLINE RELOCATING LOADER, HP 22297, FOR GENERATING PUNCHED TAPE IN ABSOLUTE BINARY FORMAT FROM RELOCATABLE OBJ. CODE PRODUCED BY THE HP FORTRAN COMPILER AND HP ASSEMBLER. ALSO, SALOD HAS CAPABILITIES TO EFFECT THE MORE EXTENSIVE INTER-PROGRAM LINKAGE REQUIRED IN THE LOADING OF RELOCATABLE OBJECT CODE PRODUCED BY THE CONTRIBUTED SA-1 SYMBOLIC MACRO ASSEMBLER, HP 22385. THE EXTENSIONS REQUIRED TO HANDLE SA-1 OBJ CODE INCLUDE ADDING (ABSOLUTE) AND (COMMON) TO THE PERMISSIBLE RELOCATION TYPES; PERMITTING USE OF EXTERNAL REFERENCES IN I/O INSTRUCTIONS; AND PERMITTING USE OF EXTERNAL REFERENCES IN MEMORY REFERENCE INSTRUCTIONS WHICH ARE INDIRECT OR INCLUDE AN OFFSET, OR BOTH. THE SECOND EXTENSION IS PARTICULARLY CONVENIENT IN PREPARATION OF DRIVERS SINCE THE LOADER IS ABLE TO CONFIGURE THE I/O INSTRUCTIONS STATICALLY, AND CONFIGURATION CODE DOES NOT HAVE TO BE INCLUDED IN THE DRIVER. INCLUDED IN THIS PKG IS A VERSION OF IOC AND A SAMPLE EQUIP. TABLE (EQT), BOTH WRITTEN IN SYMBOLIC MACROASSEMBLER LANGUAGE. WITH THESE TWO ROUTINES USER PROGRAMS LOADED BY SALOD CAN USE THE STD BCS LIBRARY, INCL, THE FORMATTER. THE MODIFIED

IOC IS COMPLETELY INDEPENDENT OF THE PREPARE CONTROL SYS, WHILE EQT CONTAINS ALL INFO PERTAINING TO A PARTICULAR INSTALLATION WHICH WOULD HAVE BEEN ENTERED INTO PCS IF ONE WERE USING THE STD BCS LOADER. AN APPROPRIATE VERSION OF EQT IS LOADED BY SALOD AT THE TIME AN ABSOLUTE TAPE OF A RELOCATABLE PROGRAM IS MADE. THIS ABSOLUTE TAPE CAN THEN BE LOADED AND EXECUTED ON AN HP2100 SERIES COMPUTER WITH A DIFFERENT CONFIGURATION FROM THE ONE WHICH GENERATED IT. SALOD OPERATES IN AN 8K SID ENVIRONMENT, BUT COULD BE MODIFIED TO RUN IN 4K WITH A CORRESPONDINGLY SMALLER AMT OF MEMORY AVAILABLE FOR CONSTRUCTION OF THE LOADER SYMBOL TABLE AND FINISHING TABLE. THE COMPUTER FOR WHICH THE ABSOLUTE TAPE IS PREPARED, THE TARGET COMPUTER, CAN BE OF ANY MEMORY SIZE. A VARIABLE BOUNDS OVERLAY, INCL. IN THIS PKG, PERMITS ENTRY OF MEMORY BOUNDS OF THE TARGET COMPUTER FROM THE KEYBOARD.



CONTRIBUTION #: 539  
 CLASS: 18  
 CONTRIBUTOR: BOB FUNK  
 HP, SOUTHERN SALE REGION

PART NUMBER: 22681-18928  
 PRICE: \$100  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SID

#### 21MX PAPER TAPE ASSEMBLER

THIS IS A PAPER TAPE BASED ASSEMBLER FOR THE HP 21MX COMPUTER SERIES. IT IS A USABLE SUBSET OF THE DOS 21MX ASSEMBLER. ALL INSTRUCTIONS FROM THE 21MX COMPUTER REFERENCE MANUAL HAVE BEEN IMPLEMENTED. THE ASSEMBLER WILL GENERATE BOTH RELOCATABLE AND ABSOLUTE CODE. THE ASSEMBLER OPERATES WITH STANDARD SID DRIVERS IN ANY 2100 SERIES COMPUTER WITH A MINIMUM OF 8K MEMORY AND A TELETYPE.

HARDWARE REQUIREMENTS ARE AN 8K 2100 SERIES COMPUTER AND TELETYPE. ALTHOUGH ASSEMBLER WILL RUN ON ANY 2100 SERIES COMPUTER, IT SHOULD BE USED ONLY TO GENERATE CODE FOR USE ON THE 21MX SERIES. FLOATING POINT INSTRUCTIONS WILL ALWAYS BE GENERATED AND MANY 21MX CODES ARE ILLEGAL ON OTHER 2100'S.



CONTRIBUTION #: 540  
 CLASS: 3  
 CONTRIBUTOR: ELLIS COHEN  
 HP, PALO ALTO

PART NUMBER: 22681-10929  
 PRICE: \$75  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

#### RTE UTERM-CDC 200 USER TERMINAL SIMULATOR

'UTERM' SIMULATES THE ACTIONS OF THE CDC 200 USER TERMINAL ON AN HP2100 SERIES COMPUTER RUNNING UNDER THE REAL-TIME HP 12618 SYNCHRONOUS COMMUNICATIONS INTERFACE CARDS IS AN INTEGRAL PART OF THE PROGRAM. GENERAL-PURPOSE COPY AND TAPE-MANIPULATION UTILITY ROUTINES ARE INCLUDED. PERIPHERALS REQUIRED FOR NORMAL OPERATION ARE A LINE PRINTER, CARD READER, AND THE SYSTEM CONSOLE (TTY, CRT, ETC.).

THE MINIMUM CONFIGURATION NECESSARY TO SUPPORT RTE IS ADEQUATE FOR THIS PROGRAM (IT REQUIRES 7K = DECIMAL = OF MEMORY). A CARD READER AND A LINE PRINTER CONSIDERABLY SPEED UP THE EFFECTIVE DATA TRANSMISSION RATE, IF AVAILABLE. MAGNETIC TAPE CAN BE HANDLED BY THE PROGRAM, IF THE DRIVE(S) ARE PRESENT.

ORDER #22681-1-13329

SOURCE ON CASSETTE

\$35.00



CONTRIBUTION #: 541

CLASS: 17

CONTRIBUTOR: FRANK SLOOTWEG  
BOB VAN RANDERAAT  
HP/AMSTERDAM

PART NUMBER: 22681-18931

PRICE: \$40

DATE CODE:

LANG: FTN IV/ASMB REL & AB  
OP SYS: BCS,DOS-M

## ROUTINES FOR SWITCHING BETWEEN DOS-M AND BCS

THIS PACKAGE CONTAINS THREE SUBROUTINES WHICH ALLOW THE USER TO SWITCH AUTOMATICALLY FROM DOS-M TO BCS AND BACK AGAIN. THE PACKAGE WAS DEVELOPED TO TAKE ADVANTAGE OF THE FEATURES OF BOTH OPERATING SYSTEMS, E.G.:

BCS: INSTRUMENT HANDLING, EFFICIENT I/O, ETC.

DOS-M: DATA REDUCTION, SEGMENTING OF PROGRAMS, MASS STORAGE,  
FILE MANAGEMENT, ETC.

- THE SUBROUTINE BCS CAN BE CALLED FROM A DOS-M USER PROGRAM. IT DUMPS THE CURRENT CONTENTS OF THE WHOLE CORE ON DISC. IT THEN LOADS A CORE-IMAGE OF A BCS SYSTEM (INCLUDING USER PROGRAM) FROM DISC INTO CORE AND STARTS EXECUTING THE BCS USER PROGRAM.
- THE SUBROUTINE DOS-M CAN BE CALLED AT THE END OF THE BCS USER PROGRAM. IT LOADS THE DOS-M CORE IMAGE BACK INTO CORE AND CONTINUES THE ORIGINAL DOS-M PROGRAM.
- THE PROGRAM DIBBL DOES THE ACTUAL DUMPING/LOADING.
- THE WHOLE OPERATION IS COMPLETELY AUTOMATIC AND REQUIRES NO OPERATOR INTERVENTION.

ALSO INCLUDED IN THIS PACKAGE IS AN HP 7900A/7901A FORTRAN-CALLABLE CARTRIDGE DISC DRIVER (DISDR) FOR USE UNDER BSC. THIS DRIVER WAS ORIGINALLY WRITTEN FOR THE HP 2070A DISC BY STEVEN A. STARK OF THE HP EASTERN SALES REGION (PROGRAM 22258) AND WAS MODIFIED FOR THE 7900A/7901A BY ERICH TASCHNER, DIETER SCHMIDTKE, KLAUS-D. KLEIN AND WERNER BUSCH OF HP FRANKFURT.

ORDER #22681-10931	800	BPI	SOURCE	MAG	TAPE	PACKAGE	\$35.00
ORDER #22681-11931	1600	BPI	'	'	'	'	\$35.00







CONTRIBUTION #: 546  
CLASS: 10  
CONTRIBUTOR: H.F. LETTS  
HP/HOUSTON

PART NUMBER: 22681-18936  
PRICE: \$30  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-IIIB

026/029 DRIVER 15

DVR 15 ALLOWS THE DOS, DOS-M, AND DOS-III USER TO READ CARDS PUNCHED IN EITHER '026' OR '029' CARD CODE ON AN HP7261A CARD READER. THE DESIRED CARD CODE CAN BE SET BY EITHER AN I/O CONTROL CALL TO THE EXEC OR BY USING THE \$EX36 USER'S EXEC MODULE INCLUDED IN THIS PACKAGE.

THRU \$EX35, THE USER WOULD ENTER:

' :EA,026'

. OR

' :EA,029'

TO SELECT THE CARD CODE DESIRED. ALSO, BY PATCHING THE COMMAND MNEMONIC TABLE IN 'JOBPR' THE USER CAN CHANGE 'EA' TO 'IB'. THESE DIRECTIVES ARE AVAILABLE TO EITHER THE CONSOLE OR BATCH STREAM.

(UNDER DOS-IIIB REV 1419 THIS LOCATION IS JOBPR + 1175R, OR THE 126TH WORD OF THE 5TH SECTOR OF JOBPR.)

HARDWARE REQUIREMENTS INCLUDE: STANDARD DOS OR DOS-M WITH 7261A.



CONTRIBUTION #: 547  
CLASS: 720  
CONTRIBUTOR: GARY GRAHAM  
HP/CANADA, ONTARIO

PART NUMBER: 22681-18937  
PRICE: \$20  
DATE CODE:  
LANG: FYN IV;ASMB,RELOC  
OP SYS: DOS-M,DOS-III

DOS-M MARK SENSE EDUCATIONAL TEST SCORING PROGRAM

THIS PROGRAM WILL READ HP 9320-2062 EDUCATIONAL TEST SCORING MARK SENSE CARDS, CALCULATE AND PRINT INDIVIDUAL STUDENT SCORES, AND THE OVERALL CLASS STATISTICS.

THE FIRST CARD READ CONTAINS THE CORRECT ANSWERS, AND EACH ADDITIONAL CARD IS GRADED AGAINST THAT MASTER CARD. INCORRECT ANSWERS FOR EACH STUDENT ARE TABULATED, AS WELL AS THE NUMBER OF TIMES EACH ANSWER IS CHOSEN FOR EACH MULTIPLE CHOICE QUESTION.

THE PROGRAM IS A MODIFICATION OF THE CONTRIBUTED PACKAGE (A720) 22266A.

HARDWARE REQUIREMENTS FOR THIS PROGRAM INCLUDE: 8K DOS-M; 2761 CARD READER; OR 7261 CARD READER.



CONTRIBUTION #: 548  
 CLASS: 220  
 CONTRIBUTOR: JAMES D. REED  
 HUGHES AIRCRAFT/TUCSON

PART NUMBER: 22681-18938  
 PRICE: \$50  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: RTE

#### RTE MICROASSEMBLER FOR WCS

'AMWCS' IS A WRITABLE CONTROL STORE, MICROCODE ASSEMBLER WHICH OPERATES UNDER CONTROL OF THE REAL-TIME EXECUTIVE OPERATION SYSTEM.

MICROCODE ASSEMBLY SOURCE MAY BE INPUT FROM ANY LOGICAL UNIT NUMBER (PAPER TAPE, CARDS, ETC.), LOGICAL SOURCE (LS) TRACKS OR FROM A FILE MANAGER PACKAGE (FMP) FILE. MICROCODE OUTPUT FROM THE ASSEMBLER MAY BE TO ANY OUTPUT LOGICAL UNIT OR TO AN FMP FILE.

SOURCE LANGUAGE INPUT FORMAT, LIST FORMAT AND MICROCODE OUTPUT FORMAT ARE HP STANDARD AS OUTLINED IN THE HP MICRO-PROGRAMMING MANUALS

HARDWARE REQUIREMENTS FOR 'AMWCS' INCLUDE: STANDARD RTE CONFIGURATION WITH A MINIMUM OF 8.5K BACKGROUND.

ORDER #22681-10938	800 BPI SOURCE MAG TAPE PACKAGE	\$60.00
ORDER #22681-11938	1600 BPI ' '	\$60.00
ORDER #22681-13338	SOURCE CASSETTE PACKAGE	\$105.00



CONTRIBUTION #: 549  
 CLASS: 6  
 CONTRIBUTOR: GRANT SUMMERS  
 HP/COLORADO SPRINGS

PART NUMBER: 22681-18939  
 PRICE: \$30  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

#### RTE 4271A 1MHZ DIGITAL LCR METER

RTE DRIVER 62 (DVR62) OPERATES THE 4271A 1MHZ DIGITAL LCR METER CONFIGURED WITH OPTIONS 1 AND 5. THE DRIVER OPERATES UNDER CONTROL OF THE I/O MODULE OF THE REAL TIME EXECUTIVE (RTE). DVR62 IS LINKED TO BY MEANS OF THE FORTRAN CALLS SETLC AND MEALC, WHICH CONTROL THE 4271A. THESE CALLS PERFORM AUTOMATIC PROGRAMMING OF THE RANGE, FUNCTION, AND BIAS VOLTAGE AND AUTOMATIC MEASURING OF THE CAPACITANCE-INDUCTANCE AND CONDUCTANCE-RESISTANCE-DISSIPATION FACTOR VALUES. THIS DRIVER HAS BEEN USED IN CONJUNCTION WITH TEST PROGRAMS TO CONTROL I/C PROCESSING BY DETERMINATION OF THE DOPING PROFILE DENSITIES IN SEMICONDUCTOR DEVICES.



THE 12566B MICROCIRCUIT INTERFACE KIT WITH NO OPTIONS IS REQUIRED TO INTERFACE THE 4271A TO THE HP2100.

ORDER #22681-13339 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 550  
CLASS: 706  
CONTRIBUTOR: BART DEKKER  
HP/NEW ZEALAND

PART NUMBER: 22681-18940  
PRICE: \$20  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-III

PAYROLL PACKAGE

THIS PAYROLL PACKAGE USES IMAGE-8 FILE STRUCTURE. THE EMPLOYEE RECORD FILE, COIN AND NOTE ANALYSIS FILE AND PAYROLL TOTALS FILE ARE (SET-UP), USING THE IMAGE SCHEMA APPROACH. THIS PROVIDES EASE OF ACCESS TO THE FILES ON DISC AND ALLOWS FOR A VARIETY OF REPORTS TO BE WRITTEN USING (QUERY) REPORT GENERATOR. NO REPORTS AS SUCH ARE INCLUDED IN THIS PACKAGE, BUT ANYONE FAMILIAR WITH QUERY REPORT FACILITIES CAN WRITE THESE REPORTS USING THE SCHEMA AS SET OUT IN THIS PACKAGE.

HARDWARE REQUIREMENTS INCLUDE 24K CORE, HIGH SPEED READER; TTY; DMA; AND 7900 DISC.  
DOS-III OPERATING SYSTEM.



CONTRIBUTION #: 551  
CLASS: 8  
CONTRIBUTOR: BRAIN JOHNSON  
UNIV. OF TEXAS AT DALLAS

PART NUMBER: 22681-18941  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: MTS,SIO

CASSETTE PREPARE TAPE SYSTEM

CASSETTE PREPARE TAPE SYSTEM IS IDENTICAL IN PURPOSE WITH PREPARE TAPE SYSTEM HP 24016A WITH THE EXCEPTION THAT INPUT MAY BE TAKEN OPTIONALLY FROM CASSETTE MAGNETIC TAPE OR FROM PAPER TAPE AND 'CPTS' MAY BE INCLUDED ON FILE 1 OF THE SYSTEM TAPE AND USED TO ADD PROGRAMS TO THE SYSTEM TAPE WILL STILL UNDER CONTROL BY MTS.

HARDWARE REQUIREMENTS INCLUDE 8K, TTY, DICOM MODEL 344 CASSETTE MAGNETIC TAPE TRANSPORT AND INTERFACE, 7 OR 9 TRACK MAG TAPE AND INTERFACE AND DMA IF REQUIRED BY SIO DVR.



CONTRIBUTION #: 552  
 CLASS: 16  
 CONTRIBUTOR: BRIAN JOHNSON  
 UNIV. OF TEXAS AT DALLAS

PART NUMBER: 22681-18942  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SIO

#### 8K SIO CASSETTE DRIVER

THE 8K SIO CASSETTE DRIVER PROVIDES TTY KEYBOARD AND PRINT DRIVERS AND CASSETTE MAGNETIC TAPE READ, WRITE, WRITE FILE MARK, AND REWIND DRIVERS FOR THE DICOM MODEL 344 CASSETTE TAPE TRANSPORT. THE DRIVER MAY BE CONFIGURED FOR TTY INPUT/OUTPUT THROUGH EITHER DECK 0 OF THE TAPE TRANSPORT OR THROUGH A SEPARATE BUFFERED INTERFACE BOARD. CONFIGURATION ALSO PERMITS THE SUBSTITUTION OF A LINE PRINTER FOR THE TTY PRINT FUNCTION AND/OR A PHOTOREADER FOR THE CASSETTE READ FUNCTION.

THE DRIVER OCCUPIES THE SAME SPACE AS THE USUAL FOUR PAPER TAPE SIO DRIVERS.

HARDWARE REQUIREMENTS INCLUDE 8K AND TTY; DICOM MODEL 344 CASSETTE MAG TAPE TRANSPORT AND INTERFACE. DECK 0 TTY OPTIONS REQUIRED ONLY IF DESIRED TO USE THE DECK 0 FEATURES.



CONTRIBUTION #: 553  
 CLASS: 903  
 CONTRIBUTOR: RON GUYOTE  
 HP, HOUSTON  
 TEXAS

PART NUMBER: 22681-18943  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASMB RELOC/FTN IV  
 OP SYS: DOS-M

#### PING-PONG

PLAYS PING-PONG USING THE 2100 SWITCH REGISTER TO DISPLAY THE BALL PATH AND USING BITS (0) AND (15) AS PADDLE POSITIONS. THE (BALL) SPEEDS UP OR SLOWS DOWN, DEPENDING ON WHETHER IT WAS MISSED OR RETURNED, AND THE SCORE IS KEPT ON THE SYSTEM CONSOLE.

HARDWARE REQUIREMENTS INCLUDE DOS-M SYSTEM AND A BCS LOAD AS OPTIONAL, ALLOWING THIS PROGRAM TO BE RUN IN 4K WITH A TTY.



CONTRIBUTION #: 554  
 CLASS: 2  
 CONTRIBUTOR: JOHN HAWKES  
 HP/DATA SYSTEMS DIV.

PART NUMBER: 22681-18944  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M, DOS-III

#### MODIFIED DOS-III SYSTEM CONSOLE DRIVER (DVR05)

THE PROGRAM IS SIMILAR IN NATURE TO THE OFFICIAL DVR05, WITH THE FOLLOWING MODIFICATIONS MADE IN ORDER TO PROVIDE COMPATIBILITY WITH HP3000 TERMINALS.

1. THE USER SIGNALS COMPLETION OF AN INPUT LINE BY TYPING CARRIAGE RETURN ONLY. THE DRIVE ECHOES THE CARRIAGE RETURN AND ALSO OUTPUTS A LINEFEED.
2. BOTH CONTROL/A AND CONTROL/H DELETE SINGLE CHARACTERS ON INPUT. THE DRIVER OUTPUTS A BACK-SLASH (OCTAL 134) FOR EACH CHARACTER DELETED.
3. BOTH RUBOUT AND CONTROL/X DELETE AN ENTIRE INPUT LINE. THE DRIVER OUTPUTS THREE EXCLAMATION MARKS, FOLLOWED BY A CARRIAGE RETURN AND LINEFEED.

THIS DRIVER WILL FUNCTION SIMILARLY TO THE ORIGINAL DVR05, THEREFORE IT CAN HANDLE ALL TERMINALS SUPPORTED BY THE ORIGINAL.



CONTRIBUTION #: 555  
CLASS: 112  
CONTRIBUTOR: FRANK J. WILSON  
MONTANA STATE UNIV.

PART NUMBER: 22681-18945  
PRICE: \$40  
DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

SFRFD: CONVERTS STRING OF ASCII CHAR. INTO ASCII AND/OR INTEG. FIELD

SUBROUTINE 'SFRFD' IS A FORTRAN CALLABLE, RELOCATABLE ASSEMBLY LANGUAGE ROUTINE WHICH CAN CONVERT A STRING OF ASCII CHARACTERS INTO ASCII AND/OR INTEGER FIELDS. OPTIONALLY IT WILL ALSO READ THE ASCII STRING VIA A DOS-M EXEC CALL FROM A DEVICE WHOSE LOGICAL UNIT NUMBER IS SPECIFIED IN ONE OF THE ARGUMENTS. ALSO PASSED AS ARGUMENTS INTO THIS ROUTINE IS AN ARRAY SPECIFYING THE TYPE AND LENGTH OF FIELDS BETWEEN DELIMITERS, THE SIZE OF THE INPUT BUFFER, AND THE DELIMITER SEPARATING THE INTEGER AND/OR ASCII FIELDS. SUBROUTINE 'SFRFD' ALSO CHECKS FOR ILLEGAL INTEGERS AND INTEGER OVERFLOW.

HARDWARE REQUIREMENT FOR 'SFRFD' IS A MINIMUM DOS-M.



CONTRIBUTION #: 556  
CLASS: 8  
CONTRIBUTOR: BRIAN JOHNSON  
UNIV. OF TEXAS AT DALLAS

PART NUMBER: 22681-18946  
PRICE: \$20  
DATE CODE:  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: SIO

8K CASSETTE SIO DUMP

THE 8K CASSETTE SIO DUMP SERVES THE SAME PURPOSE AS THE NORMAL SIO DUMP BUT IS INTENDED FOR USE WITH THE 8K SIO CASSETTE DRIVER TO WRITE THE DUMP FILE ONTO CASSETTE TAPE RATHER THAN PAPER TAPE.

HARDWARE REQUIREMENTS ARE 8K; TTY; DICOM MODEL 344 CASSETTE MAGNETIC TAPE TRANSPORT AND INTERFACE.



CONTRIBUTION #: 557  
 CLASS: 6  
 CONTRIBUTOR: CARL M. SCOTT  
 ARNOLD AIR FORCE STATION  
 TENNESSEE

PART NUMBER: 22681-18947  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

SCIENTIFIC PROGRAMMER:BCD BINARY CONVERSION SUBROUTINE

THIS BCD BINARY CONVERSION SUBROUTINE CONVERTS A FOUR DIGIT BCD NUMBER TO BINARY USING ONLY TWO MULTIPLES. THE ROUTINE RETURNS ANSWER IN THE SAME ARGUMENT. EACH DIGIT IS CONSIDERED TO BE FOUR BITS.

THE HARDWARE REQUIREMENT IS 4K AND A TTY.



CONTRIBUTION #: 558  
 CLASS: 22  
 CONTRIBUTOR: DAVE CONKLIN  
 HP/SANTA CLARA

PART NUMBER: 22681-18948  
 PRICE: \$30  
 DATE CODE:  
 LANG: ALGOL  
 OP SYS: RTE

RTE RELOCATABLE EDITOR

THIS ALGOL PROGRAM PROVIDES A CAPABILITY FOR RELOCATABLE OBJECT LIBRARIES WHICH ARE ANALOGOUS TO THAT PROVIDED BY THE RTE EDITOR FOR SOURCE FILES. THE PROGRAM RUNS IN AN RTE ENVIRONMENT; IT EXPECTS TO FIND THE INPUT LIBRARY AND EDIT FILES ON DISC IN RTE FILE MANAGER FILES AND IT PRODUCES A RELOCATABLE LIBRARY AS OUTPUT WHICH IS PLACED IN AN RTE FILE MANAGER FILE.

IN ADDITION TO MODIFICATION OF AN EXISTING RELOCATABLE LIBRARY, LIBRARY EDITOR PROGRAM ALSO PROVIDES CAPABILITIES FOR CREATING A NEW RELOCATABLE LIBRARY AND FOR LISTING THE CONTENT OF A RELOCATABLE LIBRARY.

HARDWARE REQUIREMENTS ARE 24K CORE AND A DISC. IN ADDITION, LOGICAL UNIT 1 IS ASSUMED TO BE THE SYSTEM TERMINAL, LOGICAL UNIT 6, THE LINE PRINTER OR OTHER HARD COPY DEVICE AND LOGICAL UNIT 5 IS ASSUMED TO BE THE PHOTOREADER.

ORDER #22681-13348 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 559  
 CLASS: 212  
 CONTRIBUTOR: JOHN HAWKES  
 HP/DATA SYSTEMS DIV.

PART NUMBER: 22681-18949  
 PRICE: \$20  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-III

DOS-III ACTIVITY PROFILE GENERATOR (ACP)

THIS SET OF SUBROUTINES IS USED TO GENERATE AN ACTIVITY PROFILE OF A SECTION OF CODE, USEFUL FOR LOCATING THOSE GROUPS OF INSTRUCTIONS WHICH ARE HEAVY USERS OF CPU TIME AND THUS

CANDIDATES FOR OPTIMIZATION. ACP USES A SPECIFIED DEVICE (TBG, PHOTOREADER READING AN (ENDLESS) LOOP OF TAPE, PUNCH, ETC.) TO GENERATE A SEQUENCE OF INTERRUPTS, WHICH ARE HANDLED BY AN ACP INTERRUPT ROUTINE OUTSIDE OF DOS-III. AS EACH INTERRUPT OCCURS, THE INTERRUPT ROUTINE USES THE POINT-OF-INTERRUPTION TO BUILD A TABLE OF INSTRUCTION ACTIVITY.

THE USER IS REQUIRED TO MODIFY A PROGRAM OF INTEREST BY INSERTING TWO SUBROUTINE CALLS TO BRACKET THE SAMPLING INTERVAL: THE FIRST TO INTERACTIVELY INITIALIZE THE PARAMETERS AND INITIATE THE INTERRUPTS, AND THE SECOND TO TERMINATE THE SAMPLING, RESTORE THE DEVICE TO DOS-III CONTROL, AND OUTPUT THE STATISTICAL INFORMATION GATHERED.

ACP QUERIES THE USER TO SPECIFY THE MINIMUM INSTRUCTION ADDRESS OF INTEREST (PMIN), THE RESOLUTION (I.E., THE SIZE OF EACH RANGE WITHIN THE TABLE), AND THE SELECT CODE OF THE DEVICE TO BE USED FOR THE INTERRUPTS. THE TOTAL RANGE OF THE TABLE IS  $PMIN + 128 * RESOLUTION$  WORDS.

EQUIPMENT REQUIREMENTS FOR ACP INCLUDE A TIME-BASE GENERATOR, PHOTOREADER, OR PUNCH PLUS THE MINIMUM DOS-III HARDWARE (WITH EAU).



CONTRIBUTION #: 560  
CLASS: 905  
CONTRIBUTOR: HAN PARK  
HP/DATA SYSTEMS DIV.

PART NUMBER: 22681-18950  
PRICE: \$50  
DATE CODE:  
LANG: FORTRAN IV  
OP SYS: DOS-M, DOS-III

#### DYNAMIC LOAD OF FAST FORTRAN PROCESSOR TO WCS

THIS PACKAGE ALLOWS THE DOS-M/DOS-III USER TO DYNAMICALLY LOAD THE FAST FORTRAN PROCESSOR (FFP) TO WCS. THE PACKAGE CONSISTS OF TWO I/O UTILITY PROGRAMS, THE DOS WCS I/O UTILITY ROUTINE (HP 24333), THE FFP SOURCE FOR CONTROL STORE MODULES #2 AND #3, AND AN FFP OVERLAY ROUTINE.

ONE UTILITY PROGRAM READS A BINARY PAPER TAPE OF FFP AND STORES IT INTO A DISC FILE. FFP FOR MODULES #2 AND #3 ARE STORED IN TWO SEPARATE FILES. WHEN FFP IS REQUIRED, THE USER NEEDS ONLY TO EXECUTE THE SECOND UTILITY PROGRAM AND THE FFP FILES WILL BE WRITTEN TO WCS. THIS SECOND UTILITY MUST BE LOADED WITH THE WCS I/O ROUTINE.

THE OVERLAY ROUTINE CONSISTS OF PSEUDO ENTRY POINTS OF THE RELOCATABLE LIBRARY AND IS TO BE LOADED WITH THE FORTRAN PROGRAM USING FFP.

THIS PACKAGE REQUIRES THE FOLLOWING HARDWARE: A MINIMUM OF 12K CORE, A DISC, PAPER TAPE READER AND PUNCH, LINE PRINTER, CONSOLE TERMINAL, THE FLOATING POINT FIRMWARE (HP 12901A), AND TWO WRITABLE CONTROL STORES (HP12908B).



CONTRIBUTION #: 561  
 CLASS: 22  
 CONTRIBUTOR: GRANT SHAW  
 HP/DATA SYSTEMS DIV.

PART NUMBER: 22681-18951  
 PRICE: \$30  
 DATE CODE:  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS

### SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN II)

'SHAN II' IS DESIGNED TO EXAMINE USER FILES ON MAGNETIC TAPES PRODUCED BY THE 2000F SYSTEM. IT PRINTS AN ERROR MESSAGE UPON ENCOUNTERING ANY OF THE FOLLOWING CONDITIONS WITHIN A USER FILE:

1. A WORD WHICH IS NOT ANY OF THE FOLLOWING:
  - A. LOGICAL END OF RECORD (-2)
  - B. LOGICAL END OF FILE (-1)
  - C. FIRST WORD OF STRING. (ONLY BIT 9 SET OF UPPER BYTE.)
  - D. NORMALIZED FLOATING POINT NUMBER. (BITS 14 AND 15 NOT EQUAL IN FIRST WORD.)
  - E. FLOATING POINT ZERO. (ALL BITS OF BOTH WORDS OFF.)
  - F. CONTAINED WITHIN A STRING.
2. A STRING WHOSE LENGTH IS LESS THAN ZERO OR GREATER THAN 72 CHARACTERS.
3. A STRING WHICH EXTENDS BEYOND THE END OF THE LOGICAL RECORDS.
4. A STRING CHARACTER WITH BIT 8 SET.
5. A FLOATING POINT NUMBER WHOSE FIRST WORD IS THE LAST WORD OF THE LOGICAL RECORD.
6. A FILE WHOSE ACTUAL LENGTH IS NOT EQUAL TO THE LENGTH SPECIFIED IN THE DIRECTORY.

AS 'SHAN II' PROCESSES THE TAPE, IT LISTS EACH USER FILE ON THE LINE PRINTER TOGETHER WITH ANY ASSOCIATED ERRORS. ONLY THE FIRST TEN OR ELEVEN ERRORS DETECTED IN A GIVEN FILE ARE LISTED INDIVIDUALLY. ALL ERRORS ARE INCLUDED IN THE ERROR COUNT WHICH IS ALSO PRINTED FOR EACH USER FILE FOR WHICH ERRORS HAVE BEEN DETECTED. PROGRAM FILE NAMES ARE ALSO LISTED.

HARDWARE REQUIREMENTS FOR 'SHAN II' INCLUDE: MAGNETIC TAPE DRIVE COMPATIBLE WITH 2000F; CONSOLE TERMINAL; AND LINE PRINTER. OPERATES UNDER BCS. SEE 22626A, 'SHAN' WHICH OPERATES UNDER DOS-M.



CONTRIBUTION #: 562  
 CLASS: 2  
 CONTRIBUTOR: HANS JEANS/GRANT MUNSEY  
 HP LABS

PART NUMBER: 22681-18953  
 PRICE: \$30  
 DATE CODE: 1606  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M, DOS-III

### HP 59310A INTEFACE BUS DRIVER

THIS PACKAGE CONSISTS OF A DOS DRIVER DESIGNED TO PROVIDE CONTROL OF THE HP INTERFACE BUS CARD (59310A) AND A SET OF ELEVEN ALGOL-CALLABLE INTERFACE BUS UTILITY SUBROUTINES WHICH PROVIDE A USER

INTERFACE FOR THE CONTROL OF THE BUS CARD.  
BOTH THE DRIVER AND THE SUBROUTINES, ENABLES COMMUNICATION WITH  
DEVICES ATTACHED TO THE BUS. ONE VERSION OF THE DRIVER ALLOWS  
DATA TRANSFER THROUGH THE DIRECT MEMORY ACCESS (DMA) CHANNEL.  
THE UTILITY SUBROUTINES REQUIRE THE USE OF THE HP59310A INTERFACE  
BUS DRIVER. THEY ALSO ASSUME THE INCLUSION OF .SIN., .ERR., .DIO,  
.IUR., AND .PRAM. SUBROUTINES IN THE DISC LIBRARY.

HARDWARE REQUIRED IS THE HP59310A BUS INPUT/OUTPUT KIT.



CONTRIBUTION #: 563  
CLASS: 106  
CONTRIBUTOR: FRANK J. WILSON  
MONTANA STATE  
UNIVERSITY

PART NUMBER: 22681-18954  
PRICE: \$30  
DATE CODE: 1611  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

COPY EFMP FILES

PROGRAM 'COPY' SIMPLIFIES THE TASK OF MAKING BACK-UP COPIES OF  
EFMP (EXTENDED FILE MANAGEMENT PROGRAM) FILES. EFMP FILES CAN BE  
COPIED FROM ONE DISC (THE SOURCE DISC) TO ANOTHER (THE DESTINATION  
DISC). TO COPY EFMP FILES THE USER INPUTS VIA THE SYSTEM TELETYPE  
THE SOURCE AND DESTINATION DISC SUBCHANNEL NUMBERS AND THE EFMP  
FILES BEING COPIED. OPTIONALLY EFMP FILE NAMES MAY BE CHANGED  
BEFORE STORING THEM ON THE DESTINATION DISC, PROGRAM 'COPY' GIVES  
THE OPTION TO DESTROY THE DUPLICATE FILE ON THE DISC OR CHANGE THE  
NAME OF THE EFMP FILE THAT IS BEING COPIED TO THE DISC.

HARDWARE REQUIRED IS A MINIMUM DOS-M CONFIGURATION.



CONTRIBUTION #: 564  
CLASS: 405  
CONTRIBUTOR: A. FISCHER MADSEN  
IMSOR, DENMARK

PART NUMBER: 22681-18956  
PRICE: \$10  
DATE CODE: 1546  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

EXOR RANDOM NUMBER GENERATOR

THIS SUBROUTINE PROVIDES SINGLE-TERMINAL BASIC WITH A HIGH-  
QUALITY RANDOM NUMBER GENERATOR BY COMBINING FIBONACCI AND TWO  
DIFFERENT MULTIPLICATIVE RANDOM NUMBER GENERATORS.

AN 8K OR 16K EDUCATIONAL BASIC SYSTEM (SINGLE-TERMINAL) IS  
REQUIRED. THE ROUTINE USES EAU INSTRUCTIONS.



CONTRIBUTION #: 565  
 CLASS: 8  
 CONTRIBUTOR: GRANT SHAW  
 HP, DSD

PART NUMBER: 22681-18958  
 PRICE: \$30  
 DATE CODE: 1546  
 LANG: FTN4, ASSEMBLY RELOC  
 OP SYS: DOS-IIIB

#### DOS IIIB BASED PREPARE CONTROL SYSTEM

THIS DOS-IIIB PROGRAM ALLOWS THE USER TO GENERATE A BCS SYSTEM UNDER DOS FROM RELOCATABLE FILES. OPERATOR DIALOGUE IS SIMILAR TO THE SUPPORTED VERSION OF PCS.

HARDWARE REQUIREMENTS ARE CONSOLE TERMINAL, AND A PAPER TAPE PUNCH.



CONTRIBUTION #: 566  
 CLASS: 872  
 CONTRIBUTOR: BASIL SMITH  
 W.R. BRODERICK  
 LONDON BOROUGH OF HAVERING

PART NUMBER: 22681-18960  
 PRICE: \$50  
 DATE CODE: 1550  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

#### SPACHE READABILITY FORMULA

GIVEN THREE SAMPLES (EACH OF ONE HUNDRED WORDS) FROM A TEXT, THIS PROGRAM USES THE SPACHE READABILITY FORMULA:

$$\text{GRADE LEVEL} = \text{AVERAGE SENTENCE LENGTH PER 100 WORDS} \\ \times 0.141 + \% \text{ OF 'UNFAMILIAR WORDS'} \times 0.086 + 0.839 + 5$$

TO CALCULATE THE GRADE LEVEL (READABILITY AGE) APPROPRIATE TO THAT TEXT.

OPTIONS ARE ALSO INCLUDED WITHIN THE PROGRAM FOR LISTING THE FAMILIAR WORDS FILE, CREATING A NEW 'FAMILIAR WORDS' FILE AND ADDING AND DELETING WORDS FROM THE 'FAMILIAR WORDS' FILE.

HARDWARE REQUIREMENTS ARE A 2116C, 2870A DISC DRIVE, AN 2748A PAPER TAPE READER, AN ASR33 TTY, AND AN 2767A LINE PRINTER.



CONTRIBUTION #: 567  
 CLASS: 211  
 CONTRIBUTOR: TOM D. HALL  
 HP, DSD

PART NUMBER: 22681-18961  
 PRICE: \$10  
 DATE CODE: 1612  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SELF CONTAINED

#### OCTASET

'OCTASET' IS A TROUBLESHOOTING AID FOR COMPUTER SERVICE ENGINEERS AND PROGRAMMERS. IT ELIMINATES TIME CONSUMING SWITCH REGISTER



TOGGLING BY PERFORMING THE FOLLOWING FUNCTIONS ON-LINE IN REAL TIME:

- ASSEMBLY INTO CORE
- WRITE ABSOLUTE TAPE FROM CORE
- LOAD ABSOLUTE TAPE TO CORE
- VERIFY ABSOLUTE TAPE TO CORE
- LIST MEMORY BOUND OF ABSOLUTE TAPE
- DUMP CORE TO TELEPRINTER (OCTAL & INVERSE ASSEMBLY)
- JUMP TO ANY LOCATION IN CORE
- SEARCH CORE FOR ANY OCTAL VALUE

'OCTASET' IS CONFIGURED, SELF-CONTAINED, AND NEEDS NO OTHER DRIVERS OR ROUTINES. IT RESIDES WITHIN THE BOUNDS OF A SINGLE PAGE IN CORE. OPERATOR COMMUNICATION WAS A PRIME CONSIDERATION IN ITS DESIGN AND ANYONE FAMILIAR WITH HP ASSEMBLY LANGUAGE CAN MASTER ITS USE IN A VERY SHORT TIME.

MINIMUM CONFIGURATION IS AN 8500 CONSOLE (MIN.) ALTHOUGH A TAPE UNIT EXTENDS ITS USEFULNESS CONSIDERABLY.



CONTRIBUTION #: 568

PART NUMBER: 22681-18963

\*\*\*\*\*  
 \* THIS PROGRAM IS NO LONGER AVAILABLE - WITHDRAWN \*  
 \*\*\*\*\*



CONTRIBUTION #: 569

PART NUMBER: 22681-18967

CLASS: 904

PRICE: \$80

CONTRIBUTOR: RONALD W. TOWNSEN  
 NAVAL UNDERSEA CENTER  
 SAN DIEGO

DATE CODE: 1546  
 LANG: FTN II/ASMB ABS.  
 OP SYS: RCS

BCS PLOTTING ROUTINES USING A TEKTRONIX 4010-1

'PLOTPAK' IS A SERIES OF INTERLOCKING SUBROUTINES AND FUNCTIONS WHICH ALONG WITH A PLOTTING DRIVER FOR A TEKTRONIX 4010-1 TERMINAL, ALLOWS THE PROGRAMMER TO PRODUCE PLOTS OF VARIOUS STYLES WITH A MINIMUM OF MEMORY (3-6K).

HARDWARE REQUIREMENT IS A 4010-1 TEKTRONIX SCOPE TERMINAL.

EXTENDED DOCUMENTATION

ORDER #22681-90967

\$5.00



CONTRIBUTION #: 570  
 CLASS: 101  
 CONTRIBUTOR: LARRY BYLER  
 HP, DSD

PART NUMBER: 22681-18968  
 PRICE: \$30  
 DATE CODE: 1546  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M

PRE-ASSEMBLER/FILE GATHERER (PRASM) FOR DOS-M

'PRASM' BUILDS A SOURCE FILE INPUT FOR THE HP ASSEMBLER BY CONCATENATING MULTIPLE DISC-RESIDENT SOURCE FILES SPECIFIED BY THE USER. THE CONCATENATED FILES (OUTPUT) ARE PLACED IN THE WORK AREA OF THE SYSTEM DISC. 'PRASM' THEN SETS THE APPROPRIATE BASE PAGE WORDS TO POINT TO THE WORK AREA AND CALLS THE ASSEMBLER. THUS, SOURCE FILES IMAGES OF PAPER TAPE FILES NEED NOT BE EXTERNALLY CONCATENATED TO BE ASSEMBLED. IN ADDITION, PROGRAM DEVELOPMENT CAN TAKE PLACE IN SMALL PIECES (THUS SPEEDING UP THE EDITING PROCESS), WITH 'PRASM' USED WHENEVER A FULL LISTING/OUTPUT TAPE IS REQUIRED. 'PRASM' CAUSES THE ASSEMBLER TO PRESERVE TAPE (FILE) NUMBERING SO THAT THE ORIGINAL SOURCE FILES MAY BE EASILY IDENTIFIED.

A MINIMUM DOS-M IS REQUIRED.



CONTRIBUTION #: 571  
 CLASS: 903  
 CONTRIBUTOR: CAPT. JAMES M. LIND  
 UNITED STATES AIR FORCE

PART NUMBER: 22681-18970  
 PRICE: \$50  
 DATE CODE: 1608  
 LANG: FTN IV;ASMB RELOC  
 OP SYS: RTE

STAR - STARTREK - RTE

THIS IS THE CLASSIC GAME OF STARTREK. IT IS INTENDED TO SIMULATE THE POPULAR TELEVISION PROGRAM HAVING THE SAME NAME. THE OPERATOR IS CONSIDERED THE CAPTAIN OF THE STARSHIP ENTERPRISE. THE MISSION IS TO RID THE GALAXY OF INVADING KLINGONS. THE PROGRAM PROMPTS THE OPERATOR FOR THE MINIMUM AND MAXIMUM NUMBER OF KLINGONS AND THEN DESIGNS A SCENARIO -- THE NUMBER OF KLINGONS YOU MUST DESTROY ON A GIVEN NUMBER OF STARDATES. THE COMPUTER MAINTAINS A DISPLAY OF THE KLINGONS, THEIR LOCATIONS, AND THE STAR BASES, AND THEIR LOCATIONS. THE PROGRAM MAKES USE OF A RANDOM NUMBER GENERATOR TO CREATE A TRUCE, STORMS, DAMAGE, AND THE LOCATIONS OF STARS, KLINGONS, STAR BASES, AND THE STARSHIP ENTERPRISE.

IF ANY KLINGONS REMAIN AFTER THE ALOTTED NUMBER OF STARDATES, OR IF THE ENTERPRISE RUNS OUT OF FUEL, YOU WILL HAVE LOST, AND THE COMPUTER WILL DISPLAY AN APPROPRIATE MESSAGE. IF YOU WIN (YOU HAVE DESTROYED THE KLINGONS), THE COMPUTER WILL GIVE AN UNBIASED SCORE ON YOUR PERFORMANCE AS CAPTAIN OF THE STARSHIP ENTERPRISE.

OPTIONS AVAILABLE TO THE OPERATOR INCLUDE:

1. THE ABILITY TO WARP TO A SECTOR OR QUADRANT

2. FIRE TORPEDOES TO A SECTOR LOCATION
3. FIRE PHASERS WITHIN A QUADRANT
4. INVOKE AN AIMING AID
5. REPAIR DAMAGE
6. MISCELLANEOUS MAINTENANCE FUNCTIONS.

HARDWARE REQUIRED: 11K DECIMAL OF BACKGROUND CORE; HP2600 OR 2615 OR 2616 OR 2640 CRT TERMINALS.

ORDER #22681-13370

SOURCE CASSETTE PACKAGE

\$140.00



CONTRIBUTION #: 572

CLASS: 22

CONTRIBUTOR: JACQUES SANS DRAP  
CLINIQUE UNIVERSITAIRES  
ST. PIERRE

PART NUMBER: 22681-18971

PRICE: \$20

DATE CODE: 1550

LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M

#### DOS-M UTILITIES PACKAGE

THIS PACKAGE CONTAINS A SET OF SUBROUTINES MAKING AVAILABLE SOME POTENTIAL FUNCTIONS OF THE DOS-M SYSTEM.

THESE FUNCTIONS ARE THE FOLLOWING:

- THE RETRIEVAL OF THE DATE ENTERED AT START-UP OF THE SYSTEM (SUBROUTINE DATE).
- THE MODIFICATION OF A SINGLE OR OF ALL THE BITS OF THE SWITCHES REGISTER (SUBROUTINE STSWI; APPLICABLE ONLY TO 2114 AND 2100 COMPUTERS).
- THE TRANSMISSION OF THE ADDRESS AND OF THE LENGTH OF THE PART OF THE CORE MEMORY WHICH IS NOT USED BY THE PROGRAM (SUBROUTINE ALOC).
- THE DESTRUCTION, THE CREATION OR THE MODIFICATION OF AN ENTRY IN THE DIRECTORY OF THE USER'S DISC (SUBROUTINE UDRTR WITH ENTRY POINTS: FKILR, NWFIL AND SHRTR).
- THE TRANSMISSION OF THE LOGICAL UNIT NUMBER OF THE BATCH DEVICE (SUBROUTINE BATCH).
- THE TRANSMISSION OF THE SYSTEM GENERATION CODE (SUBROUTINE SYSGC).

ALL THESE SUBROUTINES ARE CALLABLE IN FORTRAN EXCEPT FOR ALOC WHICH CAN ONLY BE USED IN ASSEMBLER.

HARDWARE REQUIRED: MINIMUM DOS-M.



CONTRIBUTION #: 573

CLASS: 102

CONTRIBUTOR: WAYNE B'RELLS  
POWER TECHNOLOGY

PART NUMBER: 22681-18973

PRICE: \$20

DATE CODE: 1550

LANG: FORTRAN IV  
OP SYS: DOS-M

#### PROGRAM FOR SAVING AND RESTORING DISC FILES ON MAG TAPE

THIS UTILITY PROGRAM ALLOWS DISC FILES OF ANY TYPE (UM, US, SS, RB, AB, BD) TO BE SAVED ON MAGNETIC TAPE FOR LATER RETRIEVAL.

WHEN A FILE IS TO BE RESTORED TO DISC, THIS PROGRAM AUTOMATICALLY CREATES AN APPROPRIATE DOS-M DIRECTORY ENTRY PRIOR TO COPYING FROM TAPE TO DISC. THIS PROGRAM ALSO HAS PROVISIONS FOR LISTING A DIRECTORY OF TAPE FILES AND FOR INITIALIZING A TAPE.

A 60 CHARACTER ID RECORD AND A DATE IS ASSOCIATED WITH EACH TAPE FILE. WHEN RESTORING A FILE TO DISC IT IS POSSIBLE TO SPECIFY A DATE; IN THIS WAY, VARIOUS REVISIONS OF A PROGRAM MAY BE RETRIEVED.

EXTENSIVE ERROR CHECKING IS INCLUDED ALONG WITH A PROVISION FOR VERIFYING EACH FILE AS IT IS WRITTEN. LARGE (1-TRACK) BUFFERS ARE USED TO IMPROVE THE EXECUTION SPEED OF THE PROGRAM. BECAUSE OF THESE LARGE BUFFERS, A 32K DOS-M SYSTEM WILL GENERALLY BE REQUIRED FOR THIS PROGRAM.

HARDWARE REQUIREMENTS: 32K DOS-M, REVISION F, 7970B MAGNETIC TAPE UNIT.



CONTRIBUTION #: 574  
 CLASS: 9  
 CONTRIBUTOR: CARL FLARITY  
 SPECTRA-PHYSICS  
 MOUNTAIN VIEW, CA

PART NUMBER: 22681-18974  
 PRICE: \$10  
 DATE CODE: 1546  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-M,RTE

ALPHA: PAPER TAPE IDENTIFICATION

THIS RTE AND DOS-M PAPER TAPE UTILITY PUNCHES LARGE BLOCK LETTERS ON PAPER TAPE.

THE USER MAY CHANGE THE INTERNALLY REPRESENTED ASCII CHARACTERS.

HARDWARE REQUIREMENTS: SYSTEM CONSOLE AND A PAPER TAPE PUNCH.

ORDER #22681-13374      SOURCE CASSETTE PACKAGE      \$35.00



CONTRIBUTION #: 575  
 CLASS: 22  
 CONTRIBUTOR: DENNIS J. BARKLEY  
 NAVAL WEAPONS STATION

PART NUMBER: 22681-18975  
 PRICE: \$20  
 DATE CODE: 1550  
 LANG: FTN IV;ASMB RELOC  
 OP SYS: DOS-M

DOS-M DISC EDITOR

THIS PROGRAM IS A DOS-M BASED CONVERSATIONAL DISC EDITOR WHICH HAS COMPLETE FREEDOM TO EXAMINE OR ALTER ANY PORTION OF A DOS-M DISC ON A TRACK-SECTOR BASIS. LIST OR CHANGE OPERATIONS CAN BE DONE IN ASCII, INTEGER, OCTAL, OR FLOATING-POINT (EVEN OR ODD WORD) FORMAT.

A MINIMAL DOS-M, WITH AN HP2116 OR HP2100 CPU, CRT OR TELETYPE, AND A 7900 DISC CONSTITUTE THE REQUIRED EQUIPMENT.



CONTRIBUTION #: 576  
CLASS: 16  
CONTRIBUTOR: DENNIS J. BARKLEY  
NAVAL WEAPONS STATION

PART NUMBER: 22681-18977  
PRICE: \$30  
DATE CODE: 1604  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: TODS-C

TODS-C BASIC MAG TAPE BCS DRIVER

THIS PACKAGE IS A COLLECTION OF SUBROUTINES DESIGNED TO ALLOW THE USE OF THE BCS D.23 MAGNETIC TAPE DRIVER WITHIN TODS-C AT5 BASIC. IT IS MAINLY AN ADAPTION OF RCS LIBRARY ROUTINES MAGTP AND PTAPE. USE OF D.23 DRIVER WITHIN TODS-C INSTEAD OF THE AMD DIVISION MAG TAPE DRIVER (HP #24118-80066) HAS TWO IMPORTANT ADVANTAGES. FIRST, POINT CAN BE HANDLED WITH THE MAG TAPE. SECOND, D.23 READS AND WRITES ON MAG TAPE IN A FORMAT THAT IS COMPATIBLE WITH OTHER SYSTEMS (SUCH AS DOS-M), WHEREAS THE AMD DRIVER DOES NOT.

ADDITION OF THIS CONTRIBUTED PROGRAM TO A TODS-C SYSTEM IS A NATURAL EXTENSION OF D.23 TO ALLOW ITS UTILIZATION (FOR REAL NUMBER MAG TAPE I/O) WITHIN AT5 BASIC.

HARDWARE REQUIREMENTS: TODS-C MINIMAL ENVIRONMENT; INCLUDING HP2116C OR HP2100, CRT OR TTY 7900A OR 7910A DISC AND 7970 MAG TAPE SYSTEM.



CONTRIBUTION #: 577  
CLASS: 13  
CONTRIBUTOR: GRANT G. SUMMERS  
HP, COLORADO SPRINGS

PART NUMBER: 22681-18980  
PRICE: \$20  
DATE CODE: 1604  
LANG: FTN IV;ASMB RELOC  
OP SYS: RTE

RTE HP2310C SPECIAL SUBSYSTEM DRIVER (DVR56)

DRIVER (56) IS A SPECIAL APPLICATIONS DRIVER FOR THE 2310 MINIVERTEK, WHICH OPERATES UNDER CONTROL OF THE I/O MODULE OF THE REAL TIME EXECUTIVE. THIS DRIVER ALLOWS DATA TO BE SAMPLED FROM A GIVEN MINIVERTEK CHANNEL (ICHAN) A SPECIFIED NUMBER (N) OF TIMES. THE RANDOM ADVANCE OR SEQUENTIAL MODES ARE NOT ALLOWED WITH THIS DRIVER. THIS DRIVER OPERATES ONLY IN THE RANDOM START MODE. THE STRUCTURING OF THIS DRIVER IN THIS MANNER SAVES A SIGNIFICANT NUMBER, ABOUT 1/2 OF THE MEMORY LOCATIONS REQUIRED OF THE 2310/2311 SUBSYSTEM RTE DRIVER. THIS DRIVER DOESN'T CONVERT THE MINIVERTEK DATA. THE 'MCONV' CALL MUST BE UTILIZED FOR THE CONVERSION. I.56 AND C.56 ARE THE ENTRY POINTS OF THE INITIATOR AND CONTINUATOR SECTIONS OF D.56 RESPECTIVELY.

HARDWARE REQUIREMENTS: RTE, TTY, HP2310C MINIVERTEK SYSTEM.

ORDER #22681-13380 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 578  
 CLASS: 110  
 CONTRIBUTOR: WILLIAM H. HEFFNER III  
 PHILADELPHIA OPTICAL  
 COMPANY, INC.

PART NUMBER: 22681-18981  
 PRICE: \$20  
 DATE CODE: 1640  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-III

#### HIGH SPEED DISC INPUT/OUTPUT

'HSDIO' ENABLES THE DOS-M/DOS-III USER TO HAVE THE FOLLOWING IMPROVEMENTS FOR FILE ACCESSING AS COMPARED TO THE STANDARD SYSTEM EXEC 14 AND EXEC 15 DISC I/O REQUESTS.

1. DIRECT ACCESS OF A FILE INSTEAD OF SEARCHING THE FILE DIRECTORY EACH TIME FOR THE FILE ADDRESS, THEN ACCESSING THE FILE. (INCREASES ACCESS SPEED APPROXIMATELY 10 TO 20 TIMES.)
2. ALLOWS THE USER TO ACCESS THE SCRATCH AREA OF THE CURRENT USER DISC AS ANOTHER DATA FILE IDENTIFIED BY THE NAME 'USER'.
3. ALLOWS THE USER TO ACCESS THE SCRATCH AREA OF THE SYSTEM DISC AS ANOTHER DATA FILE IDENTIFIED BY THE NAME 'SSYSM'.
4. ALLOWS THE USER TO READ OR WRITE TO ANY DISC FILE ON THE CURRENT DISC.

HARDWARE REQUIREMENTS INCLUDE 8K COMPUTER AND 7900A DISC DRIVE.



CONTRIBUTION #: 579  
 CLASS: 905  
 CONTRIBUTOR: JACK HOWARD  
 HP, OSD

PART NUMBER: 22681-18990  
 PRICE: \$30  
 DATE CODE: 1546  
 LANG: ASMB RELOC/MICRO  
 OP SYS: BCS,MTS,DOS-M,RTE

#### 21MX MICROCODED SIN-COS-TAN

THIS 21MX ASSEMBLER/MICROCODE ROUTINE COMPUTES THE SINE AND COSINE FIVE TIMES FASTER THAN THE STANDARD DOS/RTE LIBRARY ROUTINES. THE TANGENT FUNCTION RUNS THREE TIMES FASTER.

#### EXECUTION TIMES ARE:

SINE	302-340	MICROSECONDS
COSINE	297-335	MICROSECONDS
TANGENT	685-715	MICROSECONDS

EQUIPMENT REQUIREMENT IS A 21MX. THE PROGRAM OPERATES IN A BCS, DOS, OR RTE ENVIRONMENT WITH RESPECTIVE MINIMUM CORE REQUIREMENTS.

ORDER #22681-13390      SOURCE CASSETTE PACKAGE      \$35.00



CONTRIBUTION #: 580  
CLASS: 17  
CONTRIBUTOR: HAN PARK  
HP, STANFORD PARK

PART NUMBER: 22681-18991  
PRICE: \$20  
DATE CODE: 1604  
LANG: ALGOL/ASMB RELOC  
OP SYS: DOS-M

IMPLEMENTING A USER WRITTEN IBL LOADER ON THE 21MX

THIS DOS-M PROGRAM GENERATES A MASK TAPE FROM AN OBJECT TAPE OF A USER-WRITTEN IBL LOADER ON THE 21MX. THE INPUT OBJECT TAPE TO THE PROGRAM IS THE ASSEMBLER OUTPUT OF THE USER WRITTEN IBL LOADER PROGRAM.

HARDWARE REQUIREMENTS ARE 16K MEMORY, A PAPER TAPE READER, A PAPER TAPE PUNCH, A LINE PRINTER, AND A TELETYPE.



CONTRIBUTION #: 581  
CLASS: 112  
CONTRIBUTOR: DAVID P. ROST  
CARDION ELECTRONICS

PART NUMBER: 22682-18900  
PRICE: \$10  
DATE CODE: 1550  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC

BASIC CALL TO PRINT NUMBERS WITHOUT SPACES

THIS SUBROUTINE ALLOWS THE USER TO PRINT NUMBERS WITHOUT SPACES (OR CARRIAGE RETURN/LINE FEED). THIS SUBROUTINE MODIFIES THE BASIC COMPILER FOR THE DURATION OF THE CALL. IF A KEYBOARD INTERRUPT OCCURS, STOP SERVICE IS ROUTED THROUGH THE SUBROUTINE SO THAT THE COMPILER IS RESTORED BEFORE THE PROGRAM IS STOPPED.

HARDWARE REQUIREMENTS: 8K, TELETYPE,  
SINGLE TERMINAL BASIC OPERATING SYSTEM.



CONTRIBUTION #: 582  
CLASS: 212  
CONTRIBUTOR: ROBERT R. SCHUCK  
HP, WALTHAM

PART NUMBER: 22682-18901  
PRICE: \$40  
DATE CODE: 1602  
LANG: FORTRAN IV  
OP SYS: RTE

RENUM

THIS PROGRAM WILL RE-SEQUENCE THE STATEMENT NUMBERS OF A FORTRAN SOURCE PROGRAM. UP TO 200 STATEMENT NUMBERS ARE ALLOWED. THE OPERATOR SPECIFIES THE BEGINNING ST # AND INCREMENT VALUE, INPUT AND OUTPUT DEVICES OR FILE NAMES. THE PROGRAM DOES NOT SEARCH CONTINUATION LINES OR COMMENT LINES. DURING EXECUTION, A LINE BY LINE LISTING IS PROVIDED SHOWING THE ORIGINAL LINE AND THE NEW LINE. THE ORIGINAL SOURCE IS LEFT INTACT AND A NEW SOURCE IS

GENERATED. UPON COMPLETION, THE TABLE OF OLD #'S AND NEW #'S IS LISTED.

HARDWARE REQUIREMENTS: RTE SYSTEM WITH FMGR; MINIMUM 8K USER PROGRAM AREA.

ORDER #22682-13301 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 583  
CLASS: 11  
CONTRIBUTOR: STEVE RINTALA  
MONTANA STATE UNIVERSITY

PART NUMBER: 22682-18903  
PRICE: \$10  
DATE CODE: 1604  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

D.06 BCS DRIVER FOR PRINTER TECHNOLOGY MODEL PRINTEC 100 PRINTER

D.06 IS AN ASSEMBLY LANGUAGE DRIVER FOR A PRINTER TECHNOLOGY PRINTEC 100 SERIAL PRINTER. THE DRIVER ACCEPTS THE STANDARD BCS CALLING SEQUENCE FOR WRITE AND CONTROL FUNCTIONS. DRIVER EXAMINES RECORD AND GENERATES AUTOMATIC CR/LF PAIR AFTER 132 CHARACTERS HAVE BEEN PRINTED.

D.06 COULD BE USED WITH ANY PRINTER THAT FUNCTIONS AS A HIGH SPEED TELETYPE.

HARDWARE REQUIREMENTS: HP2100 SERIES COMPUTER; PRINTER (PRINTEC 100 OR SIMILAR).



CONTRIBUTION #: 584  
CLASS: 1  
CONTRIBUTOR: IAN RICHARDS  
HP, AUSTRALIA

PART NUMBER: 22682-18904  
PRICE: \$30  
DATE CODE: 1604  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 20392A

SINGLE TERMINAL-TIMESHARE BASIC CONVERSATIONAL LINK

THE PROGRAM PROVIDES A CONVERSATIONAL LINK BETWEEN HP 20392 SINGLE TERMINAL BASIC AND HP 2000F TIMESHARED BASIC. IT CONSISTS OF AN ABSOLUTE ASSEMBLER PROGRAM WHICH OVERLAYS AND MODIFIES THE STANDARD BASIC COMPILER OF THE SINGLE TERMINAL SYSTEM. NO MODIFICATION TO THE TIMESHARE SYSTEM IS REQUIRED.

AMONG THE CAPABILITIES OF THE SYSTEM ARE:

1. PROGRAMS RUNNING SIMULTANEOUSLY IN BOTH TIMESHARE AND SINGLE TERMINAL SYSTEMS CAN PASS DATA TO AND FROM EACH OTHER.
2. SINGLE TERMINAL COMMANDS CAN BE ISSUED FROM A RUNNING PROGRAM IN THE TIMESHARE SYSTEM.
3. OUTPUT TO THE TELETYPE CAN ALWAYS BE FORMATTED USING THE TIMESHARE FORMATTER.



- 4. SINGLE TERMINAL PROGRAMS CAN BE STORED IN, RETRIEVED FROM AND RUN BY THE TIMESHARE SYSTEM.
- 5. A PROGRAM RESIDENT IN CORE OF THE SINGLE TERMINAL SYSTEM CAN BE TRANSFERRED TO A FILE STORE IN TIMESHARE FOR LATER RETRIEVAL AND RUNNING.

HARDWARE REQUIREMENTS: 8K AND TTY, 2000F, AND ONE ADDITIONAL 12531C TTY INTERFACE CARD.



CONTRIBUTION #: 585  
 CLASS: 105  
 CONTRIBUTOR: KEN WADE  
 HP, BOISE

PART NUMBER: 22682-18905  
 PRICE: \$10  
 DATE CODE: 1604  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: BCS,DOS-M,RTE,SIO

BINARY TO BCD CONVERSION

THIS SUBROUTINE ALLOWS AN ASSEMBLY LANGUAGE, OR FORTRAN PROGRAM, TO CONVERT ANY POSITIVE INTEGER FROM 0 TO 9999 TO A 4 DIGIT BCD NUMBER CONTAINED IN A 16-BIT WORD RETURNED TO THE CALLING PROGRAM.

DOS-M, BCS, MTS, RTE, SIO

ORDER #22682-13306 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 586

PART NUMBER: 22682-10906

\*\*\*\*\*  
 \* THIS PROGRAM IS NO LONGER AVAILABLE - WITHDRAWN \*  
 \*\*\*\*\*



CONTRIBUTION #: 587  
 CLASS: 20  
 CONTRIBUTOR: GRANT HALLMAN  
 HP, CANADA

PART NUMBER: 22682-18907  
 PRICE: \$10  
 DATE CODE: 1605  
 LANG: FORTRAN IV  
 OP SYS: RTE-II,RTE-III

RTEIF

THIS PROGRAM PASSES OPERATOR INPUTS FROM THE KEYBOARD TO THE RTE-II MESSAGE PROCESSOR AND PRINTS SYSTEM RESPONSE FOR THE OPERATOR. THUS ALL RTE OPERATOR REQUESTS ARE AVAILABLE FROM WITHIN THE FILE MANAGER, VIA THIS PROGRAM. FURTHERMORE, RTE COMMANDS CAN BE STACKED AND EXECUTED FROM (BATCH) FILES, WHICH CAN CALL OTHER FILES TO A NESTING OF 10 DEEP. RECURSIVE CALLING IS ALLOWED.

THE PROGRAM WILL OPERATE IN A MULTI-TERMINAL MODE. ALL I/O IS DONE VIA RE-ENTRANT ROUTINE ON THE LOGICAL UNIT PROVIDED AS THE FIRST RMPAR PARAMETER. IT IS SMALL ENOUGH TO OPERATE IN A FOREGROUND SINCE THE FORMATTER IS NOT USED.

HARDWARE REQUIREMENTS: RTE MINIMUM.

ORDER #22682-13307 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 588  
CLASS: 105  
CONTRIBUTOR: JACK HOWARD  
HP, DSD

PART NUMBER: 22682-18908  
PRICE: \$20  
DATE CODE: 1606  
LANG: ALGOL/ASMB RELOC  
OP SYS: DOS-III

#### PROM WRITER ASSEMBLER MASK TAPE

THIS ROUTINE ACCEPTS ABSOLUTE ASSEMBLER OBJECT CODE AND PRODUCES A MASK TAPE ACCEPTABLE AS INPUT TO THE HP PROM WRITER CONTROL PROGRAM (24287-60001, 60002). THE ROUTINE RUNS UNDER A DOS-III SYSTEM.

HARDWARE REQUIREMENTS: ANY HARDWARE ON WHICH DOS-III OPERATING SYSTEM RUNS.



CONTRIBUTION #: 589  
CLASS: 408  
CONTRIBUTOR: LUIS J. GUTIERREZ  
JOSE A. GUERRA  
MEXICO

PART NUMBER: 22682-18909  
PRICE: \$95  
DATE CODE: 1608  
LANG: FORTRAN IV  
OP SYS: DOS-III

#### PERT PACKAGE FOR DOS-III

THE 'PERT' (PROGRAM EVALUATION AND REVIEW TECHNIQUE) PACKAGE CONSISTS OF A SERIES OF SEPARATE PROGRAMS GIVING A COMPLETE STATISTICAL EVALUATION OF THE EVENTS UNDER CONTROL. THE ESSENTIAL PARTS ARE COMPUTATION OF DATA BEFORE THE PROJECT STARTS (PERT0-PERT3) AND COMPUTATION OF ACTUALIZATION DURING PROJECT EXECUTION (PERT4-PERT5). THE ENTIRE PACKAGE REQUIRES 24K OF MEMORY AND A DOS-III SYSTEM. THE PACKAGE CAN ALSO BE OBTAINED IN SPANISH THROUGH THE AUTHOR.

HARDWARE REQUIREMENTS: DOS-III SYSTEM WITH 24K CORE; TAPE READER (LU#5); LINE PRINTER (LU#6); CRT CONSOLE (LU#11).



CONTRIBUTION #: 590  
CLASS: 720  
CONTRIBUTOR: JAMES E. SHEPHERD  
CONCORD-CARLISLE ADULT  
EDUCATION

PART NUMBER: 22682-18910  
PRICE: \$40  
DATE CODE: 1605  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: HP BASIC 24160A

SCORE PACK

THIS SOURCE LANGUAGE ASSEMBLER PROGRAM GENERATES THE ABSOLUTE BINARY SUBROUTINES REQUIRED TO SUPPORT TWO CALL STATEMENTS WHICH ARE USED IN A BASIC TEST SCORING PROGRAM 'SCOPK' (OR 'SCORE-PACK') FOR READING ANSWERS FROM HP9320-2062 (EDUCATIONAL TEST SCORING) CARDS AND FOR READING 'PROCESS SKILL' NUMBERS FROM HP9320-2051- (EDUCATIONAL BASIC) CARDS.

TWO OPTIONS ARE PROVIDED IN THIS SOURCE PROGRAM:

- A. THE (N) OPTION LOCATES THE ROUTINES ABOVE 'MAT'RIX IN THE HP EDUCATIONAL BASIC INTERPRETER #24160A, SO THAT THE FUNCTIONING OF BASIC IS UNAFFECTED (EXCEPT FOR A LOSS OF 115 WORDS OF BASIC USER SPACE, OR 1+% IN A 16K MEMORY).
- B. THE (Z) OPTION LOCATES THESE SUBROUTINES IN THE SPACE NORMALLY OCCUPIED BY THE MATRIX SUBROUTINES IN HP EDUCATIONAL BASIC; HENCE 'MAT'RIX IS DISABLED AND BASIC USER SPACE IS INCREASED BY 820 COMPUTER WORDS, OR 8+% IN A 16K MEMORY.

HARDWARE REQUIREMENTS: 2100 16K OR MORE OPERABLE WITH HP BASIC INTERPRETER #24160A; TTY, HP MARK SENSE CARD READER (2761A-07) AND HIGH SPEED PAPER TAPE READER (2737A).



CONTRIBUTION #: 591  
CLASS: 18  
CONTRIBUTOR: ARNIE HOOGLAND  
DEPT. OF APPLIED PHYSICS  
DELFT, NETHERLANDS

PART NUMBER: 22682-18911  
PRICE: \$60  
DATE CODE: 1608  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE 2100 MICROPROGRAMMING SOFTWARE

THIS PACKAGE CONTAINS THE RTE VERSIONS OF THE HP MICROASSEMBLER, THE HP MICRO DEBUG EDITOR, AND THE WRITABLE CONTROL STORE DRIVER (33). THESE PROGRAMS ARE DIRECT MODIFICATIONS OF THE HP SUPPORTED DOS/DOS-M VERSIONS. THE DOS/DOS-M VERSION OF THE HP WRITABLE CONTROL STORE UTILITY ROUTINE CAN BE USED UNDER RTE WITHOUT MODIFICATIONS.

HARDWARE REQUIREMENTS: MINIMUM RTE SYSTEM WITH FILE MANAGER WRITABLE CONTROL STORE SUBSYSTEM.

ORDER #22682-13311 SOURCE ON CASSETTE \$70.00



CONTRIBUTION #: 592  
 CLASS: 18  
 CONTRIBUTOR: JAN BRODSKY  
 TZCHNICAL UNIV. OF BRNO  
 CZECHUSLOVAKIA

PART NUMBER: 22682-18912  
 PRICE: \$25  
 DATE CODE: 1608  
 LANG: ASSEMBLY ABSOLUTE  
 OP SYS: SIO

## SIO MACRO PROCESSOR

HP MACRO PROCESSOR IS AN ABSOLUTE PROGRAM WHICH TRANSLATES MACRO LANGUAGE PROGRAMS INTO HP ASSEMBLY LANGUAGE PROGRAMS. THE MACRO LANGUAGE IS THE PROPER EXTENSION OF THE HP ASSEMBLY LANGUAGE. USER CAN DENOTE REPEATEDLY USED, LONG SEQUENCES OF ASSEMBLY LANGUAGE INSTRUCTIONS BY NAME. THE COUPLED NAME, SEQUENCE - IS CALLED A MACRO. USER THEN INSERTS NAMED SEQUENCES INTO HIS PROGRAMS ONLY BY A MACRO CALL. THIS OFTEN SHORTENS THE NOTATION OF PROGRAMS.

DETAILS AND THE EXACT DEFINITION OF THE MACRO LANGUAGE ARE CONTAINED IN THE MANUAL.

HARDWARE REQUIREMENTS: 4K AND STANDARD SIO ENVIRONMENT.



CONTRIBUTION #: 593  
 CLASS: 2  
 CONTRIBUTOR: TERRY ANNA  
 HP NEELY SALES REGION  
 ENGLEWOOD

PART NUMBER: 22682-18913  
 PRICE: \$20  
 DATE CODE: 1611  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

## RTE ASYNCHRONOUS DATA SET INTERFACE DRIVER

DVR72 IS A RTE DRIVER WHICH CONTROLS AN HP 12587 ASYNCHRONOUS DATA SET INTERFACE. THE TERMINALS EXPECTED BY DVR72 ARE AN HP7260 CARD READER AND/OR A GENERAL ELECTRIC TERMINET 1200 PRINTER. EACH HP 12587 INTERFACE HAS ONE BELL SYSTEM TYPE 103 OR 202 DATA SET (OR EQUIVALENT) CONNECTED TO IT.

USING DVR72, THE USER PROGRAM CAN ISSUE COMMAND SEQUENCES TO THE 7260 CARD READER TO RETURN CARD DATA AND/OR STATUS INFORMATION.

THE DRIVER SUPPORTS ONLY PRINTING CAPABILITY FOR THE GE 1200 AND DOES AN IMMEDIATE COMPLETION IF KEYBOARD INPUT IS PROGRAMMED.

HARDWARE REQUIREMENTS: MINIMUM RTE HARDWARE CONFIGURATION PLUS AN HP 12587 ASSEMBLY I/F, AND EITHER OR BOTH HP7260 MARK SENSE CARD READER, GE TERMINET 1200 PRINTER.

ORDER #22682-13313

SOURCE ON CASSETTE

\$35.00



CONTRIBUTION #: 594  
CLASS: 18  
CONTRIBUTOR: MAX KIMMONS  
LOCKHEED (BURBANK)

PART NUMBER: 22682-18914  
PRICE: \$20  
DATE CODE: 1612  
LANG: ALGOL/ASSEMBLY  
OP SYS: DOS-M

INTEL 8080 CROSS ASSEMBLER

INTEL 8080 MICROPROCESSOR CROSS ASSEMBLER.

INPUT: SOURCE LANGUAGE IN 8080 MNEMONICS.

OUTPUT: DEPENDING ON CONTROL STATEMENT.

1. LIST - PROGRAM LIST WITH CHIP ADDRESS, RELATIVE ADDRESS, CODE, REMARKS.
2. TABLE - LIST OF SYMBOLS USED AND THEIR VALUES (LOCATION).
3. BINARY - PAPER TAPE (ASCII).
4. SORT - SAME AS TABLE BUT ALPHANUMERIC.

FORM: VERY CLOSE TO HP ASSEMBLY.

SYSTEM: DESIGNED FOR DOS-M, BUT EASILY ALTERABLE TO ANY SYSTEM SUPPORTING ALGOL.

HARDWARE REQUIREMENTS: DOS SYSTEM WITH LP AND TTY.



CONTRIBUTION #: 595  
CLASS: 1  
CONTRIBUTOR: PETER BRICKEY  
HP, DSD

PART NUMBER: 22682-18916  
PRICE: \$10  
DATE CODE: 1612  
LANG: FORTRAN IV  
OP SYS: DOS-III

2000E DISC CHECK UTILITY PROGRAM (TSEDP)

THIS PROGRAM WILL READ A 2000E TSB DISC CARTRIDGE, EITHER SYSTEM OR USER, AND VALIDATE IT AS BEING CORRECTLY LABELED. IT WILL THEN EITHER LIST THE ADT AND DIRECTORIES OR CHECK THE ADT AND DIRECTORIES FOR VALID ENTRIES.

ADT: THE PSEUDO ENTRY AT THE END IF CHECKED FIRST, THEN EACH ENTRY IS CHECKED TO BE SURE THAT IT REFERENCES THE CORRECT AREA OF THE DISC AND THAT IT REFERENCES ONLY ONE TRACK. FINALLY, THE ENTRIES ARE CHECKED TO BE SURE THEY DO NOT OVERLAP.

DIRECTORY: THE TWO PSEUDO ENTRIES ARE VALIDATED, THEN THE DISC ADDRESSES ARE CHECKED ALONG WITH THE START-OF-PROGRAM- POINTER AND THE PROGRAM LENGTH. THE ADJACENT DIRECTORY DISC ADDRESSES ARE THEN CHECKED FOR OVERLAP AND IF THERE ARE TWO DIRECTORY TRACKS, EACH TRACK IS CHECKED AGAINST THE OTHER FOR OVERLAP. FINALLY, THE ADT DISC ADDRESSES ARE CHECKED AGAINST THE DIRECTORY

DISC ADDRESSES TO BE SURE THERE ARE NO ADT/DIRECTORY  
CONFLICTS.

HARDWARE REQUIREMENTS: DISC, LP, MAGNETIC TAPE.  
DOS-III OPERATING SYSTEM.



CONTRIBUTION #: 596  
CLASS: 203  
CONTRIBUTOR: DEAN DRAKE  
HP, DSD

PART NUMBER: 22682-18917  
PRICE: \$85  
DATE CODE: 1612  
LANG: ASSEMBLY ABSOLUTE  
OP SYS: 24296-60001

#### FIXED HEAD DISC DIAGNOSTIC

THIS DIAGNOSTIC PROGRAM TESTS INPUT, OUTPUT AND CONTROL FUNCTIONS OF EITHER THE HP2773, 2774 OR 2775 DRUM, OR THE HP2770, 2771 OR 2766 DISC DEVICE WITH THE HP 12606 OR 12610 INTERFACE. THE PROGRAM RAPIDLY CHECKS THE INTERFACE AND EXHAUSTIVELY TESTS THE DISC DEVICE ITSELF. THE USER MAY ALSO DESIGN HIS OWN TESTS FOR SPECIFIC FUNCTIONS. THIS DIAGNOSTIC PROGRAM DOES NOT CHECK MORE THAN ONE DISC OR DRUM AT A TIME.

HARDWARE REQUIREMENTS: HP2100 OR 21MX COMPUTER WITH DMA (DCPC IN 21MX) AND AT LEAST 8K OR MEMORY. ANY OF THE FOLLOWING:

1. HP2773 OR 2774 DRUM WITH HP 12610B INTERFACE AND HP2776 POWER SUPPLY.
  2. HP2775 DRUM WITH HP 12610B INTERFACE AND HP2777 POWER SUPPLY.
  3. HP2770 OR 2771 DISC WITH HP 12606B INTERFACE AND HP2772 POWER SUPPLY.
  4. HP2766 DISC WITH HP 12610C INTERFACE AND 2772 POWER SUPPLY.
- A CONSOLE AND PAPER TAPE READER ARE ALSO REQUIRED.



CONTRIBUTION #: 597  
CLASS: 3  
CONTRIBUTOR: PREM KAPOOR  
HP, AMD

PART NUMBER: 22682-18918  
PRICE: \$50  
DATE CODE: 1618  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

#### OPTIONAL DVR51-RTE AUTO DIAL DVR. FOR 12589A INTERFACE KIT

THIS RTE AUTO DIAL DRIVER USES 12589A INTERFACE KIT TO OPERATE ON AUTOMATIC CALLING UNIT (ACU). USE OF THIS, ALONG WITH COMPLEMENTARY AUTO ANSWER UNITS IN A DISTRIBUTED COMMUNICATION SYSTEM, ALLOWS LINE CONNECTIONS AND DISCONNECTIONS TO BE MADE AUTOMATICALLY UNDER PROGRAM CONTROL. THE DRIVER SUPPORTS (WRITE) REQUEST TO ENABLE DIALING AND (CONTROL) REQUEST TO DO A DISCONNECT. LINE SELECTION FROM 1 TO 4 IS PERMITTED BY SOFTWARE ALTHOUGH THE CURRENT CABLE ASSEMBLY OF 12589A ALLOWS FOR ONE LINE ONLY (WITH REFERENCE TO MULTIPLE ACU'S BEING CONNECTED TO THE SAME INTERFACE BOARD). THE DRIVER HANDLES ITS OWN TIME OUT AND THE STATUS WORD REFLECTS (ON-LINE) AND (OFF-LINE) CONDITION ON

COMPLETION OF REQUEST. (END-OF-NUMBER) OPTION IS ALSO SUPPORTED IN SOFTWARE, ALLOWING LINE TO BE HANDED OVER TO THE MODEM WHILE IT IS RINGING.

APPROPRIATE TIME OUT VALUES (NEGATIVE DIGITS) MAY BE INSERTED IN THE DIAL BUFFER AT PLACES WHERE DIAL TONES ARE EXPECTED. THIS IS IMPORTANT IN CASE OF A MULTIPLE DIAL SEQUENCE OVER AN ACU WHICH DOES NOT SUPPORT (POSITIVE DIAL TONE IDENTIFICATION); E.G., BELL 801A. IF AN ACU DOES SUPPORT THIS FEATURE (E.G., VADIC CORP'S ACU), ILLEGAL DIGITS SHOULD BE INSERTED IN THE WRITE BUFFER AT DIAL TONE POINTS. THE OVERALL DRIVER TIME OUT VALUE (IN EQT14) SET AT SYSTEM GENERATION TIME IS INDEPENDENT OF THE TIME OUT VALUES SPECIFIED WITHIN THE DIAL SEQUENCE IN CASE OF TANDOM DIALING, AND SHOULD PREFERABLY BE GREATER THAN THE ACU'S TIMER.

HARDWARE REQUIREMENTS: 12589A INTERFACE KIT.

ORDER #22682-13318 SOURCE ON CASSETTE \$50.00



CONTRIBUTION #: 598  
CLASS: 103  
CONTRIBUTOR: LARRY SMITH  
HP, DSD

PART NUMBER: 22682-18919  
PRICE: \$20  
DATE CODE: 1617  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

MAPIU

THIS PROGRAM PRINTS A COMPACT TABLE BY LOGICAL UNIT OF ANY RTE I/II OR III I/O CONFIGURATION. THE MAP INCLUDES THE LU, EQT, SELECT CODE, SUB-CHANNEL AND CHANNEL, EQT ADDRESS, DRIVER ADDRESS, AND DEVICE TYPE. THE OUTPUT CAN BE SENT TO ANY DEVICE AND DEVICE NAMES CAN BE CHANGED BY THE USER.

HARDWARE REQUIREMENTS: TERMINAL OR PRINT DEVICE.

ORDER #22682-13319 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 599  
CLASS: 903  
CONTRIBUTOR: DANIEL GRIESER  
BATTELLE COLUMBUS  
LABORATORIES

PART NUMBER: 22682-18920  
PRICE: \$10  
DATE CODE: 1620  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: BCS

31-ODD

THIS IS A GAME IN WHICH THE PLAYER IS PITTED AGAINST THE COMPUTER. TO WIN, THE PLAYER MUST END WITH AN ODD TOTAL OF COUNTERS WHEN THE KITTY IS EXHAUSTED. THE KITTY STARTS WITH 31 COUNTERS. THE PLAYER CHOOSES WHETHER TO GO FIRST OR TO HAVE THE COMPUTER GO FIRST, THEN THE COMPUTER AND THE PLAYER ALTERNATE

CHOOSING BETWEEN 1 AND 5 COUNTERS TO BE ADDED TO THEIR TOTALS, THE COMPUTER PLAYS AN OPTIMUM GAME WITH ONLY 3125 WAYS TO LOSE. THE PLAYER, HOWEVER, HAS ALMOST 10 MILLION WAYS TO LOSE SO THAT COMPLETELY RANDOM CHOICES WILL RARELY LEAD TO A WIN.

HARDWARE REQUIREMENTS: 4K AND TTY.



CONTRIBUTION #: 600

CLASS: 110

CONTRIBUTOR: BENNETT MEYER  
THE SINGER COMPANY  
KEARFOTT DIVISION

PART NUMBER: 22682-18921

PRICE: \$30

DATE CODE:  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE-I/II/III

#### FILE TRANSFER BETWEEN RTE AND DOS-M/III

THIS PROGRAM PROVIDES THE CAPABILITY OF TRANSFERRING FILES BETWEEN RTE AND DOS-M OR DOS-III SYSTEMS. THE PROGRAM WILL RUN UNDER RTE-1, RTE-2 OR RTE-3. A DOS-M OR DOS-III DISC MUST BE PLACED INTO A PERIPHERAL DISC SUBCHANNEL. FILES MAY THEN BE TRANSFERRED FROM RTE TO THE DOS-M/III DISC, OR VICE VERSA. SOURCE, RELUCATABLE, OR BINARY FILES MAY BE TRANSFERRED. IN THE RTE HOST SYSTEM, FILES HANDLED MAY RESIDE IN THE FILE MANAGER, ON LS TRACKS OR ON LG TRACKS. IN THE DOS-M/III SYSTEM ON THE PERIPHERAL DISC SUBCHANNEL, FILES IN THE SYSTEM OR USER AREA MAY BE HANDLED.

EQUIPMENT REQUIRED: RTE-1, RTE-2, OR RTE-3 AND ASSOCIATED PERIPHERALS. AT LEAST 24K CORE AND A DISC DRIVE HAVING ONE OR MORE RTE ASSOCIATED SUBCHANNELS.

ORDER #22682-13321

SOURCE ON CASSETTE

\$35.00



CONTRIBUTION #: 601

CLASS: 110

CONTRIBUTOR: BENNETT MEYER  
THE SINGER COMPANY  
KEARFOTT DIVISION

PART NUMBER: 22682-18922

PRICE: \$20

DATE CODE:  
LANG: ALGOL/ASMB RELOC.  
OP SYS: RTE-I/II/III

#### DOS-M/III FILE DIRECTORY LISTING FROM RTE ENVIRONMENT

THIS PROGRAM PROVIDES THE CAPABILITY OF LISTING THE DIRECTORY OF A DISC PACK FROM WITHIN AN RTE ENVIRONMENT. THE PROGRAM WILL RUN UNDER RTE-1, RTE-2, OR RTE-3. THE DOS-M OR DOS-III DISC WHOSE DIRECTORY LISTING IS DESIRED IS PLACED INTO A PERIPHERAL DISC SUBCHANNEL. THE DOS-M/III DIRECTORY LISTING GENERATED BY THIS PROGRAM IS IDENTICAL WITH THE DIRECTORY LISTINGS GENERATED BY DOS-M OR DOS-III. THE SYSTEM DIRECTORY AND USER DIRECTORY MAY BOTH BE LISTED.



HARDWARE REQUIREMENTS: RTE-1, RTE-2 OR RTE-3 AND ASSOCIATED PERIPHERALS. AT LEAST 24K CORE, AND A DISC DRIVE HAVING ONE OR MORE RTE PERIPHERAL SUBCHANNELS.

ORDER #22682-13322 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 602 PART NUMBER: 22682-18923  
CLASS: 6 PRICE: \$25  
CONTRIBUTOR: YOSHIRO KUMANOTO DATE CODE:  
UNIVERSIT OF ELECTRO LANG: ASSEMBLY RELOCATABLE  
COMM., TOKYO OP SYS: DOS-M

DVR37 - DOS DRIVER FOR ASCII BUS (HP59310A)

THIS DRIVER (DVR37) OPERATES UNDER THE CONTROL OF THE I/O CONTROL MODULE OF THE D.O.S. EXECUTE.

THIS DRIVER IS RESPONSIBLE FOR:

1. CONTROLLING INPUT AND OUTPUT DATA TRANSMISSION WITH THE DEVICE(S) CONNECTED ON THE ASCII BUS LINE VIA HP59310A I/O CARD.
2. OUTPUTTING THE CONTROL WORD WHICH IS USED TO SELECT THE OPERATING MODES AND BUS FUNCTIONS THAT THE BUS I/O CARD IS TO PERFORM.

HARDWARE REQUIRED: DISC, HP-IB I/O CARD (59310A), AND ANY DEVICE(S) OPERABLE ON ASCII BUS SYSTEM.



CONTRIBUTION #: 603 PART NUMBER: 22682-18924  
CLASS: 102 PRICE: \$10  
CONTRIBUTOR: MATTHEW SMITH DATE CODE: 1632  
MOIRA SECONDARY SCHOOL LANG: ASSEMBLY RELOCATABLE  
CANADA OP SYS: DOS-III

DOS-III FILE SAVER

THIS PROGRAM IS CAPABLE OF SAVING PURGED FILES WHOSE BOUNDARIES ARE NOT THE SAME IN THE USER DIRECTORY AS THEY ARE ACTUALLY ON THE DISC.

THIS IS A FLEXIBLE FILE SAVING PROGRAM WHICH RESIDES ON DISC WITHIN THE HP DOS-III SYSTEM. THE PROGRAM WHEN CALLED INTO CORE IS ABLE TO (SAVE) PURGED FILES OR FILES WHOSE BOUNDARIES ARE NOT THE SAME IN THE USER DIRECTORY AS THEY ARE ACTUALLY ON THE DISC. FOR ADDED PROTECTION OF THE USER FILES, A SECURITY CODE IS INCORPORATED INTO THE PROGRAM ALONG WITH A NO ECHO INPUT FEATURE AFTER THE PROGRAM HAS BEEN CALLED INTO CORE.

HARDWARE REQUIRED: DISC, TELETYPE AND A MINIMUM DOS-III SYSTEM.



CONTRIBUTION #: 604  
 CLASS: 106  
 CONTRIBUTOR: G. T. PHIPPS  
 DEPT. OF BEHAVIORAL  
 SCIENCE, NEW YORK

PART NUMBER: 22682-18925  
 PRICE: \$10  
 DATE CODE: 1632  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

TAPE-TO-TAPE COPY, SINGLE DRIVE MAG TAPE

A SINGLE DRIVE MAGNETIC TAPE COPY UTILITY FOR DOS-M AND DOS-III. THIS PROGRAM WILL COPY HP FORTRAN GENERATED TAPES USING ONLY A SINGLE MAG TAPE DRIVE AND THE DISC. IT IS A FILE ORIENTED PROGRAM THAT CAN TAKE AS INPUT MANY FILES FROM MANY DIFFERENT TAPES, IN ANY ORDER, AND PUT THEM OUT TO A FRESH TAPE.

HARDWARE REQUIRED: 2100 CPU, 7900A DISC DRIVE, 7970B MAGNETIC TAPE DRIVE AND TTY.



CONTRIBUTION #: 605  
 CLASS: 207  
 CONTRIBUTOR: G. T. PHIPPS  
 DEPT. OF BEHAVIORAL  
 SCIENCE, NEW YORK

PART NUMBER: 22682-18926  
 PRICE: \$10.009  
 DATE CODE: 1632  
 LANG: FORTRAN IV  
 OP SYS: DOS-M

UTDMP - UNIVERSAL MAG TAPE DUMP

THIS PROGRAM PROVIDES A FORMATTED DUMP OF MAG TAPE DATA. THE DATA MAY BE IN ANY FORMAT AND THE BLOCK SIZE MAY BE OF ANY PRACTICAL LENGTH.

THE PROGRAM IS CONVERSATIONAL IN OBTAINING THE INFORMATION NEEDED FOR A JOB. (DUMPS ARE ON A PER-FILE BASIS).

THE PROGRAM GIVES BOTH AN OCTAL AND AN ALPHANUMERIC REPRESENTATION OF THE DATA IN A CONVENIENT FORM.

HARDWARE REQUIRED: 2100 CPU, 7900 DISC DRIVE, 7908B MAG TAPE DRIVE, TTY, AND LINE PRINTER DESIRABLE FOR OUTPUT.



CONTRIBUTION #: 606  
 CLASS: 600  
 CONTRIBUTOR: JOSE A. GUERRA  
 CIA, INDUSTRIAL DE  
 SAN CRISTOBAL

PART NUMBER: 22682-18927  
 PRICE: \$10  
 DATE CODE: 1632  
 LANG: FORTRAN IV  
 OP SYS: DOS-III

SIMPLEX - LINEAR PROGRAMMING FOR DOS-III

THIS PROGRAM SOLVES LINEAR PROGRAMMING PROBLEMS BY USING THE SIMPLEX OR DANTZIG METHOD. THE PROGRAM MINIMIZES AN OBJECTIVE FUNCTION SUBJECT UP TO 100 CONSTRAINTS WITH NO MORE THAN 1000 VARIABLES (REAL + ARTIFICIAL + SLACK); THE PROGRAM NEEDS AS DATA

THE FIRST TABLEAU OF THE SIMPLEX METHOD, AND THEN ELABORATES THE FOLLOWING TABLEAUS OF THE METHOD GETTING TO THE OPTIMAL SOLUTION.

THE PROGRAM CAN MAXIMIZE PROBLEMS IF THE OBJECTIVE FUNCTION OF THE MATHEMATICAL MODEL IS MULTIPLIED BY -1.

HARDWARE REQUIRED: 24K CORE MEMORY, CONSOLE (LU#1), PHOTOREADER (LU#5), LINE PRINTER (LU#6). DOS-III OPERATING SYSTEM.



CONTRIBUTION #: 607

CLASS: 102

CONTRIBUTOR: DIETER SCHMIDT  
JACQUES VAN DAMME  
CONTACT KOSKINEN

PART NUMBER: 22682-10928

PRICE: \$275

DATE CODE: 1639

LANG: ASSEMBLY RELOC/FORTR  
OP SYS: RTE-III

ADM FOR HP RTE FMGR COMPUTER SYSTEMS

ADM IS A FILE MANAGEMENT AND INFORMATION RETRIEVAL SYSTEM, THE SYSTEM HAS THE FOLLOWING CAPABILITIES:

1. RECORD DEFINITION BY DATA ELEMENT.
2. FILE ACCESSING METHODS:
  - A. SEQUENTIAL
  - B. BINARY SEARCH
  - C. HASH INDEX
3. RECORD RETRIEVAL BY:
  - A. RELATIVE RECORD NUMBER.
  - B. KEY VALUE
  - C. CONDITIONAL KEY VALUE
  - D. CROSS-REFERENCE INDEX
4. REPORT FORMATTING
5. DATA BASE UTILITY FUNCTIONS
6. SORT

HARDWARE REQUIREMENTS: DISC BASED RTE-III.

ORDER #22682-10928	800 BPI MAG TAPE	\$275.00
ORDER #22682-11928	1600 BPI MAG TAPE	\$275.00
ORDER #22682-13328	SOURCE ON CASSETTES	\$595.00



CONTRIBUTION #: 608

CLASS: 904

CONTRIBUTOR: THOMAS H. BAKER  
HP - LOVELAND COLORADO

PART NUMBER: 22682-18929

PRICE: \$30

DATE CODE: 1639

LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

RTE DRIVER PACKAGE FOR XYNETICS & CALCOMP PLOTTERS

THIS PROGRAM PACKAGE INCLUDES THE RTE DRIVER FOR XYNETICS AND CALCOMP PLOTTERS (DVP10) AND XYNETICS PLOTTER ROUTINES.

THE DRIVER ALLOWS XYNETICS 1100, 1200, AND 2000 SERIES PLOTTERS EQUIPPED WITH SG-50 SLOPE GENERATORS TO OPERATE AS STANDARD SYSTEM PERIPHERAL EQUIPMENT. STANDARD EXEC CALLS MAY BE MADE TO OUTPUT DATA AND CHECK STATUS OF PLOTTER. STANDARD SYSTEM FEATURES SUCH AS BUFFERED OUTPUT, EQUIPMENT TIMEOUT, ETC. ARE AVAILABLE. THIS DRIVER ALLOWS PROGRAMMABLE PEN COLOR CHANGES WITH AUTOMATIC OFF-SETTING SO THAT ALL COLORS LINE UP. THE DRIVER ALSO SUPPORTS CALCOMP 560 SERIES INCREMENTAL PLOTTERS. TYPE OF PLOTTER TO BE USED IS SPECIFIED BY SUBCHANNEL AT SYSTEM GENERATION TIME. PLOTTER ROUTINES (XYNETICS) - PLOT MODULE REPLACES PLOT PORTION OF STANDARD HP PLOTTER LIBRARY. THESE ROUTINES FORMAT DATA FOR THE XYNETICS FLATBED PLOTTERS, MOD 1100, 1200, AND 2000 EQUIPPED WITH SG50 SLOPE GENERATORS AND HP INTERFACES. EACH LINE DRAWN REQUIRES 8 WORDS OF DATA. ROUTINE UPDATES CURRENT PEN COORDINATES, HANDLES PEN UP/DOWN COMMANDS, AND NEW ORIGIN COMMANDS SAME AS STANDARD PLOT MODULE. THIS IS A UTILITY SUBROUTINE, TYPE 7, TO BE APPENDED TO USERS PROGRAM WHICH GENERATES DATA. A TEST PROGRAM IS SUPPLIED TO VERIFY CORRECT OPERATION. THIS TEST PROGRAM DRAWS A SIMPLE GEOMETRIC PATTERN USING ALL 4 PEN COLORS AND PLOTS A FEW SYMBOLS.

HARDWARE REQUIREMENTS: XYNETICS FLATBED PLOTTER 1100, 1200, 2000 SG-50 SLOPE GENERATOR C65A/21 HPIN INTERFACE CARD FOR HP2100 COMPUTER P/N 102708. HP INTERFACE CABLE HP125668. 4-PEN IN-LINE MARKER P/N WA40B.

HP125668 I/O CARD: W1 = A; W2 = C; W3 = B; W4 = B; W9 = A;  
W5-8 DISCONNECT

HP RTE OPERATING SYSTEM.

ORDER #22682-13329

SOURCE ON CASSETTE(S)

\$75.00



CONTRIBUTION #: 609  
CLASS: 211  
CONTRIBUTOR: LARRY SMITH  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18930  
PRICE: \$50  
DATE CODE: 1639  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE

#### RTE SYSTEM MAINTENANCE UTILITY (SMUT)

THIS ROUTINE ALLOWS, THE RTE-II OR III USER TO PERFORM USEFUL DISC AND MEMORY RELATED FUNCTIONS FOR BOTH 7900 AND 7905 DISCS. THE ROUTINE USES SEVERAL SYSTEM INTRINSICS, AND CAN RUN IN A 5K OR 12K ENVIRONMENT. IT HAS A BUILT IN CALCULATOR FOR PERFORMING ARITHMETIC AND BIT MANIPULATION CALCULATIONS. THE FOLLOWING CAPABILITIES ARE OFFERED BY THE ROUTINE:

1. DISPLAY AND ALTER MEMORY.
2. REPLACE, COPY, SUM, AND INITIALIZE BLOCKS OF MEMORY.
3. DISPLAY AND ALTER ANY DISC.
4. MODIFY CORRESPONDING DISC BY ADDRESS MEMORY.
5. LIST SYMBOLIC CONTENTS OF TRACK ASSIGNMENT TABLE.
6. LIST ADDRESS OF ALL SYSTEM TABLES.
7. LIST ENTIRE EQT, LU, INT, AND I/O TABLES.

8. LIST CONTENTS OF ANY PROGRAMS ID SEGMENT.
9. LIST COMPACT TABLE OF HP-IB DEVICE TALK/LISTEN ADDRESSES.
10. INTERROGATE THE BUS.

A COMPREHENSIVE USERS GUIDE WITH NUMEROUS HINTS FOR EFFECTIVE UTILIZATION ACCOMPANIES THE PROGRAM.

HARDWARE REQUIREMENTS: RTE OPERATING SYSTEM. 2100 A/S, 21MX SERIES WITH 32K MEMORY. TERMINAL AND INPUT DEVICE. PROGRAM CAN BE RUN IN 5 OR 12K ENVIRONMENT.

ORDER #22682-13330 SOURCE ON CASSETTE(S) \$70.00



CONTRIBUTION #: 610

CLASS: 20

CONTRIBUTOR: JAMES D. REED  
HUGHES AIRCRAFT COMPANY  
ARIZONA

PART NUMBER: 22682-18931

PRICE: \$10

DATE CODE: 1639  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE-II/III

#### USER SPOOL POOL FILE ACCESS OR SPOOLING MADE EASIER

SPLUM ENABLES A USER PROGRAM TO SPOOL A LOGICAL UNIT VIA A SPOOL POOL FILE. I.E. SPLUM OVERCOMES NOT BEING ABLE TO UTILIZE THE SPOOL POOL FILES OUTSIDE OF BATCH. SPOLU IS A FORTRAN CALLABLE INTERFACE SUBROUTINE TO SPLUM. SPOLU IS A FORTRAN CALLABLE SUBROUTINE TO CLOSE AND PASS THE SPOOL POOL FILE SET UP BY SPOLU AND SPLUM. THE USE OF THESE SUBROUTINES PERMITS EASY ACCESS TO THE SPOOL FEATURES OF RTE BY THE NON-EXPERIENCED SYSTEMS PROGRAMMER. YOU MAY NOW SPOOL TO SUCH THINGS AS THE LINE PRINTER TO AVOID INTERWEAVING WITHOUT HAVING TO PLAY GAMES WITH SMP AND CREATING YOUR OWN SPOOL FILES.

HARDWARE REQUIREMENTS: STANDARD RTE II/III CONFIGURATION WITH BATCH-SPOOL SOFTWARE OPTION.

ORDER #22682-13331 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 611

CLASS: 212

CONTRIBUTOR: J. L. LARICE  
D'AVIGNON - FRANCE

PART NUMBER: 22682-18932

PRICE: \$40

DATE CODE: 1639  
LANG: FORTRAN II/ASMB RELO  
OP SYS: DOS-M

#### LOAD ON CALL

THIS PACKAGE ALLOWS EACH SUBROUTINE CALLED BY A FORTRAN MAIN PROGRAM, TO BE PLACED IN A SEGMENT. SEGMENTS ARE LOADED AT RUN TIME. THE FIRST PROGRAM RUNS AFTER COMPILATIONS AND BEFORE THE RELOCATING LOADER. IT ASKS FOR THE MAIN AND SUBROUTINE NAMES AND AFTER SEVERAL VERIFICATIONS CREATES SEGMENTS IN JOB BINARY AREA. THE SECOND PROGRAM IS A SUBROUTINE CALLED BY THE MAIN PROGRAM. IT

VERIFIES AND ASSUMES ARGUMENT TRANSFER TO THE PROPER SUBROUTINE BY LOADING THE APPROPRIATE SEGMENT IF NON-PRECEDING IN CORE. THIS PACKAGE ALLOWS APPRECIABLE CORE SPACE AND THE STORAGE TOTAL REQUIRED IS EQUIVALENT TO THE MAIN, THE LARGEST SUBROUTINE, PLUS 150/10 WORDS FOR THE (LOAD CALL) ROUTINE. A TEST PROGRAM IS INCLUDED.

HARDWARE REQUIREMENTS: A MINIMUM DOS-M CONFIGURATION.



CONTRIBUTION #:	612	PART NUMBER:	22682-18933
CLASS:	104	PRICE:	\$30
CONTRIBUTOR:	WILLIAM H. HEFFNER, III	DATE CODE:	1640
	PHILADELPHIA OPTICAL CO.	LANG:	FORTRAN IV
	PHILADELPHIA, PENNSYLVANIA	OP SYS:	BCS,DOS-M/III,RTE

#### 12 X 12 CHARACTER GENERATOR SUBROUTINE

THE 12 X 12 CHARACTER GENERATOR ALLOWS THE USER TO CREATE BLOCK LETTERS FROM THE FOLLOWING CHARACTER SET:

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789\$#: /+!'()\*?.\_-X\↑[]

THE SUBROUTINE IS CALLED WITH THE DESIRED CHARACTER, A 12 X 12 MATRIX, AND THE DESIRED PATTERN CHARACTER. THE MATRIX IS THEN FILLED IN AI FORMAT, WITH THE DESIRED CHARACTER USING THE PATTERN CHARACTER.

HARDWARE REQUIREMENTS: DOS-M/III, BCS, MTS, RTE. MINIMAL SYSTEM WITH 2K OF SPACE FOR THE SUBROUTINE.

ORDER #22682-13333      SOURCE ON CASSETTE      \$35.00



CONTRIBUTION #:	613	PART NUMBER:	22682-10934
CLASS:	212	PRICE:	\$40
CONTRIBUTOR:	ROBERT NICHOLSON	DATE CODE:	1640
	KAREN CHEZ	LANG:	FORTRAN IV
	HP - DSD, CUPERTINO	OP SYS:	RTE

#### RTE MACRO PROCESSOR

THIS PROGRAM IS A GENERALIZED MACRO PROCESSOR WHICH PROVIDES FACILITIES FOR DEFINING, INVOKING, AND PURGING MACRO-DEFINITIONS. IT MAY BE USED TO EXTEND EXISTING PROGRAMMING LANGUAGES BY ADDING MACRO STATEMENTS, OR TO TRANSLATE SIMILAR LANGUAGES.

HARDWARE REQUIREMENTS: 2100 SERIES WITH 64K, A CONSOLE, I/O DEVICES AND DISC. RTE-II/III WITH FMP.

ORDER #22682-10934	800 BPI SOURCE MAG TAPE	\$40.00
ORDER #22682-11934	1600 BPI SOURCE MAG TAPE	\$40.00
ORDER #22682-13334	SOURCE ON CASSETTE(S)	\$70.00



CONTRIBUTION #: 614	PART NUMBER: 22682-18935
CLASS: 13	PRICE: \$10
CONTRIBUTOR: JAN STEVENS	DATE CODE: 1641
HEVERLEE, BELGIUM	LANG: ASSEMBLY RELOCATABLE
	OP SYS: BCS, DOS-M

DATEL SYSTEM 256 ANALOG-TO-DIGITAL CONVERTER ROUTINE

THIS PROGRAM IS A DRIVER FOR A MULTI-CHANNEL ANALOG-TO-DIGITAL CONVERTER SYSTEM: DATEL SYSTEM 256  
IT IS DESIGNED FOR THE CASE WHERE A SET OF ANALOG SIGNALS HAVE TO BE SAMPLED OVER A LONG PERIOD. THE AMOUNT OF DATA ACQUIRED THIS WAY IS TOO LARGE TO BE HELD IN MEMORY. THEREFORE, THE PROGRAM SWITCHES BETWEEN TWO BUFFERS IN MEMORY, ALLOWING THE USER TO STORE ONE BUFFER ON A MASS-STORAGE DEVICE WHILE THE OTHER BUFFER IS BEING FILLED. THE SAMPLING RATE IS SET BY MEANS OF A TIME BASE GENERATOR.  
THE CONTROLLER ROUTINE CONSISTS OF AN INITIATION SECTION WHICH INITIALIZES THE TIME BASE GENERATOR AND A CONTINUATION SECTION WHERE THE ANALOG SIGNALS ARE SAMPLED AND STORED IN THE DATA BUFFER.

HARDWARE REQUIREMENTS: TIME BASE GENERATOR MICROCIRCUIT AND DATEL SYSTEM 256. DOS-M OR BCS OPERATING SYSTEM.



CONTRIBUTION #: 615	PART NUMBER: 22682-18936
CLASS: 316	PRICE: \$10
CONTRIBUTOR: JAN STEVENS	DATE CODE: 1641
HEVERLEE, BELGIUM	LANG: FORTRAN IV
	OP SYS: DOS-M

FAST FOURIER TRANSFORM WITH DATA-STORAGE ON DISC

THIS PROGRAM FINDS THE FORWARD FOURIER TRANSFORM OF A LARGE COMPLEX DATA ARRAY STORED ON DISC, USING THE COOLEY-TUKEY ALGORITHM. THE PROGRAM IS WRITTEN FOR A BLOCK SIZE OF 4096 BUT THIS LENGTH (AN INTEGER POWER OF 2) CAN EASILY BE CHANGED. THE TRANSFORM IS EXECUTED IN PLACE, SO THE ORIGINAL DATA ARE LOST. THE RESULT IS LEFT IN BIT REVERSE ORDER, BUT A SEPARATE PROGRAM FOR PRINTOUT IN THE RIGHT ORDER IS PROVIDED. THE TRANSFORM PROGRAM USES A SECOND ARRAY ON DISC FOR STORAGE OF SINE - AND COSINE VALUES NEEDED.

HARDWARE REQUIREMENTS: MINIMUM DOS-M CONFIGURATION.



CONTRIBUTION #: 616  
 CLASS: 22  
 CONTRIBUTOR: J. A. HALL  
 BRITISH MUSEUM - LONDON

PART NUMBER: 22682-18937  
 PRICE: \$10  
 DATE CODE: 1644  
 LANG: FORTRAN IV/ASMB RELO  
 OP SYS: RTE

## DLU FOR RTE

DLU IS A PROGRAM TO DUMP, RESTORE AND VERIFY WHOLE 7900 CARTRIDGES TO AND FROM MAGNETIC TAPE. IT IS COMPATIBLE WITH THE STAND-ALONE DLU HP 25123-60030 BUT RUNS UNDER RTE.

HARDWARE REQUIREMENTS: 30K PARTITION, 7900 AND MAGNETIC TAPE DRIVE. RTE OPERATING SYSTEM.

ORDER #22682-13337 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 617  
 CLASS: 110  
 CONTRIBUTOR: FRED D. CARTER  
 INSTRUMENT CORPORATION OF  
 AMERICA

PART NUMBER: 22682-18938  
 PRICE: \$30  
 DATE CODE: 1644  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: DOS-IIIB

## DOS-IIIB INTERACTIVE EDITOR

EDITR IS A DOS VERSION OF THE RTE INTERACTIVE EDITOR. IT ALLOWS A USER TO EDIT TYPE-S (SOURCE) FILES CONVERSATIONALLY THROUGH A TELEPRINTER CONSOLE. BOTH LINE AND CHARACTER EDITS ARE SUPPORTED. THE USER ENTERS A SERIES OF CONTROL COMMANDS TO EDIT THE ORIGINAL FILE. LINES CAN BE INSERTED OR DELETED, AND TEXT EXCHANGES CAN BE MADE. UNLIKE THE STANDARD DOS EDITOR (:ED), EDITR WILL ALLOW THE FILE TO BE RESCANNED FOR FURTHER EDITING. A DOS-IIIB OPERATING SYSTEM MUST BE USED, BECAUSE EDITR USES THE FILE CREATE, FILE PURGE, AND FILE RENAME EXEC CALLS ( EXEC 32, 33 34).

DOS-IIIA AND DOS-M WILL NOT WORK UNLESS THIS PROGRAM IS MODIFIED TO HANDLE ITS OWN DIRECTORY CHANGES.

EDITR USES ALL AVAILABLE CORE (EXCLUSIVE OF ITSELF) FOR BUFFERING THE DISC. THEREFORE, PROGRAM EFFICIENCY INCREASES IF MORE THAN THE MINIMUM MEMORY REQUIREMENT IS AVAILABLE.

FOR COMPLETE OPERATING PROCEDURES, THE USER IS REFERRED TO EITHER OF THE FOLLOWING TEXTS:

RTE-II PROGRAMMING AND OPERATING MANUAL (92001-93001), SECTION 4, PART 2.  
 RTE INTERACTIVE EDITOR (92060-90014).

MINIMAL DOS-III, I.E. 16K COMPUTER, MOVING HEAD DISC AND A TELEPRINTER.







THE CURRENT USER DISC AND THE SYSTEM DISC BY USING THE FILE NAMES \$USER AND \$SYSTEM.

HARDWARE REQUIREMENTS: MINIMAL DOS WITH A 7900A DISC DRIVE.  
DOS-III OPERATING SYSTEM.



CONTRIBUTION #: 620

CLASS: 22

CONTRIBUTOR: WILLIAM H. HEFFNER, III  
PHILADELPHIA OPTICAL CO.

PART NUMBER: 22682-18941

PRICE: \$10

DATE CODE: 1644

LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-IIIB

#### DOS-IIIB CHANGE SYSTEM CONSOLE PROGRAM

THE DOS-III CHANGE SYSTEM CONSOLE PROGRAM ALLOWS THE USER TO REASSIGN THE SYSTEM CONSOLE (LU# 1) TO ANY REMOTE TERMINAL.

THERE ARE ONLY TWO RESTRICTIONS TO THIS PROGRAM:

1. THE REMOTE TERMINAL DRIVER MUST BE CORE RESIDENT.
2. THE REMOTE TERMINAL DRIVER MUST NOT CONTAIN DMA.

ONCE THE REMOTE TERMINAL HAS BEEN ASSIGNED AS THE SYSTEM CONSOLE, THE USER MAY USE THIS PROGRAM TO CHANGE BACK TO THE ORIGINAL TERMINAL.

HARDWARE REQUIREMENTS: MINIMAL DOS-IIIB SYSTEM.



CONTRIBUTION #: 621

CLASS: 905

CONTRIBUTOR: JACK HOWARD  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18942

PRICE: \$80

DATE CODE: 1644

LANG: FTN IV/ASMB/MICROCOD  
OP SYS: RTE-II/III

#### RTE 2/3 ACTIVITY PROFILE GENERATOR FOR 21MX M/E COMPUTERS

THIS PROGRAM PACKAGE ANALYZES ACTIVITY IN ONE OR MORE APPLICATION PROGRAMS. ON A BASIS OF THIS ACTIVITY, THE APPLICATIONS MAYBE OPTIMIZED BY RECODING OR MICORCODING.

THE PROGRAMS BEING ANALYZED NEED NOT BE MODIFIED FOR PURPOSES OF THE ANALYSIS. THE ANALYSIS PROGRAM RUNS IN RTE-2 OR RTE-3 ON A 21MX M OR 21MX E SERIES.

HARDWARE REQUIREMENTS: WCS CARD. RTE-2 OR RTE-3 OPERATING SYSTEM.

ORDER #22682-13342

SOURCE ON CASSETTE(S)

\$70.00



CONTRIBUTION #: 622  
CLASS: 22  
CONTRIBUTOR: JOHN TRUDEAU  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18943  
PRICE: \$10  
DATE CODE: 1644  
LANG: FORTRAN IV  
OP SYS: RTE-II/III

PROGRAMMING FOR HP2645 TERMINAL (SOFTKEYS)

JKEYS OPERATES INTERACTIVELY, PROMPTING AND RECEIVING FROM THE OPERATOR THE DATA REQUIRED TO CREATE OR EDIT A DISC FILE CONTAINING PROGRAMMING INFORMATION FOR HP2645 TERMINAL (SOFTKEYS).

DUMPING THE FILE (:DU, FMGR COMMAND) TO A 2645:

- A. PROGRAMS THE 8 SOFT KEYS AS SPECIFIED.
- B. WRITES A (MENU) ACROSS THE TOP OF THE CRT SCREEN, IN A PROTECTED FIELD, USING INVERSE VIDEO CAPABILITIES OF THE TERMINAL.

HARDWARE REQUIREMENTS: MINIMAL RTE-II/III OPERATING SYSTEM WITH 2645 TERMINAL.

ORDER #22682-13343 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 623  
CLASS: 110  
CONTRIBUTOR: WILLIAM H. HEFFNER, III  
PHILADELPHIA OPTICAL CO.  
PENNSYLVANIA

PART NUMBER: 22682-18944  
PRICE: \$10  
DATE CODE: 1644  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M, DOS-III

ASCII SOURCE FILE READ SUBROUTINE

THE ASCII SOURCE FILE READ SUBROUTINE ENABLES THE USER TO HAVE THE FOLLOWING CAPABILITIES:

- 1. SOURCE FILE READ CAPABILITY;  
THE USER MAY CONCURRENTLY READ TO A MAXIMUM OF TEN DISC FILES. THESE DISC FILES NEED NOT BE AN ASCII DISC FILE, BUT THE FILE BEING READ MUST BE STRUCTURED THE SAME AS AN ASCII DISC FILE. EACH OPENED FILE IS ASSIGNED A BUFFER (128 WORD MINIMUM). DEPENDING UPON THE SIZE OF THE BUFFER I/O EFFICIENCY MAY BE GREATLY INCREASED SINCE THE ROUTINE PERFORMS BOTH LOGICAL AND PHYSICAL READS.
- 2. SEQUENTIAL READ CAPABILITY;  
AS MENTIONED ABOVE THE INPUT FILE DOES NOT HAVE TO BE A SOURCE FILE, BUT THE FILE STRUCTURE MUST BE IDENTICAL TO A SOURCE FILE. THE USER MAY USE THIS SUBROUTINE SIMPLY AS A POWERFUL HIGH SPEED SEQUENTIAL FILE READ SUBROUTINE.

SINCE THE HIGH SPEED DISC INPUT/OUTPUT SUBROUTINE IS REQUIRED (HP# 22681-18981) THE USER MAY READ THE SCRATCH AREAS OF BOTH THE CURRENT USER DISC AND THE SYSTEM DISC BY USING THE FILE NAMES

\$USER AND \$SYSM. (THESE FILES MUST COMPLY TO THE ASCII FILE STRUCTURE ALSO).

HARDWARE REQUIRED: MINIMAL DOS-M OR DOS-III OPERATING SYSTEM INCLUDING A 7900A DISC DRIVE.



CONTRIBUTION #: 624  
CLASS: 22  
CONTRIBUTOR: ALAN VIGANO  
HP - PALO ALTO

PART NUMBER: 22682-18945  
PRICE: \$10  
DATE CODE: 1648  
LANG: ASMB RELOC/FTN IV  
OP SYS: RTE

UNEXT

THIS PROGRAM SEARCHES EACH MOUNTED DISC FOR FILES WITH EXTENTS, TYPE 3 OR GREATER, AND RESTORES THEM WITHOUT EXTENTS. IT WILL ALSO, OPTIONALLY RECLAIM FROM TYPE 4 FILES ONLY, ANY UNUSED BLOCKS FROM THE FILE.

ORDER #22682-13345 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #: 625  
CLASS: 905  
CONTRIBUTOR: JACK HOWARD  
HP - OSD, CUPERTINO

PART NUMBER: 22682-18946  
PRICE: \$40  
DATE CODE: 1648  
LANG: ASMB RELOC. & MICRO  
OP SYS: BCS,MTS,DOS-M,RTE

21MX MICROCODED FFT WITH AUTOMATIC SCALING ON OVERFLOW

THIS SUBROUTINE PERFORMS A MICROCODE ENHANCED FFT (FAST FOURIER TRANSFORM) WITH AUTOMATIC SCALING ON OVERFLOW. DATA TO BE TRANSFORMED MUST BE PRESENTED AS A SINGLE INTEGER ARRAY. THE DATA MAY BE COMPLEX OR REAL. IF COMPLEX, THE ODD SUBSCRIPTED ELEMENTS ARE THE (REALS), AND THE EVEN SUBSCRIPTED ELEMENTS ARE THE (IMAGINARIES). IF REAL, THE (REALS) ARE CONTIGUOUS.

A COMPLEX TRANSFORM OF SIZE N REQUIRES 2\*N MEMORY LOCATIONS. A REAL TRANSFORM OF SIZE N REQUIRES N MEMORY LOCATIONS. EXECUTION TIME FOR 1024 COMPLEX POINTS IS ABOUT 300 MS (MILLISECONDS). EXECUTION TIME FOR 1024 COMPLEX (ALL IMAGINARIES = 0) POINTS OR 1024 REAL POINTS IS ABOUT 160 MS. EACH OVERFLOW INCREASES EXECUTION TIME BY 6 MS FOR COMPLEX TRANSFORMS; EACH OVERFLOW INCREASES EXECUTION TIME BY 3 MS FOR COMPLEX (ALL IMAGINARIES = 0) OR REAL TRANSFORMS.

THE ASSEMBLY LANGUAGE PORTION OF THE SUBROUTINE REQUIRES 269 MEMORY LOCATIONS. THE MICROCODED PORTION REQUIRES 512 WORDS OF CONTROL STORE.

HARDWARE REQUIREMENTS: WCS CARD OR MICROCODE FUSED INTO PROM CHIPS. RTE, DOS-M, BCS OR MTS OPERATING SYSTEM. 21MX

ORDER #22682-13346 SOURCE ON CASSETTE(S) \$70.00



CONTRIBUTION #:	626	PART NUMBER:	22682-18947
CLASS:	100	PRICE:	\$10
CONTRIBUTOR:	P. A. SWARTZ	DATE CODE:	1648
	HUGHES AIRCRAFT COMPANY	LANG:	ASSEMBLY RELOCATABLE
	TUSCON, ARIZONA	OP SYS:	RTE

(STRAK) TEMPORARY, EXPANDABLE FIXED LENGTH RECORD DISC FILE

'STRAK' PROVIDES THE RTE USER WITH A TEMPORARY FILE WHICH IS AUTOMATICALLY EXPANDABLE. THE FILE IS WRITTEN ON THE SYSTEM TRACKS AND OPERATES LIKE A RANDOM ACCESS TYPE 2 FILE MANAGER FILE. IT SUPPORTS FIXED LENGTH RECORDS WITH THE LENGTH SPECIFIED IN A SETUP CALL. THE PROGRAM IS USEFUL FOR TEMPORARY STORAGE OF DATA WHEN THE QUANTITY OF DATA CANNOT BE DETERMINED BEFOREHAND.

HARDWARE REQUIRED IS A 7900 DISC DRIVE.

ORDER #22682-13347 SOURCE ON CASSETTE \$35.00



CONTRIBUTION #:	627	PART NUMBER:	22682-18948
CLASS:	108	PRICE:	\$20
CONTRIBUTOR:	WILLIAM H. HEFFNER III	DATE CODE:	1648
	PHILADELPHIA OPTICAL	LANG:	ASSEMBLY RELOCATABLE
	COMPANY, INC.	OP SYS:	DOS-IIIB

FORMATTED READ/WRITE TO DISC FILES USING FORTRAN READ/WRITE STMTS

THIS PROGRAM IS SIMILAR TO THE 'CODE' PROGRAM IN THE FORTRAN LIBRARY. WHEN A CALL DISK (FNAME, ISTAT) IS MADE BEFORE THE FORMATTED READ OR WRITE STATEMENT, THE DATA IS TRANSFERRED TO/FROM THE SPECIFIED FILE. THIS GIVES THE ABILITY TO FORMAT DATA USED ON THE DISC. (ASCII SOURCE FILES MAY BE EITHER WRITTEN OR READ). THE CALL DISK AND THE READ/WRITE FOLLOWING ARE TREATED AS IF THEY WERE ONE STATEMENT. IF THE READ WRITE IS EXECUTED WITHOUT EXECUTING THE CALL DISK, THEN IT FUNCTIONS NORMALLY. WHEN EXECUTING THE CALL DISK, THE UNIT NUMBER IS IGNORED. THE TRANSFER IS DIRECTED TOWARDS THE FILE NAMED IN FNAME. 'DISK' IS INTENDED FOR USE WITH ONLY ASCII RECORDS.

A MINIMAL DOS-III SYSTEM IS REQUIRED.



CONTRIBUTION #: 628  
CLASS: 211  
CONTRIBUTOR: LARRY SMITH  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18949  
PRICE: \$10  
DATE CODE: 1701  
LANG: FORTRAN IV  
OP SYS: RTE-II/III

CLASS - INTERROGATE CLASS I/O SYSTEM

THIS PROGRAM ALLOWS THE RTE-II OR RTE-III USER TO COMPLETELY INTERROGATE THE CLASS I/O SYSTEM. IT IS CAPABLE OF DISPLAYING THE ENTIRE CLASS TABLE STATUS, LISTING THE CONTENTS OF THE CLASS TABLE, AND CLEARING OUT PENDING CLASS BUFFERS ON A PARTICULAR CLASS NUMBER. THE UTILITY IS COMPLETELY CONVERSATIONAL WITH ERROR MESSAGES.

FILE MANAGEMENT SYSTEM IS REQUIRED.

ORDER #22682-14449 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 629  
CLASS: 5  
CONTRIBUTOR: LARRY SMITH  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18950  
PRICE: \$10  
DATE CODE: 1701  
LANG: FORTRAN IV  
OP SYS: RTE-II/III

TRACK

THIS PROGRAM GIVES A COMPLETE BREAKDOWN IN TABULAR FORM OF THE RTE SYSTEM AND AUXILIARY DISCS AS TO OWNERSHIP. THE PROGRAM LISTS SWAP TRACKS FOR PROGRAMS BEING SWAPPED AND THE SYSTEM LIBRARY AND ENTRY POINT TABLE.

HARDWARE REQUIREMENTS INCLUDE A 7900 OR 7905 DISC.

ORDER #22682-13350 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 630  
CLASS: 108  
CONTRIBUTOR: LARRY SMITH  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18951  
PRICE: \$10  
DATE CODE: 1701  
LANG: FORTRAN IV  
OP SYS: RTE-II/III

FMP-UTIL

THESE THREE PROGRAMS ALLOW THE USER TO RESTORE, SAVE, OR RETRIEVE FILE MANAGER FILES ON 7970 OR 3030 MAG TAPE TRANSPORTS AND A 7900 OR 7905 DISC. ALL UTILITIES ARE COMPLETELY CONVERSATIONAL AND

SELF-CONFIGURING WITH ELABORATE ERROR CHECKING. CHECKS ARE MADE TO ENSURE FILE MANAGER DIRECTORY CAPATIBILITY.

HARDWARE REQUIREMENTS INCLUDE A 7900 OR 7905 DISC.

ORDER #22682-13351 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 631  
CLASS: 200  
CONTRIBUTOR: PAUL A. SWARTZ  
HUGHES AIRCRAFT COMPANY

PART NUMBER: 22682-18952  
PRICE: \$10  
DATE CODE: 1701  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: DOS-M,RTE

MINV - INVERSE ASSEMBLER FOR MICROCODE

'MINV' IS AN INVERSE ASSEMBLER FOR 2100 MICROCODE. IT WILL PRODUCE A LISTING FROM A BINARY TAPE GENERATED BY THE MICRO ASSEMBLER. 'MINV' WILL ALSO PRODUCE SOURCE CODE THAT CAN BE DIRECTLY INCORPORATED IN ASSEMBLY LANGUAGE PROGRAMS. IT GENERATES 'OCT' STATEMENTS WITH THE PROPER MICRO INSTRUCTION CODES AND PUTS THE CORRESPONDING INVERSE ASSEMBLY IN THE COMMENTS FIELD. THIS CAN BE PUT INTO A PROGRAM SO THAT THE PROGRAM CAN WRITE IT TO WCS, MAKING THE PROGRAM MORE SELF CONTAINED.

HARDWARE REQUIREMENTS INCLUDE READER AND OUTPUT DEVICES.

ORDER #22682-13352 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 632  
CLASS: 901  
CONTRIBUTOR: LARRY SMITH  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18953  
PRICE: \$10  
DATE CODE: 1701  
LANG: FORTRAN IV  
OP SYS: RTE-II/III

RTDMO

THIS PROGRAM ILLUSTRATES HOW TO UTILIZE THE FILE MANAGER CALL AND PROGRAM THE 2640 SERIES TERMINALS. SINCE THE NATURE OF THE PROGRAM LENDS ITSELF TOWARD A GENERAL ASCII MESSAGE PROCESSOR (PAGE ORIENTED), IT CAN BE USED TO IMPLEMENT AND DISPLAY ANY DESIRED DATA CASE WITH LIMITS TAILORED TO THE 2640 SERIES SCREEN FOR 23 LINES WITH 132 CHARACTERS PER LINE. THE CURSOR IS RESERVED FOR LINE 24.

HARDWARE REQUIREMENTS INCLUDE A 2640 OR 2644 TERMINAL FOR DISPLAY PURPOSES.

ORDER #22682-13353 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 633  
 CLASS: 110  
 CONTRIBUTOR: WILLIAM KANTROWITZ  
 M.I.T. LINCOLN LAB.  
 MASSACHUSETTES

PART NUMBER: 22682-18954  
 PRICE: \$10  
 DATE CODE: 1701  
 LANG: FORTRAN IV  
 OP SYS: RTE

LISTF - SELECTIVE FMGR DIRECTORY LISTER

'LISTF' PRODUCES A PARTIAL DIRECTORY LIST OF FMGR DIRECTORY(S) BASED ON USER SPECIFIED CRITERIA. ANY COMBINATION OF THE FOLLOWING CRITERIA MAY BE SPECIFIED BY THE USER:

1. FILENAME, OR MORE GENERALLY, THE PRESENCE OF GIVEN CHARACTERS IN ANY OF THE 6 FILENAME CHARACTER POSITIONS.
2. FILETYPE
3. CARTRIDGE REFERENCE NUMBER
4. EXTENT NUMBER.

A FILE MUST SATISFY ALL THE CRITERIA GIVEN BY THE USER IN ORDER TO BE INCLUDED IN THE OUTPUT LIST. OMITTED CRITERIA DEFAULT TO 'ALL'. OUTPUT MAYBE DIRECTED TO A DEVICE OF THE USER'S CHOOSING. ALTERNATIVELY, OUTPUT MAY BE DIRECTED TO A FILE (NAMED LISTXX) IN PROCEDURE FILE FORMAT FOR SUBSEQUENT PROCESSING.

ORDER #22682-13354 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 634  
 CLASS: 4  
 CONTRIBUTOR: PAUL A. SWARTZ  
 HUGHES AIRCRAFT COMPANY

PART NUMBER: 22682-18955  
 PRICE: \$10  
 DATE CODE: 1701  
 LANG: ASSEMBLY RELOCATABLE  
 OP SYS: RTE

EQTXX

'EQTXX' IS USED TO ACCESS EQT ENTRIES. SPECIFIED WORDS OF AN EQT ENTRY CAN BE READ OR WRITTEN TO DYNAMICALLY CHANGE ASPECTS OF A DEVICE UNDER PROGRAM CONTROL. EQT ENTRIES CAN BE ACCESSED BY EQT NUMBER OR LU NUMBER.

ORDER #22682-13355 SOURCE CASSETTE PACKAGE \$35.00



CONTRIBUTION #: 635  
 CLASS: 905  
 CONTRIBUTOR: DONALD L. CLAPP  
 ELI LILLY & COMPANY

PART NUMBER: 22682-18956  
 PRICE: \$10  
 DATE CODE: 1701  
 LANG: MICRO ASSEMBLY  
 OP SYS: DOS, RTE

21MX MICROCODED .PACK AND .FLUN

THESE TWO ROUTINES ARE DIRECT REPLACEMENTS FOR THE STANDARD



LIBRARY SUBROUTINES. A TOTAL OF 17 WORDS OF MICROCODE REPLACES MORE THAN 100 WORDS OF ASSEMBLY LANGUAGE.

HARDWARE REQUIREMENTS INCLUDE A 21MX CPU AND USER CONTROL STORE.

ORDER #22682-13356

SOURCE CASSETTE PACKAGE

\$35.00



CONTRIBUTION #: 636  
CLASS: 202  
CONTRIBUTOR: LARRY SMITH  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18957  
PRICE: \$10  
DATE CODE: 1701  
LANG: RELOCATABLE ASSEMBLY  
OP SYS: RTE-II/III

OVER

THIS PROGRAM ALLOWS THE RTE-II/III USER TO INPUT ABSOLUTE RECORDS FROM ANY DEVICE INTO CORRESPONDING MEMORY. THE PROGRAM IS COMPLETELY CONVERSATIONAL AND IS PRIMARILY DESIGNED FOR ON-LINE DRIVER DEVELOPMENT.

THE PROGRAM REQUIRES 5K OF MEMORY.

ORDER #22682-13357

SOURCE CASSETTE PACKAGE

\$35.00



CONTRIBUTION #: 637  
CLASS: 212  
CONTRIBUTOR: MIKE MANLEY  
HP - DSD, CUPERTINO

PART NUMBER: 22682-18958  
PRICE: \$50  
DATE CODE: 1702  
LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE-III

DFINE - REDEFINE PARTITIONS ON-LINE

THIS PROGRAM ALLOWS THE USER TO REDEFINE PARTITIONS IN RTE-III WHILE UN-LINE. CHANGES MAY BE MEMORY ONLY, DISC ONLY OR MEMORY AND DISC. THE SYSTEM MAY BE ACTIVE WHILE PARTITIONS ARE BEING REDEFINED. THERE ARE MINIMAL CAUTIONS (INPUT ERRORS WHICH CAN NOT BE DETECTED); THESE ARE EXPLAINED IN THE DOCUMENTATION. PAGES WITH PARITY ERRORS MAY BE OMITTED FROM THE REDEFINED PARTITIONS. PARTITION DEFINITION FOLLOWS THE SAME PROCEDURE AS THE GENERATOR ITSELF (EXCEPT THE GENERATOR DOES NOT EXCLUDE REQUIREMENTS OF REAL-TIME AND BACKGROUND PROGRAMS AND ANY PARTITION ASSIGNMENTS. MEMORY SIZE IS REQUESTED; THE RESPONSE MAY BE A MEMORY SIZE LESS THAN OR GREATER THAN SPECIFIED AT GENERATION. THE EASE OF REDEFINING PARTITIONS PERMITS THE USER TO EXPERIMENT TO FIND THE OPTIMUM FOR HIS APPLICATION AND TO MAKE CHANGES TO ACCOMODATE OCCASIONAL UNUSUAL NEEDS. (SAY 14 PAGES) MAY BE NEEDED FOR A PROGRAM THAT IS RUN PERHAPS ONCE A MONTH. THE REST OF THE TIME,

A 14 PAGE PARTITION WOULD BE WASTEFUL OF MEMORY. SOME OF THE QUESTIONS A USER MIGHT HAVE ARE:

1. HOW MANY PARTITIONS DO I NEED?
2. HOW MANY SHOULD BE REAL-TIME AND HOW MANY SHOULD BE BACKGROUND?
3. SHOULD SOME OF MY PARTITIONS BE RESERVED FOR SPECIAL PROGRAMS? WHICH PARTITIONS AND WHICH PROGRAMS?

OPINE MAKES IT EASY TO EXPERIMENT WITH THESE PARAMETERS AND CHANGE THE PARTITIONS WITHOUT REGENERATION. THIS PLACES LESS OF A BURDEN UPON THE USER TO THOROUGHLY ANALYZE HIS NEEDS PRIOR TO DOING THE GENERATION.

HARDWARE REQUIREMENT INCLUDE A 21MX CPU.

ORDER #22062-13358

SOURCE CASSETTE PACKAGE

\$105.00



CONTRIBUTION #: 639

CLASS: 21

CONTRIBUTOR: PAUL A. SWARTZ  
HUGHES AIRCRAFT COMPANY  
TUCSON, ARIZONA

PART NUMBER: 22682-18960

PRICE: \$10

DATE CODE: 1703

LANG: ASSEMBLY RELOCATABLE  
OP SYS: RTE-II/III

NAMR

'NAMR' IS AN RTE-II OR RTE-III SUBROUTINE THAT INTERFACES TO SYSTEM SUBROUTINE SPARS TO BREAK OUT THE INDIVIDUAL FIELDS OF A STANDARD RTE FILE NAME. THE PASSED BUFFER INITIALLY CONTAINS NAME:SC:CRN AND NAMR RETURNS THE NAME AS AN ASCII STRING AND THE SECURITY CODE AND CARTRIDGE NUMBER AS BINARY INTEGERS. 'NAMR' CAN BE PASSED A BUFFER OR IT WILL INPUT THE BUFFER FROM A SPECIFIED LOGICAL UNIT, USING SYSTEM SUBROUTINE REID.

ORDER #22682-13360

SOURCE CASSETTE PACKAGE

\$35.00



CONTRIBUTION #: 638  
CLASS: 207  
CONTRIBUTOR: HUGO C. BRAESICKE  
UNIVERSITY OF TEXAS  
AT AUSTIN

PART NUMBER: 22682-18959  
PRICE: \$10  
DATE CODE: 1703  
LANG: FORTRAN IV  
OP SYS: DOS-M

DOS-M DUMP - DISC FILE DUMP UTILITY

'DUMP' IS AN INTERACTIVE PROGRAM WHICH WILL ALLOW THE DOS USER TO CONVENIENTLY EXAMINE THE CONTENTS OF ANY USER DISC FILES. THE USER SPECIFIES THE NAME OF THE FILE TO BE DUMPED, THE SECTOR WITH WHICH TO BEGIN THE DUMP, THE NUMBER OF CONSECUTIVE SECTORS TO BE DUMPED, AND THE OUTPUT FORMAT. CURRENTLY OUTPUT IS AVAILABLE IN ANY OF COMBINATION OF THE FOLLOWING FORMATS:

ASCII, OCTAL, HALF-WORD, INTEGER, FLOATING POINT

THE USER IS PROMPTED FOR ALL INPUTS, AND RECEIVES IMMEDIATE HELP TO CORRECT INPUT ERRORS. OUTPUT IS IN THE FORM OF A PAGE NUMBERED, LABELED LISTING OF THE SELECTED FILE IN THE SELECTED FORMAT.

HARDWARE REQUIREMENTS INCLUDE AN HP .2100 CPU WITH 16K MEMORY, A DOS COMPATIBLE DISC (7906 OR 7905), A TTY/CRT DEVICE (TEKTRONICS 4010, TELETYPE 33), AND A LIST DEVICE.



**SECTION III**  
**ORDERING INFORMATION**

Please photocopy this order form if you do not want to cut the page off. You will automatically receive a new order form with your order.



**CONTRIBUTED SOFTWARE  
Direct Mail Order Form**

NOTE: No direct mail order can be shipped outside the United States.

Please Print:

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Country \_\_\_\_\_

Item No.	Part No.	Qty.	Description	List Price Each	Extended Total

\*Tax is verified by computer according to your ZIP CODE. If no sales tax is added, your state exemption number must be provided: # \_\_\_\_\_. If not, your order may have to be returned.

Domestic Customers: Cash required on all orders less than \$50.00. Mail the order form with your check or money order (payable to Hewlett-Packard Co.) or your U.S. Company Purchase Order to:

Purchase Order to:

**HEWLETT-PACKARD COMPANY**  
Contributed Software  
P.O. Box 61809  
Sunnyvale, CA 94088

International Customers: Order through your local Hewlett-Packard Sales office. No direct mail order can be shipped outside the United States.

All prices domestic U.S.A. only. Prices are subject to change without notice.

Sub-total		
Your State & Local Sales Taxes*		
Handling Charge	1	50
<b>TOTAL</b>		

## ORDERING INFORMATION

Programs are available individually in source language on either paper tape, magnetic tape, or cassettes as indicated in the abstracts.

To order a particular program, it is necessary to specify the program identification number, together with an option number which indicates the type of product required. The program identification number with the option number composes the ordering number.

For example:

22113A-K01

The different options are:

K01 — Source paper tape and documentation

K21 — Magnetic tapes and documentation

### NOTE

Specify 800 BPI or 1600 BPI Magnetic tape.

B01 — Binary tape and documentation

D00 — Documentation

L00 — Listing

Not all options are available for all programs.

Ten-digit numbers do not require additional option numbers such as K01, K21, etc. The 10-digit number automatically indicates the option or media ordered.

For example:

22681-18901 — The digits 189 indicate source paper tape plus documentation.

22681-10901 — The digits 109 indicate source magnetic tape plus documentation (800 BPI magnetic tape)

22681-11901 — The digits 119 indicate source magnetic tape plus documentation (1600 BPI magnetic tape)

22681-13301 — The digits 133 indicate source cassettes plus documentation

Only those options listed in each abstract are available.

Refer to the Price List for prices and correct order numbers.

Hewlett-Packard offers no warranty, expressed or implied and assumes no responsibility in connection with the program material listed.

**SECTION IV**  
**CONTRIBUTOR'S GUIDE**

## GUIDELINES

New contributed programs are welcome for consideration as entries to the Data Systems (LOCUS), this is HP's opportunity to expand communication among users. A new contributor of an accepted program receives a traditional plaque engraved with his/her name, and the choice of any other contributed program of equal dollar value. This guide contains the necessary information for contributing all Assembly language, Fortran, and Algol programs, and also microprograms, which will run on an HP 2100, 21MX Series computer.

The Contributed Library compiles and/or assembles but does not test or maintain contributed entries. Program maintenance is the responsibility of the person submitting the program because he/she is the most knowledgeable concerning the entry. The Contributed Library does assume responsibility, however, for collecting and forwarding any error reports and/or incomplete documentation reports. (A software report form is included at the end of this guide and one is distributed with each program ordered from the Library.)

### Minimum Program Package

"Proper documentation" for possible acceptance into the Contributed Library includes: machine readable source tapes (documentation should be contained in source code when possible), Program Documentation Form (included in this guide) which is to be typed and in reproducible form, Contributed Library Disclaimer (included in this guide), and a test case.

### Documentation

The Documentation Form becomes an important reference to understanding and using a contributed program; therefore, it is important that the directions be clear and specific. When filling out this form, the contributor may encounter subdivisions requesting information inappropriate to his/her contributed package. In such instances the contributor should respond with "NONE" or "N/A" (not applicable) to insure that important documentation is not missed. Although the documentation form has been shortened, do not omit information needed to operate the program. The contributor can easily expand on any section of the Documentation Form by adding plain white 8-1/2" x 11" paper, and copying the section number followed by the word "continued".

### NOTE

All documentation, including sample runs, core allocation lists, and flow charts will be commercially printed. Therefore, all items must be submitted dark enough and clear enough to conform to printer standards. This applies especially to all computer out-output.



### **Test Case**

It is important that the user be able to verify proper functioning of the program he/she has received (i.e., no punch errors, bugs, etc.). The contributor is asked to provide a set of test inputs for the program and the corresponding output. This may take the form of a "debug" program, a listing of data values, a data source tape with accompanying output list, or in the case of contributed subroutines and microprograms, any small program that demonstrates its proper function. If this test case policy is not applicable to the program, the contributor may use the Example Input/Output Test Case Section of the Documentation Form to discuss how a user should verify that he/she has received and loaded a program properly.

### **Mailing Procedures**

All program packages submitted to the Hewlett-Packard Data Systems (LOCUS) should be wrapped securely and sent to:

*Hewlett-Packard Data Systems (LOCUS)  
11000 Wolfe Road  
Cupertino, Calif. 95014*

### **Maintenance**

The Hewlett-Packard Software Center approach to program maintenance has found general agreement among users as the only way to keep the quality of contributed programs at a high level of performance. Program maintenance implies correction of program errors, and clarification of program documentation, most often accomplished by revisions to a program. To be effective, the Contributed Library has to insure the integrity of its programs; therefore, no response to program errors may result in the removal of the program from the library.

### **Revisions**

There are many possible reasons for program revisions, including: clarification of documentation, correction of program "bugs", added versatility to a program, and any minor changes in coding designed to improve program efficiency. Revision must always be accompanied by a new Contributed Library Disclaimer checked as a revision. Only those items which are changed need be resubmitted.

### **Replacement**

A program replacement differs from a revision in that it is a completely recorded program meant to perform the same or similar function of some previously submitted package. Replacements are handled as new entries and are assigned new program identification numbers. Suggestions for upgrading existing programs are appreciated and will be carefully reviewed by Contributed Library personnel.

# CONTRIBUTED PROGRAM DOCUMENTATION FORM FOR HEWLETT-PACKARD DATA SYSTEMS (LOCUS)

## PROGRAM NUMBER/TITLE

### PROGRAM LANGUAGE(s)

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/> FORTRAN IV | <input type="checkbox"/> RELOCATABLE ASSEMBLY LANGUAGE    |
| <input type="checkbox"/> FORTRAN II | <input type="checkbox"/> ABSOLUTE ASSEMBLY LANGUAGE       |
| <input type="checkbox"/> ALGOL      | <input type="checkbox"/> MICROPROCESSOR ASSEMBLY LANGUAGE |

### PROGRAM TYPE

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| <input type="checkbox"/> PROGRAM     | <input type="checkbox"/> SUBROUTINE |
| <input type="checkbox"/> DRIVER      | <input type="checkbox"/> FUNCTION   |
| <input type="checkbox"/> OTHER _____ |                                     |

### SUPPORTED SOFTWARE REQUIREMENTS - OPERATING SYSTEM

- |                                |   |
|--------------------------------|---|
| <input type="checkbox"/> DOS-M | <input type="checkbox"/> SIO SYSTEM             |
| <input type="checkbox"/> BCS   | <input type="checkbox"/> HP BASIC VERSION _____ |
| <input type="checkbox"/> MTS   | <input type="checkbox"/> SELF-CONTAINED         |
| <input type="checkbox"/> RTE   | <input type="checkbox"/> OTHER _____            |

### PROGRAM DESCRIPTION

**CONTRIBUTED PROGRAM DOCUMENTATION FORM (2)****CONTRIBUTED SOFTWARE REQUIREMENTS**

(Name and order number of other contributed packages required)

**HARDWARE REQUIREMENTS****TAPE IDENTIFICATION**

Tape #	Contents	Control Statement (if any)

**LOAD AND RUN INSTRUCTIONS**

# CONTRIBUTED PROGRAM DOCUMENTATION FORM (3)

DIAGNOSTIC MESSAGES/ADDITIONAL EXITS

SUBROUTINES OR MICROPROGRAMS

LITERATURE REFERENCE

SPECIAL CONSIDERATIONS

EXAMPLE INPUT/OUTPUT (TEST CASE)

# HEWLETT-PACKARD DATA SYSTEMS (LOCUS) PROGRAM DISCLAIMER

INITIAL SUBMISSION

REVISION (PROGRAM NO. \_\_\_\_\_ )

Classification Code

Errors Corrected

Up to 4 Cross Reference Words

Documentation Clarified

1. \_\_\_\_\_ 2. \_\_\_\_\_

Other reason \_\_\_\_\_

3. \_\_\_\_\_ 4. \_\_\_\_\_

\_\_\_\_\_

TITLE

CONTRIBUTOR'S NAME

ORGANIZATION

ADDRESS

TELEPHONE

Name and organization to appear in catalog?

yes     no

May a user contact you directly?

yes     no

MATERIAL SUBMITTED

Documentation

Source Program

Test Case

Other \_\_\_\_\_

DISCLAIMER:

To the best of my knowledge, this contributed program is free of any proprietary information belonging to any person or organization. I am making this program information available to the HEWLETT-PACKARD CONTRIBUTED LIBRARY. I hereby agree that HP may reproduce, publish, and use it, and authorize others to do so without obligations or liability of any kind.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

## HP DATA SYSTEM (LOCUS) CONTRIBUTED SOFTWARE REPORT

Use the space provided to comment on any problems or modifications on HP 2100 contributed software and enclose any output that may be useful. A copy will be forwarded to the contributor, and a reply will be returned to the person who submits this report. Send completed report to:

*Hewlett-Packard Data Systems (LOCUS)  
11000 Wolfe Road  
Cupertino, California 95014*

Submitted By \_\_\_\_\_ Date \_\_\_\_\_

Organization Name \_\_\_\_\_ Program Name \_\_\_\_\_

Address \_\_\_\_\_ Order No. \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Phone \_\_\_\_\_

Has software been modified by user?    NO \_\_\_\_\_ YES \_\_\_\_\_ (If YES, explain below)

Enclosed References:

TTY Log \_\_\_\_\_ Listing \_\_\_\_\_ Corrected Tape \_\_\_\_\_ Corrected Listing \_\_\_\_\_

**SECTION V**  
**CONVERSION GUIDE**

## CONVERSION GUIDE

The experienced RTE user may wish to use some of the DOS programs available. Without providing an in depth study of DOS the following conversion table summarizes the EXEC call equivalents and file transfer routines available for study and/or use.



**DOS-III TO RTE-III CONVERSION GUIDE**

**EXEC CALLS**

DOS REQUEST CODE	RTE EQUIVALENT	DOS DESCRIPTION
-19	Not Defined <sup>1</sup>	Base Page Store
1, 2	1, 2	Input/Output
3	3	I/O Control
6	6	Program Completion
7	7	Program Suspension
8	8	Segment Load
10	9, 10, 23, or 24	Program Load
11	11	Time Request
13	13	I/O Status
14, 15	File Manager <sup>2</sup>	File Read/Write
16	5, 16	Work Area Status
17	Not Available <sup>3</sup>	Work Area Limits
18	File Manager <sup>4</sup>	File Name Search
23	File Manager <sup>5</sup>	User Disc Change
24	File Manager <sup>6</sup>	
27, 28	Not Defined	User EXEL Calls
29	Not Defined	Segment Return
30-41	Not Defined	EFMP Calls

<sup>1</sup> A suggested equivalent would be to use the "IPUT" routine.

<sup>2</sup> USE "READF", "WRITE", and "POST" calls.

<sup>3</sup> This is the "Class Read" call in RTE.

<sup>4</sup> Equivalent sequence might be:

```

CALL OPEN (IDCB,IER,FNAME)
IF (IERR.GE.0) GO TO N
:
:
:
N <FILE does not exist>
    
```

<sup>5</sup> An equivalent would be to change the cartridge reference parameter in the OPEN call to point to a specific disc domain.

<sup>6</sup> The equivalent to this is the size of the Data Control Block (DCB) as specified in the last parameter of the OPEN routine.

**DOS-III TO RTE FILE CONVERSION**

Cof files is handled efficiently by the following contributed programs:

- 22682-18921 FILE TRANSFER BETWEEN RTE AND DOS-M/III
- 22682-18922 DOS-M FILE DIRECTORY LISTING FROM RTE ENVIRONMENT

FILE	PART NUMBER	TYPE	LABEL		
2:	22002-80001	A	SC	TIME OF DAY CLOCK	
3:	22004-80001	A	SC	COUNTER DSI DRIVER	FTN-CALLABLE/TEST 3
4:	22005-80001	B	SC	HP2401C DVM DRIVER	FTN-CALLABLE/TEST 2
5:	22006-80001	A	SC	HP2401C DSI DRIVER	FTN-CALLABLE/TEST 1
6:	22008-80001	A	SC	HP3460A DVM-FTN	CALLABLE (TEST 2)
7:	22009-80001	B	SC	BOOTSTRAP LOADER	GENERATOR
8:	-22013-80001	B	SC	INVERSE ASSEMBLER	
9:	-22014-80001	A	SC	BINARY TAPE EDITOR	
10:	22015-80001	B	SC	BASIC LINE	RESEQUENCER
11:	-22016-80001	C	SC	SYMBOLIC ALPHA-	NUMERIC GENERATOR
12:	22017-80001	A	SC	GAMMA FUNCTION	
13:	22018-80001	A	SC	K BESSEL FUNCTION	
14:	22019-80001	A	SC	I BESSEL FUNCTION	
15:	22020-80001	A	SC	Y BESSEL FUNCTION	
16:	22021-80001	A	SC	SUBROUTINE MXMN	
17:	22022-80001	A	SC	SOLUTION OF LINEAR	LEAST SQRS PROGRAMS
18:	22023-80001	A	SC	TRAPEZOIDAL	INTEGRATION
19:	22024-80001	A	SC	TRAPEZOIDAL INTGRA-	TION, EQ. INT. ARGMT
20:	22025-80001	A	SC	SIMPSON'S & NEWTONS	INTEGRATION ROUTINE
21:	22026-80001	A	SC	HERMITION 4TH ORDER	INTEGRATION ROUTINE
22:	22027-80001	B	SC	HERMITION 4TH ORDER	INTEGRATN, EQL INTVL
23:	22028-80001	A	SC	HERMITION 6TH ORDER	INTEGRATION ROUTINE
24:	22029-80001	A	SC	HERMITION 6TH ORDER	INTEGRATN, EQL INTVL
25:	22030-80001	B	SC	COMPLEX ROOTS OF A	REAL POLYNOMIAL
26:	22031-80001	A	SC	ADD ROWS OF	MATRICES
27:	22032-80001	A	SC	RANK AND BASIS	ROUTINE
28:	22033-80001	A	SC	SOLUTION OF SIMUL-	TANEOUS LINEAR EQNS
29:	22034-80001	A	SC	SOLUTN SIMULTANEOUS	LINEAR EQNS-BAND MAT
30:	22035-80001	A	SC	SOLUTN SIMULTANEOUS	LINEAR EQNS-SYM MAT
31:	22036-80001	A	SC	REAL FOURIER	TRANSFORM
32:	22037-80001	B	SC	COMPLEX FOURIER	TRANSFORM
33:	22038-80001	A	SC	SYSTEM OF ORDINARY	DIFFERENTIAL EQNS
34:	22039-80001	A	SC	MEAN, DEVIATION, &	CORRELATION COEFFS
35:	22041-80001	E	SC	PUNCHED TAPE	DUPLICATOR
36:	22044-80001	B	SC	RUN TIME DATA	INPUT FOR BASIC
37:	22055-80001	A	SC	HP3460A/B DSI DVR	FORTTRAN CALLABLE
38:	22061-80001	A	SC	HP2320 SUBSYSTEM DVR	FORTTRAN CALLABLE
39:	22062-80001	A	SC	HP2322 SUBSYSTEM DVR	FORTTRAN CALLABLE
40:	-22063-80001	A	SC	HP2770/2771 DISC DVR	FORTTRAN CALLABLE
41:	22064-80001	B	SC	AUTOMATIC TABBING	PROGRAM
42:	22069-80001	A	SC	HP2323 SUBSYSTEM DVR	FORTTRAN CALLABLE
43:	-22071-80001	A	SC	HP12539A TBG DVR	FORTTRAN CALLABLE
44:	22075-80001	A	SC	HP5100B DRIVER	FORTTRAN CALLABLE
45:	22077-80001	B	SC	CALCOMP PLOTTER DVR	BASIC CALLABLE
46:	-22078-80001	B	SC	HIGH SPEED PUNCH DVR	BASIC CALLABLE
47:	22079-80001	B	SC	NUMERIC STRING SORT	FOR ASCII RECORDS
48:	-22080-80001	B	SC	HP2331 SUBSYSTEM DVR	FORTTRAN CALLABLE
49:	-22081-80001	A	SC	BIT OPERATIONS (SET	CLEAR TEST)-FTN CALL
50:	22082-80001	B	SC	BASIC PHOTOREADER	DATA INPUT
51:	22084-80001	C	SC	INTEGRATED MATH	CALCULATOR PROGRAM

Decommissioned

WAVE SOURCE

FILE	PART NUMBER	TYPE	LABEL
52:	22085-30001	B SC	EXTENDED PRECISION CALCULATOR
53:	22086-30001	A SC	EBCDIC TO ASCII TRANSLATOR
54:	-22088-30001	A ⑤ SC	OCTAL UTILITY SYSTEM (HOCUS)
55:	-22089-30001	A SC	TELEPRINTER OCTAL INPUT PROGRAM
56:	-22090-30001	A SC	KEYBOARD TAPE GENERATOR
57:	22093-30001	A SC	ASCII/IBM 8-LEVEL CHARACTER CONVERSION
58:	-22094-30001	A ④ SC	JEU DE MORPIONS (TIC-TAC-TOE GAME
59:	22095-30001	A SC	BASIC HP2778 LINE PRINTER DRIVER
60:	22097-30001	D SC	DOUBLE PRECISION INTEGER LIBRARY
61:	22099-30001	A SC	DOS DEMO
62:	22100-30001	A SC	FILE THREE INPUT FOR MTS ALGOL
63:	22101-30001	B SC	HP2911A/B DRIVER BASIC CALLABLE
64:	22102-30001	B SC	HP3460A/B DSI DRIVER BASIC CALLABLE
65:	22104-30001	B SC	HP2402A DSI DRIVER BASIC CALLABLE
66:	22106-30001	B SC	COUNTER DSI DRIVER BASIC CALLABLE
67:	22107-30001	B SC	HP2912A DRIVER BASIC CALLABLE
68:	22108-30001	C SC	HP3450A DSI DRIVER BASIC CALLABLE
69:	-22111-30001	C SC	HP2770/2771 DISC DVR BASIC CALLABLE
70:	-22112-30001	A ⑤ SC	HP12539A DRIVER BASIC CALLABLE
71:	-22113-30001	B SC	MTS PUNCHED TAPE DUPLICATOR
72:	-22114-30001	A SC	REPRODUCE/EDIT PAPER TAPE
73:	22116-30001	A SC	ORDERING A FLOATING POINT ARRAY
74:	22117-30001	A SC	TRANSFORMATIONS
75:	22118-30001	C SC	MATRIX INVERSION SUBROUTINES
76:	22119-30001	B SC	MATRIX ARITHMETIC SUBROUTINE
77:	22120-30001	A SC	MATRIX ARITHMETIC PROGRAM
78:	22121-30001	A SC	CROSS TABULATION PROGRAM
79:	22122-30001	A SC	SIMULTANEOUS EQUATION SOLVER PROGRAM
80:	22123-30001	A SC	SIMULTANEOUS EQUATION SOLVER ROUTINE
81:	22124-30001	A SC	AUTOCORRELATION AND SPECTRAL DENSITY
82:	22125-30001	A SC	MOVING AVERAGES
83:	22126-30001	A SC	CROSS CORRELATION ANALYSIS
84:	22127-30001	A SC	DISCRIMINANT ANALYSIS PROGRAM
85:	22128-30001	A SC	LEAST SQUARES REGRESSION PROGRAM
86:	22129-30001	A SC	LINEAR REGRESSION INTERVAL ESTIMATES
87:	22130-30001	A SC	POLYNOMIAL REGRESSION PROGRAM
88:	22131-30001	A SC	POLYNOMIAL REGRESSION CONFIDENCE INTV
89:	22132-30001	A SC	STEPWISE REGRESSION PROGRAM
90:	22133-30001	A SC	BIOASSAY PROGRAM
91:	22134-30001	A SC	ORTHOGONAL REGRESSION PROGRAM
92:	22135-30001	A SC	LINEAR REGRESSION WITH REPLICATION
93:	22136-30001	A SC	NONLINEAR REGRESSION PROGRAM
94:	22137-30001	A SC	CUMULATIVE DISTRIBUTION PROGRAM
95:	22138-30001	A SC	KENDALL'S COEFF. OF CONCORDANCE: W
96:	22139-30001	A SC	KENDALL'S COEFF. OF CONCORDANCE
97:	22140-30001	A SC	KENDALL'S TAU CORRELATION
98:	22141-30001	A SC	GENERAL STATISTICS PROGRAM
99:	22142-30001	B SC	GENERAL STATISTICS FOR MULTIPLE GROUPS
100:	22143-30001	A SC	PROBABILITY SUBPROGRAMS
101:	22144-30001	A SC	INTEGRATION ROUTINE

FILE	PART NUMBER	TYPE	LABEL	
102:	22145-80001	B	SC CONFIDENCE INTERVAL	NORMAL MEAN VARIANCE
103:	22146-80001	C	SC SAMPLE SIZE ON	SAMPLE VARIANCE
104:	22147-80001	A	SC MULTIPLE CORRELATION	ROUTINE
105:	22148-80001	A	SC COMPLETELY RANDOM-	IZED DESIGN
106:	22149-80001	A	SC RANDOMIZED DESIGN	WITH SUBSAMPLING
107:	22150-80001	A	SC RANDOMIZED COMPLETE	BLOCK DESIGN
108:	22151-80001	B	SC RANDOMIZED COMPLETE	BLOCK DESIGN W/SAMPL
109:	22152-80001	A	SC TWO-WAY FACTORIAL	DESIGN
110:	22153-80001	A	SC THREE-WAY FACTORIAL	DESIGN
111:	22154-80001	A	SC ANALYSIS OF VARIANCE	INFOMATION GENERATOR
112:	22155-80001	A	SC DUNCAN'S MULTIPLE	RANGE TEST
113:	22156-80001	A	SC PAIRED T-TEST	
114:	22157-80001	B	SC BARTLETT'S HOMOGENI-	TY OF VARIANCE TEST
115:	22158-80001	C	SC KILMOGROV-SMIRNOV	GOODNESS-OF-FIT TEST
116:	22159-80001	B	SC CHI SQUARE GOODNESS-	OF-FIT TEST
117:	22160-80001	A	SC TESTS OF HYPOTHESIS	FOR VARIANCES
118:	22161-80001	B	SC TESTS OF HYPOTHESIS	FOR MEANS
119:	22162-80001	B	SC X-Y PLOTTER ON	PRINTER
120:	22163-80001	A	SC TIME SERIES PLOTTER	
121:	22164-80001	B	SC HISTOGRAM PLOTTER	PROGRAM
122:	22165-80001	A	SC CARD TO MAGNETIC	TAPE UTILITY
123:	22166-80001	A	SC MAGNETIC TAPE TO	PRINT UTILITY
124:	22167-80001	A	SC ORDERING A FIXED	POINT ARRAY
125:	22168-80001	A	SC RANKING A FLOATING	POINT ARRAY
126:	22169-80001	A	SC ORDERING A FLOATING	POINT ARRAY
127:	22170-80001	A	SC SYNCHRONOUS HIGH SPD	DATA ACQUISITION PGM
128:	22171-80001	A	SC FORTRAN UNIT REFER-	ENCE NUMBER EDITOR
129:	22172-80001	C	SC IUC	FORTRAN CALLALLE
130:	22174-80001	A	SC BCS DUMP IN BBL	FORMAT
131:	22176-80001	A	SC HP2754A PUNCH/LIST	IN KT MODE
132:	22180-80001	C	SC FAST PUNCH/VERIFY	
133:	22181-80001	A	SC RTE HP2020 MAG TAPE	DRIVER
134:	22182-80001	A	SC HISTOGRAM PLOTTER	SUBROUTINE
135:	22183-80001	A	SC SAMPLE SIZE DETERMI-	NATION TO TEST HO
136:	22184-80001	A	SC POOLING OF GROUPS	IN REGRESSION
137:	22185-80001	A	SC MULTIPLE REGRESSION	
138:	22186-80001	A	SC MULTIPLE CORRELATION	MATRIX
139:	22187-80001	A	SC NON-LINEAR REGRSSION	-SINGLE VAR. FUNCTN
140:	22188-80001	A	SC NON-LINEAR REGRSSION	-ARBITRARY FUNCTION
141:	22189-80001	B	SC GENERAL FAST FOURIER	TRANSFORM (FTN)
142:	22190-80001	A	SC ABSOLUTE PROGRAM	CONTROL SYSTEM
143:	22191-80001	A	SC NAM-ENT-EXT EDITOR	
144:	22192-80001	A	SC EIGENVALUES OF A	SYMMETRIC REAL MATRX
145:	22193-80001	A	SC INTERPRETIVE BINARY	SIMULATOR
146:	22193-80002	A	SC INTERPRETIVE BINARY	SIMULATOR
147:	22193-80003	A	SC INTERPRETIVE BINARY	SIMULATOR
148:	22193-80004	A	SC INTERPRETIVE BINARY	SIMULATOR
149:	22193-80005	A	SC INTERPRETIVE BINARY	SIMULATOR
150:	22193-80006	A	SC INTERPRETIVE BINARY	SIMULATOR
151:	22194-80001	A	SC PSEUDO-RANDOM	NUMBER GENERATOR

FILE	PART NUMBER	TYPE	LABEL
152:	22195-80001	B SC	PROGRAM EXECUTION TIMER
153:	-22197-80001	A SC	SINGLE DRIVE MAG TAPE COPY
154:	22198-80001	C SC	MAGNETIC TAPE STORAGE & RETRIEVAL
155:	22198-80002	C SC	MAGNETIC TAPE STORAGE & RETRIEVAL
156:	22199-80001	A SC	DATA ACQUISITION SYSTEM FOR HP BASIC
157:	22199-80002	A SC	DATA ACQUISITION SYSTEM FOR HP BASIC
158:	22200-80001	A SC	WAVETEK BASIC DRVR.
159:	22201-80001	D AC	PACIFIC UNION COLLGE MULTI-TERMINAL BASIC
160:	22201-80001	D SC	PACIFIC UNION COLLGE MULTI-TERMINAL BASIC
161:	22204-80001	A SC	DATA BLOCK MOVEMENT
162:	22205-80001	A SC	TABULATION & FORM FEED CALLS/ASR35 TTY
163:	22207-80001	A SC	CHARACTER & BIT STRING PROCEDR-ALGOL
164:	22208-80001	A SC	HP3030G 9-TRACK MAGNETIC TAPE DRIVER
165:	-22209-80001	C SC	DRUM BASED MAGNETIC TAPE DUPLICATOR
166:	22211-80001	A SC	HP5100B DRIVER BASIC CALLABLE
167:	22214-80001	A SC	CHARACTER CODE TRANSLATOR
168:	22215-80001	A SC	HP3480A BASIC DVM DVR/BASIC CALLABLE
169:	22216-80001	B SC	HP2870A CARTRIDGE DISC MEMORY DRIVER
170:	-22217-80001	B SC	HP2331A X-Y DISPLAY SUBSYSTEM DRIVER
171:	22218-80001	A SC	FAST FOURIER TRANSFORM
172:	22219-80001	A SC	HI SPD CONTINUOUS LINE PLOTTER-HP7004B
173:	22220-80001	A SC	LINEAR LEAST SQRS PROBLEM SOLVER
174:	22221-80001	B AC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
175:	22221-80002	B AC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
176:	22221-80001	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
177:	22221-80002	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
178:	22221-80003	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
179:	22221-80004	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
180:	22221-80005	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
181:	22221-80006	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
182:	22221-80007	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
183:	22221-80008	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
184:	22221-80009	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
185:	22221-80010	B SC	HP BIOMEDICAL RE - SPONSE AVERAGING PGM
186:	22222-80001	A SC	BLOOD ACID-BASE VARI BLES DETERMINATION
187:	22223-80001	C SC	LOADER BOOTSTRAP
188:	-22225-80001	B SC	HP2870A CARTRIDGE DISC MEMORY DRIVER
189:	22226-80001	B SC	HP3480A/B DIGITAL VOLTMETER DRIVER
190:	22227-80001	A SC	HP6131B DVS DRIVER FORTRAN CALLABLE
191:	22229-80001	B SC	HP12551B DRIVER FORTRAN CALLABLE
192:	22230-80001	A SC	BCS EXTENDED PRECI-SION ARITHMETIC
193:	22233-80001	C SC	DOS-M PRIVILEGED DISC I/O ROUTINES
194:	22234-80001	A SC	COMPLEX MATH PACKAGE
195:	22234-80002	A SC	COMPLEX MATH PACKAGE
196:	22235-80001	A SC	FORTRAN POWER FAIL LINK
197:	22236-80001	A SC	FORTRAN I/O STATUS FUNCTION
198:	22237-80001	C SC	OUTPUT TTY/LP SELEC-TOR FOR BASIC
199:	22238-80001	A SC	FORTRAN RUN-TIME FORMAT SPECIFICATION
200:	22239-80001	A SC	HP7970 MT DRIVER BASIC CALLABLE
201:	22240-80001	A SC	LUNG COMPLIANCE & RESISTANCE MEASURMT

FILE	PART NUMBER	TYPE	LABEL	
202:	22240-80002	A	SC	LUNG COMPLIANCE & RESISTANCE MEASURMT
203:	22242-80001	A	SC	X-Y PLOTTING ROUTINE
204:	22244-80001	B	RC	BSCUT-BIN SYNCH CON- TROLLED DATACOM UNIL
205:	22244-80001	B	SC	BSCUT-BIN SYNCH CON- TROLLED DATACOM UNIL
206:	22244-80002	B	SC	BSCUT-BIN SYNCH CON- TROLLED DATACOM UNIL
207:	22244-80003	B	SC	BSCUT-BIN SYNCH CON- TROLLED DATACOM UNIL
208:	22244-80004	B	SC	BSCUT-BIN SYNCH CON- TROLLED DATACOM UNIL
209:	22244-80005	B	SC	BSCUT-BIN SYNCH CON- TROLLED DATACOM UNIL
210:	22244-80006	B	SC	BSCUT-BIN SYNCH CON- TROLLED DATACOM UNIL
211:	22245-80001	A	SC	USER INTFCE TO BCS TELECOM DRIVER D.50
212:	22246-80001	B	SC	DOS-M REMOTE TAPE READER DRIVER
213:	22246-80002	B	SC	DOS-M REMOTE TAPE READER DRIVER
214:	22247-80001	B	SC	FAST DOS, DOS-M PHOTO READER DRIVER(DVR01)
215:	22250-80001	A	SC	EXEC CALL ADAPTER ROUTINE
216:	22251-80001	A	RC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
217:	22251-80002	A	RC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
218:	22251-80001	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
219:	22251-80002	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
220:	22251-80003	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
221:	22251-80004	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
222:	22251-80005	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
223:	22251-80006	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
224:	22251-80007	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
225:	22251-80008	A	SC	MAGNETIC TAPE TO LINE PRINTER ROUTINE
226:	22252-80001	A	SC	RTE/DOS DUPLICATOR PROGRAM
227:	22253-80001	C	SC	OSCILLOSCOPE PLOTTING SUBROUTINE
228:	22253-80002	C	SC	OSCILLOSCOPE PLOTTING SUBROUTINE
229:	22255-80001	E	AC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
230:	22255-80002	E	AC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
231:	22255-80001	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
232:	22255-80002	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
233:	22255-80003	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
234:	22255-80004	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
235:	22255-80005	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
236:	22255-80006	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
237:	22255-80007	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
238:	22255-80008	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
239:	22255-80009	E	SC	MSU BASIC SYS W/CARD RDR CAPABILITY PTS
240:	22255-80010	E	SC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
241:	22255-80011	E	SC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
242:	22255-80012	E	SC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
243:	22255-80013	E	SC	MSU MULTI-TERMINAL BASIC W/CARD READER CAP.
244:	22255-80014	E	SC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
245:	22255-80015	E	SC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
246:	22255-80016	E	SC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
247:	22255-80017	E	SC	MSU BASIC SYS W/CARD RDR CAPABIL COMPILER
248:	22256-80001	A	SC	FRESNEL INTEGRAL EVALUATION
249:	22257-80001	B	S	MTS/BCS SYSTEM ABSOLU TE DUMP
250:	22258-80001	A	SC	HP2767A LINE PRINTER BASIC DRIVER
251:	22259-80001	A	SC	DOS TO MAGNETIC TAPE DUMP

FILE	PART NUMBER	TYPE	LABEL
252:	22260-80001 A	SC	MAGNETIC TAPE TO DOS DUMP
253:	22261-80001 A	SC	MINI-BASIC
254:	22262-80001 A	SC	THREE-DIMENSIONAL PLOT SUBROUTINE
255:	22263-80001 A	SC	PLOT, RELAY, WAIT
256:	22264-80001 B	SC	TELEX TO ASCII PHOTOREADER DRIVER
257:	22265-80001 A	SC	FLOATING POINT RAM- DOM NUMBER GENERATOR
258:	22266-80001 A	SC	MARK SENSE ED. TEST CARD SCORING PROGRAM
259:	22267-80001 A	SC	MIS FORTRAN CHAIN
260:	22268-80001 B	SC	DECIMAL ARITH.& MOVE /COMPARE ROUTINES
261:	22268-80002 B	SC	DECIMAL ARITH.& MOVE /COMPARE ROUTINES
262:	22268-80003 B	SC	DECIMAL ARITH.& MOVE /COMPARE ROUTINES
263:	22269-80001 A	SC	PAPER TAPE TITLER
264:	22270-80001 D	SC	ALGOL OPERATING SYSTEM FOR MTS
265:	22272-80001 A	SC	DISC/DRUM UTILITY PROGRAM
266:	22273-80001 A	SC	CLEAR JOB BINARY AREA IN DOS/DOS-M
267:	22274-80001 A	SC	4221 BCD TO FLOATING POINT CONV FOR RTE
268:	22276-80001 A	SC	RTE CROSSBAR SCANNER DVR & CHNL CODE CONV
269:	22277-80001 A	SC	DOS-M FILE ACCESS & STRING LOOKUP ROUTNS
270:	22278-80001 A	SC	TAB FOR PREPARING FTN SOURCE TAPES
271:	22279-80001 A	SC	TEST/BASIC PLOT SUBROUTINES
272:	22280-80001 A	SC	ABSOLUTE CORE DUMP ROUTINE
273:	22281-80001 A	SC	MINIVERTEER DRIVER
274:	22282-80001 A	SC	DOS-M LIBRARIAN
275:	22284-80001 A	SC	DOS-M DUMP/RESTORE PROGRAM
276:	22285-80001 C	SC	CONVERSATIONAL DOSM DISC FILE EDITOR
277:	22286-80001 A	SC	D H SYMBOLIC EDITOR
278:	22286-80002 A	SC	D H SYMBOLIC EDITOR
279:	22287-80001 A	SC	PROGRAM CHAIN FROM
280:	22289-80001 A	SC	DOS/DOS-M ALGOL AR-
281:	22290-80001 A	SC	CORE PUNCH IN BBL
282:	22291-80001 C	SC	DOS/DOS-M HP 2331 X-Y SCOPE DISPLAY
283:	22291-80002 C	SC	DOS/DOS-M HP 2331 X-Y SCOPE DISPLAY
284:	22292-80001 B	SC	ABSOLUTE OBJECT DECODER
285:	22292-80002 B	SC	ABSOLUTE OBJECT DECODER
286:	22293-18000 1618	SC	OCTAL ASSEMBLY PROCESSOR & UTIL SYS (OCTAPUS-C)
287:	22294-80001 A	SC	DOS/DOS-M/RTE 3480 DVM DVR & BCD CONV
288:	22295-80002 A	AC	BCS INTERPRETER FOR FLOATING PT. OPERS DA
289:	22295-80001 A	SL	BCS INTERPRETER FOR FLOATING POINT OPERS
290:	22297-80001 A	SC	OFFLINE RELOCATING LOADER
291:	22297-80002 A	SC	OFFLINE RELOCATING LOADER
292:	22297-80003 A	SC	OFFLINE RELOCATING LOADER
293:	22297-80004 A	SC	OFFLINE RELOCATING LOADER
294:	22297-80005 A	SC	OFFLINE RELOCATING LOADER
295:	22298-80001 A	SC	BATTLESHIP
296:	22299-80001 A	SC	DOS/DOS-M SOURCE STORAGE & RETRIEVAL
297:	22300-80001 B	SC	QUICK FIXED HEAD SDUMP
298:	22301-80001 A	SC	HP2870A DRIVER FORTRAN CALLABLE
299:	22304-80001 A	SC	HP5610A DRIVER FORTRAN CALLABLE
300:	22305-80001 A	SC	HP2402A DVM DRIVER BASIC CALLABLE
301:	22308-80001 A	SC	GAUSSIAN RANDOM NUMBER GENERATOR





FILE	PART NUMBER	TYPE	LABEL	
352:	22336-80002	A	AC	DISC BASIC EXECUTIVE
353:	22338-80001	A	SC	DISC BASIC EXECUTIVE
354:	22338-80002	A	SC	DISC BASIC EXECUTIVE
355:	22338-80003	A	SC	DISC BASIC EXECUTIVE
356:	22336-80004	A	SC	DISC BASIC EXECUTIVE
357:	22338-80005	A	SC	DISC BASIC EXECUTIVE
358:	22338-80006	A	SC	DISC BASIC EXECUTIVE
359:	22339-80001	A	SC	DOS HP2320A LOW SP. A-D SUB DR, FTN CAL
360:	22340-80001	A	SC	360 FORMAT MT DUMP
361:	22340-80002	A	SC	360 FORMAT MT DUMP
362:	22340-80003	A	SC	360 FORMAT MT DUMP
363:	22341-80001	A	SC	FTN IV CORE SAVER
364:	22342-80001	A	SC	DOS-M "HARDWARE" BOOT
365:	22343-80001	A	SC	FIELD SORT
366:	22344-80001	A	SC	"ON-LINE" SYS LOAD FOR MOVING-HEAD RTE
367:	22345-80001	A	SC	"ON-LINE" MOVING- HEAD RTE BOOTSTRAP
368:	22346-80001	A	SC	DOS/DOS-M ASSEMBLY LANG COMMENT INSERT
369:	22347-80001	A	SC	DOS/DOS-M SOURCE FILE VERIFY PROGRAM
370:	22348-80001	A	SC	X-Y PLOTTER FOR 11 INCH PAGE PRINTER
371:	22349-80001	A	SC	DOS-M BOOTSTRAP PRG FOR DOS-M OR DOS
372:	22350-80001	A	SC	DOS-M BOOTSTRAP PROGRAM FROM RTE
373:	22351-80001	A	SC	ASCII STRING SEARCH FROM DISC FILE
374:	22352-80001	A	SC	ASCII STRING SEARCH FROM PHOTOREADER
375:	22353-80001	A	SC	DOS/DOS-M PHOTO DRV TO READ ABS BINARY
376:	22354-80001	B	SC	DOS-M STORE ABSOLUTES
377:	22355-80001	A	SC	DOS-M PAPER TAPE/ DISC VERIFY
378:	22356-80001	A	SC	PACKED MAG TAPE STOR & RETRIEVAL FOR DOSM
379:	22356-80002	A	SC	PACKED MAG TAPE STOR & RETRIEVAL FOR DOSM
380:	22356-80003	A	SC	PACKED MAG TAPE STOR & RETRIEVAL FOR DOSM
381:	22357-80001	A	SC	MTS BOOT FROM DOS-M
382:	22358-80001	A	SC	EASY MAG TAPE I/O & STATUS INFORMATION
383:	22359-80001	A	SC	HANDI-O
384:	22360-80001	A	SC	DOS-M PAPER TAPE REPRODUCER
385:	22361-80001	A	SC	DOS-M BINARY FILE DATA ACQUISITION
386:	22361-80002	A	SC	DOS-M BINARY FILE DATA ACQUISITION
387:	22362-80001	A	SC	STACK ROUTINES
388:	22364-80001	A	SC	EFMP RECORD READ/WRITE
389:	22366-80001	A	SC	ALGOL SEGMENT RETURN TO MAIN CONTROL
390:	22367-80001	A	RC	8K BINARY SYNCH CONT DATA COMMUNICATIONS
391:	22367-80002	A	RC	8K BINARY SYNCH CONT DATA COMMUNICATIONS
392:	22367-80001	A	SC	8K BINARY SYNCH CONT DATA COMMUNICATIONS
393:	22367-80002	A	SC	8K BINARY SYNCH CONT DATA COMMUNICATIONS
394:	22367-80003	A	SC	8K BINARY SYNCH CONT DATA COMMUNICATIONS
395:	22367-80004	A	SC	8K BINARY SYNCH CONT DATA COMMUNICATIONS
396:	22367-80005	A	SC	8K BINARY SYNCH CONT DATA COMMUNICATIONS
397:	22368-80001	A	SC	PAPER TAPE COPY
398:	22368-80002	A	SC	PAPER TAPE COPY
399:	22369-80001	A	SC	DOS-M FILE WRITER
400:	22371-80001	A	SC	QUOTATION MARKS CONV IN DOS/DOS-M FILES
401:	22372-80001	A	SC	HP2100 REMOTE BATCH TERM.TO A UNIVAC1108

FILE	PART NUMBER	TYPE	LABEL		
402:	22372-80002	A	SC	HP2100 REMOTE BATCH	TERM.TO A UNIVAC1108
403:	22372-80003	A	SC	HP2100 REMOTE BATCH	TERM.TO A UNIVAC1108
404:	22372-80004	A	SC	HP2100 REMOTE BATCH	TERM.TO A UNIVAC1108
-405:	22373-80001	B	SC	ITEMIZED EXTENDED FL	MANAGEMENT PACKAGE
-406:	22373-80002	B	SC	ITEMIZED EXTENDED FL	MANAGEMENT PACKAGE
-407:	22373-80003	B	SC	ITEMIZED EXTENDED FL	MANAGEMENT PACKAGE
-408:	22373-80004	B	SC	ITEMIZED EXTENDED FL	MANAGEMENT PACKAGE
-409:	22373-80005	B	SC	ITEMIZED EXTENDED FL	MANAGEMENT PACKAGE
-410:	22373-80006	B	SC	ITEMIZED EXTENDED FL	MANAGEMENT PACKAGE
-411:	22373-80007	B	SC	ITEMIZED EXTENDED FL	MANAGEMENT PACKAGE
-412:	22374-80001	A	SC	BCS ASYNCHR DATA SET	INTERFACE DRIVER
-413:	22374-80002	A	SC	BCS ASYNCHR DATA SET	INTERFACE DRIVER
414:	22375-80001	A	SC	REMOTE HP2100 ACCESS	TO A 32K DOS
415:	22375-80002	A	SC	REMOTE HP2100 ACCESS	TO A 32K DOS
416:	22375-80003	A	SC	REMOTE HP2100 ACCESS	TO A 32K DOS
417:	22376-80001	A	SC	ASCII DISC FILE	FIELD SORT
418:	22377-80001	A	SC	DOS-M DISC INITIALIZE	/PROTECT UTILITY
419:	22378-80001	A	SC	RTE LOGBOOK	
420:	22378-80002	A	SC	RTE LOGBOOK	
421:	22379-80001	A	SC	SIO LIST OUTPUT TO	A STORAGE SCOPE
422:	22380-80001	D	SC	HP BASIC DVR SYS	W/BINARY DATA I/O
423:	22380-80002	D	SC	HP BASIC DVR SYS	W/BINARY DATA I/O
424:	22380-80003	D	SC	HP BASIC DVR SYS	W/BINARY DATA I/O
425:	22381-80001	A	SC	RELOCATABLE MODULE	LISTER
426:	22383-80001	A	SC	ALPHANUMERIC RECORD	SORT
427:	22384-80001	A	SC	EFFECTIVE PERCEIVED	NOISE LEVEL
428:	22384-80002	A	SC	EFFECTIVE PERCEIVED	NOISE LEVEL
429:	22384-80003	A	SC	EFFECTIVE PERCEIVED	NOISE LEVEL
430:	22384-80004	A	SC	EFFECTIVE PERCEIVED	NOISE LEVEL
-431:	22385-80001	A	AC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
432:	22385-80001	A	SC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
433:	22385-80002	A	SC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
434:	22385-80003	A	SC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
435:	22385-80004	A	SC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
436:	22385-80005	A	SC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
437:	22385-80006	A	SC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
438:	22385-80007	A	SC	SYMBOLIC MACRO	ASSEMBLER FOR HP2100
439:	22386-80001	A	SC	MULTIRECORD FORMAT.	OUTPUT LISTER
440:	22387-80001	A	SC	D.70 REVERSE CHANNEL	TELECOMM. DRIVER
441:	22387-80002	A	SC	D.70 REVERSE CHANNEL	TELECOMM. DRIVER
442:	22387-80003	A	SC	D.70 REVERSE CHANNEL	TELECOMM. DRIVER
443:	22387-80004	A	SC	D.70 REVERSE CHANNEL	TELECOMM. DRIVER
444:	-22388-80001	A	SC	HP BASIC TO FORTRAN	TRANS.FOR DOS/DOS-M
445:	22389-80001	A	RC	DOS-M EAU	RELOCATABLE BASIC
446:	22389-80001	A	SC	DOS-M EAU	RELOCATABLE BASIC
447:	22389-80002	A	SC	DOS-M EAU	RELOCATABLE BASIC
448:	22389-80003	A	SC	DOS-M EAU	RELOCATABLE BASIC
449:	22389-80004	A	SC	DOS-M EAU	RELOCATABLE BASIC
450:	22389-80005	A	SC	DOS-M EAU	RELOCATABLE BASIC
451:	22389-80006	A	SC	DOS-M EAU	RELOCATABLE BASIC

FILE	PART NUMBER	TYPE	LABEL		
452:	22389-80007	A	SC	DOS-M EAU	RELOCATABLE BASIC
453:	22389-80008	A	SC	DOS-M EAU	RELOCATABLE BASIC
454:	22390-80001	A	SC	HP 7004 X-Y	RECORDER LIBRARY
455:	-22391-80001	A	SC	HP1331C SIO SCOPE	DISPLAY DRIVER
456:	-22392-80001	A	SC	RELOCATABLE OBJECT	UTILITY LIBRARIAN
457:	22393-80001	A	SC	ON-LINE EDITOR	
458:	22394-80001	A	SC	CORE SAVING TTY I/O	DRVR & CODE CONV.
459:	22394-80002	A	SC	CORE SAVING TTY I/O	DRVR & CODE CONV.
460:	22396-80001	B	SC	HP ASSEMBLER FOR IBM 360	
461:	22397-80001	A	SC	COMBINATION	GENERATOR
462:	22398-80001	B	SC	RTE JOB CONTROL LANG	FOR BATCH PROCESSING
463:	22399-80001	A	SC	HP2778/2767 LP PATCH	FOR EDUC. BASIC
464:	22400-80001	A	SC	ZERO	
465:	22401-80001	A	SC	RTE SELF SUSPEND	ROUTINE
466:	22404-80001	A	SC	SPACE SAVING ASCII	STORAGE ROUTINES
467:	22407-80001	B	SC	HP3360A GAS CHROMAT-	OGRAPH SYS DVR BASIC
468:	22408-80001	A	SC	BASIC CALLABLE LINE	PRINTER DRIVER
469:	22409-80001	A	SC	EDUC.BASIC HP 2767	LINE PRINTER DRIVER
470:	22410-80001	A	SC	RTE MULTIPROGRAMMER	DRIVER (DVR61)
471:	22411-80001	A	SC	A.B.DICK VIDEOJET	SIO LP DRIVER
472:	22413-80001	A	SC	RANDOM INTEGER	NUMBER GENERATOR
473:	22414-80001	A	SC	NON-DMA BCS	HP 3030 DRIVER
474:	22414-80002	A	SC	NON-DMA BCS	HP 3030 DRIVER
475:	-22415-80001	B	SC	DOS ABSOLUTE OBJECT	DECODER
476:	22416-80001	A	SC	CREATE DOS-M DIRECT.	ENTRY UNDER PROG.CON
477:	22417-80001	C	SC	SUPER BASIC	FOR DOS-M
478:	22417-80001	C	SC	SUPER BASIC	FOR DOS-M
479:	22417-80002	C	SC	SUPER BASIC	FOR DOS-M
480:	22417-80003	C	SC	SUPER BASIC	FOR DOS-M
481:	22417-80004	C	SC	SUPER BASIC	FOR DOS-M
482:	22417-80005	C	SC	SUPER BASIC	FOR DOS-M
483:	22417-80006	C	SC	SUPER BASIC	FOR DOS-M
484:	22417-80007	C	SC	SUPER BASIC	FOR DOS-M
485:	22417-80008	C	SC	SUPER BASIC	FOR DOS-M
486:	22417-80009	C	SC	SUPER BASIC	FOR DOS-M
487:	22417-80010	C	SC	SUPER BASIC	FOR DOS-M
488:	22425-80001	A	SC	THREE DIM. TRANS.	USING EULER'S ANGLES
489:	22426-80001	A	SC	LOGARITHMIC AXIS GEN	FOR THE CALCOMP 565
490:	22427-80001	A	SC	MEDIA CONVERSION	
491:	22428-80001	A	SC	ASSEMBLER	JUSTIFICATION PROG.
492:	22429-80001	A	SC	EFMP FILE	TRANSFER
493:	22430-80001	A	SC	NUMERIC SORT	
494:	-22431-80001	A	SC	DOS-M SEGMENT	RETURN TO MAIN
495:	22432-80001	B	SC	EFMP DIRECTORY	LISTER
496:	22433-80001	A	SC	ASCII/INTEGER	CONVERSION ROUTINE
497:	22434-80001	A	SC	RANDOM NUMBER	GENERATORS
498:	22435-80001	A	SC	SECOND VERIAL	COEFFICIENTS
499:	-22436-80001	A	SC	HANGMAN	
500:	22437-80001	A	SC	WILCOXON-MANN-	WHITNEY TEST
501:	-22438-80001	A	SC	DOS-M RELOCATABLE	REVERSE ASSEMBLER



FILE	PART NUMBER	TYPE	LABEL
552:	22460-80001	A	SC CONTINUOUS SYSTEM MODELING PROG.(CSMP)
553:	22460-80002	A	SC CONTINUOUS SYSTEM MODELING PROG.(CSMP)
554:	22460-80003	A	SC CONTINUOUS SYSTEM MODELING PROG.(CSMP)
555:	22460-80004	A	SC CONTINUOUS SYSTEM MODELING PROG.(CSMP)
556:	22461-80001	A	SC FILE+REWIND/TENECOMP TP-1371 MINIDEK SYS.
557:	22462-80001	A	SC RD/WRT.ROUT./TENNCMP TP1371 MIN.SYS.BS.CL
558:	22463-80001	A	SC HP 7900 DISC TO DISC DUMP
559:	22464-80001	A	SC TEKTRONIX 4010 VIDEO DIS UNIT DRVR BASIC
560:	22465-80002	A	RC EXTENDED PRECISION ADAPTOR FOR BCS
561:	22465-80001	A	SC EXTENDED PRECISION ADAPTOR FOR BSC
562:	22466-80001	C	SC 2311A SUBSYSTEM DOS-M DRIVER
563:	22467-80001	A	SC INTEGER EXTRACTION FROM STRING OF TEXT
564:	22468-80001	A	SC EXPAND/CONTRACT DOS-M FILES
565:	22469-80001	A	SC HP 2870 DISC TO DISC DUMP
566:	22471-80001	A	SC 7210 PLOTTER DRIVER FOR DOS-M
567:	22472-80001	A	SC HP2310/2311 SUBSYS. DRIVER FOR DOS-M
568:	22473-80001	B	SC HP 7210 PLOTTER DRVR FOR RTE
569:	22474-80001	A	SC HP 7210 PLOTTER LIBRARY
570:	22474-80002	A	SC HP 7210 PLOTTER LIBRARY
571:	22474-80003	A	SC HP 7210 PLOTTER LIBRARY
572:	22475-80001	A	SC 2311A SUBSYSTEM DRVR BASIC CALLABLE
573:	22476-80001	A	SC MULTI-PURPOSE SUB PKG FOR 20392A
574:	22476-80002	A	SC MULTI-PUR.SUBROUTINE PACK.FOR BAS.20392A
575:	22477-80001	A	SC FLOATING PT.OVERLAY FOR HP BASIC
576:	22479-80001	A	SC ALPHANUMERIC DISC FILE SORT
577:	22480-80001	B	SC DUMP FROM DOS-M MT STORAGE&RETRIEVAL
578:	22481-80001	B	SC MAGNETIC TAPE TO DOS-M DUMP
579:	22482-80001	A	SC 2020B MAGNETIC TAPE STORAGE & RETRIEVAL
580:	22482-80002	A	SC 2020B MAGNETIC TAPE STORAGE & RETRIEVAL
581:	22483-18001	B	SC APPLICATIONS DATA MANAGEMENT PACKAGE (A)
582:	22483-18002	B	SC APPLICATIONS DATA MANAGEMENT PACKAGE (A)
583:	22483-80001	B	SC APPLICATIONS DATA MANAGE.PKG (ADM)
584:	22484-80001	A	SC DOS-M USER FILE DESCRIPTION DIRECT.
585:	22485-80001	A	SC DOS-M DIR.LIST.PRUG. /MASKING FACILITY
586:	22486-80001	A	SC EFMP READ/WRITE W/ FORTRAN IV I/O LISTS
587:	22486-80002	A	SC EFMP READ/WRITE W/ FORTRAN IV I/O LISTS
588:	22487-80001	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
589:	22487-80002	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
590:	22487-80003	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
591:	22487-80004	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
592:	22487-80005	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
593:	22487-80006	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
594:	22487-80007	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
595:	22487-80008	A	SC CIVIL ENGINEERING COORD.GEOM.(COGO)
596:	22488-80001	A	SC DOS-M ABSOLUTE BINARY TAPE LOADER
597:	22489-80001	A	SC CORE SIZE INDEP.TTY SIO DRVR.LP COMPAT.
598:	22490-80001	A	SC CORE SIZE INDEP. PHOTO RDR. SIO DRVR.
599:	22491-80001	A	SC CORE SIZE IND. PAPER TAPE PUNCH SIO DRVR.
600:	22492-80001	A	SC THE EXECUTIVE GAME FOR DOS-M
601:	22493-80001	A	SC CREATE DSGEN MAGNETIC TAPE

FILE	PART NUMBER	TYPE	LABEL	
602:	22494-80001	B	RC	HAVING EDUCATIONAL BASIC FOR DOS-M
603:	22494-80001	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
604:	22494-80002	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
605:	22494-80003	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
606:	22494-80004	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
607:	22494-80005	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
608:	22494-80006	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
609:	22494-80007	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
610:	22494-80008	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
611:	22494-80009	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
612:	22494-80010	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
613:	22494-80011	B	SC	HAVING EDUCATIONAL BASIC FOR DOS-M
614:	22495-80001	A	SC	FTN FORM READ FROM DOS-M S TYPE USER FILES
615:	22496-80001	A	SC	CDC USER 200 TERMINAL SIMULATOR
616:	22496-80002	A	SC	CDC USER 200 TERMINAL SIMULATOR
617:	22496-80003	A	SC	CDC USER 200 TERMINAL SIMULATOR
618:	22496-80004	A	SC	CDC USER 200 TERMINAL SIMULATOR
619:	22497-80001	A	SC	PERT FOR DOS/DOS-M
620:	22498-80001	B	SC	STRUCTURAL ENGINEERING SYSTEM SOLVER (STRESS)
621:	22500-80001	A	SC	DOS-M RELOCATABLE PROGRAM TAPE EDITOR
622:	22501-80001	A	SC	HEXADEC/OCTAL LIST OF ANSI-COMPAT MT
623:	22501-80002	A	SC	HEXADEC/OCTAL LIST OF ANSI-COMPAT MT
624:	22503-80001	1432	SC	IEFMP LOAD SUBSYSTEM
625:	22504-80001	A	SC	CHARACTER PACKING AND UNPACKING
626:	22505-80001	A	SC	RTE HP 1331C STORAGE SCOPE DRIVER-DVR47
627:	22506-80001	A	SC	RTE HP 1331C STORAGE SCOPE LIBRARY
628:	22507-80001	A	SC	CONV.ROUT.FOR HP 2058E SUBS.RTE DRVR.
629:	22508-80001	A	SC	HP2058E SCANNER SUBS RTE DRIVER (DVR57)
630:	22509-80001	A	SC	DOS/DOS-M HP 1331C STORAGE SCOPE LIBR.
631:	22510-80001	A	SC	DOS/DOS-M 1331C STORAGE SCOPE DVRV. DVR47
632:	22511-80001	A	SC	INVERSE SIN AND COS ROUTINE
633:	22512-80001	A	SC	DOS-M DRVR.PKG.FOR ACCESSING FR-END MT
634:	22512-80002	A	SC	DOS-M DRVR.PKG.FOR ACCESSING FR-END MT
635:	22515-80001	A	SC	PSEUDO-DMA INPUT (MULTI-CHANNEL)
636:	22516-80001	A	SC	WORD MOVE (INTERRUPTABLE)
637:	22517-80001	A	SC	NORMAL DISTRIBUTION
638:	22518-80001	A	SC	VARIANCE RATIO DISTRIBUTION
639:	22519-80001	A	SC	DOS-M AUTOLOAD ROUTINE
640:	22520-80001	1432	SC	TAPE PUNCH AND VERIFY ROUTINE
641:	22523-80001	A	SC	BCS ODEC LINE PRINTER DRIVER(D.16)
642:	22524-80001	A	SC	RTE ALPHANUMERIC TAPE LABEL GENERATOR
643:	22525-80001	A	SC	R/W DOS-M FILES IN RTE ENVIRONMENT
644:	22526-80001	A	SC	DOS-M FORTRAN IV CROSS REF.TABLE GEN.
645:	22527-80001	A	SC	DEBUG FOR ABSOLUTE/ BCS PROGRAMS
646:	22528-80001	A	SC	SERIAL ACCESS TO DOS-M FILES
647:	22529-80001	A	SC	INTEL 8008 ASSEMBLER FOR HP 2100
648:	22529-80002	A	SC	INTEL 8008 ASSEMBLER FOR HP 2100
649:	22530-80001	B	SC	CHERNACK FORMAT TO DCS-M SOURCE FILE
650:	22530-80002	B	SC	CHERNACK FORMAT TO DOS-M SOURCE FILE
651:	22531-80001	A	SC	COMPLEX ARITHMETIC FOR HP BASIC

FILE	PART NUMBER	TYPE	LABEL	
652:	22532-80001	A	SC	SYSTEM SIMULATION PROGRAM (SSP)
653:	22532-80002	A	SC	SYSTEM SIMULATION PROGRAM (SSP)
654:	22532-80003	A	SC	SYSTEM SIMULATION PROGRAM (SSP)
655:	-22533-80001	A	SC	RESTORE BASIC BINARY LOADER (PBOOT)
656:	-22534-80001	1432	RC	MODIFIED DOS-M WITH FORTRAN READ/WRITE
657:	-22534-80002	1432	RC	MODIFIED DOS-M WITH FORTRAN READ/WRITE
658:	-22534-80003	1432	RC	MODIFIED DOS-M WITH FORTRAN READ/WRITE
659:	22534-80001	1432	SC	MODIFIED DOS-M WITH FORTRAN READ/WRITE
660:	22534-80002	1432	SC	MODIFIED DOS-M WITH FORTRAN READ/WRITE
661:	22534-80003	1432	SC	MODIFIED DOS-M WITH 60RTRIN READ/WRITE
662:	-22535-80001	B	SC	MAGNETIC TAPE COPY
663:	-22537-80001	A	SC	DOS-M ASCII FILE RETRIEVAL SUBROUTINE
664:	22538-80001	A	SC	DOS-M CENTRONICS 101-A LP DRVR.(DVR00)
665:	-22539-80001	A	SC	DOS-M SYSTEM TELEPRINTER WITH PAPER TAPE I/O C
666:	22540-80001	A	SC	DOS-M HAZELTINE 2000 TERMINAL DRIVER (DVR0
667:	-22542-80001	A	SC	HP 2870/7900 DISC/MAG TAPE UTILITY (MADIU)
668:	22544-80001	A	SC	16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAG
669:	22544-80002	A	SC	16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAG
670:	22544-80003	A	SC	16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAG
671:	22544-80004	A	SC	16K STAND-ALONE DUMP OF HP 2000C/F FORMAT MAG
672:	-22545-80001	1500	SC	PHOTOREADER DATA INPUT FOR 20392A BASI
673:	22546-80001	1500	SC	SYSTEM OF ORDINARY DIFFERENTIAL EQUAT.
674:	-22547-80001	A	SC	DOS-M ONLINE BOOT FROM MTS
675:	22548-80001	A	SC	TEKTRONIX T4002 PLOTTER LIB.FOR RTE
676:	-22549-80001	A	SC	DOS-M MAGNETIC TAPE COPY
677:	-22550-80001	A	SC	EFMP FILE SORT
678:	22553-80001	1505	SC	TODS INDEX
679:	22553-80002	1505	SC	TODS INDEX
680:	22553-80003	1505	SC	TODS INDEX
681:	-22554-80001	A	SC	DOS-M/DOS III UTILITIES
682:	-22554-80002	A	SC	DOS-M/DOS III UTILITIES
683:	-22555-80001	1437	SC	SIO DVR FOR TTY AND CRT IN SAME SYSTEM
684:	22556-80001	A	SC	ALGOL OPER. SYS.FOR MTS & BCS LOADER
685:	22557-80001	A	SC	8K SDUMP FOR HP 7900A MOVING HEAD DISC
686:	22559-80001	1500	SC	PAPER TAPE/OPTICAL CARD COPY PROGRAM
687:	22560-80001	A	SC	HP 2000 SERIES TSB COLD DUMP TAPE ANALYZER (C
688:	22561-80001	1431	SC	LIST/POSITION DOS-M NON-DISC FILES
689:	22562-80001	1500	SC	ADM OF A SCHOOL OPT SCHEME ON DOS-M
690:	22564-80001	1432	SC	INDIVIDUALIZED STUDENTS EXAM TIMET.
691:	22565-80001	1432	SC	GENERATE ARITHMETIC WORKSHEETS UNDER DOS-
692:	22569-80001	A	SC	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY
693:	22569-80002	A	SC	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY
694:	22569-80003	A	SC	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY
695:	22569-80004	A	SC	RTE CALCOMP/TEKTRONIX PLOTTER LIBRARY
696:	-22575-80001	A	SC	LIST THE RTE TABLES
697:	22577-80001	1450	SC	DOS-M REMOTE BATCH TERM TO UNIVAC 1108
698:	22577-80002	1450	SC	DOS-M REMOTE BATCH TERM TO UNIVAC 1108
699:	22577-80003	1450	SC	DOS-M REMOTE BATCH TERM TO UNIVAC 1108
700:	22577-80004	1450	SC	DOS-M REMOTE BATCH TERM TO UNIVAC 1108
701:	22577-80005	1450	SC	DOS-M REMOTE BATCH TERM TO UNIVAC 1108

FILE	PART NUMBER	TYPE	LABEL		
702:	22577-80006	1450	SC	DOS-M REMOTE BATCH	TERM TO UNIVAC 1108
703:	22577-80007	1450	SC	DOS-M REMOTE BATCH	TERM TO UNIVAC 1108
704:	22579-80001	A	SC	PAPER TAPE SYSTEM DIAGNOS.	
-705:	22579-80002	A	SC	PAPER TAPE SYSTEM DIAGNOS.	
-706:	22579-80003	A	SC	PAPER TAPE SYSTEM DIAGNOS.	
-707:	22579-80004	A	SC	PAPER TAPE SYSTEM DIAGNOS.	
708:	22579-80005	A	SC	PAPER TAPE SYSTEM DIAGNOS.	
709:	22579-80006	A	SC	PAPER TAPE SYSTEM DIAGNOS.	
710:	22580-80001	1435	SC	RTE BINARY TAPE/FILE	UTILITY (BEDIT)
-711:	22580-80002	1435	SC	RTE BINARY TAPE/FILE	UTILITY (BEDIT)
712:	22581-80001	1432	SC	HP 2883A DISC TO	DISC DUMP
713:	22581-80002	1432	SC	HP 2883A DISC TO	DISC DUMP
714:	22582-80001	A	SC	UP/LO CASE CHAR. GEN.	FOR HP 7210 PLOTTER
715:	22582-80002	A	SC	UP/LO CASE CHAR. GEN.	FOR HP 7210 PLOTTER
716:	22582-80003	A	SC	UP/LO CASE CHAR. GEN.	FOR HP 7210 PLOTTER
717:	22585-80001	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
718:	22585-80002	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
719:	22585-80003	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
720:	22585-80004	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
721:	22585-80005	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
722:	22585-80006	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
723:	22585-80007	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
724:	22585-80008	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
725:	22585-80009	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
726:	22585-80010	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
727:	22585-80011	A	SC	DOS-M/DOS III MULTI-	FILE ASSEMBLER
728:	22585-80012	A	SC	DOS-M/DOS III MULTI-FILE	ASSEMBLER (X-REF GEN)
729:	22585-80013	A	SC	DOS-M/DOS III MULTI-FILE	ASSEMBLER (X-REF GEN)
730:	22585-80014	A	SC	DOS-M/DOS III MULTI-FILE	ASSEMBLER (X-REF GEN)
731:	22586-80001	1505	SC	VIRTUAL ARRAY HANDLER	
732:	22587-80001	A	SC	MICRO-CODED DOS-M	ROUTINES.PWR2 & .FLUM
733:	22588-80001	1437	SC	MULTI-TERMINAL BCS	DRIVER (D.00C)
734:	22588-80002	1437	SC	MULTI-TERMINAL BCS	DRIVER (D.00C)
735:	22589-80001	A	SC	64-BIT INTEGER LIB.	FORTRAN CALLABLE
736:	22589-80002	A	SC	64-BIT INTEGER LIB.	FORTRAN CALLABLE
737:	22590-80001	1432	SC	RTE CROSS-REFERENCE	GENERATOR
738:	22590-80002	1432	SC	RTE CROSS-REFERENCE	GENERATOR
739:	22590-80003	1432	SC	RTE CROSS-REFERENCE	GENERATOR
740:	22591-80001	1437	SC	STRIPPED FORTRAN	FORMATTER (STRIF)
741:	22591-80002	1437	SC	STRIPPED FORTRAN	FORMATTER (STRIF)
742:	22591-80003	1437	SC	STRIPPED FORTRAN	FORMATTER (STRIF)
-743:	-22592-80001	1432	SC	MAKE RTE DRIVERS	DISC RESIDENT DVR67
-744:	-22593-80001	A	→ SC	MAIL LIST PROCESSOR	
-745:	22594-80001	A	SC	IBM U.S. CROSS ASSEMBLER	FOR 2100
746:	22598-80001	1437	SC	HP 2321A SUBSYSTEM	DRIVER - BASIC CALL.
747:	22598-80002	1437	SC	HP 2321A SUBSYSTEM	DRIVER - BASIC CALL.
748:	22598-80003	1437	SC	HP 2321A SUBSYSTEM	DRIVER - BASIC CALL.
749:	22600-80001	A	SC	RTE DEBUG WITH TRACE	
750:	22600-80002	A	SC	RTE DEBUG WITH TRACE	
751:	22602-80001	1500	SC	HP5327B UNIV TIMER/	COUNTE/DVM DVR - BAS



FILE	PART NUMBER		TYPE	LABEL
752:	22603-80001	A	SC	ON-LINE ACCESS TO HP WCS
753:	22603-80002	A	SC	ON-LINE ACCESS TO HP WCS
754:	22603-80003	A	SC	ON-LINE ACCESS TO HP WCS

FILE	PART NUMBER	TYPE	LABEL	
2:	22604-80001	A	SC	BILL OF MATERIAL PACKAGE
3:	22604-80002	A	SC	BILL OF MATERIAL PACKAGE
4:	22604-80003	A	SC	BILL OF MATERIAL PACKAGE
5:	22604-80004	A	SC	BILL OF MATERIAL PACKAGE
6:	22606-80001	1437	SC	RTE DISC PROGRAM PATCH UTILITY
7:	22607-80001	1505	SC	MFORM-FORMATTER FOR ASCII CONVERTED INTEGERS
8:	-22608-80001	C	RC	HP 2000F BASIC FOR DOS-M/DOS III
9:	-22608-80001	C	SC	HP 2000F BASIC FOR DOS-M/DOS III
10:	-22610-80001	1437	SC	CORE RESIDENT DOS-M DISC LOADER UTILITY
11:	-22612-80001	A	SC	RTE MAGNETIC TAPE FILE MANAGER
12:	-22614-80001	1432	SC	SUMMARY OF DOS-M SOURCE FILES
13:	22615-80001	1505	SC	DOS-M CESIL INTERPRETER
14:	22615-80002	1505	SC	DOS-M CESIL INTERPRETER
15:	22618-80001	A	SC	MICROCODED FAST FOURIER TRANSFORM
16:	22620-80001	1500	SC	BCS SUBROUTINE FOR KEYBOARD COMMUNICAT
17:	22622-80001	1503	SC	BCS HP726/A CARD READER DRIVER
18:	22624-80001	A	SC	MICROCODED FAST FOURIER TRANSFORM W/AUTO RESC
19:	22625-80001	A	RC	IBM 1130 FORTRAN TO HP 2100 FORTRAN TRANS
20:	22625-80001	A	SC	IBM 1130 FORTRAN TO HP 2100 FORTRAN TRANS
21:	22626-80001	1505	SC	SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN)
22:	22627-80001	A	SC	DOS-M JOB ACCOUNTING SYSTEM
23:	22629-80001	1437	SC	RTE NON-DMA DVR FOR HP 5401B MULTICHAN.
24:	22631-80001	1500	SC	BCS LOADER W/TTY LINE PRINTER OUTPUT
25:	22631-80002	1500	SC	BCS LOADER W/TTY LINE PRINTER OUTPUT
26:	22631-80003	1500	SC	BCS LOADER W/TTY LINE PRINTER OUTPUT
27:	22633-80001	1437	SC	MULTI-TERMINAL NON-BCS DRIVER
28:	22633-80002	1437	SC	MULTI-TERMINAL NON-BCS DRIVER
29:	-22634-80001	1437	SC	ABSOLUTE RELOCATING LOADER
30:	-22634-80002	1437	SC	ABSOLUTE RELOCATING LOADER
31:	-22634-80003	1437	SC	ABSOLUTE RELOCATING LOADER
32:	22635-80001	A	SC	DOS-M/2000E TSB FILE HANDLER
33:	22635-80002	A	SC	DOS-M/2000E TSB FILE HANDLER
34:	22638-80001	1437	SC	SPECIAL PRIVILEGED RTE DVR FOR HP 2313
35:	22641-80001	A	SC	TRIPLE WORD ROUTINES
36:	22641-80002	A	SC	TRIPLE WORD ROUTINES
37:	22641-80003	A	SC	TRIPLE WORD ROUTINES
38:	22641-80004	A	SC	TRIPLE WORD ROUTINES
39:	22641-80005	A	SC	TRIPLE WORD ROUTINES
40:	22641-80006	A	SC	TRIPLE WORD ROUTINES
41:	22642-80001	1504	SC	LANGUAGE PARSING
42:	22644-80001	1532	SC	RTE QUICK CORE SORT (QSORT)
43:	22644-80002	1532	SC	RTE QUICK CORE SORT (QSORT)
44:	22645-80001	A	SC	2000E TSB PATCH UTILITY
45:	22646-80001	b	SC	BCS ACTIVITY PROFILE GENERATOR (ACP)
46:	22647-80001	A	SC	PATCH-MERGE ABSOLUTE BINARY TAPES
47:	22649-80001	A	SC	MICROCODED INTEGER SORT
48:	22653-80001	1500	SC	READ TIME FROM HP 5666A CLOCK
49:	22653-80002	1500	SC	READ TIME FROM HP 5666A CLOCK
50:	22654-80001	1500	SC	EAU + FLOATING POINT EXTERNAL REF. OPTIM.
51:	22655-80001	1500	SC	DESCRIPTION DIRECTORY FOR RTE FILE MAN.

FILE	PART NUMBER	TYPE	LABEL	
52:	22657-80001	1500	SC	DEMO THROUGHPUT RATE OF HP 2100 W/7900A DJ
53:	22658-80001	1505	SC	RTE/DOS FORTRAN IV COMPILER
54:	22659-80001	A	SC	IBM O.S. CROSS MICROASSEM FOR HP2100 COMPUTER
55:	22659-80002	A	SC	IBM O.S. CROSS MICROASSEM FOR HP2100 COMPUTER
56:	22660-80001	1442	SC	CHESS
57:	22660-80002	1442	SC	CHESS
58:	22660-80003	1442	SC	CHESS
59:	22661-80001	A	SC	FAST MICROCODED MULTIPLY INSTRUCTION
60:	22662-80001	A	SC	BURST MODE OUTPUT INSTRUCTION
61:	22663-80001	A	SC	BYTE DATA MANPULATION WITH MICROCODED ROUTI
62:	22664-80001	A	SC	RTE CONVERSATIONAL SUPER EDITOR
63:	22664-80002	A	SC	RTE CONVERSATIONAL SUPER EDITOR
64:	22664-80003	A	SC	RTE CONVERSATIONAL SUPER EDITOR
65:	22664-80004	A	SC	RTE CONVERSATIONAL SUPER EDITOR
66:	22664-80005	A	SC	RTE CONVERSATIONAL SUPER EDITOR
67:	22664-80006	A	SC	RTE CONVERSATIONAL SUPER EDITOR
68:	22665-80001	A	SC	TCS ORDER PROCESSING DEMONSTRATION
69:	22667-80001	1500	SC	SERIAL DEVICE TIMING STUDY PROGRAM
70:	22668-80001	1432	SC	RTE LIBRARY SPEED IMPROVEMENTS
71:	22670-80001	A	SC	MICROPROGRAMMED INDEX REGISTER INSTRUCTION
72:	22673-80001	1432	SC	MICROCODED BIT MANI- PULATIONS
73:	22677-80001	1505	SC	DOS-III UTILITY
74:	22679-80001	1506	SC	CURVE FITTING--WEIGHTED AVERAGING
75:	22680-80001	1505	SC	MICROPROGRAM SOURCE FORMATTER
76:	22681-18010	1505	SC	COMPREHENSIVE ACHIEVEMENT MONITORING CAMATOR
77:	22681-18011	1451	SC	2100 BYTE MANIPULA- TION ROUTINES
78:	22681-18012	1508	SC	RTE MICRO DEBUG EDITOR
79:	22681-18013	1508	SC	DVR 44-RTE DVR FOR 4406 + 4416 GRAPHIC GEN.
80:	22681-18014	1718	SC	RTE ACTIVE PROFILE GENERATOR
81:	22681-18015	1508	SC	DVR 33-RTE WCS DVR
82:	22681-18016	1511	SC	BCS TERM. COMMON. VIA DIAL-UP PHONE NTRWK
83:	22681-18017	1508	SC	MUXT: ASCII MESSAGES VIA 12920 MULTIPLEXOR
84:	22681-18018	1508	SC	3000 TO DOS 38 SOURCE FILE CONVERSION
85:	22681-18019	1505	SC	PERPETUAL CALENDAR
86:	22681-18020	1451	SC	DVR 12 FOR 9866A THERMAL LINE PRINTER
87:	22681-18021	1451	SC	OPTOR
88:	22681-18022	1450	SC	MEMORY TO PAPER TAPE ABL FORMAT
89:	22681-18023	1450	SC	CERTIFICATE DRAFTING PROGRAM (CDP)
90:	22681-18024	1507	SC	DOS-M TEKTRONIX 4010 DRIVER & GRAPH F
91:	22681-18025	1500	SC	RTE DISC FILE SORT (DSORT)
92:	22681-18026	1500	SC	DOS-M UTILITY PROG. GROUP
93:	22681-18027	1500	SC	DOS-M UTILITY PROGRAM GROUP
94:	22681-18028	1500	SC	21MX PAPER TAPE
95:	22681-18029	1500	SC	UTERM-CDC 200 USER TERMINAL SIMULATOR
96:	22681-18031	1508	SC	ROUTINES FOR SWITCHING DOS-M TO BCS
97:	22681-18033	1508	SC	ENTEX: FACILITATES CRTION OF SRCE FRM 2600 KYBC
98:	22681-18034	1508	SC	DUPER (RTE FILE MANAGER DUMP)
99:	22681-18035	1508	SC	DOS-M DVR FOR CENTRONICS 101A LINE PRINTER
100:	22681-18036	1508	SC	026/029 DRIVER 15
101:	22681-18037	1508	SC	DOS-M MARK SENSE EDUCATIONAL TEST SC

FILE	PART NUMBER	TYPE	LABEL
102:	22681-18038	1508	SC RTE MICROASSEMBLER FOR WCS
103:	22681-18039	1508	SC RTE 4271A 1MHZ DIGITAL LCR METER DRIVER
104:	22681-18040	1506	SC PAYROLL PACKAGE
105:	22681-18041	1507	SC CASSETTE PREPARE TAPE SYSTEM
106:	22681-18042	1507	SC 8K SIO CASSETTE DRIVER
107:	22681-18043	1506	SC PING PONG
108:	22681-18044	1507	SC MODIFIED DOS-III SYSTEM CONSOLE DRIVER DVROX
109:	22681-18045	1507	SC SFRFD: CONVERTS STRING OF ASCII CHARACTERS
110:	22681-18046	1508	SC 8K CASSETTE SIO DUMP
111:	22681-18047	1507	SC SCIENTIFIC PROGRAMMER BCD BINARY CONVERSION
112:	22681-18048	1506	SC RTE RELOCATABLE EDITOR
113:	22681-18049	1504	SC DOS-III ACTIVITY PROFILE GENERATOR
114:	22681-18050	1504	SC DYNAMIC LOAD OF FAST FORTRAN PROCESSOR TO
115:	22681-18051	1505	SC SLEEP/HIBERNATE ANALYSIS PROGRAM (SHAN 2)
116:	22681-18053	1606	SC HP 59310A INTERFACE BUS DRIVER
117:	22681-18054	1611	SC COPY EFMP FILES
118:	22681-18056	1546	SC EXOR RANDOM NUMBER GENERATOR
119:	22681-18058	1546	SC DOS IIIB BASED PREPARE CONTROL SYSTEM
120:	22681-18060	1550	SC SPACHE READABILITY FORMULA
121:	22681-18061	1612	SC OCTASET
122:	22681-18067	1546	SC BCS PLOTTING ROUTINES USING A TEKTRONIX 401
123:	22681-18068	1546	SC PRE-ASSEMBLER/FILE GATHERER (PRASM)
124:	22681-18070	1608	SC STAR - STARTREK - RTE
125:	22681-18071	1550	SC DOS-M UTILITIES PACKAGE
126:	22681-18073	1550	SC PROGRAM FOR SAVING AND RESTORING DISC FILES
127:	22681-18074	1546	SC ALPHA: PAPER TAPE IDENTIFICATION
128:	22681-18075	1550	SC DOS-M DISC EDITOR
129:	22681-18077	1604	SC TODS-C BASIC MAG TAPE BCS DRIVER
130:	22681-18080	1604	SC RTE HP2310C SPECIAL SUBSYSTEM DRIVER (DVR)
131:	22681-18081	1640	SC HIGH SPEED DISC I/O
132:	22681-18090	1546	SC 21MX MICROCODED SIN-COS-TAN
133:	22681-18091	1604	SC IMPLEMENTING A USER WRTN IBL LOADER ON THE 21M
134:	22682-18009	1608	RC PERT PACKAGE FOR DOS-III FALLA = RCH00
135:	22682-18039	1644	RC BREF - CROSS REF. TABLE GENERATOR FOR HP92101
136:	22682-18000	1550	SC BASIC CALL TO PRINT NUMBER WITHOUT SPACES
137:	22682-18001	1602	SC RENUM
138:	22682-18003	1604	SC D,06 BCS DVR FOR PNTR TECH MODEL PRINTEC 100 PRI
139:	22682-18004	1604	SC SINGLE TERMINAL-TIMESHARE BASIC CONVERSATIONAL
140:	22682-18005	1604	SC BINARY TO BCD CONVERSION
141:	22682-18007	1605	SC RTEIF
142:	22682-18008	1606	SC PROM WRITER ASSEMBLER MASK TAPE
143:	22682-18009	1608	SC PERT PACKAGE FOR DOS-III
144:	22682-18010	1605	SC SCORE PACK
145:	22682-18011	1608	SC RTE 2100 MICROPROGRAMMING SOFTWARE
146:	22682-18012	1608	SC SIO MACRO PROCESSOR
147:	22682-18013	1611	SC RTE ASYNCHRONOUS DATA SET INTERFACE DRIVER
148:	22682-18014	1612	SC INTEL 8080 CROSS ASSEMBLER
149:	22682-18016	1612	SC 2000E DISC CHECK UTILITY PROGRAM (TSEDP)
150:	22682-18017	1612	SC FIXED HEAD DISC DIAGNOSTIC
151:	22682-18018	1618	SC OPTIONAL DVR51 - RTE AUTO DIAL DVR 12589A INTF.

FILE	PART NUMBER	TYPE	LABEL	
152:	22682-18019	1724	SC	MAPIO - PRINT THE I/O CONFIGURATION
153:	22682-18020	1620	SC	THIRTY-ONE ODD
154:	22682-18021	1632	SC	FILE TRANSFER BETWEEN RTE AND DOS-M/III
155:	22682-18022	1632	SC	DOS-M/III FILE DIRECTORY LISTING FROM RTE ENVIRONMENT
156:	22682-18023	1632	SC	DVR37 DOS DRIVER FOR ASCII BUS (HP59310A)
157:	22682-18024	1632	SC	DOS-III FILE SAVER
158:	22682-18025	1632	SC	TTCOPY - TAPE-TO-TAPE COPY SINGLE DRIVE MAG TAPE
159:	22682-18026	1632	SC	UTDMP - UNIVERSAL MAG TAPE DUMP
160:	22682-18027	1632	SC	SIMPLEX - LINEAR PROGRAMMING FOR DOS-III
161:	22682-18028	1639	SC	ADM FOR HP RTE FMGR COMPUTER SYSTEMS
162:	22682-18029	1639	SC	RTE DVR PKG. FOR CALCUMP AND XYNETICS PLOTTER
163:	22682-18030	1731	SC	RTE SYSTEM MAINTENANCE UTILITY (SMUT)
164:	22682-18031	1718	SC	USER SPOOL POOL FILE ACCESS
165:	22682-18032	1639	SC	"LOAD ON CALL" (LOCAL) PACKAGE
166:	22682-18033	1640	SC	12X12 CHARACTER GENERATOR SUBROUTINE
167:	22682-18034	1640	SC	RTE MACRO PROCESSOR
168:	22682-18035	1641	SC	DATL SYSTEM 256 ANALOG TO DIGITAL CONVERTER ROUTINE
169:	22682-18036	1641	SC	FAST FOURIER TRANSFORM WITH DATA STORAGE ON
170:	22682-18037	1644	SC	DLU FOR RTE
171:	22682-18038	1644	SC	DOS-III B INTERACTIVE EDITOR
172:	22682-18039	1644	SC	BREF - CROSS REF. TABLE GENERATOR FOR HP92101
173:	22682-18040	1644	SC	ASCII SOURCE FILE WRITE SUBROUTINE
174:	22682-18041	1644	SC	DOS-IIIB CHANGE SYSTEM CONSOLE PROGRAM
175:	22682-18042	1644	SC	RTE II/III APG FOR 21MX M/E SERIES
176:	22682-18043	1644	SC	PROGRAMMING FOR HP2645 TERMINAL "SOFTKEYS"
177:	22682-18044	1644	SC	ASCII SOURCE FILE READ SUBROUTINE
178:	22682-18045	1648	SC	UNEXT
179:	22682-18046	1648	SC	21MX MICROCODED FFT WITH AUTOMATIC SCALING ON
180:	22682-18047	1648	SC	(STRAK) TEMP EXPANDABLE FIXED LENGTH REC DISC
181:	22682-18048	1648	SC	FORMATTED R/W TO DISC FILES USING FTN R/W SYSTEM
182:	22682-18049	1713	SC	CLASS - INTERROGATE CLASS I/O SYSTEM
183:	22682-18050	1718	SC	TRACK - RTE WORK AREA OWNERSHIP
184:	22682-18051	1701	SC	FMP-UTIL
185:	22682-18052	1701	SC	MINV - INVERSE ASSEMBLER FOR 2100 MICROCODE
186:	22682-18053	1701	SC	RTDMO
187:	22682-18054	1701	SC	LISTF - SELECTIVE FMGR DIRECTORY LISTER
188:	22682-18055	1701	SC	EQTXX
189:	22682-18056	1701	SC	21MX MICROCODE .PACK AND .FLUN
190:	22682-18057	1701	SC	OVER
191:	22682-18058	1714	SC	DFINE - REDEFINE PARTITIONS ON-LINE
192:	22682-18059	1703	SC	DOS-M DUMP DISC FILE DUMP UTILITY
193:	22682-18060	1703	SC	NAMR
194:	22682-18061	1721	SC	AUTOMATIC TEXT REPORT FORMATTER
195:	22682-18062	1710	SC	INTEL 8080 ABSOLUTE PROGRAM ASSEMBLER
196:	22682-18063	1714	SC	ENCRYPTION FOR RTE FMGR FILES
197:	22682-18064	1714	SC	RTE SYSTEM DATE & TIME AUTO SCHEDULE
198:	22682-18065	1716	SC	21MX EXTENDED INSTRUCTION SET SIMULATOR
199:	22682-18066	1719	SC	HP-IB PERFORMANCE UTILITY
200:	22682-18067	1736	SC	RTEII/III FMGR FILE TY 2 ASCII,INT. + RL SRT FILE
201:	22682-18068	1721	SC	HP 2644/2645 BCS DRIVER D.05

FILE	PART NUMBER		TYPE	LABEL	
202:	22682-18069	1730	SC	TELL & TELL ALL INTER-	TERMINAL MESSAGE SEND
203:	22682-18070	1651	SC	SDLS4 - ROUTINE TO READ	INFO FROM CUPERTINO I

**CON CONTRIBUTED PROGRAM DOCUMENTATION FORM FOR  
HEWLETT-PACKARD DATA SYSTEMS (LOCUS)**

**PRO** PROGRAM NUMBER/TITLE 22682-90070 **SDL64 ROUTINE TO READ INFORMATION  
FROM CUPERTINO DISTRIBUTION TAPES**

**PRO** PROGRAM LANGUAGE(s)  
 FORTRAN IV  RELOCATABLE ASSEMBLY LANGUAGE  
 FORTRAN II  ABSOLUTE ASSEMBLY LANGUAGE  
 ALGOL  MICROPROCESSOR ASSEMBLY LANGUAGE

**PRO** PROGRAM TYPE  
 PROGRAM  SUBROUTINE  
 DRIVER  FUNCTION  
 OTHER \_\_\_\_\_

**SUP** SUPPORTED SOFTWARE REQUIREMENTS - OPERATING SYSTEM  
 DOS M  SIO SYSTEM  
 BCS  HP BASIC VERSION \_\_\_\_\_  
 MTS  SELF-CONTAINED  
 RTE  OTHER \_\_\_\_\_

**PRC** PROGRAM DESCRIPTION

**Se** See attached operations guide.

22682-70

SDLS4 - ROUTINES TO READ INFORMATION  
FROM CUPERTINO DISTRIBUTION TAPES  
22682-90070  
SEPTEMBER 1977

DATE CODE 1651

22682-70



# CONTRIBUTED PROGRAM DOCUMENTATION FORM (2)

3

## CONTRIBUTED SOFTWARE REQUIREMENTS

(Name and order number of other contributed packages required)

none

## HARDWARE REQUIREMENTS

standard

## TAPE IDENTIFICATION

Tape #	Contents	Control Statement (if any)
1	SDLS4 GETRC	FTN4, L, C ASMB, L

## LOAD AND RUN INSTRUCTIONS

See attached operations guide.

22682-70

4  
**CONTRIBUTED PROGRAM DOCUMENTATION FORM (3)**

DIAGNOSTIC MESSAGES/ADDITIONAL EXITS

See attached operations guide.

SUBROUTINES OR MICROPROGRAMS

N/A

LITERATURE REFERENCE

none

SPECIAL CONSIDERATIONS

EXAMPLE INPUT/OUTPUT (TEST CASE)

22682-70

\*\*\*\*\* DESCRIPTION OF S0LS4 \*\*\*\*\*

"S0LS4" OPERATING INSTRUCTIONS AND NOTES      2/27/76      JMT  
"S0LS4" OPERATING INSTRUCTIONS AND NOTES  
.....

"S0LS4" IS A ROUTINE WHICH WILL READ INFORMATION FROM CUPERTINO DISTRIBUTION TAPES (S0LS OR MTL5 FORMAT) DIRECTLY INTO RTE FMP FILES. IT WILL ACCEPT ABSOLUTE, RELOCATABLE, OR SOURCE PROGRAMS, BUT A NOT YET IMPLEMENTED CHANGE IS REQUIRED TO READ "DATA" FILES FROM THE MTL5 TAPES. THE ROUTINE OTHERWISE ACCEPTS ALL TAPE FORMATS.

"S0LS4" CONSISTS OF TWO PARTS, A MAIN PROGRAM WRITTEN IN FORTRAN-IV TO INTERACT WITH THE OPERATOR, AND A SUBROUTINE "GETRC" (ASHB) WHICH CONTROLS AND READS THE MAG TAPE, PASSING INFO RECORDS BACK TO THE PROGRAM FOR PROCESSING. THE PROGRAM CURRENTLY REQUIRES AN 8K BACKGROUND AREA IN ORDER TO OPERATE.

"S0LS4" IS SCHEDULED WITH P1 = LU OF INTERACTIVE TERMINAL. IT REQUESTS THE LU OF THE MAG TAPE, LOCKS IT, AND REWINDS THE TAPE. THE TERMINAL LU IS ALSO SET UP AS THE LOG DEVICE FOR RECORDING S0LS4 OPERATIONS. (SEE BELOW).

THE PROCESSOR PROMPT IS "/S0LS4: TASK1"      LEGAL RESPONSES ARE:

LABEL	READ THE TAPE LABEL AND PRINT IT ON THE TERMINAL
DIRECTORY	SEARCH THE TAPE FOR ALL PROGRAM ID BLOCKS AND CREATE A FILE SUITABLE FOR DUMP TO A LINE PRINTER. THE RESULT IS A DIRECTORY OF THE TAPE, GIVING PROGRAM LABELS, TYPE, AND THE TAPE FILE NUMBER IN WHICH THEY ARE FOUND (USEFUL BELOW). THE DESIRED LIST FILE NAME WILL BE REQUESTED. THE FILE MAY BE TYPE M. IF NECESSARY, A DISC FILE WILL BE CREATED.
REWIND	REWIND THE TAPE
N	PRINT CURRENT MAG TAPE POSITION (FILE #)
LL	CHANGE LOG DEVICE (EG. TO PUNCH FOR HARD-COPY RECORD)

22682-70

**LOAD**

LOAD A SPECIFIC TAPE ITEM INTO A FILE. THE DESTINATION PMP FILE NAME IS REQUESTED AND THE FILE OPENED OR CREATED AS NECESSARY. THE TAPE FILE ID (PART NUMBER) OR FILE NUMBER (AVAILABLE FROM 'DIRECTORY' OUTPUT) IS REQUESTED. IF THE FILE NUMBER IS GIVEN, A RANDOM SEARCH IS POSSIBLE, IF PART NUMBER IS GIVEN, THE TAPE WILL BE SEARCHED FORWARD ONLY. A REVISION CODE MAY BE SPECIFIED ALONG WITH THE PART NUMBER. IF IT MATCHES WITH WHAT'S ON THE TAPE, ALL'S O.K., ELSE A MESSAGE WILL BE LOGGED INDICATING A MIS-MATCH. IN ANY CASE, THE FILE WILL STILL BE LOADED. WHEN THE TAPE FILE IS FOUND THE ID AND DESTINATION FILE ARE LOGGED ON THE LOG DEVICE IN ORDER THAT A RECORD CAN BE KEPT OF FILE CONTENTS. NOTE: OLD FILES WILL BE OVERWRITTEN IF THEIR NAMES ARE GIVEN AS DESTINATION FILES. THIS WILL BE REPORTED ON THE LOG DEVICE. DESTINATION FILES MAY BE TYPE B FILES (PUNCH?) THE ROUTINE IS SMART ENOUGH TO DECIDE WHETHER TO REWIND OR BACKSPACE TO A PREVIOUS MAG TAPE FILE

**BATCH**

GET LOAD COMMANDS FROM AN FMP FILE. THE FORMAT OF THE COMMAND FILE IS AS FOLLOWS:  
 FILE NAME  
 PART NUMBER OR FILE NUMBER  
 FILE NAME  
 PART NUMBER ETC.  
 .  
 .  
 FILE NAME  
 PART NUMBER OR ETC.  
 /E (OPTIONAL)  
 THE '/E/' CAUSES A TAPE REWIND AND RETURN TO INTERACTIVE MODE.

**UPDATE**

JUST LIKE BATCH MODE, EXCEPT REQUIRES PART NUMBER AND NOT FILE NUMBER. IN THIS MODE, 'SDLS4' WILL \* ONLY LOAD THOSE FILES WHOSE REV CODES ARE MORE RECENT THAN THAT SPECIFIED IN THE BATCH-FILE \* IT WILL UPDATE THE BATCH FILE REV PARAMETER TO REFLECT THE CURRENT REV, SO THAT NEXT MONTH YOU CAN GO TO THE SAME BATCH FILE FOR UPDATE.

**END/EXIT**

GUESS!

'SDLS4' CHECKS THE BREAK FLAG (\*BR,SDLS4) AT EACH MAG TAPE RECORD. IF A 'LOAD' IS IN PROGRESS, THE LOAD FILE IS PURGED AND THE TAPE SET BACK TO THE BEGINNING OF THAT FILE. SEARCH OPERATIONS ARE JUST LEFT HANGING....

22682-70



22000-90099

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