

UPDATE TO  
DECUS PDP-8, FOCAL8, BASIC8, PDP-12 CATALOG  
VOLUME II

First Edition - December 1973

Updated - July 1974

Updated - December 1974

Updated - May 1975

May 1975

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## GENERAL INFORMATION

### PAYMENT

All DECUS service charges are to help defray the cost of reproduction, handling and postage. All orders must be accompanied by cash, DECUS Coupons or Purchase Order. Please make checks payable to DECUS.

Because of the difficulties encountered by many installations in obtaining Purchase Orders for small amounts, DECUS Coupons may be ordered for any amount and used as subsequent payment for DECUS orders. Coupons are available in \$1.00 and \$5.00 denominations. They may be ordered as DECUS NO. 0051.

Payment for DECUS Coupons must be made in advance. Purchase Orders for coupons must be paid before coupons may be redeemed for DECUS material.

All charges are in U. S. Dollars. A \$2.00 invoicing charge is added to all orders which are not prepaid.

All charges are subject to change without notice.

European Users - Payment may be made in your currency to: Martha Ries, Digital Equipment Co., Int'l-Europe, Case Postale 340, 1211 Geneva 26, Switzerland. Please refer to currency exchange charts available from that office.

Australian Users and New Zealand Users - Payment may be made in your currency to DECUS Australia, P. O. Box 491, Crows Nest, NSW, 2065 Australia. Please refer to currency exchange charts available from that office.

### WRITE-UPS

With certain exceptions single copies of associated write-ups are automatically included at no charge with programs ordered and with all library tapes.

Most write-ups may also be requested without tapes. Reasonable requests (usually 15 or fewer write-ups) will be filled without charge. When more than 15 individual write-ups are requested, a service charge of fifteen cents (15¢) per write-up will apply. EXCEPTIONS: Write-ups for which an individual service charge is indicated.

Requests for multiple copies of the same write-up will be charged at a rate of \$1.00 per copy (first copy free), or at the service charge indicated.

Complete sets of current write-ups for each library are available. Service Charges are:

PDP-8	\$120.00
BASIC8	15.00
FOCAL8	50.00
PDP-12	25.00
PDP-11	45.00
RSTS11	40.00
PDP-6/10 & 10 (combined)	35.00
PDP-9 & 15 (combined)	25.00

### TAPES

In some cases it is possible to pack programs on DECTape. Such cases will be considered on an individual basis. Please contact the appropriate DECUS Library Controller for specific information.

Programs customarily distributed on paper tape will not be packed on DECTape.

RSTS-11 programs are on disk and can be transferred to any distribution media (paper tape, DECTape, magtape or disk). Service charges will vary according to the media involved. Contact the PDP-11 controller for complete information.

All User Supplied DECTapes must be new and formatted. DECUS cannot/ will not copy programs to unformatted tapes.

When it is indicated that certain programs occupy the same tape, only one service charge will apply for any combination of programs on that tape. (Library Tapes excluded.)

When requesting magtapes, the user should specify whether 7 track or 9 track tapes are needed.

LIBRARY TAPES

There are four Library LINCtapes of PDP-12 programs. Contents of tapes and applicable Service Charges are:

<u>TAPE</u>	<u>DECUS NO's.</u>	<u>USER TAPE</u>	<u>DECUS TAPE</u>
1	12-1,2,4	\$15.00	\$25.00
2	12-5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 20	35.00	45.00
3	12-22, 23, 25, 30, 31, 32, 33 35, 36, 37, 41, 42, 43, 44	35.00	45.00
4	12-45, 46, 47, 51, 54, 55, 56, 57	25.00	35.00

Three Library Magtapes of DECsystem-10 programs are available from DECUS. The tapes are Failsafe, 7 or 9 track, 800 or 556 BPI. If not specified, tapes will be copied 9 track at 800 BPI. Write-ups are supplied, at no charge, for each Library Tape issued.

Tape #1a includes all currently announced 6/10 programs, plus all programs from 10-1 through 10-99 which have been announced as currently available, with the exception of 10-14, 10-34a and 10-86b.

Tape #2a includes all programs from 10-103 through 10-200 which have been announced as currently available, with the exception of 10-176, 10-179a and 10-199.

Tape #3 includes all programs from 10-201 through 10-231 which have been announced as currently available, with the exception of 10-210, 10-213, 10-215, 10-223, 10-224 and 10-227.

Servicecharges quoted are for each library tape, NOT for any combination of tapes. Requests for 9 track, 800 BPI require one 2400' Magtape for either Tape #1a or #2a. 7 or 9 track 556 BPI or 7 track 800 BPI may in some cases require an additional 600' Magtape.

Service charges for library tapes are:

<u>Library Tape #1a or #2a (2400' magtape)</u>		<u>Library Tape #3 (1200' magtape)</u>
DECUS supplied tape	\$125.00	\$50.00
User supplied tape(s)	\$100.00	\$30.00
DECUS supplied 600' tape	\$ 15.00	

Users who received previous versions of either tape #1 or tape #2 (a) may request the updated tapes by indicating date of the original purchase order, invoice or letter of credit (specify which) and in whose name the original order was issued.

Service charges for updating library tapes are:

DECUS supplied tape	\$50.00
User supplied tape(s)	\$25.00
DECUS supplied 600' tape	\$15.00

Library Tapes previously ordered will not be automatically updated.

Programs not included on Library Tapes may be obtained as shown in catalog.

CATEGORY INDEX

I. PROGRAMMING LANGUAGE, MONITOR,  
PROGRAMMING SYSTEM

<u>DECUS NO.</u>	<u>TITLE</u>
8-604	'GET' Command for Disk/DECtape Monitor System
8-608	FUTIL - OS/8 File Utility
8-618	Two OS/8 Device Handlers for the 57A Magnetic Tape Control
8-628	LISP 1.5 Interpreter for PDP-8 with OS/8 (PS/8)
8-632	RWDF32
8-633	MAC8, 8K MACRO ASSEMBLER
8-635	PAL12D
8-641	OS/8 FORMAT
8-644	MINMON - TD8E DECTape Minimonitor
8-646	DECsystem-8
8-653	MTAPER - 8K Magtape Monitor (TR05-A Interface) and 8K FORTRAN I/O
8-655	Patches to CINET-BASIC (DECUS NO. 8-159)
8-658	Extended Double Precision Interpretive Package
8-662	UNDEFSYBLIST - Undefined Symbol List
8-668	RAW - A Reverse Assembler of Windsor
8-676	MOVE DELETE
8-682	SCPSYS (Scope System)
8-691	ACCK Timeshare Accounting System
8-694	Teletype Line Printer Emulator Handler for OS/8
8-699	MPS External Event Common Routines
8-702	COGO-8
8-706	BITSET
8-708	EMLP: Emory Linear Programming Package
8-719	OS/8 Software for a TC58 Magtape Controls
8-721	LISP-8K
8-726	An OS/8 Handler for the Varian Statos 21 Line Printer
8-734	Microprocessor Language Assembler for OS/8
8-735	DSP8; Diagnostic Support Package for the PDP-8
8-747	STAGE2 MACRO Processor
8-749	UFAX08 - A LAB-8 (AX08) Set of User-Defined Functions for OS/8 BASIC
8-751	FORTTRAN IV for OS/8 FORTRAN II Users
8-752	MIG8E2 - Monitor of Interruptions Which Are Generated by the PDP-8/E Peripherals
8-757	OS/8 Utility Package
8-760	FASTAD - User Oriented Data Collection on One A/DC Channel

II. TEXT EDITING, TEXT MANIPULATION

<u>DECUS NO.</u>	<u>TITLE</u>
8-601	OASIS
8-606b	PIP11
8-611a	SLED - Source and Listing Editor
8-623	PAGER
8-627	TEXPAK - Program to Convert a Line of Text to Packed Octal Format
8-640	OS/8 EDIT PLUS
8-651	SOLMT (Sort Overlay Listings Using Magnetic Tape)
8-681	CASE - Carleton Symbolic Editor
8-682	SCPSYS (Scope System)
8-731	MEMO IV
8-756	ASCON - ASCII File Converter
8-764	LIST

III. DEBUGGING, DISASSEMBLY, SIMULATION,  
TRACE, DUMP

8-601	OASIS
8-608	FUTIL - OS/8 File Utility
8-609	OCOMP - Octal Compare and Dump
8-624	DUMP and LOAD, TSS/8
8-636	BEST - Binary to Symbolic Traductor
8-639	OS/8 DISASM
8-697	DDTSS8, DECTape Dump for Time Shared System-8 (TSS/8 EDUssystem 50)
8-720	LSTDMP; Binary Tape Dump/Listener
8-727	Disassembler
8-733A	PDP-8/E RJE System (IBM 2780 Emulator)
8-736	Paper Tape Reader-Printer
8-738	The Business Management Laboratory
8-755	OCTYPE - Octal Memory Dump
8-763	KL8TST - KL8/E, KL8/J Diagnostic
8-765	DUMPOS - Dumps OS/8 ASCII Files

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IV. BINARY LOADING, BINARY PUNCHING

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<u>DECUS NO.</u>	<u>TITLE</u>
8-601	OASIS
8-605	ADUMP8
8-672	XCBL and XBIN Loader
8-683	BNLOAD, TSS/8 Binary Loader
8-684	Injection Patcher - IJPA
8-701	TEXT: Readable Punch Handler for OS/8
8-730	CORVU: A Display and Teletype Input-Output Program
8-761	WDATA - Subroutine to Write Absolute Binary Data on SYS-Device
8-762	TTYIO - I/O Routines for Teletype or Similar Terminal

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V. DUPLICATION, VERIFICATION

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8-600b	EXPIP (Extensions PIP)
8-606b	PIP11
8-663	REPROD/ Read, Punch and Verify Product
8-722	Mini-Copy

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VI. NUMERICAL FUNCTION, NUMERICAL INPUT/OUTPUT

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<u>DECUS NO.</u>	<u>TITLE</u>
8-607	CALCU1
8-615	EAE Multiplication for 8K FORTRAN
8-621	Gray Code Conversion Package
8-625	Floating Integer Function for use with 8K FORTRAN
8-631	MINT - Multiple Precision Integer Arithmetic Subroutine
8-658	Extended Double Precision Interpretive Package
8-678	Routine to Expand and Modify the DEC Floating-Point Package
8-685	DPSQRT - Double Precision Square Root for PDP-8
8-691	ACCK Timeshare Accounting System
8-696	DECTYP, One-Word Signed Decimal Print
8-716	Exponential Functions
8-717	F4EAE - EAE Overlay for FRTS
8-732	BAVIRF - A Virtual File UDEF for OS/8 BASIC
8-737A	Four Word Floating Point Package for MPS
8-737B	Four Word Floating Point Functions for MPS
8-737C	Rudimentary Calculator for MPS Four Word Floating Point Routines

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VII. UTILITY

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8-600b	EXPIP (Extensions PIP)
8-602A&B	The PDP-8 Cookbook, Volume 1 & 2
8-606b	PIP11
8-608	FUTIL - OS/8 File Utility
8-609	OCOMP - Octal Compare and Dump
8-618	Two OS/8 Device Handlers for the 57A Magnetic Tape Control
8-619	FORTTRAN-Callable Scope Subroutines for the KV8/VT01 Graphic System
8-627	TEXPAK - Program to Convert a Line of Text to Packed Octal Format
8-634	MOVE
8-649	QPIP - OS/8 Directory Editing Program
8-657B	DSKFIL, A File Structured Disk Writing Routine and Helpers
8-657C	TR, Binary to ASCII Translator
8-663	REPROD/ Read, Punch and Verify Product
8-667	LABLDP - A TSS/8 Tape Labeling Program
8-671	Restoring Symbolprint
8-675	INDUMP - Input Dump
8-677	STAR PIP
8-684	Injection Patcher - IJPA
8-689	UFDSPLY - A TSS/8 Line-Printer UFD Dump Program
8-691	ACCK Timeshare Accounting System
8-697	DDTSS8, DECTape Dump for Time Shared System-8 (TSS/8 - EDUsystem 50)
8-698	TEKLIB

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VII. UTILITY (Continued)

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<u>DECUS NO.</u>	<u>TITLE</u>
8-701	TEXT: Readable Punch Handler for OS/8
8-714	PDPLST: PDP-8 - IBM 360/370 Cross Listing Program
8-719	OS/8 Software for a TC58 Magtape Control
8-722	Mini-Copy
8-728	MEND
8-730	CORVU: A Display and Teletype Input- Output Program
8-736	Paper Tape Reader-Printer
8-739	COPY.PA
8-742	CLOCK - A Real-Time Clock/Calendar Routine
8-743	FILFIX - TSS/8 File Structure Repairing and Restructuring Program
8-753	OS/8 System Output Handlers
8-754	NUMBER and REDATE - OS/8 File Utility Programs
8-757	OS/8 Utility Package
8-760	FASTAD - User Oriented Data Collection on One A/DC Channel
8-761	WDATA - Subroutine to Write Absolute Binary Data on SYS-Device
8-762	TTYIO - I/O Routines for Teletype or Similar Terminal
8-764	LIST

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VIII. DISPLAY

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<u>DECUS NO.</u>	<u>TITLE</u>
8-614	Clock Calibration
8-619	FORTTRAN-Callable Scope Subroutines for the KV8/VT01 Graphic System
8-622	KV8/I - VT01 Device Handler
8-637	A Flexible Data Buffer Display Routine for LAB-8 Systems
8-659	VT05
8-674	External - or RC - Clock (AX08) Calibration
8-682	SCPSYS (Scope System)
8-695	Real Time Display Processor for a KV8 Graphic System and KW8 Clock
8-698	TEKLIB, A Series of OS/8 FORTRAN II Callable Subroutines for the Tektronix 4010
8-730	CORVU: A Display and Teletype Input-Output Program
8-746	Device Handler for Tektronix 611 Storage Scope
8-764	LIST
8-766	SIMBA - A PDP-8/E Oscilloscope Symbol Generator

8-748	SM04 - OS/8 to Disk-Monitor ASCII File Converter
8-759	USLIBA - FORTRAN II Subroutines for Binary Data Transfer
8-760	FASTAD - User Oriented Data Collection on One A/DC Channel
8-761	WDATA - Subroutine to Write Absolute Binary Data on SYS-Device

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IX. DATA MANAGEMENT, SYMBOL MANIPULATION, SORTING

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8-608	FUTIL - OS/8 File Utility
8-610	INVENT-8
8-611a	SLED - Source and Listing Editor
8-612	ELAN - Elementary Linguistic Analysis
8-613	Interconversion Between A/D Floating Point and D/A Formats
8-628	LISP 1.5 Interpreter for PDP-8 with OS/8 (PS/8)
8-642	AUTOCO - Autocorrelation for Poor People (Without EAE)
8-650	AMIPED - Automated Medical Interview With Pediatric Data Files
8-653	MTAPER - 8K Magtape Monitor (TR05-A Interface) and 8K FORTRAN I/O
8-657A	INPUT, A Neurophysiological Data Collecting Program
8-657B	DSKFIL, A File Structured Disk Writing Routine and Helpers
8-657C	TR, Binary to ASCII Translator
8-689	UFDSPY - A TSS/8 Line-Printer UFD Dump Program
8-706	BITSET
8-711	Microprocessor Cross Reference Program for OS/8
8-723	Function Comp.FT
8-724	Computer Catalog System
8-741	SD8SY and SD8X - Two Handlers for the TD8E Simple DECTape

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X. PROBABILITY, STATISTICS, CURVE-FITTING

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<u>DECUS NO.</u>	<u>TITLE</u>
8-603	PATPST: Patch for DEC-LAB-8/E Post-Stimulus-Time-Histogram Program
8-642	AUTOCO - Autocorrelation for Poor People (Without EAE)
8-652	Regression Analysis Package
8-659	VT05
8-660	STAT
8-661	LESQ, General Non-Linear Least Squares
8-664	FREQHS - A Subroutine to Generate a Frequency Histogram from Stored Interval Measurements
8-666	NORDER - A Subroutine to Generate nth Order Histograms from Inter-Event Intervals
8-673	Random Number Generators for Use With FORTRAN or SABR Programs
8-690	RANDU
8-704	ANOVI: Analysis of Variance, Unequal N
8-705	ARNORM: Area Under Normal Curve
8-707	CRSTAB: Cross Tabulation Program
8-710	MULTS: Multiple Regression Program
8-745	LEP - Linear, Exponential and Power Function Curve Fit



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XI. SCIENTIFIC APPLICATION, ENGINEERING APPLICATION

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<u>DECUS NO.</u>	<u>TITLE</u>
8-603	PATPST: Patch for DEC-LAB-8/E Post-Stimulus-Time-Histogram Program
8-617	V. A. PKS.-1 and V.A. PKS.-2, Real Time G. C. Data Integrator and G. C. Data Manipulator
8-620	The PHA-8 Data Acquisition System
8-620A	SINGS - Single Parameter, Single Precision, 1024 Channel, PHA Data Acquisition
8-620B	SINGDP - Single Parameter, Double Precision, 1024 Channel, PHA Data Acquisition and Display
8-620C	PK8L - 1024 Channel Off-Line Peak Location and Listing
8-620D	SING8K - Single Parameter, Precision and One-Half, 4096 Channel, PHA Data Acquisition and Display
8-620E	PK8K - 4096 Channel Off-Line Peak Location and Listing
8-626	Automated Electrooculography
8-630	Pulmonary Function Laboratory Programs
8-638	GEOMAS
8-642	AUTOCO - Autocorrelation for Poor People (Without EAE)
8-648	LOGMIN - Logic Minimization Program
8-650	AMIPED - Automated Medical Interview With Pediatric Data Files
8-657A	INPUT - A Neurophysiological Data Collecting Program
8-664	FREQHS - A Subroutine to Generate a Frequency Histogram from Stored Interval Measurements
8-665	INTVAL - A Subroutine to Measure Inter-Event Intervals
8-666	NORDER - A Subroutine to Generate nth Order Histograms from Inter-Event Intervals
8-669	BIOLSD - Antibiotic Assay Using Latin Square Design
8-680	WLSHTR - A Fast Walsh Transform Subroutine for Real Valued Functions
8-692	OLEVX and OLEVAX, 4-Channel Averager and Analysis System
8-712	IRSPEC: Calculation "On Line" of Far Infrared Spectra by Fourier Transform
8-718	NSD - Nominal Standard Dose
8-725	The Pipe Stress Problem on a PDP-8/F
8-740	Theorem Prover for the Propositional Calculus
8-760	FASTAD - User Oriented Data Collection on One A/DC Channel

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XII. HARDWARE CONTROL

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<u>DECUS NO.</u>	<u>TITLE</u>
8-614	Clock Calibration
8-618	Two OS/8 Device Handlers for the 57A Magnetic Tape Control
8-622	KV8/1 - VT01 Device Handler
8-645	Interfacing the PDP-8 to the Printec-100 Line Printer
8-694	Teletype Line Printer Emulator Handler for OS/8
8-719	OS/8 Software for a TC58 Magtape Control
8-739	COPY.PA
8-758	Super Hardware Bootstrap Code for the TC08/TC01 on a M18E

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XIII. GAME DEMONSTRATION

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8-643	LIFE
8-647	FULMIX - Complete Permutation Program
8-686	Bowling League Results, Standings and Averages
8-687	GOLF
8-688	FOOTBALL
8-700	JET AMBUSH
8-729	DS340 Demo Package
8-738	The Business Management Laboratory
8-750	Paper Tape Display

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XIV. PLOTTING

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<u>DECUS NO.</u>	<u>TITLE</u>
8-629	Graphing Subroutines for 8K FORTRAN Programs
8-670	Basic Plotting Package for OS/8 FORTRAN IV
8-713	FORTRAN Plotting Subroutines
8-715	F4 GRAPHICS
8-738	The Business Management Laboratory

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XVII. MISCELLANEOUS

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<u>DECUS NO.</u>	<u>TITLE</u>
8-602A&B	The PDP-8 Cookbook, Volume 1 & 2
8-616	Octal Character Equivalent
8-654	Cabrillo Test Grader
8-656	SELFDRILL - The Sloan Selfdrill Program
8-679	MAPPER
8-686	Bowling League Results, Standings and Averages
8-693	A Programmed Learning Course in Boolean Algebra
8-701	TEXT: Readable Punch Handler for OS/8
8-735	DSP8; Diagnostic Support Package for the PDP-8
8-766	SIMBA - A PDP-8/E Oscilloscope Symbol Generator

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XV. DESK CALCULATOR, BUSINESS APPLICATION

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8-607	CALCU1
8-610	INVENT-8
8-703	AMORT: Incremental Amortization Schedule
8-709	FINCA: A Computer Program for Financial Statement Analysis
8-724	Computer Catalog System
8-729	DS340 Demo Package
8-738	The Business Management Laboratory

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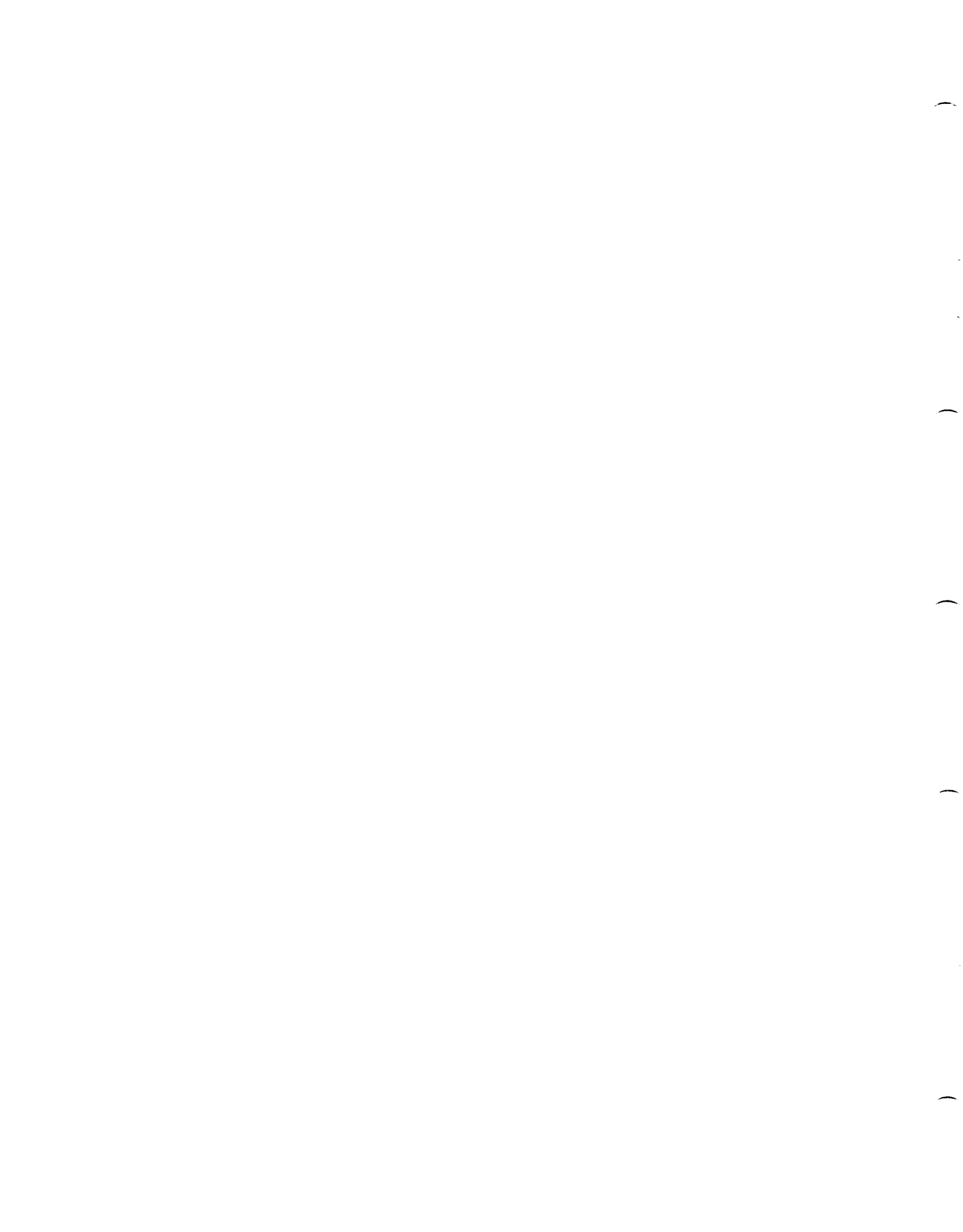
XVI. MAINTENANCE

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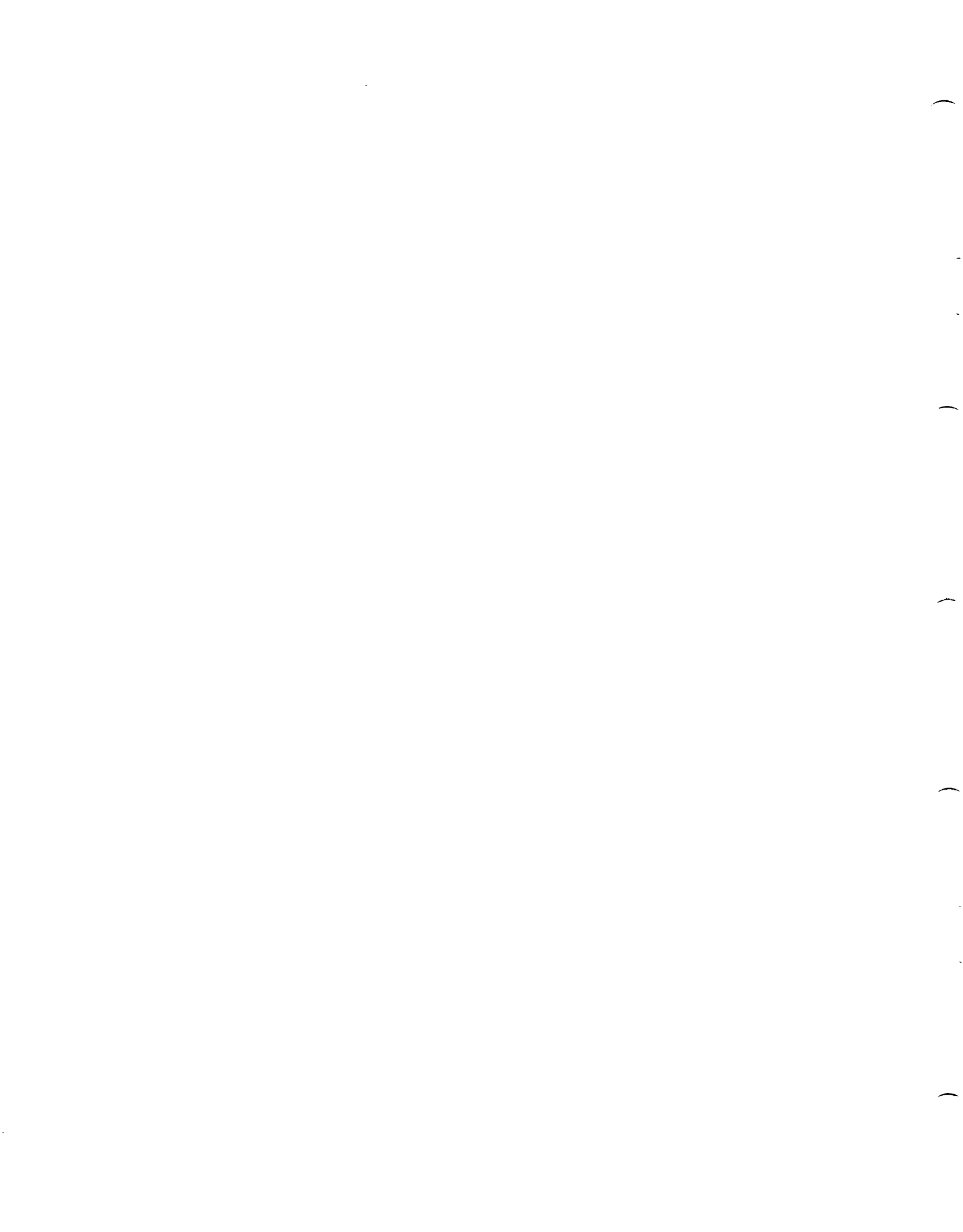
8-608	FUTIL - OS/8 File Utility
8-614	Clock Calibration
8-624	DUMP and LOAD, TSS/8
8-744	TSTCDR - TSS/8 Card Reader Diagnostic

PS/8 - OS/8 PROGRAMS

<u>DECUS NO.</u>	<u>TITLE</u>	<u>DECUS NO.</u>	<u>TITLE</u>
8-600b	EXPIP (Extensions PIP)	8-724	Computer Catalog System
8-606b	PIP11	8-726	An OS/8 Handler for the Varian Statos 21 Line Printer
8-607	CALCU1		MEMO IV
8-608	FUTIL - OS/8 File Utility	8-731	BAVIRF - A Virtual File UDEF for OS/8 BASIC
8-609	OCOMP - Octal Compare and Dump	8-732	Microprocessor Language Assembler for OS/8
8-610	INVENT-8		DSP8; Diagnostic Support Package for the PDP-8
8-618	Two OS/8 Device Handlers for the 57A Magnetic Tape Control	8-734	The Business Management Laboratory
8-622	KV8/I - VT01 Device Handler	8-735	COPY.PA
8-628	LISP 1.5 Interpreter for PDP-8 with OS/8 (PS/8)	8-738	SD8SY and SD8X - Two Handlers for the TD8E Simple DECTape
8-631	MINT - Multiple Precision Integer Arithmetic Subroutine	8-739	LEP - Linear, Exponential and Power Function Curve Fit
8-632	RWDF32	8-741	Device Handler for Tektronix 611 Storage Scope
8-633	MAC8, 8K MACRO ASSEMBLER	8-745	STAGE2 MACRO Processor
8-634	MOVE	8-746	SM04 - OS/8 to Disk-Monitor ASCII File Converter
8-635	PAL12D		OS/8 System Output Handlers
8-638	GEOMAS	8-747	NUMBER and REDATE - OS/8 File Utility Programs
8-639	OS/8 DISASM	8-748	ASCON - ASCII File Converter
8-640	OS/8 EDIT PLUS		OS/8 Utility Package
8-641	OS/8 FORMAT	8-753	Super Hardware Bootstrap Code for the TC08/TC01 on a M18E
8-643	LIFE	8-754	USLIBA - FORTRAN II Subroutines for Binary Data Transfer
8-646	DECsystem-8	8-755	WDATA - Subroutine to Write Absolute Binary Data on SYS-Device
8-649	QPIP - OS/8 Directory Editing Program	8-756	LIST
8-650	AMIPED - Automated Medical Interview With Pediatric Data Files	8-757	DUMPOS - Dumps OS/8 ASCII Files
8-659	VT05	8-758	
8-660	STAT	8-759	
8-661	LESQ, General Non-Linear Least Squares		
8-670	Basic Plotting Package for OS/8 FORTRAN IV	8-761	
8-677	STAR PIP		
8-690	RANDU	8-764	
8-692	OLEVX and OLEVAX, 4-Channel Averager and Analysis System	8-765	
8-694	Teletype Line Printer Emulator Handler for OS/8		
8-698	TEKLIB, A Series of OS/8 FORTRAN II Callable Subroutines for the Tektronix 4010		
8-701	TEXT: Readable Punch Handler for OS/8		
8-703	AMORT: Incremental Amortization Schedule		
8-704	ANOVI: Analysis of Variance, Unequal N		
8-705	ARNORM: Area Under Normal Curve		
8-706	BITSET	FOCAL8-301	U/W FOCAL
8-707	CRSTAB: Cross Tabulation Program	FOCAL8-310	Overlay for KV8I - OMSI FOCAL 1971
8-708	EMLP: Emory Linear Programming Package		
8-709	FINCA: A Computer Program for Financial Statement Analysis		
8-710	MULTS: Multiple Regression Program		
8-711	Microprocessor Cross Reference Program for OS/8		
8-713	FORTTRAN Plotting Subroutines		
8-715	F4 GRAPHICS		
8-717	F4 EAE - EAE Overlay for FRTS		
8-718	NSD - Nominal Standard Dose		
8-719	OS/8 Software for a TC58 Magtape Control		



<u>DECUS NO.</u>	<u>TITLE</u>	<u>DECUS NO.</u>	<u>TITLE</u>
8-721	LISP - 8K	8-750	Paper Tape Display
8-722	Mini-Copy	8-751	FORTRAN IV for OS/8 FORTRAN II Users
8-723	Function Comp.FT	8-752	MIG8E2 - Monitor of Interruptions Which Are Generated by the PDP-8/E Peripherals
8-724	Computer Catalog System	8-753	OS/8 System Output Handlers
8-725	The Pipe Stress Problem on a PDP-8/F	8-754	NUMBER and REDATE - OS/8 File Utility Programs
8-726	An OS/8 Handler for the Varian Statos 21 Line Printer	8-755	OCTYPE - Octal Memory Dump
8-727	Disassembler	8-756	ASCON - ASCII File Converter
8-728	MEND	8-757	OS/8 Utility Package
8-729	DS340 DEMO Package	8-758	Super Hardware Bootstrap Code for the TC08/TC01 on a MI8E
8-730	CORVU: A Display and Teletype Input/Output Program	8-759	USLIBA - FORTRAN II Subroutines for Binary Data Transfer
8-731	MEMO IV	8-760	FASTAD - User Oriented Data Collection on One A/DC Channel
8-732	BAVIRF - A Virtual File UDEF for OS/8 BASIC	8-761	WDATA - Subroutine to Write Absolute Binary Data on SYS-Device
8-733A	PDP-8/E RJE System (IBM 2780 Emulator)	8-762	TTYIO - I/O Routines for Teletype or Similar Terminal
8-733B	Software Support Manual for PDP-8/E RJE System	8-763	KL8TST - KL8/E, KL8/J Diagnostic
8-734	Microprocessor Language Assembler for OS/8	8-764	LIST
8-735	DSP8; Diagnostic Support Package for the PDP-8	8-765	DUMPOS - Dumps OS/8 ASCII Files
8-736	Paper Tape Reader-Printer	8-766	SIMBA - A PDP-8/E Oscilloscope Symbol Generator
8-737A	Four Word Floating Point Package for MPS		
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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
8-600b	\$ NC	\$	\$	\$	\$ 8.	\$ 20.	\$	\$	\$	\$	1 DTA (src)
8-601	NC	2.									
8-602A	1.*		12.	NC							* NC with tapes
8-602B	1.*		12.	NC							* NC with tapes
8-603	NC	2.	8.	NC							
8-604	NC	2.	2.								
8-605	NC	2.	2.	NC							
8-606b	NC		12.	NC							
8-607	NC	2.	2.	NC	8.	20.					Paper Tape OR 1 DTA
8-608	NC				8.	20.					Tape includes 8-608, 8-609 & FOCAL8-269
8-609	NC				8.	20.					
8-610	NC				8.	20.					1 DTA (obj,src)
8-611a	NC	2.	2.	NC							
8-612	NC	2.	8.	10.							
8-613	NC	2.	2.	NC							
8-614	NC	2.	8.	NC							
8-615	NC	2.	2.	NC							
8-616	NC	2.	2.	NC							
8-617	1.*	8.	12.	10.							* NC with tapes
8-618	NC		8.	NC							
8-619	NC		8.	NC							
8-620	NC			* Note							* Listings as quoted below
8-620A	NC	2.	8.	10.							
8-620B	NC	2.	8.	10.							
8-620C	NC	2.	8.	10.							
8-620D	NC	2.	8.	10.							
8-620E	NC	2.	8.	10.							
8-621	NC		2.								
8-622	NC		8.	NC							
8-623	NC	2.	2.	NC							
8-624	NC	2.	12.								
8-625	NC		2.	NC							
8-626	NC	2.	2.	NC							
8-627	NC	2.		NC							
8-628	NC			10.	8.	20.					1 DTA (obj,src)
8-629a	NC	2.	2.	NC							
8-630	2.*										

N/C - No Charge

U/S - User Supplied Tape (Certified)

D/S - DECUS Supplied Tape

For information not contained on this sheet see General Information

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
8-630A	\$ 2.*	\$ 2.	\$	\$	\$	\$	\$	\$	\$	\$	* NC with tapes
8-630B	Same	8.									
8-630C		2.			8.	20.					1 DTA (obj,src)
8-630D	Write-				8.	20.					1 DTA (obj,src)
8-630E	up				8.	20.					1 DTA (obj,src)
8-631	NC				8.	20.					Same DTA (1) (obj,src)
8-632	NC				8.	20.					
8-633	NC				8.	20.					
8-634	NC				8.	20.					
8-635	NC				8.	20.					
8-636	NC	2.									
8-637	NC		2.	NC							
8-638	NC		2.	NC							
8-639	NC	2.		10.							
8-640	NC	2.		10.							
8-641	NC		2.	NC							
8-642	NC	2.		NC							
8-643	NC		2.	NC							
8-644	NC	2.	2.	NC							
8-645	NC	2.		NC							
8-646	NC				8.	20.	8.	18.			1 DTA OR 1 LTA
8-647	NC	2.									
8-648	NC	2.									
8-649	NC		8.								
8-650	NC		8.	NC							
8-651	NC			10.	8.	20.					1 DTA (obj,src, listing)
8-652	1.*	8.		NC							Test tapes included * NC with tapes
8-653	NC	8.									
8-654	NC	2.		NC							
8-655	NC	2.		NC							
8-656	NC	2.	16.	20.							
8-657A	NC	2.	12.	10.							
8-657B	NC	2.	8.	5.							
8-657C	NC	2.	8.	5.							
8-658	NC	2.	8.	NC							
8-659	NC			NC	8.	20.					1 DTA with 8-600b (src)
8-660	NC				8.	20.					1 DTA (src, doc, test data)

N/C - No Charge

U/S - User Supplied Tape (Certified)

D/S - DECUS Supplied Tape

For information not contained on this sheet see General Information

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
8-661	\$ NC	\$	\$	\$	\$ 8.	\$ 20.	\$	\$	\$	\$	1 DTA (src,doc)
8-662	NC	2.	2.	NC							
8-663	NC	2.	2.	NC							
8-664	NC		2.	NC							
8-665	NC		2.	NC							
8-666	NC		2.	NC							
8-667	NC	2.	2.	NC							
8-668	NC	2.	8.	10.							
8-669	NC	8.	8.	10.							
8-670	NC	8.	8.	NC	8.	20.					1 DTA
8-671	NC			NC							
8-672	NC	2.	2.	NC							
8-673	NC	2.		NC							
8-674	NC	2.	2.	NC							
8-675	NC	2.	2.	NC							
8-676	NC	2.	2.	NC							
8-677	NC				8.	20.					1 DTA with 8-497
8-678	NC		8.	NC							
8-679	NC		2.	NC							
8-680	NC		2.								
8-681	NC	2.	12.	10.							
8-682	NC				8.	20.					1 DTA (obj,src)
8-683	NC	2.	2.	NC							
8-684	NC	2.	8.								
8-685	NC		2.	NC							
8-686	NC		8.								
8-687	NC		8.								
8-688	NC		8.								
8-689	NC		2.	NC							
8-690	NC	2.	2.	NC							
8-691	NC										DTA available from author
8-692	NC				8.	20.					1 DTA (obj,src)
8-693	NC		8.								
8-694	NC		2.	NC							
8-695	NC	2.	8.	NC							
8-696	NC		2.	NC							
8-697	NC	2.	2.	NC							

N/C - No Charge

U/S - User Supplied Tape (Certified)

D/S - DECUS Supplied Tape

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
8-698	\$ NC	\$ 2.	\$ 2.	\$ NC	\$	\$	\$ 8.	\$ 18.	\$	\$	1 LTA for OS/12 users
8-699	NC		2.	NC							
8-700	NC	2.		NC							
8-701	NC	2.	2.	NC							
8-702	2.*			20.	32.	80.					4 DTA *NC with tapes
8-703	NC			NC	8.	20.					Same DTA (1) contains 8-703-710
8-704	NC			NC	8.	20.					
8-705	NC			NC	8.	20.					
8-706	NC			NC	8.	20.					
8-707	NC			NC	8.	20.					
8-708	NC			NC	8.	20.					
8-709	NC			NC	8.	20.					
8-710	NC			NC	8.	20.					
8-711	NC	2.									
8-712	NC	2.									Write-up is in French
8-713	NC				8.	20.					1 DTA (obj,src)
8-714	NC			NC							Card Deck - \$20
8-715	NC			NC	8.	20.	8.	18.			1 DTA, 1 LTA
8-716	NC	2.	8.	NC							
8-717	NC	2.	2.	NC							
8-718	NC			NC	8.	20.					1 DTA
8-719	NC	2.	8.	10.	8.	20.					1 DTA
8-720	NC	2.	2.	NC							
8-721	NC	2.									
8-722	NC			NC							
8-723	NC		2.	NC							
8-724	NC		8.	NC							
8-725	NC	2.		10.							
8-726	NC	2.	2.	NC							
8-727	NC	2.		NC							
8-728	NC	2.		NC							
8-729	1.										Tapes available from Bus. Products

N/C - No Charge

U/S - User Supplied Tape (Certified)

D/S - DECUS Supplied Tape

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
8-730	\$ NC	\$2.	\$ 8.	\$ NC	\$	\$	\$	\$	\$	\$	
8-731	NC				8.	20.					1 DTA (obj,src)
8-732	NC		2.	NC							
8-733A	NC	8.		10.	8.	20.					1 DTA (src)
8-733B	\$5.										
8-734	NC	2.									
8-735	NC	2.	2.	10.	8.	20.					1 DTA (obj,src,doc)
8-736	NC	2.	8.	NC							
8-737A	NC	2.									
8-737B	NC	2.									
8-737C	NC	2.		NC							
8-738	NC				16.	40.					2 DTA
8-739	NC	2.	2.								
8-740	NC		2.								
8-741	NC			NC	8.	20.					1 DTA (obj,src)
8-742	NC	2.	2.	NC							
8-743	NC	2.		10.							
8-744	NC	2.		NC							
8-745	NC			NC	8.	20					1 DTA
8-746	NC		2.								
8-747	2.*	8.	12.	25.							*NC with tapes
8-748	NC		2.	NC							
8-749	NC		8.	10.							
8-750	NC	2.		NC							
8-751	NC										
8-752	NC				8.	20.					1 DTA (obj,src)
8-753	NC	2.		5.	8.	20.					Same DTA (1) (obj,src,doc)
8-754	NC	2.		5.	8.	20					
8-755	NC	2.		NC							
8-756	NC	2.					8.	18.			1 LTA (obj,src, write-up, listing, SV)
8-757	NC				8.	20					1 DTA (obj,src)
8-758	NC	2.	2.	NC							
8-759	NC	2.	8.	NC							
8-760	10.	2.	12.	NC							
8-761	NC	2.	8.	NC							
8-762	NC	2.	8.	NC							
8-763	NC		2.	NC							

N/C - No Charge

U/S - User Supplied Tape (Certified)

D/S - DECUS Supplied Tape

For information not contained on this sheet see General Information

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DECUS NO. 8-737A

Four Word Floating Point Package for MPS

Robert H. Tedford, Digital Equipment Corporation,  
Marlboro, Massachusetts

This package is a 4-word floating point system for MPS, Digital Equipment's Microprocessor based on the Intel 8008 chip.

The basic operations included in this package are GET, PUT, ADD, SUBTRACT, MULTIPLY, DIVIDE, NORMALIZE, INPUT, OUTPUT, NEGATE and FIX. Extended functions are described in the companion package (DECUS 8-737B).

Minimum Hardware: MPS  
Other Programs Needed: User program  
Restrictions: Block 23 must be RAM  
Source Language: PAL-8

DECUS NO. 8-737B

Four Word Floating Point Functions for MPS

Robert H. Tedford, Digital Equipment Corporation,  
Marlboro, Massachusetts

This function package was written for use with the Four Word Floating Point for MPS (DECUS 8-737A) and includes sub-routines to evaluate square, square root, sine, cosine, arc-tangent, natural logarithm and experimental functions.

Minimum Hardware: MPS  
Other Programs Needed: DECUS NO. 8-737A  
Source Language: PAL-8

DECUS NO. 8-737C

Rudimentary Calculator for MPS Four Word Floating Point Routines

Robert H. Tedford, Digital Equipment Corporation,  
Marlboro, Massachusetts

This is a minimum space program to perform calculations with the precision of the Four Word Floating Point Package for MPS (DECUS 8-737A) and to use the Four Word Floating Point Function Package (DECUS 8-737B). Operations are performed in the sequence in which they are entered. Up to seven user-defined operation routines may be called.

Minimum Hardware: 4K MPS, ASR33  
Other Programs Needed: DECUS 8-737A and DECUS 8-737B  
Storage Requirement: 1K  
Source Language: PAL-8

DECUS NO. 8-738

The Business Management Laboratory

R. L. Jensen, Emory University, Atlanta, Georgia

The Business Management Laboratory is a medium to large scale management game intended for use in schools or management training programs. It permits 3-8 teams (firms) to compete in a consumer durables market, while they make decisions in the areas of marketing, finance, production and accounting control. The degree of complexity can be controlled, so that the game has been used in introduction to business courses as well as graduate policy courses.

The program is provided in FORTRAN IV source form only. The complete DECTape includes the simulation program (as several subroutines), test and set-up data, several auxiliary programs, and compiling/implementation instructions.

Minimum Hardware: OS/8 or DECsystem-8  
Other Programs Needed: Information concerning availability of participants' and administrators' manuals are included with the write-up  
Storage Requirement: 16K  
Source Language: FORTRAN IV

DECUS NO. 8-739

COPY.PA

Glen L. Brydon  
Submitted by: John W. Cowan, Glen Ridge High School,  
Glen Ridge, New Jersey

This OS/8 device handler allows OS/8 users with one TD8E DECTape drive as their system device to easily move files from one tape to another using OS/8 system programs such as PIP. COPY provides the single-DECTape user some of the power of multiple-DECTape systems, at the expense of some time and effort changing tapes. It insures the integrity of transfers through an error recovery system which allows retries to be ordered if the handler was unable to read a damaged tape.

Minimum Hardware: PDP-8/M, TU56H with TD8E  
Other Programs Needed: OS/8 monitor  
Storage Requirement: 1 page handler  
Restrictions: Limited error recovery  
Source Language: PAL-8

DECUS NO. 8-740

Theorem Prover for the Propositional Calculus

Dr. A. K. Head, C.S.I.R.O. Division of Tribophysics,  
University of Melbourne, Parkville, Australia

This is a complete LISP program with examples which runs under PDP LISP (DECUS 8-102a). It considers proposed theorems in the propositional calculus and decides if they are true or false. It is based on the Wang algorithm and

DECUS NO. 8-740 (Continued)

offers a choice of trace print out of steps involved in proving or disproving a theorem.

Minimum Hardware: 4K PDP-8 & Teletype  
Other Programs Needed: DECUS 8-102a  
Source Language: LISP

DECUS NO. 8-741

SD8SY and SD8X - Two Handlers for the TD8E Simple DECTape

W. van der Mark, Swiss Federal Institute of Technology, Zurich, Switzerland

This package consists of two handlers to be inserted via BUILD.SV into the OS/8 V3 operating system. They are a replacement for the resident and non-resident TD8E DEC handlers. Both handlers will run with the interrupt switched on and will permit a data acquisition rate of 50 CPS.

Minimum Hardware: PDP-8/E, M, F, A with TD8E simple DECTape (12K if no disk)  
Other Programs Needed: OS/8 V3 operating system (Can be modified for older BUILD.SV versions)  
Storage Requirement: Both handlers are two-page  
Restrictions: MQ register is used  
Source Language: PAL-8, V9B

DECUS NO. 8-742

CLOCK - A Real-Time Clock/Calendar Routine

P. K. Hastings and L. R. Tilley, Catalytic, Inc., Charlotte, North Carolina

A clock/calendar routine for keeping track of time in PDP-8 computers. This routine keeps up with minute, hour, day, month and a year. It was designed to be used with a real-time clock.

Minimum Hardware: PDP-8 with Real-Time Clock  
Other Programs Needed: Interrupt Service Routine  
Source Language: PAL III

DECUS NO. 8-743

FILFIX - TSS/8 File Structure Repairing and Restructuring Program

Richard Wilson, Digital Equipment Corporation, Maynard, Massachusetts

FILFIX is a stand-alone utility program which analyzes, repairs and restructures the files of any standard TSS/8 configuration. FILFIX enables a TSS/8 system to be rebuilt without losing the previous contents of the library on the system disk, and is also capable of correcting certain types of errors in the directory.

Minimum Hardware: PDP-8, 8/1, 8/E  
Other Programs Needed: TSS/8 Operating System  
Storage Requirement: 12K  
Source Language: PAL-8

DECUS NO. 8-744

TSTCDR - TSS/8 Card Reader Diagnostic

Richard Wilson, Digital Equipment Corporation, Maynard, Massachusetts

This is a TSS/8 card reader diagnostic which is designed to run under TSS/8, version 8.24. The diagnostic makes use of standard alpha and binary test decks, either 40 or 80 column.

Minimum Hardware: PDP-8, 8/1 or 8/E with card reader  
Other Programs Needed: TSS/8  
Storage Requirement: 12K  
Source Language: PAL-8

DECUS NO. 8-745

LEP - Linear, Exponential and Power Function Curve Fit

Pei nan Tsung, Ph.D., The Buffalo General Hospital, Buffalo, New York

Curve fitting for straight line, exponential curve fit, power function fit and e-exponential curve fit. The sample size of ordered pairs  $(x_i, y_i)$  is 30. All the calculations are based upon the method of least squares.

Minimum Hardware: 8K OS/8 System  
Source Language: FORTRAN II

DECUS NO. 8-746

Device Handler for Tektronix 611 Storage Scope

Shlomo Z. Ron, New York City Health and Hospitals Corp., New York, New York

KV is a four page read and write non-file structured device handler under the OS/8 operating system. Since only 2 pages are allowed for an OS/8 device handler, the other two pages have to be in core in any 2 consecutive pages which are not destroyed by the program that uses this device handler.

Minimum Hardware: PDP-8/E, KV8E and storage scope  
Other Programs Needed: OS/8  
Storage Requirement: 2 pages besides the device handler  
Restrictions: Can be used if program does not destroy 2 consecutive pages in any memory field  
Source Language: PAL-8

DECUS NO. 8-747

STAGE2 MACRO Processor

Jonathan Gross, SSRFC, University of Minnesota,  
Minneapolis, Minnesota and W. M. Waite, EE, University  
of Colorado, Boulder, Colorado

STAGE2 is a general purpose macro processor designed by  
W. M. Waite, and may be used as a front end to other  
languages such as SABR, FORTRAN and BASIC. Device  
independent I/O, and access to several files allows for  
flexible processing and multiple passes within the macro pro-  
cessor. Macro calls are recognized by a pattern matching  
scheme that allows for flexible syntax in macro definition.  
The special characters controlling the macro processor may be  
easily defined so that they do not interfere with the host  
language. Handles upper and lower case, and control char-  
acters. STAGE2 is itself written in a language (FLUB) that  
is translated by STAGE2 into PAL-8.

Minimum Hardware: Will run only on PDP-8/E, F or  
M with EAE  
Other Programs Needed: OS/8 Operating System  
Storage Requirement: 12K to 32K  
Restrictions: All macros must be defined at  
beginning of source code  
Source Language: PAL-8, STAGE2 (FLUB)

DECUS NO. 8-748

SMØ4 - OS/8 to Disk-Monitor ASCII File Converter

Gerald A. Sabin, 6022 Sage Drive, Orlando, Florida

SMØ4 will be found useful by regular users of DEC's Disk  
Monitor. It is a utility program that will convert an ASCII  
file on an OS/8 DECTape reel into an ASCII file on Disk-  
Monitor DECTape. User needs to know the absolute block  
numbers of his input OS/8 ASCII file. SMØ4 will output,  
via Disk-Monitor, into a file named by the user.

SMØ4 is written in FORTRAN-D and uses a number of FOR-  
TRAN tricks that have appeared in DECUSCOPE over the  
last few years to accomplish the required machine language  
subroutines.

Minimum Hardware: 4K PDP-8, 2 DECTape transports,  
TTY  
Other Programs Needed: Disk-Monitor System  
Source Language: FORTRAN-D

DECUS NO. 8-749

UFAXØ8 - A LAB-8 (AXØ8) Set of User-Defined-Functions  
for OS/8 BASIC

Stanley R. Vivian, University of Manitoba Faculty of  
Medicine, Winnipeg, Manitoba, Canada

The standard LAB-8/E user-defined-functions distributed with  
OS/8 BASIC, V3, have been modified to function on the  
original LAB-8 (PDP-8 with AX08 laboratory peripheral).  
The general philosophy of these modifications has been to

make them in such a way that programs that run on the  
LAB-8/E will also run on the LAB-8 (AX08) without changes.  
The functions, their argument structures and execution logic  
are essentially the same as in the LAB-8/E version as docu-  
mented in the OS/8 Handbook - DEC-S8-OSHBA-A-D.

Major differences are: 1) CLK - prints setting of RC clock;  
2) SAM - will not sample digital registers; 3) DRI - reads  
contingency bits; 4) DRO - sets or clears digital outputs.

Minimum Hardware: OS/8 Configuration with AXØ8  
Laboratory Peripheral (options  
XR, XC, XM)  
Other Programs Needed: OS/8 BASIC V3 (or V1)  
Storage Requirement: 3400-4577  
Source Language: PAL-8

DECUS NO. 8-750

Paper Tape Display

Thomas Ford  
Submitted by: Jeffrey A. Mellow, White Mountains  
Regional High School, Whitefield, New Hampshire

This program, designed for display purposes, was originally  
produced by Thomas J. Ford using FOCAL 5/69 and will type  
each tape punch as six characters long, and four high, except  
for the sprocket holes, which are four characters long as well  
as high.

Minimum Hardware: 4K PDP-8, ASR33  
Storage Requirement: 2ØØ-363

DECUS NO. 8-751

FORTTRAN IV for OS/8 FORTRAN II Users

John Cowan, Glen Ridge High School, Glen Ridge,  
New Jersey

FORTTRAN IV for OS/8 FORTRAN II Users is a manual of  
implementations and subroutines simulating most of the fea-  
tures of standard and OS/8 FORTRAN IV, with the exception  
of double-precision routines. These routines will not work  
under the paper tape FORTRAN. INVENT-8 (DECUS8-610)  
and DPARITH (DECUS 8-597.12) are assumed: that is, they  
are not used, but features they provide have not been  
duplicated.

Minimum Hardware: 8K OS/8 System  
Other Programs Needed: OS/8 FORTRAN II  
Restrictions: Not source compatible with OS/8  
FORTRAN IV; Double precision  
not implemented; Complex num-  
bers not yet implemented  
Source Language: FORTRAN II, SABR

DECUS NO. 8-752

MIG8E2 - Monitor of Interruptions Which are Generated by the PDP-8/E Peripherals

Alain Beysen, SNECMA, Centre de Etudes de Villaroche, Moissy Cramayel, France

This general purpose program will handle the priority scheduling of different I/O devices, with a minimum of disturbing time. It provides: hardware and software interrupts, 12 levels of priority plus background plus interrupt off, saving all active registers (including arithmetic and memory extensions) plus one memory, loading in 3 pages of core plus 16 memories page 0 in field 0, queuing low levels of priority, masking interrupts if wanted, high speed servicing -- and no bugs -- hopefully.

Minimum Hardware: 4K PDP-8/E with interrupt facilities  
Miscellaneous: Documentation and listing comments are in French  
Source Language: PAL III or PAL-8

DECUS NO. 8-753

OS/8 System Output Handlers

G. Chase, Portsmouth Abbey School, Portsmouth, Rhode Island

This package contains three two-page handlers and a program which accepts one input file and types it simultaneously on devices 04 (console) and 41 (commonly the first extra TTY or DECwriter). Two of the handlers were written for a console teletype or DECwriter; the third for the LS8E Centronix matrix printer.

Minimum Hardware: 8K OS/8 Configuration  
Other Programs Needed: OS/8  
Source Language: PAL-8

DECUS NO. 8-754

NUMBER and REDATE - OS/8 File Utility Programs

G. Chase, Portsmouth Abbey School, Portsmouth, Rhode Island

These programs help to facilitate the handling of certain OS/8 files that are in some way peculiar, e. g. in having no file date or a bad file date, or in containing illegal characters in name or extension.

Minimum Hardware: PDP-8/E or later  
Other Programs Needed: OS/8  
Storage Requirement: 8K  
Restrictions: NUMBER of use mainly to OS/8 V3 and later  
Source Language: PAL-8

DECUS NO. 8-755

OCTYPE - Octal Memory Dump

Jeffrey A. Merrow, White Mountains Regional High School, Whitefield, New Hampshire

OCTYPE's purpose is to output specified blocks of memory as: The current location, followed by: data located there. Input is from the teletype keyboard or low speed reader. The program will halt after each block is printed, but can be recovered by pressing CONT.

Minimum Hardware: 4K PDP-8, ASR33  
Source Language: PAL III

DECUS NO. 8-756

ASCON - ASCII File Converter

Steven Zimmerman, Boston V. A. Hospital, Department of Nuclear Medicine, Boston, Massachusetts

This program takes a standard 64 character ASCII file of the type produced by EDIT and translates it into a 96 character ASCII file. It is primarily intended for taking text which is all upper case and translating it into standard upper and lower case, usually for eventual output to a line printer.

ASCON is particularly powerful in combination with MEMO IV (DECUS 8-731).

Minimum Hardware: PDP-8, PDP-12  
Other Programs Needed: OS/8  
Storage Requirement: 8K  
Miscellaneous: LINCtape offered contains binary, ASCII, Save, listing and write-up files  
Source Language: PAL-8

DECUS NO. 8-757

OS/8 Utility Package

A. Windram  
Submitted by: L. C. Chapas, The Grasslands Research Institute, Hurley, Maidenhead, Berkshire, England

This package consists of the following programs:

CORMAP - will produce a map for binary files showing where they load in memory. It is an alternative to OS/8 BITMAP, and offers more concise output and additional facilities. Both absolute and relocatable binary files can be mapped.

FORMAT - allows program tapes to be prepared off-line, and then converted to a standard on-line format. Strings of spaces are replaced by tab characters in a more intelligent way than EDIT, and some reformatting is done.

FIXCD - one-time program to fix several known bugs in Command Decoder (PS/8 and OS/8 V1 and V2 only).



DECUS NO. 8-757 (Continued)

XDIREC - selectively lists files by file-names or extensions. Options allow listing of up to 8 additional information words, listing of core-control blocks for core-image files, and listing of FORTRAN II library directories.

FHANDL - allows file-handling in normal or special mode of Command Decoder, using block-, word-, or character-oriented transfer, with the ability to handle several input and output files simultaneously.

F2SUB - the first 5 modules will run on any PDP-8 processor. The 6th requires a PDP-8/E, and the 7th a PDP-8/E with EAE.

1. MOVE - Allows moving or zeroing of real or integer arrays by means of a single subroutine call instead of a DO loop. Needs 1 page.
2. MKRSET - Gives direct-access handling for Stream 4 input. Needs 1 page.
3. ICARD - A routine for reading cards in binary. Needs 1 page.
4. UTIL - This is the OS/8 V1 UTILITY module, with an in-core encode/decode facility added. Binary only. Needs 4 pages.
5. FFFINP - Free-format input package for numeric and character input, and character comparison, using any stream. Needs 5 pages.
6. RWIOH - This is the OS/8 V1 READ/WRITE/IOH module, modified to output even-parity characters. Binary only.
7. LOGIC - Provides 9 logic functions (AND, OR, NOT, SIDE-ADD, SHIFT-LEFT, SHIFT-RIGHT, SET BIT, CLEAR BIT, TEST BIT). Needs 1 page.

Minimum Hardware: 8K PDP-8  
 Other Programs Needed: OS/8 PS/8  
 Source Language: PAL-8; SABR for F2SUB

DECUS NO. 8-758

Super Hardware Bootstrap Code for the TC08/TC01 on a M18E

Ricky Schrieber/Charles Lasner (P?S), Forest Hills, New York

Due to the hardware implementation of the M18E bootstrap loader, it is necessary for the option to ground PWR NOT OK to cause a power clear sequence. On the RK05's this causes the heads to retract in case of a real failure, so to cover up for this and to leave a message logged on the console TTY a hack was made to have it type INITIALIZING then wait for the drive and do a standard OS/8 RK8E bootstrap.

Well, here is one for the TC08/TC01 that will rewind unit 0, print the message INITIALIZING and then proceed to bootstrap to what looks like a standard TC01 bootstrap.

Minimum Hardware: PDP-8/E/F/M; TC08/TC01; M18E  
 Restrictions: Might fail M18E diagnostic due to self-modification  
 Source Language: PAL

DECUS NO. 8-759

USLIBA - FORTRAN II Subroutines for Binary Data Transfer

Albrecht Lommel, Institute of Aerodynamics ETH, Swiss Federal Institute of Technology, Zurich, Switzerland

USLIBA contains five SABR-written subroutines which are useful on evaluating absolute integer binary data in FORTRAN II.

DATAM prints the OS/8 date, ADFAC helps users with an A/DC to evaluate their conversion factor: A/DC integer value to real voltage, DCHAN stores integer data from DF 2 into the "COMMON" area in DF1, ADCOM combines ADFAC and DCHAN, storing the real voltages of integer A/DC values from DF 2 into the COMMON area in DF 1, RDATA finally reads integer data from the OS/8 SYS device from a file into core. These data files can be created by means of another program also available from DECUS: "WDATA" - DECUS 8-761.

Minimum Hardware: OS/8 Configuration  
 Other Programs Needed: Recommended: WDATA - DECUS 8-761  
 Storage Requirement: The 5 routines each need from 1 to 3 pages  
 Source Language: SABR

DECUS NO. 8-760

FASTAD - User Oriented Data Collection on One A/DC Channel

Albrecht Lommel, Institute of Aerodynamics ETH, Swiss Federal Institute of Technology, Zurich, Switzerland

FASTAD is a program for user-oriented data collection on one A/DC channel with one big buffer. Up to 4K core can be filled with A/DC samples.

FEATURES:

Start of measurement by TTY, Schmitt triggers (of DK8-EP), or external Clock input A/DC at maximum speed (ca 40.7 [ KHZ ]), Clock determines the sampling frequency with a maximum error of ± one [ HZ ].

A/DC with the Clock controlling the sampling frequency from a ca 34 [ KHZ ] to arbitrary slow rates.

A time delay after trigger start and before A/DC start can be chosen

DECUS NO. 8-760 (Continued)

In a thorough dialogue-and test-part the user can select his choice of the offered possibilities, test and calibrate the input signals, triggers, etc. After the measurement has been finished the user can have a test output of selected buffer points on the terminal (user determines selection) and repeat his special choice of measurement without a new run through the long dialogue-and test-part.

By means of WDATA (DECUS8-761) the OS/8 user can store his data on files on the SYS-device and by means of USLIBA (DECUS 8-759) he can evaluate these data in FORTRAN II programs very comfortably.

The buffer and A/DC program parts can be changed easily: the Write-up contains the necessary help for other users to fit this program to their needs.

Requirements: PDP-8/E with at least 8K core, 12K better; a Real Time Clock 'DK8-EP'; An A/D converter 'ADØ1-AP' or other A/DC types with multiplexer; OS/8 configuration are not necessary but an advantage

Software: DEC's Floating Point Package (EAE or NON EAE) (DEC-8E-NEAEA-A-PB) or (-Ø8-NFPPA-A-PB); TTYIO(DECUS 8-762); For OS/8 users: WDATA(DECUS 8-761) and USLIBA (DECUS8-759) strongly recommended

Source Language: PAL-8

DECUS NO. 8-761

WDATA - Subroutine to Write Absolute Binary Data on SYS-Device

Albrecht Lommel, Institute of Aerodynamics ETH, Swiss Federal Institute of Technology, Zurich, Switzerland

WDATA is a subroutine for writing absolute binary data on the OS/8 SYS-device.

Format: sequential blocks of  $400_8 = 256_{10}$  data each.

By means of 'USR' the user opens his data-file and then WDATA writes the buffer contents to the sys-device (start address, field, and length of buffer programmable). For subsequent calls to WDATA no new data-filename is necessary; WDATA keeps track of the block-numbers. Furthermore, it examines if the buffer length corresponds to an even number of pages, if the sys-space available is sufficient for the next buffer output (if not, a correction will be done of the amount of output together with a correction message), and it asks after a successful buffer-output if you want to transfer any more data. If your output has been ended it will print out the complete filename (with the extension ".EX") and its total block length.

Evaluations of these data having been stored on sys by WDATA can be made in FORTRAN II by means of the program USLIBA (DECUS 8-759).

Minimum Hardware: OS/8 Configuration, at least one terminal and one mass storage device

Other Programs Needed: USLIBA (DECUS 8-759)

Storage Requirement: 3 pages

Restrictions: Minimum transfer unit: 2 pages = one OS/8 block of data; Data buffer should not occupy the USR area in core

Source Language: PAL-8

DECUS NO. 8-762

TTYIO - I/O Routines for Teletype or Similar Terminal

Albrecht Lommel, Institute of Aerodynamics ETH, Swiss Federal Institute of Technology, Zurich, Switzerland

This package contains programs necessary for a good communication with the terminal. TYPX prints messages, six bit ASCII.

KREAD reads messages from keyboard, GETBUF prints them out (both use a buffer for the eight bit ASCII characters) as a mere message or forms an octal number of sequential characters. DBCONV converts ASCII-coded decimals to binary numbers, DECPRT prints up to 4 digit decimal numbers of a binary number in AC.

HEAR is a special form of KREAD for a fix text buffer, GETKBD is the corresponding GETBUF for a fix buffer.

The routines require 2 pages of core and can be used field independent via some special routines listed in the comment. They all use the same exit (1 loc. in page Ø). KREAD, TYPX, DBCONV and DECPRT are adaptations from DEC's Commonly Used Utility Routines.

Minimum Hardware: PDP-8/E, KL8E Interface (TTY, LA30 or LA36 interface)

Source Language: PAL III

DECUS NO. 8-763

KL8TST - KL8/E, KL8/J Diagnostic

David A. Bennett, Computer Science Research Laboratory, The Technological Institute, Evanston, Illinois

KL8TST verifies the correct operation of a KL8/E or a KL8/J asynchronous serial device controller. In an environment where a particular board must quickly be isolated as the possible source of some unknown difficulty, or in general when a vote of confidence is needed on a KL8/E or /J irrespective of the peripheral which it controls, this program will give a fast go/no/go response.

Should the program discover a fault, it attempts to report its nature in meaningful English language phrases. It will perform independent tests of 1) interrupt capability, 2) punch complete flag operation, 3) keyboard ready flag operation, and 4) data integrity.

Storage Requirement: words 0-663 any field

Source Language: PAL-D, PAL-8

DECUS NO. 8-764

LIST

P, C. Diegenbach, Zoological Laboratory, University of Amsterdam, Amsterdam, The Netherlands

This program gives a listing of an OS/8 file on the Tektronix 4010 terminal with optional hardcopies on the 4020 hardcopy device or on the teletype of DECwriter. Paging after a form feed is switch selectable too. Default extension for the file is .DA. It uses the PS8IN subroutine (DECUS 8-472) (PS8IN is included with the source).

Minimum Hardware: OS/8 Configuration, Tektronix 4010 Display Terminal  
Source Language: PAL-8

DECUS NO. 8-765

DUMPOS - Dumps OS/8 ASCII Files

Melvyn George Fishel, Free University Brussels, Brussels, Belgium

Program DUMPOS is a very useful dump program in case of system or directory crashes with OS/8 DECtapes. DUMPOS will dump any OS/8 ASCII file on the ASR33, even if the system area or the directory has been destroyed. Block number of file to be dumped is entered manually via the switch register.

Minimum Hardware: PDP-8/E, ASR33, TD8E DECtape  
Other Programs Needed: OS/8 Operating System  
Storage Requirement: 06600-07577  
Source Language: PAL-8, PAL III

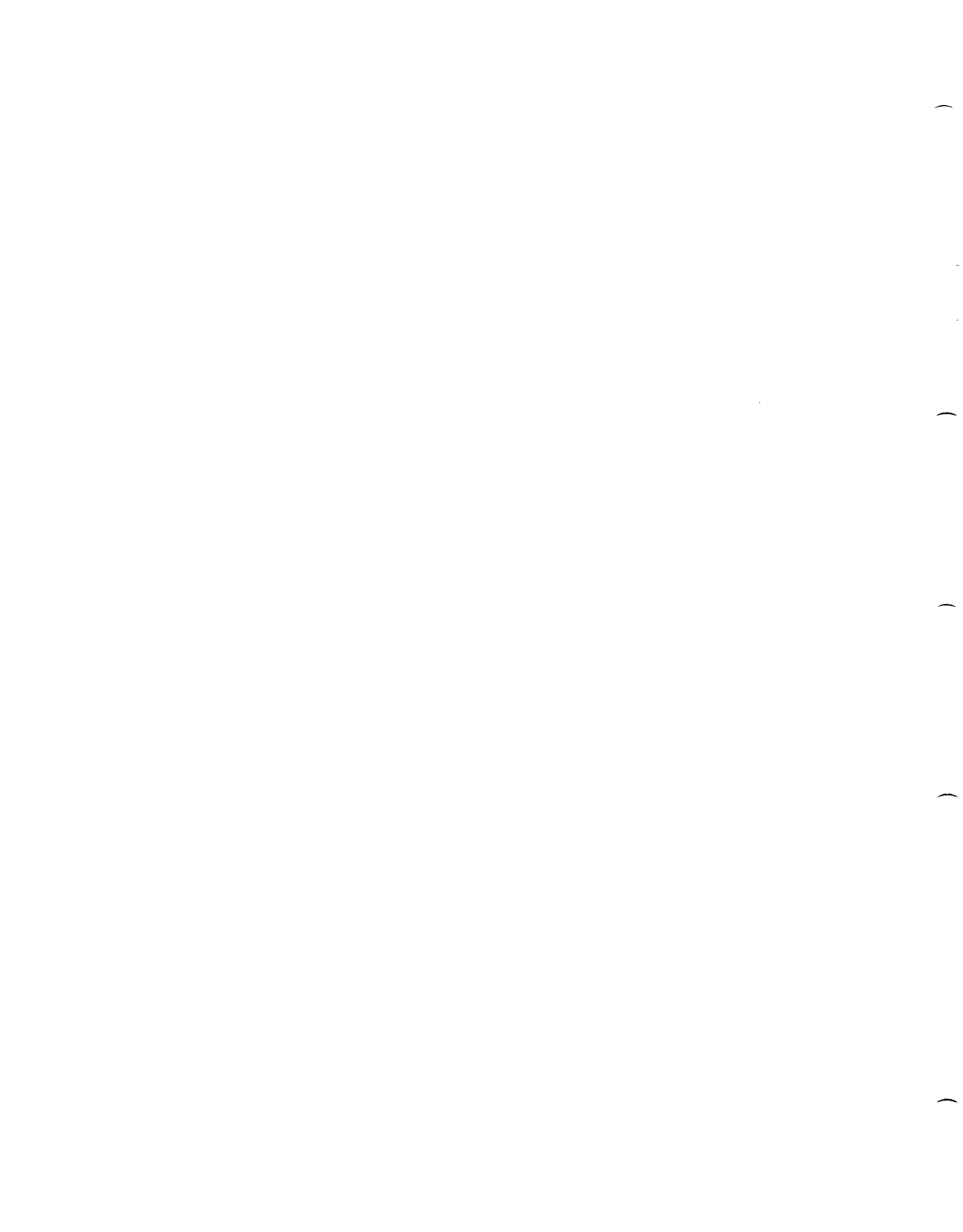
DECUS NO. 8-766

SIMBA - A PDP-8/E Oscilloscope Symbol Generator

Melvyn George Fishel, Free University Brussels, Brussels, Belgium

SIMBA is a fast, two-page oscilloscope character generator. A 6X4 dot matrix is used to generate the symbols. The subroutine takes care of full-line, full-page and end-of-file conditions. Tab characters are automatically expanded.

Minimum Hardware: PDP-8/E, EAE, VC8E, Oscilloscope  
Storage Requirement: 2 pages (400<sub>8</sub> words)  
Source Language: PAL-8, PAL III



I. PROGRAMMING LANGUAGE, MONITOR,  
PROGRAMMING SYSTEM

<u>DECUS NO.</u>	<u>TITLE</u>
FOCAL8-301	U/W FOCAL
FOCAL8-313	EAE Patches to FOCAL

V. DUPLICATION, VERIFICATION

<u>DECUS NO.</u>	<u>TITLE</u>
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VI. NUMERICAL FUNCTION, NUMERICAL INPUT/OUTPUT

FOCAL8-309	DBCONV, Decimal-Binary Converter
FOCAL8-313	EAE Patches to FOCAL

II. TEXT EDITING, TEXT MANIPULATION

FOCAL8-311	SIXPAC
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VII. UTILITY

FOCAL8-312	CVFCPTG (Centronics Vertical Format Control Paper Tape Generator)
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III. DEBUGGING, DISASSEMBLY, SIMULATION,  
TRACE, DUMP

VIII. DISPLAY

FOCAL8-310	Overlay for KV8I - OMSI FOCAL 1971
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IV. BINARY LOADING, BINARY PUNCHING

IX. DATA MANAGEMENT, SYMBOL MANIPULATION,  
SORTING

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X. PROBABILITY, STATISTICS, CURVE FITTING

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DECUS NO.      TITLE

FOCAL8-308      Fisher's F, Student's t and Chi Squared  
Distribution  
FOCAL8-314      Y-Value Calculations  
FOCAL8-315      YORK2 - Two Error Linear Regression with  
Correlated Errors

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XIV PLOTTING

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XI. SCIENTIFIC APPLICATION, ENGINEERING  
APPLICATION

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FOCAL8-315      YORK2 - Two Error Linear Regression with  
Correlated Errors

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XV. DESK CALCULATOR, BUSINESS APPLICATION

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FOCAL8-316      BANCPO - Bank Portfolio Simulation

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XII. HARDWARE CONTROL

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FOCAL8-312      CVFCPTG (Centronics Vertical Format  
Control Paper Tape Generator.

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XVI. MAINTENANCE

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XIII. GAME, DEMONSTRATION

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FOCAL8-300      Computer Bowl  
FOCAL8-302      XSTOCK - Stockmarket Simulation Game  
FOCAL8-303      STKMKT - Stock Market Game  
FOCAL8-304      Tic-Tac-Toe  
FOCAL8-305      RUBEN  
FOCAL8-306      FOCAL Baseball  
FOCAL8-307      Casino, Demos, Bombing Mission,  
Double Hangman  
FOCAL8-316      BANCPO - Bank Portfolio Simulation

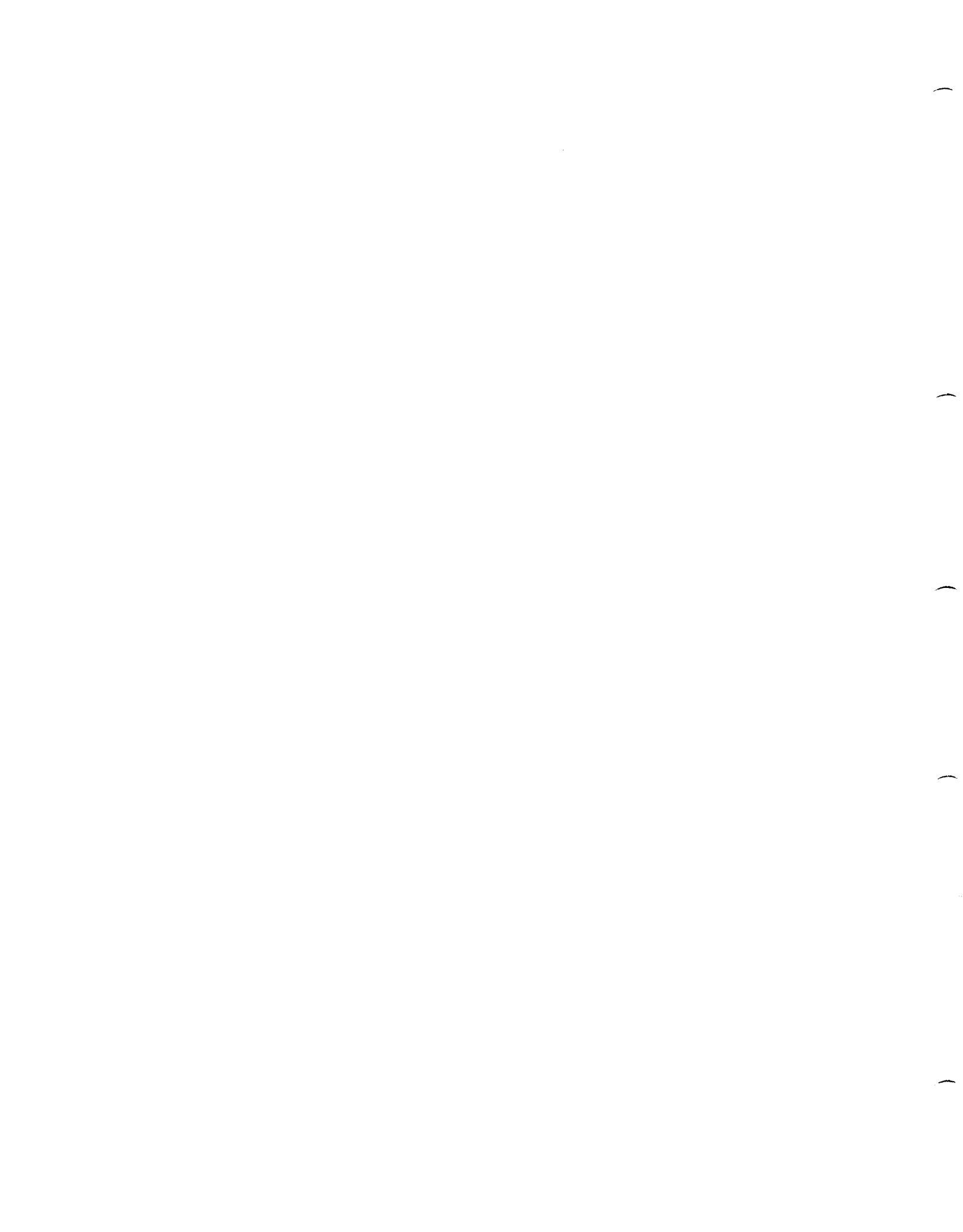
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XVII. MISCELLANEOUS

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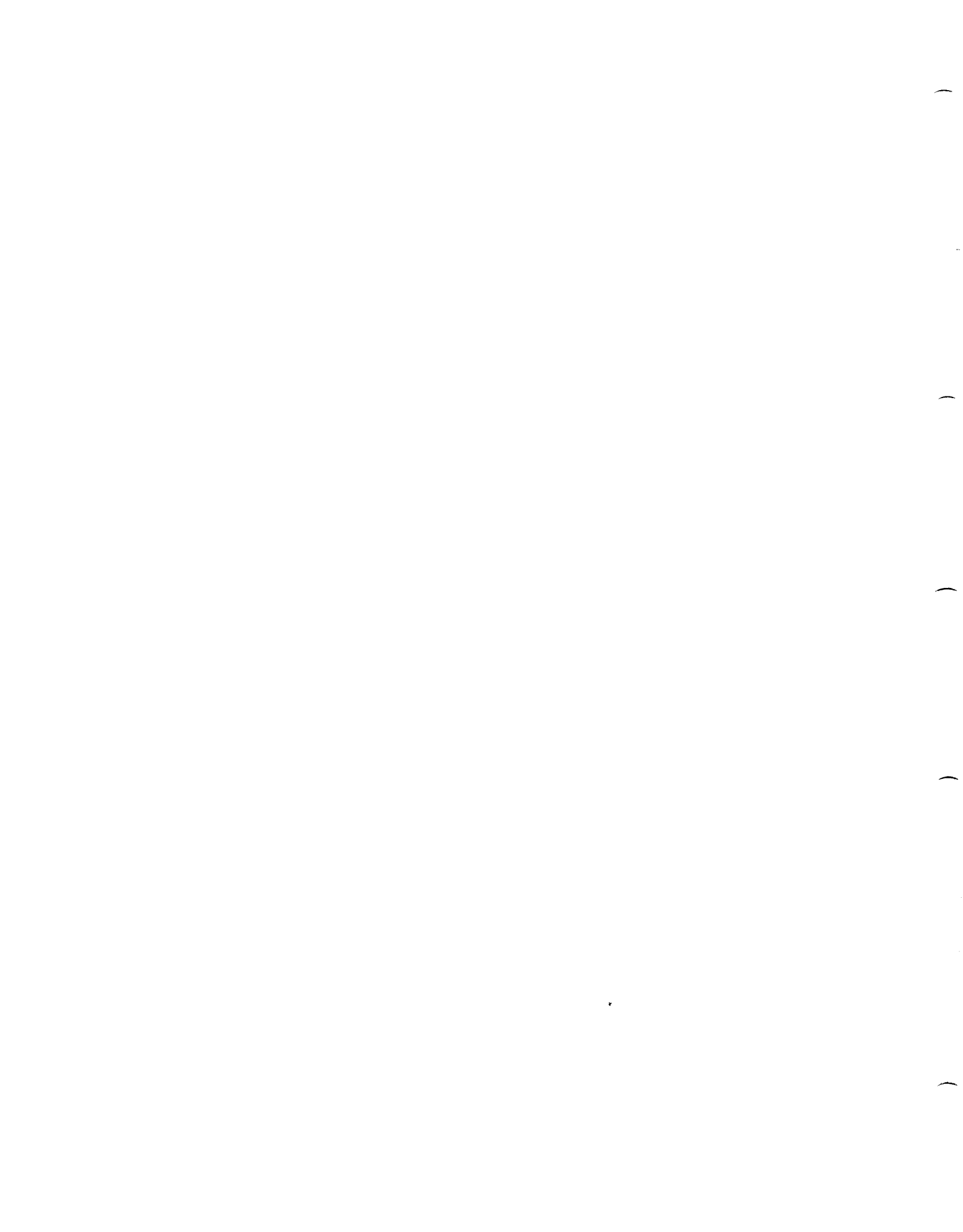
FOCAL8 NUMERICAL INDEX

<u>DECUS NO.</u>	<u>TITLE</u>
FOCAL8-300	Computer Bowl
FOCAL8-301	U/W FOCAL
FOCAL8-302	XSTOCK - Stockmarket Simulation Game
FOCAL8-303	STKMKT - Stock Market Game
FOCAL8-304	TIC-TAC-TOE
FOCAL8-305	RUBEN
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FOCAL8-314	Y-Value Calculations
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FOCAL8-316	BANCPO - Bank Portfolio Simulation









DECUS NO. FOCAL8-312

CVFCPTG (Centronics Vertical Format Control Paper Tape Generator)

W. E. Hamilton, 212F Red Oak Drive East, Sunnyvale, California

This is a FOCAL coded utility program which will produce vertical format control (carriage control) tapes for a Centronics printer.

Minimum Hardware: 4K PDP-8/I, ASR33  
Restrictions: Cannot be run with extended functions  
Source Language: FOCAL '69

DECUS NO. FOCAL8-313

EAE Patches to FOCAL

G. Chase, Portsmouth Abbey School, Portsmouth, Rhode Island

These are Mode "B" Extended Arithmetic Element patches to two versions of the FOCAL language, namely to DEC's FOCAL-8, the revision of FOCAL, 1969, and to DECUS' FOCAL 5/69 ("Taft" FOCAL).

Mode "B" of the EAE is available only on PDP-8/E and later models. The PDP-12 and the PDP-8/I EAE run in mode "A" only. It is likely that some parts of the patches might be recodable into mode "A".

The patch to DEC's FOCAL-8 does things to the addition routines as well as to the floating multiply and divide routines. The other patch restricts itself to floating multiply and divide only. On a sample program calculating a lot of arc sines, the FOCAL-8 patch caused the program to run in about 40% less time than was required with unpatched FOCAL-8; the TAFT patch saved about 30% as compared with unpatched FOCAL 5/69.

It should be remembered that both languages are interpretive and use interpretive calls to their floating point packages. A substantial fraction of the run time of a program is determined simply by the language structure.

Source Language: PAL-8

DECUS NO. FOCAL8-314

Y-Value Calculations

G. Brent Dalrymple, U. S. Geological Survey, Menlo Park, California

This program calculates values of Y using any of eight different equations given the coefficients of the equation selected and values of X. A ninth option allows the user to enter any equation of his or her choice. The equations available are: (1)  $y = a + bx$ , (2)  $y = a + b/x$ , (3)  $\ln y = a + bx$ , (4)  $\ln y = a + b \ln x$ , (5)  $y = ab^x$ , (6)  $y = ax^b$ , (7)  $y = a + be^x$ , and (8)  $y = a + bx + ce^{dx}$ .

Minimum Hardware: 8K PDP-8, keyboard terminal  
Other Programs Needed: FOCAL-8  
Source Language: FOCAL-8

DECUS NO. FOCAL8-315

YORK2 - Two Error Linear Regression with Correlated Errors

G. Brent Dalrymple, U. S. Geological Survey, Menlo Park, California

YORK2 is a linear regression program that allows for errors in both X and Y and also for positive and negative correlation of the X and Y errors. The program accepts errors for each value of X and Y. If the errors are uncorrelated, the correlation coefficient ( $-1 < R < 1$ ) may be set to zero. Output consists of the slope, the intercept, the coordinates of the centroid and six statistical parameters. The program uses the "least squares cubic" method of D. York, University of Toronto (York, 1969). It requires 8K of core.

Minimum Hardware: 8K PDP-8, keyboard terminal  
Other Programs Needed: 8K FOCAL-8  
Source Language: FOCAL-8

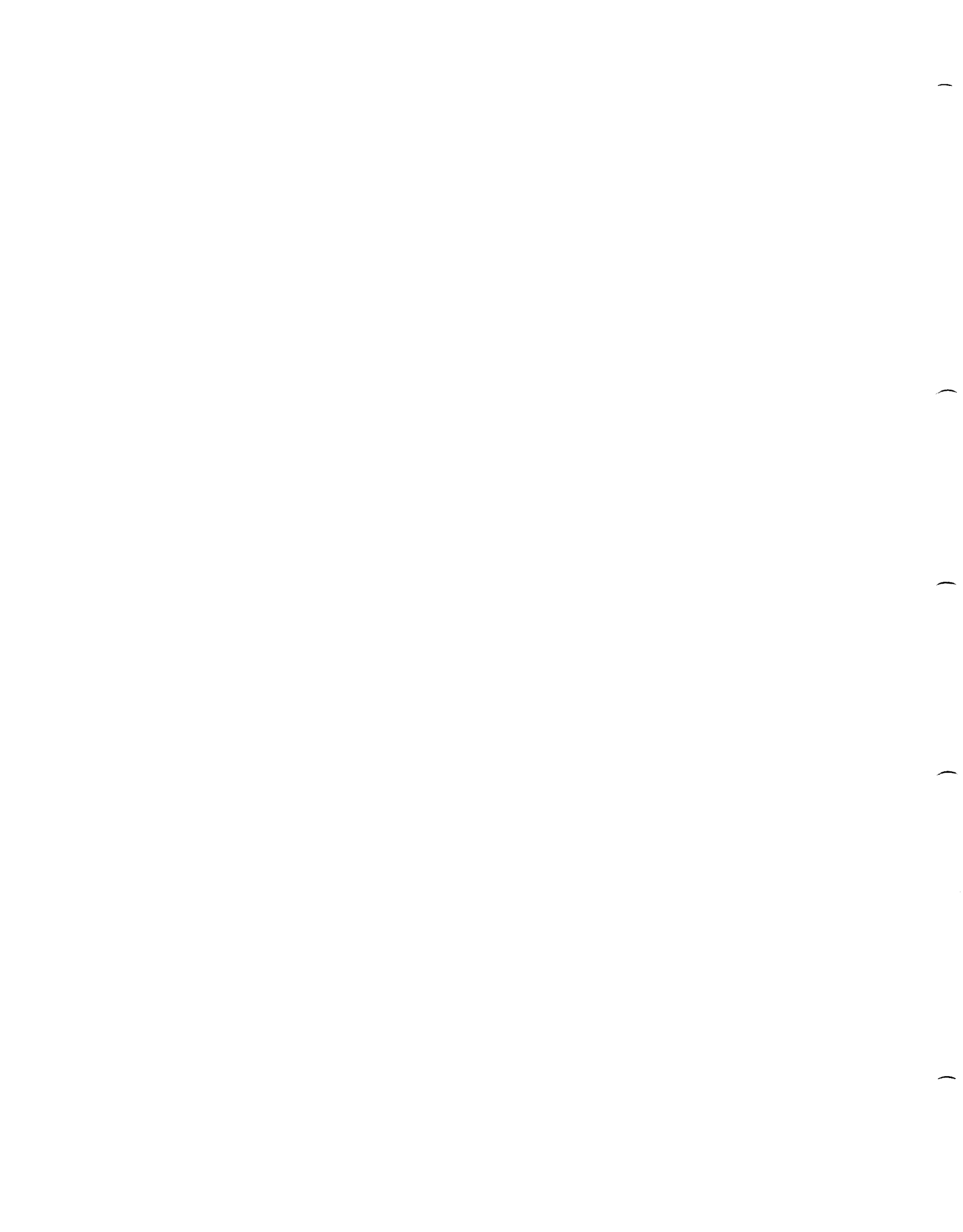
DECUS NO. FOCAL8-316

BANCPO - Bank Portfolio Simulation

Dr. John A. Tribble, Newberry College, Newberry, South Carolina

This routine simulates the decision making process of the commercial banker, a risk-filled and uncertain world where there is interdependency of bankers' decisions. General data is entered describing a banking market with five competitors. Each of the five competing banks enters a level of government securities, an initial net worth, and interest rates paid on savings accounts, paid on certificates of deposits, and charged on loans. The program calculates assets and liabilities for each bank adjusting assets to meet required reserves. The output consists of a balance sheet for the last day of the decision period and an income statement for the period.

Minimum Hardware: 4K PDP-8  
Other Programs Needed: FOCAL, 1969 & INIT  
Restrictions: Extended functions removed from FOCAL  
Source Language: FOCAL



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BASIC8-3	Mathematics - Set 3
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BASIC8-28	Mathematics - Set 4
BASIC8-30	LIB12 - Mathematical and Graphing Routines
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BASIC8-15	Business and Social Studies - Set 2
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BASIC8-48	STF and STM, Stellar Formation and Stellar Model
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BASIC8-59	STORM3
BASIC8-72	Great Circle Course and Distance

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X. GAMES & DEMONSTRATIONS

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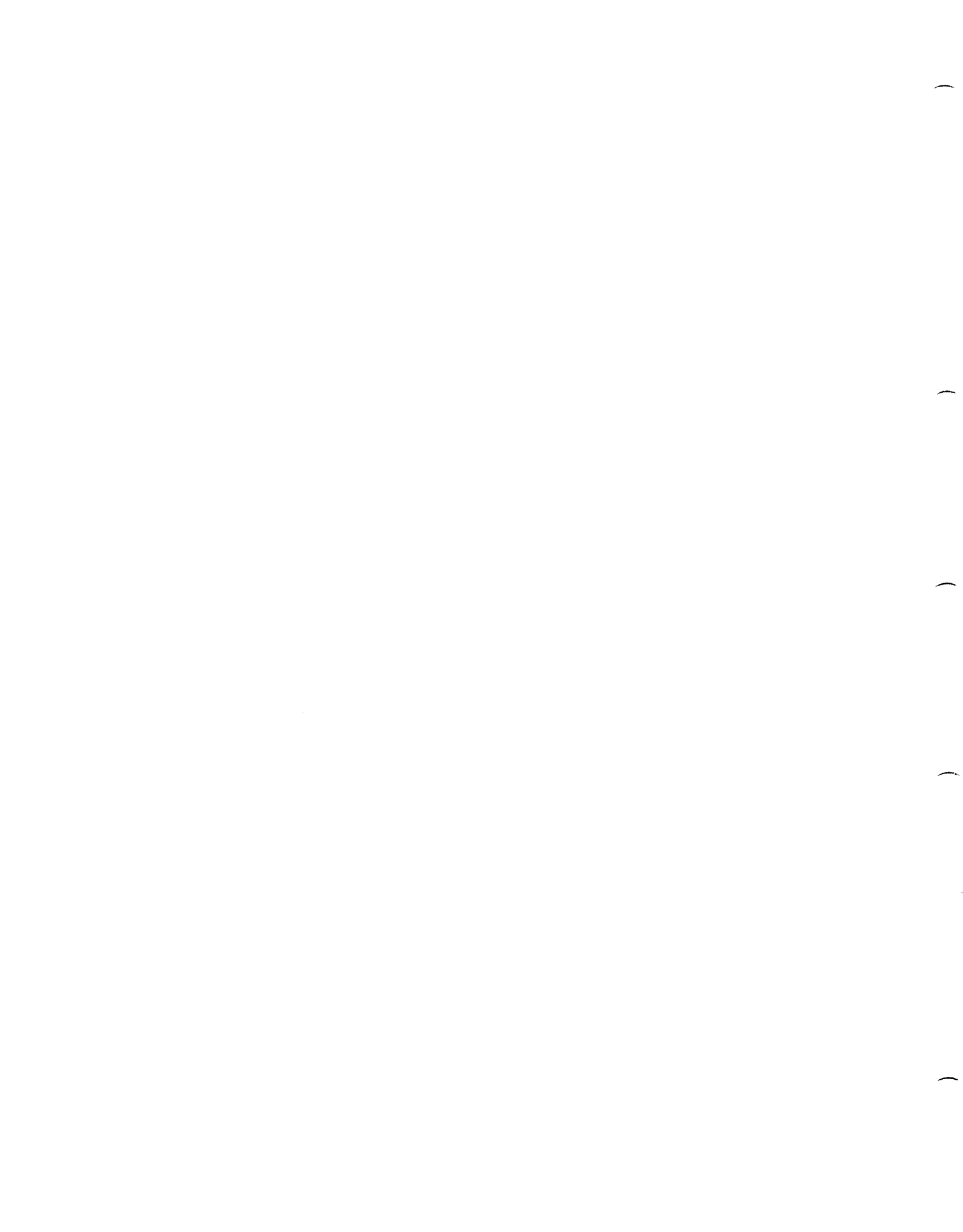
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BASIC8-56

Laboratory and Display Instructions for OS/8 BASIC  
Source: Ronald Jones, Ph.D.

This program is a set of user-defined functions for OS/8 BASIC. It is combined with the LAB/8E functions (DEC-8E-ALOSA-A-LA) to build the file BASIC.UF; a run-time overlay for OS/8 BASIC. These functions control DEC analog and Digital input and output devices and the VC8E display-control. They permit real-time data sampling, with background display, and control of both the X and Y coordinates for CRT plotting.

Language: PAL-8  
Object, source, documentation and listing files on one DECTape: \$8.00 User Supplied, \$20.00 DECUS Supplied.  
Hard copy listing: \$10.00

BASIC8-57

NEEDIT, Symbolic Editor Program for NEOPAL  
Source: Christopher Kryzan

NEEDIT was designed to provide an on-line editing feature for NEOPAL. Through the use of this program, one can construct a program in NEOPAL assembly language and correct errors in programming and in typing which may be encountered. When a program is completed, the finished program will be executed by chaining to NEOPAL (BASIC8-43).

Mass storage is required.

Paper Tape: \$2.00

BASIC8-58

RESEQUENCE (A revision of DECUS8-402)  
Original Source: Howard Wolfington  
Revised by: Timothy M. Sigmon

This is a revision of DECUS 8-402 which resequences line numbers and references within a BASIC program on TSS/8. It has been revised to handle the following TSS/8 extended BASIC options: 'OPEN-ELSE', 'ON-GOTO', 'PUT,' and 'GET' statements and the backslash option.

Language: PAL-D

BASIC8-59

STORM3  
Source: Bradford A. Morse

This is a program written in BASIC on Edusystem-20, to simulate formations of clouds, rain storms, and the breakup of the clouds after the rain. It requires only that you can type it into the computer (PDP-8/E), and type the word "RUN ". It will take it from there. The program works entirely with random numbers and simulates buildups and breakdowns of clouds by printing progress reports by the hour until the storm is over. After the storm a

complete description of the storm's actions are printed out.

BASIC8-60

WORDSEK, WRDGES, LIFE, LIFES1, TICTAC  
Source: Christopher Kryzan, Gordon Speer

1. WRDSEK, given the words to be used, will construct a 15 by 15 word search puzzle. The computer will use the number of words you specify, place them in the puzzle at random locations and in random directions, and then print out a word list, solution, and the puzzle.

2. WRDGES will play 'guess the word' with the user. The user will be able to determine the word size (up to 50 characters) and the time in which he has to look at the word. The computer will then generate the word, let the user look at it for the given amount of time, then totally eradicate the word, and ask him what it was.

3. LIFE is a computerized demonstration of Conway's Game of Life as found in Scientific American. This program illustrates the mathematical patterns which result as the organisms on the grid grow and die. Random or determined starting positions of organisms may be used, and the program terminates itself when it has reached an equilibrium.

4. LIFES1 is another version of Conway's 'LIFE.' It works with teletype output.

The population occupies a grid up to 35 wide by 60 long. Excess height is automatically trimmed to save paper. Changes in the population are counted and the run stops automatically when the population reaches a stable pattern.

5. TICTAC will play the game of tic tac toe against the user, trying to pick the move which is most advantageous to the computer. If the operator makes the first move, the computer will play defensively. If the computer makes the first move, it will play offensively. The board is printed out after the computer's move.

Paper Tapes: \$2.00 per routine

BASIC8-61

Bowling League Tabulator  
Source: Philip Bujalski

This program automates the tabulation of a bowling league for any amount of teams with any amount of bowlers on the teams. For each bowler, total pinfall, total games, average, high game, low game and high triple are calculated.

Paper Tape: \$2.00

BASIC8-62  
NANCY.BA

Source: Peter W. Dowrick

This program, written in OS/8 BASIC, simulates the playing of tic tac toe, with randomization of differing strategies and blunders, at four different levels of probability.

Paper Tape: \$2.00

BASIC8-63  
MAMII and MAMID

Source: F. G. McIntosh

"MAMII" - input version, "MAMID" - data version. The programs provide the functions of addition, multiplication and inversion using either 'input' statements of 'read' and 'data' statements. Both programs allow retention of solutions so that 'chain-type' calculations may be performed. Real matrices only.

Paper Tape: \$2.00

BASIC8-64  
NAMES

Source: Malcolm Slaney

This is a simple program to punch out names and other messages on tape. Messages of any size that can be handled by the LINPUT command will be punched. It is also possible to specify whether the letter or the background should be punched. All alpha-numeric characters can be punched, and new characters, such as Christmas trees, are easy to add.

Paper Tape: \$2.00

BASIC8-65  
Butler Area School District Computer Mathematics Series

Source: Keith Henry, John Koehring, Albert Stewart

A series of mathematics programs for individual testing on math problems at various levels. Provisions are made for alternative questions for "retakes" at each level. Complementary programs allow for printout of sets of problems on spirit ditto masters and for the teacher to get an answer sheet for the ditto handout. An achievement ideograph program gives explicit student achievement records.

Language: TSS/8 BASIC

Documentation: \$1.00

DTA \$8.00 User Supplied, \$20.00 DECUS Supplied

BASIC8-66  
CLILAC, LILAC Conversion

Source: Brett Fleisch

This version of LILAC (BASIC8-39) retains all the original commands, but is modified for EDU-25 BASIC. The number of lines has been reduced due to the occasional usage of the SHIFT/L command. Its highest line number is less than 2046. Also, two additional useful commands have been added.

Minimum Hardware: 8K PDP-8/E, TTY

Language: EDU-25 BASIC

Paper Tape: \$2.00

BASIC8-67  
TSSTLK - BASIC Language Communications Package for the TSS/8

Source: Reed Christiansen

TSSTLK utilizes a data file, TSSTKF, to transmit and receive messages to and from other terminals.

BASIC8-68  
BASIC Storage

Source: Sandra A. Howell

BASIC Storage is a program written in the 8K BASIC language to accept an integer from the teletype and convert it to its 27 bit floating point equivalent. The integer is restricted to numbers between  $E \pm 38$  and can be input as integers, decimal integers, or integers expressed in E format. The output is the octal of words 1, 2, and 3 respectively, in the floating point accumulator.

Language: 8K BASIC

BASIC8-69  
CHESS

Source: Andy Kent

Allows two people to play a game of chess using a computer as a board and a move recorder. The computer does not check for illegal moves. When the game is over, the computer prints the final position and every move for both white and black that was made.

Minimum Hardware: PDP-8/M and TTY

Other Programs Needed: EDU-25

Storage Requirement: 12K

Language: BASIC

Paper Tape: \$2.00

BASIC8-70

PISTOL - Practically Instantaneous Scheduling Typed On-Line

Source: Andrew R. Bradbury

PISTOL is a BASIC source program devised to rapidly produce student schedules for various uses. It was originally designed to schedule student usage of a computer terminal, but may be used for many other scheduling problems.

Minimum Hardware: TSS/8, Disk storage (Could be modified to use DECtape)

Other Programs Needed: BASIC with data file capabilities

Language: BASIC  
Paper Tape \$2.00

BASIC8-71

CALC

Source: Jesse Heines

CALC allows you to input any valid BASIC numerical expression and prints out the value of that expression on a CLASSIC or OS/8 system.

This program uses one BASIC language program to write another, CHAINs to a newly written program, and then CHAINs back to the original one.

Paper Tape: \$2.00

BASIC8-72

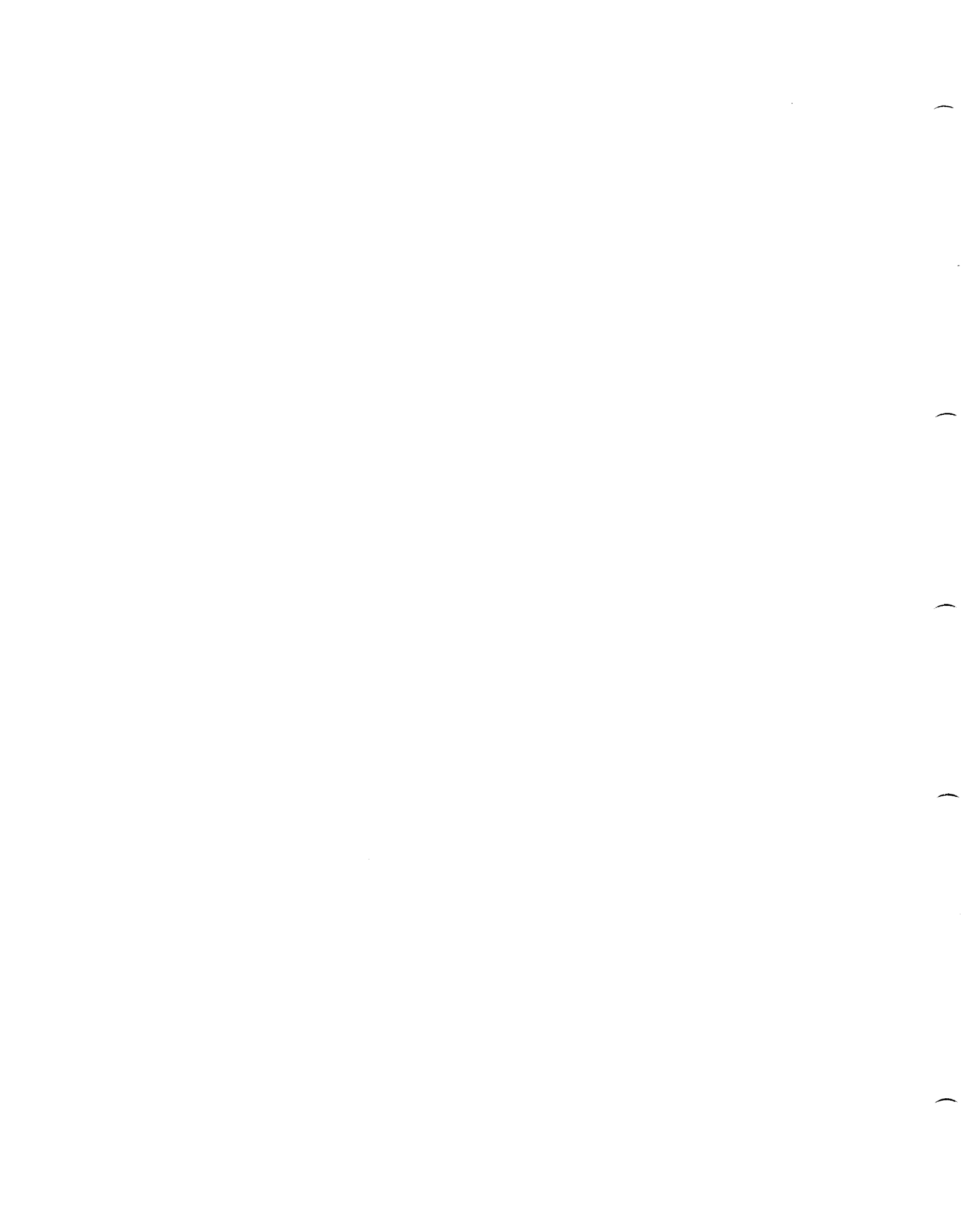
Great Circle Course and Distance

Source: G. Brent Dalrymple

This program computes the great circle distance, the initial course angle, and the initial great circle course from the latitude and longitude of the points of departure and destination.

Minimum Hardware: 8K PDP-8, DECtape, keyboard terminal

Other Programs Needed: OS/8  
Language: OS/8 BASIC (Version 3.0)  
Paper Tape: \$2.00



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12-158	FASTCOPY, A Fast LINCTape Copier for 4K PDP-12's
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12-146	\$CORR. (FOCAL Version)
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12-169	HISTPLOT: A Versatile Program for Cross Correlation of Point Process Data on a PDP-12
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12-15	HISTO12
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<u>DECUS NO.</u>	<u>TITLE</u>
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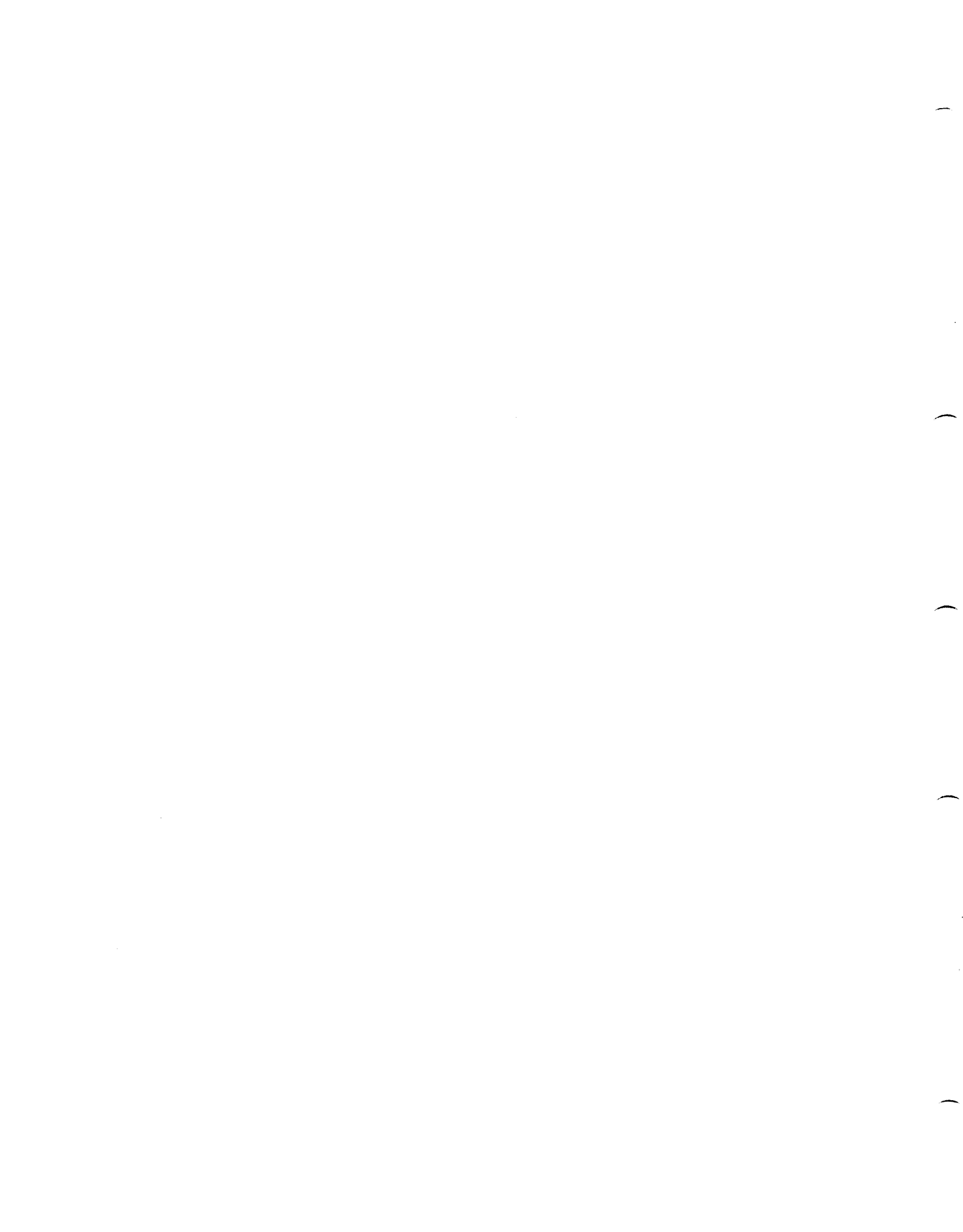
12-16	MODCLK
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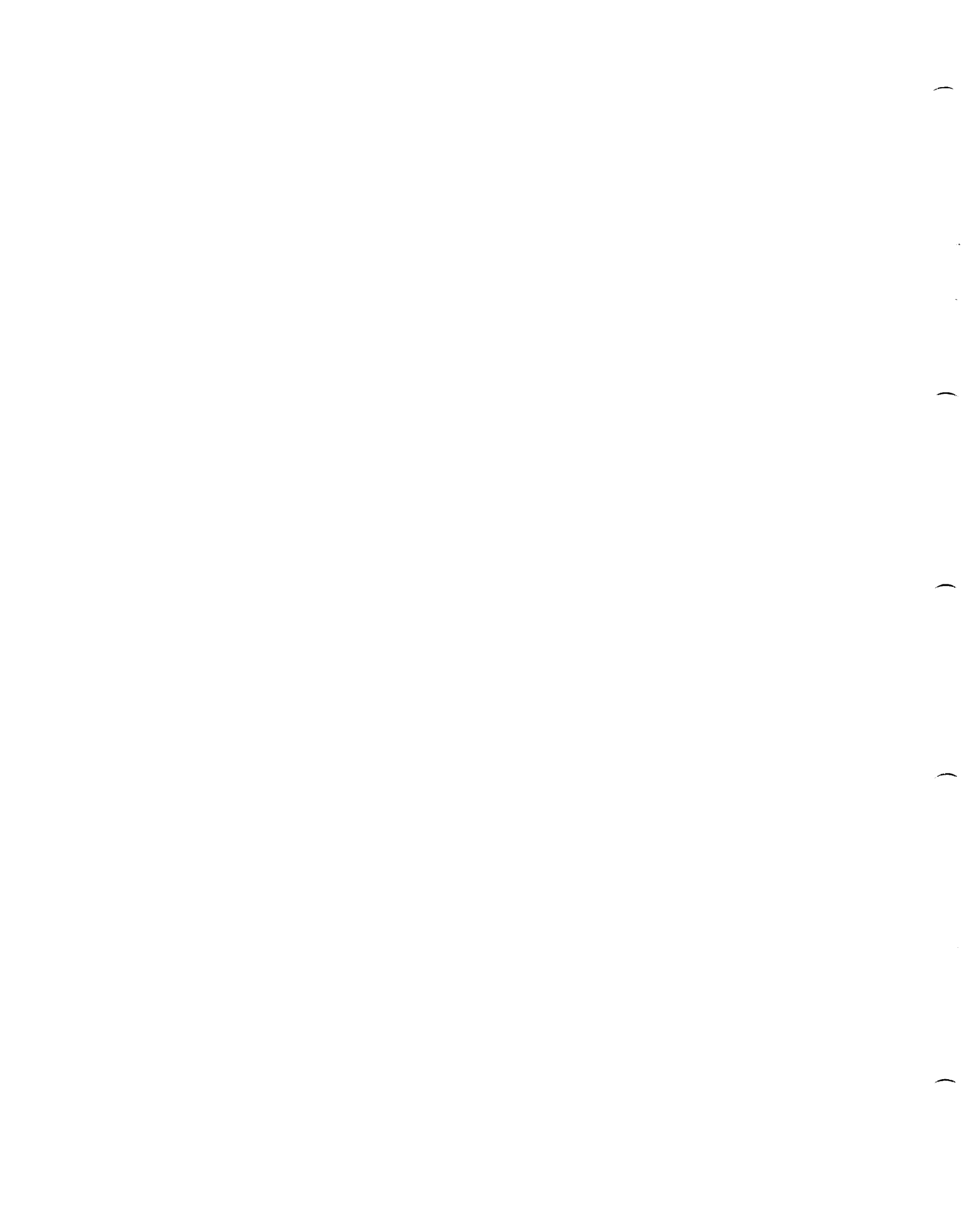
XVII. MISCELLANEOUS

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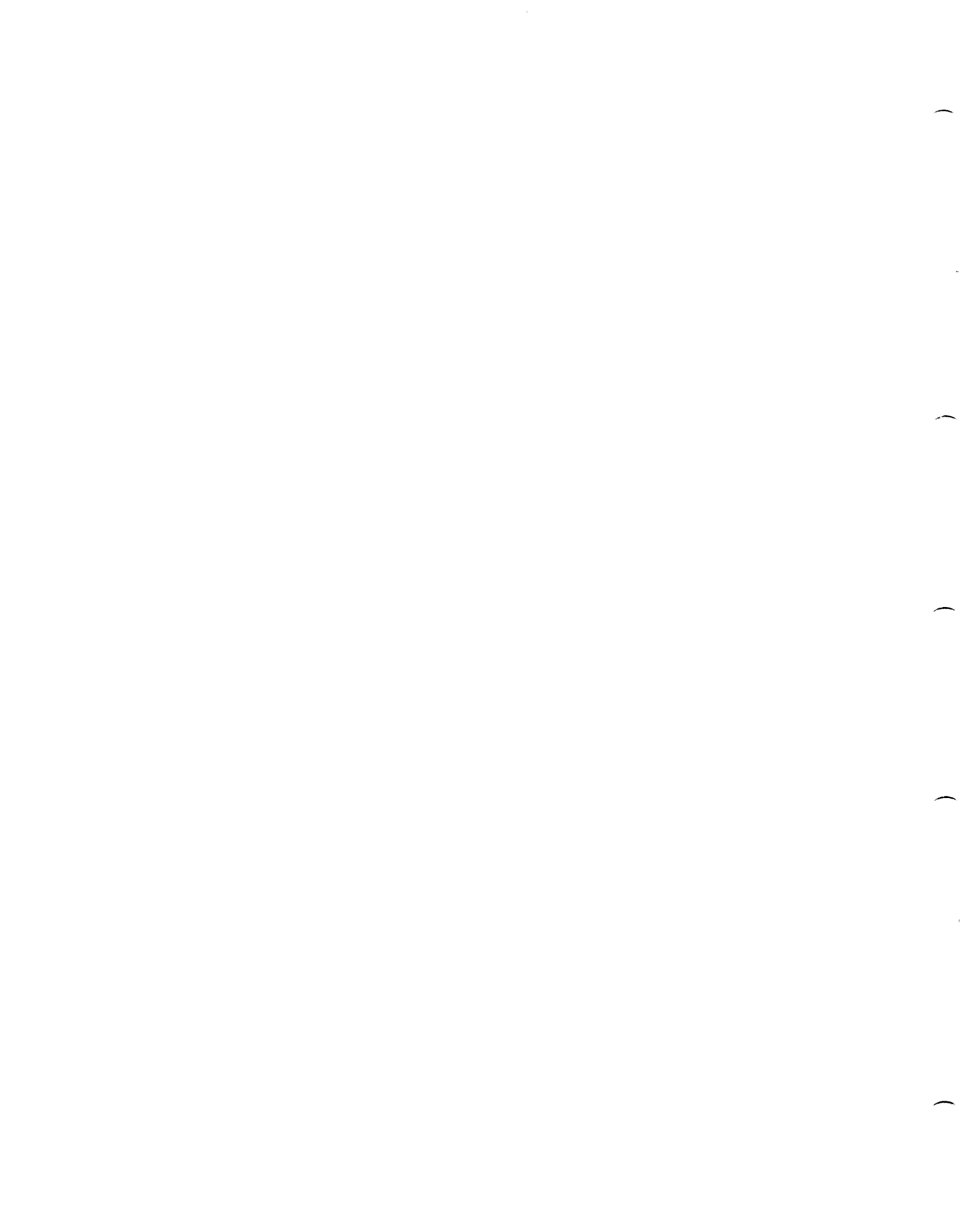
12-5	SERCHPRO
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<u>DECUS NO.</u>	<u>TITLE</u>
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<u>DECUS NO.</u>	<u>TITLE</u>	<u>DECUS NO.</u>	<u>TITLE</u>
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12-142	FOCALSD	12-170	INPUT, STAT, DIST: A Statistical Analysis Package for the PDP-8 or PDP-12
12-143	DSLIS - Dead Start Loader and Index Statistics	12-171	Three Patches to the Clinical Lab-12 System
12-144	ANECDOTE - Advanced NeuroElectric Computer Data Operational Tape (Export)	12-172	WVU Utility Package
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12-146	\$CORR (FOCAL Version)	12-174	CLOCK: Digital Clock with Westminster Chimes
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12-148	STATIS12, A Statistical Package for the PDP-12	12-176	FOCAL-12 Overlay to Access the DF32 Disk
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12-150	XPIP10: PDP-10 DECTape to LINCtape Converter	12-178	NUFOCAL, Modified FOCAL-12
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12-156	MUSIC12	12-184	PPSH - Neuronal Autocorrelation and Crosscorrelation Analysis Programs
12-157	PLOTVS, Device Independent Graphics	12-185	Horoscope Casting Routines - Astrodynamic Subroutines
12-158	FASTCOPY, A Fast LINCtape Copier for 4K PDP-12's	12-186	COBRA Assembler for the PDP-12
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DECUS SERVICE CHARGES

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		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
12-1	\$ NC	\$	\$	\$	\$	\$	\$ 8.	\$ 18.	\$	\$	1 LTA
12-2	1.*						8.	18.			1 LTA *NC with Tape
12-4	NC						8.	18.			1 LTA
12-5	NC			NC			8.	18.			1 LTA
12-6	NC			10.			8.	18.			1 LTA
12-7	NC						8.	18.			Same LTA (1)
12-8	NC						8.	18.			
12-9	NC			10.			8.	18.			1 LTA
12-10	NC			NC			8.	18.			1 LTA
12-11	NC			NC			8.	18.			1 LTA; also contains 12-15
12-12	NC						8.	18.			1 LTA
12-13	NC			NC			8.	18.			1 LTA (obj)
12-14	NC			NC			8.	18.			1 LTA
12-15	NC			NC			8.	18.			1 LTA; also contains 12-11
12-16	NC	2.	2.	NC							
12-17	NC			NC			8.	18.			
12-18	NC	2.	2.	NC							
12-20	NC	2.	2.								
12-21	NC	2.									
12-22	NC			10.			8.	18.			Same LTA (1)
12-23	NC			10.			8.	18.			
12-24	NC			NC			8.	18.			1 LTA
12-25	NC						8.	18.			1 LTA
12-29			8.								
12-30	NC			10.			8.	18.			1 LTA (bin, LAP6)
12-31	NC			20.			8.	18.			1 LTA (bin, LAP6)
12-32	NC			10.			8.	18.			1 LTA (bin, DIAL)
12-33	NC			5.			8.	18.			1 LTA (bin, LAP6, DIAL)
12-34	1.\$						32.	72			4 LTA *NC with tapes
12-35	NC						8.	18.			1 LTA
12-36	NC						8.	18.			Same LTA (1)
12-37	NC						8.	18.			
12-38A	NC			NC			8.	18.			Same LTA (1)
12-38B	NC			NC			8.	18.			
12-39	NC						8.	18.			1 LTA
12-40	NC						8.	18.			1 LTA
12-41	NC	2.	8.								

N/C - No Charge

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D/S - DECUS Supplied Tape

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DEC 7-(369)-1112A-R1074

May 1975

DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
12-42	\$ NC	\$	\$	\$ 5.	\$	\$	\$ 8.	\$ 18.	\$	\$	1 LTA (obj)
12-43	NC						8.	18.			Same LTA (1) (obj,src)
12-44	NC						8.	18.			
12-45	NC						8.	18.			
12-46	NC						8.	18.			Same LTA (1) ; also contains
12-47	NC						8.	18.			
12-48	NC			10.			8.	18.			1 LTA
12-49	NC			NC			8.	18.			1 LTA
12-50							8.	18.			1 LTA
12-51	NC			10.			8.	18.			1 LTA
12-52	NC		2.								
12-53	NC		2.								
12-54	NC			10.			8.	18.			1 LTA
12-55	NC	2.	2.	NC							
12-56	NC			5.			8.	18.			Same LTA (1)
12-57	NC			5.			8.	18.			
12-58	NC			NC							
12-59	NC			NC			8.	18.			1 LTA
12-60	NC			NC			8.	18.			1 LTA
12-61	NC			NC							
12-62	1.*						8.	18.			1 LTA *NC with tape
12-63	NC						8.	18.			1 LTA
12-64	NC		2.	NC							
12-65	NC						8.	18.			1 LTA
12-66	NC						8.	18.			1 LTA
12-67	NC			NC			8.	18.			1 LTA
12-68	NC			10.			8.	18.			1 LTA
12-69	NC			NC			8.	18.			1 LTA
12-70	NC				8.	20.	8.	18.			1 LTA; 1 DTA for PDP-8 users
12-71	NC	2.									
12-72	NC			NC			8.	18.			1 LTA
12-73	NC			5.			8.	18.			1 LTA
12-74	NC			NC							
12-75	NC	2.	2.	NC							
12-76	NC						8.	18.			1 LTA
12-77	NC			10.			8.	18.			1 LTA
12-78	NC			10.			8.	18.			1 LTA

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
12-79	\$ NC	\$ 2.	\$ 2.	\$ NC	\$	\$	\$	\$	\$	\$	
12-80	1.*						8.	18.			1 LTA *NC with tape
12-81	NC						8.	18.			Same LTA (1) (obj,src)
12-82	NC						8.	18.			
12-83	NC		2.	NC							
12-84	NC						8.	18.			1 LTA
12-85	NC		2.	NC							
12-86	NC	2.	2.	NC							
12-87	NC						8.	18.			1 LTA
12-88	NC		2.	NC							
12-89	NC		2.								
12-90	NC		2.								
12-91	NC		2.								
12-92	NC		2.	NC							
12-93	NC	2.		NC							
12-94	NC										
12-95	NC						8.	18.			1 LTA
12-96A&B	NC						8.	18.			1 LTA
12-97	NC			NC							
12-98	NC			10.			8.	18.			1 LTA (obj,src)
12-99	NC						8.	18.			1 LTA (obj,src)
12-101	NC						8.	18.			1 LTA (obj,src)
12-102	NC										
12-103	NC		2.	NC							
12-104	NC						8.	18.			1 LTA (obj,src)
12-105	NC						8.	18.			1 LTA (Sys src) contains 12-118, 119
12-106	NC						8.	18.			1 LTA (obj,src)
12-107	NC						8.	18.			1 LTA (obj,src)
12-108	NC	2.	12.								
12-109A,B,C	NC			NC			8.	18.			1 LTA
12-110	NC						8.	18.			1 LTA (obj) contains 12-46, 47, 120a, 145, 152, 153, 154, 155
12-111a	NC						8.	18.			Same LTA (1) (obj,src)
12-112	NC			NC			8.	18.			
12-113	NC			NC			8.	18.			
12-114	NC						8.	18.			1 LTA (obj,src)
12-115	NC						8.	18.			1 LTA (obj,src)

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
12-116	\$ NC	\$	\$	\$ 10.	\$	\$	\$ 8.	\$ 18.	\$	\$	1 LTA (obj,src)
12-117	NC			NC			8.	18.			1 LTA (obj,src)
12-118	NC						8.	18.			Same LTA (1) (obj,src); also contains files for 12-105
12-119	NC										
12-120a	NC			20.			8.	18.			1 LTA(obj,src); also contains 12-46, 12-47, 110, 145, 152, 153, 154, 155
12-121	NC			10.			8.	18.			1 LTA (obj,src)
12-122	NC			NC			8.	18.			1 LTA
12-123a	NC	2.	2.	NC							
12-124	NC		2.	NC							
12-125	NC			NC			8.	18.			1 LTA (obj,src)
12-126	NC			10.			8.	18.			1 LTA (obj,src)
12-128	NC		8.								
12-129	NC						8.	18.			1 LTA (obj,src)
12-130	NC			NC			8.	18.			1 LTA (src)
12-131	NC						8.	18.			1 LTA (obj,src) (See 8-599)
12-132	NC						8.	18.			1 LTA (obj,src) (See 8-628)
12-133	NC						8.	18.			Same LTA (1); (obj,src) See also 8-631 thru 8-635
12-134	NC						8.	18.			
12-135	NC						8.	18.			
12-136	NC						8.	18.			
12-137	NC						8.	18.			
12-138	NC						8.	18.			
12-139	NC						8.	18.			1 LTA (obj,src)
12-140	NC						8.	18.			1 LTA (obj,src)
12-141	NC		2.	NC			8.	18.			1 LTA (obj) ; Order ASCII or LTA
12-142	NC			NC							
12-143	NC						8.	18.			1 LTA (obj,src)
12-144	NC						8.	18.			1 LTA (obj,src)
12-145a	NC			10.			8.	18.			1 LTA ;also contains 12-46,47, 110, 120a, 152, 153, 154, 155
12-146	NC		2.	NC							
12-147	NC		2.	NC							
12-148	NC			10.			8.	18.			1 LTA (obj)
12-149	NC	8.									
12-150	NC	2.									Src available from author
12-151	NC			20.			8.	18.			1 LTA (obj,src)

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U/S - User Supplied Tape (Certified)

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DECUS SERVICE CHARGES

DECUS NO.	WRITE-UP	PAPER TAPE		LISTING	DECTAPE		LINCTAPE		MAGTAPE		OTHER INFORMATION
		BIN	ASCII		U/S	D/S	U/S	D/S	U/S	D/S	
12-152	\$ NC	\$	\$	\$ NC	\$	\$	\$ 8.	\$ 18.	\$	\$	Same LTA (1) (obj,src); contains 12-46,47,110,120a,145 also
12-153a	NC						8.	18.			
12-154a							8.	18.			
12-155							8.	18.			
12-156	NC			NC			8.	18.			1 LTA (obj,src)
12-157	NC			NC	8.	20.	8.	18.			1 LTA OS/12; 1 DTA OS/8
12-158	NC			NC			8.	18.			1 LTA (obj,src)
12-159	NC			NC			8.	18.			1 LTA (obj,src)
12-160	NC			NC			8.	18.			1 LTA (obj,src)
12-161	NC			NC			8.	18.			1 LTA (obj,src)
12-162	NC			NC			8.	18.			1 LTA (obj,src)
12-163	NC			NC			8.	18.			1 LTA (obj,src)
12-164	NC			25.00			8.	18.			1 LTA (obj,src)
12-165	1.*			25.00			16.	36.			2 LTA (obj,src) *NC with tapes
12-166	NC		2.	NC							
12-167	NC			NC							
12-168	NC						8.	18.			1 LTA (obj,src)
12-169	NC						8.	18.			1 LTA (obj,src)
12-170	NC						8.	18.			
12-171	NC			NC			8.	18.			1 LTA (src,doc)
12-172	NC						8.	18.			1 LTA (obj,src)
12-173	NC			NC			8.	18.			1 LTA (obj,src)
12-174	NC						8.	18.			1 LTA (obj,src)
12-175	NC			NC			8.	18.			1 LTA (src)
12-176	NC		2.	NC							
12-177	NC		2.	NC							
12-178	NC		2.	NC							
12-179	NC		2.	NC							
12-180	On tape						8.	18.			1 LTA (src,bin,write-up)
12-181	NC			NC			8.	18.			Same LTA (1) (obj,src)
12-182	NC			NC			8.	18.			
12-183	NC			NC			8.	18.			
12-184	NC						8.	18.			1 LTA (src)
12-185	NC			NC			8.	18.			Same LTA (1) (obj,src)
12-186	NC						8.	18.			
12-187	NC						8.	18.			1 LTA (src,doc,routines)
12-188	NC						8.	18.			1 LTA (obj,src,doc)

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DECUS NO. 12-180

CARDDIAL - Input to the DIAL Editor Via Cards

James C. Good, Jamesville-DeWitt Central Schools,  
DeWitt, New York

CARDDIAL is a program which makes card input acceptable to the DIAL editor.

Minimum Hardware: PDP-12, Card Reader, LINCtape  
Other Programs Needed: PAL-12A Assembler  
Storage Requirement: ~~0000~~ - ~~00777~~  
Restrictions: Same as for the DIAL Editor  
Source Language: PAL-12A

DECUS NO. 12-181

ATSXL - Text Display and Timing Routine for FOCAL-RT

David Hale, Psychology Department, The Queen's University of Belfast, Belfast, Northern Ireland

ATSXL is an overlay to FOCAL-RT (DECUS 12-80) which allows a 'frame' of text to be presented on the display and the subjects response, response time and keydown time to be recorded. Up to 511 frames of up to 510 characters each may be randomly presented allowing adaptive techniques to be employed. Once the stored frame has been found display presentation is immediate. Up to 12 bits of response information can be recorded and timing is to an accuracy of 10 milliseconds. Responses are input on the external sense lines.

Minimum Hardware: 8K PDP-12 with dual LINCtapes, VR14 display, KW12A real-time clock and sense lines  
Other Programs Needed: FOCAL-RT (DECUS 12-80) (On tape offered)  
Source Language: DIAL

DECUS NO. 12-182

KLK - A Simple Clock Overlay for PDP-12 FOCAL

David Hale, Psychology Department, The Queen's University of Belfast, Belfast, Northern Ireland

A simple overlay of great use in elapsed time measurement which takes advantage of the ability of the KW12A clock to be stopped by an external event on any of the three clock trigger input channels. The routine assumes control of the clock and sets it counting from zero. An external event stops the clock and records which of the three possible events was present. The clock time and event code can then be read into the user's program at his leisure.

Minimum Hardware: 8K PDP-12, dual LINCtapes, KW12A, VR14  
Other Programs Needed: FOCAL-RT (DECUS 12-80) (On tape offered)  
Source Language: DIAL

DECUS NO. 12-183

DECIO - FOCAL-12 Whole Word Digital I/O Overlay

David Hale, Psychology Department, The Queen's University of Belfast, Belfast, Northern Ireland

An alternative to the practice of accessing external sense lines and relays at the individual bit level, it treats the sense lines as a 12 bit integer and the relays as a 6 bit integer. The status of the 12 bits can then be read as a decimal number between 0 and 4095 and the relays controlled by outputting a decimal number between 0 and 63. Any combination of bits may then be controlled by these integers. An input pattern can be decoded to give individual bits and an output pattern set up using the decimal equivalents of the bit pattern.

Minimum Hardware: 8K PDP-12, dual LINCtapes, KW12A, VR14  
Source Language: DIAL

DECUS NO. 12-184

PPSH - Neuronal Autocorrelation and Crosscorrelation Analysis Programs (Pre-Post Stimulus Histogram)

Ramesh R. Parekh, M.S.I.E. and Hardress J. Waller, Ph.D., Medical College of Ohio at Toledo, Toledo, Ohio

PPSH (Pre/Post Stimulus Histogram) is a group of programs that, together, compute the autocorrelation and crosscorrelation functions for two concurrent sequences of events (e.g., two simultaneously recorded neuron spike trains or one spike train and one stimulus series). PPSHDATA compiles the intervals in real time as a single mixed and labeled, double precision list of indefinite length. Intervals are numbered sequentially and stored, along with relevant identifying data, on a Linc Tape train file.

PPSH1 reads a selected interval list and generates either a first order interval distribution or an n order correlation (expectation density) function. The histogram is displayed and may be plotted along with a calibrated scale. Total event counts and histogram areas are typed out as octal numbers.

HISTDUMP temporarily saves the histogram in a reserved four block section of Linc Tape on unit 0 for subsequent printout by TAPEDUMP (DECUS 12-2).

Minimum Hardware: PDP-12 with 8K core, VR-12 display and dual Linc tape; KW12A real time clock; KE-12 Extended Arithmetic Element; ASR33 Teletype or equivalent; Incremental plotter (optional)  
Source Language: LAP6-DIAL

## DECUS NO. 12-185

### Horoscope Casting Routines - Astrodynamical Subroutines

David L. Hindman, University of Texas Phonetics Laboratory and ARBEC, Inc., Austin, Texas

A collection of FORTRAN II subroutines which perform the astrodynamical, calendrical, and geographic computations made in the process of casting horoscopes. Primary components are: an ephemeris routine, a calendrical routine, and a routine to perform house setups.

The routines are not warranted and are to be used for fun only.

Other Programs Needed: FORTRAN Compiler  
Storage Requirement: 16K  
Restrictions: Will not cast horoscopes for latitudes greater than 66 degrees North or South  
Source Language: FORTRAN II

## DECUS NO. 12-186

### COBRA Assembler for the PDP-12

David L. Hindman, University of Texas Phonetics Laboratory and ARBEC, Inc., Austin, Texas

COBRA is a macro assembler for PDP-12s having at least 16K of core and the EAE. COBRA runs under PS/8 and produces binary output compatible with ASBLDR. The user may maintain system macro text in a file called SYSLIB and may also keep other text libraries. Other COBRA facilities are: qualified symbols, text parameterization, LMODE/PMODE assembly, and a DIAL simulation mode. A library of PS/8 linkage macros is included.

COBRA is configured for a system with a Centronics line printer, but is largely compatible with teletype output systems.

Minimum Hardware: EAE and disk recommended  
Restrictions: Known defect in symbol table routine (symbol type not tested properly). Source text does not include form feed codes  
Source Language: COBRA

## DECUS NO. 12-187

### OS/8 Device Handlers for PDP-12 Core

James E. Randall, Indiana University, Bloomington, Indiana

These system and non-system device handlers are designed for a PDP-12 with Linctape as the mass storage device and with 32K of core. The handlers can reduce tape shuffling by keeping directories, systems area, or files in upper core.

The handlers, their listings, and initialization and restoration routines are supplied on a Linctape which can be started from the console bootstrap. Full documentation is obtained in the file HOW.DC on the tape. The tape is OS/8 Version 3 and will not support earlier versions.

Storage Requirement: 32K  
Source Language: PAL-8

## DECUS NO. 12-188

### 4K DISK/LINCTAPE MONITOR

Mark J. Hyde, 209 Ardsley Drive, DeWitt, New York

The 4K Linctape monitor is the disk/DECtape monitor with patches to allow it to use TC12 Linctape. The documentation contains many patches which are also of use to PDP-8 users of the disk/DECtape.

Minimum Hardware: PDP-12, TTY, any disk or Linctape  
Storage Requirement: 4K  
Source Language: PAL-D

## DECUS NO. 12-189

### DECtape Reader Handler for PDP-12

Gotz Romahn, Heinrich Hertz Institut, Berlin, Germany

This handler allows direct reading of DECtapes via the TC12F option. All OS/8 - V3 programs may be used.

Minimum Hardware: PDP-12 with TC12F option and EAE  
Other Programs Needed: OS/8 BUILD  
Restrictions: Possibly will not run on a very slow PDP-12 and a very fast tape drive  
Source Language: PAL-8

## DECUS NO. 12-190

### PDP-12 Functions for OS/8 BASIC

Edward M. Schmidt, Laboratory of Neural Control, National Institute of Neurological Diseases and Stroke, National Institutes of Health, Bethesda, Maryland

This program contains 16 functions for the operation of OS/8 BASIC on a PDP-12. The functions include the clock, analog to digital conversion, sense lines, sense switches, relays, scope, digital input and output, and bit manipulation. The program constitutes the user function overlay provided for in OS/8 BASIC called BASIC.UF.

Minimum Hardware: PDP-12, KW12 clock, Digital input and output registers (optional)  
Other Programs Needed: OS/8 BASIC  
Storage Requirement: 5 octal pages  
Source Language: PAL-8

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