

Table of Contents
(09/29/67)

BA.	Introduction and General Information	
1.	General	
2.	Summary of Multics Technical Policy	07/23/65
3.	MSPM Conventions	05/19/66
4.	Flexowriter Specifications for Multics Documentation	09/09/66
BB.	Standards and Conventions	
1.	Glossary	
2.	System Module Interfaces (PL/I Subset for System Programming)	06/24/66
3.	Standard Media Formats	
.01	Standard Tape Formats	06/02/67
.02	Multics Card Punch Codes	03/30/67
4.	Segment Structure	
5.	External Name Registry	
.00	Multics Name Registry	05/08/67
.01	Reserved Segment Name Suffixes	11/02/66
.02	Reserved External Symbols	03/30/67
.03	Software Simulated Faults	06/07/67
.04	Reserved Option Names	05/09/67
.05	Fault Assignments	02/15/67
.06	Segment Name Registry	01/07/67
.07	Reserved Stream Names	11/01/66
.08	Reserved Condition Names	07/26/67
.08A	Addendum, BB.5.08	08/04/67
6.	Standard Programming Practice	
.01	645 Multics Standard Checksum Procedure	06/02/67
BC.	Hardware	
1.	Equipment Configuration for Multics Operation	
.00	Overview of Equipment Configuration Documentation	
.01	Minimum Configurations and Configuration Restrictions	11/25/66
.02	Major Module Port Assignment	11/25/66
.03	Memory Port Selection and Interface Settings	
.04	Interrupt Cell Assignment	12/06/66

BC.	2.	Character Input/Output	
	.00	Introduction	04/14/67
	.01	Character Set	11/08/66
	.02	Interpretation of ASCII Character Streams	08/11/66
	.03	Erase and Kill Conventions	08/12/66
	.04	Character Escape Conventions	02/24/67
	.05	Requirements for DIM Specifications	01/02/66
	3.	Hardware Deficiencies	
	.00	Purpose of Hardware Deficiency Documentation	03/08/66
	.01	Processor Tag	03/08/66
	.02	Calendar Clock	
	.03	Processor Execution Timer Interrupt	
	.04	Memory Controller Addressing	
	.05	(Blank)	
	.06	Operation-not-complete Fault	
	.07	Magnetic Tape Channels	
	.08	GE Hollerith Character Set Interfaces	
	4.	GIOC Conventions	
	.01	System Initialization and Bootload	06/30/67
BD.		Miscellaneous Supervisor Services	
	1.	The Segment Symbol Table	
	.00	Standard Format for the Segment Symbol Table	02/17/67
	.01	(Blank)	
	.02	The Segment Symbol Table produced by the PL/I Translator	02/21/67
	.02A	Additions to PL/I Segment Symbol Table	06/15/67
	.03	The Segment Symbol Table Produced by EPLBSA	
	2.	Segment Binding	
	.01	Binding Information and Format	08/25/66
	3.	Segment Management	
	.00	Segment Management Module Overview	04/05/67
	.01	The Segment Name Table	05/04/67
	.02	Segment Management Module Primitives	05/05/67
	4.	The Search Module	
	.00	Search Module Overview	03/24/67
	.01	Search Module Driver	
	.02	Search Module Interpreter	

BD.	4	.03 Standard Searching Advice	
		.04 Enforced Searching Advice	
		.05 Interim Search Module	01/03/67
		.05A Appendix for BD.4.05	01/03/67
	5.	Monitoring	
	6.	System Definition	
		.01 Multics System Definition	
		.02 System Skeleton	08/18/66
		.03 Hard-Core Supervisor Entry Points	04/06/67
		.04 Resource Management Library	
		.05 Multics Command and Subroutine Library	
		.06 Local Command and Subroutine Library	
		.07 Community Library	
		.08 System Processes	
		.09 Process Directories	09/27/67
		.10 Process-Group Directories	09/27/67
	7.	Intersegment Linkage	
		.00 Overview	
		.01 Linkage Section	05/18/67
		.01A Appendix to BD.7.01	05/29/67
		.02 Call, Save, Return; Slave	06/30/67
		.03 Call, Save, Return; MM and EO	07/14/67
		.03A Erratum, BD.7.03	08/03/67
		.04 Link_fault	04/27/67
	8.	(Blank)	
	9.	Supervisor Protection	
		.00 Overview of Supervisor Protection	06/27/67
		.01 Wall Crossing: The Gatekeeper	02/20/67
		.01A Corrigenda, BD.9.01	07/12/67
		.02 Outward Call Argument Management	05/03/67
		.03 Inward Call Argument Validation	06/05/67
		.04 Condition Handling in Multics	05/08/67
		.04A Corrigenda, BD.9.04	08/04/67
		.05 Abnormal Returns: The Unwinder	06/30/67
		.06 Get_ring_no	06/05/67
		.07 Hard-Core Supervisor Callout Mechanism	
	10.	Clocks	
		.01 Clock Services provided by the Supervisor	02/28/66
		.02 System Time Conversion Procedure	03/04/66
		.03 Calendar Clock Wakeup Management	11/01/66
		.04 Basic Execution Meter	
		.05 Execution Meter Coordinator	
	11.	Mail	

BE. Development Tools

1. The Use and Maintenance of EPL in CTSS
 - .01 Use of the EPL compiler in CTSS 01/04/67
 - .02 Processing EPL "macros" with EPLMAC 01/05/67
 - .03 Print the three files created by an EPL Compilation (old BN.3.03) 07/13/66
 - .04 EPL Compilations on CTSS FIB (old BN.3.05) 07/05/66
2. The Use and Maintenance of EPL in the Pre-Multics System
3. 645 Segment Dump 06/15/67
4. Development Tools Segment Library
5. 6.36 System
 - .00 Overview of the 6.36 System 02/08/66
 - .01 Introduction to GECOS 02/10/66
 - .02 Merge-editor 12/30/66
 - .03 Error Message Generator 02/18/66
 - .04 6.36 Dumper 06/14/66
 - .05 GIOC Interface Module Debugging Aids 05/05/67
 - .06 GEBUG 03/02/66
 - .06A Addendum to BE.5.06 05/22/67
 - .07 EDA 12/09/66
 - .08 Character Escape Conventions for IBM 026 Key punches 12/28/66
 - .09 Operators Guide to the 6.36 System (old BE.5.05) 10/22/65
 - .10 Print ASCII File 03/11/66
 - .11 RQASCI 06/23/66
 - .12 Special Segment Generation 03/31/67
 - .13 JOIN SAVED 03/30/67
 - .14 Print Out Links in Text and Link File
6. 64.5 System
 - .00 Overview of the 64.5 System 08/16/66
 - .01 64.5 Driver 09/07/66
 - .02 Dumper 03/10/66
 - .03 Operators Guide to the 64.5 System
 - .04 Source Cards to CTSS 09/27/66
7. Pre-Multics System
 - .00 Overview of the Pre-Multics System 06/09/67
 - .01 Initializer 03/02/66
 - .02 Interim Tape Writer
 - .03 EPL Symbol Table Pseudo-Operations
 - .04 Use and Maintenance of EPLBSA in the Pre-Multics System
 - .05 Packer 03/02/66
 - .06 Marker 02/25/66
 - .07 Loader 12/09/66
 - .07A Appendix to BE.7.07 07/21/67

BE.	7	.08 Simulator	03/09/66
		.08A Appendix to BE.7.08	05/18/67
		.09 Operators Guide to the Assembly and Simulation System	
		.10 645 Simulator Escape	11/02/66
		.11 645 Segment Library Editor	10/25/66
		.12 Execution Environment for 645 Pseudo-Process	02/07/67
		.13 Use of GIOC in a 645 Pseudo-Process	
	8.	Pseudo-supervisor	
		.00 Overview	10/13/66
		.01 Linker	10/13/66
		.02 Page Management	10/13/66
		.03 Segment Management	10/13/66
		.04 Linkage Building	10/13/66
		.05 Pseudo Process Initialization	07/24/67
	9.	Use of the Multics Linker	06/05/67
	10.	Pseudo-file System	
		.01 Elementary File System	06/10/66
		.02 Elementary File System Print Routines	06/30/66
		.03 Foreign Files	06/28/66
	11.	On-line Character Stream I/O	12/21/66
	12.	Run Time Debugging Aids	
		.01 Trace and Dump for EPL Procedures	04/08/66
	13.	GE 645 Core Memory X-Ray Program	11/22/66
	14.	Interim File Loader Dumper	
	15.	System Tape Generator	
		.01 Multics Bootload Simulator (MBS)	02/28/67
BF.	I/O	Control System	
	0.	Overview of the I/O System	12/28/66
	1.	User Interface Module	
		.00 Overview of I/O System User Calls	08/14/67
		.01 Attachment and Detachment of Input/Output Devices and Pseudodevices	09/19/66
		.02 I/O System Modes and Device-Mode Relationships	04/21/67
		.03 The Attachment Graph	
		.04 Input/Output System Synchronization Modes	03/01/67
		.05 Code Conversion	08/14/67
		.06 Device Format Specification	
		.07 Basic I/O System Orders	
		.08 I/O Path Tracing	
		.09 I/O System Alteration	

BF. 1	.10	Frames, Items, and the Current Item Number	08/31/66
	.11	Linear Frames	08/31/66
	.12	Sequential Linear I/O	08/31/66
	.13	Random Linear I/O	08/31/66
	.14	Logical Record Frames	08/31/66
	.15	Sequential Logical Record I/O	08/31/66
	.16	Random Logical Record I/O	09/02/66
	.17	Handling Logical Records as Linear Frames	
	.18	Frames with Complex Structure	09/02/66
	.19	Representation of Data on Detachable Media	
	.20	Advanced Input and Deferred Output	
	.21	I/O Status Returns	
	.22	I/O System Callout Mechanism	
	.23	Default I/O Exception Handling	
2.	I/O	System Internal Structure	
	.01	(Blank)	
	.02	(Blank)	
	.03	Summary of Initial I/O System	
	.04	(Blank)	
	.05	Device Manager Flow-of-Control	
	.06	The I/O Status Update Dispatcher	
	.07	Internal Synchronization Management	
	.08	(Blank)	
	.09	(Blank)	
	.10	Overview of the Switching Complex	03/01/67
	.11	The I/O Switch	
	.12	The Not-Founder	
	.13	The Attachment Table Maintainer	
	.14	The Type-Table Maintainer	
	.15	The Entry-Point Vector Maker	
	.16	Internal Description of the I/O Callout Mechanism	
	.17	The Status Allocator	
	.18	The I/O Process-Jumper	
	.19	(Blank)	
	.20	Data Base and Transaction Block Discipline	08/14/67
	.21	(Blank)	
	.22	The I/O Registry	08/14/67
	.23	The Attachment	08/14/67
	.24	The Working-Process	08/14/67
	.25	The Dispatcher	08/14/67
	.26	The I/O Device Assignment Module	08/14/67
	.27	I/O System Mode	08/14/67
3.	Overview	of the Registry Files	
	.01	(Blank)	

BF.	3	.02 (Blank)	
		.03 (Blank)	
		.04 (Blank)	
		.05 Use of the I/O System	08/14/67
		.06 (Blank)	
		.07 (Blank)	
		.08 (Blank)	
		.09 (Blank)	
		.10 The I/O Device Assignment Module	02/17/67
4.	File System I/O		
	.01 The File System Interface Module		
	.02 Multi-Segment Files		
	.03 The Segment Interface Module		
5.	Unit Record Device I/O		
	.01 Overview of Line Printer Output		01/13/67
	.02 The Line Printer Driver		
	.03 The Pseudoprinter DIM		
	.04 The Printer Interface Module		01/13/67
	.05 (Blank)		
	.06 The Interim PRT202 DIM		08/07/67
	.07 (Blank)		
	.08 Overview of Card Reader I/O		
	.09 (Blank)		
	.10 (Blank)		
	.11 (Blank)		
	.12 (Blank)		
	.13 (Blank)		
	.14 (Blank)		
	.15 (Blank)		
	.16 Overview of Card Punch I/O		
6.	Overview of Tape I/O		
	.01 (Blank)		
	.02 Standard Tape Device Control Module		07/26/67
	.03 (Blank)		
	.04 (Blank)		
	.05 (Blank)		
	.06 (Blank)		
	.07 (Blank)		
	.08 (Blank)		
	.09 (Blank)		
	.10 Interface Specifications for the Tape Controller Interface Module		01/27/67
7.	Overview of Datadisc I/O		
8.	The Logical Record Formatter		
9.	(Blank)		
10.	Input-Output Code Conversion		
	.00 An Overview of Input-Output Code Conversion		08/07/67
	.01 Input Code Conversion		08/14/67

- BF. 11. Overview of Typewriter Input/Output
 - .00 Overview of Typewriter Input/Output 02/27/67
 - .01 Responses to Outer Calls
 - .02 Intermodule Outer-Call Flow and Responses
 - .03 The Typewriter UDT
 - .04 Code Conversion During Typewriter I/O; The CCMs
 - .05 The Typewriter DSM
 - .06 The Typewriter DCMs
 - .07 The Typewriter DSIMs
 - .08 (Blank)
 - .09 (Blank)
 - .10 Required Typewriter Options and Features
 - .11 Required Data Set Options
 - .12 GIOC Typewriter Adapter Options
- 12. Overview of Communication Line I/O
 - .01 Responses to Outer Calls
 - .02 Attachment and the Communication UDT
 - .03 The Communication DCM
 - .04 The Communication DSIMs
 - .05 (Blank)
 - .06 (Blank)
 - .07 (Blank)
 - .08 (Blank)
 - .09 (Blank)
 - .10 Required Data Set Options
 - .11 GIOC Communication Adapter Options
- 13. (Blank)
- 14. (Blank)
- 15. (Blank)
- 16. (Blank)
- 17. (Blank)
- 18. (Blank)
- 19. Development Tools
 - .01 The I/O Stub
 - .02 The Outer Driver
 - .03 The GIM Stub
 - .04 The GIM Driver
- 20. Overview of the GIM
 - .00 Overview of the GIOC Interface 12/28/66
 - .01 DCM/GIM Interface Specifications 07/11/67
 - .02 Summary of the Internal Structure of the GIM 07/19/67
 - .03 Summary of GIM Calls and Data Bases 05/05/67
 - .04 Summary of GIM Internal Calls 07/11/67

BF. 20	.05	Errors detected by the GIOC Interface Module	07/12/67
	.06	Generation of the Class Driving Tables using the I/O Table Compiler	08/04/67
	.07	Generation and Usage of the Change List Structures using the I/O Command Translator	08/03/67
	.08	Internal Structure of the IOCT and IOTC	08/03/67
	.09	GIM - Basic Concepts	07/19/67
	.10	GIM - Setup and Housekeeping	07/19/67
	.11	GIM - List Editing and Activation	07/19/67
	.12	GIM - Interrupt Handling and Status Requests	07/19/67
	.13	GIM - Miscellaneous	07/19/67
BG.		The Basic File System	
	0.	Overview of the Basic File System	12/13/66
	1.	The Known Segment Table	01/17/67
	2.	The System Segment Tables	03/04/67
	3.	Segment Control	
	.00	Introduction to Segment Control	05/19/67
	.01	The System Interface Module	05/24/67
	.02	The User Interface Module	05/24/67
	.03	The Process Load Module	05/24/67
	.04	The Segment Utility Module	05/24/67
	.05	Ring Register Simulation	05/25/67
	4.	Page Control	06/03/66
	5.	The Core Map	06/07/67
	6.	Core Control	
	.00	Core Control	06/07/67
	.01	The Cartologer	06/06/66
	.02	The Allocator	06/06/66
	.03	The Replenisher	06/07/67
	.04	The Contiguator	06/07/67
	.05	The Ranker	06/07/67
	.06	The Parametizers	06/07/67
	7.	The Directory Data Base	
	.00	Directory Data Base	08/04/67
	8.	Directory Control	
	.00	Directory Control (Summary)	01/27/67
	.01	Directory Maintainer	07/14/67
	.02	Directory Supervisor	07/14/67
	.02A	Errata, BG.8.02	08/04/67
	.03	Directory Supervisor, Special User Primitives	07/14/67

BG.	8	.04 Directory Supervisor, System Primitives	07/14/67
		.04A Errata, BG.8.04	08/04/67
	9.	Access Control	12/28/66
	10.	File System Device Interface Modules	
		.00 DIM Overview (old BG.15)	06/27/66
		.01 The I/O Queues	
		.02 The DIM Driver	
		.03 DIM Control	
		.04 The Request Initiator	
		.05 The Read Module	
		.06 The Write Module	
		.07 The Truncate Module	
		.08 The Cleanup Module	
		.09 DIM History Management	
		.10 Device Dependent Modules	
	11.	The Drum Interface Module	
		.01 Free Storage Management	
		.02 I/O Command Management	
		.03 Drum Queue Management	
	12.	The Disc Interface Module	
	13.	The Race Interface Module	
	14.	Summary of Calls within the Basic File System	12/20/66
	15.	Interlocking and Blocking in the Basic File System	
		.00 Locking and Blocking (Summary) (old BG.18.00)	05/27/66
		.01 The Process Wait and Notify Module (old BG.18.01)	06/03/66
		.02 Interlocking Routines (old BG.18.02)	06/08/66
	16.	File System Conventions	
	17.	Service Routines	
		.01 Drum Utility Module	09/27/67
BH.		The Backup and Multilevel System	
	0.	Summary of the Backup and Multilevel System	08/18/66
	1.	Multilevel Storage Management	
		.01 Move Control Module	10/31/66
		.02 Multilevel Storage Monitor	10/28/66
		.03 Retrieval Process	
		.04 Consolidation Process	
	2.	Dumping Processes	
		.00 Summary of the Dumping Processes	12/23/66

BH.	2	.01 Incremental Dump Decision Module	12/16/66
		.02 System Checkpoint Dump Decision Modules	12/16/66
		.03 User Checkpoint Dump Decision Module	12/16/66
		.04 Single Segment Dumper	
	3.	Reloading Processes	
		.01 The Hierarchy Reconstruction Process	12/23/66
		.02 The Secondary Storage Reload Process	12/23/66
	4.	Detachable Storage I/O	
		.01 The Dumping I/O Process	01/06/67
		.02 The Reload I/O Process	01/04/67
		.03 Tape Formats For Backup	01/12/67
BJ.		The Traffic Controller	
	0.	Overview of Traffic Control	02/23/67
	1.	Traffic controller data bases	
		.00 Overview of Traffic Controller Data Bases	08/03/67
		.01 The Active Process Table	07/20/67
		.02 The Ready List	07/19/67
		.03 Process Data Segment	
		.04 Process Data Block	03/15/67
		.05 Process Concealed Stack	
		.06 Process Definitions Segment	
		.07 Process Definitions Block	
	2.	Process Control	
		.00 Overview of Process Creation and Activation (Old BJ.1.00)	02/20/67
		.01 Process Creation and Deletion	
		.02 Activation and Deactivation	
	3.	Process Exchange	
		.00 Overview	12/07/66
		.01 Block	11/30/66
		.02 Wakeup	11/30/66
		.03 Quit	11/30/66
		.04 Restart	11/25/66
	4.	Processor Scheduling and Dispatching	
		.00 Overview of Scheduling and Dispatching	01/30/67
		.01 The Scheduler	
		.02 The Dispatcher (getwork)	02/06/67
		.03 The Initial Scheduler	07/19/67
		.04 The Initial Dispatcher	
		.05 The Initial Ready List	07/19/67

BJ.	5.	Process Switching	
	.00	Overview of Process Switching	03/20/67
	.01	Swap_dbr	03/24/67
	.02	Ready-him	03/24/67
	.03	Process Bootstrap Module (Old BJ.5.02)	09/27/66
	.04	LDBR Procedure	03/23/67
	.05	Subroutine Overlay	03/24/67
	.06	Process Templates	
	6.	Coordination of Traffic Controller Modules	
	7.	Miscellaneous Utility Modules	
	.01	Traffic Control Interlock	
	.02	APT-Hash Table	07/19/67
	.03	Process Id Generator	06/16/67
BK.		Processor Management	
	0.	Overview of Processor Management	10/13/66
	1.	Processor Management Tables	
	.01	Processor Data Segment	06/02/66
	.02	Processor Data Block	03/10/67
	.03	The Processor Stack	06/02/66
	.04	Fault and Interrupt Vector	07/20/67
	2.	Interrupts	
	.01	Overview of Interrupt Handling	11/10/66
	.02	Interrupt Interceptor	01/31/67
	.03	Drum Interrupt Handler	01/23/67
	.04	GI0C Interrupt Handler	05/08/67
	.05	Calendar Clock Interrupt Handler	01/23/67
	.06	Process Interrupt Handler	08/24/67
	3.	Faults	
	.01	Overview of Fault Handling	09/13/66
	.02	User/System Fault Breakdown	09/13/66
	.03	The Fault Interceptor	09/13/66
	.04	Catastrophe Module	
	.05	(Blank)	
	.06	Page/Segments Fault Handler	09/13/66
	.07	Timer Runout Fault Handler	09/13/66
	.08	Connect Fault Handler	09/13/66
	.09	Other System Fault Handlers	
	4.	System Hardware Control	
	.00	Overview of System Hardware Control	
	.01	System Communication Segment (Old BK.1.04)	06/02/66
	.02	Controller Addressing Segment	09/27/67
	.03	Clock Addressing Segment	
	.04	Major Module Configuration Table	

BK. 5.	Master Mode Hardware Control Routines	
	.00 Overview - Master Mode Utility Routine	06/12/67
	.01 Interrupt Mask Procedure	06/15/67
	.01A Appendix to BK.5.01	06/28/67
	.02 Connect Procedure	09/28/67
	.03 Set alarm	
	.04 Set call	
	.05 Connect Generator Procedure	
BL.	System Initialization	
	0. Overview of System Initialization	04/28/67
	1. Multics System Tape	
	.01 Format	03/21/67
	.02 Contents	
	.03 Tape Generator Program	
	.04 System File Directory	
	2. Segment Loading Table	
	.01 Segment Loading Table	03/29/67
	.02 Segment Loading Table Manager	04/10/67
	3. System Configuration Table	
	.01 Major Module Configuration Table Initializer	
	.02 System Communication Request Initializer	09/28/67
	.03 Configuration List Editor	
	4. Bootstrap Initializer	
	.00 Bootstrap Initializer--Overview	03/25/67
	.01 Bootstrap Initializer--Part 1	03/24/67
	.02 Bootstrap Initializer--Part 2	03/27/67
	5. Multics Initializer	
	.00 Overview of Multics Initializer	04/28/67
	.01 Initializer Control Program	05/01/67
	.02 Fault Handling during Initialization	05/26/67
	.03 Interrupt Handling during Initialization	06/15/67
	.04 Process Exchange during Initialization	06/30/67
	6. Segment Loader	
	.01 Segment Loader	03/17/67
	.02 Tape Reader	
	.03 Initializing Core Manager	04/10/67
	7. Initialization Linkage	
	.01 Initialization Linker	04/05/67
	.02 Pre-link Module	04/04/67
	.03 Initialization Datmk_	04/05/67
	8. I/O System Initialization	08/17/67

BL.	9.	Fault and Interrupt Initialization	
	.01	Fault Initializer	04/10/67
	.02	Interrupt Initializer	05/10/67
	10.	File System Initialization	
	.00	File System Initialization (Introduction)	04/21/67
	.01	Part 1	04/24/67
	.02	Part 2	04/24/67
	.03	Part 3	04/24/67
	.04	File System Device Configuration Table	04/27/67
	11.	Traffic Controller Initialization	04/24/67
BM.		System Operation	
	1.	Overview	
	2.	System Operator Actions	
	.01	System Operator Actions	
	.02	System Operator Responsibility	
	3.	Operation of Detachable Devices	
	.01	Detachable Device Registry	
	.02	Detachable Device Operator	
	4.	System Logs	
	.01	On-line Log	
	.02	System Operation Log	
	.03	User Log	
	.04	Trouble Log	
	.05	Secondary Storage Backup Log	
	5.	Record Equipment Operation	
	.00	Overview	
	.01	Printed Output	
	.02	Card Output	
	.03	Card Input	
	6.	Encapsulated GECOS	
	7.	Computer to Computer File Transfer	
BN.		The EPL Compiler	
	0.	Overview	
	.00	EPL Compiler Documentation	06/21/67
	1.	Use and Maintenance of EPL in Multics	
	2.	Pass 1	
	.01	Program Description	
	.02	Descriptor of Macro Calls Produced by Pass 1	01/26/67
	3.	Pass 2	
	.01	Program Description	
	.02	Description of EPLBSA Code Produced by Pass 2	02/24/67

BN. 4.	TMG and TMGL	
	.00 TMG Overview	03/07/67
	.01 How to Create and Use a TMGL Compiler	02/24/67
	.02 TMGL	04/17/67
	.02A Index and Errata for BN.4.02	05/12/67
5.	Global Strategies in EPL	
	.00 Overview of Global Strategies	03/04/67
	.01 Implementation of EPL Blocks	03/07/67
	.02 Implementation of <u>on</u> -Conditions in EPL	06/02/67
6.	Local Strategies in EPL	
	.00 Overview of Local Strategies	
	.01 Overall Program Organization	
	.02 Declarations and Data Organization	03/09/67
	.03 Expression Evaluation	
	.04 The <u>begin</u> , <u>procedure</u> , and <u>entry</u> Statements	05/08/67
	.05 The <u>do</u> Statement	05/19/67
	.06 The <u>if</u> Statement	05/18/67
	.07 The <u>on</u> , <u>signal</u> , and <u>revert</u> Statements	
	.08 Miscellaneous Statements (<u>allocate</u> , <u>call</u> , <u>free</u> , <u>goto</u> , and <u>assignment</u>)	
7.	The EPL Run-Time Library	
	.00 The EPL Run-Time Library	08/04/67
	.01 tdope_	04/27/67
	.02 varst_	03/08/67
	.03 synep_	03/07/67
	.04 bool_	06/01/67
	.05 substr_	03/04/67
	.06 trap_	
	.07 hbound_, lbound_	03/04/67
	.08 datmk_	09/29/67
	.09 stgop_ (Supersedes BN.7.04 dated 03/11/67)	06/01/67
	.10 movstr_	06/01/67
	.10A Erratum for BN.7.10	08/04/67
	.11 andstr_	06/01/67
	.11A Erratum for BN.7.11	08/04/67
	.12 strcmp_	06/01/67
	.12A Erratum for BN.7.12	08/04/67
	.13 index_	06/01/67
	.13A Erratum for BN.7.13	08/04/67
	.14 catstr_	06/01/67
	.14A Erratum for BN.7.14	08/04/67
	.15 size	08/17/67

BN.	8.	EPLBSA (Old BE.7.04)	03/01/66
	9.	Efficient Use of EPL	
		.00 A Programmer's Guide to Efficient Use of EPL	05/05/67
		.01 The Efficient Accessing of Data	05/05/67
		.01A Appendix to Section BN.9.01	05/05/67
		.02 Conditions that Necessitate Dope	05/05/67
B0.		Resource Usage Accounting and Administration	
	0.	Overview of Resource Usage Accounting and Administration (old B0.2.00)	10/10/66
	1.	Resource Expenditure Metering	
		.00 Overview of Metering (old B0.3.00)	10/28/66
		.01 Processor Usage Metering (old B0.3.01)	10/31/66
		.02 Core Residence Metering (old B0.3.02)	12/07/66
		.03 File System I/O Traffic	
		.04 General I/O Traffic	
		.05 Dedicated Resource Use	02/20/67
		.06 Secondary Storage Residence (old B0.3.06)	10/21/66
		.07 Active Meter Table	
	2.	Accounting Data Collection	
		.01 Update Accounting	
		.02 The Account Data Segment	
		.03 The Page-Accounting System Process	
		.04 The Secondary-Storage-Accounting System Process	
	3.	Pricing and Operating Policy	
		.01 System Pricing Routines	
		.02 Signon	
		.03 Out_of_Funds	
		.04 Account Status	
		.05 Transfer_Funds	
		.06 Pool Files	
		.07 The Accounting-Transactor Interface	
	4.	Billing and Administration	
		.01 Billing Procedure	
		.02 Auditor	
		.03 External Accounting	
		.04 Allocate_Resources	
		.05 Administrative Records	
	5.	Transfers of Resource Allotments	
		.00 Overview	
		.01 Resource Transfer Procedure	

BO.	6.	Accounting Adjustments	
	.00	Overview	
	.01	Complaint Frame	
	.02	Complaint Collection Procedure	
	.03	Complaint Adjustment Procedures	
	7.	Auditing Trails	
BP.		Specifications for the Multics PL/I Compiler	
	0.	Multics PL/I Compiler; General Specifications	
	.00	Summary of Multics PL/I Compiler Specifications	11/22/66
	.01	PL/I Implementation Dependent definitions	11/08/66
	.02	Changes to the PL/I Language	11/09/66
	.03	Special Built-In Functions	11/16/66
	.04	Multics Subroutine Calls Useful to the PL/I Compiler	
	1.	Dictionary of Run Time Routines	
	2.	Data Representation and Referencing	
	.01	Data Representation	11/10/66
	.02	Accessing, Specifiers, and Dope	11/10/66
	3.	Blocks and Internal Procedures	
	.00	Implementation of PL/I Blocks	06/16/67
	.01	Synthetic Epilogue Procedure for PL/I	
	4.	Storage Classes and Management	
	.00	Implementation of PL/I Storage Classes	11/17/66
	.01	Data Segment Grower (datmk_)	11/17/66
	.02	Procedures for Dynamic Storage Management	11/18/66
	5.	On Condition Handling	
	.00	Handling of On-Conditions	
	.01	Standard Trap Cells	
	.02	Standard Fault Cells (Overflow, Divide Check, Null Pointer)	
	.03	Programmer Defined Conditions	
	6.	String Manipulation	
	.01	PL/I String Operations	11/21/66
	.02	The <u>Substr</u> Built-In Function and Pseudo-Variable	11/22/66
	7.	Input-Output	
	8.	Math Library	
	9.	Miscellaneous PL/I Statements	11/21/66

BQ.	System Control	
0.	Overview of System Control	02/09/67
1.	System Processes	
	.01 System Control Procedure	
	.02 List of System Processes	04/21/67
	.03 Phase one System Control Procedure	
2.	User Control	
	.00 Overview and Terminology	
	.01 Answering Service Procedure	06/15/67
	.02 Communications Line Management Module	
	.03 User Control Processes	07/07/67
	.04 Absentee Monitor Process	
3.	User Process Groups	
	.00 Overview	
	.01 Overseer Procedure	07/11/67
	.02 Absentee User Process Groups	
	.03 Stop Procedure	08/24/67
	.04 Start Procedure	
	.05 Save and Resume	
4.	User Identification Data Bases	
	.00 Overview	05/26/67
	.00A Appendix to BQ.4.00	07/07/67
	.01 Dedicated Console List	05/31/67
	.01A Changes, BQ.4.01	09/26/67
	.02 Personnel List	05/31/67
	.02A Changes, BQ.4.02	09/26/67
	.03 User Profile	05/29/67
5.	System Load Control	
	.01 Process Group Ranking	
	.02 Ranking Policy	
	.03 Load Control Module	
6.	Interprocess Communication	
	.00 Overview of Communication	07/20/67
	.01 How to use the Interprocess Communication Facility	07/21/67
	.02 Summary of Calls to Interprocess Communication	07/21/67
	.03 Events and Event Channels	07/24/67
	.04 Event Channel Manager	07/27/67
	.05 Interprocess Group Event Channel Manager	07/25/67
	.06 Wait Coordinator	07/27/67
	.07 Device Signal Table Manager	07/27/67
	.08 The give-call facility	08/07/67
	.09 Event Channel Manager Primitives and Channel Access Techniques	
	.10 Interprocess Communication Utility Package	
7.	Shared Data Interlocking	

BR.	The Test and Diagnostic System	
0.	Overview	
	.00 Overview of Test and Diagnostic Documentation	11/25/66
	.01 Test and Diagnostic Philosophy	12/06/66
1.	The Initial Test and Diagnostic System	
	.00 Overview of Off-Line Test and Diagnostic System	11/30/66
2.	On-Line Test and Diagnostic Operation	
	.00 Overview of On-Line Test and Diagnostic Operation	12/06/66
BT.	Dedicated Resource Management	
0.	Overview of Management	03/04/67
1.	Resource Assignment	
	.00 Overview of Assignment	
	.01 Assigner	
	.02 Permission Files	
	.03 Assignment Log	
2.	Detachable Media Management	
	.00 Overview of Management	
	.01 Media Manager	06/16/67
	.02 Media Status Tables	
3.	Reservations	
	.00 Overview of the Reserver	06/09/67
	.01 Summary of Reserver Calls	06/16/67
	.02 Reserver Implementation Plan	06/26/67
4.	Dedication of Shared Resources	
	.01 Multilevel Storage	
	.02 Control of Response Quality	
	.03 I/O Channel Capacity	
	.04 Shared Resource Usage Prediction	
BX.	Commands	
0.	Philosophy and Standards	
	.00 Overview: Use of Commands in Multics	03/04/67
	.01 Standards for Command Writing	01/06/67
1.	Multics Command Language	
	.00 Multics Command Language	09/15/66
	.00A Appendix for BX.1.00	12/09/66
	.01 Macro Facility for Command Language	01/09/67
2.	The Listener and the Shell	
	.00 The Shell	05/26/67
	.01 Shell Punctuation Characters	12/07/66
	.02 Listener Procedure	07/07/67

BX. 3.	User Process Control	
	.01 Login, Prolog	
	.02 Password	
	.03 Subsystem	
	.04 Logout	
	.05 Save, Resume	
	.06 Quit	
	.07 Absentee	
	.08 Change Login ID	
	.09 Quit_absentee	
4.	EPL	
5.	EPLBSA	
	.00 EPLBSA Overview	
	.01 EPLBSA Expressions and Literals	
	.02 EPLBSA Pseudo-operations	
	.03 EPLBSA Machine Operations	
	.04 EPLBSA Multiple Location Counters and Multi-Segment Assembly	09/08/67
	.05 EPLBSA Under the Environment of Multics	
6.	FORTRAN IV	
7.	FL/I	
8.	File System Commands	
	.00 Overview	01/27/67
	.01 List	12/09/66
	.02 Access Control Modification	04/10/67
	.02A Appendix for BX.8.02	04/27/67
	.03 Listacl	04/07/67
	.04 Link	06/01/67
	.05 Make_dir, Make_branch	12/21/66
	.06 Rename, Addname, Delname	12/08/66
	.07 Delete	06/01/67
	.08 Truncate	
	.09 Move_entry	12/13/66
	.10 Move_file	
	.11 Map_dir	05/11/67
	.12 Working Directory Table Commands	
	.13 Relate, Unrelate	
9.	File Printing and Editing	
	.01 Context Editor	08/03/66
	.02 Printing a File in ASCII or Octal	02/18/66
	.03 Request	
10.	Debugging Aids, General	
	.00 Interactive Debugging Aids	06/07/66
	.01 Probe	06/07/66
	.02 Tracer	06/07/66
	.03 Breaker	06/07/66
	.04 Monitor	06/07/66

- BX. 11. Documentation
 - .01 (Blank)
 - .02 Describe
 - .03 Mail
 - .04 Get_mail
- 12. System Options
 - .00 The Use of Options in Multics 01/18/67
 - .01 Representation of Options 01/26/67
 - .02 Option, Delopt, Printopt 01/23/67
- 13. Using the Search Module
 - .00 User Search Control 01/18/67
 - .01 Search Module Vocabulary 01/26/67
 - .02 Checkrule
 - .03 Enforce
- 14. Segment Binding
 - .01 The Binder 12/28/66
 - .02 Elimination of Intra-Segment Links in Bound Segments 06/19/67
- 15. Operator Commands
 - .01 Answering Service
 - .02 Media
- 16. Reservation Commands
- 17. Using GECOS Programs in Multics
 - .00 Using GECOS programs in Multics 08/24/67
 - .01 GECOS segment loader for Multics 08/24/67
 - .02 GECOS master-mode entry simulator 08/25/67
 - .03 Using GMAP in Multics
 - .04 Using the GECOS version of FORTRAN IV in Multics
- 18. Command Language Macros
 - .00 Overview
 - .01 Macro Processor
 - .02 Macro Command
 - .03 Macro_arg, Create Control Commands
 - .04 Iterate Control Command
 - .05 Conditional Control Command
 - .06 Setvalue, Value Control Commands
 - .07 Include, End_include Control Commands
 - .08 Concatenate Control Command
- 19. System Maintenance Commands

BY.	Library	
0.	Standards for System Library Procedures	01/06/67
1.	Standard Math Routines	
2.	File System Routines	
	.00 Overview	01/25/67
	.01 File System Interface	03/28/67
	.02 Decode Basic File System Error Code	
	.03 Deltree	04/03/67
	.04 Preparation of Path Names and Entry Names Acceptable to the File System	03/31/67
	.04A Appendix for BY.2.04	04/11/67
	.05 Return the Path Name of a Users Working Directory	03/04/67
	.06 Maplevel	05/12/67
	.07 Get_count, Set_count	03/31/67
	.08 Interpreting the * Convention (Old BY.2.02)	04/14/67
3.	Segment I/O Routines	
	.01 Character String I/O for Segments	06/23/67
4.	Console I/O Routines	
	.01 Request Handler for Interactive Programs	
	.02 User I/O Procedures to Read and Write (Old BY.3.01)	03/31/67
	.03 I/O System Error Handling	
5.	User Control Library Procedures	
	.01 Create Working Process	
6.	Routines Used by Interactive Debugging Aids	
	.00 Library Procedures Used by the Interactive Debugging Aids	09/28/66
	.01 Request Dispatcher	09/28/66
	.02 Symbol Table Routines	01/13/67
	.03 Syntax Analyzer for the Debugging Language	09/30/66
	.04 Expression Evaluator	10/07/66
	.05 "Left-Hand" Expression Evaluator	10/11/66
	.06 Event-Watchers	09/28/66
7.	Data Conversion Routines	
8.	String Manipulation Routines and Data	
	.01 Symbolic Reference to Non-Graphic Character Constants	11/25/66
	.02 Symbolic Reference to Unavailable Graphic Character Constants	11/25/66

BY. 9.	Option Handling Procedures	
	.01 Procedures to Check Options	01/06/67
	.02 Procedures to Push and Pop the Options Stack	01/06/67
	.03 Procedures to Set Options	01/06/67
	.04 Procedures to Obtain Option Stack Status	01/16/67
	.05 Procedures to Add and Delete Options	01/06/67
	.06 (Blank)	
	.07 (Blank)	
	.08 (Blank)	
	.09 (Blank)	
	.10 Phase I Option Procedures read_opt and read_global	12/08/66
10.	Extensions to PL/I	
	.01 "Entry Variables" in PL/I	09/28/66
	.02 Length Functions for PL/I Strings	06/23/67
	.03 Production of the Non-Varying Equivalent of a String	06/23/67
11.	Error Handling Routines	
	.00 Overview	05/26/67
	.01 Seterr	05/26/67
	.01A Appendix to BY.11.01	06/30/67
	.02 Geterr	05/26/67
	.03 Delerr	05/26/67
	.04 Printerr	05/26/67
	.05 Unclaimed_signal	08/07/67
12.	Supervisor Service Procedures	
	.01 Who_called	08/21/67
	.02 Get_level, set_level	07/18/67
	.03 Signal	07/18/67
	.04 Condition	07/18/67
	.04A Addendum, BY.12.04	08/04/67
	.05 Reversion	07/18/67
	.06 Unwinder	07/18/67
	.07 Get_ring_no	07/19/67
	.08 Find_condition	07/19/67
	.09 Validate_arg	07/19/67
	.10 Get_sp	
13.	Linkage Segment Maintenance Procedures	
	.00 Overview	
	.01 Forcing a Link	
	.02 Generate_ptr	06/05/67
	.03 Link_change	07/07/67
	.04 Remove Definition	

- BY. 14. Relative Pointer Manipulation Procedures 01/06/67
- 15. System Utility Procedures
 - .01 Generating Unique Identifiers 07/07/67
 - .02 Time Conversion 05/03/67
 - .03 Formatted Time Conversion 05/03/67
- 16. Storage Management Procedures
 - .01 allocate_, freen_, areamk_

<u>Old Number</u>	<u>(Date)</u>	<u>New Number</u>
BE.5.05	10/22/65	BE.5.09
BG.18.00	05/27/66	BG.15.00
BG.18.01	06/03/66	BG.15.01
BG.18.02	06/08/66	BG.15.02
BG.15	06/27/66	BG.10.00
BN.3.03	07/13/66	BE.1.03
BN.3.05	07/05/66	BE.1.04
BO.2	10/10/66	BO.0
BO.3.00	10/28/66	BO.1.00
BO.3.01	10/31/66	BO.1.01
BO.3.02	12/07/66	BO.1.02
BO.3.06	10/21/66	BO.1.06
BJ.5.02	09/27/67	BJ.5.03
BY.3.01	03/31/67	BY.4.02
BQ.6.01	03/13/67	BQ.6.02
BJ.1.00	02/20/67	BJ.2.00
BE.7.04	03/01/66	BN.8
BY.2.02*	04/14/67	BY.2.08

*Change since last issue dated 8/23/67