J. H. L.

R. C. Daley August 29, 1969

Notes on Equipment List in GE Counterproposal of August 22, 1969

- 1. An additional active unit port (OPT802) is required for both memory controllers on the B system to allow configuration with the augmentation equipment.
- 2. One High Performance Channel (HPC600) is provided free with the GIOC and is sufficient to run one channel of the Dual Tape Controller (MTC404). The additional HPC would be required to run DSU270's but then we would also release the Direct Disc Adapter (DDA600).
- 3. Provision is made for only 3 ARDS terminals instead of 6. To support 6 ARDS, another Character Asynchronous Adapter (CAA600) and 3 additional Character Asynchronous Channels (CAC600) are needed.
- 4. The present service machine has 8 (instead of 6) Typewriter Channel Groups (TTC600) and 8 (instead of 6) Typewriter Group Extensions (TTL600). This arrangement allows for 64 typewriter lines and is compatible with our current data phone configuration.
- 5. The Direct Disc Adapter (DDA600), the Disc Controller (DSC11F) and the 2 Disc Files (DSU10F) should be replaced with the following DSU270 Disk equipment already on order.
 - 1 DSC270 Disk Controller
 - 3 DFE270 Disk File Electronics
 - 15 DSU270 Disk Storage Units

- 6. It is not stated whether the processor and GIOC provided in the augmentation equipment is Phase A or Phase B equipment (Phase B is clearly preferable).
- 7. An additional 128K of memory is needed if it is desired to provide a full duplex system. If this is desired, GE can make use of the 64K of memory and controller which is currently on site but not currently on rent.
- 8. If the DS10 Disk equipment is replaced by DSU270 Disk equipment on the B system, then the DSU10F listed in the augmentation equipment list should also be replaced by five additional DSU270 Disk Storage Units and an additional DFE270 Disk File Electronics unit. In addition, the Direct Disk Adapter (DDA600) may be removed from the augmentation GIOC.
- 9. A total of 6 active unit ports (OPT802) (2 are provided at no charge) are required on the augmentation memory controller to allow configuration of the full system.
- 10. The GIOC in the augmentation list is not configured either as a backup unit for Multics service or as a development GIOC for use in a partitioned machine used for checkout of new systems. (Note that the additional GIOC has no effect on system performance.) If the GIOC is intended for use in a partitioned development machine the following changes should be made:
 - a. The additional HPC should be removed.

- b. Two Typewriter Channel Groups (TTC600) and Group Extensions (TTL600) are sufficient (4 are listed).
- c. The Character Synchronous Adapter (CSA600) and its associated channels (CSC600) should be removed.
- d. A Character Asynchronous Adapter (CAA600) and one channel (CAC600) is needed on a temporary basis for ARDS checkout.
- 11. The additional magnetic tape controller (MTC404) is unnecessary since it is possible for each system to use only one channel of the dual tape controller on system B (i.e., the tape controller may be "shared" when the two machines are partitioned).
- 12. The additional Motor Generator (MG8031) and Power Sequencer (OPT825) are unnecessary. (This equipment might be viewed as backup, but if backup is the goal, the augmentation equipment should be a "carbon copy" of the B equipment.)

ATTACHMENT I BASIC "B" SYSTEM CONFIGURATION

COPE CATALOG				0.4.0111
OPF600 Processor, Port Pair 1 (plus 1 N.C.) 260 17 NATC 30 Memory Controller 1 6 760	<u>MODEL</u>	QTY.	BASIC MO, RENTAL	2nd SHIFT MAINT.
MMEGO30 Memory Controller 1 6 760 442 OPT802 Active Unit Ports 3 (plus 2 N.C.) 252 .15 OPT815 Interrupt Cell Grps. 1 (plus 1 N.C.) 105 7 AMM500 Added Memory 1 260 17 AUW500 Auxiliary Memory 1 4475 292 AMM3040 Memory Controller 1 6 760 442 OPT802 Active Unit Ports 3 (plus 2 N.C.) 252 15 OPT815 Interrupt Cell Grps. 1 (plus 1 N.C.) 105 7 AMM500 Added Memory 1 4475 292 CAB601 Addit. Mem. Cabinet 1 260 17 AMM500 Added Memory 1 4475 292 CAB601 Addit. Mem. Cabinet 1 260 17 AUM500 Auxiliary Memory 1 4475 292 AMM500 Added Memory 1 50 30 AMM500 Added Memory Unit 1 12430 1328 CS031 CIOC (Phase A) 1 5620 363 AMM500 Clor Port Pairs 1 (plus 1 N.C.) 260 17 CP630 Priority Level Grps. 2 (plus 2 N.C.) 130 6 AMS00 Addeter Cabinet 1 990 65 AMS00 Char. Asynch. Adapter 1 195 10 CACCOO " Channels 3 255 15	CP8031 Central Processor	1	14 560	952
OPT802 Active Unit Ports 3 (plus 2 N.C.) 252 .15 OPT815 Interrupt Cell Grps. 1 (plus 1 N.C.) 105 AWW600 Added Memory 1	CPF 600 Processor Port Pair	1 (plus 1 N.C.)	260	17
OPT802 Active Unit Ports 3 (plus 2 N.C.) 252	MMS030 Memory Controller		6 760	. 442
AMM 600 Added Memory 1	OPT802 Active Unit Ports	3 (plus 2 N.C.)	252	
CAB601 Addit. Mem. Cabinet 1 260 17 AUM600 Auxiliary Memory 1 4 475 292 IMM8 240 Memory Controller 1 6 760 4442 OPT302 Active Unit Ports 3 (plus 2 N.C.) 252 15 OPT315 Interrupt Cell Grps. 1 (plus 1 N.C.) 105 7 AMM500 Added Memory 1 4475 292 CAB601 Addit. Mem. Cabinet 1 260 17 AUM600 Auxiliary Memory 1 4475 292 AVM600 Added Memory 1 4475 292 AVM600 Added Memory 1 4475 292 AVM600 Added Memory 1 50 50 SW600 System Glock 1 760 50 SW600 Memory Switch 1 50 3 AVJ302 Extended Memory Unit 1 12 430 1 328 CS3031 Groc (Pluse A) 1 5 620 368 IP600 Groc Port Pairs 1 (plus 1 N.C.) 260 17 LP600 Priority Level Grps. 2 (plus 2 N.C.) 130 6 AVB600 Adapter Cabinet 1 990 65 PO600 High Perf. Channel 1 (plus 1 N.C.) 680 4.5 AA600 Char. Asynch. Adapter 1 195 10 CN6600 " Channels 3 255 15	OPT815 Interrupt Cell Grps.	1 (plus 1 N.C.)	105	* W
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AUM600 Auxiliary Memory 1	CAB60! Addit. Mem. Cabinet	1		
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### CACCOO System Clock	AMM600 Added Memory			_
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MU302 Extended Memory Unit 1. 12 430 1 328 CS031 GIOC (Phase A) 1 5 620 368 MIP600 GIOC Port Pairs 1 (plus 1 N.C.) 260 17 LP600 Priority Level Grps. 2 (plus 2 N.C.) 130 6 AAB600 Adapter Cabinet 1 990 65 PC600 High Perf. Channel 1 (plus 1 N.C.) 680 46 AA600 Char. Asynch. Adapter 1 195 10 CA0600 " " Channels 3 255 15	SW600 Memory Switch			20
008031 GIOC (Phase A) 1 5 620 368 MIP600 GIOC Port Pairs 1 (plus 1 N.C.) 260 17 LP600 Priority Level Grps. 2 (plus 2 N.C.) 130 6 0AB600 Adapter Cabinet 1 990 65 P0600 High Perf. Channel 1 (plus 1 N.C.) 630 46 AA600 Char. Asynch. Adapter 1 195 10 CA0600 " " Channels 3 255 15	MU302 Extended Memory Unit			1 224
11P600 GIOC Port Pairs 1 (plus 1 N.C.) 260 17 21P600 Priority Level Grps. 2 (plus 2 N.C.) 130 6 2AB600 Adapter Cabinet 1 990 65 PC600 High Perf. Channel 1 (plus 1 N.C.) 680 46 2AA600 Char. Asynch. Adapter 1 195 10 CAC600 " " Channels 3 255 15	008031 GIOC (Phase A)			
CAC600 " Channels 3 255 15	MP600 GIOC Port Pairs	l (plus 1 N.C.)		•
OAB600 Adapter Cabinet 1 990 65 190600 High Perf. Channel 1(plus 1 N.C.) 630 46 OAA600 Char. Asynch. Adapter 1 195 10 CA0600 " " Channels 3 255				•
### PC600 High Perf. Channel 1(plus 1 N.C.) 680 #### AA600 Char. Asynch. Adapter 1 195 ###################################				**
CAC600 " " Channels 3 255 TTA600 Transit with the same and the same a	PC600 High Perf. Channel	(plus 1 N.C.)		
CAC600 " " Channels 3 255				
TTAKIN Transist of Asia	CAC600 " " Channels 3			•
	TTA600 Typowriter Adapter 3	3		

ATTACHMENT 1 (continued)

MODEL_	QTY.	BASIC MO.	RENTAL.		Žroj Mj
TT0600 Typewriter Chan. Grp	5. a	. 750			14.14
TVL.600 TTA Extensions	6	390			
CSA600 Char. Synch. Adapter	1	195		We have the	
CSC600 " " Channels	3	255			
DDA600 Direct Disc Adapter		, 680			
DSCHF Disc Controller		3 360	: :		ر دور
DSUIOF Disc Storage Unit	2	8 200		1	, i
/*AMM 600 Added Memory	1	4 475			2.
COSO30 Master Console	1	420		•	
MTC404 Mag. Tape Controller		1 545			1.
MTH373 Mag. Tape Handlers	6 (120KC)	5 370		Market Committee	7.
CRZ:201 Card Reader		680		·	72
CPZ:201 Card Punch	1	860		1	16
PRT202 Printer, Ext. Char. Set	1	1 665			5.
PSC200 Peripheral Switch	1	175			
OPT510 Switch Units	15	630			7
WG8031 Motor Generator		320			
OPT825 Power Sequencer	1	17			
*Insert after Item 8 on prece	ding page. UGMENTATION EQUIPMEN	104 566		8	70
Mone	QTY.			20	
DSU10F Disc Storage Unit	•	BASIC MO	RENIAL		<u>A</u> l:
CP8031 Central Processor		4 100		•	3 5
MM8040 Memory Controller		14 560			5 2
007000	l (plus 2 N.C.)	6 760 64		42	42
OPTS:5 Interrupt Cell Grps.		105		; ;	ဝ် င
AMM600 Added Memory		4 475		29	7 2
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ATTACHMENT | (continued)

A'ODEIL	QTY.	BASIC MO. RENTAL	2nd MAi:
CABGO1 Addit. Mem. Cabinet		260	17
CLK600System Clock	1	760:	50
AMM600 Added Memory		4 475	29 2
AUMGOO Auxiliary Memory	1	4 475	29 2
MSW600Memory Switch	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	50	
EMU302Ext. Memory Unit		12 430	132
DCS031GIOC (Phase A)		5 620	3 60
HPC500High Perf. Channel	l (plus 1 N.C.)	680	1 46
TTA600Typewriter Adapter	2	840	5
TTC:00Typewriter Chan. Grps	4	500) 39
TTL600TTA Extensions	4	260	Š.
CSA600Char. Synch. Adapter		195	10
CSC600 " " Channels	3	255	15
COSO3DMaster Console		420	·
MTC404 Mag. Tape Controller		1 545	117
MTH301 Mag. Tape Handlers	4 (60KC)	2 460	35
PRT202Printer, Ext.Char.Se		1 665	32
CPZ:201 Card Punch		860	15/
CRZ201 Card Reader		680	12
MG8031 Motor Generator	1	320	5
OPT825Power Sequencer		17	General Metalenter
		68 831	5.88