

บรรณานุกรม

ชัยศิริ ปัดทิตานนท์. "การปรับปรุงเพาเวอร์/รีเอส" ผลงานวิจัยทุนรัชดาภิเษกสมโภช  
จุฬาลงกรณ์มหาวิทยาลัย ๒๕๒๔.

Madnick, Stuart E., and Donovan, John J. Operating System.

Kogakusha: McGraw-Hill Kogakusha Co., Ltd. 1974.

IBM, DOS/VS Supervisor and I/O Macros. Form GC 33-5373-5, Bangkok:

IBM Col., Ltd. (Thailand)

\_\_\_\_\_, POWER/VS Installation Guide and Reference. Form GC 33-6048-1,

Bangkok: IBM Col., Ltd. (Thailand)

\_\_\_\_\_, DOS/VS POWER/VS Logic Part 1. Form SY 33-8576-1, Bangkok:

IBM Col., Ltd. (Thailand)

\_\_\_\_\_, DOS/VS POWER/VS Logic Part 2. Form SY 33-8577-1, Bangkok:

IBM Col., Ltd. (Thailand)

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ภาคผนวก ก.

การติดต่อกับเพาเวอร์/รีเอส

ในทางปฏิบัติผู้ใช้เครื่องสามารถติดต่อและควบคุมให้เพาเวอร์/รีเอสทำงานตามที่ต้องการได้ ๓ ทางคือ

๑) ผ่านคำสั่งมาทางคอนโซล วิธีนี้ช่วยให้ผู้ควบคุมเครื่องสามารถควบคุมลำดับงานต่าง ๆ ได้ตามต้องการ คำสั่งประเภทนี้ได้แก่คำสั่งใช้ควบคุมการทำงาน (Task Management) คำสั่งใช้ควบคุมลำดับงาน (Queue Management) คำสั่งใช้ควบคุมการพิมพ์ (List Control)

Type	Extended Format	Abbreviated Format	Function
Task management	PSTART	S	start a task or partition
	PSTOP	P	stop a task or partition
	PGO	G	activate a task or partition
	PEND	-	end POWER/VS execution
	PCANCEL	C	cancel POWER/VS status task
	PFLUSH	F	flush an active job
	PRESTART	T	restart a writer task
Queue management	PDISPLAY	D	display job status
	PALTER	A	alter attributes
	PDELETE	L	delete a job or a message
	PRELEASE	R	release a job
	PBRDCST	B	transmit a message
	PINQUIRE	I	check terminal status
PACCOUNT	J	process account file	
List control	PSETUP	U	print page layout

ตารางที่ ก.๑ คำสั่งที่ผู้ควบคุมเครื่องใช้ติดต่อกับเพาเวอร์/รีเอส

๒) ผ่านคำสั่งมากับบัตรนำหน้าและปิดท้ายของงาน วิธีนี้ช่วยให้ผู้เขียนโปรแกรมสามารถควบคุมการทำงานของข้อมูลเข้าและข้อมูลออกของโปรแกรมได้

JECL Statements	Function
* \$\$ CTL	specifies a default input class
* \$\$ JOB	indicates the beginning of a job and provides handling information
* \$\$ EOJ	indicates the end of a job
* \$\$ RDR	inserts a diskette file into the input stream
* \$\$ LST	provides handling information for printed output
* \$\$ PRT	
* \$\$ PUN	provides handling information for punched output
* \$\$ SLI	inserts data from a sublibrary into the job stream
* \$\$/*	indicates the end of a job step (used for the SLI statement only)
* \$\$/	indicates the end of a job (used for the SLI statement only)
* \$\$ DATA	inserts data into a book in a source statement library

ตารางที่ ก.๒ คำสั่งที่ผ่านมากับบัตรนำหน้าและปิดท้ายของงาน

๓) ผ่านคำสั่งมาในโปรแกรม วิธีนี้ช่วยให้งานที่กำลังทำอยู่ในคอส/รีเอสในพาดิชั่นที่ไม่อยู่ภายใต้การควบคุมของเพาเวอร์/รีเอส สามารถส่งข้อมูลเข้ามาทำงานภายใต้การควบคุมของเพาเวอร์/รีเอส และนำข้อมูลออกที่ได้กลับไปยังงานที่กำลังทำอยู่ได้ วิธีนี้จะใช้ได้ต่อเมื่อตอนสร้างคอส/รีเอส ได้สั่งพารามิเตอร์ XECB = n และตอนสร้าง

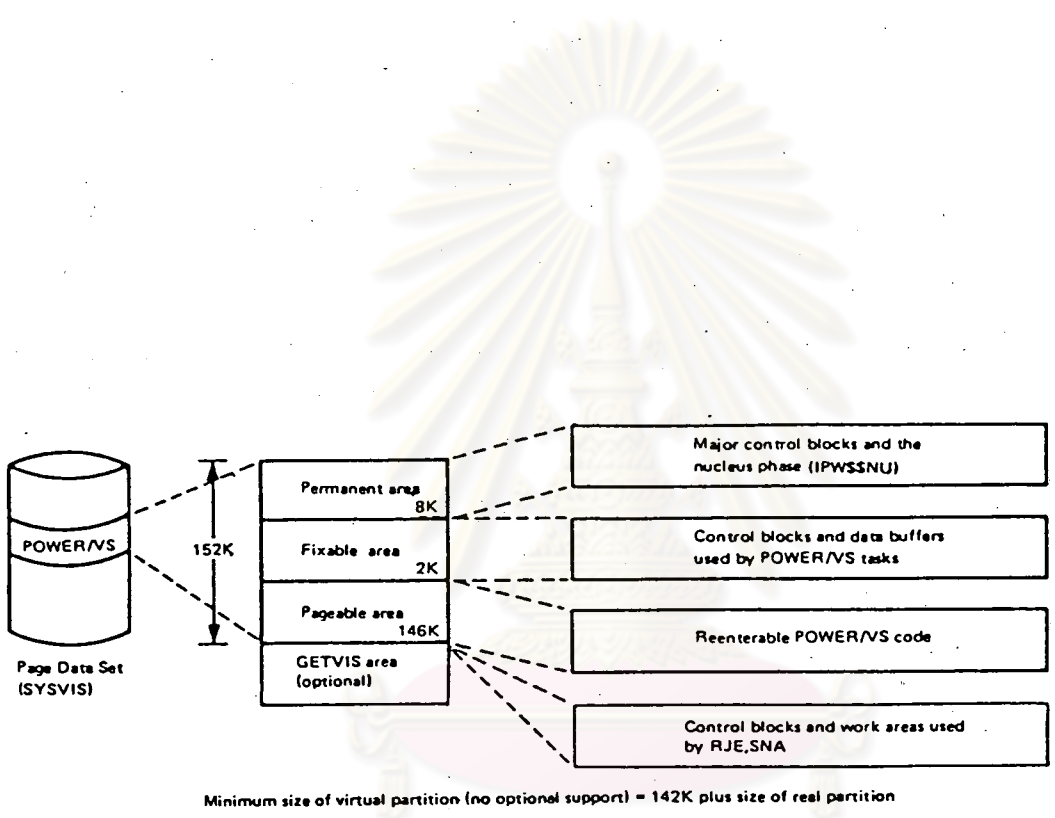
เพาเวอร์/รีเอสได้ส่งพารามิเตอร์ SPOOL = YES ไว้ การติดต่อวิธีนี้จะผ่านทางมาโครต่าง ๆ ได้แก่

- XECBTAB มาโครใช้บอกว่าจะมีการติดต่อกับเพาเวอร์/รีเอส
- GETSPOOL มาโคร ใช้ดึงข้อมูลออกของงานออกจากแฟ้มข้อมูลเพาเวอร์/รีเอส
- PUTSPOOL มาโคร ใช้ส่งข้อมูลเข้าไปทำงานภายใต้การควบคุมของเพาเวอร์/รีเอส
- CTLSPOOL มาโคร ใช้ควบคุมข้อมูลเข้า ข้อมูลออกในแฟ้มข้อมูล เพาเวอร์/รีเอสให้เป็นไปตามที่ต้องการ
- SPL มาโคร ใช้กำหนด เนื้อที่ร่วมที่ใช้ส่งพารามิเตอร์ในการติดต่อระหว่างเพาเวอร์/รีเอสกับงานที่กำลังทำอยู่

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

ภาคผนวก ข.

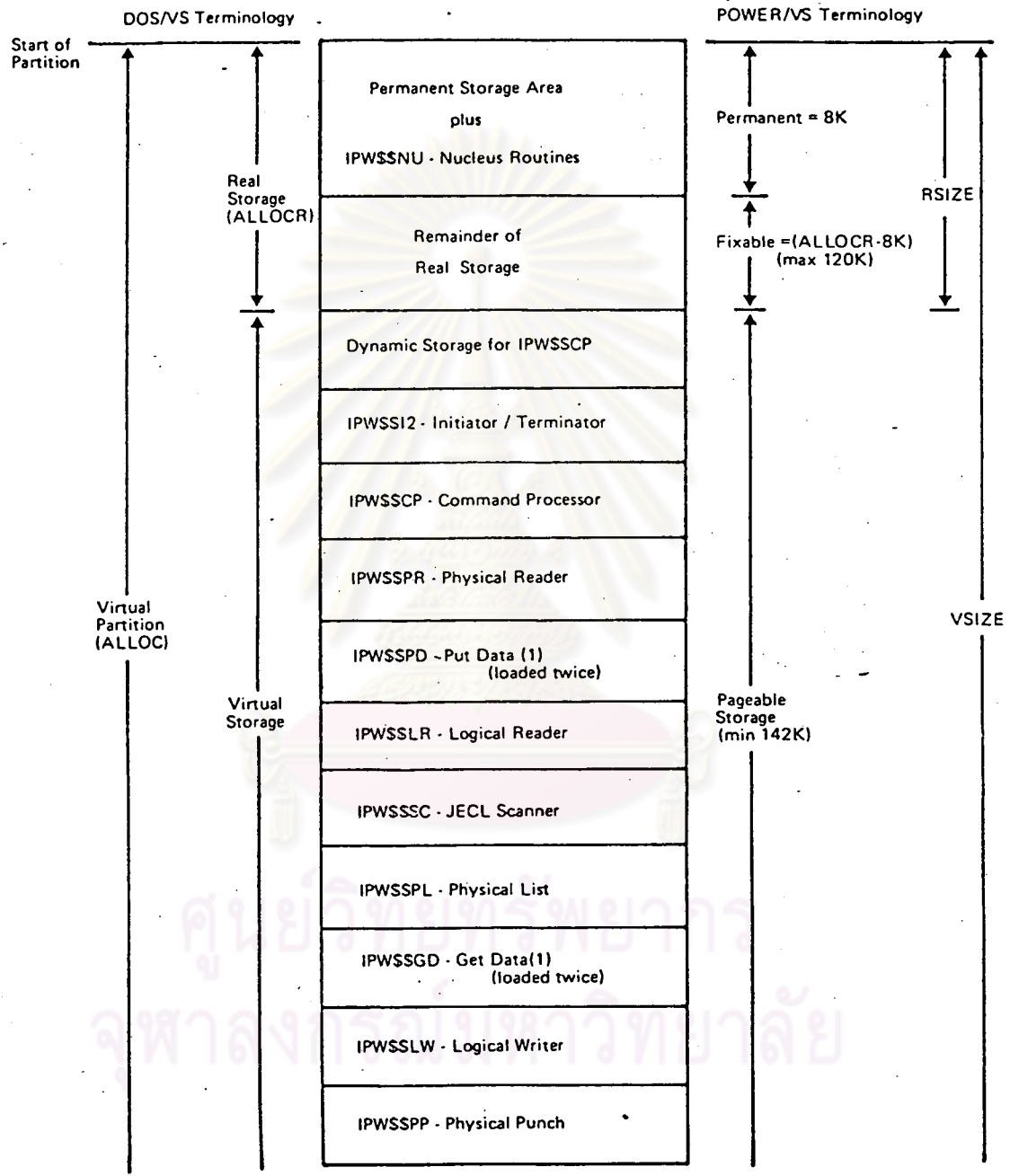
หน่วยความจำเสมือนและโปรแกรมเฟสต่าง ๆ ที่จำเป็นในโครงสร้างของเพาเวอร์/วีเอส



รูปที่ ข.๑ การจัดหน่วยความจำขั้นพื้นฐานในพาดิชันที่เพาเวอร์/ทำงานอยู่

จุฬาลงกรณ์มหาวิทยาลัย

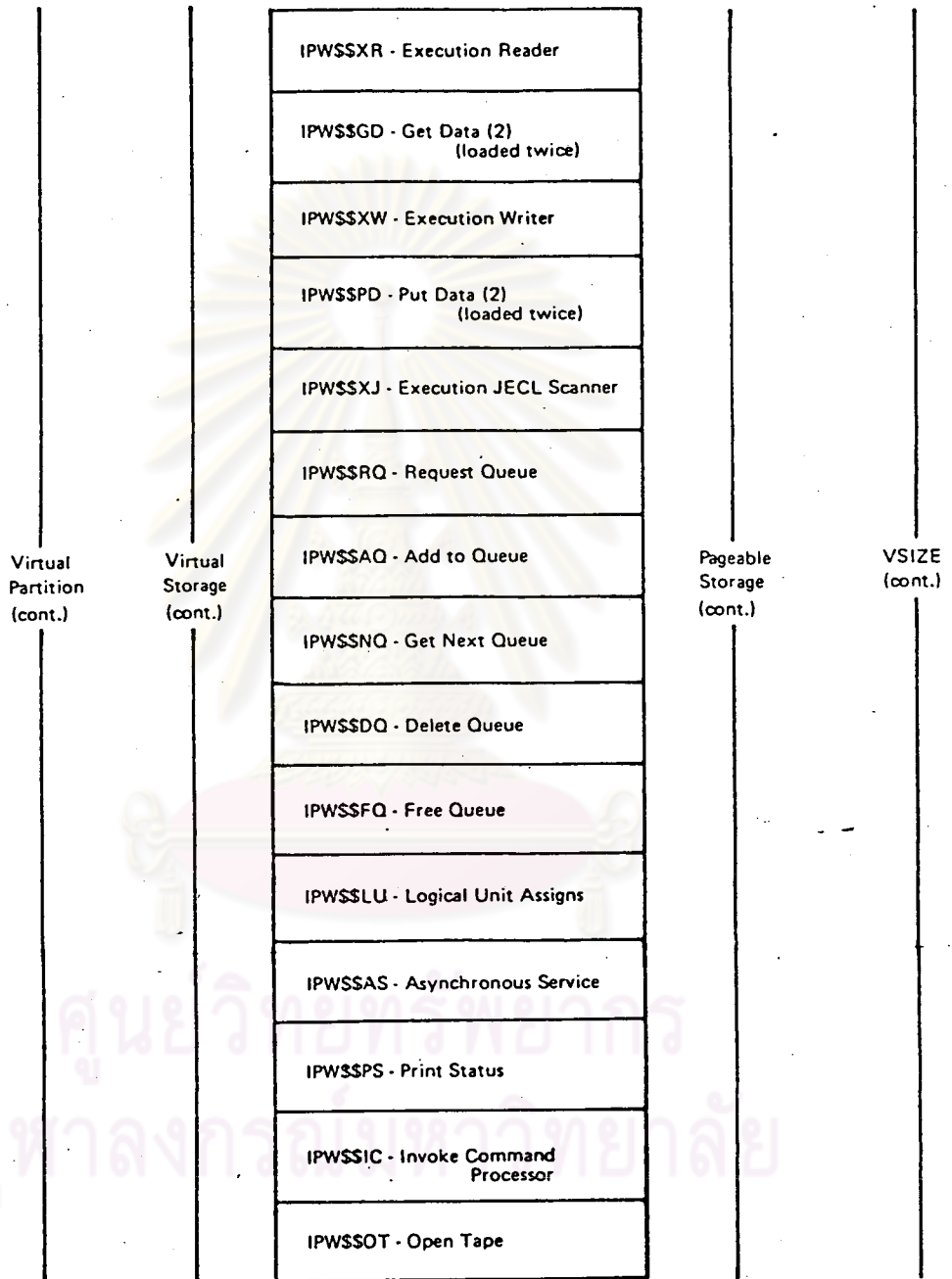
THE POWER/VS PARTITION STORAGE LAYOUT



(cont.)

รูปที่ ข.๒.๑ การจัดหน่วยความจำโดยละเอียดในพาดิชันที่เพาเวอร์/วีเอสทำงานอยู่

POWER/VS Partition Layout  
(cont.)



(cont.)

รูปที่ ข.๒.๒ การจัดหน่วยความจำโดยละเอียดในพาดิชันที่เพาเวอร์/วีเอสทำงานอยู่  
(ต่อ)



POWER/VS Partition Layout  
(cont.)

IPWSSSTR - Abnormal Termination
IPWSSSER - 3540 Physical Reader
IPWSSSOE - Open 3540 Device
IPWSSSMS - Message Handler

----- Optional Support -----

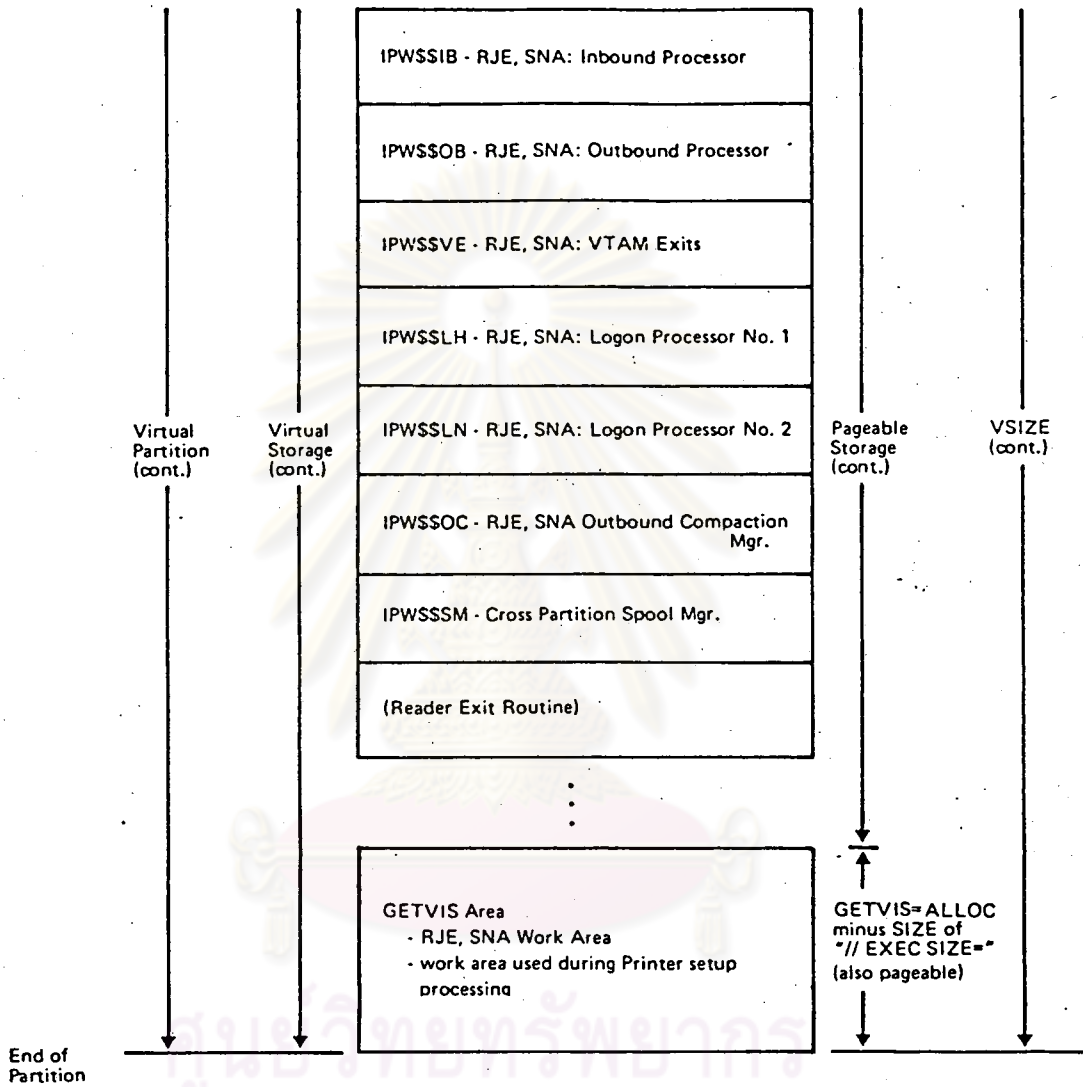
Virtual Partition (cont.)	Virtual Storage (cont.)	IPWSSSTM - BSC, RJE Terminal Manager	Pageable Storage (cont.)	VSIZE (cont.)
		IPWSSSPA - Accounting: Put Account Rec.		
		IPWSSSGA - Accounting: Get Account Rec.		
		IPWSSSSA - Accounting: Save Account Rec.		
		IPWSSSSL - SLI SUPPORT		
		IPWSSSN - RJE, SNA: SNA Manager		
		IPWSSSLF - RJE, SNA: Logoff Processor		
		IPWSSSMP - RJE, SNA: Message Processor		
		IPWSSSMD - RJE, SNA: Message Definition		

(cont.)

รูปที่ ข.๒.๓ การจัดหน่วยความจำโดยละเอียดในพาดิชันที่เพาเวอร์/วีเอสทำงานอยู่  
(ต่อ)

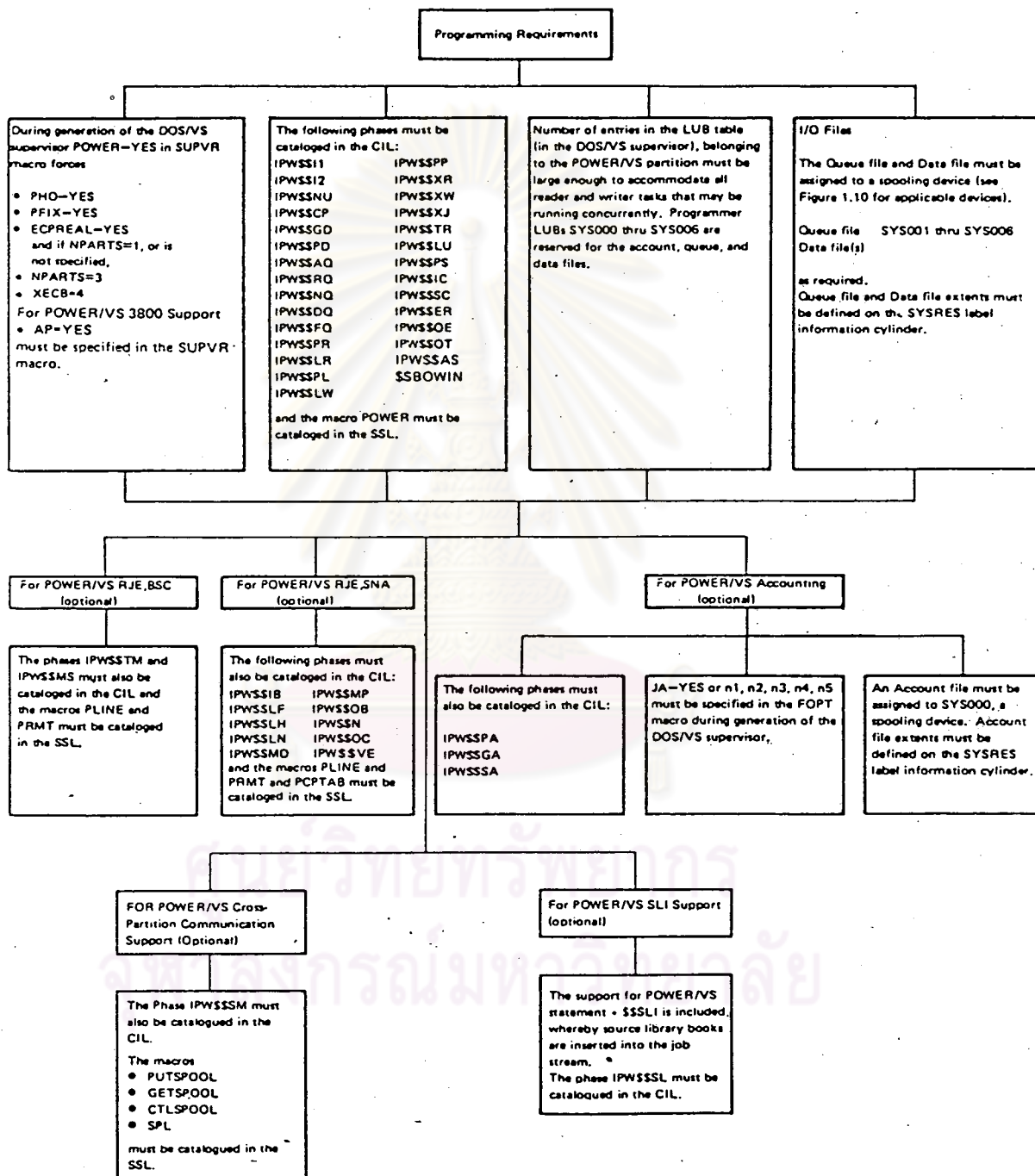


POWER/VS Partition Layout  
Optional Support (cont.)



รูปที่ ข.๒.๔ การจัดหน่วยความจำโดยละเอียดในพาติชันที่เพาเวอร์/วีเอสทำงานอยู่  
(ต่อ)

### PROGRAMMING REQUIREMENTS



รูปที่ ข.๓ องค์ประกอบเพื่อสร้างให้เพาเวอร์/วีเอสทำงานตามวัตถุประสงค์ที่ต้องการ

ภาคผนวก ค.

ความหมายของแต่ละเขตข้อมูลในระเบียนของแฟ้มคิว

Bytes		Label of field	Description/function of field
Dec	Hex		
		Master record area	The master record is written as the first physical record within the queue file extent. <u>During POWER/VS execution a copy of the master record is maintained in this area.</u> Whenever this copy is updated a replacement master record is at once written to the queue file so that, in the event of a failure of the system, warm start information can be recovered from the direct access device in question.
1 -8	1-8	MRDY	Date  These eight bytes contain the date of POWER/VS execution in the format chosen at system generation (dd/mm/yy or mm/dd/yy).
9 -12	9-0	MRST	POWER/VS start time These four bytes contain the start time of POWER/VS execution in packed decimal format.
13 -16	D-10		Reserved
17 -20	11-14	MRDB	Data block size This fullword contains a fixed-point binary value representing the data block size of the data blocks within the data file. This is the length of the physical records written to the data file.
21 -24	15-18	MRTG	Track group size This fullword contains a fixed-point binary value representing the number of tracks within each track group within the data file.
25 -28	19-1C	MRVM	Version and modification level four numeric characters representing the version and modification level of POWER/VS used.
29 -34	1D-22		Reserved
			<u>Programming Note:</u> The following 6 switch bytes preserve the options established by the POWER/VS user at the time he generated his version.
35	23	MRSI	Source library switch This byte contains a single alphabetic character representing the source statement sublibrary to be associated, unless otherwise specified, with any JECL SLI statements encountered in the read queue.
36	24	MRJA	Job accounting switch This byte contains a single alphabetic character; the character A indicates that POWER/VS job accounting is required; a blank character indicates that POWER/VS accounting is not required.
37	25		Reserved

Bytes		Label of field	Description/function of field
Dec	Hex		
38	26	MRLG	LOG option switch (set to character L if JLOG=YES and blank if JLOG=NO)
39	27	MRTT	Termination status. Contains character A for incomplete session or abnormal termination. Otherwise, it contains character N, meaning normal termination. Note: It will contain an A during the session.
40 -48	28-30		Reserved for future use
<p><u>Programming Note:</u> The following 14 bytes contain standard POWER/VS default values used when new queue records are created.</p>			
49 -56	31-38	MRNM	Default job name These eight bytes contain the character string 'AUTONAME' used as a default job name.
57 -58	39-3A	MRNO	Master job number This halfword contains a fixed-point binary value representing the <u>next</u> job number to be assigned by POWER/VS. It is incremented by one each time it is used.
59	3B	MRQI	Master queue identifier This byte contains the alphabetic character M to show that this is the master record.
60	3C	MRCL	Default class attribute This byte contains the alphabetic character A representing the class attribute to be given by default to each RDR queue entry created within POWER/VS.
61	3D	MRPY	Default priority attribute This byte contains numeric character 3 which defines the priority attribute to be given by default to each queue entry created by POWER/VS.
62	3E	MRCN	Default cancel code This byte contains the hexadecimal characters X'10' representing normal end of job and task.
63 -64	3F-40		Reserved
<p><u>Programming Note:</u> Next 16-byte field contains the master line table, consisting of system default values used to analyse space and skip operations during printer control carriage simulation.</p>			
65 -88	41-58	MPLT	Line table

Bytes		Label of field	Description/function of field
Dec	Hex		
			<u>Programming Note:</u> Next 20 bytes contain the master list values, which will be inserted by default in list queue records, unless overridden by a JECL LST statement. (Values are set by IPW\$\$I1 using those specified by user during POWER/VIS generation {JSEP=, RES=, STDLINE=})
89 -104	59-68	MRLV	Master list values
89	59	MR0P	Option byte X'01' - 3540 feed option X'02' - Multiple channel 12 option (see POWER macro) X'80' - Clear printer at EOF X'40' - Mark form option for separator pages X'20' - No separator pages between copies
90 -91	5A-5B		Reserved
92	5C	LVSP	Number of separators
93 -96	5D-60	LVBS	Records before segmentation
97 -100	61-64	LVBM	Records before message
101 -104	65-68	LVBN	Records before next message
105 -108	69-6C		Reserved
			<u>Programming Note:</u> Next 20 bytes contain the master punch values, which will be inserted by default in punch queue records, unless overridden by a JECL PUN statement. (Values set by IPW\$\$I1 using those specified by user during POWER/VIS generation. {JSEP=, RES=, STDCARD=})
109 -111	6D-6F		Reserved
112	70	PVSP	Number of separators
113 -116	71-74	PVBS	Records before segmentation
117 -120	75-78	PVBM	Records before message
121 -124	79-7C	PVBN	Records before next message
125 -128	7D-80		Reserved
			<u>Programming Note:</u> Next 10 bytes contain account file values
129 -136	81-88	MRAS	Account file seek address (MBBCHHR) Contains the direct access storage seek address of the last record in the POWER/VIS account file.
137 -138	89-8A	MRAZ	Account file record maximum size Binary value representing the length of the longest record so far written to the account file.
139 -152	8B-98		Reserved
			<u>Programming Note:</u> Next 32 bytes contain free queue pointers
153 -160	99-A0	MRQF	First record in free queue (MBBCHHR)
161 -184	A1-B8		Reserved

ตารางที่ ค.๑.๓ ความหมายของแต่ละเขตข้อมูลในระเบียบแรกของแฟ้มคิว (ต่อ)

Bytes		Label of field	Description/function of field
Dec	Hex		
			Auxiliary queue record area (184 bytes)  This area is required as a <u>work space for an additional queue record</u> (see Figure 5.22 and description Queue Record Area (QRA)). For example, for updating class chain addresses during the add to queue function. The first part (103 bytes) of the Q record contains body fields (information pertinent to this particular queue entry and the user job which created it).
1 -8	1-8	QCDY	Date in format specified at SYSGEN (mm/dd/yy or dd/mm/yy)
9 -12	9-C	QCST	Operation start time, in packed decimal (0HHMMSSF; F = sign)
13 -16	D-10	QCET	Operation end time (0HHMMSSF; F = sign)
17 -32	11-20	QCUI	16 bytes user information
33 -40	21-28	QCNM	Job name Job name associated with this particular POWER/VS or DOS/VS job. If no job name is provided by the user the default value AUTONAME is set into this field.
41 -42	29-2A	QCNO	Job number Contains a binary job number assigned to the job upon its entry into the system and thereafter available for further identification of jobs with a common job name.
43	2B	QCQI	Queue record identifier  R = read queue record L = list queue record P = punch queue record F = free queue record D = dummy queue record
44	2C	QCCN	POWER/VS cancel codes  <u>Cancel Code</u> <u>Condition</u>  X'10'    Normal end of POWER/VS job or task <sup>3</sup> X'20'    PCANCEL has been issued X'30'    PSTOP has been issued " X'40'    PFLUSH has been issued X'50'    PDELETE has been issued X'60'    PFLUSH has been issued via RDREXIT X'70'    Canceled due to I/O error
45	2D	QCRJ QCDD	Line identifier/device type
46 -48	2E-30	QCCU	Channel and unit (line address)
49	31	QCFJ	From-terminal identifier
50	32	QCTJ	To-terminal identifier
51	33	QCCL	Class (default = A)
52	34	QCPY	Priority (default = 3) This single byte contains the priority value (numeric 0 to 9), assigned by the user to this job operation.

ตารางที่ ค.๒.๑ ความหมายของแต่ละเขตข้อมูลในระเบียนคิว

Bytes		Label of field	Description/function of field
Dec	Hex		
53 -56	35-38	QCNR	Record count Binary counter that represents the number of input or output data records associated with the read, list, or punch operation (data transfer and control operations).
57 -58	39-3A	QCNT	Number of tracks for output storage Binary counter recording the number of tracks within the data file used to contain data input or output for this particular job operation.
59	3B	QCSN	Job suffix number Binary job suffix number assigned to each successive operation (read, list, or punch) performed on behalf of the job. It may be used to identify output sets produced by jobs handling segmented output.
60	3C	QCNC	Number of copies This single byte contains a binary value indicating the number of copies of printed or punched output that are to be produced when the output is processed by the writer tasks. It has no use within input-related queue records.
61 -64	3D-40	QCFI	Forms identifier. Alphameric forms or card identifier of any special stationery or card stock to be used when creating the physical output from the job. A blank value indicates that no special requirement exists. The field has no use within input-related queue records.
65 -68	41-44	QCNA	Number of additional records
69 -70	45-46	QCNP	Number of pages (number of skips to channel 1)
71 -72	47-48	QCNE	Number of extra pages
73 -76	49-4C	QCLC	Line/card counter (data transfers only, see QCNR)
77 -80	4D-50	QCRR	Restart page counter (used when PRESTART command given)
81	51	QCCR	Copies remaining (used when PRESTART command given)
82	52	QCDI	Not used
83	53	QCDP	Disposition (default = D)
84	54	QCSP	Number of separators. Binary value indicating the number of printed output separators to be produced. It has no use within input-related queue records.
85 -88	55-58	QCBS	Number of records before segmentation (count driven segmentation)

Bytes		Label of field	Description/function of field
Dec	Hex		
89 -92	59-5C	QCBM	Records before message. Binary value representing the maximum number of list or punch data records that is to be tolerated by this job. When the record count exceeds the maximum value a warning message is output to the system operator.
93 -96	5D-60	QCBN	Records before next message. Additional number of list or punch data records that is to be tolerated by the job each time the record count exceeds the maximum value specified in the preceding field and the system operator elects to continue execution of the job.
97 -98	61-62	QCER	Physical 3540 device address (packed)
99 -100	63-64	QCJ#	Saved job number for accounting
101 -104	65-68	QCCP	Compaction table name
			The second portion (56 bytes) of the queue record contains control fields (information relating to the status of the queue record and to its position within the POWER/VS queues).
105	69	QCXS	Execution switch X = job in execution b = job not in execution
106	6A	QCFS	First in set switch
107	6B	QCSG	Segmentation type C = count driven segmentation P = program driven segmentation D = data driven segmentation b = no segmentation
108 -120	6C-78		Reserved
121 -128	79-80	QCNS	Next record in set. (MBBCHHR) <sup>5</sup> M = index in module control block address table in CAT
129 -136	81-88	QCQP	Pointer to previous queue record (MBBCHHR) <sup>5</sup> M = index in module control block address table in CAT The meaning of this pointer depends on the value of the contents in field QCFS. See Figure 5.48, part 9.
137 -144	89-90	QCQN	Pointer to next queue record (MBBCHHR) <sup>5</sup> M = index in module control block address table in CAT The meaning of this pointer depends on the value of the contents in field QCFS. See Figure 5.48, part 9.
145 -152	91-98	QCDF	Seek address of first data block (MBBCHHR) M = index in module control block address table in CAT Seek address of the first read, list, or punch data block associated with the input or output described by this queue record.



ภาคผนวก ง.

โปรแกรมที่ใช้ในการดึงข้อมูลจากแฟ้มข้อมูล เพาเวอร์/วีเอสไปจัดเก็บในเทปแม่เหล็ก

```
1      MACRO
2      IPW$EQU
3      SPACE 2
4      R0      EQU      0
5      R1      EQU      1      I/O REGISTER
6      R2      EQU      2
7      R3      EQU      3
8      R4      EQU      4
9      R5      EQU      5
10     R6      EQU      6
11     R7      EQU      7
12     R8      EQU      8
13     R9      EQU      9
14     RA      EQU     10
15     RB      EQU     11
16     RC      EQU     12
17     RD      EQU     13
18     RE      EQU     14      RETURN ADDRESS REGISTER
19     RF      EQU     15      BRANCH REGISTER
20     SPACE 1
21     MEND
22     DDCS    START 0
23           BALR RC,0
24           USING *,RC
25           PRINT ON,NOGEN
```

```

28 *      WRITE HEADING REPORT
29 DD08   EQU      *
30       MVC      PRTIO,PRTIO-1
31       MVI      CANCEL,C' '
32       MVI      EOP,C' '
33       MVI      PRTCCW,X'88'
34       BAL      RE,DD68
35       MVI      PRTCCW,X'19'
36       BAL      RE,DD68
37       COMRG
41       MVC      JOBDATE,0(1)          GET CURRENT DATE
42       GETIME   STANDARD
67       ST       1,STTIME             GET CURRENT TIME
69       MVC      JOBTIME,JOBTIMEP
69       ED       JOBTIME,STTIME
70       MVI      PRTCCW,X'11'
71       MVC      PRTIO+30(22),=C'SPOOLING STATUS REPORT'
72       MVC      PRTIO+70(4),=C'DATE'
73       MVC      PRTIO+76(8),JOBDATE
74       MVC      PRTIO+90(5),=C'TIME:'
75       MVC      PRTIO+95(13),JOBTIME
76       BAL      RE,DD68
77       MVC      PRTIO,PRTIO-1
78       MVI      PRTCCW,X'09'
79       MVC      PRTIO+63(55),=C'CLASS      CARDS      PAGES      PAGES
          PAGES      PAGES'
80       BAL      RE,DD68
81       MVC      PRTIO,PRTIO-1
82       MVI      PRTCCW,X'11'
83       MVC      PRTIO+83(35),=C'(00E)      (01E)      (02E)      (03E)'
84       BAL      RE,DD68
85       MVC      PRTIO,PRTIO-1
86       CLC      EOJRPLY,=C'CONT'      IS TO SELECT SPOOL FUNCTION?
87       BNE      DD10
88       BAL      RE,DDDD

```

```

90 *      ASK THE OPERATOR TO SPECIFY THE SPOOL FUNCTION HE
91 *      WANTS TO BE SELECTED.
92 DD10   MVI      JOBFACT,C'L'          SET JOBQUEUE TO DEFAULT
93       MVC      EOJRPLY,=C'EOJ '
94       MVC      RPLYJNM,=C'
95       MVC      INREP,BLANKS          BLANK OUT REPLY AREA
96       LA       R1,INCB              GET CCB ADDRESS
97       USING   INCB,R1              ESTABLISH ADDRESSABILITY
98       SVC     0                    WRITE MSG AND READ REPLY
99       WAIT    (R1)                 WAIT FOR COMPLETION
105      TM      INCB+4,X'01'         CANCEL KEY PRESSED
106      BO      DD10                 YES, ISSUE MSG AGAIN
107      DROP    R1                    DROP ADDRESSABILITY
108      MVI      FDMP,C' '           SET DUMP FUNCTION DEFAULT

```



๗๗

109	OC	INREP, BLANKS	CONVERT REPLY TO UPPER CASE
110	LA	R1, INREP	R1 = ADDRESS INREP
111	LR	R2, R1	R2 = ADDRESS INREP
112	SR	R4, R4	ADDRESS SECOND COMMA
113	SR	R3, R3	ADDRESS FIRST COMMA
114	SR	R5, R5	LENGTH OF JOBNAME
115	SR	R9, R9	ADDRESS FIRST BLANK
116	LA	R8, 18	R8 = 18 AT START
117	STH	R3, JBNR	RESET JOBNUMBER TO 0
118	CLI	INREP, C' '	
119	BE	DD50	NO REPLY, ISSUE MESSAGE
121 *			ANALYZE THE OPERATOR REPLY OF THE SPOOL FUNCTION.
122 DD12	CLI	0(R1), C' ,'	CHECK FOR ,
123	BE	DD16	YES, BRANCH
124	CLI	0(R1), C' '	BLANK FOUND?
125	BE	DD20	YES, BRANCH
126 DD14	LA	R1, 1(R1)	ADD 1 TO R1
127	BCT	R8, DD12	BRANCH BACK IF NOT READY
128	B	DD50	AFTER 18 TIMES, BRANCH
130 DD16	LTR	R3, R3	FIRST COMMA?
131	BNZ	DD18	NO, BRANCH
132	LR	R3, R1	R3 = ADDRESS FIRST COMMA
133	B	DD14	CONTINUE CHECK
135 DD18	LTR	R4, R4	SECOND COMMA?
136	BNZ	DD50	THIRD COMMA SPECIFIED, INVALID
137	LR	R4, R1	R4 = ADDRESS SECOND COMMA
138	B	DD14	CONTINUE CHECK
139 DD20	LR	R9, R1	SAVE ADDRESS FIRST BLANK
140	LTR	R3, R3	FIRST COMMA SPECIFIED?
141	BNZ	DD30	YES, BRANCH
142	CLI	1(R2), C' ' '	REPLY LENGTH = 1?
143	BNE	DD22	NO, BRANCH
144	MVC	FDMP, INREP	COPY DUMPFUNCTION
145	CLI	0(R2), C' L' '	L QUEUE SPOOL?
146	BE	DD43	
147	CLI	0(R2), C' P' '	P QUEUE SPOOL?
148	BE	DD43	
149	CLI	0(R2), C' R' '	R QUEUE SPOOL?
150	BE	DD43	
151	MVI	JBNL, X'01'	SAVE JOBNAME LENGTH
152	MVC	RPLYJNM(1), 0(2)	
153	MVI	FDMP, C' ' '	RESET DUMP FUNCTION TO BLANK
154	BAL	RE, DDDD	
155	B	DD10	
156 DD22	CLC	INREP(4), EOJRPLY	IS IT EOJ
157	BNE	DD24	NO, BRANCH
158	MVC	EOJRPLY, =C'EOJ*'	
159	BAL	RE, DDDD	

160	EOJ	EQU	*	
161		MVC	PRTIO,PRTIO-1	
162		MVC	PRTIO(21),=C'END OF SPOOL FUNCTION'	
163		BAL	RE,DD68	
164		EOJ		
168	*	ONLY JOBNAME IS SPECIFIED		
169	DD24	LR	R1,R2	GET JOBNAME ADDRESS
170	DD26	CLI	0(R1),C' '	IS IT A BLANK
171		BE	DD28	YES,BRANCH
172		LA	R1,1(R1)	ADD ONE TO JOBNAME ADDRESS
173		B	DD26	CONTINUE CHECK
174	DD28	SR	R1,R2	GET JOBNAME LENGTH
175		C	R1,CF008	JOBNAME TOO LONG?
176		BH	DD46	YES,BRANCH
177		STC	R1,JBNL	AND SAVE IT
178		BCTR	R1,0	
179		EX	R1,MVCNAME	GET JOB NAME
180		BAL	RE,DDDD	
181		B	DD10	
182	MVCNAME	MVC	RPLYJNM(0),0(R2)	
184	*	CHECK THREE OPERANDS		
185	DD30	LR	R5,R3	GET ADDRESS FIRST COMMA
186		LR	R1,R2	GET ADDRESS FIRST BYTE
187		SR	R5,R1	GET LENGTH JOBNAME
188		C	R5,CF008	JOBNAME TOO LONG?
189		BH	DD46	ISSUE MESSAGE JOBNAME TOO LONG
190		STC	R5,JBNL	SAVE JOBNAME LENGTH
191		BCTR	R5,0	
192		EX	R5,MVCNAME	GET JOB NAME
193		LA	R7,1(R3)	ADDRESS FIRST COMMA + 1
194		LTR	R4,R4	SECOND COMMA SPECIFIED?
195		BZ	DD37	NO SECOND OPERAND
196		LR	R8,R4	GET ADDRESS SECOND COMMA
197		SR	R8,R7	GET LENGTH OF NUMBER
198		C	R8,CF006	NUMBER TOO LONG?
199		BH	DD44	YES,BRANCH
200		LR	R6,R8	SAVE LENGTH NUMBER
201	DD32	LTR	R8,R8	IS NUMBER SPECIFIED?
202		BZ	DD40	NO,BRANCH
203	DD34	CLI	0(R7),X'F0'	LOWER THAN 0
204		BL	DD44	YES, INVALID JOBNUMBER
205		CLI	0(R7),X'F9'	HIGHER THAN 9
206		BH	DD44	YES, INVALID JOBNUMBER
207		LA	R7,1(R7)	GET NEXT BYTE
208		BCT	R8,DD34	CONTINUE CHECK
209		BCTR	R6,0	GET LENGTH - 1
210		LA	R3,1(R3)	GET START ADDRESS JOBNUMBER

```

211      EX      R6,DD36      MAKE IT DECIMAL
212      CVB     R8,CVD       CONVERT TO BINARY
213      STH     R8,JBNR      AND SAVE IT
214      B       DD40         GO CHECK THIRD ENTRY
215 DD36  PACK   CVD,0(0,R3)  PACK JOBNUMBER

217 *      JOBNAME AND FUNCTION SPECIFIED
218 DD37  CLI    0(R7),C'L'
219      BE     DD41
220      CLI    0(R7),C'R'
221      BE     DD41
222      CLI    0(R7),C'P'
223      BE     DD41

225 *      JOBNAME AND JOBNUMBER SPECIFIED
226 DD38  LR     R8,R9        GET ADDRESS FIRST BLANK
227      SR     R8,R7        GET LENGTH NUMBER
228      LR     R6,R8        SAVE LENGTH
229      B      DD32        GO SAVE JOBNUMBER

231 *      JOBNAME JOBNUMBER AND FUNCTION SPECIFIED
232 DD40  LTR    R4,R4        IS THIRD ENTRY SPECIFIED?
233      BZ     DD43

235      BCTR   R9,0         GET ADDRESS THIRD ENTRY
236      CLI    1(R4),C'L'   LIST ENTRY SPECIFIED
237      BE     DD42         YES,BRANCH
238      CLI    1(R4),C'P'   PUNCH ENTRY SPECIFIED?
239      BE     DD42         YES,BRANCH
240      CLI    1(R4),C'R'   READ ENTRY SPECIFIED
241      BNE    DD48         YES,BRANCH

244 *      PASS DATA TO CSECTA TO SPOOL TO TAPE
245 DD42  MVC    JOBFCT,0(R9)  SAVE JOB FUNCTION
246      BAL    RE,DDDD
247      B      DD10
248 DD41  MVC    JOBFCT,0(R7)  SAVE JOB FUNCTION
249      MVC    JBNR,=X'0000'  SET JOB NUMBER TO BINARY ZERO
250 DD43  BAL    RE,DDDD
251      B      DD10

253 *      MESSAGES AFTER INVALID OPERATOR REPLY

255 *      INVALID JOBNUMBER
256 DD44  MVC    MSGAR(27),MSG3
257      BAL    RE,MSGPRTC      PRINT MESSAGE
258      B      DD10           ISSUE MESSAGE 'SPOOL FUNCTION=

260 *      INVALID JOBNAME

```

```

261 DD46      MVC      MSGAR(25),MSG5
262          BAL      RE,MSGPRTC          PRINT MESSAGE
263          B        DD10              ISSUE MESSAGE 'SPOOL FUNCTION='

265 *        INVALID THIRD OPERAND
266 DD48      MVC      MSGAR(21),MSG4
267          BAL      RE,MSGPRTC          PRINT MESSAGE
268          B        DD10              ISSUE START MESSAGE AGAIN

270 *        INVALID REPLY
271 DD50      MVC      MSGAR(13),MSG6     MOVE MESSAGE FOR PRINT
272          BAL      RE,MSGPRTC          PRINT MESSAGE ON CONSOLE
273          B        DD10              AND REPEAT START MESSAGE AGAIN

275 *        CHECK CANCEL CODE FROM CSECTA
276 PROC      MVI      CANCEL,C' '
277          B        EOJ
278 PROM      MVI      CANCEL,C' '
279          MVC      EOJRPLY,=C'SENE'
280          MVC      MSGAR,MSG2
281          BAL      RE,MSGWAIT          ISSUE MESSAGE TO MOUNT NEW TAPE
282          BAL      RE,DDDD
283          CLI      EOP,C'P'           IS END OF PAGE?
284          BE      DD08                YES, WRITE HEADING REPORT
285          B        DD10                NO, ISSUE MESSAGE 'SPOOL FUNCTION='
286 PRON      MVI      CANCEL,C' '
287          MVC      MSG1+8(8),RPLYJNM
288          MVC      MSGAR,MSG1
289          BAL      RE,MSGPRTC          ISSUE MESSAGE '...NOT FOUND'
290          CLI      EOP,C'P'
291          BE      DD08
292          B        DD10
293 PROQ      MVC      EOJRPLY,=C'CONT'
294          B        DD08
295 PROCONT   MVI      CANCEL,C' '
296          MVC      EOJRPLY,=C'CONT'
297          BAL      RE,DDDD
298          CLI      EOP,C'P'
299          BE      DD08
300          B        DD10
301 PROR      MVI      CANCEL,C' '
302          MVC      EOJRPLY,=C'EOJ'
303          CLI      EOP,C'P'
304          BE      DD08
305          B        DD10
306 PROX      MVI      CANCEL,C' '
307          MVC      MSG8(17),INREP
308          MVC      MSGAR,MSG8          ISSUE MESSAGE 'JOB...IN EXECUTION
309          BAL      RE,MSGPRTC
310          CLI      EOP,C'P'
311          BE      DD08

```

```

312          B      DD10

314 *        PRINT HEADING REPORT TO PRINTER
315 DD68     LA      R1,PRCCB
316          USING PRCCB,R1
317          SVC      0
318          WAIT     (R1)
324          MVC      PRTIO,CLEAR
325          BR       RE
326          DROP     R1

328 *        PRINT MESSAGE REQUIRE FOR ANOTHER TAPE REEL TO CONSOLE
329 MSGWAIT  LA      R1,WAITCB
330          USING WAITCB,R1
331          SVC      0
332          WAIT     (R1)
338          TM       WAITCB+4,X'01'
339          BO       MSGWAIT
340          OC       WAITREP,BLANKS
341          CLC      WAITREP(2),=C'OK'
342          BNE      MSGWAIT
343          MVC      MSGAR,BLANKS
344          BR       RE
345          DROP     R1

347 *        PRINT MESSAGE AFTER INVALID OPERATOR REPLY TO CONSOLE
348 MSGPRTC  LA      R1,MSGCCCB
349          USING MSGCCCB,R1
350          SVC      0
351          WAIT     (R1)
357          MVC      MSGAR,BLANKS
358          BR       RE
359          DROP     R1

361 *        BRANCH AND LINK TO CSECTA
362 DDDD     EQU      *
363          ST       RE,SAVER          STORE CALLER POINTER
364          LA      1,JBNR            ADDR OF SENT PARAMETER
365          L       15,=A(CSECTA)     ADDR OF CSECTA
366          BALR   14,15              BRANCH TO CSECTA
367          MVC     CANCEL,0(1)        KEEP VALUE OF SENT PARAMETER
368          MVC     CANCEL+1(15),1(1)  KEEP VALUE OF SENT PARAMETER
369          CLI     CANCEL,C'C'        IS TO CANCEL PROGRAM?
370          BE      PROC
371          CLI     CANCEL,C'N'        IS JOB NOT FOUND?
372          BE      PRON
373          CLI     CANCEL,C'M'        IS TO CHANGE TAPE REEL?
374          BE      PROM              YES, BRANCH
375          CLI     CANCEL,C'R'        IS END OF R/L/P/*J?
376          BE      PROR              YES, BRANCH
377          CLI     CANCEL,C'X'        IS JOB IN EXECUTION?
378          BE      PROX              YES, BRANCH
379          CLI     CANCEL,C'E'        IS EOJ?
380          BE      EOJ

```

331	MVC	MSG7(8),CANCEL+1	
382	MVC	MSG7+9(5),CANCEL+9	
383	MVC	MSG7+15(1),CANCEL+14	
384	MVC	MSGAR,MSG7	ISSUE MESSAGE 'JOB...IS SPOOLED
385	BAL	RE,MSGPRTC	
386	CLI	CANCEL,C'Q'	IS END OF PAGE OF R/L/P/*J?
387	BE	PROQ	
388	CLI	CANCEL,C'*'	IS THERE ANOTHER R/L/P/*J?
389	BE	PROCONT	
390	CLI	EOP,C'P'	IS END OF PAGE?
391	BE	DD08	YES, WRITE HEADING REPORT
392	L	RE,SAVER	LOAD CALLER POINTER
393	BR	RE	BRANCH TO CALLER
396 *	CCB	FOR REQUIRE ANOTHER TAPE REEL	
397	DS	OF	
398 WAITCB	CCB	SYSLOG,WAITCW,X'0000'	
409 WAITCW	CCW	X'01',MSGAR,X'60',30	
410	CCW	X'0A',WAITREP,X'20',3	
411 WAITREP	DC	CL3'	
413 *	CCB	ASK FOR SPOOL FUNCTION	
414	DS	OF	
415 INCB	CCB	SYSLOG,INCW,X'0000'	
426 INCW	CCW	X'01',INMSG,X'60',15	
427	CCW	X'0A',INREP,X'20',17	
429 *	CCB	FOR INVALID OPERATOR REPLY	
430	DS	OF	
431 MSGCCCB	CCB	SYSLOG,MSGCCCW,X'0000'	
442 MSGCCCW	CCW	X'09',MSGAR,X'20',30	
443 MSGAR	DC	CL30'	
445 *	CCB	AND I/O AREA FOR PRINT TO PRINTER	
446	DS	OF	
447 PRCCB	CCB	SYSLST,PRTCCW,X'8400'	
459 PRTCCW	CCW	X'09',PRTIO,X'00',120	
460	DC	C' '	
461 PRTIO	DS	CL120	
463 *		DATA TRANSFER TO CSECTA	
464 JBNR	DC	H'0'	JOB NUMBER
465 JBNL	DC	X'0'	JOB NAME LENGTH
466 JOBFCT	DC	C'L'	JOB FUNCTION
467 FDMP	DC	C' '	ONLY JOB FUNCTION SPECIFIED
468 EOJRPLY	DC	C'EOJ'	
469 RPLYJNM	DC	CL8'	JOB NAME
470 INMSG	DC	CL15'SPOOL FUNCTION='	
471 INREP	DC	CL17' '	REPLY AREA
472 JOBEX	DS	CL8	



```

474 * MESSAGE TO CONSOLE
475 MSG1 DC C'****JOB ABCDEFGH NOT FOUND****'
476 MSG2 DC C'PLEASE MOUNT ANOTHER TAPE REEL'
477 MSG3 DC C'INVALID JOBNUMBER SPECIFIED'
478 MSG4 DC C'INVALID THIRD OPERAND'
479 MSG5 DC C'INVALID JOBNAME SPECIFIED'
480 MSG6 DC C'INVALID REPLY'
481 MSG7 DC C'XXXXXXXX,99999, IS SPOOLED '
482 MSG8 DC C'XXXXXXXXXXXXXXXXXXXXX IN EXECUTION'

```

```

484 * FIELD NECESSARY FOR CHECKING
485 SAVER DS F SAVE POINTER AREA
486 CF006 DC F'6'
487 CF008 DC F'8'
488 CVD DC D'0'
489 JOBDATE DS CL8
490 JOBTIME DS CL13
491 JOBTIMEP DC XL13'4021202061202061202040D7D4'
492 STTIME DS F
493 BLANKS DC CL34' '
494 CLEAR DC 120C' '
495 CANCEL DC CL1' ' PARAMETER AREA
496 DS CL14 PARAMETER AREA
497 EOP DC C' ' PARAMETER AREA
498 LTRG
499 =C'
500 =F'300'
501 =F'60'
502 =C'DATE'
503 =C'CONT'
504 =C'EOJ '
505 =C'EOJ*'
506 =C'SENE'
507 =A(CSECTA)
508 =C'SPOOLING STATUS REPORT'
509 =X'0000'
510 =C'OK'
511 =C'TIME:'
512 =C'CLASS CARDS PAGES PAGES PAGES PAG
ES'
513 =C'(00E) (01E) (02E) (03E)'
514 =C'END OF SPOOL FUNCTION'
515 IPW$EQU

```

```

536 *****
537 CSECTA   CSECT
538 *
539 *       THIS PROGRAM READ QUE FILE SEQUENTIALLY FOR SEARCH FIRST REC
540 *       FOR QUE RECORD NEXT TO THE FIRST READ RANDOMLY BY THE QUE RE
541 *       THEN RETRIEVE DATA RECORD FROM DATA FILE RANDOMLY TO FORM
542 *       SPOOLING TO TAPE FOR RDR,PRT,PUN POWER/VIS TASKS.
543 *

```

```

545 *       STORE CONTENT OF REGISTER 1 TO 15 FROM DDCS
546 USING  *,15
547 LA     13,SAVEC
548 STM   14,12,12(13)
549 BALR  2,0
550 USING  *,2,3,4,5

```

```

552 *       CHECK EOJRPLY2 DATA TRANSFERED FOR CLOSE RDR,PRT,PUN TAPE OR
553 *       CLOSE AND REWIND PRT,PUN TAPE
554 HERE   EQU   *
555 LM     3,5,BASES
556 MVC   JBNR2(57),0(1)      KEEP VALUE OF SENT PARAMETER
557 LA    1,CANCEL2
558 ST    1,SAVEC+24         KEEP ADDR OF SENT PARAMETER
559 MVI   EOP2,C' '
560 CLC   EOJRPLY2,=C'EOJ*'  IS EOJ?
561 BE    CHKFLAG
562 CLC   EOJRPLY2,=C'SENE'  IS NEW TAPE REEL?
563 BE    TPMARK             YES, BRANCH TO WRITE TAPE MARK
564 CLC   EOJRPLY2,=C'CONT'  IS THERE ANOTHER R/L/P/*J?
565 BE    READSD             YES, BRANCH TO READ Q FILE
566 B     PROCESS
567 TPMARK EQU   *
568 CLI   IDENT,C'P'
569 BE    TPMARKP
570 CLI   IDENT,C'L'
571 BE    TPMARKL
572 B     CRERDR
573 CHKFLAG CLI  PRTFLAG,C'Y'  IS PRT TAPE OPENED?
574 BNE   CLOSE2            NO, ANOTHER CASE
575 BAL   10,CLOSEPRT       YES, CLOSE PRT TAPE FILE
576 CLOSE2 EQU   *
577 CLI   OPENRDR,C'O'      IS RDR TAPE OPENED?
578 BNE   CLOSE3            NO, ANOTHER CASE
579 BAL   10,CLOSERDR       YES, CLOSE RDR TAPE
580 CLOSE3 CLI  PUNFLAG,C'Y'  IS PUN TAPE OPENED?
581 BNE   CLOSE4            NO, WRITE LAST LINE REPORT
582 BAL   10,CLOSEPUN       YES, CLOSE PUN TAPE FILE

```

```

584 * PRINT LAST LINE REPORT
585 CLOSE4 MVC PRINTB+50(5),=C'TOTAL'
586 MVC MSGCARDS,PATPACK
587 ED MSGCARDS,PCD
588 MVC MSG00E,PATPACK
589 ED MSG00E,POOE
590 MVC MSG01E,PATPACK
591 ED MSG01E,PO1E
592 MVC MSG02E,PATPACK
593 ED MSG02E,PO2E
594 MVC MSG03E,PATPACK
595 ED MSG03E,PO3E
596 PUT PRINTM
601 MVI CANCEL2,C'E' SET FLAG=E
602 B CALLRET2

```

```

604 * AREA FOR SAVE CONTENT OF REGISTERS FOR DDCS AND BASE REGISTER
605 DS OF
606 SAVEC DS 18F
607 BASES DC A(HERE+4096,HERE+8192,HERE+12288)
608 DROP 15

```

```

610 PROCESS EQU *
611 OPEN PRINTM,QREC,DDISK
621 MVC PRINTB,PRINTB-1
622 MVI TERMINTF,C' ' SET OPEN FILE FLAG ON

```

623 \*  
624 \* THIS ROUTINE READ QUE RECORD SEQUENTIALLY  
625 \* AND TEST FOR THE SPECIFIED CONDITION ON QUE REC.  
626 \*

627 \*\*\*\*\*

```

623 MVI QR,X'02'
629 CHKNOREC CLI QR,X'1B' IS LAST Q RECORD IN TRACK?
630 BNE RDQREC NO, BRANCH
631 MVI QR,X'01'
632 SR 6,6
633 MVC SUMQ,QHH
634 LH 6,SUMQ
635 AH 6,ZERONE
636 STH 6,SUMQ
637 MVC QHH,SUMQ
638 CLC QHH,=X'000C' IS LAST TRACK IN CYLINDER?
639 BE RDNXTC
640 RDQREC READ QREC,ID
645 WAITF QREC
650 TM ERROR,X'08' IS ERROR ON DISK?
651 BNZ DERROR
652 CLC JOBNM,=C'ABJBBMV6'
653 BE READSD
654 CLI FISTSW,X'01' IS FIRST Q RECORD IN Q SET?
655 BNE READSD NO, READ NEW Q RECORD?

```

656	CLI	FDMP2,C' '	IS ONLY JOB FUNCTION SPECIFIED?
657	BE	FINDJN	NO, CHECK JOB NAME & JOB NUMBER
658	CLC	IDENT,FDMP2	
659	BE	CHKTYP	
660	B	READSD	
661 FINDJN1	SR	8,8	
662	IC	8,JBNL2	
663	LA	9,2	
664	SR	8,9	GET JOB NAME LENGTH
665	EX	8,CNAME1	
666	BNE	READSD	
667	B	CHKJOBNO	
668 CNAME	CLC	JOBNM(0),RPLYJNM2	
669 CNAME1	CLC	JOBNM(0),RPLYJNM2+1	
670 FINDJN	CLI	RPLYJNM2,C'*	IS *JOB NAME?
671	BE	FINDJN1	YES, BRANCH
672	SR	8,8	
673	IC	8,JBNL2	
674	LA	9,1	
675	SR	8,9	GET JOB NAME LENGTH
676	EX	8,CNAME	
677	BNE	READSD	
678 CHKJOBNO	EQU	*	
679	CLC	JBNR2,=X'0000'	IS JOB NUMBER SPECIFIED?
680	BE	CHKFCT	NO, BRANCH
681	CLC	JBNR2,JOBNO	IS MATCH JOB NUMBER?
682	BNE	READSD	NO, READ NEW Q RECORD
683 CHKFCT	CLC	IDENT,JOBFCT2	
684	BNE	READSD	NO, READ NEW Q RECORD
685	B	CHKTYP	
686 READSD	CLI	IDENT,C'D'	IS END OF Q FILE?
687	BE	TELLD	
688	SR	6,6	
689	IC	6,QR	
690	AH	6,ZERONE	
691	STC	6,QR	
692	B	CHKNOREC	
693 RDNXTC	SR	6,6	
694	MVC	SUMQ,QCC	
695	LH	6,SUMQ	
696	AH	6,ZERONE	
697	STH	6,SUMQ	
698	MVC	QCC,SUMQ	
699	MVC	QHH,=X'0000'	
700	CLC	UPPEREX,QCC	IS END EXTENT?
701	BNL	CHKNOREC	
702	B	TELLEND	

704 \* FORM PART OF EACH LINE REPORT AND CHECK TYPE OF SPOOL TAP  
705 CHKTYP EQU \*  
706 MVC PRINTB,PRINTB-1

```

707 *      CREATE LINE REPORT
708      MVC      FFFF+2(2),JOBNO
709      LH       10,FFFF+2
710      CVD      10,PACKJNG
711      MVC      JNOAREA1,PATJNO
712      ED       JNOAREA1,PACKJNO+4
713      MVC      JNOAREA,JNOAREA1+2
714      MVC      JNMAREA,JOBNM
715      MVC      JFUNCT,IDENT
716      MVC      SPOOLMSG(15),PRNTMSG
717      MVC      SPOOLMSG+15(8),JOBNM
718      MVC      SPOOLMSG+23(1),=C', '
719      MVC      SPOOLMSG+24(5),JNOAREA
720      MVC      SPOOLMSG+29(1),=C', '
721      MVC      SPOOLMSG+30(1),IDENT
722      CLI      EXCSW,C'X'          IS JOB IN EXECUTION?
723      BE       TELLEXCJ
724      MVC      SAVEEXT,NXTENT
725      AP       PFNO,PACK1
726      MVC      FNO,PATFNO
727      ED       FNO,PFNO
728      MVC      FNO+4(2),=X'4B40'
729      MVC      MSGCLASS,CLASS
730      MVI      DISP,C'T'          CHANGE DISP TO 'T'
731      MVC      DUMYQBUF,QBUFF
732      MVC      RECCOUNT,Z1          SET BINARY ZERO VALUE
733      MVC      NOADDRREC,Z2        SET BINARY ZERO VALUE
734      MVC      NEXTREC,Z3          SET BINARY ZERO VALUE
735      MVI      SWFIST-1,X'00'      OFF EXECUTION SWITCH
736      MVI      SWFIST,X'01'       SET FIRST IN SET SWITCH
737      MVI      SWFIST+1,X'00'     SET NO SEGMENTATION
738      MVI      SUFNO,X'00'        SET JOB SUFFIX NUMBER TO ZERO
739      CLI      SPARE,C' '
740      BNE      COMSPARE
741      MVC      SPARE,IDENT
742 COMSPARE EQU      *
743      CLC      IDENT,SPARE          IS NEW JOB SAME TYPE?
744      BNE      CLOSERW             NO, CLOSE AND REWIND TAPE FILE
745      CLI      IDENT,C'R'          IS RDR TYPE?
746      BE       CRERDR
747      CLI      IDENT,C'P'          IS PUN TYPE?
748      BE       CREPUN             YES, CREATE PUN TAPE
749      CLI      PRTFLAG,C'Y'       IS PRT TYPE?
750      BE       CREPRT             YES, CREATE PRT TAPE

752 *      FORM A PRT JOB SPOOL TAPE
753 TPMARKL EQU      *
754      MVC      CLASSFL,CLASS        STORE CLASS OF JOB
755      MVC      CHUNF,CHUN
756      MVI      TAPELCCW,X'1F'     SET WRITE TAPE MARK
757      BAL      11,WRITEPRT

```

```

753      MVI      PRTFLAG,C'Y'
759 CREPRT EQU      *
760      CLC      CLASSFL,CLASS      IS NEW JOB SAME CLASS?
761      BNE      CREPRT2      NO, CLOSE AND REWIND PRT TAPE
762      CLC      CHUNF,CHUN      IS NEW JOB SAME DEVICE?
763      BNE      CREPRT2      NO, CLOSE AND REWIND PRT TAPE
764      SR       10,10
765 *      CREATE NUMBER OF PAGE IN REPORT
766      MVC      FFFF+2(2),NOPAGE
767      LH       10,FFFF+2
768      CVD      10,PACKPAGE
769      CLC      CHUN,=C'00E'
770      BE       PAGE0
771      CLC      CHUN,=C'01E'
772      BE       PAGE1
773      CLC      CHUN,=C'02E'
774      BE       PAGE2
775 PAGE3  AP       PO3E,PACKPAGE+5(3)
776      MVC      MSG03E,PATPACK
777      ED       MSG03E,PACKPAGE+5
778      B        LINEPRNT
779 PAGE2  AP       PO2E,PACKPAGE+5(3)
780      MVC      MSG02E,PATPACK
781      ED       MSG02E,PACKPAGE+5
782      B        LINEPRNT
783 PAGE1  AP       PO1E,PACKPAGE+5(3)
784      MVC      MSG01E,PATPACK
785      ED       MSG01E,PACKPAGE+5
786      B        LINEPRNT
787 PAGE0  AP       PO0E,PACKPAGE+5(3)
788      MVC      MSG00E,PATPACK
789      ED       MSG00E,PACKPAGE+5
790 LINEPRNT PUT     PRINTM
795      MVC      PRINTB,PRINTB-1
796      AP       PLCOUNT,PACK1
797      MVI      TERMINTF,C'*'      SET OPEN FILE FLAG ON
798      MVC      TAPEIO(152),DUMYQBUF
799      MVC      TAPELCCW+6(2),=H'152'
800      MVI      TAPELCCW,X'01'
801      BAL      11,WRITEPRT
802      MVI      CCODE,C'L'

804 *      LOAD DATA FILE SEEK ADDRESS
805 *
806 READATA EQU      *
807 LDSEEK  EQU      *
808      MVC      ADDR,FISTBLK
809      MVI      DM,X'00'
810 *
811 *      TEST FOR LAST DATA RECOED IN 1 TRACK.
812 *      TEST FOR LAST TRACK IN TRACK GROUP.

```

```

813 *
814 RODISK EQU *
815 CLI DR,X'05' IS LAST RECORD IN TRACK?
816 BNE RRODATA
817 MVI DR,X'01'
818 SR 10,10
819 MVC SUM,DHH
820 LH 10,SUM
821 AH 10,ZERONE
822 STH 10,SUM
823 MVC DHH,SUM
824 CLC DHH,=X'000C' IS LAST TRACK IN CYLINDER?
825 BE RDNXTQ YES, READ NEXT DATA RECORD
826 *
827 * READ DATA FILE RANDOMLY
828 *
829 RRODATA EQU *
830 READ DDISK,ID
835 WAITF DDISK
840 TM ERROR,X'08' IS ERROR ON D FILE?
841 BNZ DERROR YES, BRANCH TO ERR ROUTINE
842 LA 8,BUFF
843 L 7,=F'1966'
844 L 9,XECNTL
845 OR 9,7
846 LA 6,TAPEIO
847 MVCL 6,8
848 CLI CCODE,C'L'
849 BE FISTBLL
850 BAL 14,SCREEN
851 CALPOINT EQU *
852 SR 10,10
853 IC 10,DR
854 AH 10,ZERONE
855 STC 10,DR
856 B RRODISK
857 FISTBLL EQU * READ NEW RECORD IN D FILE
858 MVC TAPELCCW+6(2),=H'1966'
859 BAL 11,WRITEPRT
860 MVI CCODE,C' '
861 B CALPOINT
862 *
863 * READ NEXT QUE ENTRY IN SET RANDOMLY
864 *
865 RDNXTQ EQU *
866 CLC NEXTRS,ZZERO IS LAST DATA RECORD OF JOB?
867 BE AAA YES, BRANCH
868 MVC NXTENT,NEXTRS NO, READ NEXT DATA RECORD
869 MVI QM,X'00'
870 READ QREC,ID
875 WAITF QREC
880 B LDSEEK

```



```
882 *      CLOSE AND REWIND PRT TAPE
883 CREPRT2 MVI  TAPELCCW,X'1F'
884         BAL  11,WRITEPRT
885         MVI  TAPELCCW,X'0F'
886         BAL  11,WRITEPRT
387         MVI  CANCEL2,C'M'
388         MVI  PRTFLAG,C' '
889         MVC  SPARE,IDENT
390         B    CALLRET2
891 CREPUN  EQU  *
892         CLI  PUNFLAG,C'Y'      IS PUN TAPE FILE OPENED?
893         BE   CREPUN2          YES, BRANCH

395 *      FORM A PUN JOB SPOOL TAPE
396 TPMARKP MVC  CLASSFP,CLASS
897         MVI  TAPEPCCW,X'1F'
898         BAL  11,WRITEPUN
899         MVI  PUNFLAG,C'Y'
900 *      CREATE NUMBER OF CARD PUNCH IN REPORT
901 CREPUN2 EQU  *
902         MVC  FFFF,RECOUNT
903         L    10,FFFF
904         CVD  10,PACKPAGE
905         AP   PCD,PACKPAGE+5(3)
906         MVC  MSGCARDS,PATPACK
907         ED   MSGCARDS,PACKPAGE+5
908         PUT  PRINTM
909         MVC  PRINTB,PRINTB-1
910         AP   PLCOUNT,PACK1
911         MVI  TERMINTF,C'*'
912         CLC  CLASSFP,CLASS
913         BNE  CREPUN3
914         MVC  TAPEIO(152),DUMYQBUF
915         MVC  TAPEPCCW+6(2),=H'152'
916         MVI  TAPEPCCW,X'01'
917         BAL  11,WRITEPUN
918         B    READDATA          BRANCH TO READ DATA OF JOB
919
924 *      CLOSE AND REWIND PUN TAPE
925 CREPUN3 MVI  TAPEPCCW,X'1F'
926         BAL  11,WRITEPUN
927         MVI  TAPEPCCW,X'0F'
928         BAL  11,WRITEPUN
929         MVI  CANCEL2,C'M'
930         MVI  PUNFLAG,C' '
931         MVC  SPARE,IDENT
932         B    CALLRET2
```



```

934 *          CLOSE AND REWIND RDR TAPE
935 CRERDR2   MVI   TAPECCW,X'1F'
936          BAL   11,WRITERDR
937          MVI   TAPECCW,X'OF'
938          BAL   11,WRITERDR
939          MVI   CANCEL2,C'M'
940          MVI   OPENRDR,C' '
941          MVC   SPARE,IDENT
942          B     CALLRET2

944 *          CHECK FOR CLOSE AND REWIND RDR,PRT,PUN TAPE
945 CLOSERW    CLI   SPARE,C'R'
946          BE   CRERDR2
947          CLI   SPARE,C'P'
948          BE   CREPUN3
949          B     CREPRT2

951 *          FORM A RDR JOB SPOOL TAPE
952 CRERDR    CLI   FDMP2,C'R'
953          BNE   RDRREQ
954          CLI   OPENRDR,C'O'
955          BE   WRTRDR
956 RDRREQ    EQU   *
957          MVI   TERMINTF,C'*'
958          MVI   OPENRDR,C'O'
959 WRTRDR    EQU   *
960          PUT   PRINTM
961          MVC   PRINTB,PRINTB-1
962          AP   PLCOUNT,PACK1
963          B     READDATA

969 *          CHECK CONTROL INFORMATION IN DBLK
970 SCREEN    EQU   *
971          ST   14,REG14
972          SR   10,10
973          LA   6,TAPEIO
974          L   7,=F'1966'
975          LA   8,BUFF          LOAD 1ST ADDRESS OF BUFFER
976 LABB      MVC   GETLEN+2(2),0(8)
977          L   12,GETLEN
978          AR   10,12
979          L   9,XECNTL
980          OR   9,12
981          MVCL 6,8
982          LA   6,TAPEIO
983          AR   6,10
984          SR   6,12
985          CLI  2(6),X'10'      IS END BLOCK OF JOB?
986          BE   ENDBLOCK      YES, BRANCH
987          CLI  2(6),X'11'      IS END BLOCK OF JOB?
988          BE   ENDBLOCK      YES, BRANCH
989          CLI  2(6),X'04'      IS END DATA OF JOB?

```

```

990      BE      ENDDATA      YES, BRANCH
991      CLI     2(6),X'08'    IS BREAK RECORD?
992      BE      BREKREC      YES, BRANCH
993      CLI     FDMP2,C'R'
994      BE      RDRFORM2
995      CLI     JOBFCT2,C'R'
996      BE      RDRFORM2
997 LA1    EQU     *
998      L       7,=F'1966'
999      SR      7,10
1000     BM      INCOMPTQ      LENGTH OVER
1001     AR      6,12
1002     B       LABB          GET NEXT RECORD IN BLOCK
1003 *     CREATE INCOMPLETE JOB LINE REPORT
1004 INCOMPTQ EQU     *
1005     MVC      SPOOLMSG(32),PRNTMSG
1006     MVC      SPOOLMSG+42(33),=C'JOB ENTRY IS INCOMPLETE EXECUTION'
1007     PUT      PRINTM
1012     MVC      PRINTB,PRINTB-1
1013     AP      PLCOUNT,PACK1
1014     LA      6,TAPEIO
1015     L       7,=F'1966'
1016     LA      8,HEXAEOJ
1017     L       9,XECNTL
1018     SR      12,12
1019     LA      12,5
1020     OR      9,12
1021     MVCL   6,8
1022     B       ENDDATA
1023 BREKREC EQU     *
1024 ENDBLOCK CLI     IDENT,C'R'
1025     BE      RDRFORM3
1026     CLI     IDENT,C'P'
1027     BE      PUNFORM
1028     BAL    11,WRITEPRT
1029     L       14,REG14
1030     BR      14          BRANCH TO READ NEXT BLOCK

1032 *     WRITE RECORD LENGTH 1966 BYTES WITH PADDING ZERO TO PUN TAPE
1033 PUNFORM EQU     *
1034     MVC      TAPEPCW+6(2),=H'1966'
1035     BAL    11,WRITEPUN
1036     L       14,REG14
1037     BR      14

1039 *     WRITE RECORD LENGTH 80 BYTES WITH PADDING BLANK TO RDR TAPE
1040 RDRFORM STM      0,15,STREG2
1041     MVI     TAPER,C' '
1042     MVC     TAPER+1(79),TAPER
1043     LA      8,4
1044     LR      7,12

```

```

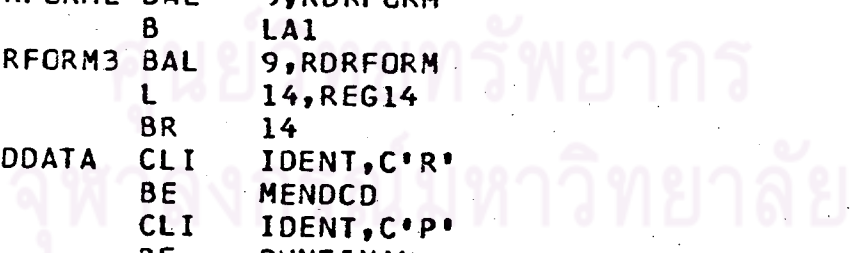
1045      SR      7,8
1046      LA      9,TAPER
1047      AR      6,8
1048 LOOP  MVC    0(1,9),0(6)
1049      LA      9,1(9)
1050      LA      6,1(6)
1051      BCT    7,LOOP
1052      LM      0,15,STREG2
1053      MVI    TAPECCW,X'01'
1054      BAL    11,WRITERDR
1055      BR      9

1057 *      WRITE DATA TO RDR TAPE
1058 WRITERDR LA    1,RDRCCB
1059      USING  RDRCCB,1
1060      SVC    0
1061      WAIT   (1)
1066      BR     11
1067      DROP  1

1069 *      WRITE DATA TO PUN TAPE
1070 WRITEPUN LA    1,PUNCCB
1071      USING  PUNCCB,1
1072      SVC    0
1073      WAIT   (1)
1078      BR     11
1079      DROP  1

1081 *      WRITE DATA TO PRT TAPE
1082 WRITEPRT LA    1,PRTCCB
1083      USING  PRTCCB,1
1084      SVC    0
1085      WAIT   (1)
1090      BR     11
1091      DROP  1
1092 RDRFORM2 BAL   9,RDRFORM
1093      B      LA1
1094 RDRFORM3 BAL   9,RDRFORM
1095      L      14,REG14
1096      BR     14
1097 ENDDATA CLI   IDENT,C'R'
1098      BE     MENDCD
1099      CLI   IDENT,C'P'
1100      BE     PUNFINAL
1101      BAL   11,WRITEPRT
1102      MVC   DUMYQBUF,QBUFF
1103      MVI   SWFIST-1,X'00'
1104      MVI   SWFIST,X'01'
1105      MVI   SWFIST+1,X'00'
1106      MVC   NEXTREC,Z3

```



```

1108 *      WRITE QUEUE RECORD TO PRT TAPE AND CLOSE PRT TAPE
1109      MVC      TAPEIO(152),DUMYQBUF
1110      MVC      TAPELCCW+6(2),=H'152'
1111      BAL      11,WRITEPRT
1112 ENDPRT  EQU      *
1113      MVI      TAPELCCW,X'1F'
1114      BAL      11,WRITEPRT
1115      B        AAA
1116 MENDCD  EQU      *
1117      BAL      9,RDRFORM
1118      B        AAA

1120 *      WRITE QUEUE RECORD TO PUN TAPE AND CLOSE PUN TAPE
1121 PUNFINAL EQU      *
1122      BAL      11,WRITEPUN
1123      MVC      DUMYQBUF,QBUFF
1124      MVI      SWFIST-1,X'00'
1125      MVI      SWFIST,X'01'
1126      MVI      SWFIST+1,X'00'
1127      MVC      NEXTREC,Z3
1128      MVC      TAPEIO(152),DUMYQBUF
1129      MVC      TAPEPCCW+6(2),=H'152'
1130      BAL      11,WRITEPUN
1131 ENDPUN  EQU      *
1132      MVI      TAPEPCCW,X'1F'
1133      BAL      11,WRITEPUN
1134      B        AAA

1136 *      CHECK IS FINISH TO RETURN TO CALLER
1137 AAA2    CLI      RPLYJNM2,C'*'
1138      BNE      FINISH
1139      MVC      NXTENT,SAVEEXT
1140      MVI      CANCEL2,C'*'          SET FLAG=*
1141      B        CALLRET2
1142 AAA     CLI      FDMP2,X'40'
1143      BE       AAA2
1144      MVC      NXTENT,SAVEEXT
1145      MVI      CANCEL2,C'*'          SET FLAG=*
1146      B        CALLRET2
1147 DERROR  MVC      PRINTB+10(13),=C'ERROR ON DISK'
1148      PUT      PRINTM
1149      MVI      CANCEL2,C'C'          SET FLAG=C
1150      B        CALLRET
1151 TELLEXCJ EQU      *
1152      MVC      SPOOLMSG+42(28),=C'***JOB ENTRY IN EXECUTION***'
1153      PUT      PRINTM
1154      MVC      PRINTB,PRINTB-1
1155      AP      PLCOUNT,PACK1
1156      CLI      FDMP2,X'40'
1157      BE       EXCJ2
1158      B        READSD

```

```

1167 EXCJ2      CLI      RPLYJNM2,C'*'
1168           BE      READSD
1169           MVI      CANCEL2,C'X'      SET FLAG=X
1170           B       CALLRET
1171 TELLEND     EQU      *
1172 TELLD       EQU      *
1173           MVC      SPOOLMSG(32),PRNTMSG
1174           AP      PLCOUNT,PACK1
1175 NOTFOUND    EQU      *
1176           CLOSE   QREC,DDISK
1185           CLI      TERMINTF,C'*'      IS OPEN FILE FLAG ON?
1186           BNE     NCANCEL      NO, TELL NOT FOUND
1187           MVC      PRINTB+23(37),=C'#NO ALTER R/L/P OR R/L/P OF *JOBNAME#
1188           PUT      PRINTM
1193           MVC      PRINTB,PRINTB-1
1194           MVI      CANCEL2,C'R'      SET FLAG=R
1195           B       CALLRET
1196 NCANCEL     EQU      *
1197           MVC      SPOOLMSG+42(25),=C'***JOB ENTRY NOT FOUND***'
1198           PUT      PRINTM
1203           MVC      PRINTB,PRINTB-1
1204           MVI      CANCEL2,C'N'      SET FLAG=N
1205           B       CALLRET
1206 FINISH     EQU      *
1207           CLOSE   QREC,DDISK
1216           MVI      CANCEL2,C' '      SET FLAG=' '

1218 *         RETURN TO DDCS
1219 CALLRET     EQU      *
1220           CLOSE   PRINTM
1223 CALLRET2    EQU      *
1229           CP      PLCOUNT,PACK40      IS END OF PAGE?
1230           BE      SETPCODE
1231 CALLRET3    EQU      *
1232           LA      13,SAVEC
1233           LM      14,12,12(13)
1234           BR      14
1235 SETPCODE    CLI      CANCEL2,C'*'
1236           BE      SETQCODE
1237           MVI      EOP2,C'P'      SET END OF PAGE FLAG
1238           SP      PLCOUNT,PLCOUNT
1239           B       CALLRET3
1240 SETQCODE    MVI      CANCEL2,C'Q'      SET FLAG=Q
1241           SP      PLCOUNT,PLCOUNT
1242           B       CALLRET3

```

```

1243 CLOSERDR EQU *
1244 MVI TAPECCW,X'1F'
1245 BAL 11,WRITERDR
1246 MVI CANCEL2,C' '
1247 BR 10
1248 CLOSEPRT BAL 11,WRITEPRT
1249 MVI CANCEL2,C' '
1250 BR 10
1251 CLOSEPUN BAL 11,WRITEPUN
1252 MVI CANCEL2,C' '
1253 BR 10

```

```

1255 * KEEP START AND END EXTENT OF QUEUE FILE
1256 EXTENT MVC QCC,2(1)
1257 MVC QHH,4(1)
1258 MVC UPPEREX,6(1)
1259 LBRET 1

```



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย



1489		DC	4C' '
1490	MSG02E	DS	CL6
1491		DC	4C' '
1492	MSG03E	DS	CL6
1493		DC	14C' '

1495	*	DATA BUFFER.	
1496		DS	CL10
1497	BUFF	DS	CL1966

1499	*	SEEK ADDRESS OF DATA RECORD.	
1500	ADDR	DS	0XL8
1501	DM	DC	X'00'
1502	DBB	DC	X'0000'
1503	DCC	DC	X'0000'
1504	DHH	DC	X'0000'
1505	DR	DC	X'00'
1506	ERROR	DS	CL2

1508	*	QUE RECORD BUFFER.	
1509	QBUFF	DS	0CL152
1510	DATE	DS	CL8
1511	STARTT	DS	CL4
1512	ENDT	DS	CL4
1513	UNIFORM	DS	CL16
1514	JOBNM	DS	CL8
1515	JOBNO	DS	CL2
1516	IDENT	DS	CL1
1517	PCANCEL	DS	CL1
1518	LIDENT	DS	CL1
1519	CHUN	DS	CL3
1520	FROMTERM	DS	CL1
1521	TOTERM	DS	CL1
1522	CLASS	DS	CL1
1523	PRIOR	DS	CL1
1524	RECOUNT	DS	CL4
1525	NOTRCK	DS	CL2
1526	JOBSUF	DS	CL1
1527	NOCOPY	DS	CL1
1528	FIDENT	DS	CL4
1529	NOADREC	DS	CL4
1530	NOPAGE	DS	CL2
1531	NOEXPG	DS	CL2
1532	LNCCNT	DS	CL4
1533	RSTCOUNT	DS	CL4
1534	COPYR	DS	CL1
1535		DS	CL1
1536	DISP	DS	CL1
1537	NOSEP	DS	CL1
1538	RECSPT	DS	CL4
1539	MAXCNT	DS	CL4





1590	ZERO	DC	H'00'
1591	ZZERO	DC	X'0000000000000000'
1592	SAVEEXT	DC	XL8'00'
1593	USER	DC	X'01'
1594	UPPEREX	DS	F

1596 \* FLAG FOR CONTROL FILE

1597	CCODE	DC	C' '
1598	OPENRDR	DC	C' '
1599	TERMINTF	DC	C' '
1600	PRTFLAG	DC	C' '
1601	PUNFLAG	DC	C' '
1602	CLASSFL	DC	C' '
1603	CLASSFP	DC	C' '
1604	CHUNF	DS	CL3
1605	CANCEL2	DC	CL1' '
1606	JNMAREA	DS	CL8
1607	JNOAREA	DS	CL5
1608	JFUNCT	DS	CL1
1609	EOP2	DC	C' '
1610	JNOAREA1	DS	CL7
1611	SPARE	DC	C' '
1612	HEXAE0J	DC	XL5'0005040340'



1614 \* COUNT NUMBER FOR CARD PUNCH AND PRINTER

1615	PCD	DC	PL3'0'
1616	POOE	DC	PL3'0'
1617	PO1E	DC	PL3'0'
1618	PO2E	DC	PL3'0'
1619	PO3E	DC	PL3'0'
1620	PFNO	DC	PL2'0'
1621	PLCOUNT	DC	PL2'0'
1622	PACK1	DC	PL1'1'
1623	PACK40	DC	PL2'40'
1624	PACKPAGE	DS	D
1625	PACKJNO	DS	D
1626	PATPACK	DC	XL6'4020202020'
1627	PATFND	DC	XL4'40202021'
1628	PATJNO	DC	XL7'212020202020'

จุฬาลงกรณ์มหาวิทยาลัย

```

1630 *      BUFFER FOR CREATE H OF PRT/LST ON TAPE ****
1631 DUMYQBUF DS      OCL152
1632          DS      CL52
1633 RECCOUNT DS      CL4
1634          DS      CL2
1635 SUFNO     DS      CL1
1636          DS      CL5
1637 NOADDREC DS      CL18
1638          DS      CL23
1639 SWFIST    DC      X'01'
1640          DS      CL14
1641 NEXTREC   DS      CL32
1642 Z1        DC      4X'00'
1643 Z2        DC      18X'00'
1644 Z3        DC      32X'00'
1645          LTORG
1646          =C'$$BOPEN '
1647          =C'ABJBBMV6'
1648          =C'$$BCLOSE'
1649          =C'EOJ*'
1650          =C'SENE'
1651          =C'CONT'
1652          =A(PRINTM)
1653          =A(QREC)
1654          =A(DDISK)
1655          =F'1966'
1656          =C'***JOB ENTRY IN EXECUTION***'
1657          =X'000C'
1658          =X'0000'
1659          =X'4B40'
1660          =H'152'
1661          =H'1966'
1662          =C'TOTAL'
1663          =C','
1664          =C'00E'
1665          =C'01E'
1666          =C'02E'
1667          =C'JOB ENTRY IS INCOMPLETE EXECUTION'
1668          =C'ERROR ON DISK'
1669          =C'#NO ALTER R/L/P OR R/L/P OF *JOBNAME#'
1670          =C'***JOB ENTRY NOT FOUND***'
1671          END      DDCS

```



๑๐๒

ประวัติผู้เขียน

นางสาวนุชรี ภทรเจียรพันธุ์ เกิดวันที่ ๘ ตุลาคม พ.ศ. ๒๕๐๒  
ที่กรุงเทพฯ สำเร็จการศึกษาปริญญาศิลปศาสตรบัณฑิต จากจุฬาลงกรณ์มหาวิทยาลัย  
พ.ศ. ๒๕๒๓ และเข้าศึกษาต่อในระดับปริญญาโทบัณฑิตของภาควิชาวิศวกรรม  
คอมพิวเตอร์ คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ในปี พ.ศ. ๒๕๒๔

ศูนย์วิทยพัชร์พยากร  
จุฬาลงกรณ์มหาวิทยาลัย