

R0001 WE ARE DEEPLY INDEBTED TO THE ONE, THE ONLY, THE GREAT JOHN CHAW FOR THE FOLLOWING STRONG MAGIC....  
R0003 JSOCTLI

0004 SETLOC,1C 0 B1

0005 MASKGRP,1 S,0 F,0

R0006 YUL SYSTEM PASS 0 IS LOADED BY THE MONITOR IN RESPONSE TO THE MONITOR CARD

R0008 \* YUL (ANY SUBSEQUENT WORD IS INTERPRETED AS THE NAME OF A TAPE OTHER THAN YULPROGS.)

R0010 IT THEN PERFORMS TASKS, SUCH AS ASSEMBLING A NEW BLK2 PROGRAM, UNDER CONTROL OF YUL DIRECTOR CARDS, WHICH ARE  
R0012 DISTINGUISHED BY "Y" IN COLUMN 1. THESE TASKS ARE PERFORMED IN SUCCESSION UNTIL ANOTHER MONITOR CARD IS READ.  
R0014 NOTE IN PARTICULAR THAT THE FIRST CARD FOLLOWING THE \* YUL CARD MUST BE A YUL DIRECTOR CARD.

R0016 YUL DIRECTOR CARDS ARE READ AS SENTENCES. THAT IS, SPELLING IS CRITICAL BUT INTERWORD SPAC-  
R0018 ING AND (TO SOME DEGREE) PUNCTUATION ARE NOT. THE RESTRICTION ON PUNCTUATION IS THAT THERE MAY BE ONLY ONE TER-  
R0020 MINATOR CHARACTER AFTER EACH WORD. SEE NEXT TWO PAGES FOR EXAMPLES.

R0021 YUL SYSTEM PROGRAMS OCCUPY BANKS 1-3 AND RUN IN ANY 3 GROUPS. THEY USE AS MANY AS 5 TAPES,  
R0023 USE THE 2200 FOR TAPE PUNCHING, AND SNATCH AND RELEASE THE CARD PUNCH AS NEEDED.

R0025 CAST OF CHARACTERS:

R0026	EMPEROR	.....	HUGH BLAIR-SMITH	IL7-238E	XT 215
R0028	VICEROY FOR BLOCK II	POLISH ASSEMBLY (YULPASS2@BLOCKII)	CLIFFORD F. IDE	IL7-109	XT 151
R0030	MINISTER FOR MANUFACTURING	(YULMANUF@AGC4, YULMANJF@BLOCKII)	"	"	"

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P0032 EXAMPLES OF ALL CURRENTLY AVAILABLE YUL DIRECTOR CARD TYPES. ON THIS PAGE: ASSEMBLY-TYPE DIRECTORS.

R0034	Y	ANDY	ASSEMBLE NEW BLK2 PROGRAM BUGFULL BY DR. TERRY-THOMAS	
R00341	Y	NAV	ASSEMBLE NEW AGC SEGMENT PIZZA BY JOE & VEMO	
R0035	Y	LYNN	ASSEMBLE NEW AGC4 SUBROUTINE INTPRET BY MJNTZ	
R0036	Y	YUL	ASSEMBLE REVISION 15 OF AGC4 PROGRAM HIKE BY JFK	
R00361	Y	YUL	ASSEMBLE REVISION 1 OF AGC SEGMENT SPLITFEE BY DR. CROOK	
R0037	Y	NAV	ASSEMBLE REVISION 112 OF BLK2 SUBROUTINE LEADON BY MACBETH	
R0038	Y	EXP	ASSEMBLE VERSION NEWBUGGY BY SOMEBODY ELSE	
R0039	S		FROM REVISION 2 OF AGC4 PROGRAM BUGS BY BJNNY	(REQUIRED WITH VERSION ASSEMBLY)
R00401	Y	LYNN	ASSEMBLE VERSION NEWSEG BY NEW FELLER	
R00402	S		FROM REVISION 0 OF SACO SEGMENT OLDSEG BY OLD FELLER	(REQUIRED WITH VERSION ASSEMBLY)
R0041	Y	ANDY	ASSEMBLE VERSION PINBALL BY A. I. GREEN	
R0042	S		FROM REVISION 22 OF BLK2 SUBROUTINE BALLPEEN BY "POP" BUMPER	(REQUIRED WITH VERSION ASSEMBLY)
R0044	Y	2NDF	ASSEMBLE TRANSFERRED BLK2 PROGRAM DUSK BY NASA 2019999-099	(SEE TRANSFER VERB ON NEXT PAGE)
R0046	S		FROM PICKYOURFILENAME	(REQUIRED WITH TRANSFERRED ASSEMBLY)
R00471	Y	FRJZ	ASSEMBLE TRANSFERRED AGC4 SEGMENT TWILIGHT BY NASA 1021199	
R00472	S		FROM DISCTWILIGHT	(REQUIRED WITH TRANSFERRED ASSEMBLY)
R0048	Y	YUL	ASSEMBLE TRANSFERRED SACO SUBROUTINE DENTJRES BY G. WASHINGTON	
R0049	S		FROM WASPARTOAPROG	(REQUIRED WITH TRANSFERRED ASSEMBLY)
R00501	S		UPGRADE TO REVISION 123	(OPTIONAL WITH TRANSFERRED ASSEMBLY)
R0051	Y	FRJZ	REPRINT REVISION 15 OF AGC4 PROGRAM HIKE BY JFK	
R0052	S		FOR PIERRE SALINGER	(REQUIRED WITH REPRINT)
R00531	Y	NAV	REPRINT NEW AGC SEGMENT CLIPPING BY XEROX	
R00532	S		FOR DENNISON	(REQUIRED WITH REPRINT)
R0054	Y	YUL	REPRINT REVISION 0 OF SACO SUBROUTINE CRIES BY TOOTH DECAY	
R0055	S		FOR NOYS E. BORING, D.D.S.	(REQUIRED WITH REPRINT)

P0057 EXAMPLES OF YUL DIRECTOR CARD TYPES CONCLUDED. ON THIS PAGE: NON-ASSEMBLY AND INTERNAL-USE DIRECTORS.

R0058 Y YJL DELETE REVISION 0 OF 3C PROGRAM BJGFULL BY DR. TERRY - THOMAS  
 R00581 Y EXP DELETE REVISION 12 OF BLK2 SEGMENT BUGABOO BY SPOOK  
 R0059 Y LYNN DELETE REVISION 7 OF AGC4 SUBROUTINE BEDBJG BY SIMMONS

R0060 Y YJL CONTROL NEW SACO SUBROUTINE BICUSPID BY LEFTY CHOMP  
 R0061 S AUTHORIZED BY PERCIVAL Q. NIBBLE

(REQUIRED WITH SUBROUTINE CONTROL)

R0063 Y NAV DECONTROL REVISION 256 OF BLK2 SUBROUTINE UNBRIDLE BY JIM ORGIES  
 R0064 S AUTHORIZED BY IMA NOH PURITAN

(REQUIRED WITH SUBROUTINE DECONTROL)

R0068 Y YJL MANUFACTURE REVISION 1 OF 3C PROGRAM ZAP BY JOVE  
 R0069 Y ANDY MANUFACTURE NEW AGC SEGMENT ZOT BY JOHNNY HART

R0071 Y LYNN PRINT REVISION 2 OF AGC4 PROGRAM BUGS BY BUNNY  
 R0072 Y LYNN PUNCH REVISION 2 OF AGC4 PROGRAM BUGS BY BUNNY  
 R0073 Y LYNN PRINT, PUNCH REVISION 2 OF AGC4 PROGRAM BJGS BY BUNNY  
 R0074 Y LYNN PUNCH, PRINT REVISION 2 OF AGC4 PROGRAM BJGS BY BUNNY  
 R00741 Y FRJZ PUNCH, PRINT REVISION 0 OF BLK2 SEGMENT FRAMMIS BY DINGBAT  
 R0075 Y LYNN PRINT, PUNCH NEW AGC4 SUBROUTINE INTPRET BY MUNTZ

(I.E., PRINT OR PUNCH OR BOTH ARE OK.)

R0077 Y NAV TRANSFER NEW BLK2 PROGRAM DUSK BY NASA 2019999-099  
 R0078 S AS PICKYOURFILENAME

(REQUIRED WITH TRANSFER)

R00791 Y ANDY TRANSFER REVISION 3 OF AGC SEGMENT TWILIGHT BY WAGNER  
 R00792 S AS DISCTWILIGHT

(REQUIRED WITH TRANSFER)

R0080 Y EXP TRANSFER REVISION 12 OF AGC4 SUBROUTINE LEADON BY TEASER

R0081 S AS SOMETHENAME

(REQUIRED WITH TRANSFER)

R0083 Y YJL TRANSFER, PRINT NEW SACO PROGRAM CHEWCHEN BY EL MASTICATOR

(OR "PRINT, TRANSFER")

R0085 S AS WASPARTOFAPROG

(REQUIRED WITH TRANSFER)

R0087 Y NAV MESSAGE TYPE THIS MESSAGE TO THE OPERATOR

R0088 MAINTENANCE OF YUL SYSTEM SOFTWARE STATUS -- INTERNAL USE.

R0089 Y ANDY ADD NEW COMPUTER NAME BLK2

("NEW", "NAME", AND "MOD" ARE OPTIONAL.)

R0091 Y LYNN REMOVE OLD COMPUTER NAME MOD 3C

("OLD", "NAME", AND "MOD" ARE OPTIONAL.)

R0093 Y YJL ASSEMBLY PASS 1 FOR 3C IS AVAILABLE

("IS" IS OPTIONAL.)

R0095 Y EXP ASSEMBLY PASS 2 FOR MOD BLK2 CHECKED OUT

R0096 Y FRJZ ASSEMBLY PASS 3 FOR MOD 3C IS OBSOLETE

R0097 Y ANDY MANUFACTURING FOR BLK2 IS AVAILABLE

R0100 Y YJL ASSEMBLY PASS 3 FOR AGC4 = ASSEMBLY PASS 3 FOR MOD 3C

R0101 Y LYNN MANUFACTURING FOR MOD 4A = MANUFACTURING FOR AGC4

R0103 OPERATOR OPTIONS.

R0104 Y CREATE BACKUP

R01041 Y CLOSE MONAIN TAPE

P0105 B1,0000 THROUGH B1,0076 (OCTAL) CONSTITUTE INTERPASS STORAGE. NOTE THAT PASS 0 CHANGES C(PROG NAME).

0107 YUL PASS 0 TS YUL MASKS Z, MXR SNATCH 3 FIRST INSTRUCTION FOR ALL YUL SYST JOBS.

0109 PROG NAME EQUALS YUL PASS 0 (FOR INTERPASS STORAGE PURPOSES).

0111 NEXT NAME ALF END SYLT

0112 SWITCH OCT 0

0113 L OLD LINE SPEC OLD LINE

0114 OLD LINE ALF -0000000 INITIAL SKIP TO HEAD OF FORM.

0116 ALF,5

0117 ALF,5

0118 ALF,5

0119 PAGE HEAD ALF 03000000

0120 ALF,5 LOGNO. YUL SYSTEM FOR

0121 ALF,5

0122 ALF,5 (MAIN) PAGE 0

0123 PAGE NO DEC +0

0124 SYM PLACE SPEC,B8 DAMN ZERO -

0125 SYM TAB XS DEC +0

0126 L COP BUFS SPEC,B7 768

P0127 INTERPASS STORAGE CONTINUED.

0128	MID POINT	RESERVE	1
0129	LIN COUNT	RESERVE	1
0130	N WD RECS	OCT	0
0131	E SYLT BAN	RESERVE	1

0132	L PROG FIL	RESERVE	1
0133	N LINES	OCT	0066
0135	L COMP NAM	RESERVE	1
0136	N COPIES	OCT	0

STANDARD 54 LINES PER PAGE.

0137	PAPER PLY	OCT	0
0138	ERR PAGES	OCT	0
0139	N ERR LINS	DEC	0
0140	L AUTH NAM	RESERVE	1

0141	SORS NAME	ALF	
0142	COMPUTER	OCT	37373737
0143	SEG OWNER	ALF	

0144	SUBSTRAB	OCT	0, 0, 0, 0, 0, 0, 0, 0
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END OF INTERPASS STORAGE.

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P0146 FIELD AND SHIFT MASKS FOR PASS 0.

0147	B,BIT9	OCT	001
0148	B,BIT10	OCT	0004
0149	B,BIT36	OCT	-1 0000
0150	B,B11T12	OCT	0003
0151	B,PIT3AV	OCT	0001 0001 0001
0152	B,DECALFM1	OCT	0000 7777 0000 7777
0153	B,DECTEST	OCT	6060 6060 6060 6060
0154	B,TEMPMASK	OCT	0

VARIABLE MASK.

0156	B,CHAR1	OCT	77
0157	B,CHAR2	OCT	0077
0158	B,CHAR3	OCT	0000 77
0159	B,CHAR4	OCT	0000 0077
0160	B,CHAR5	OCT	-7700 0000
0161	B,CHAR6	OCT	-77 0000
0162	B,CHAR7	OCT	-7700
0163	B,CHAR8	OCT	-77

0164	B,C1T4	OCT	7777 7777
0165	B,C1T5	OCT	7777 7777 7777
0166	B,BTHRED10	OCT	-3776 0000
0167	B,THREAD10	OCT	-3776

0168	B,THREAD11	OCT	-3777
0169	B,BIT2	OCT	2
0170	B,BAN3ITS	OCT	-760 0000
0171	B,CAC3	DEC	-GGGG

0172	B,B2B11	OCT	2002
0173	B,C7T8	OCT	-7777
0174	B37T43	EQUALS	C7T8
0175	B,BIT12	OCT	0001
0176	B,C5T8	OCT	-7777 7777

0177	B,BIT25	OCT	-4000 0000
0178	B,BIT33	OCT	-10 0000
0179	B,DATEMASK	OCT	-77 7700 7777
0180	B,B36T37	OCT	-14000

32 B MASKS.

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P0182 FURTHER SHIFT MASKS FOR PASS 0.

0183	S,B5T9	OCT	037
0184	S,B10T12	OCT	0007
0185	S,D1	DEC	G
0186	S,BIT1	OCT	4
0187	S,D12	DEC	-G
0188	S,ACH4	DEC	000 00G
0189	S,ACH5	OCT	-1700 0000
0190	S,CIT7	OCT	7777 7777 7777 7700
0191	S,CIT3	OCT	7777 77
0192	S,C3T5	OCT	0000 7777 77
0193	S,C3T5	OCT	0000 7777 7777
0194	S,DECALFM2	OCT	0074 0074 0074 0074
0195	S,DECALFM3	OCT	1717 1717 1717 1717
0196	S,CAC1	DEC	GGGG
0197	S,CAC2	DEC	0000 GGGG
0198	S,ATHRED10	OCT	0000 3776
0199	S,TWO	OCT	-2
0200	S,THREE	OCT	-3
0201	S,SEVEN	OCT	-7
0202	S,ONES	DEC	GGGG GGGG GGGG
0203	S,3D8	DEC	-3 0000
0204	S,7D8	DEC	-7 0000
0205	S,B13T24	OCT	0000 7777
0206	S,B1THRU12	OCT	7777
0207	CIT2	EQUALS	B1 THRU 12
0208	S,ONE	OCT	-1
0209	S,7C6	OCT	-7 0000
0210	S,D8T12	DEC	-GGGGG
0211	S,FOUR	OCT	-4
0212	S,L0W5	OCT	-37
0213	S,ATHRED11	OCT	0000 3777
0214	S,ATHRED10	OCT	3776
0215	S,YNNYYYY	OCT	7777 0000 7777 7777

32 S MASKS.

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P0217 TRANSFER VECTOR, USED BY SERVICE MODULE, MANUFACTURING, ETC.

0218	YUL TYPER	SIMULATE					ASSIGNED TO 0,63 (FROM OUTSIDE BANK 1).
0220		TS	Z,AU2	TYP RTURN	TYPIST		PRESERVE MANDATORY C ADDRESS.
0222	RD SBDIRC	TS	Z,SH	Z,X1	RD SUBDR		TO SUBDIRECTOR READER (0,65).
0224	HOWZAT	TS	WHODUNIT	Z,AJ1	HOWZ THAT		UNRECOGNIZED WORD ABORT (0,66).
0226	PCH LEDER	TS	Z,SH	Z,X4	PNCH LEDR		PUNCH "BEGIN..." & OBJECT MSG (0,67).
0228	IGN SJBDR	TS	Z,SH	Z,X4	IGN SBDIR		IGNORE A NON-VITAL SUBDIRECTOR (0,68).
0230	UNRC SUBR	TS	Z,SH	Z,X4	UNRC SBDR		CUSS UNKNOWN WORD IN SUBDIR (0,69).
0232	E SYLT OK	TS	Z,SH	Z,X4	EN SYLT OK		MAKE GB STOP BYPT SEEK, STT PGM (0,70).
0234	FETCH SS	TS	Z,SH	Z,X4	FETCH SSN		FETCH ANY SUBSTRAND. (0,71).
0236	NO CORE	TS	STAR COL 1	6,1	NO DIRECT +1		RETURN FROM CORE SNATCH FAIL (0,72).
0238	PCH TITLE	TS	Z,SH	Z,S0	PTP TITLE	C	VISIBLY PUNCH N WDS ON TAPE (0,73).
0240		TX	Z,SH	-	BKB PLACF	S	(EXIT FROM PCH FRAME).
0242	PCH FRAME	TS	SWITCH	Z,S4	PNCH FRAM	C	PROCESS PAPER TAPE FRAME (0,75).
0244	MANUF RTN	S, MON TYPER	BLANKS	SPRA +8	END M TASK		RETURN FROM MANUFACTURING TASK (0,76).
0246	YUL MASKS	MASKBASE	S,0	F,0			(0,77).
0248	OCTAL 20	OCT	-20				(0,78).
0250	SERCH KEY	RESERVE	1				MATCH FOR WD 2 OF YULPROGS RECD (0,79).
0252	WHODUNIT	RESERVE	1				ADDRESS OF UNRECOG. SUBDIR. WD (0,80).
0254	6 COMMA 19	SPEC,B7			619		2ND WD OF SENTENCE-READ OUTPUT (0,81).
0256	L GPB STT	SPEC,B7			707		START ADDRESS FOR SIDE-GROUP B (0,82).
0258	L DIRECTY	CAC	2048		14336		ADDRESSES OF B1, B7 (0,83).
0260	CHAS 2500	DEC	-2500				CHARLIE-WORD VALUE OR INCREMENT (0,84).
0262	FRAME	RESERVE	1				PAPER TAPE FRAME TO BE PUNCHED (0,85).
0264	MASK SAVE	TS	YUL MASKS	Z,MXR	DO BACKJD		FOR MASKBASE OF MANUFACT ETC. (0,86).
0266	PUNCH CD	SIMULATE					GENERAL CARD-PUNCHING SUBRO (0,87).
0268		TS	Z,MXR	FRAME	PNCH CARJ		(0,88).
0270	TYP ABORT	S, MON TYPER	Y ABORT	SPRAMR +16	TYP BORTA		FINAL ACTION, ALL ABORTS (0,89).
0272	L OBJC MSG	SPEC			OBJCT MSG		(0,90).
0274	REJEC DIR	S, MON TYPER	REJEC MSG	SPRAMR +32	-		DIRECTOR OR SUBDIRECTOR REJECTED (0,91).
0276		S, YUL TYPER	6,2	AMTF +9	TYP ABORT		TYPE TEXT OF CARD (0,92).
0278	TASK MSG	ALF,4					TASK AND COMPUTER NAME FOR TYPING (0,93)
0280	E TASKI OBJ	TS	Z,SH	Z,SC	TASK OBJC		EXTERNAL ENTRY TO TASK OBJC (0,97).
0282	TYP TKOBJ	TS	WHODUNIT	Z,X0	TYP TKOBJ		EXTERNAL ENTRY TO TYP TKOBJ (0,98).
0284	E KNOWN PS	TS	Z,SH	Z,SC	KNOWN PSR		EXTERNAL ENTRY TO KNOWN PSR (0,99).
0286	TAP SERCH	TS	L GPB STT	Z,CSC	TAPE SRCH	C	GENERAL CALL TO TAPE SRCH (0,100).
0288	L PGHED P3	CAC	30720		PAGE HEAD +3		DEPAGINATOR & HEADLINE ADDRESS (0,101).
0290	ASSY SBDR	TS	-	-	ASSY SUBD		EXTERNAL CALL FOR PRINT SUBDS (0,102).
0292	COMMON	RESERVE	2				GENERAL TEMP. STORAGE (0,103, 0,104).

P0294 TRANSFER VECTOR CONTINUED.

R0295 MINOR SUBROUTINES IN PASS 0 TO PUT A CHARACTER. S2 IS MAJOR INDEX, CSC IS MINOR INDEX. CHARACTER IN C<sub>1</sub> OF  
 R0297 COMMON, COSEQUENCE CALL. 0,105 THRU 0,113.

0298	PUT CHAR	SS	COMMON	CHAR1	N,S2		
0299		SWS, CHAR2	COMMON	A,1	N,S2		
0300		SWS, CHAR3	COMMON	A,2	N,S2		
0301		SWS, CHAR4	COMMON	A,3	N,S2		
0302		SWS, CHAR5	COMMON	A,4	N,S2		
0303		SWS, CHAR6	COMMON	A,5	N,S2		
0304		SWS, CHAR7	COMMON	A,6	N,S2		
0305		SWS, CHAR8	COMMON	A,7	N,S2		
0306		TS	Z,S2,1	-	PUT CHAR	C	
0307	WRITE OBJ	TS	Z,SH	Z,S3	WRIT OBJC		EXTERNAL CALL TO WRIT OBJC (0,114).
0309	LABEL YUL	TS	Z,SH	Z,X5	LABL TEST		ONLY ENTRY TO LABEL TAPE. (0,115).
0311	POSIT YUL	TS	Z,SH	Z,S3	POSIT REW		ONLY ENTRY TO POSITION TAPE (0,116).
0313	PHIWAA	SPEC,B7			600		SENTENCE READER AREA SPEC (0,117).
0315	GROUP A	RESERVE	1				MAIN GROUP NUMBER (0,118).
0317	YUL DA LZ5	TS	N,AU1,1	PHI ARG	YUL D2A 75		EXTERNAL CALL TO YUL D2A ZS (0,119).
0319	FOJND BUF	RESERVE	2				COMMUNICATION WITH TAPE SRCH (0,120-1).
0321	GROUP NAP	TS	-	-	MON SLEED	C	STALL-TYPE SLEEPING SUBROUTINE (0,122).
0323		WD	Z,SH	ONE	Z,SC	S	EXIT FROM ABOVE.
0325	SYMS OR NO	DEC	-GGGG				ALL ONES FOR SYMBOL TABLE (0,124).
0327	SB THREDS	TS	-	NO MO SUBS +1	SUB THRDS	C	EXTERNAL CALL TO SUB THRDS (0,125).
0329	DISASTER	MPC,H	Z,1	301	MON PCR		EXTERNAL CALL TO DISASTER (0,126).
0331		ALF	DISASTER				(0,127). FOR ALL UNMANAGEABLE TROUBLES.
0333	COMP NAME	RESERVE	1				RESULT FROM FIND COMP (0,128).
0335	1 COMMA 8	SPEC,B7			8		ADDR OF 1ST THREAD WD IN LABEL (0,129).
0337	ACCEPT M2	TS	-	-	ACCEPT -2		ENTRY AFTER LABEL CHANGE (0,130).
0339	DCOD CNAM	TS	Z,SC	Z,S2	DECOD CPN		EXTERNAL CALL TO DECOD CPN (0,131).
0341	CPN FIXER	TS	Z,SC	Z,S2	MOD CHECK 3 -2		EXT. CALL TO SUBSET THEREOF (0,132).
0343	GIVE PAIR	TS	Z,AU1,1	Z,AJ2	GIVE PR	C	ONLY ENTRY TO GIVE PAIR (0,133).
0345	FIND COMP	TS	ZERO	Z,R4	FIND CNAM	C	ONLY ENTRY TO FIND COMP (0,134).
0347	FIND PR	TS	-	-	FIND PAIR	C	EXTERNAL CALL TO FIND PAIR (0,135).
0349	L BLANCD	SPEC			BLANCARD		ADDRESS OF ZERO & 15 BLANK WDS (0,136).
0351	REVNO	RESERVE	1				DECIMAL REVISION NUMBER (0,137).
0354	W SERVICE	ALF	YULSERVE				PASS 0 SERVICE MODULE NAME (0,138).
0355	PASS 1	ALF	YULPASS1				ASSEMBLY GENERAL PASS 1 NAME (0,139).
0356	PAR MANUF	ALF	????MANU				SPECIAL MANUFACTURING SEG NAME (0,140).
0358	ACA OTHE	ALF,2	ACA OTHERWISE				LETS OPERATOR REFUSE THINGS (0,141-2).

P0359 RESERVATIONS.

0360	TRONDEX	RESERVE	15
0361	AUTH NAME	RESERVE	2
0363	TYP RTURN	RESERVE	1
0364	SORS LINE	RESERVE	16

R0365 NUMERIC CONSTANTS.

0366 SIXES OCT 12, 06, 0606, 060606

0373	ZERO	OCT	0
0374	PLUS ZERO	DEC	+0
0375	54 LINES	OCT	0066
0376	BIT 6	OCT	01
0377	1 C7	OCT	-100

03775	YUL FILE	OCT	-7002
0378	B14T18	OCT	0000 37
0379	SNTRACOD	DEC	-31
0380	PAV BITS	OCT	0001 0001 0001 0001
0381	B24 B36	OCT	-1 0001 0000

03815	A4 MINUS 4	OCT	-3 7777 7774
0382	SIX	OCT	-6
0383	NINE	DEC	-9
0384	9 C3	OCT	0000 11
0385	B29 B32	OCT	-220 0000

0386	DEC 99	DEC	-99
03865	C 259	FXBIN	-259
0387	C 255	FXBIN	-255
03909	TEN C1	OCT	12
0392	HEXB C5	OCT	-1200 0000
0393	TEN	OCT	-12

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2"  
1"

P03931 NUMERIC CONSTANTS CONCLUDED.

03932	FIFTY	DEC	-50
03934	CW FACTOR	DEC	G8465
0394	4 C6	OCT	-4 0000
0395	CAC12	DEC	GGGG GGGG
0396	CAC3 M1	OCT	-177776
0397	BIT 32	OCT	-20 0000
0398	C1T4 348	DEC	GGGGGG 000001
0399	B2 B13	OCT	20004
0400	D11D12	DEC	-GG
0401	BIT 17	OCT	0000 02
0402	BIT 37	OCT	-4000
0403	BIT 13	OCT	00004
04035	BIT 7	OCT	004
0404	BIT 8	OCT	002
0405	BIT 35	OCT	-2 0000
0406	B34T35	OCT	-6 0000
0407	B14 318	DEC	00044
0408	B15 319	DEC	00022
0409	B16 320	DEC	00011
0410	B18T20	DEC	00007
0411	SUPP 31TS	DEC	00077
0412	GROUP IND	OCT	-74000

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new  
nashua  
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3"

2"

1"

## P0413 ONE-WORD ALPHABETIC CONSTANTS.

0414	W	BACKUP	ALF	BACKUP
0415	W	FREEZE	ALF	FREEZE
0416		ACCEPTED	ALF	ACCEPTED
0417		BLOTS	ALF	*****
0418		CHECKERS	DEC	B95 B95 B95 B95
0419		COLON C1	ALF	:
0420	W	AUTHMEM	ALF	AUTHMEMO
0421	W	INACTIV	ALF	INACTIVE
0422	GC	FRE MSG	ALF	G7 FREE
0423	W	END SYPT	ALF	END SYPT
0424	W	END SYLT	ALF	END SYLT
0425	W	UPGRADE	ALF	UPGRADE
0426	W	BEFORE	ALF	BEFORE
0427	W	ALL	ALF	ALL
0428		RIGHT HO	ALF	(SIGH)
0429		STAR COL 1	ALF	*
0430		TAPE NO	ALF	20000000
0432	W	BLJT OBS	ALF	***OBS**
0433	W	BY	ALF	BY
0434	W	SYMBOL	ALF	SYMBOL
0435	W	OCTAL	ALF	OCTAL
0436	W	DLETION	ALF	DELETION
0437	W	FOR	ALF	FOR
0438	W	TO	ALF	TO
0439	W	MOD	ALF	MOD
0440	W	NEW	ALF	NEW
0441	W	OF	ALF	OF
0442	W	PROGRAM	ALF	PROGRAM
04421	W	SEGMENT	ALF	SEGMENT
0443		LOG COMMA	ALF	, 000000
0444	W	LINES	ALF	LINES
0445	W	COPIES	ALF	COPIES
0446	W	FROM	ALF	FROM
0447	W	FROZYUL	ALF	FROZEYUL
0448	W	2ND FROZ	ALF	2NDFROZE
0449	W	SOURCE C	ALF	SOURCE:
0450	W	MONAIN	ALF	MONAIN
0451	W	TAPE	ALF	TAPE
0452	W	SYMBLS 0	ALF	SYMBOLS0
0453		ZERO C1	ALF	0

P0454 ALPHABETIC CONSTANTS -- FIRST OF 7 PAGES.

0455	AUTHRYZ	ALF,2	AUTHORIZED
0457	BAJTH MSG	ALF,4	BLANK WORD IN AUTHOR NAME,
0458	W SUBROTI	ALF,2	SUBROUTINE
0460	BLCPN MSG	ALF,3	COMPUTER NAME IS BLANK.
0461	BLPSN MSG	ALF,3	PROG/SJB NAME IS BLANK.
0462	CONPN MSG	ALF,5	CONFLICT WITH EXISTING PRG/SJB NAME.
0463	TSFRD MSG	ALF,3	TRANSFERRED ASSEMBLY NEE
0464		ALF,4	DS SUBDIRECTOR SPECIFYING SOURCE
0465	XIN WRSIZ	ALF,4	DISCFIL NAME VOID OR TOO LONG
0466	XIN TERMS	ALF,5	DISCFIL NAME CONTAINS TERMINATOR CHARS.
0467	DIFUL MSG	ALF,4	YUL FILE DIRECTORY IS TOO LONG.
0468	IN SJB MSG	ALF,3	INACTIVE SUBROUTINES
0469	VER PR MSG	ALF,3	THIS PROGRAM WAS AS
0470	VER S3 MSG	ALF,3	THIS SUBROUTINE WAS AS

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P0471 ALPHABETIC CONSTANTS -- SECOND OF 7 PAGES.

0472	LAJTH MSG	ALF,3	AUTHOR NAME IS TOO LONG.
0473	LCPN MSG	ALF,5	TOO-LONG COMPUTER NAME:
0474	LPRGN MSG	ALF,5	TOO-LONG PROG/SUB NAME:
0475	LREVN MSG	ALF,5	TOO-LONG REVISION NO.:
0476	TSFR LINE	ALF,3	SEMBLED FROM DISC FILE
0477	XNDDF MSG	ALF	DS DISC
0478	NOFIL MSG	ALF,3	FILE NOT FOUND ON DISC
0482	NASSY MSG	ALF,4	CAN'T ASSEMBLE FOR THAT COMPUTER
0483	NAJTH MSG	ALF,3	AUTHOR NAME IS MISSING.
0484	VERS LINE	ALF,3	SEMBLED AS A VERSION OF

P0485 ALPHABETIC CONSTANTS -- THIRD OF 7 PAGES.

0486	CONSJ MSG	ALF,5	CONTROLLED SUBROUTINE CANNOT BE DIDDIED.
0487	NUM NONS	ALF,2	CARDS BYPASSED;
0488	NON WISE	DEC	0
0489	OBJCT MSG	ALF,5	
0490		ALF,2	
0491	OC MAP MSG	ALF,3	OCTAL STORAGE MAP
0492	RDJND MSG	ALF,2	REDJNDANT
0493	REJEC MSG	ALF,4	THEREFORE THIS CARD IS REJECTED;
0494	SY TAB MSG	ALF,3	SYMBOL TABLE LISTING
0495	ASCBJ MSG	ALF,3	ASA TO CREATE BACKUP;
0497	NTPCH MSG	ALF,2	NO TAPE PUNCHING
0498	NR FRZ MSG	ALF,5	CAN'T REVISE A PROGRAM ON A FROZEN TAPE

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P0499 ALPHABETIC CONSTANTS -- FOURTH OF 7 PAGES.

0500	UDRVN	MSG	ALF,4	UNDECIMAL REVISION NO.:
0501	UNRCA	MSG	ALF,4	AUTHOR NAME NOT RECOGNIZED.
0502	UNRCO	MSG	ALF,4	COMPUTER NAME NOT RECOGNIZED.
0503	UNRCP	MSG	ALF,4	PROGRAM NAME NOT RECOGNIZED.
0504	UNRCS	MSG	ALF,4	SUBROUTINE NAME NOT RECOGNIZED.
0505	UNRDY	MSG	ALF,4	UNREADY OPERATION REQUESTED.
0506	WAJTH	MSG	ALF,5	WRONG AUTHOR. SHOULD BE:
0507	W END	YUL	ALF,2	END YUL SYSTEM
0508	WREVN	MSG	ALF,5	WRONG REVISION NUMBER. SHOULD BE:
0509	WUNRC	MSG	ALF,5	THIS WORD UNRECOGNIZED:
0510	AU SJB	MSG	ALF,5	CONTROL OR DECONTROL REQUIRES AUTHORIZIN
0511			ALF,2	G SUBDIRECTOR

P0512 ALPHABETIC CONSTANTS -- FIFTH OF 7 PAGES.

0513	BLANCARD	OCT	0	
0514	BLANKS	ALF,5		
0515		ALF,5		
0516		ALF,5		
0517	CDREN MSG	ALF,2		RENUMBER CARDS
0518	SET LN MSG	ALF,3		PRINT 00 LINES PER PAGE
0519	N COPS MSG	ALF,3		00 COPIES WILL BE MADE;
0520	WH PLY MSG	ALF,2		WHAT PLY PAPER%%
0521	WAA 10060	ALF,3		W A A10060 000000P
0522	DUPSR MSG	ALF,3		DUPLICATE SUBDIRECTOR
0523	NF wSz MSG	ALF,3		NUMERIC FIELD WRONG SIZE
0524	NW NDC MSG	ALF,3		NUMERIC WORD NOT DECIMAL
0525	NW RGE MSG	ALF,3		NUMERIC WORD RANGE ERROR
0526	IL RQT MSG	ALF,3		ILLEGAL REQUEST FOR TASK
0527	VRSNS MSG	ALF,5		VERSION ASSEMBLY MUST HAVE SUBDIRECTOR S
0528		ALF,2		PECIFYING SOURCE

P0529 ALPHABETIC CONSTANTS -- SIXTH OF 7 PAGES.

0530	22 OUT MSG	ALF,3	2200 READY TO DO MONA0JT
05301	NO MDS MSG	ALF,3	NO MONAIN DATA STORED
0531	FRSUB MSG	ALF,3	FREEZE SUBROUTINES
0532	PRO CD MSG	ALF,4	PROGRAMS CANNOT BE CONTROLLED.
0533	NUMUS MSG	ALF,3	NUMBER OF USERS =
0534	PROBS MSG	ALF,5	PROGRAM OBSOLETE BY SUBROUTINE CHANGES
0535	SUP CD MSG	ALF,3	SUPPRESS CONDITIONALLY;
0536	REP 4 LINE	ALF,3	THIS REPRINT IS
0537	4WHOM MSG	ALF,5	REPRINT REQUIRES "FOR WHOM" SUBDIRECTOR
0538	Y ABORT	ALF,2	8 TASK ABORT
0539	W CONDIT	ALF,2	CONDITIONALLY
0540	W TRANSFD	ALF,2	TRANSFERRED
05402	OLRVN MSG	ALF,2	OLD REVISION NO.
05403	NTHIS MSG	ALF,2	NOT ON THIS DISC
05404	FDISC MSG	ALF,2	FOUND ON DISC
0541	AS TRY MSG	ALF,2	ASA TO TRY AGAIN

P0542 ALPHABETIC CONSTANTS -- SEVENTH OF 7 PAGES.

0543	N MANJ MSG ALF,5	CAN'T MANUFACTURE FOR THAT COMPUTER
0544	DF ERR MSG ALF,2	CAN'T READ FILE
0545	IGNOR MSG ALF,4	THEREFORE THIS CARD IS IGNORED:
0546	W URING FO ALF,2	URING FOR
0547	MANSJ MSG ALF,5	SUBROUTINES MAY NOT BE MANUFACTURED
0548	ND NMF MSG ALF,5	NO DISC; CANNOT MANUFACTURE OLD REVISION
0549	SD MIS MSG ALF,3	SUBDIRECTOR CARD MISSING
0550	DR UMA MSG ALF,5	DESIRED REVISION IS UNMANUFACTURABLE
0551	TAPE 3I MSG ALF,4	CAN'T PUNCH TAPE WITH THIS 1800
0552	WR TAP MSG ALF,5	WRONG TAPE NAME ABBREVIATION IN COLS 2-7
0554	CPJNV MSG ALF,3	CARD PUNCH UNAVAILABLE
0555	NCOUJ MSG ALF,2	NO CARD OUTPUT

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P0556 ADDRESS CONSTANTS.

0557	ENDIRECS	SPEC			LAS DIREC
0558	L DIRECTS	SPEC			DIRECTS
0559	L END THR	SPEC			END THR
0560	L SUBSTRB	SPEC			SJBSTRAB
0561	RLS CD PCH	CAC		NUMERALS	16
0562	L SN CPNCH	SPEC			SN CPUNCH
0563	L SIXES	SPEC			SIXES
0564	L TKMSG P1	SPEC			TASK MSG +1
0565	L TKMSG P2	SPEC			TASK MSG +2
0566	L SYM THR	SPEC	B5		836
0567	L AV TABLE	SPEC	B4		DAMN ZERn
0568	L MSG AREA	SPEC	B7		590
0569	Y FILE LIM	SPEC	B7		500
0570	GB SWITCH	SPEC	G0		N,R2
0571	BANK 3I	SPEC	BB		DAMN ZERn
0572	BKB PLACE	SPEC	BB		DAMN ZERn
0573	END BANK B	SPEC	BB		2039
0574	I SYM THRS	CAC		8192	8192
0575	ISY SJB TH	OCT		5000 0000 0003 4007	
0576	L ONES	SPEC	B7		7
0577	BUF NAMES	SPEC	B5		928
0578		SPEC	B5		1193
0579		SPEC	B5		1458
0580		SPEC	B5		1723
0581		SPEC	B5		1988
0582		SPEC	B6		205
0583		SPEC	B6		470
0584		SPEC	B6		735
0585	L B LISTS	SPEC	B6		2028
0586	SPEC ONE	SPEC	B0		1
0587	L SERVICE	SPEC	B4		DAMN ZERn

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## P0588 ASSIGNMENTS.

0589	MONITOR	ASSIGN	7,0
0590	PHI TAPE	ASSIGN	7,1
0591	PHI SVACH	ASSIGN	7,2
0592	PHI PEEK	ASSIGN	7,3
0593	EOR	ASSIGN	7,4
0594	PHI LOAD	ASSIGN	7,7
0595	PHI READ	ASSIGN	7,15
0596	MON RLEAS	ASSIGN	7,19
0597	PHI PRINT	ASSIGN	7,23
0598	MON EOFRI	ASSIGN	7,31
0599	PHI DATE	ASSIGN	7,36
0600	PHI SENTR	ASSIGN	7,40
0601	PHI A2D	ASSIGN	7,41
0602	PHI A3ORT	ASSIGN	7,46
0603	BASE ADDR	ASSIGN	7,47
0604	MON UNLOK	ASSIGN	7,85
0605	MON S3SNA	ASSIGN	7,91
0606	MON WAKE	ASSIGN	7,99
0607	MON REL GP	ASSIGN	7,100
06072	MON RELOX	ASSIGN	7,103
0608	MON SV QIP	ASSIGN	7,111
0609	DISCAP	ASSIGN	7,114
0610	MON SLEEP	ASSIGN	7,166
0611	MON PRADS	ASSIGN	7,174
0612	MON LCARD	ASSIGN	7,178
0613	MON RELCD	ASSIGN	7,180
0614	MON PJNCH	ASSIGN	7,191
0615	PHI LABEL	ASSIGN	7,195
0616	DISC STAT	ASSIGN	7,210
0617	MON SVCOR	ASSIGN	7,212
0618	MON TYPER	ASSIGN	7,215
0619	MON PCR	ASSIGN	7,220
0620	DISC CHEK	ASSIGN	7,221
0621	MON TADDR	ASSIGN	7,223
0622	GET LOG NO	ASSIGN	7,225
06229	DISC READ	ASSIGN	7,239
0623	1800 AB SW	ASSIGN	7,241
0624	DISC WRIT	ASSIGN	7,247
0625	PACK DATE	ASSIGN	6,100
0626	YUL DATE	ASSIGN	6,101
0627	YUL LOG	ASSIGN	6,104
0628	YUL LOG A	ASSIGN	6,105
0629	\$PAR IDLE	ASSIGN	6,106

P0630 EQUIVALENCES.

0631	A	EQUALS	128
0632	AMTF	EQUALS	384
0633	AMTFNCR	EQUALS	896
0634	SPRA	EQUALS	128
0635	SPRAM	EQUALS	896
0636	SPRAMR	EQUALS	384
0637	DAMN ZERO	EQUALS	0
0638	ATAPE PCH	EQUALS	64
06382	CHK DF ERR	EQUALS	512
0639	BIT 34	EQUALS	4 C6
0645	1 C6	EQUALS	BIT 36
06452	THOUSAND	EQUALS	BIT 36
06454	DEC 10000	EQUALS	BIT 32
0646	Y COLUMN 1	EQUALS	DIFUL MSG
0647	W REVISION	EQUALS	DR UMA MSG +1
0649	W VERSION	EQUALS	VRSNS MSG
0650	END THR	EQUALS	14342
0651	INIT X5	EQUALS	ERR PAGES
0652	PUNCH ADR	EQUALS	SORS LINE +14
0653	TASK LOG	EQUALS	SORS LINE +15
0655	S COLUMN 1	EQUALS	W SYMBOL
0656	BANK 1	EQUALS	L DIRECTY
0657	ACO2	EQUALS	B10T12
0658	AMPRSANS	EQUALS	DEC ALF M3
0659	W NE	EQUALS	W SUBROTI +1
0660	W RENJMBR	EQUALS	CDREN MSG
0661	NUM BASE	EQUALS	RLS CD PCH
0662	CRD COUNT	EQUALS	L SN CPNCH
0663	L STOPPER	EQUALS	CAC3
0664	W SUPPRES	EQUALS	SUP CO MSG
0665	SAVE X5	EQUALS	SORS LINE

P0666 SPECIAL ROUTINE, DONE AT THE BEGINNING OF A YUL JOB. PACKDATE AND THE TWO-WORD YUL DATE ARE KEPT IN  
 R0668 BANK 7, BEYOND THE SENTENCE-READER AREA. THE LOG NUMBER IN NUMERIC AND ALPHABETIC FORM IS KEPT THERE ALSO.  
 R0671 CALLED FROM INIT PAS 0, FOUR PAGES HENCE.

0675		SETLOC,4	0	B4			
0679	BEGIN JOB	TX	L PAR IDLE	-	Z,R0		
0680		TN	PARA IDLE	9	N,R0		SET UP BED FOR SIDE GROUPS TO SLEEP IN.
0682		TS	Z,R0,3	C,+1	MON SGSNA		SNATCH AND START GROUPS B AND C.
0684	L PAR IDLE	SPEC,B7			706		
0685		TS	B34T47 BJ	Z,R1	RETRY GPC		(FOLLOWS SUCCESSFUL SNATCH OF GROUP B).
0687		TX	SAY DIE	-	C,+2		IF CAN'T GET EVEN ONE SIDE GROUP, DIE.
0689	NO GROUP C	S, MON TYPER	ND2SG MSG	SPRAMR +32	-		"YUL SYSTEM NEEDS TWO SIDE GROUPS".
06902		TX	BANK 1 BJ	-	Z,X0		UNDO DAMAGE DONE BY GROUP-SNATCHER.
0691		TX, CHAR3	ACA OTHE B	-	BJ TRY MSG		
0692		S, MON TYPER	BJ TRY MSG	SPRAMR +16	-		"ASA TO TRY AGAIN".
0694		S, MON TYPER	ACA OTHE B	SPRA +16	C,+3		"ACA OTHERWISE".
0696		STOP			-	S	ASA OR ARA OR DON A WILL TRY AGAIN.
0698	SAY DIE	S, MON TYPER	BJ END YUL	SPRA +16	MONITOR		ACA COMES HERE.
0700		TS	B34T47 BJ	Z,R1	C,-2	C	PREPARE TO TRY AGAIN.
0702	RETRY GPC	TS	Z,R0	C,+1	MON SGSNA		
0703		RESERVE	1				
0704		TS	BANK 1 BJ	Z,X0	SNACH TAP		(FOLLOWS SUCCESSFUL SNATCH OF GROUP C).
0706		LA	Z,R1	ZERO BJ	NO GROUP C		SEEK HELP AFTER TWO FAILURES IN 1/2 SEC.
0708		NA	Z,R1,1	ONE BJ	C,-1		COUNT DOWN FROM 32766.
0710		TS	-	-	RETRY GPC		
0711	SNACH TAP	EBA	MON LCARD	ZERO BJ	Z,AU1		FORM ADDRESS OF SAVED MONITOR CARD.
0714		TN	N,AU1	10	6,1		
0715		TS	ONES BJ	6,11	PHI SENTER		RE-SENTENCE-READ MONITOR CALL CARD.
0717		TS	H1800B	YUL LOG A	MON REL CD	C	RELEASE MON CARD COMMUNICATION AREA.
0719		NA	6,19	ONES BJ	C,+2		BRANCH IF THERE'S A WORD AFTER "YUL".
0721		TS	Z,SC,1	-	PHI SNACH		IF NONE, USE TAPE YULPROGS.
0723		TS	6,19	C,+2	PHI SNACH		OTHERWISE, USE TAPE NAMED.
0725		ALF,2	N10<0001YULPROGS				
0726		DEC	GGG GGG GGG GGG				
0727		TS	COMMA '62	YUL DATE +1	GET LOG NO	C	
0728		SWE, C1T4	N,AU2,4	D,1,L	YUL LOG		PROTECT LOG NUMBER FROM MULTIJOB.
0730		TS	ONES BJ	N,AJ2	MON UNLCK	C	KILL MON LINE LIMIT, UNLOCK YULPROGS.
0732		RF,1	-	-	-		
0733		TS	YUL LOG	PHI ARG BJ	PHI TAPE		
0734	LOAD LABL	RF,1	1,0	-	-		LABEL TO BANK 7 FOR DURATION OF JOB.
0736		TS	Z,SC	Z,AJ1	YUL DA L7S		CONVERT LOG TO ALPHA, SUPPRESS ZEROS.
07372	PHI ARG BJ	RESERVE	1				
07374		TX	Z,SH	-	Z,X4		
0738		SSL, ONE	1800 AB SW	24	C,+1		APPEND "A" OR "B" TO LOG NUMBER.
0740		WD	YUL LOG A	1 C7 BJ	YUL LOG A		
0741		S, MON TYPER	BEGIN YUL	SPRAMR +16	-		
0742		S, MON TYPER	BLANKS BJ	SPRA +8	-		TYPE "BEGIN YUL SYSTEM".
0744		TS, C1T6	4,2	YUL LOG A	PHI TAPE		
0745		RF,1	-	-	-		VERIFY THAT LABEL IS READ IN.

P0747 VERIFY THAT THE DATE IS REASONABLE.

0748	DO MONTH	SWE, D1	PHI DATE	8,L	PACK DATE	UNITS DIGIT OF MONTH.
0750		NA, CHAR1	PHI DATE	ZERO BJ	DC NOV DEC	
0751		LA, CHAR2	HEXB C2	PHI DATE	ILLEG DAT	BRANCH IF NON-DECIMAL MONTH.
0753		NA	PACK DATE	ZERO BJ	PRINT MO	BRANCH IF MONTH NOT ZERO.
0755	ILLEG DAT	S, MON TYP	ER PHI DATE	SPRAM +8	-	
0756		S, MON TYP	ER W ILLEGAL	SPRAMR +8	-	"MM.DD.YY ILLEGAL".
0758		S, MON TYP	ER FIX DATE	SPRA +16	PHI ABORT	"FIX DATE & RERUN".
0760	DC NOV DEC	NA, CHAR1	PHI DATE	1 C1	ILLEG DAT	BRANCH IF MONTH = 20 OR MORE.
0762		LA, CHAR2	3 C2	PHI DATE	ILLEG DAT	BRANCH IF MONTH = 13 OR MORE.
0764		WA	PACK DATE	B D1	PACK DATE	PUT PACKED MONTH IN THE RANGE 15-12.
0766	PRINT MO	SWE, D12	PACK DATE	D,11	6,1	GUARANTEE NO ASTERISK INITIALLY IN 6,1.
0768		WA	6,1	L MONTHS	Z,AJ1	
0769		TX	N,AU1	-	YJL DATE	STORE ALPHABETIC MONTH NAME.
0771	PRINT DAY	SWS, C7T8	PHI DATE	A,3	YJL DATE	TENTATIVELY, 2-DIGIT DAY TO ALPHA DATE.
0773		NA, CHAR7	YUL DATE	ZERO BJ	DO DAY	BRANCH IF DAY = 10 OR MORE.
0775		SWS, C7T8	YUL DATE	A,1,L	YJL DATE	SHIFT UP 1-DIGIT DAY.
0777		LA, CHAR7	YUL DATE	ZERO BJ	ILLEG DAT	BRANCH IF DAY = 0.
0779		TX, CHAR8	COMMA C8	-	YJL DATE	
0780	DO DAY	NA, CHAR4	PHI DATE	ALF DAY 30	DAY 1T29	BRANCH IF DAY LESS THAN 30.
0782		LA, CHAR5	2 C5	PHI DATE	ILLEG DAT	BRANCH IF DATE = 32 OR MORE.
0784		SWS, B5T9	PHI DATE	21,L	PACK DATE	
0785		WA	PACK DATE	BIN DAY 30	PACK DATE	PUT DAY 30 OR 31 IN PACKED DATE.
0787	TEN DAYS	TS	-	-	DO YEAR	(USED WHEN DAY LESS THAN 10 OR OVER 29).
0789		WA	PACK DATE	BIN DAY 10	PACK DATE	
0790		WA	PACK DATE	BIN DAY 20	PACK DATE	FINISH PACKED DAY NUMBER.
0792	DAY 1T29	LA, CHAR4	ALF DAY 30	PHI DATE	ILLEG DAT	BRANCH IF DAY = 40 OR MORE.
0794		LA, CHAR5	HEXB C5 BJ	PHI DATE	ILLEG DAT	BRANCH IF NON-DECIMAL DAY NO.
0796		SWS, B5T9	PHI DATE	21,L	PACK DATE	
0797		SSL, CHAR8	PHI DATE	A,4	TEN DAYS	C INSERT DAY NUMBER INTO PACKED DATE.
0799	DO YEAR	SWS, CHAR5	PHI DATE	A,2,L	YJL DATE +1	PUT UNITS DIGIT OF YEAR NUMBER INTO ALF.
0801		NA, CHAR7	PHI DATE	6 C7	ILLEG DAT	RECODE THIS ON DEC. 31, 1969.
0803		LA, CHAR8	PHI DATE	ONE BJ	ILLEG DAT	BRANCH IF 60 OR 61.
0805		LA, CHAR8	HEXB C8	PHI DATE	ILLEG DAT	BRANCH IF NON-DECIMAL YEAR NO.
0807		NA, CHAR4	PHI DATE	ZERO BJ	C,+2	BRANCH IF DAY WAS TWO DIGITS.
0809		SWS, C1T7	YUL DATE +1	A,1,L	YJL DATE +1	OTHERWISE SHIFT UP ALPHA YEAR.
0811		WD	PHI DATE	TWO BJ	N,X6	GUARANTEE N,X6 INITIALLY NOT ALL ONES.
0813		SWS, B10T12	N,X6	12	PACK DATE	PUT DIMINISHED YEAR NO. INTO PACK DATE.
0815		TX	PHI DATE	-	1,4	PUT DATE IN YUL FILE DIRECTORY.

P0817 SET UP SPECS AND BUFFERS FOR 4-LINE/RECORD COPY-WORKTAPE WRITING.

0818	SETUP COP	TX	L COPBS BJ	-	Z,AU2		
0819		TX	Z,AU2,1	-	Z,X4		
0820		MT	ZERO BJ	33	N,AU2,1		CLEAR 4 X 16 + 2 WORDS IN FIRST BJFFER.
0822		TS	Z,X4	4,68	C,-1		SPEC TO START OF BUF FOLLOWS BJ#.
0824		RT	4,1	4,67	4,69		PRE-PLANT EOR FOR END BUFFER DETECTION.
0826		TX	Z,AU1	-	N,X4		EACH BUF IS PRECEDED BY SPEC TO OTHER.
0828		TS	Z,AU1	N,AJ2	MON SN CnR		
0829		DEC	GG00 0000 0018				C SNATCH UPPER MEMORY BANKS 0-3.
0830		TS	L SET PG HD	Z,5C	C,+2		
0831		S, MON TYPER	ND19B MSG	SPRAMR +32	NO CORE		C "YUL SYSTEM NEEDS 19 BANKS: 1-3".
08312		TX	BANK 1 BJ	-	Z,X0		C UNDO DAMAGE DONE BY CORE SNATCH.
0832		NA, CHAR8	1,0	ZERO BJ	C,+1		S EXIT TO SET PG HED IF GOT CURRENT TAPE.
0833		S, PHI LOAD	B SERVICE	0	DO BKUP BJ		

R0834 ALPHABETIC CONSTANTS FOR THE BEGIN-JOB SUBSEGMENT.

08341	BLANKS BJ	ALF					
08342	H18003	ALF		B			
08343	COMMA '62	ALF		, 1962			
08344	W ILLEGAL	ALF		ILLEGAL			
08345	LUMPED BJ	ALF		13 32 6,			MULTIPLE MASKED CONSTANT.
08346	BEGIN YUL	ALF,2		BEGIN YUL SYSTEM			
08347	FIX DATE	ALF,2		FIX DATE & RERUN			
08348	BJ TRY MSG	ALF,2		ASA TO TRY AGAIN			
08349	BJ END YUL	ALF,2		END YUL SYSTEM			
0835	ND19B MSG	ALF,4		YUL SYSTEM NEEDS 19 BANKS: 1-3'			
083505	ND25G MSG	ALF,4		YUL SYSTEM NEEDS TWO SIDE GROUPS			
08351	MONTHS	ALF,4		JAN FEB MAR APR			
08352		ALF,4		MAY JUN JUL AUG			
08353		ALF,4		SEP OCT NOV DEC			

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P08354 NUMERIC AND ADDRESS CONSTANTS, ASSIGNMENTS AND EQUIVALENCES FOR THE BEGIN-JOB SUBSEGMENT.

08355	ZERO	BJ	OCT	0
08356	ONE	BJ	OCT	-1
08357	TWO	BJ	OCT	-2
08358	ONES	BJ	DEC	GGGG GGGG GGGG
08359	B34T47	BJ	OCT	-77776
0836	B D1		DEC	B
08361	1 C7	BJ	OCT	-100
08362	HEXB	C2	OCT	0012
08363	HEXB	C5 BJ	OCT	-1200 0000
08364	HEXB	C8	OCT	-12
08365	BIN DAY	10	OCT	012
08366	BIN DAY	20	OCT	024
08367	BIN DAY	30	OCT	036

083675	BANK 1	BJ	SPEC	2048
08368	L MONTHS		SPEC	MONTHS -1
08369	LSET PG	HD	SPEC	SET PG HFD

083695	L COP35	BJ	ASSIGN	0,39
0837	NO CORE		ASSIGN	0,72
08371	DO BKJP	BJ	ASSIGN	0,86
08372	YUL DA	LZS	ASSIGN	0,119
08373	B SERVICE		ASSIGN	0,138
08374	ACA OTHE	B	ASSIGN	0,141

08375	1 C1		EQUALS	LUMPED BJ
08376	3 C2		EQUALS	LUMPED BJ
08377	ALF DAY	30	EQUALS	LUMPED BJ
08378	2 C5		EQUALS	LUMPED BJ
08379	6 C7		EQUALS	LUMPED BJ
0838	COMMA	C8	EQUALS	LUMPED BJ

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hampshire  
new  
nashua  
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P08384 ROUTINES IN B7,0706 - B7,0714 FOR SIDE GROUPS TO SLEEP IN.

083845	PARA IDLE	TX	Z,SC	0	Z,R0		INITIALLY, ESTABLISH SLEEP ADDRESS.
08385	GPB START	TS	-	-	MON SLEED	C	(REPLACED WITH A SPEC TO WAKE J3).
083855		LA	N,SC,3	N,R0	N,R0		GO BACK TO SLEEP IF FALSE ALARM.
08386		TX	Z,SC	-	Z,R0		
083865	GPC START	TS	-	-	MON SLEEP	C	
08387		LA	N,SC	N,R0	N,R0		SAME AS ABOVE FOR GROUP C.
083875		TX	N,R0	-	Z,CSC		EITHER GROUP COLLECTS WAKE ADDR. HERE.
08388		TS	N,SC	N,R0	N,CSC		MAKE THE BED AND GO TO WORK.
083885		TS	-	-	MON SLEEP	C	

083895 SETLOC,1

R0839 PROCEDURE WHENEVER PASS 0 IS LOADED (NOT NECESSARILY BETWEEN EACH TASK). ENTERABLE AT INIT PAS 0.

08394	SNATCH 0	SPCR			GROUP A		
08396		SWE, D12	GROUP A	28	GROUP A		KEEP MAIN GROUP NO. IN TRANSFER VECTOR.
0840		SWS, CHAR3	GROUP A	A,3	ACA DTHE	S	ALSO KEEP IT READY FOR USE BY PASS 0.
08404		S, MON TADDR	POSIT REW +1				SKIP IF YULPROGS NOT ALREADY SNATCHED.
08408	INIT PAS 0	TS	YUL MASKS	Z,MXR	SET PG HED		ENTRY TO LESSER RE-INITIALIZATION.
08412		SWE, CAC3	BANK 1	32	Z,X0		SET UP INDEXES FOR BEGIN-JOB SUBSEGMENT.
08416		TS	L SERVICE	Z,SC	SET PG HED	C	
0842	SET PG HED	TS	L DIRECTY	Z,X1	NEX DIREC	C	SET X1 AND X6.
0844		TS	REVISION +2	OK NOUN	SNATCH 0 +2	C	RESET UPDATE-REVISION-NUMBER SWITCH.
0846		NA	1,1	W FROZYUL	C,+2		
0847		TS	NO REVISE	REVISION	LOG 2 HEAD		FORBID REVISIONS ON A FROZEN TAPE.
0849		LA	1,1	W 2ND FROZ	C,-1		
0850	LOG 2 HEAD	TX	YUL LOG A	-	PAGE HEAD +1		
0851		TN	YUL DATE	2	PAGE HEAD +12		PUT LOG AND DATE IN PAGE HEADING.
0853		TS	YUL LOG	WORKERS +2	MON UNLCK	C	MINOR IDENTIFICATION FOR ASSEMBLY WRKRS.
0855		RF,1	-	-	-		UNLOCK YULPROGS.
0857		S, PHI LOAD	W SERVICE	0	C,+1		LOAD SERVICE MODULE.
0859	YUL MASKR	TX	YUL MASKS	-	Z,MXR		
0860		TS	EOR	SERCH KEY	POSIT YJ1		NEGATE SEARCH FLAG, POSITION YJLPROGS.

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P0862 MAIN LOOP OF PASS 0. READS EACH DIRECTOR CARD AND GOES TO THE APPROPRIATE ROUTINE. IF THE DIRECTOR  
R0864 CARD DOES NOT HAVE A RECOGNIZED CODE IN ITS FIRST FIELD, THE CARD IS TYPED ON THE CONSOLE AND THE NEXT DIRECTOR  
R0866 CARD IS READ. IF A MONITOR CARD IS READ, YULPROGS IS LABELED AND THE JOB ENDED. EACH CONTIGUOUS BATCH OF NON-  
R0868 YUL-DIRECTOR CARDS IS COUNTED AND THE COUNT TYPED ON THE CONSOLE. (THIS HAPPENS WHEN AN ILL-FORMED ASSEMBLY  
R0870 DIRECTOR CARD IS READ AND REJECTED, FOR INSTANCE).

0871	NEX DIREC	TX	PHI WAA	-	Z,X6	ADDRESS OF SENTENCE READER IN/DJT AREA.
0873		NA	N,X6	ONES	END CHECK	BRANCH IF THERE'S NO INVISIBLE DIRECTOR.
0875		TX	N,X1	-	N,X6	ERASE INVISIBLE DIRECTOR FLAG.
0877		TS	NO TYPIST	TYPIST	C,+3	TURN OFF TYPEWRITER FOR TASK DURATION.
0879	RD DIRECT	S, PHI READ	6,1			
0880		NA, CHAR1	6,1	Y COLUMN 1	NO DIRECT	BRANCH IF NOT A YUL DIRECTOR CARD.
0882		TX	ONES	-	6,11	SET COL. 81 STOP.
0884		TS	GB SWITCH	INIT X5	PHI SENT	BREAK UP YUL DIRECTOR CARD INTO FIELDS.
0886		NN	NON WISE	ZERO	TYP NON VS	TYPE COUNT OF NON-YUL-DIRECTORS IF NZ.
08872		SWS, CHAR3	1,1	A,7	6,1	MAKE BLANKS IN COLS 2-7 LOOK GOOD.
08873		SWS, ONES	6,1	A,1,L	6,1	
08874		NA, CHAR1	6,1	BLANKS	C,+3	NORMALIZE CONTENTS OF COLUMNS 2-8.
08875		TS	-	-	C,-2	
08876		S, MON TYPER	WR TAP MSG	SPRAMR +40	REJEC DIR	"WRONG TAPE NAME ABBR IN COLS 2-7".
08877		NA, CHAR1	6,1	1,1	C,-1	INITIAL LETTER MUST MATCH THAT OF TAPE.
0888	Y DREC TLU	TS	L DIRECTS	Z,X5	COMP DIRC	SET UP TABLE LOOK-UP ON 1ST WORD.
0890	TRY DIREC	NA	Z,X5,1	ENDIRECS	COMP DIRC	BRANCH IF NOT END OF TABLE.
0892		TN	6,16	2	WUNRC MSG +3	
0893		S, YUL TYPER	WUNRC MSG	AMTF +5	REJEC DIR	ANNOUNCE UNRECOGNITION OF FIRST WORD.
0895	COMP DIRC	NA	N,X5,1	6,15	TRY DIREC	
0896		NA, CIT6	5,0	6,17	TRY DIREC	LOOK FOR 14-CHARACTER MATCH OF 1ST WORD.
0898		SS	N,X5	THREAD 11	C,+1	
0899		TS	6 COMMA 19	Z,X5	0	GO TO APPROPRIATE ROUTINE.
0901	NO DIRECT	NA, CHAR1	6,1	STAR COL 1	NOT MON	BRANCH IF NEITHER YUL DIRECTOR NOR MON.
0903		TS	Z,SC,2	6,110	MON WAKE	C HAUL GROUP C OUT OF BED .....
0905		SPCR			C,+0	... LET IT ANNOUNCE ITS IDENTITY ...
0907		TS	ZERO	C,+1	MON REL GP	... AND FIRE IT.
0909		WD	Z,SC	ONE	Z,SC	WAIT FOR GROUP C TO SAY WHO IT IS.
0911		SWS, ACO2	C,-3	8,L	GC FRE MSG	
0912		NA, CHAR8	1,0	ONE	C,+2	BRANCH IF NOT COPYING.
0914		S, MON TYPER	GC FRE MSG	SPRA +8	-	TYPE "GC FREE" IF IT WILL DO ANY GOOD.
0916		LA, CAC3	1,0	B36T37	END CHECK -2	BRANCH IF THERE WAS NO TAPE PUNCHING.
09178		S, MON TYPER	22 OUT MSG	SPRA +24	-	"2200 READY TO DO MONAOUT".
0918		S, MON PUNCH	ZERO	ATAPE PCH +40	ZERO	LET 2200 BEGIN PUNCHING TAPE.
0920		NA, CHAR8	1,0	ZERO	LABEL YJIT	RELABEL YULPROGS ONLY WHEN NECESSARY.
0922		NA, CHAR8	1,0	ZERO	DO BACKJP	DO BACKUP PROCEDURE IF APPROPRIATE.
0924	END CHECK	NA, CHAR1	6,1	STAR COL 1	RD DIRECT	GO READ DIRECTOR UNLESS ENDJOB WAS READ.
0926		LA	ONES	6,2	RD DIRECT	BUT BRANCH AFTER CREATING A BACKUP.
0928		TS	Z,SC,1	6,107	MON WAKE	C
0929		TS	ZERO	C,+1	MON REL GP	DISMISS GROUP B.
0931		WD	Z,SC	ONE	Z,SC	WAIT UNTIL IT'S OUT OF SIGHT.
0933		S, MON TYPER	W END YUL	SPRA +16	MONITOR	TYPE "END YUL SYSTEM" AND END JOB.

P0935 SUBROUTINE IN PASS 0 TO TYPE THE SIGNIFICANT WORDS IN AN N-WORD ALPHABETIC MESSAGE. ENTRY IS A SIM-  
 R0937 ULATE CALL (TO THE TRANSFER VECTOR) WITH ADDRESSES AS PER PR\* EXCEPT FOR WORD COUNT IN RIGHT 6 BITS OF 3 ADDRESS  
 R0939 -- MAIN PASS 0 MASKS ARE ASSUMED. THE SIGNIFICANCE PROCESSING IS: OMIT BLANK WORDS AT BEGINNING AND END OF MES-  
 R0941 SAGE. REDUCE EACH IMBEDDED STRING OF BLANK WORDS TO ONE BLANK WORD. ACTIVE C ADDRESS IS COMPULSORY.

0943	TYPIST	PR				(SILENCED BY NA N,AU1 BLANKS N,AJ2).
0945		TS	Z,MXR	TYPER MXR	YUL MASKR	C
0946		SWE, CHAR8	YUL TYPER	12	Z,CSH	
0947		WA	Z,CSH	Z,AJ1	Z,CSH	FORM LWA+1 OF MESSAGE.
0949		TS	L MSG AREA	Z,CSC	SEND TYP W	
0950	END TYP Q	LA	Z,CSH	Z,AJ1	SEND TYP W +2	BRANCH WHEN WHOLE MESSAGE SCANNED.
0952		NA	N,CSC,1	BLANKS	SEND TYP W	ALWAYS SEND NEXT IF LAST NOT BLANK.
0954		NA	N,AU1	BLANKS	SEND TYP W	SEND NON-BLANK WHEN LAST WORD WAS BLANK.
0956		WD	Z,CSC	ONE	Z,CSC	IGNORE BLANK WORD THAT FOLLOWS A BLANK.
0958	SEND TYP W	TS	N,AU1,1	N,CSC	END TYP Q	SEND A WORD TO BE TYPED OUT.
0960		SM	Z,CSC,1	Z,SC,5	-	CONFIRM LAST WORD SENT TO MSG AREA.
0962		NA	N,CSC	BLANKS	C,-1	CONFIRM LAST WORD UNLESS IT IS BLANK.
0964		NA	Z,CSC	L MSG AREA	TYP COUNT	BRANCH UNLESS BLANK MSG (END OF TASK).
0966		LA	TYPIST	CAC3	SEND TYP W +1	BRANCH UNLESS TYPEWRITER IN SILENT MODE.
0968		TS	ZERO	TYPIST	SET PG HFD	C RESTORE TYPEWRITER AFTER SECRET TASK.
0970		TS	N,X6	N,X1	N,AJ2	ALSO RESTORE FORMER BACKUP STATJS.
0972	TYP COUNT	WD	Z,CSC	L MSG AREA	Z,CSC	TENTATIVELY, NO. OF WORDS TO BE TYPED.
0974		TX	L MSG AREA	-	Z,AJ1	SET AJ1 FOR MONITOR TYPEWRITER.
0976		LA	Z,CSC	ONE	7 OR LESS	OMIT FOLLOWING CHECK FOR 1-WORD MESSAGE.
0978		NA	N,AU1	BLANKS	C,+2	
0979		SM	Z,AU1,1	Z,CSC,1	-	REMOVE LEADING BLANK WORDS FROM MSG.
0981		LA	Z,CSC	SEVEN	7 OR LESS	BRANCH IF ONE MONITOR CALL WILL DO.
0983		WD	Z,CSC	SEVEN	TYPIST	
0984		SWS, CHAR6	TYPIST	15,L	SPRAM WD	SPECIFY 1 OR 2 WORDS FOR FIRST CALL.
0986		WA	TYPIST	Z,AJ1	TYPIST	SAVE STARTING ADDRESS FOR SECOND CALL.
0988		TS	Z,SC,1	-	MON TYPER +1	C FAKE A SPRAM CALL TO THE MONITOR TYPER.
0990	SPRAM WD	PR		SPRAM	-	
0991		SWS, CHAR6	SEVEN	15,L	YUL TYPER	ALWAYS TYPE 7 WORDS ON THE SECOND CALL.
0993		TS	TYPIST	Z,AJ1	7 OR LESS +1	SET UP ADDRESS OF REMAINDER OF MESSAGE.
0995	7 OR LESS	SWS, CHAR6	Z,CSC	15,L	YUL TYPER	
0996		TX	TYP RETURN	-	Z,AJ2	
0997		TX	TYPER MXR	-	Z,MXR	
0998		TS	YUL TYPER	N,SC,1	MON TYPER +1	C MAIN SYNTHETIC CALL TO MON. TYPER.
1000	TYPER MXR	RESERVE	1			
R1001	INSTRUCTION USED TO DISABLE YUL SYSTEM TYPEWRITER FOR SECRET TASKS.					
1002	NO TYPIST	NA	N,AU1	BLANKS	N,AJ2	
R1003	PROCEDURE FOR A CARD WHICH SHOULD HAVE "Y" IN COLUMN 1 BUT DOES NOT.					
1004	NOT MON	DS	NON WISE	ONE	NON WISE	
1005		TS	-	-	NEX DIREC	STEP COUNT AND READ AGAIN.

## P1007 TABLE OF RECOGNIZED FIRST WORDS IN YUL DIRECTOR CARDS.

1008	DIRECTS	ALF	ADD				
1009		M,A,	A,	A,	ADD COMP	ADD A NEW COMPUTER NAME.	
1011		ALF	REMOVE				
1012		M,A,	A,	A,	RMV COMP	REMOVE AN EXISTING COMPUTER NAME.	
1014		ALF	MESSAGE				
1015		M,A,	A,	A,	MESSAGE	TYPE OUT ARBITRARY MESSAGE.	
1017		ALF	DELETE				
1018		M,A,	A,	A,	ELIM PRSU	INITIATE DELETION OF PROG OR SJ3.	
1020		ALF	ASSEMBLE				
1021		M,A,	A,	A,	ASSEMBLY	PROGRAM OR SUBROUTINE ASSEMBLY OR REVN.	
1023	W REPRINT	ALF	REPRINT				
1024		M,A,	A,	A,	REPRINT	REPRINT ASSEMBLY LISTING.	
1032	W MNJFACT	ALF	MANUFACT				
1033		M,A,UR	A,E	A,	MANUFACT	MANUFACTURE ASSEMBLED PROGRAM.	
1035		ALF	CLOSE				
1036		M,A,	A,	A,	CLOS MONA	LET 2200 MANUFACTURE PAPER/DIGISTORE TP.	
1038	W CONTROL	ALF	CONTROL				
1039		M,A,	A,	A,	CONTROL	BAR REVISION OR DELETION OF SUBROUTINE.	
1041	W DECONTR	ALF	DECONTR				
1042		M,A,L	A,	A,	DECONTR	ALLOW REVISION OR DELETION OF SUBRO.	
1044	W TRANSFR	ALF	TRANSFER				
1045		M,A,	A,	A,	XFER PSR	MAKE CARD IMAGE DISC FILE OF PRG OR SUB.	
1047	W PRINT	ALF	PRINT				
1048		M,A,	A,	A,	PRINT PSR	PRINT SYMBOLIC LISTING OF PROG OR SUBRO.	
1050		ALF	PUNCH				
1051		M,A,	A,	A,	PUNCH PSR	PUNCH SYMBOLIC PROG. OR SUBRO. DECK.	
1053	W ASSEMBLY	ALF	ASSEMBLY				
1054		M,A,	A,	A,	PASS STAT	ASSEMBLY PASS STATUS OPERATIONS.	
1056		ALF	MANUFACT				
1057		M,A,UR	A,IN	A,G	MANJ STAT	MANUFACTURING STATUS STATUS OPERATIONS.	
1062		ALF	CREATE				
1063		M,A,	A,	A,	CREATE BU	CREATE BACKUP TAPE IN MIDJOB.	
1065		ALF	LIST				
1066	LAS DIREC	M,A,	A,	A,	JNREADY	LIST PORTIONS OF YUL FILE DIRECTORY.	
1068	UNREADY	S, YUL TYPER	UNRDY MSG	AMTF +4	REJEC DIR	TYPE "UNREADY OPERATION REQUESTED".	

P1070 ROUTINE TO RESPOND TO REQUESTS FOR ASSEMBLY OR REVISION OF A PROGRAM OR SUBROUTINE.

1072	ASSEMBLY	LA, CAC3	1,8	YFILE LIM	C,+2		
1073		S, YUL TYPER	DIFUL MSG	AMTF +5	REJEC DIR		CUSS AND ABORT IF FULL DIRECTORY.
1075		TS	W ASSEMBLY	TASK MSG	TASK OBJC		BREAK DOWN AND REFORM REST OF DIRECTOR.
1077		S, YUL TYPER	TASK MSG	AMTF +4	C,+1		
1078	TYP ASOBJ	S, YUL TYPER	OBJECT MSG	A +7	C,+1		TYPE TASK AND OBJECT OF TASK.
1080		WA	Z,X6	OCTAL 20	Z,X5		INCLUDE COMPUTER NAME IN PAGE HEADING.
1082		TN	N,X5,2	2	COMMON		
1083		TS	L PGHED P3	Z,S2	PJT CHAR +7	C	MOVE FIRST CHARACTER.
1085		WA	N,X5	1 C6	N,X5		INCLUDE A BLANK AFTER COMPUTER NAME.
1087		TS	Z,SC	Z,S3	WRIT OBJC		MOVE FULL OBJECT MSG TO PAGE HEADING.
1089		TS	PROG NAME	SORS NAME	619 TO X5	C	OMIT COMPUTER NAME FROM "END OF" LINE.
1091		WA	L OLD LINE	SIX	Z,S2		GIVE IT TO PASS 1 VIA OLD LINE.
1093		NA	N,X5	W REVISION	NEW END OF		BRANCH IF NEW PROGRAM OR SUBROUTINE.
1095		SWS, CHAR1	N,X5,3	A,1	N,S2		MOVE "N" OF "REVISION".
1097		TS	N,X5,2	COMMON	PJT CHAR +2	C	MOVE 1ST DIGIT OF REVISION NO.
1099		TS	-	-	C,+2		
1100	NEW END OF	TS	N,X5,2	COMMON	PJT CHAR +3	C	MOVE "N" OF "NEW".
1102		TS	Z,SC	Z,S3	WRIT OBJC		MOVE OBJECT MSG TO "END OF" LINE.
1104		TN	PAGE HEAD +12	2	OLD LINE +12		INCLUDE DATE.
1106		TS	L DIRECTY	Z,X1	FIND COMB	C	SEEK COMPUTER NAME IN DIRECTORY.
1108		S, YUL TYPER	UNRCD MSG	AMTF +4	TYP ABORT		CUSS AND EXIT IF NOT THERE.
1110	KNWN COMP	TX	Z,X0	-	L COMP NAM		ADDRESS OF COMPUTER NAME FOR PARP CALLS.
1112		LA, P1T3AV	ONES	0,1	CAN ASSE		BRANCH IF PASSES 1-3 AVAILABLE FOR IT.
1114		S, YUL TYPER	NASSY MSG	AMTF +4	TYP ABORT		
1115	CAN ASSE	NA	TASK MSG	W ASSEMBLY	REPRINT >		BRANCH IF DOING REPRINT, NOT ASSEMBLY.
1117		NA, BIT 12	SWITCH	ZERO	NEWVERS2		BRANCH IF DOING VERSION ASSEMBLY.
1119		NA, BIT10	SWITCH	ONES	NEW PRSJR		BRANCH IF NEW PROGRAM OR SUBROUTINE.
1121	REVISION	TS	C,+1	OK NOUN	OK REVN 0		MODIFY "KNOWN PROGRAM/SUBROUTINE" SEARCH
1123		TS	C,+1	OK NOUN	C,+1		BECAUSE HERE ALONE THE REVISION NUMBER
1125		SSL, ONE	3,1	23	OK NOUN -3	C	IS BEING CHANGED.
1127		DA	COMMON	ONE	COMMON		INCREMENT OLD REVN, ASK FOR MATCH.
1129		NA, B36T37	3,1	ONES	OK NOUN +1		BACK TO KNOWN PSR IF NOT CONTROLLED SUB.
1131		SS	W REVISION	CAC12	CONSU MSG +4		
1132		S, MON TYPER	CONSU MSG	SPRAMR +40	TYP ABORT		CUSS ATTEMPT TO REVISE CONTROLLED SUBRO.
1134	NO REVISE	S, MON TYPER	NR FRZ MSG	SPRAMR +40	TYP ABORT		REPLACES REVISION, ABOVE, IF FROZE TAPE.
1136	OK REVN Q	TS, BIT2	ONES	SWITCH	KNOWN PSR		REQUEST MERGING, CHECK PROGRAM NAME ETC.
1138		TS	Z,X4	L PROG FIL	REVNO SSL		SAVE ADDRESS OF PROG/SUB ENTRY IN FILE.
1140		SWS, B13T24	REVNO	24,L	4,1		NEW REVNO FOR PROG/SUB WITH NO SUBROS.
1142		SWS, THREAD11	4,1	24	Z,X5	C	
1143		SWS, B1THRU12	REVNO	36,L	N,X5		NEW REVNO FOR PROG/SUB WITH SUBROS.
1145	REVNO SSL	SSL, ONE	4,1	23	C,-3	C	

P1146 PLACE PROGRAM OR SUBROUTINE NAME AT HEAD OF AUTHOR'S LIST.

1147		NA, BIT9	SWITCH	ZERO	C,+2		
1148		TS	W END SYPT	NEXT NAME	AJ LATEST		PROGRAM GOES ON TAPE BEFORE END SYPT.
1150		SS	4,1	THREAD 10	Z,X2		POINT TO SUCCESSOR OF SUBRO ON TAPE.
1152		NA	Z,X2	L END THR	C,+2		
1153		TS	W END SYLT	NEXT NAME	AJ LATEST		LAST SUBRO GOES ON TAPE BEFORE END SYLT.
1155		TX	N,X2	-	NEXT NAME		IN GENERAL, SUBRO STAYS PUT IN REVISION.
1157	AJ LATEST	LA	PLUS ZERO	3,1	X5 IS NR4		BYPASS IF THIS IS 1ST IN AUTHOR'S LIST.
1159		SS	4,1	B THRED 10	3,1		SEW UP AUTHOR'S LIST AROUND THIS PR/SUB.
1161		SWS,THREAD10	3,1	12	Z,X3		FOLLOW THE THREAD...
1163		LA	3,1	PLUS ZERO	C,-1		...UNTIL AUTHOR NAME ENTRY IS FOUND.
1165		SWS,BTHRED10	3,1	12	4,1		POINT TO PR/SUB LAST HANDLED BY AJTHOR.
1167		SWS,ATHRED10	Z,X4	24,L	3,1		LET AUTHOR NAME POINT TO THIS PROG/SUB.
1169	X5 IS NR4	NA, BIT 9	SWITCH	ZERO	C,+2		BRANCH IF DOING SUBROUTINE REVISION.
1171		WA	INIT X5	TWO	INIT X5		CHANGE GB,R2 TO GB,R4.
1173		LA, CAC3	1,9	L END THR	INIT ASSY		BRANCH IF THERE ARE NO DELETES WAITING.
1175		NA, BIT 9	SWITCH	ZERO	GBR2 GBR3		BRANCH IF DOING SUBROUTINE REVISION.
1177		WD	INIT X5	ONE	INIT X5		OTHERWISE CHANGE GB,R4 TO GB,R3.
1179		TS	L SYM THR	Z,S1	INIT ASSY +1		
1180	NEW PRSUB	TS	Z,X0	Z,X2	FIND PROG +1	C	SEEK PROGRAM/SUBRO NAME IN DIRECTORY.
1182		S, YUL TYPER	CONPN MSG	AMTF +5	TYP ABORT		CUSS CONFLICT AND EXIT IF FOUND.
1184		SSL, TWO	SWITCH	34	C,+2		"BRANCH" IF DOING TRANSFERRED ASSEMBLY.
1186		SWE, ONES	SUBSTRAB +2	24	SUBSTRAB +2		POSITION LOG NUMBER FOR PASS 1.
1188	NEW DNTY	TS	-	-	FIND PAID	C	FIND 2 DIRECTORY LOCATIONS FOR D/S NAME.
1190		TS	PROG NAME	N,X3	DIRENTRY		
1191		TS	Z,SC	Z,X1	RD SUBDR		
1192		S, MON TYPER	TSFRD MSG	SPRAMR +56	TYP ABORT		CUSS LACK OF "FROM FILENAME" SUBDIRECTR.
1194		NA	6,16	W FROM	C,-1		
1195		TX	L DIRECTY	-	Z,X1		
1196		LA, CHAR1	ONES	6,18	C,-3		BRANCH IF INPUT FILE NAME IS MISSING.
1198		LA, CHAR6	6,21	ZERO	C,+2		BRANCH IF INPUT FILE NAME IS BLANK.
1200		LA, CHAR6	6,21	BIT 32	C,+2		BRANCH IF LENGTH OF NAME IS 16 OR LESS.
1202		S, MON TYPER	XIN WRSIZ	SPRAMR +32	REJEC DID		REJECT ILL-SIZED INPUT FILE NAME.
1204		LA, CHAR1	ONES	6,22	C,+2		
1205		S, MON TYPER	XIN TERMS	SPRAMR +40	REJEC DIR		CUSS TERMINATOR CHARACTERS IN FILE NAME.
1207		TN	6,19	2	SUBSTRAB		SAVE FILE NAME IN INTERPASS STORAGE.
1209		S, MON TYPER	W SOURCE C	SPRAM +8	-		
1210		S, MON TYPER	SUBSTRAB	SPRA +16	-		"SOURCE: INPUTFILENAME "
1212		LA, CHAR5	ONES	DISC STAT	C,+3		
1213		S, MON TYPER	TSFRD MSG	SPRAM +24	-		
1214		S, MON TYPER	XNODF MSG	SPRAMR +8	TYP ABORT		"TRANSFERRED ASSEMBLY NEEDS DISC "
1216		EX	DISC STAT	B14T18	SUBSTRAB +3		SEND NUMBER OF DISCS IN FILE TO PASS 1.

P1218 TRANSFERRED ASSEMBLY: FIND HIGHEST LOG NUMBER FOR FILE, IGNORING DISABLED FILES AND DELETING UNCONFIRMED ONES.

1220		TS	SUBSTRAB	TRONDEX	XIN ANYLG	
1221	XIN LUKUP	TS	SUBSTRAB +1	TRONDEX +1	DISCAP	C
1222		OCT	-15			
1223		SPEC			TRONDEX	
1224		TS	BIT 10	SORS LINE	FOUND FII	
1225		NA	SUBSTRAB +2	ZERO	C,+2	BRANCH IF A SATISFACTORY FILE WAS FOUND.
1227	S, MON TYPER		NOFIL MSG	SPRAMR +24	TYP ABORT	"FILE NOT FOUND ON DISC "
1229		SSL, ONE	SWITCH	39	VERS PS3	C
1230		TN	TSFR LINE	3	N,AJ2	
1231		TN	TRONDEX	2	N,AJ2	
1232		SWE, ONES	SUBSTRAB +2	D,2	PHI ARG	
1233		TS	Z,SC	Z,AJ1	YJL D2A 75	
1234		SM	LOG COMMA	N,54	SORS LINE +9	
1235		TN	BLANKS	5	SORS LINE +10	
1236		TS	BLANKS	SORS LINE +15	NEW ONTRY -1	COBBLE UP LINE SHOWING SOURCE FILE NAME.
1238	FOUND FIL	NA, C7T8	TRONDEX +3	SNTRACOD	XIN LUKUP	LOOK AGAIN IF FILE TYPE IS WRONG.
1240		SSL, ONE	TRONDEX +4	0	C,+1	TEST PSEUDO-CONFIRMATION BIT.
1242		TS	Z,SC,2	-	DISCAP	C GO TO RELEASE UNCONFIRMED TRACK.
1244		LA	TRONDEX +2	SUBSTRAB +2	XIN LUKUP	BRANCH IF NOT GREATEST FOUND LOG NUMBER.
1246		TS	TRONDEX +2	SUBSTRAB +2	XIN LUKUP	PLANT HIGHEST LOG NUMBER YET FOUND.
1248		OCT	-1017			
1249		SPEC			TRONDEX	
1250	XIN ANYLG	TS	ONES	TRONDEX +2	XIN LUKUP	RESTART SEARCH AFTER TRACK RELEASE.
1252		TS	-	-	DISASTER	BAD RETURN SHOULD BE IMPOSSIBLE HERE.

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P1254 ENTER THE NAME OF A NEW PROGRAM OR SUBROUTINE IN THE DIRECTORY.

1255	DIRENTRY	TX	Z,X3,1	-	L PROG FIL	SAVE ADDRESS IN FILE.
1257		TX	PACK DATE	-	N,X3	DATE OF LAST HANDLING GOES WITH NAME.
1259		SWS, BIT 35	SWITCH	27	N,X3	SHOW WHETHER PROGRAM OR SUBROUTINE.
1261		NA, BIT9	SWITCH	ZERO	C,+2	
1262		TS	W END SYPT	NEXT NAME	POSN PRGN	PROGRAM GOES ON TAPE BEFORE END SYPT.
1264		TX	L END THR	-	Z,X5	
1265		SWS, THREA)10	N,X0	12	Z,X5	POINT TO FIRST PROG OF COMPUTER.
1267		TS	Z,X0	Z,X2	FIND SJBN	
1268		NA, BIT36	5,1	ZERO	FIND SJBN +2	BRANCH IF FOUND A SUBROUTINE.
1270		TX	Z,X5	-	Z,X2	
1271		SS	Z,1	THREAD 10	Z,X5	ADVANCE POINTER PAIR THRU LIST.
1273	FIND SUBN	NA	Z,X5	L END THR	C,-3	BRANCH IF MORE PROGS OR SUBS TO SEE.
1275		TS	W END SYLT	NEXT NAME	POSN SJBN +2	IF NO SUBS (OR NONE AFTER SOURCE), LAST.
1277		NA, BIT12	SWITCH	ONES	C,+2	BRANCH IF NOT DOING VERSION ASSEMBLY.
1279		NA	N,X2	SORS NAME	FIND SJBN -2	VERSION SUBRO GOES ON TAPE AFTER SOURCE.
1281		TS	N,X5	NEXT NAME	POSN SJBN +2	NEW/TRANSFERRED SUBRO GOES 1ST IN SYLT.
1283	POSN SUBN	SS	Z,X5	THREAD 10	N,X3	NEW SUBRO POINTS TO SUCCESSOR.
1285		TS, THREA)10	L PROG FIL	Z,1	POSN PRGN +2	PREDECESSOR POINTS TO NEW SUBRO.
1287		NA	Z,X2	Z,X0	POSN SJBN	BRANCH UNLESS NOTHING PRECEDES NEW SJB.
1289	POSN PRGN	SWS, THREA)10	N,X0	12	N,X3	NEW P/S NAME TO HEAD OF MACHINE'S LIST.
1291		SWS, BTHREA)10	L PROG FIL	12,L	N,X0	
1292		TS	ONES	1,6	FIND AJTH	C SEEK AUTHOR NAME IN DIRECTORY.
1294		TS	-	-	ADD AUTHR	INCLUDE IT NOW IF NOT FOUND.
1296		LA	B1THRU12	3,1	C,+2	BR. IF AUTH HAS 255 OR MORE PROG/SUBS.
1298		WA	3,1	BIT 12	3,1	OTHERWISE INCREASE HIS TOTAL.
1300		TS	L PROG FIL	Z,X2	SET LAJTH	C
1301		SWS, BTHREA)10	3,1	12	Z,1	NEW P/S NAME TO HEAD OF AUTHOR'S LIST.
1303		SWS, ATHREA)10	L PROG FIL	24,L	3,1	
13031 *		NA, BIT 12	SWITCH	ZERO	GBR2 GBR3 -1	BRANCH IF DOING A VERSION ASSEMBLY.
13032		EX	SWITCH	BIT 7	COMMON	
13033		LA	COMMON	ZERO	GBR2 GBR3 -1	BRANCH IF NOT IN A SEGMENT ASSEMBLY.
13034		NA, CAC3	1,9	L END THR	C,+2	
13035		WA	INIT X5	ONE	INIT X5	IF NO DELETES WAITING, MAKE IT GB,R4.
13036		WA	INIT X5	ONE	INIT X5	IF DELETES ARE WAITING, MAKE IT GB,R3.
13037		TS	-	-	INIT ASSY	
1304		LA, CAC3	1,9	L END THR	INIT ASSY	BRANCH IF THERE ARE NO DELETES WAITING.
1306	GBR2 GBR3	WA	INIT X5	SPEC ONE	INIT X5	CHANGE GB,R2 TO -GB,R3.

P1308 PROCEDURE TO INITIALIZE A PERMISSIBLE ASSEMBLY OR REPRINT.

1309	INIT ASSY	TX	L SYM THR	-	Z,S1	
1310		MT	I SYM THRS	13	N,S1,1	INITIALIZE SYMBOL TABLE CAC-THREADS.
1312		TX	ISY SUB TH	-	N,S1,1	SPECIAL INITIAL VALUE FOR SUBRO DIR ORG.
1314		MT	I SYM THRS	50	N,S1,1	
1315		TX	L AV TABLE	-	Z,S1	
1316		SM	CAC12	ISY SUBTH	N,S1,1	INITIALIZE FIRST SPEC PAIR IN SYM TABLE.
1318		TS	L GPB STT	Z,X4	C,-1	
1319		WA	OCTAL 20	OCTAL 20	Z,R6	
1320		MT	CAC12	62	N,S1,1	INITIALIZE AVAILABILITY TABLE.
1322		NA	Z,R6,1	ZERO	C,-1	
1323		TX	L B LISTS	-	Z,S1	
1324		MT	ZERO	4	N,S1,1	INITIALIZE JOINT BUFFER LIST.
1326		TN	BUF NAMES	8	N,S1,8	INITIALIZE FREE BUFFER LIST.
1328		MT	ZERO	8	N,S1,1	INITIALIZE INPUT AND SAPO BUFFER LISTS.
1330		TS	Z,SC,5	N,X4	MON WAKE	WAKE GROUP B TO ASK IT ITS NAME.
1332		SPCR			COMMON	
1333		TX	YUL MASKS	-	Z,MXR	
1334		SWE, ONES	COMMON	17	COMMON	
1335		SS	COMMON	GROUP IND	INIT X5	PLANT TRUE NAME OF GROUP B.
1337		TX	Z,RO	-	Z,SC	GO BACK TO BED UNTIL PASS 1.
1339		SSL, ONE	SWITCH	35	C,+1	FOR TRANSFERRED ASSEMBLY, PRINT SOURCE.
1341		LA, B11T12	SWITCH	ZERO	C,+2	FOR REPRINT, PRINT NAME OF CUSTOMER.
1343		S, PHI PRINT	SORS LINE			FOR VERSION ASSEMBLY, PRINT SOURCE NAME.
1345	SNACH WRK	SWS, CHAR8	TAPE NO	A,7	WORKERS	
1346		SWS, CHAR7	TAPE NO	A,6	WORKERS +1	PUT TAPE NUMBER IN SNATCHING PARAMETERS.
1348		S, MON ADDR	TAPE NO			SKIP IF WORKER MUST BE SNATCHED.
1350		TS	L STOPPER	Z,X4	POSITION +2	
1351		TS	L STOPPER	Z,X4	PHI SNACH	
1352	WORKERS	ALF,3	W10Y010=YULWRK# *****			
1353	POSITION	TS, CHAR1	TAPE NO	C,+1	PHI TAPE	
1354		RW,EH	-	-	-	REPOSITION WORKERS IN ANY CASE.
1356		TS, CHAR1	TAPE NO	C,+1	PHI TAPE	
1357		RF,EH	4,0	-	DISASTER	
1358		TS, CHAR1	TAPE NO	C,+1	PHI TAPE	
1359		RF,EH	-	-	DISASTER	
1360		WA	TAPE NO	BIT 6	TAPE NO	
1361		NA, CHAR8	WORKERS	FOUR	SNACH WRK	WORKERS ARE CALLED 2, 3, AND 4.
1363		TS	Z,SC	Z,X1	RD SJBDR	GO TO GET SUBDIRECTOR IF ANY.
1365	LOAD PAS 1	S, PHI LOAD	PASS 1	1	BASE ADDR	LOAD AND GO TO PASS 1 WHEN THEY RJN OUT.

P1367 SUBROUTINE IN PASS 0 TO PROCESS ASSEMBLY AND/OR PRINTING SUBDIRECTORS.

1368	ASSY SUBD	WD	Z,X1	ONE	Z,X4	X4 IS USED TO RETURN TO RD SUBDRC CALL.
1370		WA	Z,X6	OCTAL 20	WHODUNIT	
1371	LINS COPS	NA	6,16	W PRINT	REN SUP &C	
1372		WA	WHODUNIT	THREE	WHODUNIT	SET UP TO EXAMINE NO. OF LINES OR COPS.
1374		SWE, CHAR8	6,21	12	Z,AJ1	
1375		LA	Z,AJ1	ZERO	NUM WR SIZ	
1376		LA	THREE	Z,AJ1	NUM WR SIZ	1 OR 2 DECIMAL DIGITS FORM EITHER NO.
1378		SWE, CHAR8	6,19	A,7	COMMON	GET TENS OR ONES DIGIT.
1380		LA	TEN	COMMON	NUM NDEC	
1381		LA	Z,AJ1	ONE	TEST NVAL	BRANCH IF NUMBER WAS 1 DIGIT ONLY.
1383		BT	COMMON	10	COMMON	
1384		SWE, CHAR8	6,19	A,6	Z,AJ1	UNITS DIGIT OF 2-DIGIT NUMBER.
1386		LA	TEN	Z,AJ1	NUM NDEC	
1387		WA	COMMON	Z,AJ1	COMMON	
1388	TEST NVAL	LA	COMMON	ONE	NUM RNG ER	
1389		LA	COMMON	CHAR 8	LIN OR COP	LIMITS HERE ARE 2 AND 63.
1391	NUM RNG ER	S, MON TYP	ER NW RGE MSG	SPRAMR +24	IGN SBDIR	
1392	NUM NDEC	S, MON TYP	ER NW NDC MSG	SPRAMR +24	IGN SBDIR	
1393	NUM WR SIZ	S, MON TYP	ER NF WSZ MSG	SPRAMR +24	IGN SBDIR	CUSS, OUST SUBDIRS WITH BAD NUMBERS.
1395	LIN OR COP	WA	WHODUNIT	THREE	WHODUNIT	
1396		NA	6,22	W LINES	CK COPIES	
1397		LA	COMMON	NINE	NUM RNG ER	MINIMUM LINES/PAGE = 10.
1399		NA	N LINES	54 LINES	DJPLISJB	
1400		SWS, CHAR2	COMMON	A,2	N LINES	SET TEMPORARY LENGTH OF PAGE.
1402		SWS, C7T8	6,19	A,6	SET LN MSG	
1403		S, MON TYP	ER SET LN MSG	SPRA +24	4,0	ANNOUNCE AND GO TO GET NEXT SUBDIRECTOR.
1405	CK COPIES	NA	6,22	W COPIES	JNRC SBDIR	
1406		NA	N COPIES	ZERO	DJPLISJB	
1407		TX	COMMON	-	N COPIES	TO BE MODIFIED WHEN PLY IS KNOWN.
1409		SS	6,19	BITHRU12	N COPS MSG	
1410		S, MON TYP	ER N COPS MSG	SPRAMR +24	-	
1411		S, MON TYP	ER WH PLY MSG	SPRAMR +16	-	
1412		S, MON TYP	ER WAA 10060	SPRA +24	4,0	

R1413 ASSEMBLY/REPRINT SUBDIRECTOR CHECKING AND CUSSING.

1414	DUP SJB CH	LA	L SERVICE	Z,X4	IL REQUEST	BRANCH IF NOT AN ASSEMBLY-TYPE TASK.
1416	DJPLISJB	S, MON TYP	ER DUPSR MSG	SPRAMR +24	IGN SBDIR	CUSS AND IGNORE DUPLICATE SUBDIRECTORS.
1418	IL REJEST	S, MON TYP	ER IL RQT MSG	SPRAMR +24	IGN SBDIR	CUSS RENUMBER IN REPRINT AND LIKE THAT.

P1420 PROCESSING FOR ASSEMBLY/PRINT SUBDIRECTORS OTHER THAN LINES OR COPIES REQUESTS.

1422	REN SJP &C	NA	6,17	BLANKS	UNRC SBDR		
1423		NA	6,16	W RENUMBR	SJPP OR &C		"RENUMBER" OR "SUPPRESS" OR ETC.
1425	RENUMBER	LA, B2B11	ONES	SWITCH	IL REQUEST		REFUSE TO RENUMBER DURING REPRINT.
1427		SSL, ONE	SWITCH	47	DJP SUB CH	C	CHECK DUPLICATION AND CALL FROM PRINT.
1429		SM	SWITCH	BIT 1	SWITCH		SET SWITCH TO MAKE PASS 1 RENUMBER.
1431		S, MON TYPER	CDREN MSG	SPRA +16	4,0		TYPE "RENUMBER CARDS", GET NEXT SJBDIR.
1433	SUPP OR &C	NA	6,16	W SJPPRES	FRZ B4 JpG		&C = "FREEZE", "BEFORE", OR "UPGRADE".
1435		WA	WHODUNIT	THREE	WHODJUNIT		
1436		NA	6,19	W CONDIR	UNCONDIT		BRANCH IF NOT "CONDITIONALLY" (JN BAD).
1438		NA	6,20	W CONDIR +1	UNRC SBDR		
1439		TN	6,22	3	6,19		
1440		TS	B18T20	TEMP MASK	UNCONDIT +1		BOBTAIL MASK FOR CONDITIONAL SUPPRESSION
1442	UNCONDIT	TX	SUPP BITS	-	TEMP MASK		
1443		NA	6,19	W SYMBOL	SP OCT MAP		"SUPPRESS SYMBOL" SUFFICES HERE.
1445	SP SYM TAB	SSL, ONE	SWITCH	29	DJP SUB CH	C	CHECK DUPLICATION AND CALL FROM PRINT.
1447		SM, TEMPMASK	SWITCH	B15 B19	SWITCH		
1448		TS	ZERO	WHODUNIT	TYP SUPPR		
1449	SP OCT MAP	NA	6,19	W OCTAL	SJP INACT		"SUPPRESS OCTAL" SUFFICES HERE.
1451		SSL, ONE	SWITCH	28	DJP SUB CH	C	CHECK DUPLICATION AND CALL FROM PRINT.
1453		SM, TEMPMASK	SWITCH	B16 B20	SWITCH		
1454		TS	ONE	WHODUNIT	TYP SUPPR		
1455	SUP INACT	NA	6,19	W INACTIV	UNRC SBDR		"SUPPRESS INACTIVE" SUFFICES HERE.
1457		NA	6,20	BLANKS	UNRC SBDR		
1458		SSL, ONE	SWITCH	30	DJP SUB CH	C	CHECK DUPLICATION AND CALL FROM PRINT.
1460		SM, TEMPMASK	SWITCH	B14 B18	SWITCH		
1461		TX	TWO	-	WHODJUNIT		
1462	TYP SJPPR	NA	TEMP MASK	SUPP BITS	C,+2		
1463		S, MON TYPER	W SUPPRES	SPRAM +8	C,+2		"SUPPRESS".
1465		S, MON TYPER	SUP CO MSG	SPRAM +24	-		"SUPPRESS CONDITIONALLY: ".
1467		SSL, THREE	WHODUNIT	0	C,+1		
1468		S, MON TYPER	SY TAB MSG	SPRA +24	4,0		" SYMBOL TABLE LISTING".
1470		S, MON TYPER	OC MAP MSG	SPRA +24	4,0		" OCTAL STORAGE MAP".
1472		S, MON TYPER	IN SUB MSG	SPRA +24	4,0		" INACTIVE SUBROUTINES".

R1474 PROCEDURE FOR THE SUBDIRECTOR "FREEZE SUBROUTINES", TO INCORPORATE SUBROUTINES INTO A PROGRAM.

1476	FRZ B4 UPGR	NA	6,16	W FREEZE	B4 OR UPGR		IF NOT "FREEZE": "BEFORE" OR "UPGRADE".
1478		TS	6,19	WHODUNIT	RENUMBER	C	REFUSE TO FREEZE DURING REPRINT.
1480		NA	6,19	MANSU MSG	UNRC SBDR		
1481		NA, C1T4	6,20	MANSU MSG +1	UNRC SBDR		"SUBROUTINES" IS REQUIRED.
1483		NA, BIT9	SWITCH	ZERO	IL REQUEST		REQUIRE PROGRAM ASSEMBLY.
1485		SSL, ONE	SWITCH	31	DJP SUB CH	C	QUIT IF THERE HAS BEEN ANOTHER "FREEZE".
1487		SM	SWITCH	BIT 17	SWITCH		SHOW THAT A "FREEZE" HAS BEEN RECEIVED.
1489		S, MON TYPER	FRSUB MSG	SPRA +24	4,0		"FREEZE SUBROUTINES".

P1491 PROCESSING FOR THE SJBIRECTOR "BEFORE SJBNAME", USED IN SUBROUTINE ASSEMBLY TO POSITION A SUBROUTINE ON TAPE.

1493	B4 OR UPGR	NA	6,16	W BEFORE	UPGRADE		IF NOT "BEFORE", MUST BE "UPGRADE".
1494		TS	6 COMMA 19	WHODUNIT	RENUMBER	C	POINT TO SUBRO NAME, QUIT IF REPRINT.
1496		NA, BIT9	SWITCH	ONES	IL REQUEST		REQUIRE SUBROUTINE ASSEMBLY.
1498		SSL, ONE	SWITCH	40	DJP SUB CH	C	QUIT IF THERE HAS BEEN ANOTHER "BEFORE".
1500		SM	SWITCH	BIT 8	SWITCH		SHOW THAT A "BEFORE" HAS BEEN RECEIVED.
1502		NA	6,20	BLANKS	UNRC SBDP		QUIT IF SUBRO NAME IS TOO LONG.
1504		NA, C1T4	6,19	W END SYLT	C,+2		
1505	BEFOREND	TS	W END SYLT	NEXT NAME	ACK BEFOR		SUBDIRECTOR SAID "BEFORE END".
1507		TX	L COMP NAM	-	Z,X2		
1508		SWS,THREAD10	N,X2	12	Z,X2		
1509		TS	Z,SH	Z,CSC	B4 WHICH -2		START SEARCH FOR NAMED SUBROUTINE.
1511		NA, BIT36	2,1	ZERO	B4 WHICH		BRANCH IF FOUND A SUBROUTINE.
1513		SS	2,1	THREAD 10	Z,X2		ADVANCE THROUGH LIST OF PROGRAMS.
1515		NA	Z,X2	L END THR	C,-2		BRANCH UNLESS THERE ARE NO SUBROUTINES.
1517		NA	6,19	W ALL	BAD BEFOR	C	IF "BEFORE ALL", DROP INTO BEFOREND.
1519	B4 WHICH	NA	6,19	W ALL	ACK BEFOR +2		BRANCH IF REALLY NEED TO FIND SUBRO.
1521		NA	Z,X2	L PROG FIL	ACK BEFOR +1		BRANCH UNLESS SUBRO IS ALREADY FIRST.
1523	ACK BEFOR	S, YUL TYPER	6,2	A +9	4,0		ACKNOWLEDGE SUBDIRECTOR BY TYPING IT.
1525		TS	N,X2	NEXT NAME	ACK BEFOR		IF "BEFORE ALL", 1ST SUBRO IS SUCCESSOR.
1527		NA	6,19	N,X2	BAD BEFOR -2		BRANCH IF DIDN'T FIND NAMES SUBROUTINE.
1529		NA	Z,X2	L PROG FIL	C,-2		OK UNLESS SUBRO WAS TO PRECEDE ITSELF.
1531		S, MON TYPER	UNRCS MSG	SPRAMR +32	IGN SBDIR		"SUBROUTINE NAME NOT RECOGNIZED".
1533		SS	2,1	THREAD10	Z,X2		CONTINUE SEARCH FOR NAMED SUBROUTINE.
1535		NA	Z,X2	L END THR	ACK BEFOR +2		BRANCH IF SEARCH DID NOT FAIL.
1537	BAD BEFOR	S, MON TYPER	UNRCS MSG	SPRAMR +32	IGN SBDIR		"SUBROUTINE NAME NOT RECOGNIZED".

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P1539 PROCESSING FOR THE SJBIRECTOR "UPGRADE TO REVISION NNN", USED IN TRANSFERRED ASSEMBLY TO ASSIGN AN ARBITRARY  
 R15392 REVISION NUMBER TO A PROGRAM OR SUBROUTINE BEING CREATED FROM A DISC FILE, TYPICALLY IN A TAPE-TO-TAPE MOVE.

15394	UPGRADE	NA	6,16	W UPGRADE	UNRC SBDR		
15396		LA, CHAR3	SWITCH	B14T18	IL REQUEST		BRANCH IF NOT TRANSFERRED ASSEMBLY.
15398		TX	DUPLISUB	-	C,+0		COME THRU HERE JUST ONCE PER ASSEMBLY.
1540		TS	6 COMMA 19	WHODUNIT	619 TO X5	C	
15402		NA	N,X5,3	W TO	UNRC SBDR		
15404		WA	Z,X5	SIX	WHODUNIT		
15406		NA	6,28	ONES	UNRC SBDR		GIVE UP IF THERE ARE EXTRA WORDS.
15408		TS	W OF	6,28	FINGER	C	FAKE UP THE FORM "REVISION NNN OF".
1541		NA	N,X5,1	W REVISION	UNRC SBDR		
15412		NA	N,X5,2	BLANKS	UNRC SBDR		GUARD AGAINST TASK ABORT.
15414		TX	N,SC,2	-	REJEC DIR		CHANGE TASK ABORT TO SUBDIRECTOR IGNORE.
15416		TS	C,+1	REJEC DIR	IGN SUBDR		RESTORE TASK ABORT ROUTINE.
15418		S, MON TYPER	REJEC MSG	SPRAMR +32	-		
1542		TS	Z,SC	Z,52	CVRT REVN		JUDGE AND CONVERT REVISION NUMBER.
15422		TX	C,-2	-	REJEC DIR		RESTORE TASK ABORT ROUTINE.
15424		TX	L PROG FIL	-	Z,X4		
15426		SWS, B13T24	REVNO	24,L	4,1		(TRANSFERRED ASSY STARTS SANS SJBROS).
15428		SS	ZERO	BIT 10	SWITCH		UNDO DAMAGE FROM DETECTION OF REV NO.
1543		S, YUL TYPER	6,2	A +9	C,+1		"UPGRADE TO REVISION NNN".
15431		TX	COMP NAME	-	6,2		
15432		TX	W REVISION	-	6,3		
15433		SWE, ONES	W OF	A,5	6,4		
15434		SWS, C1T4	6,25	A,1	6,4		
15435		TN	OBJECT MSG	6	6,5		
15436		TS, C1T4	BLANKS	6,5	PHI SENTR		MODIFY OBJECT MESSAGE PER UPGRADING.
15437		TS	COLON C1	COMMON	TYP ASOBJ +1	C	
15438		TS	Z,SC	Z,52	MOD CHEK 3 -1		
15439		TS	Z,X5	Z,52	PJT CN CA -2	C	MAKE AND DISTRIBUTE NEW OBJECT MESSAGE.
154395		TS	Z,X5,21	-	GO DO AUTH	C	ADVANCE X5 TO AUTHOR NAME AND DECODE IT.
1544		TS	C,+1	KNWN COMP	TYP ASOBJ +1		
15441		TS	C,+1	KNWN COMP	LOAD PAS1 -1		
15442		TX	Z,X0	-	L COMP NAM		

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P15449 PROCEDURE TO RESPOND TO A REQUEST FOR A REPRINT OF AN ASSEMBLY LISTING. DO NOT CONFUSE THIS WITH THE  
 R1546 PRINT FUNCTION, WHICH MAKES A SYMBOLIC LISTING ONLY. THE REPRINT FUNCTION IS JUST LIKE ASSEMBLY EXCEPT THAT  
 R1548 THE REVISION NUMBER IS NOT ADVANCED, NO INPUT IS ACCEPTED, AND RENUMBERING MAY NOT BE DONE. SYPT, SYLT, AND  
 R1550 BYPT ARE NOT CHANGED IN ANY WAY. IN PARTICULAR, THE BYPT/NO BYPT BIT FOR A PROGRAM DOES NOT CHANGE EVEN IF ITS  
 R1552 SUBROUTINES HAVE CHANGED SINCE THE LAST ASSEMBLY IN SUCH A WAY AS TO CHANGE THE GOOD/FAIR/BAD RATING OF THE  
 R1554 DUMMY ASSEMBLY INHERENT IN REPRINTING.

1555	REPRINT	TS	W REPRINT	TASK MSG	TASK OBJC	BREAK DOWN REMAINDER OF YUL DIRECTOR.
1557		SWS, C1T7	TASK MSG +1	A,1,L	TASK MSG +1	
1558		SWS, CHAR3	TASK MSG +2	A,1,L	TASK MSG +1	
1559		SWS, C1T7	TASK MSG +2	A,1,L	TASK MSG +2	NORMALIZE TASK MESSAGE.
1561		S, YUL TYPER	TASK MSG	AMTF +4	TYP ASOB.I	TYPE TASK, GO JOIN ASSEMBLY PROCESS.

R1563 RETURN TO HERE IF WE CAN ASSEMBLE FOR THE NAMED COMPUTER.

1564	REPRINT 2	TS	Z,SC	Z,X1	RD SUBDRG	
1565		S, MON TYPER	4WHOM MSG	SPRAMR +40	TYP ABORT	REQUIRE SUBDIRECTOR "FOR CUSTOMERNAME".
1567		NA	6,16	W FOR	C,-1	
1568		S, YUL TYPER	6,2	A +9	C,+1	TYPE OUT ENTIRE SUBDIRECTOR CARD.
1570		TS	BIT 10	SORS LINE	SET PG HFD	C
1571		TN	REP 4 LINE	3	SORS LINE +1	
1572		TN	6,2	9	N,AU2	
1573		MT	BLANKS	3	N,AU2,1	MAKE UP LINE ABOUT WHO GETS THE REPRINT.
1575		TS, B2B11	ONES	SWITCH	KNOWN PSR	REQUEST REPRINT, CHECK PRG/SUB NAME ETC.
1577		SSL, ONE	4,1	35	C,+1	TEST OBSOLESCENCE BIT.
1579		TS	Z,X4	L PROG FIL	X5 IS NR4	JOIN ASSEMBLY INITIALIZATION.
1581		S, MON TYPER	PROBS MSG	SPRA +40	-	CUSS OBSOLETE REPRINT ON TYPEWRITER.
1583		TS	W BLOT OBS	PAGE HEAD +14	C,-2	CUSS OBSOLETE REPRINT ON EVERY PAGE.

R1585 PROCEDURE TO CREATE A BACKUP TAPE IN MIDJOB, AT THE OPERATOR'S DISCRETION. EVOKED BY THE DIRECTOR  
 R1587 CARD "CREATE BACKUP".

1588	CREATE BU TX	Z,X5	-	WHODJNIT		
1589		NA	N,X5,3	W BACKUP	HOWZAT	DEMAND "BACKUP".
1591		TX	Z,X5	-	WHODJNIT	
1592		NA	N,X5	ONES	HOWZAT	FORBID SUPERFLUOUS WORDS.
1594		SS	ACA OTHE	CHAR 3	ASCBU MSG	
1595		S, MON TYPER	ASCBU MSG	SPRAMR +24	-	"ASA TO CREATE BACKUP;"
1597		S, MON TYPER	ACA OTHE	SPRA +16	C,+3	"ACA OTHERWISE"
1599		STOP			-	S
1600		S, MON TYPER	RIGHT HO	SPRAMR +8	ACCEPT +i	"(SIGH)"
1602		TS	-	-	C,-2	C
1604		NA, CHAR8	1,0	ZERD	C,+2	ARA OR DON A CREATES BACKUP.
1605		TS, CHAR8	ONE	1,0	C,+3	BYPASS LABEL AND REVERT IF MONDAY MORN.
1607		SS	ONE	CHAR8	N,X1	BE SURE TO DO FULL TAPE COPY.
1609		TS	STAR COL 1	6,1	LABEL YJL	PLANT CREATE FLAG, LABEL & REPOSITION.
1611		TS	ONES	6,2	DO BACKUP	PREVENT ENDJOB AFTER BACKUP CREATION.

P1613 VARIATIONS ON ASSEMBLY FOR THE CASE OF ASSEMBLING A NEW PROGRAM (OR SUBROUTINE) AS A VERSION OF AN  
 R1615 EXISTING ONE. ACTS LIKE REVISION EXCEPT THAT THE SOURCE PROGRAM (OR SUBRO) IS PRESERVED. AUTHOR MAY CHANGE.

1617	NEWVERS	TS	Z,SC	Z,S2	DECOD PSR +1	DECODE PROG OR SUBRO NAME.
1619		TS	Z,SC	Z,X0	CUSS NAJT -1	DECODE AND STANDARDIZE AUTHOR NAME.
1621		TN	6,22	9	6,91	SAVE THESE QUANTITIES IN PARSED FORM.
1623		TS	Z,SC	Z,X1	RD SJBDR	
1624		S, MON TYP	ER VRSNS MSG	SPRAMR +56	REJEC DIR	CUSSABORT IF SUBDIRECTOR "FROM" MISSING.
1626		NA	6,16	W FROM	C,-1	
1627		TX	L DIRECTY	-	Z,X1	
1628		NA, BIT 9	SWITCH	ZERO	C,+4	BRANCH IF DOING A SUBROUTINE.
1630		LA, CAC3	1,9	L END THR	C,+2	BRANCH IF THERE ARE NO DELETES WAITING.
1632		TS, BIT33	ZERO	INIT X5	C,+2	COMPENSATE FOR ACTION OF GBR2 GBR3.
1634		WA	INIT X5	TWO	INIT X5	OTHERWISE CHANGE GB,R2 TO GB,R4.
1636		TS	6 COMMA 19	Z,X5	TASK OBJC	BREAK DOWN AND RE-FORM SUBDIRECTOR.
1638		S, YUL TYP	ER TASK MSG	AMTF +4	C,+1	
1639		NA	6,19	W REVISION	C,+4	BRANCH IF SOURCE PROG/SUB IS NEW.

1641		TX	W NEW	-	6,19	
1642		WA	6,27	1 C6	6,21	CALL VERSION "NEW".
1644		TN	6,28	3	6,22	CLOSE UP SENTENCE TO SUIT.
1646		TN	6,91	9	6,25	SUPPLY PROG/SUB AND AUTHOR NAMES.
1648		WD	Z,AU2	THREE	Z,X4	MARK END OF REVISED SENTENCE.
1650		WA	L OLD LINE	SIX	Z,S2	TYPE SYNTHETIC OBJECT MSG FROM OLD LINE.
1652		TS, BIT 12	ONES	SWITCH	619 TO X5	C
1653		TS	N,X5,2	COMMON	PJT CHAR	C
1654		TS	Z,SC	Z,S3	WRIT OBJC	
1655		S, YUL TYP	ER OLD LINE +6	AMTF +6	C,+1	TYPE SYNTHETIC OBJECT MESSAGE.
1657		TN	OLD LINE +5	6	OLD LINE +6	MOP UP THE AREA.
1659		S, MON TYP	ER W SOURCE C	SPRAM +8	TYP ASOBI	JOIN REGULAR ASSEMBLY PROCEDURE.

R1661 RETURN TO HERE IF WE CAN ASSEMBLE FOR THE NAMED COMPUTER.

1662	NEWVERS2	TS, BIT 2	ONES	SWITCH	KNOWN PSR	CHECK PROG/SUB NAME, REVNO, AUTHOR, ETC.
1664		TS	6,91	PROG NAME	SET REVN	C RECOVER NEW PROGNAME, FORCE REVISION.
1666		TX	6,97	-	AJTH NAME	RECOVER AUTHOR NAME OF VERSION.
1668		TS	6,98	AUTH NAME +1	C,+3	
1669	VERS PSQ	TN	VER PR MSG	3	SORS LINE +1	
1670		TN	VER SB MSG	3	SORS LINE +1	
1671		SSL, ONE	SWITCH	39	C,-2	C
1672		TN	VERS LINE	3	N,AU2	
1673		TN	OBJECT MSG	7	N,AU2	
1674		TN	BLANKS	2	N,AU2	SET UP VERSION SOURCE LINE FOR PRINTER.
1676		TS	BIT 10	SORS LINE	NEW PRSJR	GO JOIN PROCEDURE FOR NEW PROG/SUBRO.

R16772 ROUTINE TO STARTLE THE OPERATOR AND GIVE HIM A MESSAGE.

16774	MESSAGE	S, MON TYP	ER BLOTS	SPRAMR +8	-	MAKE STOMPING NOISE BEFORE AND AFTER.
16776		S, YUL TYP	ER 6,2	AMTF +9	C,+1	
16778		S, MON TYP	ER BLOTS	SPRA +8	NEX DIREC	

P1678 PROCEDURES IN PASS 0 TO RESPOND TO A REQUEST TO CONTROL OR DECONTROL A SUBROUTINE. A CONTROLLED SUB-  
 R1680 ROUTINE CANNOT BE REVISED OR DELETED. BOTH CONTROLLING AND DECONTROLLING REQUIRE A SUBDIRECTOR STARTING WITH  
 R1682 THE WORD "AUTHORIZED", SO THAT THERE WILL BE A RECORD (ON THE CONSOLE TYPEOUTS) OF WHO DID IT.

1684	CONTROL	TS	W CONTROL	TASK MSG	TASK OBJC	ANALYZE REST OF DIRECTOR CARD.
1686		SWS, C1T7	TASK MSG +1	A,1,L	TASK MSG +1	
1687		SWS, CHAR3	TASK MSG +2	A,1,L	TASK MSG +1	
1688		SWS, C1T7	TASK MSG +2	A,1,L	TASK MSG +2	NORMALIZE TASK MESSAGE.
1690		TS, BIT 35	ONES	SWITCH	CON DECON	SET UP FOR REDUNDANCY TEST.

1692	DECONTR	TS	W DECONTR	TASK MSG	TASK OBJC	ANALYZE REST OF DIRECTOR CARD.
1694		SWS, ONES	TASK MSG +2	A,1	TASK MSG +2	
1695		SWS, CHAR1	TASK MSG +1	A,1	TASK MSG +2	
1696		SWS, ONES	TASK MSG +1	A,1	TASK MSG +1	
1697		SS	W DECONTR +1	CHAR 1	TASK MSG +1	NORMALIZE TASK MESSAGE.
1699		SM	SWITCH	B36T37	SWITCH	SET UP FOR REDUNDANCY TEST.

1701	CON DECON	TS	Z,SC	Z,X0	TYP TKOBT	TYPE TASK AND OBJECT MESSAGES.
1703		TS	Z,SC	Z,X1	RD SUBDRC	
1704		S, MON TYPER	AU SUB MSG	SPRAMR +56	TYP ABORT	REQUIRE "AUTHORIZED BY SOMEBODY" SUBDIR.
1706		NA	6,16	AUTHORYZ	C,-1	
1707		NA	6,17	AUTHORYZ +1	C,-2	
1708		S, YUL TYPER	6,2	A +9	C,+1	TYPE OUT ENTIRE SUBDIRECTOR CARD.
1710		NA, BIT 9	SWITCH	ZERO	C,+2	
1711		S, MON TYPER	PRO CO MSG	SPRAMR +32	TYP ABORT	CUSS ATTEMPT TO CONTROL/DECONTROL PROG.
1713		TS	L DIRECTY	Z,X1	KNOWN PSR	CHECK SUBRO NAME, REVNO, AUTHOR, ETC.
1715		NA, B36T37	4,1	SWITCH	C,+3	BRANCH IF SUBRO ALREADY IN DESIRED STAT.
1717		HA	4,1	BIT 37	4,1	CONTROL OR DECONTROL SUBROUTINE.
1719		TS	-	-	ACCEPT -2	
1720		S, MON TYPER	RDUND MSG	SPRAMR +16	TYP ABORT	

R1721 SUBROUTINE IN PASS 0 TO PRESENT SUCCESSIVE SUBROUTINE CALL THREADS OF A PROGRAM OR SUBROUTINE. WITH  
 R1723 THE ADDRESS OF THE PROG/SUBRO IN X2 AND BANK INDICATOR 7 IN X3 AND X4, FILL IN THE NO-MORE-THREADS DISPOSITION  
 R1725 AT NO MO SUBS +1 AND ENTER AT SUB THRDS (AT 0,125 FROM ANOTHER BANK). SWITCH INTO COSEQUENCE FOR MORE CALLS.

1727	SUB THRDS	SWS,THREAD11	2,1	24	Z,X3	C	POINT TO FIRST SUBRO THREAD WORD.
1729		NA, BIT25	2,1	ZERO	A THREAD	C	BRANCH IF THERE ARE ANY SUBCALL THREADS.
1731		TS	-	-	NO MO SJRS	C	

1732	OP THREAD	SWS,THREAD11	N,X3	0	Z,X3	C	FOLLOW THREAD TO NEXT SUBRO THREAD WORD.
1734		SWS,THREAD10	N,X3	36	Z,X4	S	PRESENT OP-FIELD THREAD.

1736	A THREAD	SWS,THREAD10	N,X3	24	Z,X4	S	PRESENT A-ADDRESS THREAD.
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1738		TX	BIT 13	-	TEMP MASK	C	
1739		NA, TEMPMASK	3,0	ZERO	NO MO SJRS	C	BRANCH IF A-ADDRESS THREAD WAS THE LAST.
1741		SWS,THREAD10	N,X3	12	Z,X4	S	PRESENT B-ADDRESS THREAD.

1743		NA, BIT25	3,0	ZERO	NO MO SJRS	C	BRANCH IF B-ADDRESS THREAD WAS THE LAST.
1745		LA, B37T43	3,0	THREAD 11	OP THREAD	C	BRANCH IF THERE IS ANOTHER THREAD WORD.
1747		SWS,THREAD10	N,X3	0	Z,X4	S	PRESENT C-ADDRESS THREAD.

1749	NO MO SUBS	SWS,THREAD10	2,1	0	Z,X4	C	FOLLOW THREAD TO NEXT PROG/SUBRO.
1751		PR					(TO BE FILLED IN AT FIRST CALL.)

P1753 PROCEDURE IN PASS 0 TO RESPOND TO A REQUEST FOR DELETION OF A PROGRAM OR SUBROUTINE. DETACHES THE  
 R1755 PROGRAM OR SUBROUTINE NAME FROM ITS AUTHOR AND ITS COMPUTER, AND PUTS IT IN THE DELETE THREAD FOR DESTRUCTION ON  
 R1757 THE NEXT ASSEMBLY. DOES NOT DELETE A CONTROLLED SUBROUTINE OR A SUBROUTINE THAT IS CALLED BY ANY PROG OR SUB.

1759 ELIM PR SU TS W DLETION TASK MSG TASK OBJC ANALYZE REST OF DIRECTOR CARD.  
 1761 TS Z,SC Z,X0 TYP TKOBJ TYPE TASK AND OBJECT MESSAGES.  
 1763 TS - - KNOWN PSR SEE IF PROGRAM OR SUBRO IS KNOWN.  
 1765 TN Z,X2 3 OBJCT MSG  
 1766 NA, BIT 35 4,1 ONES ELIMPROG NO RESTRICTIONS ON PROGRAM DELETION.

1768 NA, B36T37 4,1 ONES C,+3  
 1769 SS W DLETION CAC12 CONSU MSG +4  
 1770 S, MON TYP ER CONSU MSG SPRAMR +40 TYP ABORT CUSS ATTEMPT TO DELETE CONTROLLED SUBRO.

1772 TX ZERO - COMMON INITIALIZE COUNT OF USERS OF SUBROUTINE.  
 1774 SWS, THREAD 10 N,X0 12 Z,X2 POINT TO 1ST PROG/SUB OF THIS COMPUTER.

1776 DSJB LOOP TS N,SC,1 NO MO SUBS +1 SUB THRD C START LOOKING AT SUBRO THREADS FROM  
 1778 TS Z,X4 Z,X2 DSUB TEST EACH PROGRAM AND SUBRO OF THE COMPUTER.

1780 NA Z,X4 OBJCT MSG +2 C,+2 BRANCH IF DIDN'T FIND USE OF THIS SUBRO.  
 1782 DA COMMON ONE COMMON COUNT UP THE NUMBER OF USERS.  
 1784 WD Z,SC THREE Z,SC C (REDUNDANT AFTER A MATCH, BUT NO HARM.)

1786 DSJB TEST NA Z,X2 L END THR DSUB LOOP BRANCH IF THERE IS ANOTHER PROG/SUBRO.  
 1788 TN OBJCT MSG 3 Z,X2  
 1789 LA COMMON ZERO DELETION AN UNUSED SUBROUTINE MAY BE DELETED.

1791 TN WREVN MSG +2 3 OBJCT MSG  
 1792 TN NUMUS MSG 3 WREVN MSG +2  
 1793 TS C,+1 2DIG REVN -1 BAD REVN  
 1795 S, MON TYP ER WREVN MSG +2 SPRAMR +24 C,+1 BORROW BAD-REVISION-NUMBER CUSSER.  
 1797 TN OBJCT MSG 3 WREVN MSG +2 "NUMBER OF USERS = XXX".  
 1798 TS C,+1 2DIG REVN -1 TYP ABORT  
 1799 S, MON TYP ER WREVN MSG SPRAMR +40 TYP ABORT

R1800 DELETION PROCEDURE COMMON TO PROGRAMS AND SUBROUTINES: RELEASE ALL SUBRO THREAD WORDS, DETACH PROG/SUB NAME FROM  
 R1802 AUTHOR'S LIST (DECREMENT HIS SCORE, DELETING HIM IF IT BECAME ZERO), DETACH PROG/SUB NAME FROM COMPUTER'S LIST,  
 R1804 PUT THE COMPUTER NAME IN WITH THE PROG/SUB NAME, AND PUT THE MODIFIED ENTRY AT THE TOP OF THE DELETE LIST.

1806 DELETION TN OBJCT MSG 3 Z,X2  
 1807 NA, BIT25 4,1 ONES DE AJTHOR BRANCH IF NO SUBRO THREAD WORDS.  
 1809 SWS, THREAD 11 4,1 24 Z,X3 POINT TO FIRST SUBRO THREAD WORD.

1811 TS Z,X3 Z,AJ1 C,+2 C PREPARE TO RELEASE SUBRO THREAD WORD.  
 1813 TS Z,X5 Z,X3 C,-1 S SUPPLY ADDRESS OF NEXT ONE.  
 1815 SS N,X3 THREAD 11 Z,X5 C MAYBE FOLLOW THREAD TO NEXT SUB THRD WD.  
 1817 LA, B37T43 3,0 THREAD 11 GIVE SLOT C RELEASE NON-LAST SUB THRD WORD.  
 1819 TS Z,CSC Z,SC GIVE SLOT C RELEASE LAST SUBRO THREAD WORD.

1821 TX Z,X4 - Z,X5 DUPLICATE FINAL CONDITIONS OF KNOWN PSR  
 1823 TS OBJCT MSG +1 Z,X3 DE AJTHOR AND DO EFFECT OF DELETION ON AJTHOR.

P1825 WHEN AN OBSOLETE PROGRAM IS DELETED, ERASE THE OBSOLETING BITS IN ITS SUBROUTINES IF THEY PERTAINED ONLY TO THE  
R1827 PROGRAM BEING DELETED. THIS IS DONE IN TWO PHASES. PHASE 1: STARTING WITH OBSOLETE PROGRAMS, FOLLOW SUBRO CALL  
R1829 THREADS THAT HAVE OBSOLETING BITS AND PLANT OBSOLETING BITS ON THE SUBROUTINES SO INDICATED, MAKING THEM LOOK  
R1831 LIKE OBSOLETE PROGRAMS (TO A BIT 13 TEST). REPEAT THIS UNTIL A COMPLETE PASS THROUGH THE COMPUTER'S PROGRAMS  
R1833 AND SUBROUTINES IS MADE WITHOUT ADDING ANY OBSOLETING BITS. THE RESULT IS THAT ONLY THOSE SUBROUTINES THAT  
R1835 STILL CONTRIBUTE TO SOME PROGRAM'S OBSOLESCENCE ARE MARKED WITH A BIT 13. PHASE 2: MAKE ONE PASS THROUGH ALL  
R1837 THE SUBROUTINES, CLEARING THE OBSOLETING BITS OF SUBRO CALL THREADS OF UNMARKED SUBROUTINES, AND REMOVING THE  
R1839 MARKS FROM THE MARKED SUBROUTINES.

1840	ELIM PROG	SWS, BIT35	4,1	23	SWITCH		TRANSPLANT OBSOLESCENCE BIT.
1842		SS	ZERO	BIT 13	4,1		REMOVE IT FROM PROGRAM BEING DELETED.
1844		NA, BIT36	SWITCH	ONES	DELETION		IF PROG WASN'T OBSOLETE, DON'T BOTHER.
1846	ND1 DELEP	SWS, THREAD10	N,X0	12	Z,X2		POINT TO FIRST PROG/SUB OF COMPUTER.
1848		NA, BIT36	SWITCH	ONES	LP2 DELEP +1		BRANCH WHEN BIT-PLANTING PHASE IS DONE.
1850		TS, BIT36	ZERO	SWITCH	LP1 DELEP +1		START A PASS OF THE BIT-PLANTING PHASE.
1852	LP1 DELEP	SWS, THREAD10	2,1	0	Z,X2		FOLLOW THREAD TO NEXT PROG/SUBRO.
1854		LA	Z,X2	L END THR	ND1 DELEP		END OF PASS IF THREAD IS VOID.
1856		SSL, FOUR	2,1	33	LP1 DELEP		TEST OBSOLESCENCE OR OBSOLETING BIT.
1858		TS	Z,X4	Z,X2	LP1 DELEP +1		
1859		TS	C,-1	NO MO SUBS +1	SUB THRDS	C	CALL FOR SUBRO CALL THREADS OF PROG/SUB.
1861		WD	Z,CSC	ONE	Z,AJ1		
1862		SS	N,AU1	CHAR5	C,+1		USE SAME SHIFT COUNT THAT PRESENTED THR.
1864		SSL, ONE	N,X3		C,+3		TEST OBSOLETING BIT OF CALL THREAD.
1866		SM	4,1	BIT 13	4,1		PLANT OBSOLETING BIT IN SUBROUTINE ENTR.
1868		SM	SWITCH	BIT 36	SWITCH		CALL FOR ANOTHER PASS.
1870		WD	Z,SC	SIX	Z,SC	C	GO AND ASK FOR ANOTHER THREAD.
1872		SSL, TWO	4,1	34	C,-3		TEST OBSOLETING BIT OF SUBROUTINE.
1874	OBSLING Q	SWS, THREAD11	2,1	24	Z,X3		POINT TO 1ST SUBRO THREAD WD OF SUBRO.
1876		NA, BIT 25	2,1	ZERO	C,+2		BRANCH IF THERE REALLY IS ONE.
1878		SS	Z,SC,7	BIT 13	2,1		CLEAR OBSOLETING BIT OF SUBROUTINE.
1880		SS	ZERO	B24 B36	N,X3		CLEAR OBSOLETING BITS OF THREAD WORD 1.
1882		SSL, ONE	N,X3	11	C,+1		BRANCH IF THERE IS ONLY ONE THREAD WORD.
1884		TS	Z,SC,2	-	OP THREAD	C	GO AND GET NEXT SUBCALL THREAD WORD.
1886		SWS, ONE	Z,SC,3	16	N,X3		CLEAR LAST OBSOLETING BIT, DO NEXT SUB.
1888		TS, P1T3AV	ZERO	3,0	OP THREAD	C	CLEAR OBSOLETING BITS, GET NEXT THRD WD.
1890		SSL, TWO	N,X3	10	C,-1		TEST FINAL-SUB-THREAD-WORD BIT.
1892		SS	ZERO	PAV BITS	N,X3		CLEAR LAST OBSOLETING BITS, DO NEXT SUB.
1894	LP2 DELEP	SWS, THREAD10	2,1	0	Z,X2		FOLLOW THREAD TO NEXT PROG OR SUB.
1896		LA	Z,X2	L END THR	DELETION		BRANCH IF PHASE 2 OF OBS-BIT PROC DONE.
1898		NA, BIT36	2,1	ONES	LP2 DELEP		BRANCH IF PROGRAM, NOT SUBROUTINE.
1900		SSL, TWO	2,1	34	OBSLING Q		TEST OBSOLETING BIT OF SUBROUTINE.

P1902 DETACH PROG/SUB NAME FROM AUTHOR AND COMPUTER LISTS, ADD TO DELETE LIST.

1903	DE AUTHOR	LA	3,1	PLUS ZERO	NOT 1(AJ)	BRANCH IF NOT 1ST IN AUTHOR'S LIST.
1905		SWS,ATHRED10	4,1	12,L	3,1	REMOVE FROM HEAD OF AUTHOR'S LIST.
1907		TS	Z,X3	Z,X5	DECR AUTH	LET X5 POINT TO AUTHOR NAME.
1909	NOT 1(AJ)	SS	4,1	B THRED 10	3,1	REMOVE FROM MIDST OF AUTHOR'S LIST.
1911		SWS,THREAD10	5,1	12	Z,X5	X4 AND X5 WERE EQUAL AFTER KNOWN PSR.
1913		LA	5,1	PLUS ZERO	C,-1	LET X5 POINT TO AUTHOR NAME.
1915	DECR AUTH	SWS,THREAD10	5,1	24	Z,X3	LET X3 POINT TO AUTHOR'S ACTIVEST PROG.
1917		TS	PLUS ZERO	COMMON	LIVE AUTH +2 C	STAY AWAY IF AUTHOR HAS MORE PROGRAMS.
1919		SWE, CAC3	1,9	16	Z,X6	AUTHOR HAS NO ACTIVE PROGRAMS OR SUBROUTINES, SO DELETE HIS NAME.
1921		NA	Z,X6	Z,X5	AJDL SRCH	
1923		SWS,THREAD10	5,1	12	Z,X3	SEW UP AUTHOR NAME THREAD AROUND AUTHOR
1925		SWS, CAC2	Z,X3	16,L	1,9	WHO WAS FIRST IN THE DIRECTORY.
1927		TS	-	-	DELE AUTH	
1928		TX	Z,X3	-	Z,X6	
1929	AJDL SRCH	SWS,THREAD10	6,1	12	Z,X3	KEEPING X6 ONE CYCLE BEHIND X3,
1931		NA	Z,X3	Z,X5	C,-2	FIND PRECEDING AUTHOR NAME.
1933		SS	5,1	B THRED 10	6,1	SEW UP THREAD AROUND AUTHOR.
1935	DELE AUTH	SS	5,1	THREAD 11	Z,X6	LET X6 POINT TO 2ND HALF OF AUTHOR NAME.
1937		TS	Z,X5	Z,AJ1	GIVE PAIR C	
1938		TS	Z,X6	Z,AJ1	GIVE SLOT C	VACATE SPACE OCCUPIED BY DEFUNCT NAME.
1940		TS	CHAR1	TEMP MASK	SET DL THR	GO TO PREPARE DELETE LIST.
1942	LIVE AUTH	WA	COMMON	ONE	COMMON	COUNT UP AUTHOR'S SCORE (EASIEST WAY).
1944		SWS,THREAD10	3,1	12	Z,X3	
1945		LA	3,1	PLUS ZERO	LIVE AUTH	THREAD UNTIL AUTHOR NAME FOUND AGAIN.
1947		LA, CAC3	COMMON	D11 D12	C,+2	
1948		SS	D11 D12	CAC3	COMMON	REDUCE ANYTHING OVER 254 TO 255.
1950		SPS,B1THRJ12	COMMON	8	5,1	
1951		TX	CHAR1	-	TEMP MASK	
1952	SET DL THR	SS	PAR MANUF	C1T4 B48	4,1	CLEAR LOW-ORDER BIT OF DELETE THREAD.
1954		SS	N,X0	TEMP MASK	4,1	SUPPLY COMPUTER NAME FOR IMPROVED SERCH.
1956		SWE, C1T4	TEMP MASK	A,1	TEMP MASK	
1957		NA, TEMPMASK	0,0	BLANKS	C,-2	
1958		NA	Z,X2	Z,X0	C,+3	BRANCH IF NOT 1ST IN COMPUTER'S LIST.
1960		SWS,BTHRED10	4,1	12,L	N,X0	DETACH NAME FROM COMPUTER'S LIST.
1962		TS, CAC3	1,9	4,1	C,+2	THREAD THIS TO FORMER FIRST DELETE.
1964		TS,THREAD10	4,1	2,1	C,-1	DETACH NAME FROM COMPUTER'S LIST.
1966		SS	Z,X4	CAC3	1,9	PUT THIS PROG/SUB AT TOP OF DELETE LIST.
1968		SSL, TWO	TYPIST	28	C,+1	
1969		NA, CHAR8	1,0	ZERO	ACCEPT	BRANCH IF SOME BACKUP ALREADY ORDERED.
1971		SS	TWO	CHAR8	N,X1	CALL FOR BACKUP LABEL AMENDMENT.
1973	ACCEPT	S, YUL TYPER ACCEPTED		AMTF +1	C,+1	TYPE ACCEPTANCE OF NAME.
1975		S, YUL TYPER BLANKS		A +1	NEX DIREC	

P1976 SUBROUTINE IN PASS 0 TO ANALYZE ALL BUT THE FIRST WORD OF A DIRECTOR CARD WHICH SPECIFIES A TASK TO  
 R1978 BE DONE ON A SINGLE PROGRAM, SUCH AS ASSEMBLY, DELETION, MANUFACTURING, ETC. INITIALIZES VARIABLE ALPHABETIC  
 R1980 FIELDS. SETS JP COMP NAME, PRG NAME, REVNO, AUTH NAME, TASK MSG, AND OBJCT MSG. SETS BITS 9 AND 10 OF SWITCH.  
 R1982 PUTS THE SENTENCE INTO STANDARD FORM AND RETURNS ONLY IF IT IS SYNTACTICALLY CORRECT.

1984	MANUF OBJ	TN	W URING FO	2	TASK MSG +1	ENTRY WHEN TASK IS MANUFACTURING.
1986		TX	BLANKS	-	TASK MSG +3	
1987		TX	N,SC,4	-	PUT CN C2	ALTER AND GO TO MAIN PROCEDURE.
1989		TS	L TKMSG P2	Z,S2	PUT CHAR +2	C
1990	CPJT CN C6	TS	L TK MSG P1	Z,S2	PUT CHAR +5	C USED TO RESTORE ALTERATION.
1992	TASK OBJC	SWE, ONES	W FOR	A,1	TASK MSG +1	
1993		TN	BLANKS	2	TASK MSG +2	SOME INITIALIZATIONS.
1995		TX	Z,SH	-	Z,X0	
1996		TX	ZERO	-	SWITCH	
19962		TX	L SUBSTRB	-	Z,AJ2	
19964		MT	ZERO	8	N,AJ2,1	
1997		TN	BLANKS	15	OLD LINE +1	
1998		TN	BLANKS	8	PAGE HEAD +4	
1999		TN	BLANKS	7	OBJCT MSG	
2000		TS	Z,SC	Z,S2	PRG ADJ	DECODE "NEW","REVISION N OF"OR"VERSION".
2002		TS	Z,SC	Z,S2	DECOD CPM	DECODE AND STANDARDIZE COMPUTER NAME.
2004		TN	N,X5	3	6,16	MOVE COMPUTER NAME TO HEAD OF SENTENCE.
2006		TS	6,55	COMMON	COVER UP	C COVER ITS OLD PLACE IN THE LIST.
2008		TX	COLON C1	-	COMMON	
2009		WA	Z,X6	OCTAL 20	Z,S2	FORM ADDRESS EQUIVALENT TO 6,16.
2011		SSL, D12	6,18	12	PUT CHAR	C APPEND COLON TO COMPUTER NAME.
2013		TN	6,16	2	COMMON	
2014	PUT CN C6	TS	L TKMSG P1	Z,S2	PUT CHAR +5	C 1ST CHAR OF COMPUTER NAME TO TASK MSG.
2016		SWE, D12	6,18	12	Z,S0	COUNT OF CHARACTERS MINUS 1.
2018		TS	Z,SC	Z,S1	MOVE CARC	MOVE REST OF COMPUTER NAME TO TASK MSG.
2020		TS	Z,SC	Z,S2	DECOD PSR	DECODE "PROGRAM" OR "SUBROUTINE".
2022		NA	N,X5	ONES	C,+2	ABOVE ALSO STORED PROG OR SUBRO NAME.
2024	CUSS NAUT	S, YUL TYPER	NAUTH MSG	AMTF +3	REJEC DIR	COMPLAIN ABOUT MISSING AUTHOR NAME.
2026		TX	Z,X5	-	WHODJNIT	
2027		NA	N,X5,3	W BY	HOWZAT	REJECT IF THIS WORD IS NOT "BY".
2029	GO DO AUTH	TS	Z,SC	Z,S3	DCOD AUTU	DECODE AND STANDARDIZE AUTHOR NAME.
2031		WD	4,2	1 C6	4,2	USE DECREASED CHARACTER COUNT.
2033		TX	L OBJC MSG	-	Z,S2	
2034	619 TO X5	TX	6 COMMA 19	-	Z,X5	OMIT COMPUTER NAME FROM OBJECT MESSAGE.
2036		TX	N,X5,1	-	COMMON	
2037	SEND OBJC	TS	N,X5,1	COMMON +1	PUT CHAR	C OBJECT MESSAGE BEGINS WITH "NEW" OR
2039		TS	Z,X0	Z,S3	WRIT OBJC	"REVISION" AND ENDS WITH AUTHOR NAME.

P2041 SUBROUTINE IN PASS 0 TO CHECK A REQUEST FOR ACTION ON A KNOWN PROGRAM OR SUBROUTINE BY VERIFYING THAT  
 R2043 THE COMPUTER NAME, PROGRAM OR SUBROUTINE NAME, REVISION NUMBER, AND AUTHOR NAME ARE MUTUALLY CONSISTENT. ALSO  
 R2045 DELIVERS IN X0 THE ADDRESS OF THE COMPUTER NAME, IN X2 THE ADDRESS OF THE PRECEDING PROGRAM NAME FOR THE COMPU-  
 R2047 TER, IN X3 THE ADDRESS OF THE PRECEDING PROGRAM BY THE AUTHOR, AND IN X4 THE ADDRESS OF THE PROG/SUBRO NAME.  
 R2049 NOTE THAT IN THE CASE OF X2 AND X3, THE INDEX REGISTER IS SET TO THE ADDRESS OF THE COMPUTER NAME OR AUTHOR NAME  
 R2051 RESPECTIVELY IF THERE IS NO PRECEDING PROGRAM.

2052	KNOWN PSR	TS	Z,SH	WAUTH MSG +3	FIND COMB	C	
2053		S, YUL TYPER	UNRCO MSG	AMTF +4	TYP ABORT		CUSS AND ABORT IF NO SUCH COMPUTER.
2055		TS	Z,X0	Z,X4	FIND PROG	C	SEE IF NAME EXISTS AS EITHER PROG OR SR.
2057		SSL, TWO	SWITCH	38	C,+2		CHOOSE PROGRAM OR SUBRO TEST IF FOUND.
2059		SSL, TWO	SWITCH	38	C,+2		CHOOSE PROG OR SUBRO CUSS IF NOT FOUND.
2061		NA, BIT 36	3,1	ONES	OK NOJN		BRANCH IF DID AND SHOULD FIND PROGRAM.
2063		S, YUL TYPER	UNRCP MSG	AMTF +4	TYP ABORT		CUSS UNRECOGNIZED PROGRAM NAME, ABORT.
2065		NA, BIT 36	3,1	ZERO	OK NOJN		BRANCH IF DID AND SHOULD FIND SUBRO.
2067		S, YUL TYPER	UNRCS MSG	AMTF +4	TYP ABORT		CUSS UNRECOGNIZED SUBRO NAME, ABORT.
2069		SWE, B37T48	3,1	24	COMMON		GET REVNO OF PROG/SUB WITH SUBRS.
2071		SWS, THREAD11	3,1	24	Z,X4	C	
2072		SWE, B37T48	N,X4	36	COMMON		GET REVNO OF PROG/SUB WITH NO SUBROS.
2074	OK NOJN	SSL, ONE	3,1	23	OK NOJN -3	C	SELECT REVNO-FETCHING METHOD.
2076		NA	COMMON	REVNO	BAD REVNO		BRANCH IF REVISION NUMBER DOESN'T MATCH.
2078		TN	Z,X3	2	Z,X4		ADDRESS OF PROGRAM NAME TO X4, X5.
2080		SWS, THREAD10	3,1	12	Z,X3		THREAD TO NEXT PROGRAM BY SAME AUTHOR.
2082		LA	3,1	PLUS ZERO	C,-1		REPEAT UNTIL AUTHOR NAME IS FOUND.
2084	SET LAUTH	TX	Z,X3	-	L AUTH NAM		
2085		SS	3,1	THREAD11	Z,X5		THREAD TO SECOND HALF OF AUTHOR NAME.
2087		NA	N,X3	AUTHNAME	RONG AUTH		
2088		NA	N,X5	AUTH NAME +1	RONG AUTH		BRANCH IF AUTHOR NAME IS WRONG.
2090		SWS, THREAD11	3,1	24	Z,X5		THREAD TO 1ST PROG/SUB NAME IN AUTHLIST.
2092		TS	Z,X0	L COMP NAM	C,+3		SAVE ADDRESS OF COMPUTER NAME.
2094		TX	Z,X5	-	Z,X3		KEEP X3 ONE STEP BEHIND X5.
2096		SWS, THREAD10	5,1	12	Z,X5		THREAD TO NEXT PROGRAM OR SUB BY AUTHOR.
2098		NA	Z,X5	Z,X4	C,-2		RPT TIL X5 POINTS TO THIS PROG/SUB NAME.
2100		TX	WAUTH MSG +3	-	Z,SC		RETURN WHEN ALL IS WELL.
2102	RONG AUTH	TX	N,X3	-	WAUTH MSG +3		TELL THE MAN THE CORRECT AUTHOR NAME.
2104		TX	N,X5	-	WAUTH MSG +4		
2105		S, YUL TYPER	WAUTH MSG	AMTF +5	TYP ABORT		
2106	BAD REVNO	LA	COMMON	DEC 99	2DIG REVN		PROCEDURE TO CUSS A WRONG REVISION NO.
2108		SWS, CHAR3	COMMON	22,L	WREVN MSG +4		
2109		SWS, ACH4	COMMON	20,L	WREVN MSG +4		
2110		SWS, ACH5	COMMON	18,L	WREVN MSG +4		
2111		S, MON TYPER	WREVN MSG	SPRAMR +40	TYP ABORT		ANNOUNCE CORRECT ONE AND ABORT.
2113	2DIG REVN	LA	COMMON	NINE	1DIG REVN		
2114		SWS, CHAR3	COMMON	26,L	WREVN MSG +4		
2115		SWS, ACH4	COMMON	24,L	WREVN MSG +4		
2116		TS, CHAR5	BLANKS	WREVN MSG +4	2DIG REVN -1		
2117	1DIG REVN	SWS, CHAR3	COMMON	30,L	WREVN MSG +4		
2118		TS, CHAR4	BLANKS	WREVN MSG +4	1DIG REVN -1		

R2119 SUBROUTINE IN PASS 0 TO DECODE A PROGRAM OR SUBROUTINE ADJECTIVE AND SET BIT 10 OF THE SWITCH REGISTER ACCORDINGLY (0 IF NEW, 1 IF REVISION). THE ADJECTIVE IS EITHER "NEW" OR "REVISION N OF", WHERE N IS A DECIMAL NUMBER IN THE RANGE 0-999. THE VALUE OF THE REVISION NUMBER IS STORED IN RIGHT-JUSTIFIED DECIMAL IN REVNO, ZERO BEING USED AS THE REVISION NUMBER OF A NEW PROGRAM OR SUBROUTINE. ERROR EXITS ARE PROVIDED FOR ANY VIOLATION OF THESE CONSTRAINTS. WITH X5 SET TO THE FIRST WORD OF THE ADJECTIVE, ENTRY IS:

Address	Label	Code	Op1	Op2	Op3	Op4	Description
R2129		TS	Z,SC	Z,S2		PROG ADJ	
2130	TRANSFD Q	NA	N,X5	W TRANSFD	SHUD B REV +1		BRANCH IF ADJECTIVE ISN'T "TRANSFERRED".
2132		NA	5,1	W TRANSFD +1	HOWZAT		
2133		SM	SWITCH	B2 B13	SWITCH		SET SWITCHES FOR MERGING AND XFERRED IN.
2135		WD	4 C6	1 C6	5,2		
2136		TS	W NEW	N,X5	C,+2		FOLLOW NEW ASSEMBLY PROCEDURE.
2138	PROG ADJ	NA	N,X5	W NEW	SHUD B REV		
2139		TX	ZERO	-	REVNO		REVISION NUMBER = 0 IF NEW.
2141		TS	Z,X5,3	-	N,S2		STEP WORD INDEX AND EXIT.
2143	SHJD 3 REV	TS	Z,X5	WHODUNIT	TRANSFD Q		IN CASE WORD IS NOT "REVISION",
2145		NA	N,X5	W VERSION	C,+3		"VERSION", OR "TRANSFERRED".
2147		NA	TASK MSG	W ASSMBLY	HOWZAT		
2148		NA	6,16	W FROM	NEW VERS		BRANCH ON RECOGNIZING VERSION ASSEMBLY.
2150		NA	N,X5,1	W REVISION	HOWZAT		
2151		NA	N,X5,2	BLANKS	HOWZAT		BRANCH IF WORD UNRECOGNIZED.
2153	CVRT REVN	SWE, ONES	5,2	12	Z,S1		LENGTH OF REVISION NUMBER.
2155		LA	FOUR	Z,S1	LONG REVN		FOUR AND UP IS ILLEGAL.
2157		LA, CHAR8	OCTAL 20	5,2	NDEC REVN		ERROR IF REVISION NO. NOT HEX.
2159		WA	L SIXES	Z,S1	Z,S0		
2160		WA	N,X5	N,S0	COMMON		ZERO LENGTH LOOKS NON-DECIMAL LENGTH 1.
2162		NA, DECTEST	COMMON	ZERO	NDEC REVN		ERROR IF REVISION NO. NOT DECIMAL.
2164		TS	Z,X5,2	Z,X4	PHI A2D		CONVERT ALF-DEC, USING S0, S3, R7.
2166		RESERVE	1				
2167	NORM REVN	NA, CHAR1	4,0	ZERO	SAVE REVN		
2168		LA	ZERO C1	N,X4	SAVE REVN		SUPPRESS LEADING ZEROS BUT LEAVE LONE 0.
2170		SWS, C1T7	N,X4	A,1,L	N,X4		SIMULTANEOUSLY LEFT-NORMALIZE...
2172		TS	Z,S1,1	-	NORM REVN		...AND DECREMENT CHARACTER COUNT.
2174	SAVE REVN	SWS, CHAR6	Z,S1	12,L	N,X5,1		STORE ADJUSTED LENGTH.
2176		TX	Z,X5	-	WHODUNIT		
2177		NA	N,X5,3	W OF	HOWZAT		ERROR IF 3RD WORD IS NOT "OF".
2179	SET REVN	SM	SWITCH	BIT 10	SWITCH		SIGNIFY REVISION RATHER THAN NEW.
2181		TS	NORM REVN -1	REVNO	N,S2		FETCH DECIMAL REVISION NUMBER AND EXIT.

R2183 PROCEDURE TO CJSS A REVISION NUMBER OF 4 OR MORE DIGITS.

2184	LONG REVN	TN	N,X5	2	LREVN MSG +3
2185		S, YUL TYPER	LREVN MSG	AMTF +5	REJEC DIR

R2186 PROCEDURE TO CJSS A NON-DECIMAL REVISION NUMBER.

2187	NDEC REVN	TX	N,X5	-	UDRVN MSG +3
2188		S, YUL TYPER	UDRVN MSG	AMTF +4	REJEC DIR

P2189 SUBROUTINE IN PASS 0 TO DECODE AND STANDARDIZE A COMPUTER NAME. THE WORD "MOD" IS IGNORED IF IT PRE-  
 R2191 CEDES THE COMPUTER NAME. THE RAW NAME IS STORED IN COMP NAME. ERROR EXIT IF NAME IS MORE THAN 4 CHARACTERS  
 R2193 LONG. IF THE NAME BEGINS WITH A DIGIT, IT IS SHIFTED RIGHT 4 CHARACTERS AND "MOD " INSERTED (IN THE SENTENCE  
 R2195 ONLY, NOT IN COMP NAME). WITH X5 SET TO THE WORD IN THE SENTENCE, ENTRY IS:

R2197	TS	Z,SC	Z,S2	DECODE CPN	(THIS IS IN TRANSFER VECTOR AT 0,131.)	
2199	DECODE CPN	NA	N,X5	W MOD	C,+2	
2200	TS	6,55	COMMON	COVER UP	C MOVE UP SENTENCE TO COVER "MOD".	
2202	LA	ONES	N,X5	CUS NO COM	BRANCH IF COMPUTER NAME IS MISSING.	
2204	LA, CHAR6	5,2	4 C6	C,+3		
2205	TN	N,X5	2	LCPN MSG +3		
2206	S, YUL TYPER	LCPN MSG	AMTF +5	REJEC DIR	ERROR IF NAME LONGER THAN 4 CHARACTERS.	
2208	TX	N,X5	-	COMP NAME		
2209	NA	COMP NAME	BLANKS	C,+2		
2210	CUS NO COM	S, YUL TYPER	BLCPN MSG	AMTF +3	REJEC DIR	
2212	EX	PAR MANUF	C1T4	COMPUTER	CUSS BLANK COMPUTER NAME AND ABORT.	
2214	SSL, SEVEN	5,2	12	C,+0	FORM UP A BLANKLESS COMPUTER NAME.	
2216	TS, CHAR1	COMP NAME	COMPUTER	C,+4	SELECT ON LENGTH OF COMPUTER NAME.	
2217	TS, CHAR2	COMP NAME	COMPUTER	C,-1		
2218	TS, CHAR3	COMP NAME	COMPUTER	C,-1		
2219	TS, CHAR4	COMP NAME	COMPUTER	C,-1		
2220	SS	BLANKS	C5T8	N,X5	ENTER HERE FOR GENERAL COMPNAME FIXER.	
2222	LA	TEN C1	N,X5	N,S2	EXIT IF NAME DOES NOT BEGIN WITH DIGIT.	
2224	MOD CHEK 3	LA, CHAR3	5,0	9 C3	C,+4	BUT EXIT IF 3RD CHARACTER IS ALSO DIGIT.
2226	SWS, ONES	N,X5	A,4	N,X5		
2227	SS	W MOD	C1T4	N,X5		
2228	WA	5,2	4 C6	5,2	INSERT "MOD" AND ADJUST LENGTH.	
2230	TX	Z,S2	-	Z,SC		

R2231 MINOR SUBROUTINE IN PASS 0 TO CLOSE UP THE SENTENCE SO AS TO COVER UP THE WORD JUST EXAMINED. ENTRY IS:

R2233	TS	6,55	COMMON	COVER UP	C	
2234	COVER UP	IT	5,3	6,55	N,X5	C MOVE UP REST OF SENTENCE.
2236	MT	ONES	2	N,AU2,1	C	GUARANTEE END SIGNAL.
2238	TX	COMMON	-	6,55		RESTORE WORD REPLACED BY EOI AND EXIT.

R2240 PROCEDURE TO CUSS AN UNRECOGNIZED WORD WHICH WAS SET UP BY PUTTING ITS ADDRESS IN WHODUNIT. (SEE XFER VECTOR).

2242	HOWZ THAT	TN	N,AU1	2	WUNRC MSG +3
2243	S, YUL TYPER	WUNRC MSG	AMTF +5	REJEC DIR	

P2244 SUBROUTINE IN PASS 0 TO DECODE NOUN AND NAME. THE NOUN IS EITHER "PROGRAM" OR "SUBROUTINE". THE  
 R2246 PROGRAM OR SUBROUTINE NAME IS STORED IN PROGNAME. ERROR EXIT IF NAME IS LONGER THAN 8 CHARACTERS. ENTRY IS:

R2248 TS Z,SC Z,S2 DECOD PSR WITH X5 SET TO THE WORD IN THE SENTENCE.

R2250 BIT 9 OF THE SWITCH REGISTER IS SET TO 0 IF PROGRAM OR 1 IF SUBROUTINE.

2251 DECOD PSR NA N,X5 W PROGRAM C,+2  
 2252 TS Z,X5,3 - WHAT PROG LEAVE SWITCH ALONE IF PROGRAM.

22532 NA N,X5 W SEGMENT C,+3  
 22534 SM SWITCH BIT 7 SWITCH SET SEGMENT FLAG AND TREAT LIKE PROGRAM.  
 22536 TS Z,X5,3 - WHAT PROG

2254 FINGER TX Z,X5 - WHODJNIT S  
 2255 NA N,X5,1 W SJBROTI HOWZAT  
 2256 NA N,X5,2 W NE HOWZAT BRANCH IF UNRECOGNIZED NOUN.  
 2258 SM SWITCH BIT 9 SWITCH

2259 WHAT PROG NA 5,1 BLANKS LONG PRGN BRANCH IF NAME IS TOO LONG.  
 2261 NA N,X5 BLANKS C,+2  
 2262 S, YUL TYPER BLPSN MSG AMTF +3 REJEC DIR CUSS BLANK PROGRAM/SUBRO NAME AND ABORT.  
 2264 TS N,X5,3 PROG NAME N,S2 STORE NAME AND EXIT.

2266 LONG PRGN TN N,X5 2 LPRGN MSG +3  
 2267 S, YUL TYPER LPRGN MSG AMTF +5 REJEC DIR CUSS NAME OF MORE THAN 8 CHARACTERS.

R2269 ENTRIES TO ROUTINES IN SERVICE MODULE.

2270 DO BACKUP TS Z,SC Z,AJ1 SERVICE  
 2271 PRINT PSR TS Z,SC,1 Z,AJ1 SERVICE  
 2272 PUNCH PSR TS Z,SC,2 Z,AJ1 SERVICE  
 2273 XFER PSR TS Z,SC,3 Z,AJ1 SERVICE

2274 ADD COMP TS Z,SC,4 Z,AJ1 SERVICE  
 2275 RMOV COMP TS Z,SC,5 Z,AJ1 SERVICE  
 2276 PASS STAT TS Z,SC,6 Z,AJ1 SERVICE  
 2277 MANU STAT TS Z,SC,7 Z,AJ1 SERVICE

R2279 GENERAL ENTRY TO SERVICE MODULE ROUTINES.

2280 SERVICE SWE, CAC3 BANK 1 32 Z,X0  
 2281 WD Z,SH Z,AJ1 Z,AJ1  
 2282 WA Z,AJ1 L SERVICE Z,AJ1  
 2283 TX N,AJ1 - Z,SC

P2284 SUBROUTINE IN PASS 0 TO DECODE AN AUTHOR NAME AND STORE IT IN STANDARDIZED FORM IN AUTHNAME AND  
 R2286 AUTHNAME+1 AND IN THE SENTENCE REPLACING THE FIRST WORD OF THE AUTHOR NAME. STANDARDIZING HERE MEANS CLOSING UP  
 R2288 THE WORDS WITH ONLY THE NON-BLANK TERMINATORS INTERVENING. ERROR EXITS IF THE AUTHOR NAME IS MISSING OR IS  
 R2290 LONGER THAN 16 CHARACTERS WHEN STANDARDIZED. WITH X5 SET TO THE FIRST WORD, ENTRY IS:

Label	Code	Op	Field	Value	Op	Field	Value	Description
R2292		TS	Z,SC		Z,S3		DCOD AUTH	
2293	DCOD AUTH	TX	Z,X5	-	Z,X4			SAVE LOCATION OF FIRST WORD.
2295		TX	Z,X5,2	-	Z,S2			SET UP ADDRESS FOR CLOSING UP.
2297		LA	ONES	N,X5	CJSS NAJT			ERROR IF AUTHOR NAME IS MISSING.
2299		TS	ZERO	Z,R6	C,+2			INITIALLY CLEAR LENGTH COUNTER.
2301	HOW LONG	WA	Z,R6	ONE	Z,R6			ADD LENGTH OF TERMINATOR.
2303		SWE, CHAR3	N,X5,3	12	COMMON			
2304		NA	COMMON	ZERO	C,+2			
2305		S, YUL TYPER	BAUTH MSG	AMTF +4	REJEC DIR			CUSS BLANK WORD IN AUTHOR NAME, ABORT.
2307		WA	Z,R6	COMMON	Z,R6			ADD LENGTH OF COMPONENT WORD.
2309		NA	N,X5	ONES	HOW LONG			
2310		LA	Z,R6	OCTAL 20	LAUTH OK			
2311		S, YUL TYPER	LAUTH MSG	AMTF +3	REJEC DIR			ERROR IF NAME MORE THAN 16 CHARACTERS.
2313	LAUTH OK	TX	Z,X4	-	Z,X5			
2314		LA	ONES	4,5	SAVE AUTH			BRANCH IF 1-WORD AUTHOR NAME.
2316		LA, CHAR6	4,2	7 C6	C,+2			
2317		TX	Z,S2,1	-	-			IF CLOSING-UP BEGINS IN WORD 2.
2319		TX	4,2	-	COMMON			
2320		SSL, SEVEN	4,2	12	PJT CHAR	C		MOVE TERMINATOR OF FIRST WORD.
2322		TS	Z,X5,3	-	CLOS AUTH +1			
2323	CLOS AUTH	TX	N,X5,1	-	COMMON	C		MOVE TERMINATOR CHARACTER.
2325		TN	N,X5,2	2	COMMON			
2326		SWE, CHAR3	N,X5	12	Z,S0			
2327		TS	Z,SC	Z,S1	MOVE CARC +3			INSERT COMPONENT WORD.
2329		NA	5,3	ONES	CLOS AUTH			
2330		SWS, CHAR5	Z,R6	12,L	4,2			LENGTH OF STANDARDIZED NAME.
2332	SAVE AUTH	TX	N,X4	-	AUTH NAME			
2333		TS	4,1	AUTH NAME +1	N,S3			STORE AUTHOR NAME SEPARATELY AND EXIT.

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P2335 SUBROUTINE IN PASS 0 TO MOVE PART OF A SENTENCE. ASSUMES A PREVIOUS ENTRY TO PUT CHAR AND STOPS  
 R2337 AFTER MOVING THE WORD WHOSE ADDRESS IN X4, OR BEFORE IF THAT WORD HAS LENGTH 0. ENTRY IS:

R2339	TS		Z,SC	Z,S3	WRIT OBJC	
2340	WRIT OBJC	SWE, CHAR8	N,X5,1	12	Z,S0	LENGTH OF COMPONENT WORD.
2342	TS		Z,SC	Z,S1	MOVE CAR8	MOVE ALL BUT 1ST CHAR OF WORD.
2344	TN		N,X5	2	COMMON	C MOVE 1ST CHARACTER OF NEXT WORD.
2346	NA		Z,X5,2	Z,X4	WRIT OBJC	
2347		SWE, CHAR8	N,X5	12	Z,S0	
2348	LA		Z,S0	ZERO	N,S3	EXIT IF LAST WORD HAS ZERO LENGTH.
2350	TS		Z,S3	Z,S1	MOVE CAR8	MOVE LAST WORD AND EXIT.

R2352 SUBROUTINE IN PASS 0 TO MOVE THE CHARACTERS OF A WORD, ASSUMING A PREVIOUS ENTRY TO PUT CHAR. WITH  
 R2354 THE WORD IN COMMON AND COMMON+1 AND THE FIRST CHARACTER MOVED, ENTRY IS:

R2355	TS		Z,SC	Z,S1	MOVE CAR8	
2356	MOVE CAR8	SWS, ONES	COMMON	A,1,L	COMMON	
2357		SWS, ONES	COMMON +1	A,1,L	COMMON +1	
2358	SS		COMMON +1	CHAR8	COMMON	SHIFT COMMON AND COMMON+1 LEFT 1 CHAR.
2360	SS		BLANKS	CHAR8	COMMON +1	C MOVE ONE CHARACTER.
2362	NA		Z,S0,1	ONE	MOVE CAR8	
2363	TX		Z,S1	-	Z,SC	

R2364 MINOR SUBROUTINE TO POSITION YULPROGS JUST AFTER THE LABEL. ENTER AT POSIT YUL IN TRANSFER VECTOR.

2366	POSIT REW	TS	Z,X0	Z,S2	PHI TAPE	SAVE X0.
2368		RW,1	-	-	-	(USUALLY SUPERFLUOUS).
2370		TS	L STOPPER	Z,X0	PHI TAPE	
2371		RF,1	0,0	-	-	
2372		TS	Z,S2	Z,X0	PHI TAPE	RESTORE X0.
2374		RF,1	-	-	-	
2375		TX	Z,S3	-	Z,SC	

P2376 SUBROUTINE IN PASS 0 TO FIND AN AUTHOR NAME IN THE YUL FILE DIRECTORY. WITH THE NAME IN AUTHNAME,  
 R2378 ENTRY IS TS ONES 1,6 FIND AUTH C RETURNS TO L+2 WITH ADDRESS OF AUTHOR  
 R2380 NAME IN X3 IF FOUND, OR TO L+1 WITH ADDRESS OF NEXT ALPHA-EARLIER AUTHOR NAME IN X5 (N,X5 = 1,6 IF NONE) IF NOT.

2382	FIND AUTH	SWE, CAC3	1,9	16	Z,X3	C	ADDRESS OF ALPHA-EARLIEST NAME.
2384		TS	L END THR	Z,X5	C,+2	C	INITIALIZE ADDR OF PREVIOUS NAME.
2386		SWS,THREAD10	3,1	12	Z,X3	C	FOLLOW THREAD TO NEXT NAME.
2388		LA	AUTH NAME	N,X3	PLAC AUTH	C	BRANCH WHEN THIS NAME NOT GREATER.
2390		TS	Z,X3	Z,X5	C,-2	C	UPDATE ADDR OF PREVIOUS NAME.
2392	PLAC AUTH	LA	N,X3	AUTH NAME	C,+2	C	BRANCH ON EQUALITY OF 1ST 8 CHARACTERS.
2394		TX	-	-	-		OTHERWISE EXIT ON NO MATCH.
2396		TX	Z,X3	-	Z,AU1	C	
2397		SS	3,1	THREAD 11	Z,AU1	C	ADDR OF 2ND 8 CHARS OF FOUND NAME.
2399		NA	N,AU1	AUTH NAME +1	C,+2	C	BRANCH IF MATCH FAILS ON 2ND HALF.
2401		TX	Z,SC,1	-	-		EXIT SKIPPING WHEN NAME IS FOUND.
2403		LA	N,AU1	AUTH NAME +1	PLAC AUTH -1	C	LOOK AGAIN WHEN FOUND NAME SMALLER.
2405		TX	-	-	-		

R2406 SUBROUTINE IN PASS 0 TO INCLUDE THE AUTHOR NAME GIVEN IN AUTHNAME IN THE YUL FILE DIRECTORY. ENTRY:  
 R2408 TS ... .. ADD AUTHR WITH X5 SET UP BY FIND AUTH. RETURNS  
 R2410 WITH ADDRESS OF AUTHOR NAME IN X3.

2411	ADD AJTHR	TS	Z,SH	Z,S3	FIND PAIR	C	FIND 2 CONSECUTIVE UNUSED LOCATIONS.
2413		TX	AUTH NAME	-	N,X3		STORE 1ST HALF OF NAME.
2415		TX	PLUS ZERO	-	3,1		FLAG TO SIGNIFY AUTHOR, NOT PROG OR SUB.
2417		SWS,ATHREAD10	Z,X3	24,L	3,1		PROGRAM THREAD OF BARREN AUTHOR TO SELF.
2419		NA	Z,X5	L END THR	2ND AUTHR		BRANCH IF NOT ALPHA-EARLIEST AJTHR.
2421		SWS,BTHREAD10	1,9	-	3,1		INSERT AT HEAD OF LIST.
2423		SWS, CAC2	Z,X3	16,L	1,9		
2424		TS	Z,SC,3	-	FIND SLOT	C	FIND A SINGLE UNUSED LOCATION.
2426	2ND AJTHR	SS	5,1	BTHREAD10	3,1		INSERT NEW NAME IN LIST IN ALPHABETICAL
2428		SWS,BTHREAD10	Z,X3	12,L	5,1		ORDER.
2430		TS	-	-	FIND SLOT	C	FIND A SINGLE UNUSED LOCATION.
2432		SS	Z,X5	THREAD 11	3,1		SET THREAD TO 2ND HALF OF NAME.
2434		TS	AUTH NAME +1	N,X5	N,S3		STORE SECOND HALF OF NAME AND EXIT.

P2436 SUBROUTINE IN PASS 0 TO FIND THE ADDRESS OF A SINGLE UNUSED LOCATION IN THE YUL FILE DIRECTORY. IF  
 R2438 THERE ARE NO INTERNAL SLOTS (AS FROM AN EARLIER DELETION), THE DIRECTORY IS LENGTHENED BY 2 WORDS, ONLY THE  
 R2440 FIRST BEING RESERVED. ENTER BY COSEQUENCE CALL TO FIND SLOT. THE ADDRESS IS RETURNED IN X5.

2442	FIND SLOT	SWE, CAC3	1,8	32	Z,X5	C	SET UP ADDRESS IF INTERNAL.
2444		NA	Z,X5	L END THR	NOT ADD1	C	BRANCH IF AN INTERNAL LOCATION.
2446		TX	1,8	-	Z,X5	C	USE END OF DIRECTORY AS ADDRESS.
2448		EX	1,8	CAC1	5,1	C	THREAD FOLLOWING LOCATION INTO LIST.
2450		WA	1,8	ONE	1,8	C	
2451		SWS, CAC1	1,8	32,L	1,8	C	NEW SLOT HEADS THE LIST.
2453		WA	1,8	ONE	1,8	C	FINISH LENGTHENING AND EXIT.
2455	NOT ADD1	SS	N,X5	CAC1	1,8	C	DELETE LOCATION FROM LIST.
2457		EX	Z,X5	CAC3 M1	Z,R5	C	SET UP TO SEE IF A PAIR IS AFFECTED.
2459		TS	1 COMMA 8	Z,X2	PAIR SRCH +4	C	ADDRESS OF INITIAL THREADS.
2461	PAIR SRCH	SWE, CAC3	N,X2	16	Z,X2	C	FOLLOW THE THREAD THROUGH PAIR LIST.
2463		NA	Z,X2,1	Z,R5	C,+2	C	BRANCH IF PAIR NOT CONTAIN THIS SLOT.
2465		SS	N,X2	CAC2	N,X4	C	SEW UP GAP AROUND PAIR, EXIT.
2467		LA	ONES	N,X2	N,SC,1	C	EXIT IF END OF PAIR LIST.
2469		TS	Z,X2	Z,X4	PAIR SRCH	C	UPDATE ADDRESS OF PREVIOUS PAIR.

R2471 MINOR SUBROUTINE IN PASS 0 TO TYPE OUT A TASK MESSAGE, SUCH AS "ASSEMBLY FOR MOD 3C", AND THE OBJECT  
 R2473 OF THE TASK, SUCH AS "NEW PROGRAM BUGGY BY JOE BLOW".  
 R2474 ENTRY IS TS Z,SC Z,X0 TYP TKOBJ

2475	TYP TKOBJ	S, YUL TYPER TASK MSG	AMTF +4	C,+1
2476		S, YUL TYPER OBJCT MSG	A +7	0,0

R2477 SUBROUTINE IN PASS 0 TO VACATE A PAIR OF WORDS IN THE DIRECTORY. CSC CALL WITH ADDRESS IN AJ1.  
 R2479 ENTER AT 0,133 IN TRANSFER VECTOR.

2480	GIVE PR	TX	1,8	-	N,AJ1	C	MAKE 2ND WD POINT ALONG PAIR+SLOT LISTS.
2482		SWS, CAC1	Z,AU2	32,L	1,8	C	
2483		SWS, CAC2	Z,AU2	16,L	1,8	C	SET PAIR+SLOT POINTERS TO 1ST WD.
2485		SWS, CAC1	Z,AU1	32,L	N,AU2	C	LET WD 1 POINT TO WD 2, EXIT.

P2487 SUBROUTINE TO FIND A COMPUTER NAME IN THE YUL FILE DIRECTORY. WITH NAME IN COMP NAME, ENTRY IS  
 R2489 L TS ... FIND COMP C RETURNS WITH ADDRESS OF THE NEXT LOWER  
 R2491 NAME IN R4 (OR ZERO IF NONE) AND WITH ADDRESS OF NAME (OR NEXT HIGHER IF NO MATCH) IN X0, TO L+2 IF NAME FOUND,  
 R2493 OTHERWISE TO L+1. FIND COMP IS IN THE TRANSFER VECTOR AT 0,134.

2494	FIND CNAM	SWE, CAC3	1,9	32	Z,X0	C	GET THREAD TO 1ST COMPUTER NAME.
2496		TS	ONES	1,6	C,+2	C	SET UP LIMITING VALUE.
2498		SS	N,X0	THREAD 10	Z,X0	C	FOLLOW THREAD TO NEXT HIGHER NAME.
2500		LA, C1T4	COMP NAME	0,0	C,+2	C	
2501		TS	Z,X0	Z,R4	C,-2	C	
2502		NA, C1T4	COMP NAME	0,0	C,+2	C	
2503		TX	Z,SC,1	-	-		EXIT SKIPPING IF NAME FOUND.
2505	NEWP FITS	TS	-	-	-		EXIT WHEN NAME NOT FOUND.

R2507 SUBROUTINE TO FIND A PROGRAM OR SUBROUTINE NAME IN THE DIRECTORY. WITH NAME IN PROG NAME, ENTRY IS  
 R2509 L TS ... FIND PROG C IF NAME IS FOUND, RETURN IS TO L+1 WITH  
 R2511 LOCATION IN X3 AND LOCATION OF PRECEDING NAME IN X2. IF NOT FOUND, RETURN IS TO L+2 WITH B7,6 IN X3 AND LOCA-  
 R2513 TION OF LAST PROGRAM NAME IN X2.

2514	FIND PROG	TX	Z,X0	-	Z,X2	C	
2515		TX	Z,X0	-	Z,X3	C	TO SET BANK INDICATOR AND BIT 4B.
2517		SWS,THREAD10	N,X0	12	Z,X3	C	THREAD TO FIRST PROGRAM.
2519		TS	PROG NAME	1,6	C,+3	C	ENSURE APPARENT FINDING ANYWAY.
2521		TX	Z,X3	-	Z,X2	C	
2522		SS	2,1	THREAD 10	Z,X3	C	PROGRAM-TO-PROGRAM THREAD.
2524		NA	N,X3	PROG NAME	C,-2	C	
2525		TX	ONES	-	1,6	C	RESTORE END-OF-LIST SENTINEL.
2527		NA	3,1	ONES	N,SC,1	C	EXIT IF REALLY FOUND.
2529		TX	Z,SC,1	-	-		EXIT SKIPPING IF NOT FOUND.

R2531 MINOR SUBROUTINE IN PASS 0 TO LABEL YULPROGS. ENTER AT LABEL YUL IN TRANSFER VECTOR.

2533	LABL TEST	NN	NON WISE	ZERO	TYP NON VS		TYPE COUNT OF NON-YUL-DIRECTORS IF NZ.
2535		SS	N,X1	BIT 35	FRAME		
2536		SS	ZERO	BIT 35	N,X1		REMOVE TAPE PUNCH CALL BIT FROM LABEL.
2538		TX	1,8	-	Z,SH		
2539		CC	N,X1	-	N,SH		
2540		TS	1,1	FIX SNACH +1	PHI LABEL		ORTHOCOUNT AND WRITE YULPROGS LABEL.
2542		WF,1	1,0	-	-		
2543		TS	1,2	FIX SNACH +2	PHI SNACH		UNDO APPARENT TYPE-3-DISPOSITION SNATCH CAUSED BY LABELING.
2545	FIX SNACH	ALF,3	N00<0:01YULPROGS				
2547		SS	FRAME	BIT 35	N,X1		
2548		TS	Z,X5	Z,S3	POSIT REW		POSITION AFTER LABEL AND RETURN.

P2550 SUBROUTINE TO FIND THE ADDRESS OF AN UNUSED WORD PAIR IN THE YUL FILE DIRECTORY. ENTRY IS  
R2552 L TS ... .. FIND PAIR C RETURNS WITH ADDRESS IN X3.

2554 FIND PAIR SWE, CAC3 1,8 16 Z,X3 C GET ADDRESS OF FIRST UNUSED PAIR.  
2556 NA Z,X3 L END THR NOT ADD2 C BRANCH IF ADDRESS NOT VACUOUS.

2558 TX 1,8 - Z,X3 C THUS UNUSED PAIR IS AT END OF THE FILE.  
2560 WA 1,8 TWO 1,8 C LENGTHEN END MARKER ACCORDINGLY, EXIT.

2562 NOT ADD2 TS 1 COMMA 8 Z,X4 C,+2 C A WORD PAIR IS ALSO TWO SINGLETONS.  
2564 TX Z,X2 - Z,X4 C  
2565 SWE, CAC3 N,X4 32 Z,X2 C THREAD UNTIL FIRST SINGLETON.  
2567 NA Z,X2 Z,X3 C,-2 C

2568 WA Z,X3 ONE Z,R3 C FORM ADDRESS OF SECOND SINGLETON.  
2570 SS N,X2 CAC1 N,X4 C SEW UP GAP AROUND 1ST SINGLETON.  
2572 TS 1 COMMA 8 Z,X4 C,+2 C RESET SINGLETON THREAD.

2574 TX Z,X2 - Z,X4 C  
2575 SWE, CAC3 N,X4 32 Z,X2 C THREAD UNTIL 2ND SINGLETON.  
2577 NA Z,X2 Z,R3 C,-2 C

2578 SS N,X2 CAC1 N,X4 C SEW UP GAP AROUND 2ND SINGLETON.  
2580 SS 3,1 CAC2 1,8 C SEW UP GAP AROUND PAIR AND EXIT.

R2582 SUBROUTINE IN PASS 0 TO VACATE A WORD IN THE DIRECTORY. COSEQUENCE CALL WITH ADDRESS IN AU1.

2584 GIVE SLOT SS 1,8 CAC1 N,AU1 C MAKE WORD POINT ALONG SLOT LIST.  
2586 SWS, CAC1 Z,AU1 32,L 1,8 C SET SLOT POINTER TO WORD.  
2588 HA Z,AU1 ONE Z,AU2 C FORM ADDRESSES OF OTHER HALF OF PAIR.  
2590 SWE, CAC3 N,AU1 32 Z,AU1 C FOLLOW THE SLOT THREAD.  
2592 LA ONES N,AJ1 N,SC,1 C EXIT WHEN WORD IS NOT PART OF VOID PAIR.  
2594 NA Z,AU1 Z,AJ2 C,-2 C FALL THRU IF OTHER HALF IS VACANT.  
2596 SS ZERO ONE Z,AU1 C  
2597 SM Z,AU2 ONE Z,AU2 C FORCE ORDER OF ADDRESSES IN AU1, AU2.  
2599 SS 1,8 CAC2 N,AU2 C  
2600 SWS, CAC2 Z,AU1 16,L 1,8 C INCLUDE PAIR IN PAIR LIST AND EXIT.

P2602 ROUTINE TO RESPOND TO REQUESTS TO MANUFACTURE AN EXISTING PROGRAM. LOOKS ON DISC FOR THE SPECIFIED  
 R2604 REVISION; IF LATEST WAS SPECIFIED AND IS NOT ON DISC, USES TAPE. ABORTS IF SPECIFIED REVISION IS UNMANUFACTUR-  
 R2605 ABLE. IF ALL IS WELL, LOADS THE MANUFACTURING PROGRAM FOR THE NAMED COMPUTER.

2606	MANUFACT	TS	NEXT NAME	SEARCH KEY	TAPE SRCH -1	C	SET GRP B TO SEARCHING FOR END SYLT.
2608		TS	W MNUFACT	TASK MSG	MANUF OBJ		BREAK DOWN AND REFORM REST OF DIRECTOR.
2610		TS	CAC3	SYMS OR NO	ELIM PR SU +1	C	ASSUME NO SYM TAB CALL, TYPE TASK, OBJ.
2612		TS	CPUT CN C6	PUT CN C6	FIND COMP	C	SEEK COMPUTER NAME IN DIRECTORY.
2614		S, YUL TYPER	UNRCO MSG	AMTF +4	TYP ABORT		CUSS AND EXIT IF NOT THERE.
2616		SSL, ONE	0,1	0	C,+1		CAN WE MANUFACTURE FOR THIS COMPUTER...
2618		S, YUL TYPER	N MANU MSG	AMTF +5	TYP ABORT		CUSS AND EXIT IF NOT.
2620		TS	C,+1	TYP ABORT	SAY ABORT +1		
26201		TS	TYP WREVN	2DIG REVN -1	C,+1		ABORT MUST RESTORE REVISION-NO. CUSSER.
26203		TX	SAY ABORT	-	TYP ABORT	S	..AND THEN RESTORE ITSELF.
26205	SAY ABORT	S, MON TYPER	Y ABORT	SPRAMR +16	TYP BORTA		
26206		TS	C,+1	2DIG REVN -1	TYP WREVN +1		
26207		TS	SAY ABORT	TYP ABORT	C,+1		WRONG-REV-NO. MUST RESTORE ABORT.
26209		TX	TYP WREVN	-	2DIG REVN -1	S	..THEN RESTORE ITSELF..
26211		LA	REVNO	COMMON	OK NOUN +2		..AND SEE IF REVNO IS REALLY OK FOR MFG.
26213	TYP WREVN	S, MON TYPER	WREVN MSG	SPRAMR +40	TYP ABORT		FALL INTO HERE IF SPEC. REVNO TOO BIG.
26215		NA, BIT 9	SWITCH	ONES	C,+2		
26216		S, MON TYPER	MANSU MSG	SPRAMR +40	TYP ABORT		CUSS AND EXIT IF ASKED TO MANUF SUBRO.
26218		TS	Z,XO	L COMP NAM	KNOWN PSR		RETURNS IF THE SPECIFIED REVISION NUMBER
2622		SWE, ONES	REVNO	D,4,L	PHI ARG		IS LESS THAN OR EQUAL TO THE LATEST.
26222		TS	Z,SC	Z,AJ1	YUL D2A 7S		
26223		SM	COMPUTER	PHI ARG	TRONDEX		
26224		SWS, CHAR5	1,1	A,4	TRONDEX		FORM FIRST WORD OF REQUIRED DISC NAME.
26226		TS	ONES	TRONDEX +2	SAY ABORT -1	C	RESTORE ABORT AND WRONG-REVISION-NO....
26228		TS	ZERO	COMMON +1	TYP WREVN -2	C	...AND INITIALIZE LOG-NUMBER LOCATIONS.
2623		LA	COMMON	REVNO	MANU SEEK		BRANCH IF LATEST REVISION WAS SPECIFIED.
26232		SWS, C3T5	TRONDEX	A,3,L	WREVN MSG +4		
26234		NA, CHAR3	WREVN MSG +4	ZERO	C,+2		
26235		SWS, C3T5	WREVN MSG +4	A,1,L	WREVN MSG +4		
26236		NA, CHAR3	WREVN MSG +4	ZERO	C,+2		
26237		SWS, C3T5	WREVN MSG +4	A,1,L	WREVN MSG +4		LEFT-NORMALIZE AND ZERO-SUPPRESS.
26239		S, MON TYPER	OLRVN MSG	SPRAM +16	-		
2624		S, MON TYPER	WREVN MSG +4	SPRA +8	-		"OLD REVISION NO.: NN "
26242		LA, CHAR5	ONES	DISC STAT	C,+2		
26243		S, MON TYPER	ND NMF MSG	SPRAMR +40	TYP ABORT		WITHOUT DISC, REFUSE TO MANUF OLD REV.

P26245 SEARCH THROUGH THE DISC INDEX FOR THE PROGRAM FILE FOR THE THE SPECIFIED REVISION WITH THE HIGHEST LOG NUMBER.

26247	MANU SEEK	TS	PROG NAME	TRONDEX +1	DISCAP	C	
26248		OCT	-15				
26249		SPEC			TRONDEX		
2625		TS	Z,X4	L PROG FIL	GOOD SEEK		GOT ONE. NOW, IS IT THE RIGHT ONE?
26252		NA	COMMON +1	ZERO	GOT BINF		BRANCH IF WE GOT A FILE AS SPECIFIED.
26254		LA	COMMON	REVNO	C,+2		BR IF LATEST IS WANTED BUT NOT ON DISC.
26256		S, MON TYPER	NTHIS MSG	SPRAMR +16	TYP ABORT		"NOT ON THIS DISC".
26258		LA, C7T8	BIT 37	4,1	MANU TAPE		IF LATEST REV IS GOOD, MANUF FROM TAPE.
2626		S, MON TYPER	DR UMA MSG	SPRAMR +40	TYP ABORT		CUSS AND EXIT IF UNMANUFACTURABLE.
26262	GOOD SEEK	NA, C7T8	TRONDEX +3	YUL FILE	MANU SEEK		TRY AGAIN IF WRONG TYPE (DISABLED, E.G.)
26264		LA	TRONDEX +2	COMMON +1	MANU SEEK		TRY AGAIN IF NOT A HIGHER LOG NUMBER.
26266		TS	TRONDEX +2	COMMON +1	MANU SEEK		RECORD HIGHER LOG NUMBER, TRY AGAIN.
26268	GOT BINF	TS	COMMON +1	TRONDEX +2	DISCAP	C	
26269		OCT	-1				
2627		SPEC			TRONDEX		GET BACK WHOLE INDEX ENTRY FOR WINNER.
26272		NA, C7T8	TRONDEX +3	YUL FILE	DISASTER		(IF LOG NUMBERS ARE REALLY SCREWED UP).
26274		LA	BIT 1	TRONDEX +11	GOOD SEEK -1		CUSS AND EXIT IF UNMANUFACTURABLE.
26276		S, MON TYPER	FDISC MSG	SPRA +16	-		"FOUND ON DISC ".
26278		SWE, C5T8	TRONDEX +5	24	COMMON +1		SAVE LOG NUMBER OF LAST REFERENCE.
2628		EX	TRONDEX +5	C5T8	TRONDEX +5		
26281		SWE, C5T8	YUL LOG	24	COMMON		
26282		DS	COMMON	COMMON +1	COMMON		COMPUTE PERIOD OF IDLENESS.
26284		LN	FIFTY	COMMON	NO NEW CWD		NO NEW CHARLIE-WORD IF VERY SHORT.

1411-2G  
hamshire  
new  
INCORPORATED  
BUSINESS FORMS  
ROYAL

3"  
2"  
1"

P262852 COMPUTE THE DECAY OF THE CHARLIE\_WORD (A FIGURE OF MERIT, NAMED FOR ITS DESIGNER, CHARLES P. WERNER) SINCE THE  
 R262854 LAST USE OF THIS FILE, APPLYING A FACTOR OF 0.8465 FOR EVERY 1000 LOG NUMBERS OF IDLENESS. THEN ADD 2500 AND  
 R262856 APPLY A LIMIT OF 10000, SO THAT THE FILE DOES NOT LONG OUTLIVE ITS LAST USE.

26286	DM	TRONDEX +5	CW FACTOR	TRONDEX +5		
26287	DS	COMMON	THOUSAND	COMMON		
26288	LN	COMMON	ZERO	C,-2	APPLY EXPONENTIAL DECAY FOR IDLENESS.	
2629	DA	TRONDEX +5	CHAS 2500	TRONDEX +5		
26291	LA	TRONDEX +5	DEC 10000	C,+2		
26292	TX	DEC 10000	-	TRONDEX +5	APPLY LIMITED REWARD FOR INDUSTRY.	
26294	NO NEW CWD	TS, CIT4	YUL LOG	TRONDEX +5	DISCAP C	APPLY CURRENT LOG NUMBER AND REWRITE.
26296		OCT	-12			
26297		SPEC		TRONDEX		
26298	SWE, ONES	TRONDEX +6	24	TRONDEX +6	ALIGN DISC ADDRESS OF FIRST SUBFILE.	
2630	TX	ZERO	-	SRCH TEST	WIPE OUT SEARCH UP TAPE...	
26302	NA	SERCH KEY	EOR	C,-1	...AND WAIT FOR IT TO ABORT.	
26304	TS	FOUND BUF +1	Z,X5	PHI TAPE	FETCH BUFFER NAME AND REWIND TAPE.	
26306	RW,1	-	-	-		
26307	S, DISC READ	5,3	CHK DF ERR +4	TRONDEX +6	READ AUTHMEMO RECORD OF PROGRAM.	
26309	S, MON TYPER	DF ERR MSG	SPRAM +15	MDF ERROR	CUSS AND EXIT IF FILE IS UNREADABLE.	
2631	TX	W AUTHMEM	-	5,2		
26311	TX	PROG NAME	-	5,1	GOOD READ: FILL OUT FIRST THREE WORDS.	
26313	TS	COMPUTER	N,X5	C,+2		
26314	MANU TAPE	TX	ZERO	-	TRONDEX +6	NO DISC ADDRESS MEANS MANUF FROM TAPE.
2634	SS	0,1	THREAD 10	Z,X0		
2635	TX	CHAR 1	-	TEMP MASK		
26355	TX	PAR MANUF	-	COMMON		
2636	SS	N,X0	TEMP MASK	COMMON	FORM NAME OF MANUFACTURING	
2638	SWE, CIT4	TEMP MASK	A,1	TEMP MASK	PROGRAM FOR THIS COMPUTER.	
2640	NA, TEMPMASK	0,0	BLANKS	C,-2		
2641	TS	Z,SC	Z,X1	RD SJBDR	GO TO SENTENCE-READ FIRST SUBDIRECTOR.	
2643	S, YUL TYPER	SD MIS MSG	AMTF +3	TYP ABORT	CUSS AND ABORT IF NO SUBDIRECTOR.	
2645	SS	W SOURCE C	CHAR 6	LOAD PAS 1	SET TO BACK UP 21 PROGRAMS TO PASS 1.	
2647	S, PHI LOAD	COMMON	2	BASE ADDR	LOAD AND GO TO MANUFACTURING PROGRAM.	

R26481 ROUTINE TO RESPOND TO AN OPERATOR'S REQUEST TO CLOSE THE MONAIN TAPE ON THE 2200 AND BEGIN PUNCHING OR WRITING.

26482	CLOS MONA	TX	Z,X5	-	WHODJNIT
264821		NA	N,X5,3	W MONAIN	HOWZAT
26483		TX	Z,X5	-	WHODJNIT
264831		NA	N,X5,3	W TAPE	HOWZAT
26484		TX	Z,X5	-	WHODJNIT
264841		NA	N,X5	ONES	HOWZAT
26485	LA, CAC3	B36T37	1,0	C,+2	BRANCH IF THERE IS SOME MONAIN DATA.
26486	S, MON TYPER	NO MDS MSG	SPRAMR +24	REJEC DIR	"NO MONAIN DATA STORED".
26487	SS	ZERO	BIT 35	N,X1	CLEAR MONAIN DATA PRESENCE BIT.
26488	S, MON PUNCH	ZERO	ATAPE PCH +40	ZERO	SEND END-OF-JOB SIGNAL TO MONAIN.
26489	S, MON TYPER	22 OUT MSG	SPRAMR +24	MANUF RTN	"2200 READY TO DO MONAOUT".

P2649 SUBROUTINE TO SEARCH YULPROGS FOR A RECORD WHOSE SECOND WORD IS THE ARGUMENT PROVIDED IN SERCH KEY.  
 R2651 WHEN FINISHED, WAKES GROUP A AND RESTORES THE END-OF-RECORD WORD TO SERCH KEY. YULPROGS IS POSITIONED AFTER THE  
 R2653 RECORD FOLLOWING THE ONE THAT SATISFIED THE SEARCH. BOTH RECORDS ARE AVAILABLE IN MEMORY VIA X1 AND X2 OF GRP  
 R2655 B. THE SEARCH MAY BE CUT OFF IN CASE OF ABORT BY PUTTING A PROCEED IN SRCH TEST. ENTER AT TAP SERCH IN TRANS-  
 R2657 FER VECTOR, OR AT TAPE SRCH -1 WHEN THERE IS NO COMPUTER NAME.

2658		TS	L SERVICE	L COMP NAM	TAP SERCH	C	USE 0000 FOR COMPUTER NAME IF NONE.
2660	TAPE SRCH	WA	Z,CSC	ONE	N,CSH	C	
2661		TS	Z,SC	Z,CSC	MON WAKE	C	EXIT AND LET GROUP B CARRY ON.

R2663 GROUP B ACTION BEGINS HERE.

2664		TX	YUL MASKS	-	Z,MXR		
2665		TN	BUF NAMES +6	2	Z,X1		USE ASSEMBLY BUFFERS 7 AND 8.
2667		HA	SERCH KEY	ONES	2,1		ENSURE NO FALSE ALARM FIRST TIME.

2669		TS	Z,X1	Z,X3	PHI TAPE		
2670		RF,1	1,0	-	DISASTER		
2671		TN	Z,X2	2	Z,X1		SWAP BUFFERS.
2673	SRCH TEST	NA	1,1	SERCH KEY	SRCH TEST -3		

2674		LA	SRCH TEST	ZERO	C,+3		SKIP OUT IF SEARCH WAS CUT OFF.
2676		LA	N,X1	C5TB	C,+2		ASSUME AGREEMENT IF NO COMPUTER NAME.
2678		NA, C1T4	1,0	COMPUTER	SRCH TEST -3		SEARCH AGAIN IF WRONG COMPUTER.

2680	SRCH DONE	TS	Z,X1	FOUND BUF	PHI TAPE		
2681		RF,1	-	-	-		
26812		TX	Z,X2	-	FOUND BUF +1		
2682		TS	EOR	SERCH KEY	MON WAKE	C	SIGNAL SUCCESS OF SEARCH, WAKE GROUP A.
2684		TX	Z,R0	-	Z,SC		GO TO BED UNTIL NEEDED AGAIN.

R2686 PROCEDURE TO MAKE GROUP B APPEAR TO ANNOUNCE A TASK ABORTION. IF A SEARCH OF YULPROGS IS IN PROG-  
 R2688 RESS, HALTS IT AND POSITIONS YULPROGS JUST AFTER THE LABEL. ENTRY IS IN TRANSFER VECTOR.

2690	TYP BORTA	S, MON TYP	ER BLANKS	SPRA +8	-		
2691		TX	ZERO	-	SRCH TEST		
2692		NA	SERCH KEY	EOR	C,-1		WAIT FOR SEARCH TO BE INTERRUPTED.

2694		TX	FETCH SS1	-	FETCH SSN		RESTORE SUBSTRAND FETCHER.
2696		TX	NO TP TASK	-	PNCH FRAM		RESTORE TAPE PUNCHING TO INITIAL STATE.
2698		TS	N,SC,1	SRCH TEST	POSIT YUL		RESTORE INSTRUCTION, POSITION YULPROGS.
2700		NA	1,1	SERCH KEY	SRCH TEST -3		
2701		TS	YUL MASKS	Z,MXR	SET PG HED		PROCEED TO NEXT TASK.

P2703 SUBROUTINE IN PASS 0 TO PEEK AT AND SENTENCE-READ CARDS. EXITS TO L+2 IF THE NEXT CARD IS A SUBDIRECTOR ("S" IN  
 R2705 COLUMN 1), OR TO L+1 IF NOT. ENTER WITH L+1 IN X1 (CALLING FROM BANK 1) OR BY SEQUENCE CALL TO RD SBDIRC IN THE  
 R2707 TRANSFER VECTOR.

2708	RD SJDRC	TX	Z, MXR	-	Z, R6		
2709		TS	YUL MASKS	Z, MXR	NEX DIREC	C	
2710		TS	PHI WAA	Z, X4	PHI PEEK	C	PEEK AT NEXT CARD.
2712		NA, CHAR1	4, 0	S COLUMN 1	NOT S CARD		BRANCH IF NOT A SUBDIRECTOR.
2714		S, PHI READ	6, 1				SET UP FOR SENTENCE READING.
2716	SET COL 81	TS	ONES	6, 11	PHI SENTR		BREAK DOWN SUBDIRECTOR.
2718		TS	Z, R6	Z, MXR	1, 1		
2719	NOT S CARD	TS	Z, R6	Z, MXR	N, X1		NON-SKIPPING EXIT IN THIS CASE.

R2721 MANUFACTURING SUBROUTINE IN PASS 0 TO WAIT FOR GROUP B TO FIND END SYLT, AND SET IT GOING ON A  
 R2723 SEARCH FOR THE FIRST SUBSTRAND OF THE PROGRAM BEING MANUFACTURED. ENTER WITH RETURN IN X4 (BANK 1) OR BY SE-  
 R2725 QUENCE CALL TO E SYLT OK IN THE TRANSFER VECTOR. ASSUMES THAT PROG NAME IS SET. ALTERABLE FOR SYMBOL TABLE.

2727	EN SYLT OK	TX	L GPB STT	-	Z, X3		
2728		NA	SERCH KEY	EOR	GROUP NAP		SLEEP IF GB STILL SEEKING END SYLT.
2730		TX	ZERO	-	SERCH KEY		
2731		WA	Z, SC	ONE	N, X3		
2732		TS	Z, X4	Z, SC	MON WAKE	C	SET GB GOING AND EXIT.

R2734 GROUP B ACTION AT END SYLT.

2735	E SYLT LUP	TS	Z, X1	Z, X3	RD PARAG		
2740		NA	1, 1	PROG NAME	E SYLT LUP		BRANCH IF NOT DESIRED PROGRAM.
2742		LA	N, X1	C5T8	C, +2		ASSUME AGREEMENT IF NO COMPUTER NAME.
2744		NA, C1T4	1, 0	COMPUTER	E SYLT LUP		LOOK AGAIN IF WRONG COMPUTER.
2746		LA	SYMS OR NO	1, 2	E SYLT LUP		BRANCH IF NOT RIGHT TYPE OF RECORD.
2748		TS	CAC3	SYMS OR NO	SRCH DONE		USE NORMAL END SEARCH PROCEDURE.

R2752 MANUFACTURING SUBROUTINE IN PASS 0 TO FETCH A SUBSTRAND. ENTER WITH RETURN IN X4 (BANK 1) OR BY  
 R2753 SEQUENCE CALL TO FETCH SS IN THE TRANSFER VECTOR. RETURNS TO L+2 IF THERE IS A SUBSTRAND, OTHERWISE TO L+1.

2754	FETCH SSN	TS	ZERO	FETCH SSN	AWAIT GB		BRANCH IF GROUP B SEEKING FIRST SS.
27544		TS	Z, MXR	FETCH SSN	YUL MASKR	C	
2755		TS	Z, X1	Z, X3	RD PARAG		
2756	AWAIT GB	NA	SERCH KEY	EOR	GROUP NAP		SLEEP IF GB STILL SEARCHING.
2757		TX	FOUND BUF	-	Z, X1		
2758		TS	FOUND BUF +1	Z, X2	PICK EXIT		SET UP GROUP A INDEXES, GET SUBSTRAND.

P27585 SUBROUTINE TO READ THE AUTHMEMO RECORD, A SYMBOL TABLE RECORD, OR A PARAGRAPH FROM DISC OR TAPE AS REQUIRED.

2759	RD PARAG	NA	TRONDEX +6	ZERO	C,+3	
27592		NA	2,1	EOR	FROM TAPE	BRANCH IF USING TAPE, NOT DISC.
27594		TS	EOR	1,1	FROM TAPE -1	SET UP SECOND EOF RECORD JUST IN CASE.
2760		WA	TRONDEX +6	A4 MINUS 4	TRONDEX +6	ADD 4 TO DISC ADDR, SUB 4 FROM COJNT.
2762		NA, C7T8	TRONDEX +6	ZERO	FROM DISC	BRANCH UNLESS RECD WAS LAST OF SUBFILE.
2764		SWE, ONES	TRONDEX +7	24	TRONDEX +6	MAYBE MOVE UP ADDRESS OF 2ND SUBFILE.
2766		NA	TRONDEX +6	ZERO	C,+2	BRANCH TO BEGIN 2ND SUBFILE.
2768		TS	EOR	1,1	PROC DISC -1	END OF FILE. SEND LAST RECORD OF FILE.
2770		TX	ZERO	-	TRONDEX +7	SHOW THAT WE ARE IN 2ND SUBFILE.
2772	FROM DISC	S, DISC READ	1,3	CHK DF ERR +4	TRONDEX +6	READ A PARAGRAPH OF 256 WORDS.
2774		S, MON TYPER	DF ERR MSG	SPRAM +16	MDF ERROR	
2775		TS	PROG NAME	1,1	PROC DISC	SUPPLY PROGRAM NAME AFTER GOOD READ.
2777	MDF ERROR	S, MON TYPER	TRONDEX	SPRAM +16	-	
2778		S, MON TYPER	TRONDEX +2	SPRAMR +72	-	CUSS UNREADABLE FILE (LOG NUMBER IN HEX)
2780		S, MON TYPER	Y ABORT	SPRAMR +16	MANUF RTN	VARY NORMAL ABORT PROCEDURE.
27819		TS	ONES	1,2	DISC CHEK	
2782	PROC DISC	WA	Z,X2	C 259	Z,CSC	
2783		CC	N,X2	-	N,CSC	MOVE EOR TO RIGHT PLACE.
27831		NA	2,2	W AUTHMEM	SYMBOLS 0	BRANCH UNLESS ABOUT TO DELIVER AUTHMEMO.
27833		WA, C5T8	2,71	C 255	MID POINT	
27834		SWE, CAC3	MID POINT	8	MID POINT	FORM NUMBER OF SYMBOL TABLE RECORDS.
27836		TN	2,5	8	SUBSTRAB	
27837		TS	W SYMBLS 0	E SYLT BAN	SYMBOLS 0 +1	PREPARE TO SET UP TITLES ON SYM TAB RCS.
27839	SYMBOLS 0	NA, C1T6	2,2	W SYMBLS 0	PARA LAST -1	BRANCH UNLESS DELIVERING SYM TAB RECORD.
27841		LA	MID POINT	ZERO	PARA LAST +1	BRANCH IF NO MORE SYM TAB RECORDS.
27843		WD	MID POINT	ONE	MID POINT	COUNT DOWN SYMBOL TABLE RECORDS.
27845		WA	E SYLT BAN	ONE	E SYLT BAN	COUNT UP CHAR 8 OF "SYMBOLSN".
27847		TS	E SYLT BAN	1,2	FROM TAPE -1	
278478		LA	ONES	1,2	FROM TAPE +2	BRANCH IF DELIVERING LAST PARAGRAPH.
27848	PARA LAST	WA	MID POINT	ONE	MID POINT	ADVANCE PARAGRAPH NUMBER.
2785		SWE, LOW5	MID POINT	0	E SYLT BAN	PARAGRAPH NUMBER WITHIN SUBSTRAB WORD.
27852		WD	N,SC,2	E SYLT BAN	E SYLT BAN	COMPUTE SHIFT COUNT FOR SSL AND TAB.
27854		OCT	-55			
27855	PARAG YES	TS	MID POINT	1,2	FROM TAPE -1	PUT PARAGRAPH NUMBER INTO RECORD.
27857		SWS, CHAR5	E SYLT BAN	A,3,L	MANUF SSI	
27858		SWE, SEVEN	MID POINT	5	E SYLT BAN	
27859		WA	L SUBSTRB	E SYLT BAN	Z,AU1	SELECT A SUBSTRAB WORD.
27861	MANUF SSL	SSL, FOUR	N,AU1		PARA LAST	GO TO PARAG YES IF GOT NEXT PARAG NO.
27868		TS	COMPUTER	N,X1	FROM TAPE +2	
27869	FROM TAPE	TS	-	-	PHI TAPE	
2787		RF,1	1,0	-	DISASTER	DOUBLE-BUFFERED READ.
2789		TN	Z,X2	2	Z,X1	SWAP BUFFERS.
2791		LA	SERCH KEY	ZERO	E SYLT LIIP +1	RETURN TO EN SYLT OK LOOP.
27922		TX	FETCH SSN	-	Z,MXR	
2793	PICK EXIT	LA	1,2	CAC3	4,1	SKIPPING EXIT IF NEW RECD IS PARAGRAPH.
2795		TX	Z,X4	-	Z,SC	EXIT WITH AUTHMEMO, SYMBOLS, OR EOFRI.

P2797 MANUFACTURING AND SIMULATION SUBROUTINE IN PASS 0 TO IGNORE AND CUSS A BAD BUT NOT VITAL SUBDIRECTOR.  
 R2799 ENTER WITH CARD IN SENTENCE READER AREA AND WITH RETURN IN X4 (BANK 1) OR SEQUENCE CALL TO IGN SUBDR IN THE  
 R2801 TRANSFER VECTOR.

2802 IGN S3DIR S, YUL TYPER IGNOR MSG AMTF +4 C,+1 TYPE "THEREFORE THIS CARD IS IGNORED".  
 2804 S, YUL TYPER 6,2 A+9 4,0 TYPE SIGNIFICANT WORDS AND EXIT.

R2806 MANUFACTURING AND SIMULATION SUBROUTINE IN PASS 0 TO CUSS AN UNRECOGNIZED WORD IN A SUBDIRECTOR CARD  
 R2808 AND CAUSE THE CARD TO BE IGNORED. ENTER WITH C(WHODUNIT) SET AND RETURN IN X4 (BANK 1) OR SEQUENCE CALL TO  
 R2810 UNRC SJBR IN THE TRANSFER VECTOR.

2811 UNRC SBDR TX WHODUNIT - Z,SH  
 2812 TN N,SH 2 WUNRC MSG +3  
 2813 S, YUL TYPER WUNRC MSG AMTF +5 IGN SBDIR CUSS BAD WORD AND IGNORE CARD.

R2815 MANUFACTURING SUBROUTINE IN PASS 0 TO PUNCH ON TAPE THE OBJECT MESSAGE, THUS IDENTIFYING COMPLETELY  
 R2817 THE PROGRAM REPRESENTED. ENTER WITH RETURN IN X4 (BANK 1) OR BY SEQUENCE CALL TO PCH LEDR IN THE TRANSFER  
 R2819 VECTOR. PROVIDE ONE PREFATORY WORD IN FRAME.

2820 PNCH LEDR TX FRAME - LEADR MSG  
 2821 TN OBJCT MSG 7 LEADR MSG +1 MOVE OBJECT MESSAGE FOR PUNCHING.  
 2823 TS Z,SC,7 Z,S1 PCH TITLF  
 2824 LEADR MSG RESERVE 8  
 2825 TX Z,X4 - Z,SC

R2826 SUBROUTINE IN PASS 0 TO COMBINE THE FUNCTIONS OF THE MONITOR DECIMAL-TO-ALPHABETIC CONVERTER AND LEFT  
 R2828 ZERO SUPPRESSOR. SEQUENCE CALL WITH RETURN IN AJ1, TO YUL DA LZS IN THE TRANSFER VECTOR WITH ARGUMENT AT N,AJ1,  
 R2830 OR ENTER HERE WITH ARGUMENT IN PHI ARG. USE EITHER RESULT (FIRST IS AT N,SH UPON RETURN) OR BOTH.

2832 YUL D2A ZS TS Z,MXR Z,AJ2 YUL MASKR C  
 2833 SWS, C5T8 PHI ARG 8 PHI ARG  
 2834 SWS,DECALFM1 PHI ARG 4 PHI ARG  
 2835 SWS,DECALFM2 PHI ARG 2 PHI ARG  
 2836 SWE,DECALFM3 PHI ARG 2 PHI ARG SPREAD LEFT 8 DIGITS TO ALPHABETIC.  
 2838 TS C1T7 TEMP MASK PHI ARG +1  
 2839 SWS, C1T7 TEMP MASK A,1,L TEMP MASK  
 2840 NA, TEMPMASK PHI ARG +2 ZERO C,-1  
 2841 SS BLANKS TEMP MASK PHI ARG +2 BLANK OUT AS MANY AS 7 LEADING ZEROS.  
 2843 TS Z,AU2 Z,MXR N,AJ1

2844 PHI ARG RESERVE 1  
 2845 TS C,-1 C,+1 C,-4  
 2846 RESERVE 1

2847 ALF,4 CARDS PUNCHED BY LOG AND TASK THESE MUST FOLLOW PHI ARG +2.

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P2849 SUBROUTINE TO SEND N WORDS OF ALPHABETIC IDENTIFICATION TO MON-A, TO BE PUNCHED INTO PAPER TAPE IN BLOCK-LETTER  
 R2851 FORM. ENTRY IS TO THE TRANSFER VECTOR, THUS:  
 R2852 TS Z,SC,(N-1) Z,S1 PCH TITLE FOLLOWED BY THE N WORDS TO BE PUNCHED.  
 R2854 LEAVES CSC SET TO PCH FRAME AS IF FOR DATA TRANSMISSION.

2855	PTP TITLE	NA	PNCH FRAM	END FLAG Q	IN TP TASK	C	BRANCH IF NO TAPE PUNCHING TASK GOING.
2857		NA	BKB PLACE	BANK B	SEND DATA	C	CLEAN OUT DATA FRAME BUFFER.
2859		TS	Z,S0,1	Z,S2	BEG PH ALF	S	FORM HISTORY AND LWA, RETURN TO S MODE.
2861	BEG PH ALF	SS	SWITCH	B34T35	TITL SEND		COPY END FLAG AS BEGIN-PARAGRAPH BIT.
2863		SS	ZERO	B34T35	SWITCH		CLEAR OUT END FLAG (INCLUDES END TASK).
2865		TN	Z,X0	2	SAVE XS		
2866		TN	Z,S1	2	Z,X0		SET UP FWA AND LWA OF TITLE.
2868	TITL SEND	S, MON PUNCH	0,0	ATAPE PCH +16	1,0		SEND N WORDS OF BLOCK-LETTER I.O.
2870		TS	BKB PLACE	Z,SH	BEG PH ALF	C	REMOVE POSSIBLE BEGIN-PARAGRAPH BIT.
2872		TN	SAVE XS	2	Z,X0		
2873		TS	Z,S0	Z,SC	PCH FRAME -1	C	SET UP CSC FOR CALLER AND RETURN.

R2875 MINOR SUBROUTINE TO INITIALIZE A TAPE PUNCHING TASK WHEN ITS FIRST FRAME OR TITLE IS SUBMITTED.

2877	IN TP TASK	TX	Z,CSH	-	SAVE XS +2	C	
2878		EX	1800 AB SW	B24 B36	SAVE XS	C	
2879		LA	SAVE XS	C5T8	C,+2	C	BRANCH IF RUNNING ON 1800 A.
2881	S, MON TYPER	TAPE B MSG	SPRAMR +32	TYP ABORT			"CAN'T PUNCH TAPE WITH THIS 1800".
2884		TS	Z,SC	SAVE XS +1	C,+1	S	
2895		TX	L DIRECTY	-	Z,S2		
2896		SS	N,S2	BIT 35	GRADE LIM		SET BIT IF NOT 1ST TAPE PUNCHING TASK.
2900		SM	SWITCH	C5T8	SAVE XS		FORM PAPER-GRADE AND DATA-UNLIMIT WORD.
2902		SS	ZERO	ACH4	SWITCH		REVERT PAPER GRADE TO PINK OILED PAPER.
2904	GRADE LIM	S, MON PUNCH	SAVE XS	ATAPE PCH +1	SAVE XS		SPECIFY PAPER GRADE, KILL DATA LIMIT.
2906		TS	END FLAG Q	PNCH FRAM	C,+2		INITIALIZE TITLE AND FRAME ROUTINES.
2908		S, MON TYPER	NTPCH MSG	SPRAMR +16	TYP ABORT		"NO TAPE PUNCHING".
29092		SM	N,S2	BIT 35	N,S2		SHOW THAT SOME PUNCHING IS TO BE DONE.
29094		TN	SAVE XS +1	2	Z,SC	C	NOW PROCESS FIRST FRAME OR TITLE.

R2910 MINOR SUBROUTINE TO TYPE OUT THE COUNT OF CARDS BYPASSED BECAUSE THEY LACKED A "Y" IN COLUMN 1.

2912	TYP NON YS	TX	Z,SH	-	TYP RTURN		
2913		SWE, ONES	NON WISE	D,4,L	PHI ARG		
2914		TS	Z,SC	Z,AJ1	YUL D2A 7S		
2915		TX	PHI ARG	-	NON WISE		
2916		NA, CHAR1	NON WISE	ZERO	C,+3		
2917		SWE, ONES	NON WISE	A,1,L	NON WISE		ALPHABETIZE AND NORMALIZE.
2919		TS, CHAR8	BLANKS	NON WISE	C,-2		

2920		S, MON TYPER	NUM NONS	SPRAMR +24	-		
2921		S, MON TYPER	BLANKS	SPRA +8	-		
2922		TX	ZERO	-	NON WISE		
2923		TX	TYP RTURN	-	Z,SC		

P2924 SUBROUTINE TO PROCESS DATA FRAMES DESTINED FOR PAPER TAPE. COLLECTS UP TO 2040 FRAMES IN BANK B BEFORE CALLING  
 R2926 IN MON-A TO HAUL THEM AWAY. INITIALLY, MAKE COSEQUENCE CALL TO PCH FRAME IN THE TRANSFER VECTOR WITH DATA IN  
 R2928 LOW 8 BITS OF FRAME, SUBSEQUENTLY MAY ENTER BY PUTTING DATA IN FRAME AND SWITCHING TO COSEQUENCE MODE.

2930	PNCH FRAM	TS	END FLAG Q	PNCH FRAM	IN TP TASK	C	(INITIAL STATE OF PNCH FRAM).
2932		LA	BKB PLACE	END BANK B	SET FRAME -2	C	BRANCH IF BANK B BUFFER NOT BLOCATED.
2934		TS	Z,CSC,3	-	SEND DATA	C	SHIP 2040 FRAMES OF DATA TO MON-A.
2936	END FLAG D	NA	BKB PLACE	BANK B	SEND DATA	C	CLEAR OUT BUFFER AT END OF PARAGRAPH.
2938		SS	SWITCH	B34T35	DATA SEND	C	SET BEGIN-PARAGRAPH BIT FOR NEXT XMIT.
2940		SS	ZERO	B34T35	SWITCH	C	CLEAR END FLAG (INCLUDES END TASK BIT).
2942	SET FRAME	TX	BKB PLACE	-	Z,SH	C	
2943		TS	FRAME	N,SH,1	PCH FRAME -1	C	SET FRAME INTO BUFFER AND EXIT.
2945	END FLAG Q	LA	BIT 34	Z,SH	END FLAG D	C	BRANCH IF END FLAG IS ON.

R2947 MINOR SUBROUTINE TO SEND UP TO 2040 ACCUMJLATED PAPER TAPE FRAMES TO MON-A.

2949	SEND DATA	TS	Z,SC	SAVE XS +2	C,+1	S	
2950		TS	Z,CSH	SAVE XS +3	BEG PH ALF +2	C	SAVE RETURN, X0, X1.
2952		TX	BANK B	-	Z,X0		
2953		WD	BKB PLACE	ONE	Z,X1		
2954		TX	BANK B	-	BKB PLACE		SHOW THAT BUFFER WILL BE EMPTY.
2956	DATA SEND	S, MON PUNCH	0,0	ATAPE PCH +32	1,0		SEND PAPER TAPE DATA FRAMES.
2958		SS	ZERO	B34T35	DATA SEND		CLEAR POSSIBLE BEGIN-PARAGRAPH BIT.
2960		TN	SAVE XS	2	Z,X0		
2961		TN	SAVE XS +2	2	Z,SC	C	

R2962 PROCEDURE AT MANUF RTN (RETURN FROM ANY TASK USING PASS 0 AS A MONITOR) TO RE-INITIALIZE SUBSTRAND FETCHING AND  
 R2964 TAPE PUNCHING ROUTINES. ENTER AT END M TASK.

2965	END SEND Q	NA	BKB PLACE	BANK B	SEND DATA	C	CLEAN OUT DATA BUFFER.
2967		TS	Z,CSC	Z,SC	BEG PH ALF +1	C	CLEAR END FLAG, REVERT TO SEQUENCE MODE.
2969	END M TASK	NA	PNCH FRAM	NO TP TASK	C,+2		BRANCH IF ENDING A TAPE PUNCHING TASK.
2971		TS	FETCH SS1	FETCH SSN	INIT PAS0		INITIALIZE FETCHING AND EXIT.
2973		TS	NO TP TASK	PNCH FRAM	END SEND Q	C	
2974	NO TP TASK	TS	END FLAG Q	PNCH FRAM	IN TP TASK	C	
2975	FETCH SS1	TS	ZERO	FETCH SSN	AWAIT G3		

P3025 GENERAL-PURPOSE CARD PUNCHING SUBROUTINE IN PASS 0. ALWAYS PUNCHES ON-LINE, BUT BENEFITS FROM DRJM  
 R3027 BUFFERING OF CARDS IN THE 200 OR 2200. THE FIRST CARD PUNCHED FOR ANY TASK IS AN IDENTIFIER WHICH, VIEWED FROM  
 R3029 THE REAR, DISPLAYS THE LOG AND TASK NUMBERS IN BLOCK LETTERS. THE LAST CARD PUNCHED IN A TASK IS A CHECKERBOARD.  
 R3031 ENTRY: S,0,87 CARD CW RETURN WHERE THE CONTROL WORD GIVES THE MODE.  
 R3033 TO CLOSE OUT A CARD-PUNCHING TASK, A CALL MUST BE MADE IN WHICH CARD CW ADDRESSES AN EOR WORD. AT 0,88 IS  
 R3035 TS Z,MXR FRAME PUNCH CARD 0,87 IS TAGGED PUNCH CD.

3037		SETLOC,3C	1984	B1			
3038	PNCH CARD	TX	YUL MASKS	-	Z,MXR		
3039		EBA	Z,AU1	ZERO	PUNCH ADR		SAVE ADDRESS OF CARD CONTROL WORD.
3041		SS	Z,AU2	CAC3	PUNCH CD		SAVE RETURN ADDRESS.
3043		LA	BIT 32	CRD COUNT	LAST CRD Q		BRANCH IF NOT FIRST CARD OF TASK.
3045	SN CPJNCH	TS	OCTAL 20	Z,AJ1	MON SN QTP	C	SNATCH CARD PUNCH FOR ON-LINE PUNCHING.
3047		TS	PHI WAA	Z,X4	1ST CARD		ACCESS INTERTASK STORAGE AREA.
3049		S, MON TYPER	CPUNV MSG	SPRAMR +24	-		"CARD PUNCH UNAVAILABLE".
3051		SS	ACA OTHE	CHAR3	ASTRY MSG		PUT GROUP A IDENTITY INTO MESSAGE.
3053		S, MON TYPER	ASTRY MSG	SPRAMR +16	-		"ASA TO TRY AGAIN".
3055		S, MON TYPER	ACA OTHE	SPRA +16	-		"ACA OTHERWISE".
3057		TS	L SN CPNCH	Z,SC	C,+1	C	
3058		STOP			-	S	ASA OR ARA OR DON A WILL TRY AGAIN.
3060		S, MON TYPER	NCOUT MSG	SPRAMR +16	TYP ABORT		"NO CARD OUTPUT".
3062	1ST CARD	DA, CAC3	4,104	ONE	4,104		INCREMENT CARD-PUNCH-TASK NUMBER.
3064		SWE, ONES	4,104	24	TASK LOG		FETCH DATA FOR BLOCK-LETTER IDENTIFIER.
3066		TX	BANK B	-	Z,AJ2		
3067		MT	ZERO	21	N,AJ2,1		BLANK OUT BINARY CARD IMAGE.
3069		SWE, CAC3	NUMBASE	16	Z,X4		POINT TO ARRAY OF BLOCK-NUMERAL CODES.
3071	BB VIA AU2	TX	BANK B	-	Z,AJ2	S	
3072		SWE, ONES	THREE	17	N,AJ2,11		CONTROL BITS TO SET BINARY PUNCH MODE.
3074		SWE, ONES	C1T7	A,1	TEMP MASK		SYNTHETIC C2T8 MASK.
3076	OUTLINES	SWS, ACH4	TASK LOG	24	C,+1		
3077		TX	4,0	-	N,AJ2,1		PLANT BLOCK NUMERAL IN CARD.
3079		SWE,TEMPMASK	TASK LOG	D,1	TASK LOG		
3080		NA	TASK LOG	ZERO	OUTLINES		LOOP END CAUSES ZERO-SUPPRESS OF TASK.
3082		TS	BANK B	Z,X4	PUNCH HEAD	C	USE SPECIAL ENTRY INTO CARD-PUNCH SUBRO.
3084	LAST CRD Q	EBA	PUNCH ADR	ZERO	Z,X4		RECOVER ADDRESS OF CONTROL WORD.
3086		NA	N,X4	EOR	SEND CARD		BRANCH IF NOT THE CLOSING-OUT CALL.

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P3088 ON RECEIVING A CLOSE-OUT CALL, PUNCH A CHECKERBOARD CARD, TYPE THE NUMBER OF CARDS PUNCHED, AND PUNCH A BLANK  
R3090 CARD TO RUN OUT THE PUNCH.

3091	LAST CARD	WA	BANK B	ONE	Z,AU2		
3092		MT	CHECKERS	20	N,AU2,1		CREATE CHECKERBOARD CARD.
3094		TS	BANK B	Z,X4	PUNCH ONE	C	PUNCH THE CHECKERBOARD.
3096		TS	CRD COUNT	PHI ARG	TYP NON YS +2	C	
3097		S, MON TYP	PHI ARG +2	SPRAM +40	-		" NNNN CARDS PUNCHED BY LOG AND TASK"
3099		TS	PHI WAA	Z,X4	BB VIA AU2	C	
3100		TX	ZERO	-	N,AU2,1		
3101		MT	BLANKS	10	N,AU2,1		CREATE BLANK ALPHABETIC CARD IMAGE.
3103		S, MON TYP	4,104	SPRA +72	-		HEX: "LLL LLL 000 TTT".
3105		TS	BANK B	Z,X4	PUNCH ONE	C	PUNCH FINAL BLANK CARD IN ALPHA MODE.
3107		EX	CRD COUNT	CAC3	CRD COUNT		RESET CARD COUNT TO ZERO.
3109		TS	RLS CD PCH	Z,AJ1	MON SN ZIP	C	RELEASE THE CARD PUNCH.
3111		TS	PUNCH CD	Z,SC	PNCH EXIT	C	

R3112 EVERY CARD SENT BY A CALLER COMES HERE EVENTUALLY.

3113	SEND CARD	TS	-	-	PUNCH ONE	C	NORMAL WAY TO SEND A CARD.
3115		TS	PUNCH CD	Z,SC	PNCH EXIT	C	
3116	PNCH EXIT	TX	FRAME	-	Z,MXR	S	
3117	PUNCH HED	TN	4,17	4	4,3	C	MOVE TASK NUMBER TO PLACE ON CARD.
3119		TN	N,CSC,4	4	4,7	C	PLANT BLOCK LETTERS: "TASK".
3121		OCT	-00 4224 1076,	-22 5252 5244			
3122		OCT	-70 2422 2470,	-02 0276 0202			
3123		TN	N,CSC,5	4	4,17	C	PLANT "LOG:" AND TAB TO PUNCH ONE.
3125		OCT	-00 0000 2424,	-72 5242 4234			
3126		OCT	-34 4242 4234,	-40 4040 4076			
3127		WF, DA	-	-	INCR CDCT		BRANCH IF 200 GOT CARD INFO OK.
3129	PUNCH ONE	SWS, CHAR1	MON PRADS	A,2,L	C,+1	C	SUPPLY TRUE ADDRESS OF PUNCH.
3131		WF, DA	4,0	-	-		
3132		TS, CHAR1	C,-1	PUNCH ONE -1	PUNCH ONE -1	C	
3133	INCR CDCT	DA	CRD COUNT	BIT 32	CRD COUNT	S	INCREMENT COUNT OF CARDS IN TASK.

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