

YUL SYSTEM -- PASS 0

R0001 WE ARE DEEPLY INDEBTED TO THE ONE, THE ONLY, THE GREAT JOHN HENRY FOR THE FOLLOWING STRONG MESSAGE.
 R0003 JSOCT_

R0004 SETLOGIC 0 B+

R0005 MMS<Gp>1 E*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 3LK2 PROGRAM, UNDER CONTROL OF YUL DIRECTOR CARDS, WHICH ARE
 R0012 DISTINGUISHED BY "M" 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 SWITCH AND RELEASE THE CARD PUNCH AS NEEDED.

CAST OF CHARACTERS:

R0025
 R0026 EMPEROR HUGH BLAIR-SMITH IL7-218E XT 215
 R0028 VICEROY FOR BLOCK II POLISH ASSEMBLY (YULPASS2PBLCKII) CLIFFORD F. IDE IL7-109 XT 151
 R0030 MINISTER FOR MANUFACTURING (YULMANUFACTG), YULMANJFCBLOCKII)

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PO032 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	NAY.	ASSEMBLE NEW AGC SEGMENT PIZZA BY JOE S. NEMO	
R0035	Y	LYNN.	ASSEMBLE NEW AGC4 SUBROUTINE INTPRET BY MJNTZ	
R0036	Y	YJL	ASSEMBLE REVISION 15 OF AGC4 PROGRAM HIKE BY JFK	
R00361	Y	YJL	ASSEMBLE REVISION 1 OF AGC SEGMENT SPLITFEE BY DR. CROOK	
R0037	Y	NAY.	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 BJGS BY BJNNY	(REQUIRED WITH VERSION ASSEMBLY)
R00401	Y	LYNN	ASSEMBLE VERSION NEWSLG 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	2NDP	ASSEMBLE TRANSFERRED BLK2 PROGRAM DUSK BY NASA 2519999-099	(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	YJL	ASSEMBLE TRANSFERRED SACO SUBROUTINE DENTJRES BY G. WASHINGTON	
R0049	S		FROM WASPARTJFAPROG	(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	NAY.	REPRINT NEW AGC SEGMENT CLIPPING BY XEROX	
R00532	S		FOR DENNISON	(REQUIRED WITH REPRINT)
R0054	Y	YUL	REPRINT REVISION 0 OF SACO SUBROUTINE CARRIES BY TOOTH DECAY	
R0055	S		FOR NUT E. JUKING, U.S.S.	(REQUIRED WITH REPRINT)

P0057 EXAMP-ES OF YUL DIRECTOR CARD TYPES CONCLJDED. 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 SPDOX
 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 W. 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 JINGBAT
 R0075 Y LYNN PRINT, PUNCH NEW AGC4 SUBROUTINE INTERPRET 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 PIC<YOURFILENAME> (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 LEADDN BY TEASER
 R0081 S AS SOMEDOTHERNAME (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 YUL 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 MAIN TAPE

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P0105 81,0000 THROUGH 81,0076 (OCTAL) CONSTITUTE INTERPASS STORAGE. NOTE THAT PASS 0 CHANGES C (PRDG NAME).

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

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

0111 NEXT VAYE ALF END SYLT

0112 SWITCH OCT 0

0113 L 3LD 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 LOGNO. YUL SYSTEM FOR

0121 ALF,5

0122 ALF,5

(MAIN) PAGE 0

0123 PAGE NO GEC +0

0124 SYM PLACE SPEC*B8 DAMN ZERO

0125 SYM T46 XS DEC +0

0126 L COP BJFS SPEC*B7 768

PG127 INTERPASS STORAGE CONTINUED.

0128	MID PJNT	RESERVE	1
0129	LIN PJNT	RESERVE	1
0130	N WD RECS	OCT	0
0131	E SYLI BAN	RESERVE	1
0132	L PRG: FIL	RESERVE	1
0133	N LINES	OCT	0066
0135	L COMP: NAM	RESERVE	1
0136	N COPIES	OCT	0
0137	PAPES PLY	OCT	0
0138	ERR PAGES	OCT	0
0139	N ERR LINS	DEC	0
0140	L AUT: NAM	RESERVE	1
0141	SORS VAYE	ALF	
0142	COYPIER	OCT	37373737
0143	SES OWNER	ALF	
0144	SUBSTRAB	OCT	01 01 01 01 0, 01 0, 0

STANDARD 54 LINES PER PAGE.

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,BIT12	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
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,CIT4	OCT	7777 7777
0165	B,CIT5	OCT	7777 7777 7777
0166	B,BT-RED10	OCT	-3776 0000
0167	B,THREAD10	OCT	-3776
0168	B,THREAD11	OCT	-3777
0169	B,BIT2	OCT	2
0170	B,BAN3BITS	OCT	-760 0000
0171	B,CAC3	DEC	-GGGG
0172	B,B2B11	OCT	2002
0173	B,C7T8	OCT	-7777
0174	037143	EQUALS	C7T8
0175	B,BIT12	OCT	0001
0176	B,C5T3	OCT	-7777 7177
0177	B,BIT25	OCT	-4000 0000
0178	B,BIT33	OCT	-10 0000
0179	B,DATEMASK	OCT	-77 7700 7771
0180	B,B36T37	OCT	-14000

VARIABLE MASK.

32 B MASKS.

P0182 FURTHER SHIFT MASKS FOR PASS 0.

0183	S•B5T9	OCT	037
0184	S•B10T12	OCT	0007
0185	S•D1	DEC	G
0186	S•B1T1	OCT	4
0187	S•D12	DEC	-ti
0188	S•ACH4	DEC	000 005
0189	S•ACH5	OCT	-1700 0000
0190	S•C1T7	OCT	7777 7777 7777 7700
0191	S• C1T3	OCT	7777 77
0192	S•C3T5	OCT	0000 7777 77
0193	S•C3T5	OCT	0000 7777 1777
0194	S•DECALFM2	OCT	0074 0074 0074 0014
0195	S•DECALFM3	OCT	1717 1717 1717 1717
0196	S•CAC1	DEC	GGGG
0197	S•CAC2	DEC	0000 GGGG
0198	S•ATHRED10	DCT	0000 3776
0199	S•TWO	OCT	-2
0200	S•THREE	OCT	-3
0201	S•SEVEN	OCT	-7
0232	S•ONES	DEC	GGGG GGGG GGGG
0203	S• 3D8	DEC	-3 0000
0204	S• 7D8	DEC	-7 0000
0235	S•B13T24	OCT	0000 7777
0206	S•B1T+RU12	OCT	7777
0207	C1T2	EQUALS	B1 THRI 12
0208	S•ONE	OCT	-1
0209	S•7C6	OCT	-7 0000
0210	S•D8T12	DEC	-GGGGG
0211	S•FOUR	OCT	-4
0212	S•LON5	OCT	-37
0213	S•ATHRED11	OCT	0000 3777
0214	S•OTHRED10	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 0220	YUL TYPER SIMULATE TS	Z,AUZ	TYP RETURN	TYPIST	ASSIGNED TO 0,63 (FROM OUTSIDE BANK 1). PRESERVE MANDATORY C ADDRESS.
0222 0224	RD SBJDR HOWZAT TS	Z,SH WHODUNIT	Z,X1 Z,AJ1	RD SBJDR HOWZ THAT	TO SUBDIRECTOR HEADER (0,65). UNRECOGNIZED WORD ABORT (0,66).
0226 0228 0230 0232	PCH LEDER IGN SBJDR UNRC SUBR E SYLT OK TS	Z,SH Z,SH Z,SH Z,SH	Z,X4 Z,X4 Z,X4 Z,X4	PUNCH LEDR IGN SBJDR UNRC SBJDR EN SYLT OK	PUNCH "BEGIN..." & OBJECT MSG (0,67). IGNORE A NON-VITAL SUBDIRECTOR (0,68). CUSS UNKNOWN WORD IN SUBDIR (0,69). MAKE GB STOP BYPT SEEK, STT PGM (0,70).
0234 0236 0238	FETCH SS NO CORE PCH TITLE TS	Z,SH STAR COL 1 Z,SH	21x4 6,1 Z,50	FETCH SSN NO DIRECT +1 PTP TITLE	FETCH ANY SUBSTRAND. (0,71). RETURN FROM CORE SNATCH FAIL (0,72). VISIBLY PUNCH N WDS ON TAPE (0,73).
0240 0242 0244	PCH FRAME MANUF RTN TX TS S, MON TYPER	Z,SH SWITCH BLANKS	- Z,SH SPRA +8	BKB PLACF PCH FRAM END M TASK	(EXIT FROM PCH FRAME). PROCESS PAPER TAPE FRAME (0,75). RETURN FROM MANUFACTURING TASK (0,76).
0246 0248	YUL MASKS OCTAL 20 MASKBASE OCT	S,0 -20	F,0		(0,77). (0,78).
0250 0252 0254 0256	SEARCH KEY WHODUNIT 6 COMMA 19 L GPB STT RESERVE RESERVE SPEC,B7 SPEC,B7	1 1			MATCH FOR WD 2 OF YULPROGS RECD (0,79). ADDRESS OF UNRECOG. SUBDIR, WD (0,80). 2ND WD OF SENTENCE-READ OUTPUT (0,81). START ADDRESS FOR SIDE-GROUP B (0,82).
0258 0260 0262 0264	L DIRECTY CHAS 2500 FRAME MASK SAVE CAC DEC RESERVE TS	2048 -2500 1 YUL MASKS		14336 DO BACKJ6	ADDRESSES OF B1, B7 (0,83). CHARLIE-WORD VALUE OR INCREMENT (0,84). PAPER TAPE FRAME TO BE PUNCHED (0,85). FOR MASKBASE OF MANUFACT ETC. (0,86).
0266 0268 0270 0272	PUNCH CD TYP ABORT L OBJC MSG SIMULATE TS S, YON TYPER SPEC	Z,MXR Y ABORT	FRAME SPRAMR +16	PUNCH CARD TYP BDRTA OBJC MSG	GENERAL CARD-PUNCHING SUBRO (0,87). (0,88). FINAL ACTION, ALL ABORTS (0,89). (0,90).
0274 0276 0278 0280	REJEC DIR TASK MSG E TASK OBJC S, MON TYPER S, YUL TYPER ALF,4 TS	REJEC MSG 6,2	SPRAMR +32 AMTF +9	- TYP ABORT	DIRECTOR OR SUBDIRECTOR REJECTED (0,91). TYPE TEXT OF CARD (0,92). TASK AND COMPUTER NAME FOR TYPING (0,93). EXTERNAL ENTRY TO TASK OBJC (0,97).
0282 0284 0286 0288	TYP TSKOB E KNOWN PS TAP SRCH L PGHD P3 TS TS TS CAC	WHODUNIT Z,SH L GPB STT 30720	Z,X0 Z,SC Z,CSC	TYP TSKOB KNOWN PSR TAP SRCH PAGE HEAD +3	EXTERNAL ENTRY TO TYP TKOBJ (0,98). EXTERNAL ENTRY TO KNOWN PSR (0,99). GENERAL CALL TO TAPE SRCH (0,100). DEPAGINATOR & HEADLINE ADDRESS (0,101).
0230 0292	ASSY SBJDR COMMON TS RESERVE	- 2	-	ASSY SBJDR	EXTERNAL CALL FOR PRINT SUBDS (0,102). GENERAL TEMP. STORAGE (0,103, 0,104).

P0294 TRANSFER VECTOR CONTINUED.

R0295 MINOR SUBROUTINES IN PASS 0 TO PUT A CHARACTER. 52 IS MAJOR INDEX, CSC IS MINOR INDEX. CHARACTER IN C1 OF
R0297 COMMON, COSEQUENCE CALL. 0,105 THRU 0,113.

0298	PUT CHAR	SS	COMMON	CHAR1	N,52		
0299		SWS, CHAR2	COMMON	A,1	N,52		
0300		SWS, CHAR3	COMMON	A,2	N,52		
0301		SWS, CHAR4	COMMON	A,3	N,52		
0302		SWS, CHAR5	COMMON	A,4	N,52		
0303		SWS, CHAR5	COMMON	KR5	N,52		
0304		SWS, CHAR?	COMMON	A16	N,52		
0305		SWS, CHARB	COMMON	A17	N,52		
0306		TS	Z,52+1	-	PIT CHAR	C	
0307	WRITE OBJ	TS	Z,SH	Z,53	WRIT OBJr		EXTERNAL CALL TO WRIT OBJC (0,114).
030P	LABEL YUL	TS	Z,SH	Z,X5	LABEL TEST		ONLY ENTRY TO LABEL TAPE (0,115).
0311	POSIT YUL	TS	Z,SH	Z,53	POSIT REW		ONLY ENTRY TO POSITION TAPE (0,116).
0313	PHI WAA	SPEC*B7			600		SENTENCE HEADER AREA SPEC (0,117).
0315	GROUP A	RESERVE	1				MAIN GROUP NUMEER (0,118).
0317	YUL P4.LZ5	TS	N,AU1,1	PHI ARG	YJL D2A 75		EXTERNAL CALL TO YUL D2A 2S (0,119).
0319	FOUND BUF	RESERVE	2				COMMUNICATION WITH TAPE SRCH (0,120-1).
0321	GROUP NAP	TS			MON SLEEP	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 THRS	C	EXTERNAL CALL TO SUB THRS (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	COYP NAME	RESERVE	1				RESULT FROM FIND COMP (0,128).
0335	1 COMMA 8	SPEC*B7			B		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,52	DECOO CPN		EXTERNAL CALL TO DECOO CPN (0,131).
0341	CPN FIXER	TS	Z,SC	Z,52	MOD CHEK 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 BLA VCD	SPEC			BLANCARD		ADDRESS OF ZERO & 15 BLANK WOB (0,136).
0351	REVND	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).

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P0359 RESERVATIONS.

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

R0365 NUMERIC CONSTANTS.

0366	SIXES	OCT	12, 06, 0606, 060506
0373	ZERO	OCT	0
0374	PLUS ZERO	DEC	+0
0375	54 LINES	OCT	0066
0376	BIT 6	DCT	01
0377	1 C7	OCT	-100
03775	YUL FILE	OCT	-7002
0378	B14T1B	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 93	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

P03931 NUMERIC CONSTANTS CONCLUDED.

03932	FIFTY	DEC	-50
03934	OV FACTOR	DEC	G8465
0394	4 C6	OCT	-4 0G00
0395	CAC12	DEC	GGGG GGGG
0396	CAC3 41	OCT	-177776
0397	BIT 32	OCT	-20 0000
0398	C174 348	DEC	GGGGGG 000001
0399	B2 a13	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 e	OCT	
0405	BIT 35	OCT	220000
0406	B34T35	OCT	-6 0000
0407	B14 318	DEC	00044
0408	B15 319	DEC	00022
0409	816 B20	DEC	00011
0410	818T23	DEC	00007
0411	SUPP 3ITS	DEC	00077
0412	GROUP IND	OCT	-74000

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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	AUTMEMO	ALF	AUTMEMO
0421	W	INACTIV	ALF	INACTIVE
0422	GC	FRE MSG	ALF	G? FREE
0423	W	END SYPT	ALF	END SIPT
0424	W	END SYLT	ALF	END SYLT
0425	*	JPSRADE	ALF	UPGRADE
0426	W	BEFORE	ALF	BEFORE
0427	W	ALL	ALF	ALL
0428		RIGHT HO	ALF	(SIGH)
0429		STAR COL	ALF	*
0430		TAPE YO	ALF	20000000
0432	W	BLOT OBS	ALF	**OBS**
0433	W	BY	ALF	BY
0434	W	SYMBOL	ALF	SYMBOL
0435	W	OCTAL	ALF	OCTAL
0436	W	DELETION	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	*	SEGMENT	ALF	SEGMENT
0443		LOG COMMA	ALF	* 000000
0444	*	LINES	ALF	LINES
0445	*	COPIES	ALF	COPIES
0446	W	FROM	ALF	FROM
0447	W	FROZYUL	ALF	FROZEYJL
0448	W	ZND FROZ	ALF	ZNDFROZE
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	BLCPV MSG	ALF,3	COMPUTER NAME IS BLANK.
0461	BLPSV MSG	ALF,3	PROG/SJB NAME IS BLANK.
0462	CONPV 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	DISCFILE NAME VOID OR TOO LONG
0466	XIN TERMS	ALF,5	DISCFILE 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 P3 MSG	ALF,3	THIS PROGRAM WAS AS
0470	VER S3 MSG	ALF,3	THIS SUBROUTINE WAS AS

648165

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	LPRGQ MSG	ALF,5	TOO-LONG PROG/SUB NAME:
0475	LREVQ MSG	ALF,5	TOO-LONG REVISION NO.:
0476	TSFR LINE	ALF,3	SEMBLED FROM DISC FILE
0477	XNODF 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

9548167

L @YUL SYSTEM - MASS 0

P0485 ALPHABETIC CONSTANTS -- THIRD OF 7 PAGES.

0486 CONSJ MSG ALF.5
 0487 NUM MINS ALF.2
 0488 NON MISE DEC
 0489 OBJCT MSG ALF.5
 0490 ALF.2

 0491 OC MAP MSG ALF.3
 0492 RDJND MSG ALF.2
 0493 REJEC MSG ALF.4
 0494 SY TA3 MSG ALF.3

 0495 ASCBJ MSG ALF.3
 0497 NTPCH MSG ALF.2
 0498 NR FRZ MSG ALF.5

CONTROLLED SUBROJTINE CANNOT BE DIDDIED.
 CARDS BYPASSED;
 0

 OCTAL STORAGE MAP
 REDUNDANT
 THEREFORE THIS CARD IS REJECTED:
 SYMBOL TABLE LISTING

 ASA TO CREATE BACKUP:
 NO TAPE PUNCHING
 CANT REVISE A PROGRAM ON A FROZEN TAPE

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	UNRCJ 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	WAUTH MSG	ALF,5	WRONG AUTHOR. SHOJLD BE;
0507	W END YUL	ALF,2	END YUL SYSTEM
0508	WREVN MSG	ALF,5	WRONG REVISION NJMBER. SHJULD BE;
0509	WUNRC MSG	ALF,5	THIS WORD UNRECOGNIZED;
0510	AU SJ3: MSG	ALF,5	CONTROL OR DECONTROL REQUIRES AUTHORTZIN
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 LV 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 13060	ALF,3		W A A10060 0000000P
0522	DUPSR MSG	ALF,3		DUPLICATE SUBDIRECTOR
0523	NF W52 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 YSG	ALF,3		ILLEGAL REQUEST FOR TASK
0527	VRSNS MSG	ALF,5		VERSION ASSEMBLY MUST HAVE SUBDIRECTOR S
0528		ALF,2		PECIFYING SOURCE

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P0529 ALPHABETIC CONSTANTS -- SIXTH OF 7 PAGES.

0530	22 DJT MSG ALF,3	2200 READY TO DO MONADJT
05301	NO MDS MSG ALF,3	NO MONAIN DATA STORED
0531	FRSUB MSG ALF,3	FREEZE SUBROUTINES
0532	PRJ C3 MSG ALF,4	PROGRAMS CANNOT BE CONTROLLED.
0533	NUMUS MSG ALF,3	NUMBER OF USERS =
0534	PRJBS MSG ALF,5	PROGRAM OBSOLETED BY SBJRJTIVE CHANGES
0535	SUP C3 MSG ALF,3	SUPPRESS CONDITIONALLY;
0536	REP 4 LINE ALF,3	THIS REPRINT IS
0537	4WHOM MSG ALF,5	REPRINT REQUIRES "FOR WHOM" SJBDIRECTOR
0530	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 JRING FC	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 3. 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	CPUNV MSG	ALF.3	CARD PUNCH UNAVAILABLE
0555	NCOUT MSG	ALF.2	NO CARD OUTPUT

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P0556 ADDRESS CONSTANTS.

0557	ENDIRECTS	SPEC			LAS DIRER
0558	L DIRECTS	SPEC			DIRECTS
0559	L END THR	SPEC			END THR
0560	L SUBSTRB	SPEC			SUBSTRAB
0561	RLS C) PCH	CAC		NUMERALS	16
0562	L SN CPNCH	SPEC			SN CPNCH
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 ZERO
0568	L MSG AREA	SPEC+B7			590
0569	Y FILE LIM	SPEC+B7			500
0570	GB SWITCH	SPEC+G0			N,R2
0571	BANK 3	SPEC+BB			DAMN ZERO
0572	BKB PLACE	SPEC+BB			DAMN ZERO
0573	END BANK B	SPEC+BB			2039
0574	I SYM THRS	CAC	8192		8192
0575	ISY SJB TH	OCT	5000 0000 0003 4037		
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			DAMN ZERO
0587	L SERVICE	SPEC+B4			

P0588 ASSIGNMENTS.

0589	MONITOR	ASSIGN	7,0
0590	PHI TAPE	ASSIGN	7,1
0591	PHI SNACH	ASSIGN	7,12
0592	PHI PEEK	ASSIGN	7,3
0593	EOR	ASSIGN	7,14
0594	PHI LOAD	ASSIGN	7,17
0595	PHI READ	ASSIGN	7,15
0596	HON RELEAS	ASSIGN	7,19
0597	PHI PRINT	ASSIGN	7,23
0598	MON EDFRI	ASSIGN	7,31
0599	PHI DATE	ASSIGN	7,36
0600	PHI SENTER	ASSIGN	7,40
0601	PHI AZD	ASSIGN	7,41
0602	PHI ABORT	ASSIGN	7,46
0603	BASE ADDR	ASSIGN	7,47
0604	MON UNLCK	ASSIGN	7,85
0605	MON SSSNA	ASSIGN	7,91
0606	MON WAKE	ASSIGN	7,99
0607	MON REL CP	ASSIGN	7,100
06072	MOY 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 PINCH	ASSIGN	7,191
0615	PHI LABEL	ASSIGN	7,195
0616	DISC STAT	ASSIGN	7,210
0617	MON SUCOR	ASSIGN	7,212
0618	MON TYPER	ASSIGN	7,215
0619	HOY 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	TR00 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	SPAR IDLE	ASSIGN	6,106

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P0630 EQUIVALENCES.

0631	4	EQUALS	128
0632	AMTF	EQUALS	384
0633	AMTFNCR	EQUALS	896
0634	SPRA	EQUALS	128
0635	SPRAY	EQUALS	896
0636	SPRAMR	EQUALS	384
0637	DAMN ZERO	EQUALS	0
0638	ATAPE PCH	EQUALS	64
04382	CHK DF ERR	EQUALS	512
0639	BIT 34	EQUALS	4 C6
0643	1 C6	EQUALS	BIT 36
06452	THOUSAND	EQUALS	BIT 36
06454	DEC 10000	EQUALS	BIT 32
0646	Y COLJMN 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 COLJMN 1	EQUALS	W SYMBOL
0656	BANK 1	EQUALS	L DIRECTY
0657	AC02	EQUALS	B10T12
0658	AMPRSANS	EQUALS	DEC ALF MB
0659	W NE	EQUALS	W SUBROTI +1
0660	W RENJMBR	EQUALS	CDREN YSG
0661	NUM BASE	EQUALS	RES CD PCH
0662	CRD CJUNT	EQUALS	L SN CPNCH
0663	L STOPPER	EQUALS	CAC3
0664	W SJPRES	EQUALS	SUP CD MSG
0665	SAVE X5	EQUALS	SORS LINE

P0668 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 PASS 0, FOUR PAGES HENCE.

0675	SETLOC,4	0	B4		
0679	BEGIN JOB	TX	L PAR IDLE	-	Z,RO
0680		TX	PARA IDLE	9	N,RO
0682		TS	Z,RO,3	C,+1	MON 565VA
0684	L PA? IDLE	SPEC,1B7			706
0685		TS	834T47 BJ	Z,R1	RETRY GPC
0687		TX	SAY DIE	-	C,+2
0689	NO GROUP C	S, MON TYPER	ND25G MSG	SPRAMR +32	-
06902		TX	BANK 1 BJ	-	Z,X0
0691		TX, CHAR3	ACA OTHE B	-	BJ TRY MSG
0692		S, YON TYPER	BJ TRY MSG	SPRAMR +16	-
0694		S, MON TYPER	ACA OTHE B	SPRA +16	C,+3
0496		STOP		-	-
0698	SAY DIE	S, MON TYPER	BJ END YUL	SPRA +16	MONITOR
0700		TS	834T47 BJ	Z,R1	C,-2
0702	RETRY GPC	TS	Z,RO	C,+1	MON 565VA
0103		RESERVE	1	-	-
0704		TS	BANK 1 BJ	Z,X0	SNACH TAP
0706		LA	Z,R1	ZERO BJ	NO GROUP C
0708		NA	Z,R1,1	ONE BJ	C,-1
0710		TS	-	-	RETRY GPC
0711	SNACH TAP	EBA	MON LCARD	ZERO BJ	Z,AU1
0714		TN	N,AU1	10	6,1
0715		TS	ONES BJ	6,11	PHI SENTR
0717		TS	Hi8008	YUL LOG 4	MON REL CD
0719		NA	6,19	ONES BJ	C,+2
0721		TS	Z,5C,1	-	PHI SNACH
0723		TS	6,19	C,+2	PHI SNACH
0725		ALF,2	N10<0001YULPROGS		
0726		DEC	GGG GGG GGG GGG		
0727		TS	CJMMMA *62	YUL DATE +1	3ET LOG NU
0728		SWE, CIT4	N,AU2,4	D,1,L	YUL LOG
0730		TS	ONES BJ	N,AJ2	MON JNL0V
0732		WF,1	-	-	-
0733		TS	YUL LOG	PHI ARG BJ	PHI TAPE
0734	LOAD LABL	RF,1	1,0	-	-
0736		TS	Z,5C	Z,AJ1	YUL DA L,5
01372	PHI ARG BJ	RESERVE	1	-	-
07374		TX	Z,SH	-	Z,X4
0738		SSL, ONE	1800 AB SW	24	C,+1
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	-
0744		TS, C16	4,2	YUL LOG A	PHI TAPE
0745		RF,1	-	-	-

SET UP BED FOR SIDE GROUPS TO SLEEP IN.
 SNATCH AND START GROUPS B AND C.

(FOLLOWS SUCCESSFUL SNATCH OF GROUP B).
 IF CAN'T GET EVEN ONE SIDE GROUP, DIE.
 "YUL SYSTEM NEEDS TWO SIDE GROUPS".
 UNDO DAMAGE DONE BY GROUP-SNATCHER.

"ASA TO TRY AGAIN".
 "ACA OTHERWISE".
 S ASA OR ARA OR DON A WILL TRY AGAIN.
 C ACA COMES HERE.
 PREPARE TO TRY AGAIN.

(FOLLOWS SUCCESSFUL SNATCH OF GROUP C).
 SEEK HELP AFTER TWO FAILURES IN 1/2 SEC.
 COUNT DOWN FROM 32766.

FORM ADDRESS OF SAVED MONITOR CARD.

RE-SENTENCE-READ MONITOR CALL CARD.
 C RELEASE MON CARD COMMUNICATION AREA.

BRANCH IF THERE'S A WORD AFTER "YJL".
 IF NONE, USE TAP1 YULPROGS.
 OTHERWISE, USE TAPE NAMED.

C PROTECT LOG NUMBER FROM MULTIJCS.
 C KILL MON LINE LIMIT. UNLOCK YULPROGS.

LABEL TO BANK 7 FOR DURATION OF JOB.
 CONVERT LOG TO ALPHA9 SUPPRESS ZEROS.

APPEND "A" OR "B" TO LOG NUMBER.

TYPE "BEGIN YUL SYSTEM".

VERIFY THAT LABEL IS READ IN.

0048175

P0747 VERIFY THAT THE DATE IS REASONABLE.

0748	DO MONTH	SWE, D1	PHI DATE	8,L	PACK DATE
0750		NA, CHAR1	PHI DATE	ZER0 BJ	00 NOV DEC
0751		LA, CHAR2	HEXB C2	PHI DATE	ILLEG DAT
0753		NA	PACK DATE	ZER0 BJ	PRINT MO
0755	ILLEG DAT	S, MON TYPER	PHI DATE	SPRAM +8	-
0756		S, MON TYPER	W ILLEGAL	SPRAMR +8	-
0758		S, MON TYPER	FIX DATE	SPRA +16	PHI ABORT
0760	00 NOV DEC	NA, CHAR1	PHI DATE	1 C1	ILLEG DAT
0762		LA, CHAR2	3 C2	PHI DATE	ILLEG DAT
0764		WA	PACK DATE	B D1	PACK DATE
0766	PRINT MO	SWE, D12	PACK DATE	D,11	6,1
0768		WA	6,1	L MONTHS	Z,AU1
0769		TX	N,AU1	-	YJL DATE
0771	PRINT DAY	SWS, C78	PHI DATE	A,3	YJL DATE
0773		NA, CHAR7	YUL DATE	ZER0 BJ	00 DAY
0775		SWS, C78	YUL DATE	A,1,L	YJL DATE
0777		LA, CHAR7	YUL DATE	ZER0 BJ	ILLEG DAT
0779		TX, CHAR8	CUMMA C8	-	YJL DATE
0780	DO DAY	NA, CHAR4	PHI DATE	ALF DAY 30	DAY 1T29
0782		LA, CHAR5	2 C5	PHI DATE	ILLEG DAT
0784		SWS, B5T9	PHI DATE	21,L	PACK DATE
0785		WA	PACK DATE	BIN DAY 30	PACK DATE
0787	TEN DAYS	TS	-	-	00 YEAR
0789		WA	PACK DATE	BIY DAY 10	PACK DATE
0790		WA	PACK DATE	BIN DAY 23	PACK DATE
0792	DAY 1T29	LA, CHAR4	ALF DAY 30	PHI DATE	ILLEG DAT
0794		LA, CHAR5	HEXB C5 BJ	PHI DATE	ILLEG DAT
0796		SWS, B5T9	PHI DATE	21,L	PACK DATE
0797		SSL, CHAR3	PHI DATE	A,4	TEN DAYS
0799	DO YEAR	SWS, CHAR5	PHI DATE	A,2,L	YJL DATE +1
0831		NA, CHAR7	PHI DATE	6 C7	ILLEG DAT
0803		LA, CHAR8	PHI DATE	ONE BJ	ILLEG DAT
0805		LA, CHAR8	HEXB C8	PHI DATE	ILLEG DAT
0807		NA, CHAR4	PHI DATE	ZER0 BJ	C,+2
0839		SWS, C1T7	YUL DATE +1	A,1,L	YJL DATE +1
0811		WD	PHI DATE	TU3 BJ	N,X6
0813		SWS, B10T12	N,X6	12	PACK DATE
0815		TX	PHI DATE	-	1,4

UNITS DIGIT OF MONTH.

BRANCH IF NON-DECIMAL MONTH.
BRANCH IF MONTH NOT ZERO.

"MM.DD.YY ILLEGAL".
"FIX DATE & RERUN".

BRANCH IF MONTH = 20 OR MORE.
BRANCH IF MONTH = 13 OR MORE.
PUT PACKED MONTH IN THE RANGE 1-12.

GUARANTEE NO ASTERISK INITIALLY IN 6,1.

STORE ALPHABETIC MONTH NAME.

TENTATIVELY, 2-DIGIT DAY TO ALPHA DATE.
BRANCH IF DAY = 10 OR MORE.
SHIFT UP 1-DIGIT DAY.
BRANCH IF DAY = 0.

BRANCH IF DAY LESS THAN 30.
BRANCH IF DATE = 32 OR MORE.

PUT DAY 30 OR 31 IN PACKED DATE.

(USED WHEN DAY LESS THAN 10 OR OVER 29).

FINISH PACKED DAY NUMBER.

BRANCH IF DAY = 40 OR MORE.
BRANCH IF NON-DECIMAL DAY NO.

C INSERT DAY NUMBER INTO PACKED DATE.

PUT UNITS DIGIT OF YEAR NUMBER INTO ALF.
RECODE THIS ON DEC. 31, 1969.
BRANCH IF 60 OR 61.
BRANCH IF NON-DECIMAL YEAR NO.
BRANCH IF DAY WAS TWO DIGITS.
OTHERWISE SHIFT UP ALPHA YEAR.
GUARANTEE N,X6 INITIALLY NOT ALPHANES.
PUT DIMINISHED YEAR NO. INTO PACK DATE.
PUT DATE IN YUL FILE DIRECTORY.

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

0818	SETUP COP	TX	L COPES BJ	-	Z,AJ2
0819		TX	Z,AU2.1	-	Z,X4
0820		MT	ZERO BJ	33	N,AJ2.1
0822		TS	Z,X4	4,68	C,-1
0824		RT	4,1	4,67	4,69
0826		TX	Z,AU1	-	N,X4
0828		TS	Z,AU1	N,AJ2	MDJ, SN CNR
0829		DEC	GG00 0000 0018		
0830		TS	L SET PG HD	Z,5C	C,+2
0831	S, MON TYP	ND19B MSG		SPRMR +32	NO CORE
08312	TX	BANK 1 BJ			Z,X0
0832	NA, CHAR8	1,0		ZERO BJ	C,+1
0833	S, PHI LOAD	B SERVICE	0		DO BKUP BJ

C CLEAR 4 X 16 + 2 WORDS IN FIRST BUFFER,
 SPEC TO START OF BUF FOLLOWS BUF.
 PRE-PLANT EOR FOR END BUFFER DETECTION.
 EACH BUF IS PRECEDED BY SPEC 13 OTHER.

C SNATCH UPPER MEMORY BANKS 0-3.

C *YUL SYSTEM NEEDS 19 BANKS: 1-3".

C UNDO DAMAGE DONE BY CORE SNATCH.

S EXIT TO SET PG HED IF GOT CURRENT TAPE.

R0834 ALPHABETIC CONSTANTS FOR THE BEGIN-JOB SUBSEGMENT.

08341	BLANKS BJ	ALF	
08342	H18003.	ALF	B
08343	COMMA '62	ALF	, 1962
08344	# ILLEGAL	ALF	ILLEGAL
08345	LUMPED BJ	ALF	13 32 6,
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	ND255 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

MULTIPLE MASKED CONSTANT.

9548177

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

08355	ZERO 3J	OCT	0	
08356	ONE 3J	OCT	-1	
08357	TWO BJ	OCT	-2	
08358	ONES 3J	DEC	GGGG GGGG GGGG	
08359	E34147 BJ	OCT	-77776	
0836	B D1	DEC	B	
08361	I C7 3J	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 HD
083695	L COP35 BJ	ASSIGN	0.39	
0837	NO CORE	ASSIGN	0.72	
08371	DO B _C JP BJ	ASSIGN	0.86	
08372	YUL DA LZS	ASSIGN	0.119	
08373	B SERVICE	ASSIGN	0.138	
08374	ACA JTME 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	

POB384 ROUTINES IN B7,0706 - B7,0714 FOR SIDE GROUPS TO SLEEP IN.

083845	PARA IDLE	TX	Z,SC	0	Z,RO		
08385	GP3 START	TS	-	-	MON SLEEP	C	INITIALLY, ESTABLISH SLEEP ADDRESS.
083855		LA	N,SC,3	N,RO	N,RO		(REPLACED WITH A SPEC TO WAKE JS). GO BACK TO SLEEP IF FALSE ALARY.
00386		TX	Z,SC	-	Z,RO		
083865	GPC START	TS	-	-	MON SLEEP	C	
08387		LA	N,SC	N,RO	N,RO		SAME AS ABOVE FOR GKROUP C.
083875		TX	N,RO	-	Z,CSC		
08388		TS	H,SC	N,RO	N,CSC		EITHER GROUP COLLECTS WAKE ADD?. HERE.
083885		TS	-	-	MON SLEEP	C	MAKE THE BED AND GO TO WORK.

083895 SETLOC:1

ROB39 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	S	KEEP MAIN GROUP NO. IN TRANSFER VECTOR.
0840		SWS, CHAR3	GROUP A	A,3	ACA DTHE		ALSO KEEP IT HEADY FOR USE BY PASS 0.
08404		S, MON TADCK	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 WOUN	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 FRJZ	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 HEADINGS.
0853		TS	YUL LOG	WORKERS +2	MON JNLCK	C	MINOR IDENTIFICATION FOR ASSEMBLY WRKRS.
0655		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	EUR	SERCH KEY	POSIT YUL		NEGATE SEARCH FLAG- POSITION YULPROGS.

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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 #AA	-	Z,X6	ADDRESS OF SENTENCE READER IN/OJT AREA.
0873		NA	H,X6	ONES	END CHECK	BRANCH IF THERE'S NO INVISIBLE DIRECTOR.
0875		TX	H,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		HN	NON WISE	ZERO	TYP NON VS	TYPE COUNT OF NON-YUL-DIRECTORS IF NZ,
08872		SWS, CHAR3	1,1	Ar7	6,1	MAKE BLANKS IN COLS 2-7 LOOK GOOD,
08873		SWS, ONES	6,1	A,1,L	6,1	
08874		NA, CHAR1	6 r 1	BLANKS	C,+3	NORMALIZE CONTENTS OF COLUMNS 2-8.
08875		TS	-	SPRAMR +40	C,+2	"WRONG TAPE NAME ABBR IN COLS 2-7",
08876		S, MON TYPER	WR TAP MSG	1,1	CS-1	INITIAL LETTER MUST MATCH THAT OF TAPE.
08877		NA, CHAR1	6,1	Z,X5	COMP DIPC	SET UP TABLE LOOK-UP ON 1ST WORD.
0888	Y.DREC TLU	TS	L DIRECTS			
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 31R	ANNOUNCE UNRECOGNITION OF FIRST WORD.
0895	COYP DIRC	NA	N,X5+1	6,16	TRY DIREC	
0896		NA, C1T6	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 MAKE	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 11 IS.
0911		SWS, AC02	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	B36137	EYD 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 YJ1	RELABEL YULPROGS ONLY WHEN NECESSARY.
0922		NA, CHAR8	1,0	ZERO	DJ BACK Jp	DO BACKUP PROCEDURE IF APPROPRIATE.
0924	END CHECK	NA, CHAR1	6,1	STAR COL 1	RD DIRECT	GO READ DIRECTOR UNLESS ENDJOB HAS READ.
0926		LA	ONES	6,2	RD DIRECT	BUT BRANCH AFTER CREATING A BACKUP.
0928		TS	Z,SC+1	6,107	MON MAKE	
0929		TS	ZERO	C,+1	MON REL GP	
0931		WD	Z,SC	ONE	Z,SC	DISMISS GROUP B.
0933		S, MON TYPER	# END YUL	SPRA +16	MONITOR	WAIT UNTIL IT'S OUT OF SIGHT. 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	TYP ER MXR	YJL MASCR	C
0946		SWS, CHAR3	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		MA	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 4 BLANK.
0958	SEYD TYP W	TS	N,AU1,1	N,CSC	EYD 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.
0564		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 STATUS.
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 AU1 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 FHOY MSG.
0981		LA	Z,CSC	SEVEN	7 OR LESS	BRANCH IF ONE MONITOR CALL WILL DO,
0983		WD	Z,CSC	SEVEN	TYPIST	
0984		SWS, CHAR5	TYPIST	15,	SPRAY 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 TYPES.
0990	SPRAM WD	PR	SEVEN	SPRAM	-	
0991		SWS, CHAR5	TYPIST	15,	YJL 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, CHAR5	Z,CSC	15,L	YJL TYPER	
0996		TX	TYP RETURN	-	Z,AJ2	
0997		TX	TYP ER MXR	-	Z,MXR	
0998		TS	YUL TYPER	N,SC,1	Y3N TYPER +1	C MAIN SYNTHETIC CALL TO MON. TYPER.
1000	TYPE3 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.

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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,	At	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 SJB.
1020		ALF	ASSEMBLE				
1021		M,A,	A,	A,	ASSEMBLY		PROGRAM OR SUBROUTINE ASSEMBLY OR REVY.
1023	W REPRINT	ALF	REPRINT				
1024		M,A,	A,	A,	REPRINT		REPRINT ASSEMBLY LISTING.
1032	W MNUFACT	ALF	MANUFACT				
1033		M,A,UR	A,E	A,	MANUFACT		MANUFACTURE ASSEMBLED PROGRAM.
1035		ALF	CLOSE				
1036		M,A,	A,	At	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 SJBRO.
1044	W TRANSFR	ALF	TRANSFER				
1045		M,A,	A,	A,	XFER PSR		MAKE CARD IMAGE DISC FILE OF PRG OR SJB.
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,	At	A,	PUNCH PSR		PUNCH SYMBOLIC PROG. OR SUBRO. DECK.
1053	W ASSMBLY	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,	UNREADY		LIST PORTIONS OF YUL FILE DIRECTORY.
1068	UNREADY	S, YUL TYPER	UNRDY MSG	AMTF +4	REJEC DIR		TYPE "UNREADY OPERATION REQUESTED".

Line No.	Description	Code	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7
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	* ASSEMBLY	TASK MSG	TASK OBJC				BREAK DOWN AND REFORM REST OF DIRECTORY.
1077		S, YUL TYPER	TASK MSG	AMTF +4	C,+1				
1078	TYP ASOBJ	S, YUL TYPER	OBJCT 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	Z	COMMON				
1083		TS	L PGHED P3	Z,S2	PJT CHAR +7	C			MOVE FIRST CHARACTER.
1085		WA	N,X5	1 C5	N,X5				INCLUDE A BLANK AFTER COMPUTER VAYE.
1087		TS	Z,5C	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	2152				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 CHA? +3	C			MOVE "N" OF "NEW".
1102		TS	Z,5C	Z,S3	WRIT OBJC				MOVE OBJECT MSG TO "END OF" LIVE.
1104		TN	PAGE HEAD +12	Z	OLD LINE +12				INCLUDE DATE.
1106		TS	L DIRECTY	Z,X1	FIND COMD	C			SEEK COMPUTER NAME IN DIRECTORY.
1108		S, YUL TYPER	UNRCD MSG	AMTF +4	TYP ABORT				CUSS AND EXIT IF NOT THERE.
1110	KNOWN COMP	TX	Z,X0	-	L COMP NAM				ADDRESS OF COMPUTER NAME FOR PARP CALLS.
1112		LA, PIT3AV	ONES	0,1	CAN ASSE				BRANCH IF PASSES 1-3 AVAILABLE FOR IT.
1114		S, YUL TYPER	HASSY MSG	AMTF +4	TYP ABORT				
1115	CAN ASSE	NA	TASK MSG	W ASSEMBLY	REPRINT 7				BRANCH IF DOING REPRINT, NOT ASSEMBLY.
1117		NA, BIT 12	SWITCH	ZERO	NEWVER52				BRANCH IF DOING VERSION ASSEMBLY.
1119		NA, BIT10	SWITCH	ONES	NEW PRSJA				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 F30ZE TAPE.
1136	OK REVN 0	TS, BIT2	ONES	SWITCH	KNOWN PSR				REQUEST MERGING, CHECK PROGRAM NAME ETC.
1138		TS	Z,X4	L PROG FIL	REVN0 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, THREA11	4,1	24	Z,X5	C			
1143		SWS, B1THR12	REVNO	36, L	N,X5				NEW REVNO FOR PROG/SUB WITH SUBROS.
1145	REVNO SSL	SSL, ONE	4,1	23	C,-3	C			

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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	H,X2	-	NEXT NAME	In GENERAL, SUBRO STAYS PUT IN REVISION.
1157	AU LATEST	LA	PLUS ZERO	3,1	X5 IS NR4
1159	SS	4,1	B THRED 10	3,1	BYPASS IF THIS IS 1ST IN AUTHOR'S LIST.
1161	SWS,THREA)10	3,1	12	Z,X3	SEW UP AUTHOR'S LIST AROUND THIS PR/SJB.
1163	LA	3,1	PLJS ZERO	C,-1	FOLLOW THE THREAD...
1165	SWS,BTHRED)10	3,1	12	4,1	...UNTIL AUTHOR NAME ENTRY IS FOUND.
1167	SWS,ATHRED)10	Z,X4	24,L	3,1	POINT TO PR/SUB LAST HANDLED BY AJTHOR.
1169	X5 IS NR4	NA, BIT 9	SWITCH	ZERO	C,+2
1171	WA	INIT XS	TWO	INIT X5	BRANCH IF DOING SUBROUTINE REVISION.
1173	LA, CAC3	199	L END THR	INIT ASSY	CHANGE GB,R2 TO GB,R4.
1175	NA, BIT 9	SWITCH	ZERO	GBR2 GBR3	BRANCH IF THERE ARE NO DELETES WAITING.
1177	WD	INIT XS	ONE	INIT X5	BRANCH IF DOING SUBROUTINE REVISION.
1179	TS	L SYM THR	Z,S1	INIT ASSY +1	OTHERWISE CHANGE GB,R4 TO GB,R3.
1180	NEW PRSUB	TS	Z,X0	Z,X2	FIND PROG +1
1182	S, YUL TYPER	CONPN MSG	AMTF +5	TYP ABORT	C SEEK PROGRAM/SUBRO NAME IN DIRECTORY.
1184	SSL, TWO	SWITCH	34	C,+2	CUSS CONFLICT AND EXIT IF FOUND.
1186	SWE, ONES	SUBSTRAB +2	24	SUBSTRAB +2	"BRANCH" IF DOING TRANSFERRED ASSEMBLY.
1188	TS	-	-	FIND PAIR	POSITION LOG NUMBER FOR PASS 1.
1190	TS	PROG NAME	N,X3	DIRENTRY	C FIND 2 DIRECTORY LOCATIONS FOR S/S NAME.
1191	TS	7,50	7,X1	RD SUBDRT	
1192	S, MON TYPER	TSFRD MSG	SPRAMR +56	TYP ABORT	CUSS LACK OF "FROM FILENAME" SJBIRECTR.
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 DIO	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	BI4T18	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 LUKJP	TS	SUBSTRAB +1	TRONDEX +1	DISCAP	C
1222		OCT	-15			
1223		SPEC			TRONDEX	
1224		TS	BIT 10	SORS LINE	FQJND FIL	
1225		NA	SUBSTRAB +2	ZERO	C,+2	
1227		S, MON TYP	ER NOFIL MSG	SPRAMR +24	TYP ABORT	BRANCH IF A SATISFACTORY FILE WAS FOUND, "FILE NOT FOUND ON DISC ".
1229		SSL, ONE	SWITCH	39	VERS PSD	C
1230		TN	TSFR LINE	3	N, AU2	
1231		TN	TRONDEX	2	N, AU2	
1232		SWE, ONES	SUBSTRAB +2	D12	P, I ARG	
1233		TS	Z, SC	Z, AJ1	YIL 324 75	
1234		SI	LOG COMMA	N, S4	SORS LIVE +9	
1235		TN	BLANKS	5	SORS LINE +10	
3236		TS	BLANKS	SORS LINE +15	NEW ONTRY -1	COBBLE UP LINE SHOWING SOURCE FILE NAME.
1238	FQJND FIL	NA, C7T8	TRONDEX +3	SNTRACOD	XIN LUKJP	
1240		SSL, ONE	TRONDEX +4	0	C,+1	LOOK AGAIN IF FILE TYPE IS WRONG. TLST PSEUDO-CONFIRMATION BIT.
1242		TS	Z, SC, 2	=	DISCAP	C GO TO RELEASE UNCONFIRMED TRACK, BRANCH IF NOT GREATEST FOUND LOG NUMBER, PLANT HIGHEST LOG NUMBER YET FQJND.
1244		LA	TRONDEX +2	SUBSTRAB +2	XIN LUKJP	
1246		TS	TRONDEX +2	SUBSTRAB +2	XIN LUKJP	
1248		OCT	-1017			
1249		SPEC			TRONDEX	
1250	XIN ANYLG	TS	ONES	TRONDEX +2	XIN LUKJP	RESTART SEARCH AFTER TRACK RELEASE. BAD RETURN SHOULD BE IMPOSSIBLE HERE.
1252		TS	-	-	DISASTER	

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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 D10	N,X0	12	Z,X5	POINT TO FIRST PROG OF COMPUTER.
1267		TS	Z,X0	Z,X2	FIND SUBN	
1268		NA, BIT36	5.1	ZERO	FIND SUBN +2	BRANCH IF FOUND A SUBROUTINE.
1270		TX	Z,X5	-	Z,X2	
1271		SS	2.1	THREAD 10	Z,X5	ADVANCE POINTER PAIR THRU LIST.
1273	FIYD 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 SUBN +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	SURS NAME	FIND SUBN -2	VERSION SUBRO GOES ON TAPE AFTER SOURCE.
1281		TS	N,X5	NEXT NAME	POSN SUBN +2	NEW/TRANSFERRED SUBRO GOES 151 IN SYLT.
1283	POSN SUBN	SS	Z,X5	THREAD 10	N,X3	NEW SUBRO POINTS TO SUCCESSOR.
1285		TS, THREA D10	L PROG FIL	2.1	POSN PRGN +2	PREDECESSOR POINTS TO NEW SUBRO.
1287		NA	Z,X2	Z,X0	POSN SUBN	BRANCH UNLESS NOTHING PRECEDES NEW SIB.
1289	POSN PRGN	SWS, THREA D10	N,X0	12	N,X3	NEW P/S NAME TO HEAD OF MACHINE'S LIST.
1291		SWS, BTHREA D10	L PROG FIL	12,L	N,X0	
1292		TS	ONES	1,6	FIND AUTH	SEEK AUTHOR NAME IN DIRECTORY.
1294		TS	-	-	ADD AUTH	INCLUDE IT NOW IF NOT FOUND.
1236		LA	B1THRU12	3,1	C,+2	BR, IF AUTH HAS 255 OR MORE PROGS/SUBS.
1298		WA	3,1	BIT 12	3,1	OTHERWISE INCREASE HIS TOTAL.
1300		TS	L PROG FIL	Z,X2	SET LAUTH	
1301		SWS, BTHREA D10	3,1	12	2.1	NEW P/S NAME TO HEAD OF AUTHOR'S LIST.
1303		SWS, ATHREA D10	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	ONF	INIT X5	IF DELETES ARE WAITING, MAKE IT GB,R3.
13037		TS	-	-	INIT ASSV	
1304		LA, CAC3	1,9	L END THR	INIT ASSV	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.

INITIALIZE SYMBOL TABLE CAC-THR=A3S.
SPECIAL INITIAL VALUE FOR SUBRD DIR 3RG.

INITIALIZE FIRST SPEC PAIR IN SYM TABLE.

INITIALIZE AVAILABILITY TABLE.

INITIALIZE JOINT BUFFER LIST.
INITIALIZE FREE BUFFER LIST.
INITIALIZE INPUT AND SAPO BUFFER LISTS.
WAKE GROUP B TO ASK IT ITS NAME.

PLANT TRUE NAME OF GROUP B.
GO BACK TO BED UNTIL PASS 1.

FOR TRANSFERRED ASSEMBLY* PRINT SOURCE.
FOR REPRINT, PRINT NAME OF CUSTOMER.
FOR VERSION ASSEMBLY, PRINT SOURCE NAME.

PUT TAPE NUMBER IN SNATCHING PARAMETERS.
SKIP IF WORKER MUST BE SNATCHED.

REPOSITION WORKERS IN ANY CASE.

WORKERS ARE CALLED 21 31 AND 4.

GO TO GET SUBDIRECTOR IF ANY.
LOAD AND GO TO PASS 1 WHEN THEY RJN OUT.

1309	INIT ASSY	TX	L SYM THR	-	Z,S1	
1310		MT	I SYM THRS	13	N,S1.1	
1312		TX	ISY SUB TH		N,S1.1	
1314		MT	I SYM THRS	50	N,S1.1	
1315		TX	L AV TABLE	-	Z,S1	
1316		SM	CAC12	ISY SUBTH	N,S1.1	
1318		TS	L GPB SIT	Z,X4	C,-1	
1319		WA	OCTAL 20	OCTAL 20	Z,R6	
1320		WT	CAC12	62	N,S1.1	
1322		NA	Z,R6.1	ZERO	C,-1	
1323		TX	L B LISTS	-	Z,S1	
1324		MT	ZERO	4	N,S1.1	
1326		TN	BUF NAMES	8	N,S1.8	
1328		MT	ZERO	8	N,S1.1	
1330		TS	Z,SC,5	N,X4	MON WAKE	
1332		SPCR			COMMON	
1333		TX	YUL MASKS	-	Z,MAX	
1334		SWE, ONES	COMMON	17	COMMON	
1335		SS	COMMON	GROJJP IND	INIT X5	
1337		TX	Z,RO	-	Z,SC	
1339		SSL, ONE	SWITCH	35	C,+1	
1341		LA, B11T12	SWITCH	ZERO	C,+2	
1343		S, PHI PRINT	SORS LINE			
1345	SNACH WRK	SWSr CHARY	TAPE NO	A,7	WORKERS	
1346		SWS, CHAR7	TAPE NO	A16	WORKERS +1	
1348		S, MON TAJDR	TAPE NO			
1350		TS	L STOPPER	21x4	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	-	-	-	
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	
1363		TS	Z,SC	Z,X1	RD SUBDRG	
1365	LOAD PAS 1	S, PHI LOAD	PASS 1	1	BASE ADDR	

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

1368	ASSY SUBD	WD	Z,X1	ONE	Z,X4
1370		WA	Z,X6	UCTAL 20	WHODJNIT
1371	LINS COPS	NA	6.16	W PRINT	REN SJP AC
1372		WA	WHODUNIT	THREE	WHODJNIT
1374		SWE, CHAR3	6,21	12	Z,AJ1
1375		LA	Z,AU1	ZERO	NUM WR SIZ
1376		LA	THREE	Z,AJ1	NUM WR SIZ
1378		SWE, CHAR3	6,19	A,7	COMMON
1380		LA	TEN	COMMON	NUM NDEC
1381		LA	Z,AU1	ONE	TEST NVAI
1383		BT	COMMON	10	COMMON
1384		SWE, CHAR3	6-19	A,6	Z,AJ1
1386		LA	TEN	Z,AJ1	NUM NDEC
1387		WA	COMMON	Z,AJ1	COMMON
1388	TEST UYAL	LA	COMMON	ONE	NUM RNG ER
1389		LA	COMMON	CHAR 8	LIN OR COP
1391	NUM RNG ER	S, MON TYP	NW RGE MSG	SPRAMR +24	IGN SBDIR
1392	NUM NDEC	S, MON TYP	NW NDC MSG	SPRAMR +24	IGN SBDIR
1393	NUM WR SIZ	S, MON TYP	NW WSZ MSG	SPRAMR +24	IGN SBDIR
1395	LIN OR COP	WA	WHODUNIT	THREE	WHODJNIT
1396		NA	6,22	W LINES	CK COPIES
1397		LA	COMMON	NINE	NUM RNG ER
1399		NA	N LINES	54 LINES	DJPLISJB
1400		SWS, CHAR2	COMMON	A,2	N LINES
1402		SWS, C7T8	6,19	A,6	SET LN MSG
1403		S, MON TYP	SET LN MSG	SPRA +24	4,0
1405	CK COPIES	NA	6,22	W COPIES	JNRC SBDIR
1406		NA	N COPIES	ZERO	DJPLISJB
1407		TX	COMMON	-	N COPIES
1409		SS	6,19	BIT-RU12	N COPS MSG
1410		S, MON TYP	N COPS MSG	SPRAMR +24	-
1411		S, MON TYP	WH PLY MSG	SPRAMR +16	-
1412		S, MON TYP	WAA 10060	SPRA +24	4,0

X4 IS USED TO RETURN TO RD SUBDR CALL.

SET UP TO EXAMINE NO. OF LINES OR COPS.

1 OR 2 DECIMAL DIGITS FORM EITHER NO.
GET TENS OR ONES DIGIT.

BRANCH IF NUMBER WAS 1 DIGIT ONLY.

UNITS DIGIT OF 2-DIGIT NUMBER.

LIMITS HERE ARE 2 AND 63.

CUSS, OUST SUBDIRS WITH BAD NUMBERS.

MINIMUM LINES/PAGE = 10.

SET TEMPORARY LENGTH OF PAGE.

ANNOUNCE AND GO TO GET NEXT SUBDIRECTOR.

TO BE MODIFIED WHEN PLY IS KNOWN.

R1413 ASSEMBLY/REPRINT SUBDIRECTOR CHECKING AND CUSSING.

1414	DUP SUB CH	LA	L SERVICE	Z,X4	IL REEST
1416	DUPLISUB	S, MON TYP	DUPSR MSG	SPRAMR +24	IGN SBDIR
1418	IL REEST	S, MON TYP	IL RUT MSG	SPRAMR +24	IGN SBDIR

BRANCH IF NOT AN ASSEMBLY-TYPE TASK.
CUSS AND IGNORE DUPLICATE SUBDIRECTORS.
CUSS RENUMBER IN REPRINT AND LIKE THAT.

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

1422	REV SJP &C	NA	6.17	BLANKS	UNRC SBDP	
1423		NA	6.16	W RENUMBR	SJPP DR &C	"RENUMBER" OR "SUPPRESS" OR ETC.
1425	RENUMBER	LA, B2B11	ONES	SWITCH	IL REEST	REFUSE TO RENUMBER DURING REPRINT.
1427		SSL, ONE	SWITCH	47	DJP SJB CH	C CHECK DUPLICATION AND CALL FROM PRINT.
1429		SM	SWITCH	BIT 1	SWITCH	SET SWITCH TO MAKE PASS 1 RENUMBER.
1431		S, MON TYPBR	CUREN MSG	SPRA +16	4.0	TYPE "RENUMBER CARDS", GET NEXT SBJDIR.
1433	SUPP DR &C	NA	6.16	W SJPPRES	FRZ B4 Jpg	&C = "FREEZE", "BEFORE", OR "UPGRADE".
1435		WA	WHODUNIT	THREE	WHODUNIT	
1436		NA	6.19	W CONDIR	UNCONDIT	BRANCH IF NOT "CONDITIONALLY" (JN BAD).
1438		NA	6.20	W CONDIR +1	UNRC SBDP	
1439		TN	6.22	3	6.19	
1440		TS	BIT20	TEMP MASK	UNCONDIT +1	BOBTAIL MASK FOR CONDITIONAL SUPPRESSION
1442	UNCONDIT	TX	SUPP BITS	-	TEMP MASV	
1443		NA	6.19	W SYMBOL	SP OCT MAP	"SUPPRESS SYMBOL" SUFFICES HERE.
1445	SP SYM TAB	SSL, ONE	WITCH	29	DJP SJB CH	C CHECK DUPLICATION AND CALL FROM PRINT.
1447		SM, TEMPMASK	SWITCH	B15 B10	SWITCH	
1448		TS		ZERO	WHODUNIT	TYP SJPPR
1449	SP OCT MAP	NA	6.19	W OCTAL	SJP INACT	"SUPPRESS OCTAL" SUFFICES HERE.
1451		SSL, ONE	SWITCH	28	DJP SJB 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 SBDP	"SUPPRESS INACTIVE" SUFFICES HERE.
1457		NA	6.20	BLANKS	UNRC SBDP	
1458		SSL, ONE	SWITCH	30	DJP SJB CH	C CHECK DUPLICATION AND CALL FROM PRINT.
1460		SM, TEMPMASK	SWITCH	B14 B18	SWITCH	
1461		TX	TWO	-	WHODUNIT	
1462	TYP SJPPR	NA	TEMP MASK	SUPP BITS	C,+2	
1463		S, MON TYPBR	W SUPPRES	SPRAM +8	C,+2	"SUPPRESS".
1465		S, MON TYPBR	SUP CO MSG	SPRAM +24	-	"SUPPRESS CONDITIONALLY;".
1467		SSL, THREE	WHODUNIT	0	C,+1	
1468		S, MON TYPBR	SY TAB MSG	SPRA +24	4.0	"SYMBOL TABLE LISTING".
1470		S, MON TYPBR	OC MAP MSG	SPRA +24	4.0	"OCTAL STORAGE MAP".
1472		S, MON TYPBR	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 JPG	NA	6.16	W FREEZE	B4 DR JPRG	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 SBDP	
1481		NA, C1T4	6.20	MANSU MSG +1	UNRC SBDP	"SUBROUTINES" IS REQUIRED.
1483		NA, BIT9	SWITCH	ZERO	IL REEST	REQUIRE PROGRAM ASSEMBLY.
1485		SSL, ONE	SWITCH	31	DJP SJB 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 TYPBR	FRSUB MSG	SPRA +24	4.0	"FREEZE SUBROUTINES".

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

1403	B4 OR UPGR	NA	6.16	W BEFORE	JPGRADE		IF NOT "BEFORE", MUST BE "UPGRADE".
1404		TS	2 (OMMA 10	W END SYLT	RECALCULATED	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 SBDR		QUIT IF SUBRO NAME IS TOO LONG.
1504		NA, CIT4	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", PROP 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 SBDR		"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 SBDR		"SUBROUTINE NAME NOT RECOGNIZE".

P1539 PROCESSING FOR THE SUBDIRECTOR "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 JGRADE	JVRC SBDP	
15396		LA, CHAR3	SWITCH	B14T18	IL REWST	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	JVRC SBDP	
15404		WA	Z,X5	SIX	WHODUNIT	
15406		NA	6,28	ONES	YVRC SBDP	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	JVRC SBDP	
15412		NA	N,X5,2	BLANKS	JVRC SBDP	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		Sr MON TYPER	REJEC MSG	SPRAMR +32	-	
1542		TS	Z,SC	Z,52	CVRT REVN	JUDGE AND CONVERT REVISION NUMBER.
15422		TX	C1-2	-	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 SBJR05).
15428		SS	ZERO	BIT 10	SWTCH	UNDO DAMAGE FROM DETECTION OF REV N3.
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		SWSr C1T4	6,25	A,1	6,4	
15435		TN	OBJECT MSG	6	6,5	
15436		TS, C1T4	BLANKS	6,5	PHI SENTP	MODIFY OBJECT MESSAGE PER UPGRADING.
15437		TS	COLON C1	COMMON	TYP ASOB, +1	C
15438		TS	Z,SC	Z,52	MOD CHECK 3 -1	
15439		TS	Z,X5	Z,52	PJT CN CA -2	C
154395		TS	Z,X5,21	-	GJ DO AJTH	C
1544		TS	C,+1	KNWN COMP	TYP ASOB, +1	
15441		TS	C,+1	KNWN COMP	LOAD PAS1 -1	
15442		TX	Z,X0	-	L COMP NAM	

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R15449 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 IT'S
 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 RPRINT TS * REPRINT TASK MSG TASK OBJC BREAK DOWN REMAINDER OF YUL DIRECTOR.
 1557 SMS, CIT7 TASK MSG +1 A,1,L TASK MSG +1
 1558 SMS, CHARB TASK MSG +2 A,1,L TASK MSG +1
 1559 SMS, CIT7 TASK MSG +2 A,1,L TASK MSG +2
 1561 S, YUL TYPER TASK MSG AMTF +4 TYP ASOB.I

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

1564 REPRINT Z TS Z,SC Z,XI RD SUBDC REQUIRE SUBDIRECTOR *FOR CUSTOMERNAME
 1565 S, MON TYPER 4*HOM MSG SPRAMR +40 TYP ABORT TYPE OUT ENTIRE SUBDIRECTOR CARD.
 1567 NA BIT 10 A +9 C*-1
 1568 S, YUL TYPER 6*2 BIT 10 SORS LINE SET PG -FD
 1570 TN REP 4 LINE 3 SORS LIVE +1
 1571 TN 6*2 N*AJZ
 1572 TN BLANKS 3 N*AJZ+1
 1573 MT ONES 3 KNOWN PSR
 1575 TS, B5811 SSL, ONE 4*1 SWITCH
 1577 TS Z,X4 L PROG FIL X5 I5 VR2
 1579

MAKE UP LINE ABOUT WHO GETS THE REPRINT.
 REQUEST REPRINT, CHECK PRG/SUB NAME ETC.
 TEST OBSOLESCENCE BIT.
 JOIN ASSEMBLY INITIALIZATION.

CUSS OBSOLETE REPRINT ON TYPEWRITER.
 CUSS OBSOLETE REPRINT ON EVERY PAGE.

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

1588 CREATE: BU TX Z,X5 *HODJNIT DEMAND "BACKUP".
 1589 NA N,X5*3 *HODZAT FORBID SUPERFLUOUS WORDS.
 1591 TX Z,X5 *HODJNIT
 1592 NA N,X5 *HODZAT
 1594 SS ACA OTHE ASCBJ MSG
 1595 S, MON TYPER ASCBU MSG *ASA TO CREATE BACKUP!*
 1597 S, MON TYPER ACA OTHE SPRAMR +24 *ACA OTHERWISE"
 1599 STOP C,+3 S
 1600 S, MON TYPER RIGHT HQ ACCEPT +1
 1602 T5 - C,-2 ARA OR DON A CREATES BACKUP.
 1604 NA, CHAR8 1,0 C,+2
 1605 T5, CHAR8 ONE ZERD
 1607 SS ONE 1,0 C,+3
 1609 T5 STAR COL 1 N,X1
 1611 T5 ONES 6*1 LABEL YJI
 ONES 6*2 DO BACKUP

BYPASS LABEL AND REVERT IF MONDAY MORNING
 BE SURE TO DO FULL TAPE COPY.
 PLANT CREATE FLAG, LABEL & REPOSITION.
 PREVENT ENJOB 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,52	DECODE PSR +1	DECODE PROG OR SUBRO NAME.
1619		TS	Z,SC	Z,X0	CJSS 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	VR5NS 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 33R3.
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	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 C5	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,52	TYPE SYNTHETIC OBJECT MSG FROM OLD LINE.
1652		TS, BIT 12	ONES	SWITCH	629 TO X5	
1653		TS	N,X5,2	COMMON	PJT CHA?	
1654		TS	Z,SC	Z,53	WRIT OBJC	
1655		S, YUL TYP	OLD LINE +6	AMTF +6	C,+1	TYPE SYNTHETIC OBJECT MESSAGE.
1657		TN	OLD LINE +5	6	OLD LIVE +6	MOP UP THE AREA.
1659		S, MON TYP	W SOURCE C	SPRAM +8	TYP ASSC1	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	RECOVER NEW PRUGNAME, FORCE REVISION.
1666		TX	6,97	-	AUTH NAME	RECOVER AUTHOR NAME OF VERSION.
1668		TS	6,98	AUTH NAME +1	C,+3	
1669	VERS PSD	TN	VER PR MSG	3	SORS LINE +1	
1670		TN	VER SB MSG	3	SORS LINE +1	
1671		SSL, ONE	SWITCH	39	CI-2	
1672		TN	VERS LINE	3	N,AJ2	
1673		TN	OBJCT MSG	7	N,AJ2	
1674		TN	BLANKS	2	N,AJ2	SET UP VEHSIOR 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, YON TYP	ELOTS	SPRAMR +8		MAKE STOMPING NOISE BEFORE AND AFTER.
16776		S, YUL TYP	6,2	AMTF +9	C,+1	
16778		S, MON TYP	ELOTS	SPRA +8	YEX DIRE	

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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	CONTRJL	TS	W CONTROL	TASK MSG	TASK OBJC	ANALYZE REST OF DIRECTOR CARD.
1686		SWS, CIT7	TASK MSG +1	A,1,L	TASK MSG +1	
1687		SWS, CHAR8	TASK MSG +2	A,1,L	TASK MSG +1	
1688		SWS, CIT7	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 TK031	TYPE TASK AND OBJECT MESSAGES.
1703		TS	Z,SC	Z,X1	RD SUBDR	
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 ->	
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,THREA>11	2,1	ZERO	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,THREA>11	N,X3	0	Z,X3	C	FOLLOW THREAD TO NEXT SUBRO THREAD WORD.
1734		SWS,THREA>10	N,X3	36	Z,X4	S	PRESENT OP-FIELD THREAD.
1736	A THREAD	SWS,THREA>10	N,X3	24	Z,X4	S	PRESENT A-ADDRESS THREAD.
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,THREA>10	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* B37T48	3,0	THREAD 11	OP THREAD	C	BRANCH IF THERE IS ANOTHER THREAD WORD.
1747		SWS,THREA>10	N,X3	0	Z,X4	S	PRESENT C-ADDRESS THREAD.
1749	NO MO SUBS	SWS,THREA>10	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,X2	Z,X3	TYP TKOB,1		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 TYPER	CONSU YSG	SPRAMR +40	TYP ABORT		CUSS ATTEMPT TO DELETE CONTROLLED SUBRO.
1772		TX	ZERO	-	COMMON		
1774		SWS,THREA)10	N,X0	12	Z,X2		INITIALIZE COUNT OF USERS OF SUBROUTINE. POINT TO 1ST PROG/SUB OF THIS COMPUTER.
1776	DSUB LOOP	TS	N,SC+1	NO NO SUBS +1	SUB THRD	C	START LOOKING AT SUBRO THREADS FROM EACH PROGRAM AND SUBRO OF THE COMPUTER.
1778		TS	Z,X4	Z,X2	DSUB TEST		
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	ZISC	THREE	Z,SC	C	(REDUNDANT AFTER A MATCH, BUT NO HARM.)
1786	DSUB 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	YREVN MSG +2	3	OBJCT MSG		
1792		TN	NUMUS MSG	3	WREVN MSG +2		
1793		TS	C,+1	2DIG REVN -1	BAD REVN		
1795		S, YON TYPER	WREVN MSG +2	SPRAMR +24	C,+1		BORROW BAD-REVISION-NUMBER CUSSER. "NUMBER OF USERS = XXX".
1797		TN	OBJCT MSG	3	WREVN MSG +2		
1798		TS	C,+1	2DIG HEVY -1	TYP ABORT		
1799		S, MON TYPER	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,THREA)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, B37T48	3r0	THREAD 11	GIVE SLOJ	C	RELEASE NON-LAST SUB THRD WORD.
1819		TS	Z,CS	Z,SC	GIVE SLOJ	C	RELEASE LAST SUBRO THREAD WORD.
1821		TX	Z,X4	-	Z,X5		
1823		TS	OBJCT MSG +1	Z,X3	DE AJTHOR		DUPLICATE FINAL CONDITIONS OF KNOWN PSR AND DO EFFECT OF DELETION ON AJTHOR.

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R1825 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 SJBRO 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 SJBRO 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 WASNT OBSOLETE, DON'T BOTHER.
1846	ND1 DELEP	SWS, THREA D10	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, THREA D10	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 NO SUBS +1	SUB THRS	C CALL FOR SUBRO CALL THREADS OF PROG/SUB.
1861		WD	Z,CSC	ONE	Z,AJ1	
1862		SS	N,AJ1	CHARS	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		SH	SWITCH	BIT 36	SWITCH	CALL FOR ANOTHER PASS.
1670		WD	Z,SC	SIX	Z,SC	GO AND ASK FOR ANOTHER THREAD.
1872		SSL, TWO	4,1	34	C,-3	TEST OBSOLETING BIT OF SUBROUTINE.
1874	OBSLING 0	SWS, THREA D11	2,1	24	Z,X3	POINT TO 1ST SUBRO THREAD WD OF SJBRO.
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	624 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, P13AV	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	PAY BITS	N,X3	CLEAR LAST OBSOLETING BITS, DO NEXT SUB.
1894	LP2 DELEP	SWS, THREA D10	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 0	TEST OBSOLETING BIT OF SUBROUTINE.

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

1903	DE AJTHOR	LA	3,1	PLJS ZERO	NOT 1(AJ)	BRANCH IF NOT 1ST IN AUTHOR'S LIST.
1905		SWS,ATHREAD10	4,1	12,L	3,1	REMOVE FROM HEAD OF AUTHOR'S LIST.
1907		TS	Z,X3	Z,X5	DECR AJTH	LET X5 POINT TO AUTHOR NAME.
1909	NOT 1(AU)	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	PLJS ZERO	C,-1	LET X5 POINT TU 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 AJTH +2	STAY AWAY IF AUTHOR HAS MORE PROGRAMS.
1919		SWE, CAC3	1,9	16	Z,X6	AUTHOR HAS NO ACTIVE PROGRAMS OR SUBROU-
1921		NA	Z,X6	Z,X5	AJDL SRCH	TINES, SO DELETE HIS NAME.
1923		SWS,THREAD10	5,1	12	Z,X3	SEW UP AUTHOR NAME THREAD AROUND AUTHOR
1925		SWS, CACZ	Z,X3	16,L	1,9	WHO WAS FIRST IN THE DIRECTORY.
1927		TS	-	-	DELE AJTU	
1928		TX	Z,X3	-	Z,X6	
1929	AUDL SRCH	SWS,THREAD10	6,1	12	Z,X3	KEEPING X6 ONE CYCLE BEHIND X3r
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 PAID	
1938		TS	Z,X6	Z,AJ1	GIVE SLDT	VACATE SPACE OCCUPIED BY DEFUNCT VAYE.
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	PLJS ZERO	LIVE AJTH	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,B1THR12	COMMON	8	5,1	
1951		TX	CHAR1	-	TEMP MASK	
1952	SET DL THK	SS	PAR MANUF	C1T4 B48	4,1	CLEAR LOW-ORDER BIT OF DELETE T-READ.
1954		SS	N,X0	TEMP MASK	4,1	SUPPLY COMPUTE NAME FOR IMPROVED SERCH.
1956		SWE, C1T4	TEMP MASK	A,1	TEMP MASK	
1957		NA, TEMPMASK	0,0	BLAYKS	c*-2	
1958		NA	Z,X2	Z,X3	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		SSLr TWO	TYPIST	28	C,+1	
1969		NA, CHAR8	1,0	ZER3	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 DIRE	

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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, AJT4 NAME, TASK MSG, AND OBJT 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	-	PJT CN C2	ALTER AND GO TO MAIN PROCEDURE.
1989		TS	L TKMSG P2	Z,S2	PJT CHAR +2	C
1990	CPUT CN C6	TS	L TK MSG P1	Z,S2	PJT 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	3LD LIVE +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	DECODE CPN	DECODE AND STANDARDIZE COMPUTER NAME.
2004		TN	N,X5	3	6,16	MOVE COMPUTER NAME TO HEAD OF SENTENCE.
2006		TS	6,55	COYON	COVER JP	C COVER ITS DLD PLACE IN THE LIST.
2006		TX	COLON C1	-	COMMON	
2009		WA	Z,X6	OCTAL 20	Z,S2	FORM ADDRESS EQUIVALENT TO 6,16.
2011		SSL, D12	6,18	12	PJT CHAR	C APPEND COLON TO COMPUTER NAME.
2013		TN	6,16	2	COMMON	
2014	PUT CN C6	TS	L TKMSG P1	Z,S2	PJT 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	DECODE PSR	DECODE "PROGRAM" OR "SUBROUTINE".
2022		NA	N,X5	ONES	C,+2	ABOVE ALSO STORED PRG OR SUBRD NAME.
2024	CUSS NAUT	S, YUL TYPER	NAUTH MSG	AMTF +3	REJEC DIR	COMPLAIN ABOUT MISSING AUTHOR NAME.
2026		TX	Z,X5	-	WHODUNIT	
2027		NA	N,X5,3	W BY	HOWZAT	REJECT IF THIS WORD IS NOT "BY".
2029	GO DJ AUTH	TS	Z,SC	Z,S3	DCOD AJT4	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	PJT CHAR	C OBJECT MESSAGE BEGINS WITH "NEW" OR
2039		TS	Z,X0	Z,S3	WRIT OBJC	"REVISION" AND ENDS WITH AUTHOR NAME.

R2041 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 COMPJ-
 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	WJTH MSG +3	FIND COMB	C	
2053		S, YUL TYPER	UNRCS 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 35	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 35	3,1	ZERO	OK NOJN		BRANCH IF DID AND SHOULD FIND SJBR.
2067		S, YUL TYPER	UNRCS MSG	AMTF +4	TYP ABORT		CUSS UNRECOGNIZED SUBRO NAME, ABORT.
2069		SWS, B37T48	3,1	24	COMMON		GET REVNO OF PROG/SUB WITH SUBR-5.
2071		SWS, THREAD11	3,1	24	Z,X4	C	
2072		SWE, B37T48	N,X4	36	COMMON		GET REVNO OF PROG/SUB WITH NO SJBR.
2074	OK NOJN	SSLr 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	PLJS 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	cr-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		

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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	Op	Op2	Op3	Op4	Op5	Description
R2129		TS	Z,5C	Z,52		PRG ADJ	
2130	TRANSFD 0	NA	N,X5	W TRANSFD	SHUD B REV +1		BRANCH IF ADJECTIVE ISN'T "TRANSFERRED".
2132		NA	5,1	W TRANSFD +1	HJWZAT		
31-43		SM	SWITCH	B2 313	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	PRG ADJ	NA	N,X5	W NEW	SHUD B REV		
2139		TX	ZERO	-	REVNO		REVISION NUMBER = 0 IF NEW.
2141		TS	Z,X5,3	-	N,52		STEP WORD INDEX AND EXIT.
2143	SHUD 3 REV	TS	Z,X5	WHODUNIT	TRANSFD 0		IN CASE WORD IS NOT "REVISION",
2145		NA	N,X5	W JERSIOY	C,+3		"VERSION", OR "TRANSFERRED".
2147		NA	TASK MSG	W ASSEMBLY	HJWZAT		
2148		NA	6,16	W FROM	NEW VERS		BRANCH ON RECOGNIZING VERSION ASSEMBLY.
2150		NA	N,X5,1	W REVISION	HJWZAT		
2151		NA	N,X5,2	BLANKS	HJWZAT		BRANCH IF WORD UNRECOGNIZED.
2153	CVRT REVN	SWE, ONES	5,2	12	Z,51		LENGTH OF REVISION NUMBER.
2155		LA	FOUR	Z,51	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,51	Z,50		
2160		WA	N,X5	N,50	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	P-HI A2D		CONVERT ALF-DEC, USING 50, 53, 37.
2166		RESERVE	1				
2167	NORM REVN	NA, CHAR1	4,0	ZERO	SAVE REVN		SUPPRESS LEADING ZEROS BUT LEAVE LEAVE 0.
2168		LA	ZERO C1	N,X4	SAVE REVN		
2170		SWS, C177	N,X4	A,1,1	N,X4		SIMULTANEOUSLY LEFT-NORMALIZE...
2172		TS	Z,51,1	-	NORM REVN		...AND DECREMENT CHARACTER COUNT.
2174	SAVE REVN	SWS, CHAR5	Z,51	12,L	N,X5,1		STORE ADJUSTED LENGTH.
2176		TX	Z,X5	-	WHODUNIT		
2177		NA	N,X5,3	W OF	HJWZAT		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,52		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	-	JDRVN MSG +3		
2188		S, YUL TYPER	UDRVN MSG	AMTF +4	REJEC DIR		

P2119 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:

R2129 TS Z,S2 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 313 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 REVISION NUMBER = 0 IF NEW.

2139 TX ZERO - REVNO STEP WORD INDEX AND EXIT.

2141 TS Z,X5+3 - N,S2

2143 SHUD 3: REV TS Z,X5 WHOJUNIT TRANSFD Q IN CASE WORD IS NOT "REVISION",

2145 NA N,X5 W VERSION C,+3 "VERSION", OR "TRANSFERRED".

2147 NA TASK MSG W ASSEMBLY 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 SWS, ONES 5,2 12 Z,S1 LENGTH OF REVISION NUMBER-

2155 LA FOUR Z,S1 FOUR AND UP IS ILLEGAL.

2157 LA, CHARB OCTAL 20 5,2 NDEC REVN ERROR IF REVISION NO. NOT HEX.

2159 WA L SIXES Z,S1

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 P-HI A2D CONVERT ALF-DEC, USING S0, S3, R7.

2166 RESERVE 1

2167 NORV REVN NA, CHAR1 4,0 ZERO SAVE REVN SUPPRESS LEADING ZEROS BUT LEAVE LONE 0.

2168 LA ZERO C1 N,X4 SAVE REVN SIMULTANEOUSLY LEFT-NORMALIZE...

2170 SWS, C1T7 N,X4 A+1,L ...AND DECREMENT CHARACTER COUNT.

2172 TS Z,S1+1 - NORV REVN

2174 SAVE REVN SWS, CHAR6 Z,S1 12, - N,X5+1 STORE ADJUSTED LENGTH.

2176 TX Z,X5 - WHOJUNIT

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.

R2185 PROCEDURE TO CHECK A REVISION NUMBER UP 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 CHECK A NON-DECIMAL REVISION NUMBER.

2187 NDEC REVN TX N,X5 - JDRVN MSG +3

2188 S, YUL TYPER UDRVN MSG AMTF +4 REJEC DIR

R2189 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,52	DECOD CPN	(THIS IS IN TRANSFER VECTOR AT 0,131.)	
2199	DECOD CPN	NA	N,X5	W MOD	C,+2	
2200		TS	6,55	COYJON	C COVER JP	
2202	LA	ONES	N,X5	CUS NO COM	C 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	C 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	C CUSS BLANK COMPUTER NAME AND AJRT.	
2212	EX	PAR MANUF	C1T4	COMPUTER	C FORM UP A BLANKLESS COMPUTER NAME.	
2214	SSL, SEVEN	5,2	12	C,+0	C SELECT ON LENGTH OF COMPUTER NAME.	
2216	TS, CHAR1	COMP NAME	COMPUTER	C,+4		
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	C ENTER HERE FOR GENERAL COMPNAME FIXER,	
2222	LA	TEN C1	N,X5	N,52	C EXIT IF NAME DOES NOT BEGIN WITH DIGIT.	
2224	HOD-CHK: 3	LA, CHAR3	5,0	9 C3	C,+4	C BUT EXIT IF 3RD CHARACTER IS ALSO DIGIT.
2226	SWS, ONES	N,X5	A14	N,X5		
2227	SS	W MOD	C1T4	N,X5		
2228	WA	5,2	4 C6	5,2		
2230	TX	Z,52	-	Z,5C	C INSERT "MOD" AND ADJUST LENGTH.	
R2231	MINOR SUBROUTINE IN PASS 0 TO CLOSE UP THE SENTENCE SO AS TO COVER JP THE WORD JUST EXAMINED. ENTRY IS:					
R2233	TS	6,55	COMMON	COVER JP	C	
2234	COVER UP	IT	5,3	6,55	N,X5	C MOVE UP REST OF SENTENCE.
2236	MT	ONES	2	N,AJ2,1	C	C GUARANTEE END SIGNAL.
2238	TX	COMMON	-	6,55		C 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	WJNRC MSG +3	
2243		S, YUL TYPER	WUNRC MSG	AMTF +5	REJEC DIR	

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R2244 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 PRG 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 PRG
 2254 FINGER1 TX Z,X5 - WHDUNIT S
 2255 NA N,X5,1 W SJBROT1 HDWZAT
 2256 NA N,X5,2 W NE HDWZAT
 2258 SM SWITCH BIT 9 SaITCH BRANCH IF UNRECOGNIZED NOUN.
 2259 WHAT PRG NA S,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 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 RMV 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 NODULE ROUTINES.

2280 SERVICE SWE, CAC3 BANK 1 32 Z,X0
 2281 WD Z,SH Z,AJ1 Z,AJ1
 2282 WA Z,AU1 L SERVICE Z,AJ1
 2283 TX N,AU1 - Z,SC

R2284 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:

R2292	TS	Z,SC	Z,S3	DCOD AUTH	
2293	DCOD AUTH TX	Z,X5	-	Z,X4	SAVE LOCATION OF FIRST WORD.
2295		Z,X5+2	-	Z,S2	SET UP ADDRESS FOR CLOSING UP.
2297	LA	ONES	N,X5	CJSS NAJH	ERROR IF AUTHOR NAME IS MISSING.
2299	TS	ZERO	Z,R6	C,+2	INITIALLY CLEAR LENGTH COUNTER.
2301	HOW LONG NA	Z,R6	ONE	Z,R6	ADD LENGTH OF TERMINATOR.
2333	SWE, CHAR3	N,X5+3	12	COMMON	
2304	NA	COMMON	ZERO	C,+2	
2305	S, YUL TYPER	BAUTH MSG	AMTF +4	REJEC DIR	CJSS BLANK WORD IN AUTHOR NAME, ABORT.
2307	NA	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	4r5	SAVE AUTH	BRANCH IF 1-WORD AUTHOR NAME.
2316	LA, CHAR6	4,2	7 c4	C,+2	
2317	TX	Z,S2+1	-	-	IF CLOSING-UP BEGINS IN WORD 2,
2319	TX	4,2	-	COMMON	
2320	SSL, SEVEY	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	TI	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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R2335 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,5C	Z,53	WRIT OBJC		
2340	WRIT OBJC	SWE, CHAR8	N,X5,1	12	Z,50	LENGTH OF COMPONENT WORD.
2342	TS	Z,5C	Z,51	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,50	
2348	LA	Z,50	ZERO	N,53		EXIT IF LAST WORD HAS ZERO LENGTH.
2350	TS	Z,53	Z,51	YJVE 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,5C	Z,51	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	BLANK8	CHAR8	COMMON +1	C	MOVE ONE CHARACTER.
2362	NA	Z,50,1	ONE	MOVE CAR8		
2363	TX	Z,51	-	Z,5C		

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

2366	POSIT REW	TS	Z,X0	Z,52	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,52	Z,X0	PHI TAPE	RESTORE X0.
2374		RF,1	-	-	-	
2375		TX	Z,53	-	Z*5C	

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	SWS, 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, BTHRED10	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		-	-	-	C	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	-	-	C	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		-	-	-	C	

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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.

2413	ADD AUTHR	TS	Z,SH	Z,S3	FIND PAIR	C	FIND 2 CONSECUTIVE UNUSED LOCATIONS.
2415	TX		AUTH NAME	-	N,X3	C	STORE 1ST HALF OF NAME.
2417	TX		PLUS ZERO	-	3,1	C	FLAG TO SIGNIFY AUTHOR, NOT PRG OR SUB.
2419	SWS, BTHRED10	Z,X3	24,1	3,1	PROGRAM THREAD OF BARREN AUTHOR TO SELF.	C	BRANCH IF NOT ALPHA-EARLIEST AUTHOR.
2421	NA	Z,X5	L END THR	2ND AUTHR	-	C	
2423	SWS, BTHRED10	1,9	4	3,1	INSERT AT HEAD OF LIST.	C	
2424	SWS, CAC2	Z,X3	16,L	1,9	FIND SLOT	C	FIND A SINGLE UNUSED LOCATION.
2426	TS	Z,SC,3	-	-	-	C	
2428	2ND AUTHR	SS	5,1	BTHRED10	3,1	C	INSERT NEW NAME IN LIST IN ALPHABETICAL ORDER.
2430	SWS, BTHRED10	Z,X3	12,L	5,1	FIND SLOT	C	FIND A SINGLE UNUSED LOCATION.
2432	TS	-	-	-	-	C	
2434	SS	Z,X5	THREAD 11	3,1	SET THREAD TO 2ND HALF OF NAME.	C	STORE SECOND HALF OF NAME AND EXIT.
2435	TS	AUTH NAME +1	N,X5	N,S3	-	C	

R2436 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	2,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		NA	1,8	ONE	1,8	C	
2451		SWS, CAC1	1,8	32,L	1,8	C	NEW SLOT HEADS THE LIST.
2453		NA	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	SET 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 OBJECT MSG	A +7	0,0

R2477 SUBROUTINE IN PASS 0 TO VACATE A PAIR OF WORDS IN THE DIRECTORY. CSC CALL WITH ADDRESS IN A1.
 R2479 ENTER AT 0,133 IN TRANSFER VECTOR.

2480	GIVE PR	TX	1,8	-	N,AU1	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, CIT4	COMP NAME	0,0	C,+2	C	
2501		TS	Z,X0	Z,R4	C,+2	C	
2502		NA, CIT4	COMP NAME	0,0	C,+2	C	
2503		TX	Z,SC,1	-	-	-	EXIT SKIPPING IF NAME FOUND.
2505	NEW P 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 PRG 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 PRG	TX	Z,X0	-	Z,X2	C	
2515		TX	Z,X0	-	Z,X3	C	TO SET BANK INDICATOR AND BIT 4R.
2517		SWS, THREAD 10	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	Z,1	THREAD 10	Z,X3	C	PROGRAM-TO-PROGRAM THREAD.
2524		NA	N,X3	PRG 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	LABEL 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	Z,RO	BIT 35	N,X1		REMOVE TAPE PUNCH CALL BIT FROM LABEL.
2538		TX	1,8	-	Z,SH		
2539		CC	N,X1	-	N,SH		
2340		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
2545	FIX SNACH	ALF,3	N00<0:01YULPROGS	-	-		CAUSED BY LABELING.
2547		SS	FRAME	BIT 35	N,X1		
2548		TS	Z,X5	Z,53	POSIT REW		POSITION AFTER LABEL AND RETURN.

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R2550 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	FIYD 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	THIS 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	tr-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,AJ1	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,AJ2	C	FORM ADDRESSES OF OTHER HALF OF PAIR.
2590		SWE, CAC3	N,AU1	32	Z,AJ1	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,AJ1	C	
2597		SM	Z,AU2	ONE	Z,AJ2	C	FORCE ORDER OF ADDRESSES IN AJ1, AU2.
2599		SS	1,8	CAC2	N,AJ2	C	
2600		SWS, CACZ	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 HAS 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.

2636	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 03J		BREAK DOWN AND REFORM REST OF DIRECTOR.
2610		TS	CAC3	SYMS OR VD	ELIM PR 5U +1	C	ASSUME NO SYM TAB CALL TYPE TASK, 08J.
2612		TS	CPUT CN C6	PUT CN C6	FIND COMP	C	SEEK COMPUTER NAME IN DIRECTORY.
2614	S, YUL TYPER	S,	UNRCD YSG	AHJF +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	S,	N MANU MSG	AMTF +5	TYP ABORT		CUSS AND EXIT IF NOT.
			C,+1	TYP ABORT	SAY ABORT +1		
26201		TS	TYP WREVN	2DIG REVY -1	C,+1		ABORT MUST RESTORE REVISION-NO. CUSSER.
26203		TX	SAY ABORT	-	TYP ABORT	S	..AND THEN RESTORE ITSELF.
26205	SAY ABORT	S,	YON TYPER	Y ABORT	SPRAMR +16		
26206		TS	C,+1	2DIG REVY -1	TYP WREVN +1		
26207		TS	SAY ABORT	TYP ABORT	C,+1		WRONG-REV-NO. MUST RESTORE ABORT.
26209		TX	TYP WREVN	-	2DIG REVY -1	S	..THEN RESTORE ITSELF..
26211		LA	REVNO	COMMON	OK-NOUN +2		..AND SEE IF REVNO IS REALLY OK FOR YFG.
26213	TYP WREVN	S,	YON TYPER	WREVN MSG	SPRAMR +40		FALL INTO HERE IF SPEC. REVNO TOO BIG.
26215		NA, BIT 9	SWITCH	ONES	C,+2		
26216	S, MON TYPER	S,	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,AJL	YUL D2A 75		
26223		SM	COMPUTER	PHI AHG	TRONDEX		
26224		SWS, CHAR3	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	MANJ 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		
26239		S, MON TYPER	OLRVN MSG	SPRAM +15	-		LEFT-NORMALIZE AND ZERO-SUPPRESS.
2624		S, MON TYPER	WREVN MSG +4	SPRA +8	-		"OLD REVISION NO.: NN "
26242		LA, CHAR3	ONES	DISC STAT	C,+2		
26243		S, MON TYPER	ND NHF MSG	SPRAMR +40	TYP ABORT		WITHOUT DISC; REFUSE TO MANUF OLD REV.

0018209

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 EN DISC.
26256		S, MON TYP	NTHIS MSG	SPRMR +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 TYP	DR UMA MSG	SPRMR +40	TYP ABORT		CUSS AND EXIT IF UNMANUFACTURABLE.
26262	GODD 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 TYP	FDISC MSG	SPRA +16	-		"FOUND ON DISC".
26278		SWE, C5T8	TRONDEX +5	24	COMMON +1		SAVE LOG NUMBER OF LAST REFERENCE.
2620		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.

R262852 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	THONDEX +5.	CW FACTOR	TRONDEX +5	
26287	DS	COMMON	THOJSAND	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
26296		OCT	-12		C
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	SRCH 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.
24306	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
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
2638	SWE, CIT4	TEMP MASK	A,1	TEMP MASK	FORM NAME OF MANUFACTURING
2640	NA, TEMPMASK	0,0	BLAVKS	C,-2	PROGRAM FOR THIS COMPUTER.
2641	TS	Z,SC	Z,X1	RD SBJDRP	GO TO SENTENCE-READ FIRST SUBDIRECTOR.
2643	S, YUL TYPER	SD HIS MSG	AMIF +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	
26486	S, MON TYPER	NO MDS MSG	SPRAMR +24	REJEC DIR	BRANCH IF THERE IS SOME MONAIN DATA.
26487	SS	ZERO	BIT 35	N,X1	"NO MONAIN DATA STORED".
26488	S, MON PUNCH	ZERO	ATAPE PCH +40	ZERO	CLEAR MONAIN DATA PRESENCE BIT.
26489	S, MON TYPER	22 OUT MSG	SPRAMR +24	MANUF RTN	SEND END-OF-JOB SIGNAL TO MONAIN.

9548211

R2649 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,OSC	ONE	N,C5H	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	Z,1		ENSURE NO FALSE ALARM FIRST TIME.

2669		IS	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 BJRTA	S, MON TYPER	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.

R2703 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 SILT OK	TX	L GPB SIT	-	Z,X3		
2728		NA	SEARCH KEY	EO?	GROUP MAP		SLEEP IF GB STILL SEEKING END SYLT.
2730		TX	ZERO	-	SEARCH KEY		
2731		WA	Z,SC	ONE	N,X3		
2732		TS	Z,X4	Z,S:	MON MAKE	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	C5TB	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	SEARCH KEY	EUR	GROUP MAP		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.

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Address	Operation	Code	Symbol	Value	Symbol	Value	Description
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	2r1		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 COUNT.
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	MOD 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	Z,2		W AUTHMEM	SYMBOLS 0	BRANCH UNLESS ABOUT TO DELIVER AUTHMEMO.
27833		WA, C5T8	Z,71		C 255	MID POINT	
27834		SWE, CAC3	MID POINT		8	YID POINT	FORM NUMBER OF SYMBOL TABLE RECORDS.
27836		TN	Z,5		8	SUBSTRAB	
27837		TS	W SYMBS 0		E SYLT BAN	SYMBOLS 0 +1	PREPARE TO SET UP TITLES ON SYM TAB RCS.
27839	SYMBOLS 0	NA, C1T6	Z,2		W SYMBS 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,Z		E SYLT BAN	E SYLT BAN	COMPUTE SHIFT COUNT FOR SSL ANI TAB.
27854		OCT	-55				
27855	PARAS YES	TS	MID POINT		1,2	FROM TAPE -1	PUT PARAGRAPH NUMBER INTO RECORD.
27857		SWS, CHARS	E SYLT BAN		A,3,L	MANUF SSL	
27858		SWE, SEVEN	MID POINT		5	E SYLT BAN	
27859		WA	L SUBSTRB		E SYLT BAN	Z,AJ1	SELECT A SUBSTRAB WORD.
27861	MANUF SSL	SSLT 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		-	DISASIE7	DOUBLE-BUFFERED READ.
2789		TN	Z,X2		2	Z,X1	SWAP BUFFERS.
2791		LA	SERCH KEY		ZERO	E SYLT LUP +1	RETURN TO EN SYLT OK LOOP.
27922		TX	FETCH SSN		-	Z,MXR	
2793	PICK EXIT	LA	1,2		-	CAC3	SKIPPING EXIT IF NEW RECD IS PARAGRAPH.
2795		TX	Z,X4		-	Z,SC	EXIT WITH AUTHMEMO, SYMBOLS, OR EOFRI.

R2797 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 5, YUL TYPER IGNOR MSG AMTF +4 C,+1 TYPE "THEREFORE THIS CARD IS IGNORED".
 2804 5, 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 SUBR IN THE TRANSFER VECTOR.

2811 UNRC SBD R TX WHODUNIT - Z,SH
 2812 TN N,SH 2 WJNRC MSG +3
 2813 5, YUL TYPER WUNRC MSG AMTF +5 IGN SBD R 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 OBJECT MSG 7 LEADR MSG +1 MOVE OBJECT MESSAGE FOR PUNCHING.
 2823 TS Z,SC,7 Z,S1 PCH TITL
 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 YJL DA LZ5 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 Z5 TS Z,MXR Z,AJ2 YJL MASK C
 2833 SWS,C5T8 PHI ARG 8 PHI ARG
 2834 SWS,DECALF#1 PHI ARG 4 PHI ARG
 2835 SWS,DECALF#2 PHI ARG 2 PHI ARG
 2836 SWS,DECALF#3 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,AU1

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

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

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R2849 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 0	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,SO,1	Z,52	BEG PH ALF	S	FORM HISTORY AND LWA, RETURN TO S MODE.
2861	BEG P+ 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.D.
2870		TS	BKB PLACE	Z,54	BEG PH ALF	C	REMOVE POSSIBLE BEGIN-PARAGRAPH BIT.
2872		TN	SAVE XS	2	Z,X0		
2873		TS	Z,SO	Z,5C	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	C5TB	C,+2	C	BRANCH IF RUNNING ON 1800 A
2881	S, MON TYPER	S, MON TYPER	TAPE B MSG	SPRAMR +32	TYP ABORT	S	"CAN'T PUNCH TAPE WITH THIS 1800".
2884		TS	Z,5C	SAVE XS +1	C,+1		
2895		TX	L DIRECTY	-	Z,52		
2896		SS	N,52	BIT 35	GRADE LIM		SET BIT IF NOT 1ST TAPE PUNCHING TASK.
2900		SM	SWITCH	C5TA	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 0	PNC+ FRAM	C,+2		INITIALIZE TITLE AND FRAME ROUTINES.
2908		S, MON TYPER	NTPCH MSG	SPRAMR +16	TYP ABORT		"NO TAPE PUNCHING".
29092		SM	N,52	BIT 35	N,52		SHOW THAT SOME PUNCHING IS TO BE DONE.
29094		TN	SAVE XS +1	2	Z,5C	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 Y3N YS	TX	Z,SH	-	TYP RTJRN		
2913		SWE, ONES	NON WISE	D,4,L	PHI ARG		
2914		TS	Z,5C	Z,AJ1	YUL D2A 75		
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	CR-2		
2920		S, MON TYPER	NUM NONS	SPRAMR +24	-		
2921		S, MON TYPER	BLANKS	SPRA +8	-		
2922		TX	ZERO	-	NON WISE		
2923		TX	TYP RTJRN	-	Z,5C		

R2924 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 PUNCHING DATA IN FRAME AND SWITCHING TO COSEQUENCE MODE.

2930	PNCH FRAM	TS	END FLAG 0	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 BLOATED.
2934		TS	Z,CSC,3	-	SEND DATA	C	SHIP 2040 FRAMES OF DATA TO MON-A.
2936	END FLAG 0	NA	BKB PLACE	BANK B	SEND DATA	C	CLEAR OUT BUFFER AT END OF PARAGRAPH.
2930		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 0	LA	BIT 34	Z,SH	END FLAG 0	C	BRANCH IF END FLAG IS ON.

R2947 MINDR SUBROUTINE TO SEND UP TO 2040 ACCUMULATED 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 4IF +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, ON PUNCH	0,0	ATAPE PC-I +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 RIV (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 0	NA	BKB PLACE	BANK B	SEND DATA	C	CLEAN OUT DATA BUFFER.
2967		TS	Z,CSC	Z,SC	BEG PH 4IF +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 PASO		INITIALIZE FETCHING AND EXIT.
2973		TS	NO TP TASK	PNCH FRAM	END SEND 0	C	
2974	NO TP TASK	TS	END FLAG 0	PNCH FRAM	IN TP TASK	C	
2975	FETCH SS1	TS	ZERO	FETCH SSN	AWAIT G3		

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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 C# RETURN WHERE THE CONTROL WORD GIVES THE MODE.
 R3033 TO CLOSE OUT A CARD-PUNCHING TASK. A CALL MUST BE MADE IN WHICH CARD C# 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 CRP	C SNATCH CARD PUNCH FOR ON-LINE PUNCHING.
3047		TS	PHI WAA	Z,X4	1ST CARD	ACCESS INTERTASK STORAGE AREA.
3049		S, MDN TYPER	CPUNV MSG	SPRAMR +24	-	"CARD PUNCH UNAVAILABLE".
3051		SS	ACA OTHE	CHAR3	ASTRY MSG	PUT GROUP A IDENTITY INTO MESSAGE.
3053		S, MDN TYJER	ASTRY MSG	SPRAMR +16	-	"ASA TO TRY AGAIN".
3055		S, MDN 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, MDN 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 a	-	Z,AU2	
3067		MI	ZERO	21	N,AU2,1	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	CT17	A,1	TEMP MASK	SYNTHETIC C2T8 MASK.
3076	OUTLINES	SWS, ACH4	TASK LOG	24	C,+1	
3077		TX	430	-	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 HER	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.

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 0	ONE	Z,AJ2	
3092		MT	CHECKERS	20	N,AJ2,1	CREATE CHECKERBOARD CARD.
3094		TS	BANK B	Z,X4	PUNCH 3VF	PUNCH THE CHECKERBOARD.
3096		TS	CRD COUNT	PHI ARG	TYP V3Y Y5 +2	C
3097		S, MON TYP	PHI ARG +2	SPRAM +4J	-	" NNNN CARDS PUNCHED BY LOG AND TASK"
3099		TS	PHI WAA	Z,X4	BB VIA AUZ	C
3100		TX	ZERO	-	N,AJ2,1	
3101		MT	BLANKS	10	N,AJ2,1	
3103		S, MON TYP	4,104	SPRA +72	-	CREATE BLANK ALPHABETIC CARD IMAGE.
3105		TS	BANK B	Z,X4	PUNCH ONE	C HEX: "LLL LLL 000 TTT".
3107		EX	CRD COUNT	CAC3	CRD COUNT	PUNCH FINAL BLANK CARD IN ALPHA MODE.
3109		TS	RLS CD PCH	Z,AJ1	MON SN DIP	RESET CARD COUNT TO ZERO.
3111		TS	PUNCH CD	Z,SC	PUNCH EXIT	C RELEASE THE CARD PUNCH.

R3112 EVERY CARD SENT BY A CALLER COMES HERE EVENTUALLY.

3113	SEYD CARD	TS	-	-	PUNCH ONE	C	NORMAL WAY TO SEND A CARD.
3115		TS	PUNCH CD	Z,SC	PUNCH EXIT	C	
3116	PUNCH 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,	-32 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 COUNT		BRANCH IF 200 GOT CARD INFO OK.
3129	PUNCH ONE	SWS, CHAR1	MON PRAUS	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 COUNT	DA	CRD COUNT	BIT 32	CRD COUNT	S	INCREMENT COUNT OF CARDS IN TASK.

SE0BRK END YUL PASS 0 GENERAL

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