

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
101			JOB		FORTRAN COMPILER -- SORT ONE PHASE -- PHASE 04								
102			CTL		6611								
103			*										
104			*		SORT ONE PHASE: DETERMINE WHETHER THERE IS SUFFICIENT ROOM								
105			*		TO EXPAND EVERY STATEMENT BY THREE CHARACTERS.								
106			*		81-83 IS ONE BELOW THE GROUP MARK BELOW THE LAST (BOTTOM								
107			*		ADDRESS) IN CORE.								
108			*										
109			X1	EQU	89						0089		
110			X2	EQU	94						0094		
111			X3	EQU	99						0099		
112			*										
113			*		STUFF IN THE RESIDENT AREA PHASE 0								
114			*										
115			PHASID	EQU	110 PHASE ID, FOR SNAPSHOT DUMPS						0110		
116			SNAPSH	EQU	333 CORE DUMP SNAPSHOT						0333		
117			LOADNX	EQU	700 LOAD NEXT OVERLAY						0700		
118			*										
119			*		IN PHASE 3								
120			*										
121			*		TRMP TO MAKE REDUNDANT CLEAR AT BEGINN WORK								
122			CLRFACT	EQU	2599 TOP OF AREA TO CLEAR (WHY DO IT AGAIN?)						2599		
123			*										
124			*		TABLE OF ADDRESSES OF THE FIRST STATEMENT OF EACH TYPE,								
125			*		INDEXED BY 30*(ZONE OF STATEMENT TYPE) + 3*(NUMERIC PART OF								
126			*		STATEMENT CODE). FILLED IN NEXT PHASE, Q.V.								
127			*										
128			*		GENERATE THE BLOCK TO LOAD PHASE 4								
129			*										
130			PHAS4	NEWPH	@SORTER ONE@,LOADAD,BEGINN							MACRO	
			*									GEN	
			*		LOAD A NEW PHASE							GEN	
			*									GEN	
131			ORG		201						0201		
132			PHAS4	LCA	)9N001,PHASID PHASID	7	0201	L 288 110	GEN		1	288	110
133				BCE	LOADNX,LOADNX,1 Q: FROM CARDS?	8	0208	B 700 700 1	GEN		1	700	700
134				BCE	LOADNX,LOADNX,, Q: FROM AUTOCODER TAPE?	8	0216	B 700 700 ,	GEN		1	700	700
135			)0J001	ZA	)9J001 CLEAR ERROR COUNTER	4	0224	? 278	GEN		1	278	
136			)0K001	RTW	%U1,LOADAD LOAD THE OVERLAY	8	0228	L %U1 838 R	GEN		1	%U1	838
137				BER	)0L001 Q: ERROR?	5	0236	B 248 L	GEN		2	248	
138				CS	BEGINN,)9P001 NO: ENTER THIS BLOCK	7	0241	/ |10 296	GEN		2	1010	296
139			)0L001	BSP	1	5	0248	U %U1 B	GEN		2	%U1	
140				A	*-6,)9J001 BUMP ERROR COUNT	7	0253	A 253 278	GEN		2	253	278
141				BCE	)0K001,)9J001-1,0 Q: NOT TEN YET?	8	0260	B 228 277 0	GEN		2	228	277
142				NOP	3333	4	0268	N C33	GEN		2	3333	
143				H		1	0272	.	GEN		2		
144				B	)0J001	4	0273	B 224	GEN		3	224	
145			)9J001	DCW	#2 ERROR COUNTER	2	0278		GEN		3		
146)9N001	DCW	@SORTER ONE@ PHASE ID FROM PARAMETER 1	10	0288		GEN		3		
147				DC	@ NEWPH @ IDENTIFY IN A DECK, TAPE, OR DUMP	7	0295		GEN		3		

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148)9P001	DCW	@}@								
			* 108	DSA	PHAS4 NEWP LOAD ADDRESS FOR COMPILER-GEN					GEN		3	
149			XFR	PHAS4	PROHIBITED IN A MACRO				B 201	GEN		3	201
150			*										
151			110	DCW	@SORTER ONE@			10 0110				4	
152			089	DCW	000			3 0089				5	
153			091	DC	00			2 0091				5	
154			094	DCW	000			3 0094				5	
155			096	DC	00			2 0096				5	
156			099	DCW	000			3 0099				5	
157			100	DC	0			1 0100				5	
158			*										
159			*	USED	ALSO IN PHASES 5 AND 6								
160			*										
161				ORG	756				0756				
162				ORG	838 TEMP SAME AS MOKOTOFF V3M0 LINE 854				0838				
163			LOADAD	EQU	*&1 LOAD ADDRESS								
164			TYPTAB	DCW	#3 BLANK			3 0840				6	
165				DCW	#3 1 READ TAPE			3 0843				6	
166				DCW	#3 2			3 0846				6	
167				DCW	#3 3 WRITE TAPE			3 0849				6	
168				DCW	#3 4			3 0852				6	
169				DCW	#3 5 READ INPUT TAPE			3 0855				6	
170				DCW	#3 6 WRITE OUTPUT TAPE			3 0858				6	
171				DCW	#3 7			3 0861				7	
172				DCW	#3 8			3 0864				7	
173				DCW	#3 9			3 0867				7	
174				DCW	#3 0			3 0870				7	
175				DCW	#3 / END			3 0873				7	
176				DCW	#3 S STOP			3 0876				7	
177				DCW	#3 T COMPUTED GOTO			3 0879				7	
178				DCW	#3 U PUNCH			3 0882				8	
179				DCW	#3 V			3 0885				8	
180				DCW	#3 W IF (SENSE SWITCH ...)			3 0888				8	
181				DCW	#3 X			3 0891				8	
182				DCW	#3 Y			3 0894				8	
183				DCW	#3 Z REWIND			3 0897				8	
184				DCW	#3 !			3 0900				8	
185				DCW	#3 J SENSE LIGHT			3 0903				9	
186				DCW	#3 K IF (SENSE LIGHT ...)			3 0906				9	
187				DCW	#3 L READ			3 0909				9	
188				DCW	#3 M			3 0912				9	
189				DCW	#3 N ENDFILE			3 0915				9	
190				DCW	#3 O			3 0918				9	
191				DCW	#3 P PRINT			3 0921				9	
192				DCW	#3 Q			3 0924				10	
193				DCW	#3 R ARITHMETIC			3 0927				10	
194				DCW	#3 ?			3 0930				10	
195				DCW	#3 A PAUSE			3 0933				10	
196				DCW	#3 B BACKSPACE			3 0936				10	

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
197				DCW	#3 C CONTINUE	3		0939			10		
198				DCW	#3 D DO	3		0942			10		
199				DCW	#3 E IF	3		0945			11		
200				DCW	#3 F FORMAT	3		0948			11		
201				DCW	#3 G GOTO	3		0951			11		
202				DCW	#3 H	3		0954			11		
203				DCW	#3 I DIMENSION	3		0957			11		
204				ORG	* &X00				1000				
205				DS	6			1005					
206			ZONES	DCW	@2SKB@	4		1009			12		
207			*										
208			*		START AT BEGINN INSTEAD OF LOADAD								
209			*										
210			*		THERE WAS ORIGINALLY A CLEAR-CORE CODE BEFORE BEGINN THAT WAS NOT								
211			*		OVERLAID, BUT ALSO NOT USED USED IN PHASES 5 (SORT TWO) AND 6								
212			*		(SORT TRI). WHY? IT'S ALREADY DONE AT THE END OF PHASE 3 BY THE								
213			*		CLEAR ROUTINE IN THE INTERLINK OVERLAY (FORMERLY IN THE OVERLAY								
214			*		LOADER).								
215			*										
216			BEGINN	CS	CLRFCT GMWM AT THE END OF PHASE 3	4		1010	/ N99		12	2599	
217					CHAIN 8					MACRO			
218				CS		1		1014	/	GEN	12		
219				CS		1		1015	/	GEN	12		
220				CS		1		1016	/	GEN	12		
221				CS		1		1017	/	GEN	12		
222				CS		1		1018	/	GEN	12		
223				CS		1		1019	/	GEN	13		
224				CS		1		1020	/	GEN	13		
225				CS		1		1021	/	GEN	13		
226			*	BEGINN	MCW 83,X3 ADDRESS OF END OF LAST STATEMENT								
227				MCW	83,X3 ADDRESS OF END OF LAST STATEMENT	7		1022	M 083 099		13	083	099
228				MCM	2&X3	4		1029	P 0?2		13	002+3	
229				MCW		1		1033	M		13		
230				SBR	X3 ADDRESS OF BEGINNING OF LAST STATEMENT	4		1034	H 099		13	099	
231			*										
232			*		MULTIPLY STATEMENT NUMBER OF LAST STATEMENT BY 3								
233			*										
234				MCW	0&X3,SEQ	7		1038	M 0?0 T20		14	000+3	1320
235				ZA	SEQ,SEQ5	7		1045	? T20 T25		14	1320	1325
236				A	SEQ5	4		1052	A T25		14	1325	
237				A	SEQ,SEQ5	7		1056	A T20 T25		14	1320	1325
238				S	KP2,SEQ5 3 * # STMTS - 2	7		1063	S T26 T25		14	1326	1325
239				MCW	SEQ5,WORK5	7		1070	M T25 T31		14	1325	1331
240				MCW	K16K,SEQ5	7		1077	M T36 T25		15	1336	1325
241				S	WORK5,SEQ5 16000 - (3 * # STMTS - 2)	7		1084	S T31 T25		15	1331	1325
242			*										
243			*		CONVERT TO ADDRESS								
244			*										
245				BAV	LOOP CLEAR OVERFLOW	5		1091	B |96 Z		15	1096	
246			LOOP	A	KP96,SEQ5-3	7		1096	A T38 T22		15	1338	1322

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
247				BAV	LOOP	5		1103	B |96 Z		15	1096	
248				MN	SEQ5-3, *&4	7		1108	D T22 /18		15	1322	1118
249				MZ	ZONES-0, SEQ5-2	7		1115	Y |09 T23		16	1009	1323
250			*										
251				MCW	83, X1	7		1122	M 083 089		16	083	089
252				MCW	X1, NOP&3	7		1129	M 089 /53		16	089	1153
253				MCW	SEQ5, X2	7		1136	M T25 094		16	1325	094
254				MZ	KM1, NOP&2 SET TAG FOR X2	7		1143	Y T39 /52		16	1339	1152
255			NOP	NOP	0 X1 + X2	4		1150	N 000		16	000	
256				SAR	X2	4		1154	Q 094		17	094	
257				S	W2A	4		1158	S T41		17	1341	
258				S	W2B	4		1162	S T43		17	1343	
259				MZ	X2, W2A-1	7		1166	Y 094 T40		17	094	1340
260				MZ	X2-2, W2B-1	7		1173	Y 092 T42		17	092	1342
261			LOOP2	BWZ	LOOP2X, W2B-1, 2	8		1180	V /99 T42 2		17	1199	1342
262				A	K10V, W2B	7		1188	A T45 T43		18	1345	1343
263				B	LOOP2	4		1195	B /80		18	1180	
264			LOOP2X	BWZ	LOOP3X, W2A-1, 2	8		1199	V S18 T40 2		18	1218	1340
265				A	K04V, W2A	7		1207	A T47 T41		18	1347	1341
266				B	LOOP2X	4		1214	B /99		18	1199	
267			LOOP3X	A	W2B-1, W2A	7		1218	A T42 T41		18	1342	1341
268				MCW	X2, SEQ5	7		1225	M 094 T25		19	094	1325
269				MCW	W2A	4		1232	M T41		19	1341	
270				ZA	SEQ5	4		1236	? T25		19	1325	
271				MZ	*-4, SEQ5 CLEAR ZONE IN TENS DIGIT	7		1240	Y S42 T25		19	1242	1325
272				C	SEQ5, K2900	7		1247	C T25 T52		19	1325	1352
273				BL	OK	5		1254	B S93 T		19	1293	
274			*										
275			*	INSUFFICIENT ROOM TO EXPAND EVERY STATEMENT BY THREE CHARACTERS									
276			*										
277				CS	332	4		1259	/ 332		19	332	
278				CS		1		1263	/		20		
279				CC	1	2		1264	F 1		20		
280				MCW	MSG2, 270	7		1266	M T88 270		20	1388	270
281				W		1		1273	2		20		
282				CC	1	2		1274	F 1		20		
283				BCE	HALT, LOADNX, 1	8		1276	B S89 700 1		20	1289	700
284				RWD	1	5		1284	U %U1 R		20	%U1	
285			HALT	H	HALT	4		1289	. S89		21	1289	
286			*										
287			*	SOURCE CODE WILL FIT AFTER EXPANDING EVERY STATEMENT BY									
288			*	THREE CHARACTERS									
289			*										
290			OK	MCW	X2, 83 REPLACE ADDRESS OF BOTTOM OF CODE	7		1293	M 094 083		21	094	083
291				MCM	0&X1	4		1300	P 0|0		21	000+1	
292				SAR	X1 ADDRESS BELOW LAST STATEMENT	4		1304	Q 089		21	089	
293				BSS	SNAPSH, C	5		1308	B 333 C		21	333	
294				B	LOADNX LOAD NEXT OVERLAY	4		1313	B 700		21	700	
295			*										
296			*	CONSTANTS AND WORK AREAS									

SEQ	PG	LIN	LABEL	OP	OPERANDS	SFX	CT	LOCN	INSTRUCTION	TYPE	CARD	A-ADDR	B-ADDR
297			*										
298				DCW	0			1 1317				21	
299			SEQ	DCW	#3 SEQUENCE NUMBER OF LAST STATEMENT			3 1320				22	
300			SEQ5	DCW	#5 STMT NUMBER TIMES 3			5 1325				22	
301			KP2	DCW	&2			1 1326				22	
302			WORK5	DCW	#5			5 1331				22	
303			K16K	DCW	16000			5 1336				22	
304			KP96	DCW	&96			2 1338				22	
305			KM1	DCW	-1			1 1339				22	
306			W2A	DCW	#2			2 1341				23	
307			W2B	DCW	#2			2 1343				23	
308			K10V	DCW	@A0@ TEN, OVERFLOWED			2 1345				23	
309			K04V	DCW	@?4@ 04, OVERFLOWED			2 1347				23	
310			K2900	DCW	02900			5 1352				23	
311			MSG2	DCW	@MESSAGE 2 - OBJECT PROGRAM TOO LARGE@			36 1388				24	
312			* SORT2	DCW	@SORT 2@								
313			GMWM	DCW	@}@			1 1389		GMARK		24	
314			*	DSA	LOADAD LOAD ADDRESS FOR CARD-TO-TAPE PROGRAM								
315				XFR	BEGINN				B |10			24	1010
316			*										
317			*		CLEAR CORE AFTER THE PHASE USING MY CLRTOP ADDRESS								
318			*		THE CLEAR-CORE CODE AT BEGINN IS USED IN PHASE 5.								
319			*		IT'S NOT CLEAR WHY BECAUSE THE SAME AREA WAS CLEARED								
320			*		IN PHASE 3.								
321			*										
322			CLRME	CLRA	BEGINN+12,GMWM					MACRO			
			*							GEN			
			*		CLEAR CORE AFTER A PHASE USING THE CLRTOP ADDRESS					GEN			
			*							GEN			
323				ORG	BEGINN+12&X00				1100				
324			)OR002	EQU	* CLRBOT & X00 - 1			1099		GEN			
325				ORG	201				0201				
			*							GEN			
			*		CLEAR DOWN TO CLRBOT & X00 THE EASY WAY					GEN			
			*							GEN			
326			CLRME	EQU	*&1				0201				
327			)OJ002	CS	GMWM CLEAR FROM CLRTOP			4 0201	/ T89	GEN	25	1389	
328				SBR	)OJ002&3			4 0205	H 204	GEN	25	204	
329				SBR	)0L002&6			4 0209	H 250	GEN	25	250	
330				C	)OJ002&3,)0M002 DOWN TO CLRBOT & X00?			7 0213	C 204 261	GEN	25	204	261
331				BU	)OJ002			5 0220	B 201 /	GEN	25	201	
			*							GEN			
			*		NOW CLEAR DOWN TO CLRBOT THE HARD WAY					GEN			
			*							GEN			
332			)OK002	C	)0L002&6,)0N002			7 0225	C 250 264	GEN	25	250	264
333				BU	)0L002			5 0232	B 244 /	GEN	25	244	
334				CS	LOADNX,)0Q002 LOAD THE NEXT BLOCK AT 1			7 0237	/ 700 271	GEN	26	700	271
335)0L002	LCA)0P002,0-0 CLEAR WITH BLANK AND WORD MARK			7 0244	L 265 000	GEN	26	265	000
336				SBR)0L002&6			4 0251	H 250	GEN	26	250	
337				B)0K002			4 0255	B 225	GEN	26	225	

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338)0M002	DSA)0R002 CLRBOT & X00 - 1	3		0261	99	GEN	26	1099	
339)0N002	DSA	BEGINN+12 CLRBOT	3		0264	22	GEN	26	1022	
340			)0P002	DCW	#1	1		0265		GEN	26		
341				DC	@CLRA @ IDENTIFY IN A DECK, TAPE, OR DUMP	5		0270		GEN	26		
342			)0Q002	DCW	@}@	1		0271		GEN	27		
343				ORG	*&1 START NEW CARD FOR COMPILER-GEN				0273				
			*	DSA	CLRME CLRA					GEN			
344				XFR	CLRME				B 201		27	201	

SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS	SYMBOL	ADDRESS
)0J001	0224: 0	)0J002	0201: 0	)0K001	0228: 0	)0K002	0225: 0	)0L001	0248: 0	)0L002	0244: 0
)0M002	0261: 0	)0N002	0264: 0	)0P002	0265: 0	)0Q002	0271: 0	)0R002	1099: 0	)9J001	0278: 0
)9N001	0288: 0	)9P001	0296: 0	BEGINN	1010: 0	CLRFCT	2599: 0	CLRME	0201: 0	GMWM	1389: 0
HALT	1289: 0	K04V	1347: 0	K10V	1345: 0	K16K	1336: 0	K2900	1352: 0	KM1	1339: 0
KP2	1326: 0	KP96	1338: 0	LOADAD	0838: 0	LOADNX	0700: 0	LOOP	1096: 0	LOOP2	1180: 0
LOOP2X	1199: 0	LOOP3X	1218: 0	MSG2	1388: 0	NOF	1150: 0	OK	1293: 0	PHAS4	0201: 0
PHASID	0110: 0	SEQ	1320: 0	SEQ5	1325: 0	SNAPSH	0333: 0	TYPTAB	0840: 0	W2A	1341: 0
W2B	1343: 0	WORK5	1331: 0	X1	0089: 0	X2	0094: 0	X3	0099: 0	ZONES	1009: 0

UNREFERENCED SYMBOLS

TYPTAB