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/ THIS PROGRAM SOURCE FILE IS SUPPLIED IN CONFIDENCE TO THE
/ CUSTOMER; THE CONTENTS OR DETAILS OF ITS OPERATION MAY ONLY
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/ REQUIRE A KNOWLEDGE OF THE SOFTWARE CODING TO CARRY OUT
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/ AUTHORIZATION FROM THE DIRECTORS OF REDAC SOFTWARE LIMITED
/

/1 SUITE : P.C.B. LAYOUT
/2 PROGRAM TITLE : REDAL23 MARK2
/3 ROUTINE TITLE :
/

/4 AUTHOR :
/5 DATE :
/

/6 PURPOSE :
/

/7 CALLING SEQUENCE AND DESCRIPTION OF ARGUMENTS :
/

/8 I/O DEVICES AND FUNCTIONS :
/

/9 REGISTERS USED :
/

/10 EXTERNAL COMMON AREAS :
/

/11 INTERNAL COMMON AREAS :
/

/12 EXTERNAL GLOBALS :
/

/13 INTERNAL GLOBALS :
/

/14 CONDITIONAL ASSEMBLY PARAMETERS :
/

/15 METHOD :
/

/16 AMENDMENTS :
/

/ REDAC SOFTWARE LIMITED
/

/1 SUITE : P.C.B. SUITE
/2 PROGRAM TITLE :
/3 ROUTINE TITLE : DUMP
/

/4 AUTHOR: K. FOSTER
/5 DATE : DEC 1974

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53 /
54 /6 PURPOSE: READ OR WRITE P.C.B. DUMP TO DISC/DECTAPE/PAPER TAPE.
55 / ASSUMES .INIT AND .SEEK/.ENTER DONE BEFORE ENTRY.
56 / SPECIAL ACTIONS:-
57 / 1) READ REDAL3 DUMP INTO REDAL14 - RELOCATES ROUTES ON TWO
58 / USER DEFINED LAYERS.
59 / 2) READ REDAL14 DUMP INTO REDAL3 OR REDAL10 - GIVES ERROR IF
60 / NO OF LAYERS IN DUMP IS GREATER THAN 2.
61 / 3) READ OF ERRORS AND COMP. NAMES POSITIONS ARRAYS IS INHIBITED
62 / FOR ALL PROGRAMS EXCEPT REDAL3 MK5.
63 /
64 /7 CALLING SEQUENCE AND DESCRIPTION OF ARGUMENTS
65 /
66 / DO NECESSARY .INIT,.SEEK AND/OR .ENTER ON DAT SLOT
67 / CALL DUMP(DAT,DIR)
68 / DAT DAT SLOT
69 / DIR 1 FOR INPUT
70 / 0 FOR OUTPUT
71 /
72 /8 DAT SLOTS AND FUNCTIONS: -3 ERROR MESSAGES
73 /
74 /9 REGISTERS USED: MQ,XR,LR,A,I,R. 10.
75 /
76 /10 LOCAL GLOBALS
77 / .GLOBL DUMP,.DA,BINIOP
78 /
79 /11 EXTERNAL GLOBALS
80 / .GLOBL NUMBER
81 /
82 /12 CONDITIONAL ASSEMBLY
83 /
84 / DEFINE: PROGNO= PROGRAM NUMBER
85 / MARKNO= MARK NUMBER
86 / POSTPR MUST BE DEFINED IF ROUTINE IS TO BE USED IN A
87 / PROCESSOR.
88 /
89 / FOR POST-PROCESSORS DEFINE PROGRAM AND MARK FOR THE PRINCIPAL
90 / PROGRAM IN THE SUITE.
91 /
92 / .IFNZR PROGNO-3
93 / .IFNZR PROGNO-12
94 / .IFNZR PROGNO-16
95 X /PROG. NO. MUST BE DECIMAL 3 ,10 OR 14 BEWARE OCTAL !
96 / .ENDC
97 / .ENDC
98 / .ENDC
99 /
100 /13 COMMON AREAS:
101 / TRAKAD,PADAD,DRILAD,LAYER,NEKWID,NEKLEN
102 / COPPER,BOARD,LIBRY,CONNX,COMPS,ROUTE,ERRORS,NAMES
103 / EOCPAD,EOPRAD,EOLBAD,EOCNAD,EOCMAD,EORTAD,EOERR,EONAME
104 /

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PAGE	3	DUMP	SRC				
105		000000 R 0000000 A	TRAKAD	.CBD	TRAKAD	1	
106		000001 R 0000000 A	PADAD	.CBD	PADAD	1	
107		000002 R 0000000 A	DRILAD	.CBD	DRILAD	1	
108		000003 R 0000000 A	NEKWID	.CBD	NEKWID	1	
109		000004 R 0000000 A	NEKLEN	.CBD	NEKLEN	1	
110		000005 R 0000000 A	LITBUT	.CBD	LITB	1	
111		000006 R 0000000 A	ROUTE	.CBD	ROUTE	1	
112		000007 R 0000000 A	LAYER	.CBD	LAYER	1	
113				.EJECT			

PAGE	4	DUMP	SRC
114	00010	R 000000	A
115	00011	R 120233	E
116	00012	R 600015	R
117	00013	R 000000	A
118	00014	R 000000	A
119	00015	R 220014	R
120	00016	R 740200	A
121	00017	R 600032	R
122			
123			
124			
125	00020	R 200234	R
126	00021	R 742030	A
127	00022	R 340235	R
128	00023	R 040223	R
129	00024	R 220236	R
130	00025	R 040224	R
131	00026	R 735000	A
132			
133	00027	R 737263	A
134			
135	00030	R 230005	R
136	00031	R 040225	R
137			
138	00032	R 100174	R
139	00033	R 000226	R
140	00034	R 000234	R
141	00035	R 100174	R
142	00036	R 000000	R
143	00037	R 000237	R
144	00040	R 100174	R
145	00041	R 000001	R
146	00042	R 000240	R
147	00043	R 100174	R
148	00044	R 000002	R
149	00045	R 000241	R
150	00046	R 100174	R
151	00047	R 000003	R
152	00050	R 000242	R
153	00051	R 100174	R
154	00052	R 000004	R
155	00053	R 000242	R
156	00054	R 100212	R
157	00055	R 000000	A
158	00056	R 100212	R
159	00057	R 000000	A
160	00060	R 100212	R
161	00061	R 000000	A
162	00062	R 100212	R
163	00063	R 000000	A
164	00064	R 100212	R
165	00065	R 000000	A

DUMP	0	JMS*	.DA
	JMP		.+1+2
DAT			
DIR			
	LAC*	DIR	
	SZA		/WRITE MODE?
	JMP	BLOKDN	/NO
/			
/	SETUP	HEADER	BLOCK
/			
	LAC	(PROGNO	
	SWHA		
	TAD	(MARKNO	
	DAC	HEAD	/STORE PROG NUMBER/MARK
	LAC*	(.SCOM+47	
	DAC	HEAD+1	/STORE DATE
	CLX		
	.DEC		
	AXR	179	
	.OCT		
	LAC*	LITBUT,X	
	DAC	HEAD+2	/STORE ELAPSED TIME
/			
BLOKDN	JMS	BIN2	/HEADER BLOCK
	.DSA	HEADAD	
	.DSA	(3	
	JMS	BIN2	/TRACKS ASSIGNMENTS
	.DSA	TRAKAD	
	.DSA	(22	
	JMS	BIN2	/PAD ASSIGNMENTS
	.DSA	PADAD	
	.DSA	(100	
	JMS	BIN2	/DRILL ASSIGNMENTS
	.DSA	DRILAD	
	.DSA	(40	
	JMS	BIN2	/NECK WIDTH ASSIGNMENTS
	.DSA	NEKWID	
	.DSA	(7	
	JMS	BIN2	/MIN NECK UP LENGTH ASSIGNMENTS
	.DSA	NEKLEN	
	.DSA	(7	
	JMS	BIN1	/NO OF LAYERS
	.CBD	LAYER	1
	JMS	BIN1	/COPPER LENGTH
EOCPAD	.CBD	EOCPAD	1
	JMS	BIN1	/BOARD LENGTH
EOBRAD	.CBD	EOBRAD	1
	JMS	BIN1	/LIB. LENGTH
EOLBAD	.CBD	EOLBAD	1
	JMS	BIN1	/CONNS. LENGTH
EOCNAD	.CBD	EOCNAD	1

PAGE	5	DUMP	SRC				
166		00066 R 100212 R		JMS	BIN1	/COMPS. LENGTH	
167		00067 R 000000 A	EOCMAD	.CBD	EOCMAD	1	
168		00070 R 100212 R		JMS	BIN1	/ROUTE LENGTH	
169		00071 R 000000 A	EORTAD	.CBD	EORTAD	1	
170		00072 R 100212 R		JMS	BIN1	/ERRORS LENGTH	
171		00073 R 000000 A	EOERR	.CBD	EOERR	1	
172		00074 R 100212 R		JMS	BIN1	/NAME LENGTH	
173		00075 R 000000 A	EONAME	.CBD	EONAME	1	
174				.EJECT			

PAGE	6	DUMP	SRC
175			.IFZER PROGNO-3
176		000001 A	.3.10=1
177			.ENDC
178			.IFZER PROGNO-12
179			.3.10=1
180			.ENDC
181			.IFDEF .3.10 /COMPILE ONLY IF REDAL3 OR 10
182	00076 R	200223 R	LAC HEAD
183	00077 R	500243 R	AND (777 /GET PROGRAM NUMBER
184	00100 R	540244 R	SAD (16 /REDAL 14?
185	00101 R	741000 A	SKP
186	00102 R	600133 R	JMP REMAIN /NO
187	00103 R	220007 R	LAC* LAYER /NO. OF LAYERS ON BOARD
188	00104 R	740031 A	TCA
189	00105 R	723002 A	AAC 2
190	00106 R	740100 A	SMA /GREATER THAN 2?
191	00107 R	600133 R	JMP REMAIN /NO.
192			.WRITE -3,2,TOOMAN,34 /OUTPUT ERROR MESSAGE
	00110 R	002775 A *G	CAL+2*1000 -3&777
	00111 R	000011 A *G	11
	00112 R	000121 R *G	TOOMAN
			.DEC
	00113 R	777736 A *G	-34
193			.WAIT -3
	00114 R	000775 A *G	CAL -3&777
	00115 R	000012 A *G	12
194	00116 R	750030 A	CLA! IAC
195	00117 R	060063 R	DAC* EOLBAD /CLEAR LIBRARY ARRAY
196	00120 R	600173 R	JMP DEXIT /EXIT DUMP
197			/
198	00121 R	021002 A	TOOMAN 21002
199	00122 R	000000 A	0
200	00123 R	202511 A	.ASCII / TOO MANY LAYERS<<15>
	00124 R	747500 A	
	00125 R	466031 A	
	00126 R	654500 A	
	00127 R	462033 A	
	00130 R	142644 A	
	00131 R	514320 A	
	00132 R	000000 A	
201			.ENDC
202			.EJECT

PAGE	7	DUMP	SRC				
203		00133 R 100174 R	REMAIN	JMS	BIN2	/COPPER	
204		00134 R 000000 A		.CBD	COPPER	1	
205		00135 R 000000 A		.CBD	EOCPAD	1	
206		00136 R 100174 R		JMS	BIN2	/BOARD	
207		00137 R 000000 A		.CBD	BOARD	1	
208		00140 R 000000 A		.CBD	EOBRAD	1	
209		00141 R 100174 R		JMS	BIN2	/LIBRARY	
210		00142 R 000000 A		.CBD	LIBRY	1	
211		00143 R 000000 A		.CBD	EOLBAD	1	
212		00144 R 100174 R		JMS	BIN2	/CONNS.	
213		00145 R 000000 A		.CBD	CONNX	1	
214		00146 R 000000 A		.CBD	EOCNAD	1	
215		00147 R 100174 R		JMS	BIN2	/COMPS	
216		00150 R 000000 A		.CBD	COMPS	1	
217		00151 R 000000 A		.CBD	EOCMAD	1	
218		00152 R 100174 R		JMS	BIN2	/ROUTES	
219		00153 R 000000 A		.CBD	ROUTE	1	
220		00154 R 000000 A		.CBD	EORTAD	1	
221				.EJECT			

PAGE	8	DUMP	SRC
222			.IFZER PROGNO-3
223			.IFZER MARKNO-5
224		.3.5=1	
225			.ENDC
226			.ENDC
227			.IFUND .3.5
228	00155	R 220014 R	LAC* DIR /DIRECTION OF 10
229	00156	R 740200 A	SZA /READ?
230	00157	R 600166 R	JMP DONE /YES. SKIP ERRORS AND COMP NAMES READ
231			.ENDC
232	00160	R 100174 R	JMS BIN2 /ERRORS
233	00161	R 000000 A	.CBD ERRORS 1
234	00162	R 000000 A	.CBD EOERR 1
235	00163	R 100174 R	JMS BIN2 /COMP NAMES
236	00164	R 000000 A	.CBD NAMES 1
237	00165	R 000000 A	.CBD EONAME 1
238	00166	R 220013 R	LAC* DAT
239	00167	R 500243 R	AND (???)
240	00170	R 040171 R	DAC CLS
241	00171	R	.CLOSE 0
	00171	R 000000 A *G	CAL 0&777
	00172	R 000006 A *G	6
242			.EJECT

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243 .IFU POSTPR
244 .IFZER PROGNO-16 /COMPILE IF REDAL 14
245 LAC HEAD
246 SWHA
247 AND (777
248 SAD (3 /DUMP IS FROM REDAL3?
249 SKP /YES
250 JMP DEXIT /NO. EXIT ROUTINE
251 /
252 / THIS CODE MOVES REDAL3 ROUTES TO REDAL14 LAYERS
253 /
254 .WRITE -3,2,LAYERS,34
255 .WAIT -3
256 JMS* NUMBER /READ NEW LAYER NUMBERS
257 DAC LAYER1
258 JMS* NUMBER
259 DAC LAYER1+1
260 /
261 / MOVE REDAL 3 ROUTES TO NEW REDAL14 LAYERS
262 /
263 LAC* ROUTE
264 DAC ROUTAD#
265 CLX
266 LAC* EORTAD
267 AAC -1
268 PAL
269 SPAISNA
270 JMP DEXIT /NO ROUTES TO CONVERT
271 OUTLUP AXR 1
272 LAC* ROUTAD,X
273 LRS 12 /GET ROUTE LENGTH
274 AAC -2
275 TCA
276 DAC COUNT# /COUNT OF NO OF WORDS REMAINING IN ROUTE
277 AXR 1
278 /
279 INLUP LAC* ROUTAD,X /NEXT WORD OF ROUTE
280 LRS 14
281 AND 3 /GET SIDE
282 SAD (1
283 JMP ON
284 SAD (2
285 JMP ON
286 CLA! IAC
287 ON TAD (TAD LAYER1+1
288 DAC ADDLAY
289 LAC* ROUTAD,X
290 LRS 14 /GET COORD AND SEGMENT TYPE INTO MQ
291 AND (60 /REMOVE OLD LAYER
292 ADDLAY /PLUGGED TO GET LAYER NUMBER AT RUN TIME
293 LLS 14 /MOVE COORD ETC INTO ACC.
294 DAC* ROUTAD,X

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295      AXS      1      /ROUTES ARRAY DONE?
296      SKP
297      JMP      DEXIT  /YES
298      ISZ      COUNT  /THIS ROUTE DONE?
299      JMP      INLUP
300      JMP      OUTLUP
301  LAYERS  21002; 0; .ASCII / TYPE LAYERS FOR ROUTES/<15>
302      .ENDC
303      .ENDC
304      .EJECT
```

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305      00173 R 620010 R  DEBIT  JMP*  DUMP
306      /
307      /
308      /
309      /
310      / ROUTINE TO CALL BINIOP.
311      / CALL IS: JMS BIN2
312      / ADDRESS OF ADDRESS OF AREA TO BE OUTPUT
313      / ADDRESS OF LENGTH OF AREA TO BE OUTPUT
314      /
315      00174 R 000000 A  BIN2      0
316      00175 R 220174 R          LAC*   BIN2
317      00176 R 040204 R          DAC   PARAM1
318      00177 R 440174 R          ISZ   BIN2
319      00200 R 220174 R          LAC*   BIN2
320      00201 R 040205 R          DAC   PARAM2
321      00202 R 120231 E          JMS*   BINIOP
322      00203 R 600210 R          JMP    .+1+4
323      00204 R 000000 A  PARAM1
324      00205 R 000000 A  PARAM2
325      00206 R 400013 R          .DSA   DAT!400000
326      00207 R 400014 R          .DSA   DIR!400000
327      00210 R 440174 R          ISZ   BIN2
328      00211 R 620174 R          JMP*   BIN2
329      /
330      / ROUTINE TO CALL BINIOP
331      / CALL IS: JMS BIN1
332      / ADDRESS OF SINGLE WORD TO BE OUTPUT
333      /
334      00212 R 000000 A  BIN1      0
335      00213 R 120231 E          JMS*   BINIOP
336      00214 R 600221 R          JMP    .+1+4
337      00215 R 400212 R          .DSA   BIN1!400000
338      00216 R 000245 R          .DSA   (1
339      00217 R 400013 R          .DSA   DAT!400000
340      00220 R 400014 R          .DSA   DIR!400000
341      00221 R 440212 R          ISZ   BIN1
342      00222 R 620212 R          JMP*   BIN1
343      /
344      /
345      /
346      00223 R          A  HEAD     .BLOCK 3      /HEADER BLOCK - PROGRAM NO/MARKNO
347      /
348      / DATE
349      00226 R 000223 R  HEADAD .DSA   HEAD     /ADDRESS OF HEADER BLOCK
350      000100 A          .SCOM=100
351      00227 R 000000 A  LAYER1 0
352      00230 R 000000 A          0
353      000000 A          .END
354      00231 R 000231 E  *E
355      00232 R 000232 E  *E
356      00233 R 000233 E  *E

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00234 R 000003 A *L
00235 R 000010 A *L
00236 R 000147 A *L
00237 R 000022 A *L
00240 R 000100 A *L
00241 R 000040 A *L
00242 R 000007 A *L
00243 R 000777 A *L
00244 R 000016 A *L
00245 R 000001 A *L

SIZE=00246 NO ERROR LINES

PAGE 13 DUMP CROSS REFERENCE

BINIOP	00231	77	321	335					
BIN1	00212	156	158	160	162	164	166	168	170
		172	334*	337	341	342			
BIN2	00174	138	141	144	147	150	153	203	206
		209	212	215	218	232	235	315*	316
		318	319	327	328				
BLOKDN	00032	121	138*						
CLS	00171	240	241*						
DAT	00013	117*	238	325	339				
DEXIT	00173	196	250	270	297	305*			
DIR	00014	118*	119	228	326	340			
DONE	00166	230	238*						
DRILAD	00002	107*	107	148					
DUMP	00010	77	114*	305					
EOBRAD	00061	161*	161	208					
EOCMAD	00067	167*	167	217					
EOCNAD	00065	165*	165	214					
EOCPAD	00057	159*	159	205					
EOERR	00073	171*	171	234					
EOLBAD	00063	163*	163	195	211				
EONAME	00075	173*	173	237					
EORTAD	00071	169*	169	220	266				
HEAD	00223	128	130	136	182	245	346*	349	
HEADAD	00226	139	349*						
LAYER	00007	112*	112	157	187				
LAYER1	00227	257	259	287	351*				
LITBUT	00005	110*	135						
MARKNO	000010	127	223						
NEKLEN	00004	109*	109	154					
NEKWID	00003	108*	108	151					
NUMBER	00232	80	256	258					
PADAD	00001	106*	106	145					
PARAM1	00204	317	323*						
PARAM2	00205	320	324*						
PROGNO	000003	92	93	94	125	175	178	222	244
REMAIN	00133	186	191	203*					
ROUTE	00006	111*	111	219	263				
TOOMAN	00121	192	198*						
TRAKAD	00000	105*	105	142					
.DA	00233	77	115						
.SCOM	000100	129	350*						
.3.10	000001	176*	179*	181					