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/
/1 SUITE      : P.C.B. LAYOUT
/2 PROGRAM TITLE : REDAL3 MK5
/3 ROUTINE TITLE : DUMPIO
/
/  THIS PROGRAM SOURCE FILE IS SUPPLIED IN CONFIDENCE
/  TO THE CUSTOMER; THE CONTENTS OR DETAILS OF ITS
/  OPERATION MAY ONLY BE DISCLOSED TO PERSONS EMPLOYED
/  BY THE CUSTOMER WHO REQUIRE A KNOWLEDGE OF THE
/  SOFTWARE CODING TO CARRY OUT THEIR JOB. DISCLOSURE TO
/  ANY OTHER PERSON MUST HAVE PRIOR AUTHORISATION FROM THE
/  DIRECTORS OF REDAC SOFTWARE LIMITED
/
/4 .AUTHOR: K. FOSTER
/5 DATE  : JAN 1975
/
/6 PURPOSE: READ OR WRITE A DUMP. THE .INIT, .SEEK
/  OR .ENTER MUST BE PERFORMED BEFORE ENTRY TO THE ROUTINE.
/
/7 CALLING SEQUENCE AND DESCRIPTION OF ARGUMENTS
/
/  CALL DUMPIO(MODE, IDEV)
/  MODE      0 WRITE
/           1 READ
/  IDEV      DAT SLOT NUMBER
/
/8 I/O REGISTERS AND FUNCTIONS:  IDEV FOR DUMP READ/WRITE
/
/9 REGISTERS USED:  XR, LR
/
/10 LOCAL GLOBALS
/  .GLOBL DUMPIO
/
/11 EXTERNAL GLOBALS
/  .GLOBL BINIOP, .DA, DCLOSE
/
/12 COMMON AREAS
/  .XXMON .CBD .XX 1
/  MINMAX .CBD MINMAX 1
/  EOCOPP .CBD EOCOPP 1
/  EOBRD .CBD EOBRD 1
/  EOLIB .CBD EOLIB 1
/  EOCONN .CBD EOCONN 1
/  EOCOMP .CBD EOCOMP 1
/  EOROUT .CBD EOROUT 1
/  DFILAD .CBD DFILAD 1
/  PADS .CBD PADS 1
/  TRAKS .CBD TRAKS 1
/  DRILL .CBD DRILL 1
/
/  641000 A  ECLA=641000
/

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54 00014 R 000000 A DUMPI 0
55 00015 R 120611 E JMS* .DA
56 00016 R 600021 R JMP .+1+2
57 00017 R 000000 A MODE
58 00020 R 000000 A IDEV
59 00021 R 735000 A CLX
60 00022 R 200612 R LAC (6
61 00023 R 722000 A PAL
62 00024 R 230000 R LUP LAC* .XXMON,X
63 00025 R 050531 R DAC COPPER,X
64 00026 R 725001 A AXS 1
65 00027 R 600024 R JMP LUP
66 /
67 /
68 /
69 /
70 00030 R 120610 E JMS* DCLOSE /STOP DISPLAY
71 00031 R 200613 R LAC (DMESS
72 00032 R 703004 A 703004 /DISPLAY 'DUMPING' MESSAGE
73 .DEC
74 00033 R 220010 R LAC* DFILAD
75 00034 R 723144 A AAC 100
76 00035 R 040547 R DAC OUTADD /ADDRESS OF BUFFER FOR OUTPUT
77 00036 R 723004 A AAC 4
78 00037 R 040563 R DAC TR /START OF TRAKS ARRAY FOR OUTPUT
79 00040 R 723011 A AAC 9
80 00041 R 040562 R DAC PD /START OF PADS ARRAY FOR OUTPUT
81 00042 R 340614 R TAD (128
82 00043 R 040565 R DAC COPP /START OF COPPER ARRAY
83 00044 R 340615 R TAD (150
84 00045 R 040564 R DAC BRD /START OF BOARD ARRAY
85 /
86 /
87 00046 R 777555 A LAW -147
88 00047 R 040552 R DAC CNT
89 00050 R 200547 R LAC OUTADD
90 00051 R 723777 A AAC -1
91 00052 R 060616 R DAC* (10
92 00053 R 160012 A ZROLUP DZM* 10 /ZERO ASSIGNMENTS ARRAY
93 00054 R 440552 R ISZ CNT
94 00055 R 600053 R JMP ZROLUP
95 /
96 /
97 00056 R 735000 A CLX /COPY COPPER INTO BUFFER
98 00057 R 200615 R LAC (150
99 00060 R 722000 A PAL
100 00061 R 230531 R COPLUP LAC* COPPER,X
101 00062 R 070565 R DAC* COPP,X
102 00063 R 725001 A AXS 1
103 00064 R 600061 R JMP COPLUP
104 /
105 00065 R 140553 R DZM FRBK

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PAGE	4	DUMPIO	SRC				
106		00066	R 100350 R		JMS	RUTSCH	/CONVERT COPPER TO OLD FORMAT
107		00067	R 220002 R		LAC*	EOCOP	
108		00070	R 340565 R		TAD	COP	
109				/			
110		00071	R 735000 A		CLX		/COPY BOARD INTO BUFFER
111		00072	R 200617 R		LAC	(50	
112		00073	R 722000 A		PAL		
113		00074	R 230532 R	BRDLUP	LAC*	BOARD,X	
114		00075	R 070564 R		DAC*	BRD,X	
115		00076	R 725001 A		AXS	1	
116		00077	R 600074 R		JMP	BRDLUP	
117				/			
118				/			
119		00100	R 777767 A		LAW	-9	/COPY TRACK ASSIGNMENTS TO BUFFER
120		00101	R 040552 R		DAC	CNT	
121		00102	R 140560 R		DZM	CODE	
122		00103	R 200563 R		LAC	TR	
123		00104	R 040557 R		DAC	TO	
124		00105	R 100303 R	LUPY	JMS	GETASS	/GET SIDE 1 ASSIGNMENTS
125		00106	R 220012 R		LAC*	TRAKS	/
126		00107	R 200620 R		LAC	(9	/
127		00110	R 200560 R		LAC	CODE	/
128		00111	R 540621 R		SAD	(1	/
129		00112	R 060557 R		DAC*	TO	
130		00113	R 440557 R		ISZ	TO	
131		00114	R 440560 R		ISZ	CODE	
132		00115	R 440552 R		ISZ	CNT	/ALL PAD ASSIGNMENTS DONE?
133		00116	R 600105 R		JMP	LUPY	/NO
134				/			
135				/			
136				/			
137		00117	R 777752 A		LAW	-22	/COPY PAD ASSIGNMENTS TO BUFFER
138		00120	R 040552 R		DAC	CNT	
139		00121	R 140560 R		DZM	CODE	
140		00122	R 200562 R		LAC	PD	
141		00123	R 040557 R		DAC	TO	
142		00124	R 100251 R		JMS	PADCPY	/GET PAD CODES
143		00125	R 777766 A		LAW	-10	
144		00126	R 040552 R		DAC	CNT	
145		00127	R 200622 R		LAC	(22	
146		00130	R 040560 R		DAC	CODE	
147		00131	R 200562 R		LAC	PD	
148		00132	R 723076 A		AAC	62	
149		00133	R 040557 R		DAC	TO	
150		00134	R 100251 R		JMS	PADCPY	/GET EDGE CONNECTOR CODES
151					.OCT		
152					.EJECT		

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153      00135 R 220002 R LAC* EOCOPP
154      00136 R 040541 R DAC BUFF
155      00137 R 220003 R LAC* EOBRD
156      00140 R 040542 R DAC BUFF+1
157      00141 R 220004 R LAC* EOLIB
158      00142 R 040543 R DAC BUFF+2
159      00143 R 220005 R LAC* EOCONN
160      00144 R 040544 R DAC BUFF+3
161      00145 R 220006 R LAC* EOCOMP
162      00146 R 040545 R DAC BUFF+4
163      00147 R 220007 R LAC* EOROUT
164      00150 R 040546 R DAC BUFF+5
165      00151 R 120607 E JMS* BINIOP
166      00152 R 600157 R JMP .+1+4
167      00153 R 000540 R .DSA BUFFAD
168      00154 R 000612 R .DSA (6
169      00155 R 400020 R .DSA IDEI!400000
170      00156 R 400017 R .DSA MODE!400000
171      00157 R 200541 R LAC BUFF
172      00160 R 060002 R DAC* EOCOPP
173      00161 R 200542 R LAC BUFF+1
174      00162 R 060003 R DAC* EOBRD
175      00163 R 200543 R LAC BUFF+2
176      00164 R 060004 R DAC* EOLIB
177      00165 R 200544 R LAC BUFF+3
178      00166 R 060005 R DAC* EOCONN
179      00167 R 200545 R LAC BUFF+4
180      00170 R 060006 R DAC* EOCOMP
181      00171 R 200546 R LAC BUFF+5
182      00172 R 060007 R DAC* EOROUT
183      00173 R 120607 E JMS* BINIOP /TRANSFER MINMAX, TRAKS, PADS, COPPER, BOARD
184      00174 R 600201 R JMP .+1+4
185      00175 R 000547 R .DSA OUTADD
186      .DEC
187      00176 R 000623 R .DSA (341
188      .OCT
189      00177 R 400020 R .DSA IDEI!400000
190      00200 R 400017 R .DSA MODE!400000
191
192      00201 R 100442 R JMS LIBCON /SHUFFLE PAD CODES TO AGREE WITH REDAL3 ASS. TABLES
193      00202 R 120607 E JMS* BINIOP /LIBRARY ARRAY
194      00203 R 600210 R JMP .+1+4
195      00204 R 000547 R .DSA OUTADD
196      00205 R 400004 R .DSA EOLIB!400000
197      00206 R 400020 R .DSA IDEI!400000
198      00207 R 400017 R .DSA MODE!400000
199      00210 R 120607 E JMS* BINIOP /CONNECTION ARRAY
200      00211 R 600216 R JMP .+1+4
201      00212 R 000534 R .DSA CONN
202      00213 R 400005 R .DSA EOCONN!400000
203      00214 R 400020 R .DSA IDEI!400000
204      00215 R 400017 R .DSA MODE!400000

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PAGE	6	DUMPIO	SRC
205	00216	R 120607	E JMS* BINIOP /COMPONENTS ARRAY
206	00217	R 600224	R JMP .+1+4
207	00220	R 000535	R .DSA COMP
208	00221	R 400006	R .DSA EOCOMP!400000
209	00222	R 400020	R .DSA IDEV!400000
210	00223	R 400017	R .DSA MODE!400000
211	00224	R 140553	R DZM FRBK
212	00225	R 100350	R JMS RUTSCN
213	00226	R 220007	R LAC* EOROUT
214	00227	R 340536	R TAD ROUTE
215	00230	R 120607	E JMS* BINIOP /ROUTES ARRAY
216	00231	R 600236	R JMP .+1+4
217	00232	R 000536	R .DSA ROUTE
218	00233	R 400007	R .DSA EOROUT!400000
219	00234	R 400020	R .DSA IDEV!400000
220	00235	R 400017	R .DSA MODE!400000
221	00236	R 440553	R ISZ FRBK
222	00237	R 100350	R JMS RUTSCN /CONVERT ROUTES ARRAY BACK TO 14 FORMAT
223	00240	R 220007	R LAC* EOROUT
224	00241	R 340536	R TAD ROUTE
225	00242	R 220020	R LAC* IDEV
226	00243	R 500624	R AND (???
227	00244	R 040245	R DAC CLS
228	00245	R	CLS .CLOSE IDEV
	00245	R 000020	R *G CAL IDEV&777
	00246	R 000006	A *G 6
229	00247	R 703044	A EXIT 703044 /DISPLAY OFF
230	00250	R 620014	R JMP* DUMPIO
231			.EJECT

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232 /
233 / ROUTINE TO GET PAD AND DRILL ASSIGNMENTS INTO OLD
234 / DUMP FORMAT.
235 / SET UP BEFORE CALL:- CNT--(NO OF CONSECUTIVE PAD CODES TO
236 / BE CONVERTED)
237 / CODE= CODE NO OF FIRST PAD TYPE TO
238 / BE CONVERTED
239 / TO = ADDRESS TO STORE THE FIRST PAD SIZE
240 /
241 /
242 00251 R 000000 A PADCPY 0
243 00252 R 100303 R LUP1 JMS GETASS /GET SIDE2 ASSIGNMENT
244 00253 R 220011 R LAC* PADS /
245 00254 R 200625 R LAC (40 /
246 00255 R 200560 R LAC CODE /
247 00256 R 540626 R SAD (2 /
248 00257 R 742030 A SWHA
249 00260 R 060557 R DAC* TO
250 00261 R 100303 R JMS GETASS /GET SIDE1 ASSIGNMENT
251 00262 R 220011 R LAC* PADS /
252 00263 R 200625 R LAC (40 /
253 00264 R 200560 R LAC CODE /
254 00265 R 540621 R SAD (1 /
255 00266 R 260557 R XOR* TO
256 00267 R 060557 R DAC* TO
257 00270 R 440557 R ISZ TO
258 /
259 00271 R 220013 R LAC* DRILL /GET DRILL ASSIGNMENT
260 00272 R 340560 R TAD CODE
261 00273 R 040561 R DAC LOCAL
262 00274 R 220561 R LAC* LOCAL
263 00275 R 060557 R DAC* TO
264 00276 R 440557 R ISZ TO
265 00277 R 440560 R ISZ CODE
266 00300 R 440552 R ISZ CNT
267 00301 R 600252 R JMP LUP1
268 00302 R 620251 R JMP* PADCPY
269 .EJECT

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270 / GET ASSIGNMENT OUT OF NEW STYLE ASSIGNMENT TABLE.
271 / CALL IS:-
272 /
273 /
274 /
275 / JMS GETASS
276 / LAC TABLE ADDRESS
277 / LAC LENGTH OF FIXED PART OF TABLE
278 / LAC ASSIGNMENT CODE
279 / SAD LAYER NUMBER
280 /
281 /
282 GETASS 0
283 00304 R 420303 R XCT* GETASS
284 00305 R 040556 R DAC BASE /ASSIGNMENT TABLE ADDRESS
285 00306 R 440303 R ISZ GETASS
286 00307 R 420303 R XCT* GETASS
287 00310 R 040555 R DAC FIX /LENGTH OF FIXED PART OF TABLE
288 00311 R 440303 R ISZ GETASS
289 00312 R 420303 R XCT* GETASS
290 00313 R 721000 A PAX
291 00314 R 440303 R ISZ GETASS
292 00315 R 230556 R LAC* BASE,X /GET PRINCIPAL ASSIGNMENT
293 00316 R 653605 A LMQ!ECLA!LLS 5 /GET REASS. POINTER
294 00317 R 741200 A SNA
295 00320 R 600345 R JMP FOUND /NO REASSIGNMENTS
296 00321 R 721000 A PAX
297 00322 R 640604 A LLS 4 /MOVE ASS. TO TOP OF MQ
298 00323 R 641611 A ECLA!LLS 11
299 00324 R 040554 R DAC ASSIGN
300 00325 R 200556 R LAC BASE
301 00326 R 340555 R TAD FIX
302 00327 R 723777 A AAC -1
303 00330 R 040556 R DAC BASE /BASE ADDRESS OF REASSIGNMENTS
304 /
305 00331 R 230556 R LUPZ LAC* BASE,X
306 00332 R 653605 A LMQ!ECLA!LLS 5
307 00333 R 721000 A PAX
308 00334 R 641604 A ECLA!LLS 4
309 00335 R 420303 R XCT* GETASS /SAD LAYER NUMBER
310 00336 R 600346 R JMP FOUND1 /YES. RIGHT LAYER
311 00337 R 724000 A PXA
312 00340 R 740200 A SZA
313 00341 R 600331 R JMP LUPZ /MORE REASSIGNMENTS
314 00342 R 200554 R LAC ASSIGN
315 00343 R 440303 R LEXIT ISZ GETASS
316 00344 R 620303 R JMP* GETASS
317 /
318 00345 R 640604 A FOUND LLS 4
319 00346 R 641611 A FOUND1 ECLA!LLS 11
320 00347 R 600343 R JMP LEXIT
321 .EJECT

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322 /
323 / CONVERT ROUTES ARRAY.
324 / FRBK - ZERO TO CONVERT FROM RL14 TO RL3 FORMAT
325 / - NON-ZERO FOR RL3 TO RL14
326 /
327 / CALLING SEQUENCE: JMS RUTSCN
328 / LAC END OF ARRAY POINTER
329 / TAD START ADDRESS
330 /
331 /
332 00350 R 000000 A RUTSCN 0
333 00351 R 420350 R XCT* RUTSCN
334 00352 R 440350 R ISZ RUTSCN
335 00353 R 420350 R XCT* RUTSCN
336 00354 R 723777 A AAC -1
337 00355 R 722000 A PAL
338 00356 R 750000 A CLA
339 00357 R 420350 R XCT* RUTSCN
340 00360 R 440350 R ISZ RUTSCN
341 00361 R 723777 A AAC -1
342 00362 R 721000 A PAX
343 00363 R 060627 R DAC* (10
344 00364 R 725001 A RUTLUP AXS 1 /ROUTES ALL DONE?
345 00365 R 741000 A SKP
346 00366 R 620350 R JMP* RUTSCN /YES
347 00367 R 230550 R LAC* ZERO,X
348 00370 R 060010 A DAC* 10 /COPY OVER FIRST WORD OF ROUTE
349 00371 R 737001 A AXR 1
350 00372 R 230550 R LAC* ZERO,X
351 00373 R 060010 A DAC* 10 /COPY OVER SECOND WORD
352 00374 R 640512 A LRS 12
353 00375 R 500630 R AND (377 /NO OF WORDS IN ROUTE
354 00376 R 723776 A AAC -2 /-2 WORDS ALREADY MOVED
355 00377 R 740031 A TCA
356 00400 R 040552 R DAC CNT
357 00401 R 737001 A RTLP2 AXR 1
358 00402 R 200553 R LAC FRBK
359 00403 R 740200 A SZA /14 TO 3 TYPE CONVERT?
360 00404 R 600407 R JMP ON /NO
361 00405 R 100414 R JMS .14TO3
362 00406 R 600410 R JMP ON1
363 00407 R 100427 R ON JMS .3TO14
364 00410 R 060010 A ON1 DAC* 10
365 00411 R 440552 R ISZ CNT /THIS ROUTE DONE?
366 00412 R 600401 R JMP RTLP2 /NO
367 00413 R 600364 R JMP RUTLUP /YES
368 .EJECT

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DUMP IO SRC

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/
/  CONVERT REDAL14 TYPE ROUTE WORD TO A REDAL3 TYPE ROUTE
/
.14TO3  0
        LAC*    ZERO,X
        AND     (400000
        DAC     VALBIT  /VALIDITY BIT
        LAC*    ZERO,X
        LMQ!LLS 10
        RTL
        LLS     12
        AND     (371777
        XOR     VALBIT
        JMP*    .14TO3
/
/
/
/  CONVERT REDAL3 TYPE ROUTE WORD TO REDAL14 FORMAT
/
.3TO14  0
        LAC*    ZERO,X
        AND     (400000
        DAC     VALBIT  /STORE VALIDITY BIT
        LAC*    ZERO,X
        LMQ!ECLA!LLS 10
        RTR
        LLS     12
        AND     (077777
        XOR     VALBIT
        JMP*    .3TO14
        .EJECT

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400
401
402
403
404
405      00442 R 000000 A      /
406      00443 R 200533 R      / COPY LIBRARY ARRAY INTO WORKSPACE (OUTADD) AND CHANGE PAD
407      00444 R 721000 A      / CODES ON LIBRARY ITEMS TO AGREE WITH SHUFFLED ASSIGNMENT
408      00445 R 360004 R      / TABLES.
409      00446 R 723777 A      /
410      00447 R 722000 A      LIBCON 0
411      00450 R 200547 R      LAC LIB /START ADDRESS OF THE LIBRARY ARRAY
412      00451 R 723777 A      PAX
413      00452 R 060627 R      TAD* EOLIB
414      00453 R 230550 R      AAC -1
415      00454 R 060010 A      PAL
416      00455 R 725001 A      LAC OUTADD
417      00456 R 600453 R      AAC -1
418
419
420      00457 R 200547 R      DAC* (10
421      00460 R 040567 R      LIBLP1 LAC* ZERO.X /COPY LIB ARRAY INTO WORKSPACE
422      00461 R 360004 R      DAC* 10
423      00462 R 723777 A      AXS 1
424      00463 R 040566 R      JMP LIBLP1
425      00464 R 200567 R      /
426      00465 R 540566 R      LAC OUTADD /LIB ARRAY START
427      00466 R 620442 R      DAC LIBPTR /POINTER TO NEXT LIB ITEM
428      00467 R 721000 A      TAD* EOLIB
429      00470 R 220567 R      AAC -1
430      00471 R 340567 R      DAC LIBEND /ABS. POINTER TO END OF LIB ARRAY
431      00472 R 722000 A      LIBLUP LAC LIBPTR
432      00473 R 725003 A      SAD LIBEND
433      00474 R 741000 A      JMP* LIBCON /ALL DONE
434      00475 R 600520 R      PAX
435      00476 R 230550 R      LAC* LIBPTR
436      00477 R 653606 A      TAD LIBPTR
437      00500 R 100523 R      PAL
438      00501 R 040570 R      INLUP AXS 3
439      00502 R 641606 A      SKP
440      00503 R 100523 R      JMP NEXLIB
441      00504 R 040571 R      LAC* ZERO.X
442      00505 R 641606 A      LMQ!ECLA!LLS 6
443      00506 R 100523 R      JMS CHANGE
444      00507 R 744000 A      DAC S1
445      00510 R 640506 A      ECLA!LLS 6
446      00511 R 200571 R      JMS CHANGE
447      00512 R 640506 A      DAC S2
448      00513 R 200570 R      ECLA!LLS 6
449      00514 R 640614 A      JMS CHANGE
450      00515 R 070550 R      CLL
451      00516 R 737001 A      LRS 6
                                LAC S2
                                LRS 6
                                LAC S1
                                LLS 14
                                DAC* ZERO.X
                                AXR 1

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```
452      00517 R 600473 R      JMP INLUP
453      /
454      /
455      00520 R 730000 A      NEXLIB PLA
456      00521 R 040567 R      DAC LIBPTR
457      00522 R 600464 R      JMP LIBLUP
458      /
459      /
460      /      CHANGE PAD CODE TO AGREE WITH NEW ASSIGNMENT TABLES.
461      /      ENTER WITH PAD CODE IN ACC. EXIT WITH CHANGED PAD CODE
462      /      IN ACC.
463      /
464      00523 R 000000 A      CHANGE 0
465      .DEC
466      00524 R 723752 A      AAC -22
467      00525 R 740100 A      SMA /CODE>21?
468      00526 R 723011 A      AAC 9 /YES. INCREASE IT
469      00527 R 723026 A      AAC 22
470      .OCT
471      00530 R 620523 R      JMP* CHANGE
472      .EJECT
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473 00531 R 000000 A COPPER
474 00532 R 000000 A BOARD
475 00533 R 000000 A LIB
476 00534 R 000000 A CONN
477 00535 R 000000 A COMP
478 00536 R 000000 A ROUTE
479 00537 R 000000 A MINMX /ADDRESS OF MINMAX
480 00540 R 000541 R BUFFAD .DSA BUFF
481 /
482 00541 R A BUFF .BLOCK 6
483 00547 R 000000 A OUTADD
484 00550 R 000000 A ZERO 0
485 00551 R 000000 A VALBIT /ROUTE/SEGMENT VALIDITY BIT
486 00552 R 000000 A CNT /GENERAL PURPOSE COUNTER
487 00553 R 000000 A FRBK /ZERO - CONVERT FROM RL14 TO RL3
488 /NON-ZERO CONVERT RL3 TO RL14
489 00554 R 000000 A ASSIGN /ASSIGNMENT VALUE
490 00555 R 000000 A FIX /LENGTH OF FIXED PART OF ASSIGNMENT ARRAY
491 00556 R 000000 A BASE /START ADDRESS OF ASSIGNMENTS ARRAY
492 00557 R 000000 A TO /ADDRESS TO STORE PAD SIZE IN PADCPY
493 00560 R 000000 A CODE /CODE NO OF PAD TYPE TO BE CONVERTED BY PADCPY
494 00561 R 000000 A LOCAL /WORK SPACE IN PADCPY
495 00562 R 000000 A PD /START OF DUMMY PADS ARRAY
496 00563 R 000000 A TR / " " " TRAKS "
497 00564 R 000000 A BRD / " " " BOARD "
498 00565 R 000000 A COPP / " " " COPPER "
499 00566 R 000000 A LIBEND /POINTER TO END OF LIBRARY ARRAY
500 00567 R 000000 A LIBPTR /POINTER TO START OF LIBRARY ITEM
501 00570 R 000000 A S1 /PAD CODE
502 00571 R 000000 A S2 /PAD CODE
503 .EBREL
504 00572 R 203222 A DMESS 203222 /BRIGHTNESS AND SCALE
505 00573 R 210012 A 210012 /OFFSET AND LP OFF
506 00574 R 236000 A 236000 /SYNC ON
507 00575 R 144200 A 144200 /XPOSN
508 00576 R 140511 A 140511 /YPOSN
509 00577 R 000104 A 104 /D
510 00600 R 000125 A 125 /U
511 00601 R 000115 A 115 /M
512 00602 R 000120 A 120 /P
513 00603 R 000111 A 111 /I
514 00604 R 000116 A 116 /N
515 00605 R 000107 A 107 /G
516 00606 R 600572 R JMP DMESS
517 .DBREL
518 .END
00607 R 000607 E *E
00610 R 000610 E *E
00611 R 000611 E *E
00612 R 000006 A *L
00613 R 000572 R *L
00614 R 000200 A *L

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```
00615 R 000226 A *L
00616 R 000012 A *L
00617 R 000062 A *L
00620 R 000011 A *L
00621 R 000001 A *L
00622 R 000026 A *L
00623 R 000525 A *L
00624 R 000777 A *L
00625 R 000040 A *L
00626 R 000002 A *L
00627 R 000010 A *L
00630 R 000377 A *L
00631 R 400000 A *L
00632 R 371777 A *L
00633 R 077777 A *L
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SIZE=00634

NO ERROR LINES

ASSIGN	00554	299	314	489*					
BASE	00556	284	292	300	303	305	491*		
BINIOP	00607	35	165	183	193	199	205	215	
BOARD	00532	113	474*						
BRD	00564	84	114	497*					
BRDLUP	00074	113*	116						
BUFF	00541	154	156	158	160	162	164	171	173
		175	177	179	181	480	482*		
BUFFAD	00540	167	480*						
CHANGE	00523	437	440	443	464*	471			
CLS	00245	227	228*						
CNT	00552	88	93	120	132	138	144	266	356
		365	486*						
CODE	00560	121	127	131	139	146	246	253	260
		265	493*						
COMP	00535	207	477*						
CONN	00534	201	476*						
COPLUP	00061	100*	103						
COPP	00565	82	101	108	498*				
COPPER	00531	63	100	473*					
DCLOSE	00610	35	70						
DFILAD	00010	46*	46	74					
DMESS	00572	71	504*	516					
DRILL	00013	49*	49	259					
DUMPIO	00014	32	54*	230					
ECLA	641000	51*	293	298	306	308	319	393	436
		439	442						
EOBRD	00003	41*	41	155	174				
EOCOMP	00006	44*	44	161	180	208			
EOCONN	00005	43*	43	159	178	202			
EOCOPP	00002	40*	40	107	153	172			
EOLIB	00004	42*	42	157	176	196	408	422	
EOROUT	00007	45*	45	163	182	213	218	223	
EXIT	00247	229*							
FIX	00555	287	301	490*					
FOUND	00345	295	318*						
FOUND1	00346	310	319*						
FRBK	00553	105	211	221	358	487*			
GETASS	00303	124	243	250	282*	283	285	286	288
		289	291	309	315	316			
IDEV	00020	58*	169	189	197	203	209	219	225
		228							
INLUP	00473	432*	452						
LEXIT	00343	315*	320						
LIB	00533	406	475*						
LIBCON	00442	192	405*	427					
LIBEND	00566	424	426	499*					
LIBLP1	00453	414*	417						
LIBLUP	00464	425*	457						
LIBPTR	00567	421	425	429	430	456	500*		
LOCAL	00561	261	262	494*					
LUP	00024	62*	65						
LUPY	00105	124*	133						

LUPZ	00331	305*	313						
LUP1	00252	243*	267						
MINMAX	00001	39*	39						
MINMX	00537	479*							
MODE	00017	57*	170	190	198	204	210	220	
NEXLIB	00520	434	455*						
ON	00407	360	363*						
ON1	00410	362	364*						
OUTADD	00547	76	89	185	195	411	420	483*	
PADCPY	00251	142	150	242*	268				
PADS	00011	47*	47	244	251				
PD	00562	80	140	147	495*				
ROUTE	00536	214	217	224	478*				
RTL2	00401	357*	366						
RUTLUP	00364	344*	367						
RUTSCN	00350	106	212	222	332*	333	334	335	339
		340	346						
S1	00570	438	448	501*					
S2	00571	441	446	502*					
TO	00557	123	129	130	141	149	249	255	256
		257	263	264	492*				
TR	00563	78	122	496*					
TRAKS	00012	48*	48	125					
VALBIT	00551	375	381	391	397	485*			
ZERO	00550	347	350	373	376	389	392	414	435
		450	484*						
ZROLUP	00053	92*	94						
.DA	00611	35	55						
.XXMON	00000	38*	62						
.14T03	00414	361	372*	382					
.3T014	00427	363	388*	398					