

```
CLEAR STORAGE 1 ,008015,022026,030037,044,049,053053N000000N00001026 1
CLEAR STORAGE 2 L068116,105106,110117B101/I9I#071029C029056B026/B001/0991,001/001117I0? 2
BOOTSTRAP ,008015,022029,036040,047054,061068,072/061039 ,0010011040 3
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FORTRAN COMPILER -- TAMROF PHASE ONE -- 23 PAGE 1

| SEQ | PG | LIN | LABEL | OP | OPERANDS | SFX | CT | LOCN | INSTRUCTION | TYPE | CARD |
|-----|-----|-----|--------|-----|--|-----|------|-------------|-------------|------|------|
| 101 | | | JOB | | FORTRAN COMPILER -- TAMROF PHASE ONE -- 23 | | | | | | |
| 102 | | | CTL | | 6611 | | | | | | |
| 103 | | | * | | | | | | | | |
| 104 | | | * | | FORMAT STATEMENTS ARE CHECKED TO INSURE THAT THEY ARE | | | | | | |
| 105 | | | * | | REFERENCED BY INPUT-OUTPUT STATEMENTS | | | | | | |
| 106 | | | * | | | | | | | | |
| 107 | | | * | | ON ENTRY, 81-83 IS ONE BELOW THE NUMBER TABLE, WHICH IS THE | | | | | | |
| 108 | | | * | | GMWM ABOVE THE TOP STATEMENT IN HIGH CORE, X1 IS THE | | | | | | |
| 109 | | | * | | GMWM BELOW THE BOTTOM STATEMENT IN LOW CORE, X2 IS ONE BELOW | | | | | | |
| 110 | | | * | | THE GMWM BELOW THE BOTTOM STATEMENT IN HIGH CORE | | | | | | |
| 111 | | | * | | | | | | | | |
| 112 | | | * | | ON EXIT, X1 IS THE TOP OF STATEMENTS, X2 IS THE TOP OF | | | | | | |
| 113 | | | * | | FORMATTED I/O STATEMENTS, AND 81-83 IS ONE BELOW THE NUMBER | | | | | | |
| 114 | | | * | | TABLE | | | | | | |
| 115 | | | * | | | | | | | | |
| 116 | | | X1 | EQU | 89 | | | 0089 | | | |
| 117 | | | X2 | EQU | 94 | | | 0094 | | | |
| 118 | | | X3 | EQU | 99 | | | 0099 | | | |
| 119 | | | * | | | | | | | | |
| 120 | | | * | | STUFF IN THE RESIDENT AREA | | | | | | |
| 121 | | | * | | | | | | | | |
| 122 | | | PHASID | EQU | 110 | | | 0110 | | | |
| 123 | | | GLOBER | EQU | 184 | | | 0184 | | | |
| 124 | | | SNAPSH | EQU | 333 | | | 0333 | | | |
| 125 | | | LOADNX | EQU | 700 | | | 0700 | | | |
| 126 | | | CLEARL | EQU | 707 | | | 0707 | | | |
| 127 | | | CDOVLY | EQU | 769 | | | 0769 | | | |
| 128 | | | TPREAD | EQU | 780 | | | 0780 | | | |
| 129 | | | CLRBOT | EQU | 833 | | | 0833 | | | |
| 130 | | | * | | | | | | | | |
| 131 | | | ORG | | 838 | | | | 0838 | | |
| 132 | | | LOADDD | EQU | *&1 | | | 0838 | | | |
| 133 | | | * | | | | | | | | |
| 134 | | | * | | THE TOOBIG AND MSG ROUTINES ARE NOT REFERENCED HERE. WHY ARE | | | | | | |
| 135 | | | * | | NOT SIMPLY IN PHASE 24? | | | | | | |
| 136 | | | * | | | | | | | | |
| 137 | 838 | | TOOBIG | CS | 332 | 4 | 0838 | / 332 | | | 4 |
| 138 | 842 | | | CS | | 1 | 0842 | / | | | 4 |
| 139 | 843 | | | CC | 1 | 2 | 0843 | F 1 | | | 4 |
| 140 | 845 | | | MCW | ERROR2,270 | 7 | 0845 | M 963 270 | | | 4 |
| 141 | 852 | | | W | | 1 | 0852 | 2 | | | 4 |
| 142 | 853 | | | CC | 1 | 2 | 0853 | F 1 | | | 4 |
| 143 | 855 | | | BCE | HALT,CDOVLY,1 | 8 | 0855 | B 868 769 1 | | | 4 |
| 144 | 863 | | | RWD | 1 | 5 | 0863 | U %U1 R | | | 5 |
| 145 | 868 | | HALT | H | HALT | 4 | 0868 | . 868 | | | 5 |
| 146 | | | * | | | | | | | | |
| 147 | 872 | | SEMIC | DCW | @;@ | 1 | 0872 | | | | 5 |

| SEQ | PG | LIN | LABEL | OP | OPERANDS | SFX | CT | LOCN | INSTRUCTION | TYPE | CARD |
|-----|----|-----|--------|-----|--|-----|----|------|-------------|------|------|
| 148 | | 875 | SX3 | DCW | #3 USED TO SAVE X3 EXACTLY ONCE | 3 | | 0875 | | | 5 |
| 149 | | 879 | SEQCOD | DCW | #4 | 4 | | 0879 | | | 5 |
| 150 | | | * | | | | | | | | |
| 151 | | | * | | FILL IN ERROR MESSAGE BOILERPLATE | | | | | | |
| 152 | | | * | | | | | | | | |
| 153 | | 880 | MSG | SBR | MSGX&3 | 4 | | 0880 | H 927 | | 5 |
| 154 | | 884 | | BCV | *&5 | 5 | | 0884 | B 893 @ | | 5 |
| 155 | | 889 | | B | *&3 | 4 | | 0889 | B 895 | | 6 |
| 156 | | 893 | | CC | 1 | 2 | | 0893 | F 1 | | 6 |
| 157 | | 895 | | CS | 332 | 4 | | 0895 | / 332 | | 6 |
| 158 | | 899 | | CS | | 1 | | 0899 | / | | 6 |
| 159 | | 900 | | SW | GLOBER | 4 | | 0900 | , 184 | | 6 |
| 160 | | 904 | | MN | SEQCOD,250 | 7 | | 0904 | D 879 250 | | 6 |
| 161 | | 911 | | MN | | 1 | | 0911 | D | | 6 |
| 162 | | 912 | | MN | | 1 | | 0912 | D | | 7 |
| 163 | | 913 | | MCW | STMT | 4 | | 0913 | M 974 | | 7 |
| 164 | | 917 | | MCW | ERR,205 | 7 | | 0917 | M 979 205 | | 7 |
| 165 | | 924 | MSGX | B | 0 | 4 | | 0924 | B 000 | | 7 |
| 166 | | 963 | ERROR2 | DCW | @MESSAGE 2 - OBJECT PROGRAM TOO LARGE@ | 36 | | 0963 | | | 8 |
| 167 | | 974 | STMT | DCW | @STATEMENT @ | 11 | | 0974 | | | 9 |
| 168 | | 979 | ERR | DCW | @ERROR@ | 5 | | 0979 | | | 9 |
| 169 | | | * | | | | | | | | |
| 170 | | 980 | BEGINN | CS | 1&X2 | 4 | | 0980 | / 0!1 | | 9 |
| 171 | | 984 | | SBR | X1 | 4 | | 0984 | H 089 | | 9 |
| 172 | | 988 | | SW | GMWM | 4 | | 0988 | , V03 | | 9 |
| 173 | | 992 | CLRL | CS | 0&X1 | 4 | | 0992 | / 0!0 | | 9 |
| 174 | | 996 | | SBR | X1 | 4 | | 0996 | H 089 | | 9 |
| 175 | 1 | 000 | | C | X1,KBOT | 7 | | 1000 | C 089 U36 | | 10 |
| 176 | 1 | 007 | | BU | CLRL | 5 | | 1007 | B 992 / | | 10 |
| 177 | 1 | 012 | | LCA | GMWM,2601 | 7 | | 1012 | L V03 001 | | 10 |
| 178 | 1 | 019 | | SBR | X1,2602 | 7 | | 1019 | H 089 002 | | 10 |
| 179 | 1 | 026 | | SBR | X2,2&X2 | 7 | | 1026 | H 094 0!2 | | 10 |
| 180 | 1 | 033 | | MCW | DOT,96 NO FORMAT STATEMENT SEEN | 7 | | 1033 | M U37 096 | | 11 |
| 181 | 1 | 040 | | SW | FLAG | 4 | | 1040 | , U38 | | 11 |
| 182 | 1 | 044 | LOOP | MCW | 83,X3 TOP OF STATEMENTS IN TOP CORE | 7 | | 1044 | M 083 099 | | 11 |
| 183 | 1 | 051 | | SBR | X3,1&X3 | 7 | | 1051 | H 099 0?1 | | 11 |
| 184 | 1 | 058 | | C | X3,X2 MOVED TOP STATEMENT UP? | 7 | | 1058 | C 099 094 | | 11 |
| 185 | 1 | 065 | | BE | DONE YES | 5 | | 1065 | B S16 S | | 11 |
| 186 | 1 | 070 | | CW | FLAG2 MOVING BODY | 4 | | 1070 |) U39 | | 12 |
| 187 | 1 | 074 | | MN | 0&X2 | 4 | | 1074 | D 0!0 | | 12 |
| 188 | 1 | 078 | | SAR | X3 | 4 | | 1078 | Q 099 | | 12 |
| 189 | 1 | 082 | | MCW | SEMIC | 4 | | 1082 | M 872 | | 12 |
| 190 | 1 | 086 | MOVEDN | MN | 0&X1 | 4 | | 1086 | D 0!0 | | 12 |
| 191 | 1 | 090 | | SAR | X1 | 4 | | 1090 | Q 089 | | 12 |
| 192 | 1 | 094 | MORE | MCM | 0&X2 | 4 | | 1094 | P 0!0 | | 12 |
| 193 | 1 | 098 | | SAR | SX2&6 | 4 | | 1098 | Q /20 | | 13 |
| 194 | 1 | 102 | | MCM | 0&X2,1&X1 | 7 | | 1102 | P 0!0 0!1 | | 13 |
| 195 | 1 | 109 | | MN | | 1 | | 1109 | D | | 13 |
| 196 | 1 | 110 | | SBR | X1 | 4 | | 1110 | H 089 | | 13 |
| 197 | 1 | 114 | SX2 | SBR | X2,0 | 7 | | 1114 | H 094 000 | | 13 |

| SEQ | PG | LIN | LABEL | OP | OPERANDS | SFX | CT | LOCN | INSTRUCTION | TYPE | CARD |
|-----|----|-----|--------|-------|---|-----|------|-------------|-------------|-------|------|
| 198 | 1 | 121 | | BCE | MORE,0&X1, | 8 | 1121 | B 94 0 0 | | | 13 |
| 199 | 1 | 129 | | MN | 0&X2 | 4 | 1129 | D 0 0 | | | 13 |
| 200 | 1 | 133 | | CW | | 1 | 1133 |) | | | 14 |
| 201 | 1 | 134 | | SW | 0&X1 | 4 | 1134 | , 0 0 | | | 14 |
| 202 | 1 | 138 | | SBR | X1,1&X1 | 7 | 1138 | H 089 0 1 | | | 14 |
| 203 | 1 | 145 | | BW | PREFIX,FLAG2 PROCESSING PREFIX? | 8 | 1145 | V /61 U39 1 | | | 14 |
| 204 | 1 | 153 | | SW | FLAG2 MOVING PREFIX | 4 | 1153 | , U39 | | | 14 |
| 205 | 1 | 157 | | B | MOVEDN | 4 | 1157 | B 86 | | | 14 |
| 206 | 1 | 161 | PREFIX | MN | 0&X1 | 4 | 1161 | D 0 0 | | | 14 |
| 207 | 1 | 165 | | MN | | 1 | 1165 | D | | | 15 |
| 208 | 1 | 166 | | SAR | X3 | 4 | 1166 | Q 099 | | | 15 |
| 209 | 1 | 170 | | SBR | SETZON&6 | 4 | 1170 | H T97 | | | 15 |
| 210 | 1 | 174 | | MCW | 0&X3,SEQCOD | 7 | 1174 | M 0?0 879 | | | 15 |
| 211 | 1 | 181 | | SAR | X3 | 4 | 1181 | Q 099 | | | 15 |
| 212 | 1 | 185 | | BCE | FORMAT,SEQCOD-3,F FORMAT STATEMENT? | 8 | 1185 | B T15 876 F | | | 15 |
| 213 | 1 | 193 | | MCW | SEQCOD-3,*&8 | 7 | 1193 | M 876 S07 | | | 15 |
| 214 | 1 | 200 | | BCE | FMTIO,STMTS,X FORMATTED I/O STATEMENT? | 8 | 1200 | B S91 U44 X | | | 16 |
| 215 | 1 | 208 | | CHAIN | 4 | | | | | MACRO | |
| 216 | | | | BCE | | 1 | 1208 | B | | GEN | 16 |
| 217 | | | | BCE | | 1 | 1209 | B | | GEN | 16 |
| 218 | | | | BCE | | 1 | 1210 | B | | GEN | 16 |
| 219 | | | | BCE | | 1 | 1211 | B | | GEN | 16 |
| 220 | 1 | 212 | | B | LOOP | 4 | 1212 | B 44 | | | 16 |
| 221 | | | | * | | | | | | | |
| 222 | | | | * | GOT TO BOTTOM OF STATEMENTS | | | | | | |
| 223 | | | | * | | | | | | | |
| 224 | 1 | 216 | DONE | MN | 0&X1 | 4 | 1216 | D 0 0 | | | 16 |
| 225 | 1 | 220 | | MN | | 1 | 1220 | D | | | 17 |
| 226 | 1 | 221 | | SAR | X1 TOP OF STATEMENTS | 4 | 1221 | Q 089 | | | 17 |
| 227 | 1 | 225 | | MCW | SX1,X2 TOP OF TOP FORMATTED I/O STATEMENT | 7 | 1225 | M U57 094 | | | 17 |
| 228 | 1 | 232 | | MCW | 83,X3 ONE BELOW NUMBER TABLE | 7 | 1232 | M 083 099 | | | 17 |
| 229 | 1 | 239 | | MCW | KB1,0&X3 CLEAR STATEMENTS | 7 | 1239 | M U45 0?0 | | | 17 |
| 230 | 1 | 246 | | MCW | 0&X3 RECENTLY MOVED DOWN | 4 | 1246 | M 0?0 | | | 17 |
| 231 | 1 | 250 | | MCW | SEMIC,0&X3 BELOW NUMBER TABLE | 7 | 1250 | M 872 0?0 | | | 17 |
| 232 | 1 | 257 | | BSS | SNAPSH,C | 5 | 1257 | B 333 C | | | 18 |
| 233 | 1 | 262 | | SBR | TPREAD&6,980 | 7 | 1262 | H 786 980 | | | 18 |
| 234 | 1 | 269 | | SBR | CLRBOT | 4 | 1269 | H 833 | | | 18 |
| 235 | 1 | 273 | | SBR | CLEARL&3,2600 | 7 | 1273 | H 710 000 | | | 18 |
| 236 | 1 | 280 | | LCA | FMT2,PHASID | 7 | 1280 | L U53 110 | | | 18 |
| 237 | 1 | 287 | | B | LOADNX | 4 | 1287 | B 700 | | | 18 |
| 238 | | | | * | | | | | | | |
| 239 | | | | * | FOUND FORMATTED I/O STATEMENT | | | | | | |
| 240 | | | | * | | | | | | | |
| 241 | 1 | 291 | FMTIO | MZ | ABZONE,3&X3 BOTTOM OF SEQUENCE NUMBER | 7 | 1291 | Y U54 0?3 | | | 19 |
| 242 | 1 | 298 | | CW | FLAG | 4 | 1298 |) U38 | | | 19 |
| 243 | 1 | 302 | | MN | 0&X1 | 4 | 1302 | D 0 0 | | | 19 |
| 244 | 1 | 306 | | MN | | 1 | 1306 | D | | | 19 |
| 245 | 1 | 307 | | SAR | SX1 TOP OF SEQUENCE NUMBER | 4 | 1307 | Q U57 | | | 19 |
| 246 | 1 | 311 | | B | LOOP | 4 | 1311 | B 44 | | | 19 |
| 247 | | | | * | | | | | | | |

| SEQ | PG | LIN | LABEL | OP | OPERANDS | SFX | CT | LOCN | INSTRUCTION | TYPE | CARD |
|-----|----|-----|--------|-----|---|-----|----|------|-------------------|-------|------|
| 248 | | | | | * FOUND A FORMAT STATEMENT | | | | | | |
| 249 | | | | | * | | | | | | |
| 250 | 1 | 315 | FORMAT | MCW | KB1,96 SAW A FORMAT STATEMENT | 7 | | 1315 | M U45 096 | | 19 |
| 251 | 1 | 322 | | BW | UNREF,FLAG NO FORMATTED I/O SEEN | 8 | | 1322 | V T61 U38 1 | | 20 |
| 252 | 1 | 330 | | BCE | UNREF,0&X3,} CAN'T BE REFERENCED WITH NO LABEL | 8 | | 1330 | B T61 0?0 } GMARK | | 20 |
| 253 | 1 | 338 | | MCW | 0&X3,FMTLAB | 7 | | 1338 | M 0?0 U60 | | 20 |
| 254 | 1 | 345 | | MCW | SX1,X3 SEQ NO OF TOP FORMATTED I/O STATEMENT | 7 | | 1345 | M U57 099 | | 20 |
| 255 | 1 | 352 | CHKREF | BWZ | CHKLAB,0&X3,B | 8 | | 1352 | V U02 0?0 B | | 20 |
| 256 | 1 | 360 | | BWZ | | 1 | | 1360 | V | | 20 |
| 257 | 1 | 361 | UNREF | CS | 332 | 4 | | 1361 | / 332 | | 21 |
| 258 | 1 | 365 | | CS | | 1 | | 1365 | / | | 21 |
| 259 | 1 | 366 | | MN | SEQCOD,245 | 7 | | 1366 | D 879 245 | | 21 |
| 260 | 1 | 373 | | MN | | 1 | | 1373 | D | | 21 |
| 261 | 1 | 374 | | MN | | 1 | | 1374 | D | | 21 |
| 262 | 1 | 375 | | MCW | ERR14 UNREFERENCED | 4 | | 1375 | M V02 | | 21 |
| 263 | 1 | 379 | | W | | 1 | | 1379 | 2 | | 21 |
| 264 | 1 | 380 | | BCV | *&5 | 5 | | 1380 | B T89 @ | | 22 |
| 265 | 1 | 385 | | B | *&3 | 4 | | 1385 | B T91 | | 22 |
| 266 | 1 | 389 | | CC | 1 | 2 | | 1389 | F 1 | | 22 |
| 267 | 1 | 391 | SETZON | MZ | ABZONE,0-0 LOW-ORDER DIGIT OF SEQUENCE NUMBER | 7 | | 1391 | Y U54 000 | | 22 |
| 268 | 1 | 398 | | B | LOOP | 4 | | 1398 | B 44 | | 22 |
| 269 | | | | | * | | | | | | |
| 270 | | | | | * CHECK WHETHER FORMAT LABEL APPEARS IN FORMATTED I/O | | | | | | |
| 271 | | | | | * STATEMENT. THE FORMATTED I/O STATEMENTS ARE ALL BELOW | | | | | | |
| 272 | | | | | * (PROCESSED BEFORE IN THIS PHASE) THE FORMAT STATEMENTS. | | | | | | |
| 273 | | | | | * | | | | | | |
| 274 | 1 | 402 | CHKLAB | C | 0&X3 SKIP | 4 | | 1402 | C 0?0 | | 22 |
| 275 | 1 | 406 | | SAR | X3 PREFIX | 4 | | 1406 | Q 099 | | 22 |
| 276 | 1 | 410 | | C | 0&X3,FMTLAB LABEL IN STMT SAME AS THE FORMAT? | 7 | | 1410 | C 0?0 U60 | | 23 |
| 277 | 1 | 417 | | BE | LOOP YES, GO DO NEXT STATEMENT | 5 | | 1417 | B 44 S | | 23 |
| 278 | 1 | 422 | | C | 0&X3 SKIP | 4 | | 1422 | C 0?0 | | 23 |
| 279 | 1 | 426 | | SAR | X3 BODY | 4 | | 1426 | Q 099 | | 23 |
| 280 | 1 | 430 | | B | CHKREF | 4 | | 1430 | B T52 | | 23 |
| 281 | | | | | * | | | | | | |
| 282 | 1 | 436 | KBOT | DSA | BOT BOTTOM OF CORE CLEARING | 3 | | 1436 | V99 | | 23 |
| 283 | 1 | 437 | DOT | DCW | @.@ | 1 | | 1437 | | | 23 |
| 284 | 1 | 438 | FLAG | DCW | #1 INITIALLY SET, CLEARED WHEN FORMATTED I/O SEEN | 1 | | 1438 | | | 24 |
| 285 | 1 | 439 | FLAG2 | DCW | #1 SET FOR PREFIX, CLEARED FOR BODY | 1 | | 1439 | | | 24 |
| 286 | 1 | 444 | STMTS | DCW | @56ULP@ FORMATTED I/O STATEMENTS CODES | 5 | | 1444 | | | 24 |
| 287 | 1 | 445 | KB1 | DCW | #1 | 1 | | 1445 | | | 24 |
| 288 | 1 | 453 | FMT2 | DCW | @TAMROF 2@ | 8 | | 1453 | | | 24 |
| 289 | 1 | 454 | ABZONE | DCW | @A@ | 1 | | 1454 | | | 24 |
| 290 | 1 | 457 | SX1 | DCW | #3 TOP OF SEQUENCE NUMBER OF TOP FORMATTED I/O | 3 | | 1457 | | | 24 |
| 291 | 1 | 460 | FMTLAB | DCW | #3 LABEL FROM FORMAT STATEMENT | 3 | | 1460 | | | 25 |
| 292 | 1 | 502 | ERR14 | DCW | @ERROR 14 - UNREFERENCED FORMAT, STATEMENT @ | 42 | | 1502 | | | 27 |
| 293 | 1 | 503 | GMWM | DCW | @}@ | 1 | | 1503 | | GMARK | 27 |
| 294 | | | | ORG | *&X00 | | | | 1600 | | |
| 295 | | | BOT | EQU | * | | | 1599 | | | |
| 296 | | | | ORG | 201 | | | | 0201 | | |
| 297 | | 203 | | DSA | LOADDD LOAD ADDRESS FOR CARD-TO-TAPE PROGRAM | 3 | | 0203 | 838 | | 28 |

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| SEQ | PG | LIN | LABEL | OP | OPERANDS | SFX | CT | LOCN | INSTRUCTION | TYPE | CARD |
|-----|----|-----|-------|-----|----------|-----|----|------|-------------|------|------|
| 298 | | | | EX | BEGINN | | | | B 980 | | 29 |
| 299 | | | | END | | | | | / 000 080 | | |

| SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS | SYMBOL | ADDRESS |
|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| ABZONE | 1454 | BEGINN | 980 | BOT | 1599 | CDOVLY | 769 | CHKLAB | 1402 | CHKREF | 1352 | CLEARL | 707 |
| CLRBOT | 833 | CLRL | 992 | DONE | 1216 | DOT | 1437 | ERR | 979 | ERR14 | 1502 | ERROR2 | 963 |
| FLAG | 1438 | FLAG2 | 1439 | FMT2 | 1453 | FMTIO | 1291 | FMTLAB | 1460 | FORMAT | 1315 | GLOBER | 184 |
| GMWM | 1503 | HALT | 868 | KB1 | 1445 | KBOT | 1436 | LOADDD | 838 | LOADNX | 700 | LOOP | 1044 |
| MORE | 1094 | MOVEDN | 1086 | MSG | 880 | MSGX | 924 | PHASID | 110 | PREFIX | 1161 | SEMIC | 872 |
| SEQCOD | 879 | SETZON | 1391 | SNAPSH | 333 | STMT | 974 | STMTS | 1444 | SX1 | 1457 | SX2 | 1114 |
| SX3 | 875 | TOOBIG | 838 | TPREAD | 780 | UNREF | 1361 | X1 | 89 | X2 | 94 | X3 | 99 |