

|                          |         |                          |               |                          |             |                       |               |                          |      |
|--------------------------|---------|--------------------------|---------------|--------------------------|-------------|-----------------------|---------------|--------------------------|------|
| ; -- IntVector 0000-0002 |         | ; -- SR Change 0300-0323 |               | ; -- IntRtn #2 0400-0563 |             |                       |               | ; -- Pat. A 0600-0637    |      |
| 1:                       | JMP 100 | 301:                     | CLA           | 400:                     | ISZ 25 ; LN | 500:                  | TAD 62        | 600:                     | 4001 |
| 2:                       | JMP 100 | 302:                     | TAD 157       | 401:                     | JMP 411     | 501:                  | SNA           | 601:                     | 2002 |
| ; -- Addresses 0003-0007 |         | 303:                     | DCA 10        | 402:                     | CLA         | 502:                  | JMP 524       | 602:                     | 1004 |
| 3:                       | JMP I 4 | 304:                     | DCA 220       | 403:                     | TAD 24      | 503:                  | IAC           | 603:                     | 0410 |
| 4:                       | 0200    | 305:                     | JMS 324 ; LN  | 404:                     | DCA 25      | 504:                  | SZA           | 604:                     | 0220 |
| 5:                       | 0400    | 306:                     | LAS           | 405:                     | ISZ 27      | 505:                  | JMP 513       | 605:                     | 0140 |
| 6:                       | 0300    | 307:                     | DCA 220       | 406:                     | JMP 411     | 506:                  | CLA IAC       | 606:                     | 0220 |
| ; -- Indexes 0010-0017   |         | 310:                     | TAD 220       | 407:                     | JMP 411     | 507:                  | TAD 57        | 607:                     | 0410 |
| ; -- LN data 0020-0027   |         | 311:                     | CIA           | 411:                     | ISZ 35 ; PC | 510:                  | CMA           | 610:                     | 1004 |
| 26:                      | 7777    | 312:                     | DCA 153       | 412:                     | JMP 442     | 511:                  | DCA 67        | 611:                     | 2002 |
| ; -- PC data 0030-0037   |         | 313:                     | JMS 324 ; PC  | 413:                     | CLA         | 512:                  | JMP 524       | ; -- Pat. B 0670-0717    |      |
| 30:                      | 0600    | 314:                     | TAD 153       | 414:                     | TAD 34      | 513:                  | ISZ 63        | 670:                     | 7777 |
| 31:                      | 0670    | 315:                     | CIA           | 415:                     | DCA 35      | 514:                  | CLA           | 671:                     | 7776 |
| 36:                      | 1000    | 316:                     | DCA 220       | 416:                     | ISZ 37      | 515:                  | TAD I 63      | 672:                     | 7774 |
| ; -- MA data 0040-0047   |         | 317:                     | JMS 324 ; MA  | 417:                     | JMP 422     | 516:                  | SZA           | 673:                     | 7770 |
| ; -- MB data 0050-0057   |         | 320:                     | JMS 324 ; MB  | 420:                     | TAD 36      | 517:                  | JMP 523       | 674:                     | 7760 |
| 51:                      | 0600    | 321:                     | JMS 324 ; AC  | 421:                     | DCA 37      | 520:                  | TAD 62        | 675:                     | 7740 |
| ; -- AC data 0060-0067   |         | 322:                     | JMS 324 ; MQ  | 422:                     | TAD 32      | 521:                  | DCA 63        | 676:                     | 7700 |
| 60:                      | 0600    | 323:                     | JMP I 300     | 423:                     | SNA         | 522:                  | TAD I 63      | 677:                     | 7600 |
| 61:                      | 7777    | ; -- SR Parse 0324-0377  |               | 424:                     | JMP 436     | 523:                  | DCA 67        | 700:                     | 7400 |
| ; -- MQ data 0070-0077   |         | 325:                     | CLA           | 425:                     | ISZ 33      | 524:                  | ISZ 75 ; MQ   | 701:                     | 7000 |
| 70:                      | 0600    | 326:                     | TAD I 10 ; +0 | 426:                     | CLA         | 525:                  | JMP 564       | 702:                     | 6000 |
| 71:                      | 7777    | 327:                     | DCA 221       | 427:                     | TAD I 33    | 526:                  | CLA           | 703:                     | 4000 |
| ; -- IntRtn #1 0100-0147 |         | 330:                     | TAD 220       | 430:                     | SZA         | 527:                  | TAD 74        | 704:                     | 6000 |
| 100:                     | SPL     | 331:                     | RAL           | 431:                     | JMP 435     | 530:                  | DCA 75        | 705:                     | 7000 |
| 101:                     | JMP 110 | 332:                     | DCA 220       | 432:                     | TAD 32      | 531:                  | ISZ 77        | 706:                     | 7400 |
| 102:                     | CLA     | 333:                     | SZL           | 433:                     | DCA 33      | 532:                  | NOP           | 707:                     | 7600 |
| 103:                     | TAD 3   | 334:                     | JMP 340       | 434:                     | TAD I 33    | 533:                  | TAD 72        | 710:                     | 7700 |
| 104:                     | DCA 0   | 335:                     | AND I 10 ; +1 | 435:                     | DCA 37      | 534:                  | SNA           | 711:                     | 7740 |
| 105:                     | NOP     | 336:                     | TAD 221       | 436:                     | TAD 37      | 535:                  | JMP 564       | 712:                     | 7760 |
| 106:                     | HLT     | 337:                     | JMP 341       | 437:                     | AND 151     | 536:                  | IAC           | 713:                     | 7770 |
| 107:                     | JMP 3   | 340:                     | TAD I 10 ; +1 | 440:                     | TAD 152     | 537:                  | SZA           | 714:                     | 7774 |
| 110:                     | TCF     | 341:                     | DCA I 10 ; +2 | 441:                     | DCA I 37    | 540:                  | JMP 545       | 715:                     | 7776 |
| 111:                     | KSF     | 342:                     | TAD 223       | 442:                     | NOP ; MA    | 541:                  | TAD 67        | ; -- Clk. 50Hz 0750-0754 |      |
| 112:                     | JMP 115 | 343:                     | DCA I 10 ; +3 | 443:                     | NOP         | 542:                  | CMA           | 751:                     | 0062 |
| 113:                     | KRB     | 344:                     | TAD 220       | 444:                     | NOP         | 543:                  | DCA 77        | 752:                     | 0031 |
| 114:                     | TL5     | 345:                     | RTL           | 445:                     | CLA ; MB    | 544:                  | JMP 564       | 753:                     | 0015 |
| 115:                     | CLCL    | 346:                     | DCA 220       | 446:                     | TAD 52      | 545:                  | ISZ 73        | 754:                     | 0007 |
| 116:                     | LAS     | 347:                     | TAD 220       | 447:                     | SNA         | 546:                  | CLA           | ; -- Clk. 60Hz 0760-0764 |      |
| 117:                     | TAD 153 | 350:                     | RAL           | 450:                     | JMP 471     | 547:                  | TAD I 73      | 761:                     | 0074 |
| 120:                     | SZA     | 351:                     | AND 222       | 451:                     | ISZ 55      | 550:                  | SZA           | 762:                     | 0036 |
| 121:                     | JMS I 6 | 352:                     | IAC           | 452:                     | JMP 466     | 551:                  | JMP 555       | 763:                     | 0017 |
| 122:                     | JMP I 5 | 353:                     | TAD 156       | 453:                     | CLA         | 552:                  | TAD 72        | 764:                     | 0010 |
| ; -- Const&Var 0150-0177 |         | 354:                     | DCA 221       | 454:                     | TAD 54      | 553:                  | DCA 73        | ; -- Version 0776-0777   |      |
| 151:                     | 0177    | 355:                     | TAD I 221     | 455:                     | DCA 55      | 554:                  | TAD I 73      | 776:                     | V1   |
| 152:                     | JMP 0   | 356:                     | CMA           | 456:                     | ISZ 53      | 555:                  | DCA 77        | 777:                     | .0   |
| 156:                     | 0760    | 357:                     | DCA I 10 ; +4 | 457:                     | TAD I 53    | 556:                  | JMP 564       |                          |      |
| 157:                     | 0017    | 360:                     | STA           | 460:                     | SZA         | ; -- RetInt 0564-0577 |               |                          |      |
| ; -- Start 0200-0217     |         | 361:                     | DCA I 10 ; +5 | 461:                     | JMP 465     | 564:                  | ISZ 57 ; MB   |                          |      |
| 200:                     | IOF     | 362:                     | TAD I 10 ; +6 | 462:                     | TAD 52      | 565:                  | SKP CLA       |                          |      |
| 201:                     | NOP     | 363:                     | DCA I 10 ; +7 | 463:                     | DCA 53      | 566:                  | CLA           |                          |      |
| 202:                     | KCC     | 364:                     | JMP I 324     | 464:                     | TAD I 53    | 567:                  | TAD 77        |                          |      |
| 203:                     | TCF     |                          |               | 465:                     | DCA 57      | 570:                  | SZA           |                          |      |
| 204:                     | CLA IAC |                          |               | 466:                     | STA         | 571:                  | SQL ; MQ      |                          |      |
| 205:                     | CLLE    |                          |               | 467:                     | TAD 57      | 572:                  | TAD 27        |                          |      |
| 206:                     | CLA IAC |                          |               | 470:                     | DCA 57      | 573:                  | RAR ; LN      |                          |      |
| 207:                     | KIE     |                          |               | 471:                     | ISZ 65 ; AC | 574:                  | CLA           |                          |      |
| 210:                     | JMS I 6 |                          |               | 472:                     | JMP 524     | 575:                  | TAD 67 ; AC   |                          |      |
| 211:                     | JMP 2   |                          |               | 473:                     | CLA         | 576:                  | ION           |                          |      |
| ; -- Var&Const 0220-0277 |         |                          |               | 474:                     | TAD 64      | 577:                  | JMP I 37 ; PC |                          |      |
| 222:                     | 0003    |                          |               | 475:                     | DCA 65      |                       |               |                          |      |
| 223:                     | 0223    |                          |               | 476:                     | ISZ 67      |                       |               |                          |      |
|                          |         |                          |               | 477:                     | NOP         |                       |               |                          |      |

## NOTES

- \* ZERO values are not shown [The 1KW pattern tables at 0640-0667 and 0720-0747 are also not shown]
- \* Note that pattern tables are terminated by a ZERO
- \* Start/restart address is 0200
- \* Characters typed at the console keyboard will be echoed to the console teletype
- \* If you prefer a 50Hz clock, change the contents of address 0156 to 0750
- \* Pattern tables are referenced by xxx0 and xxx1 in the XX data tables (0020-0077)
- \* Pattern xxx0 is for the switch in the OFF position and xxx1 is for the switch in the ON position
- \* Setting the pattern address to 0000 will [often] count-up
- \* Setting the pattern address to 7777 will [often] complement the lamps of the front-panel row above
- \* You can create your own pattern tables by changing the contents of these addresses

\* Pattern table offsets (00x0-00x7 where x=2-7):

- |                     |  |
|---------------------|--|
| 0020: LN            | +0 Option zero for the pattern (switch OFF)    |
| 0030: PC            | +1 Option one for the pattern (switch ON)      |
| 0040: MA (reserved) | +2 Initial pattern pointer                     |
| 0050: MB            | +3 Current pattern pointer                     |
| 0060: AC            | +4 Initial value to be put in the tick counter |
| 0070: MQ            | +5 Current tick counter (negative)             |
|                     | +6 Initial incremental counter value           |
|                     | +7 Value to be displayed in the lamps          |

## Patches

- 0100: NOP - No power fail  
 0524: NOP - Disable MQ  
 0572: NOP - LN = Off  
 0572: CMA - LN = On  
**Change to CLA HLT**  
 0301: HALT on SR change  
 0325: HALT at SR parse  
 0574: HALT in RETINT

## Switch Register

There are three switches per setting. The left-hand switch selects the pattern and the right-hand two switches select the speed.

00,01-02: PC & MA  
 03,04-05: MB  
 06,07-08: AC  
 09,10-11: MQ

Pattern selections:

00: 0=Bounce, 1=Scan  
 03: 0=Count, 1=Bounce  
 06: 0=Bounce, 1=~MB  
 09: 0=Bounce, 1=~AC

Try the following:

00-11: 010 000 100 100  
 00-11: 111 101 010 000  
 00-11: 000 111 100 001