```
 10 0000              ;***************************************
 20 0000              ;
 30 0000              ;       DISASSEMBLER
 40 0000              ;
 50 0000              ;  ADAPTED FROM 6502 DISASSEMBLER
 60 0000              ;  IN DR. DOBBS, VOL 1 NO 8 0976
 70 0000              ;
 80 0000              ;***************************************
 90 0000              FORMAT =$40
100 0000              LENGTH = $41
110 0000              LMNEM = $42
120 0000              RMNEM = $43
130 0000              PCL   = $11    TMP0 OF MON
140 0000              PCH   = $12
150 0000              COUNT = $46
160 0000              CHAROU = PRCHAR
170 9003                    * = JDSASM
180 9003 4CD4A1            JMP DSMBL
190 A1D0                   *= DISASM
191 A1D0 0000     RELOC .WORD 0    RELOCATION VALUE
200 A1D2 FBA3           .WORD END
210 A1D4 A917     DSMBL LDA #23
220 A1D6 8546           STA COUNT 24 INSTR DISSASSMBLY
230 A1D8 20E6A1   DSMBL2 JSR INSTDS    DSSMBL AND DSPLY
240 A1DB 20EEA2          JSR PCADJ
250 A1DE 8511           STA PCL
260 A1E0 8412           STY PCH POINT TO NXT INSTR
270 A1E2 C646           DEC COUNT
280 A1E4 D0F2           BNE DSMBL2
290 A1E6 20CCA2   INSTDS JSR PRPC
300 A1E9 A200           LDX #0
310 A1EB A111           LDA (PCL,X) GET OP CODE
320 A1ED A8             TAY
330 A1EE 4A             LSR A   EVEN/ODD TEST
340 A1EF 900B           BCC IEVEN
350 A1F1 4A             LSR A
360 A1F2 B017           BCS ERR *XXXXXX11 INVWLID
370 A1F4 C922           CMP #$22
380 A1F6 F013           BEQ ERR *10001001 INVALID
390 A1F8 2907           AND #$7 ISOLATE ADDRESSING MODE
400 A1FA 0980           ORA #$80
410 A1FC 4A       IEVEN LSR A
420 A1FD AA             TAX
430 A1FE BD1DA3         LDA MODE,X FWTCH FROM ADDRESS MODE TBL
440 A201 B004           BCS RTMODE    FROM IEVEN
450 A203 4A             LSR A
460 A204 4A             LSR A
470 A205 4A             LSR A
480 A206 4A             LSR A
490 A207 290F     RTMODE AND #$F
500 A209 D004           BNE GETFMT 0 FOR INVALID OPS
510 A20B A080     ERR LDY #$80 USE $80 FOR OP
520 A20D A900           LDA #$0   PRINT FORMAT INDEX
530 A20F AA       GETFMT TAX
540 A210 BD61A3         LDA MODE2,X
550 A213 8540           STA FORMAT
560 A215 2903           AND #$3
570 A217 8541           STA LENGTH  +1 IS TRUE LEN
580 A219 98             TYA       OP CODE
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```
590  A21A 298F                  AND #$8F   MASK FOR 1XXX1010 TEST
600  A21C AA                    TAX
610  A21D 98                    TYA    REGAIN OP
620  A21E A003                  LDY #$3
630  A220 E08A                  CPX #$8A
640  A222 F00B                  BEQ MNNDX3
650  A224 4A        MNNDX1      LSR A
660  A225 9008                  BCC MNNDX3 FORM INDEX INTO MNEM TBL
670  A227 4A                    LSR A
680  A228 4A        MNNDX2      LSR A   *1XXX1010->00101XXX
690  A229 0920                  ORA #$20  *XXXYYY01->00111XXX
700  A22B 88                    DEY       *XXXYYY10->00110XXX
710  A22C D0FA                  BNE MNNDX2 *XXXY100->00100XXX
720  A22E C8                    INY    *XXXX000->000XXXXX
730  A22F 88        MNNDX3      DEY
740  A230 D0F2                  BNE MNNDX1
750  A232 48                    PHA SAVE MNEM TABL INDEX
760  A233 B111      PROP        LDA (PCL),Y
770  A235 20FDA2                JSR PRBYT9
780  A238 A201                  LDX #1
790  A23A 20E5A2    PROPBL      JSR PRBL2
800  A23D C441                  CPY LENGTH PRINT INSTR
810  A23F C8                    INY        AS 12 BYTE FIELD
820  A240 90F1                  BCC PROP
830  A242 A203                  LDX #3
840  A244 C004                  CPY #4
850  A246 90F2                  BCC PROPBL
860  A248 A000                  LDY #0   START AGAIN THIS TIME AS CHARACTERS
870  A24A B111      CROP        LDA (PCL),Y
880  A24C 297F                  AND #$7F
890  A24E C920                  CMP #$20
900  A250 B002                  BCS CCRR   IF NOT SPECIAL THEN PRINT IT
910  A252 A920      CBL         LDA #´  USE A BLANK OTHERWISE
920  A254 204B90    CCRR        JSR PRCHAR
930  A257 C441                  CPY LENGTH
940  A259 C8                    INY
950  A25A 90EE                  BCC CROP
960  A25C C004                  CPY #4
970  A25E 90F2                  BCC CBL   PAD WITH BLANKS TO MAKE 4 CHAR FIELD
980  A260 68                    PLA   MNEMONIC INDEX
990  A261 A8                    TAY
1000 A262 B97BA3                LDA MNEML,Y
1010 A265 8542                  STA LMNEM
1020 A267 B9BBA3                LDA MNEMR,Y
1030 A26A 8543                  STA RMNEM
1040 A26C A900      PRMN1       LDA #0
1050 A26E A005                  LDY #5
1060 A270 0643      PRMN2       ASL RMNEM
1070 A272 2642                  ROL LMNEM
1080 A274 2A                    ROL A   CLEARS CARRY
1090 A275 88                    DEY
1100 A276 D0F8                  BNE PRMN2
1110 A278 693F                  ADC #$3F ADD "?" OFFSET
1120 A27A 204B90                JSR CHAROU
1130 A27D CA                    DEX
1140 A27E D0EC                  BNE PRMN1
1150 A280 20E3A2                JSR PRBLNK
1160 A283 A206                  LDX #6  SIX FORMAT BITS
1170 A285 E003      PRADR1      CPX #3
1180 A287 D012                  BNE PRADR3
1190 A289 A441                  LDY LENGTH
1200 A28B F00E                  BEQ PRADR3 SUPPRESS IF NO ADDR
1210 A28D A540      PRADR2      LDA FORMAT
1220 A28F C9E8                  CMP #$E8 REL ADDRESSING
1230 A291 B111                  LDA (PCL),Y
1240 A293 B01C                  BCS RELADR
```

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1250  A295  20FDA2         JSR PRBYT9 1 OR 2 BYTE ADDR
1260  A298  88             DEY       MSB FIRST
1270  A299  D0F2           BNE PRADR2
1280  A29B  0640    PRADR3 ASL FORMAT TEST FORMAT BIT
1290  A29D  900E           BCC PRADR4 IF 0 NO PRINT
1300  A29F  BD6EA3         LDA CHAR1-1,X
1310  A2A2  204B90         JSR CHAROU
1320  A2A5  BD74A3         LDA CHAR2-1,X
1330  A2A8  F003           BEQ PRADR4  SUPPRESS ZERO HERE
1340  A2AA  204B90         JSR CHAROU
1350  A2AD  CA      PRADR4 DEX
1360  A2AE  D0D5           BNE PRADR1
1370  A2B0  60             RTS   WHEN FINISHED 6 FORMAT BITS
1380  A2B1                 ;
1390  A2B1  20F1A2  RELADR JSR PCADJ3 GET TO A,Y
1400  A2B4  AA             TAX
1410  A2B5  E8             INX
1420  A2B6  D001           BNE PRNTYX
1430  A2B8  C8             INY
1440  A2B9  98      PRNTYX TYA
1441  A2BA  48      PRNTAX PHA          ADD RELOCATION
1442  A2BB  8A             TXA
1443  A2BC  18             CLC
1444  A2BD  6DD0A1         ADC RELOC
1445  A2C0  AA             TAX
1446  A2C1  68             PLA
1447  A2C2  6DD1A1         ADC RELOC+1
1450  A2C5  20FDA2         JSR PRBYT9
1460  A2C8  8A             TXA
1470  A2C9  4CFDA2         JMP PRBYT9
1480  A2CC  A90D    PRPC   LDA #$0D CARR RETURN
1490  A2CE  204B90         JSR CHAROU
1500  A2D1  A93A           LDA #': COLON
1510  A2D3  204B90         JSR CHAROU
1520  A2D6  A512           LDA PCH
1530  A2D8  A611           LDX PCL
1540  A2DA  20BAA2         JSR PRNTAX
1550  A2DD  A920           LDA #'  SPACE
1560  A2DF  204B90         JSR CHAROU
1570  A2E2  60             RTS
1580  A2E3  A203    PRBLNK LDX #$3
1590  A2E5  A920    PRBL2  LDA #'  SPACE
1600  A2E7  204B90  PRBL3  JSR CHAROU
1610  A2EA  CA             DEX
1620  A2EB  D0F8           BNE PRBL2
1630  A2ED  60             RTS
1640  A2EE  A541    PCADJ  LDA LENGTH  +1 IS TRUE LENGTH
1650  A2F0  38      PCADJ2 SEC
1660  A2F1  A412    PCADJ3 LDY PCH
1670  A2F3  AA             TAX    TEST SIGN FOR REL BRANCH
1680  A2F4  1001           BPL PCADJ4
1690  A2F6  88             DEY     SIGN EXTEND
1700  A2F7  6511    PCADJ4 ADC PCL
1710  A2F9  9001           BCC RTS1
1720  A2FB  C8             INY
1730  A2FC  60      RTS1   RTS
1740  A2FD  8E34AF  PRBYT9 STX TEMP
1750  A300  48             PHA SAVE FOR LSD
1760  A301  4A             LSR A
1770  A302  4A             LSR A
1780  A303  4A             LSR A
1790  A304  4A             LSR A
1800  A305  2010A3         JSR PRHX
1810  A308  68             PLA
1820  A309  2010A3         JSR PRHX
1830  A30C  AE34AF         LDX TEMP
```

```
1840  A30F  60                  RTS
1850  A310  290F      PRHX      AND #$F
1860  A312  0930                ORA #$30
1870  A314  C93A                CMP #$3A
1880  A316  9002                BCC TOCHOT
1890  A318  6906                ADC #6
1900  A31A  4C4B90    TOCHOT    JMP CHAROU
1910  A31D  40        MODE      .BYTE $40,2,$45,3,$D0,8,$40
1910  A31E  02
1910  A31F  45
1910  A320  03
1910  A321  D0
1910  A322  08
1910  A323  40
1920  A324  09                  .BYTE 9,$30,$22,$45,$33,$D0
1920  A325  30
1920  A326  22
1920  A327  45
1920  A328  33
1920  A329  D0
1930  A32A  08                  .BYTE 8,$40,9,$40,2,$45
1930  A32B  40
1930  A32C  09
1930  A32D  40
1930  A32E  02
1930  A32F  45
1940  A330  33                  .BYTE $33,$D0,8,$40,9,$40
1940  A331  D0
1940  A332  08
1940  A333  40
1940  A334  09
1940  A335  40
1950  A336  02                  .BYTE 2,$45,$B3,$D0,8,$40
1950  A337  45
1950  A338  B3
1950  A339  D0
1950  A33A  08
1950  A33B  40
1960  A33C  09                  .BYTE 9,0,$22,$44,$33,$D0
1960  A33D  00
1960  A33E  22
1960  A33F  44
1960  A340  33
1960  A341  D0
1970  A342  8C                  .BYTE $8C,$44,0,$11,$22,$44
1970  A343  44
1970  A344  00
1970  A345  11
1970  A346  22
1970  A347  44
1980  A348  33                  .BYTE $33,$D0,$8C,$44,$9A,$10
1980  A349  D0
1980  A34A  8C
1980  A34B  44
1980  A34C  9A
1980  A34D  10
1990  A34E  22                  .BYTE $22,$44,$33,$D0,8,$40,9
1990  A34F  44
1990  A350  33
1990  A351  D0
1990  A352  08
1990  A353  40
1990  A354  09
2000  A355  10                  .BYTE $10,$22,$44,$33,$D0,8,$40
2000  A356  22
2000  A357  44
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```
2000 A358 33
2000 A359 D0
2000 A35A 08
2000 A35B 40
2010 A35C 09                .BYTE 9,$62,$13,$78,$A9
2010 A35D 62
2010 A35E 13
2010 A35F 78
2010 A360 A9
2020 A361 00     MODE2   .BYTE 0     ER
2030 A362 21             .BYTE $21    IMM
2040 A363 81             .BYTE $81    Z-PAG
2050 A364 82             .BYTE $82    ABS
2060 A365 00             .BYTE 0      IMPL
2070 A366 00             .BYTE 0      ACC
2080 A367 59             .BYTE $59   (Z-PAG,X)
2090 A368 4D             .BYTE $4D   (Z-PAG),Y
2100 A369 91             .BYTE $91
2110 A36A 92             .BYTE $92   (ABS,X
2120 A36B 86             .BYTE $86    ABS,Y
2130 A36C 4A             .BYTE $4A   (ABS)
2140 A36D 85             .BYTE $85  .Z-PAG,Y
2150 A36E 9D             .BYTE $9D    REL
2160 A36F 2C     CHAR1   .BYTE ',),#($'
2160 A370 29
2160 A371 2C
2160 A372 23
2160 A373 28
2160 A374 24
2170 A375 59     CHAR2   .BYTE 'Y',0
2170 A376 00
2180 A377 58             .BYTE 'X$$',0
2180 A378 24
2180 A379 24
2180 A37A 00
2190 A37B 1C     MNEML   .BYTE $1C,$8A,$1C,$23
2190 A37C 8A
2190 A37D 1C
2190 A37E 23
2200 A37F 5D             .BYTE $5D,$8B,$1B,$A1
2200 A380 8B
2200 A381 1B
2200 A382 A1
2210 A383 9D             .BYTE $9D,$8A,$1D,$23
2210 A384 8A
2210 A385 1D
2210 A386 23
2220 A387 9D             .BYTE $9D,$8B,$1D,$A1
2220 A388 8B
2220 A389 1D
2220 A38A A1
2230 A38B 00             .BYTE $00,$29,$19,$AE
2230 A38C 29
2230 A38D 19
2230 A38E AE
2240 A38F 69             .BYTE $69,$A8,$19,$23
2240 A390 A8
2240 A391 19
2240 A392 23
2250 A393 24             .BYTE $24,$53,$1B,$23
2250 A394 53
2250 A395 1B
2250 A396 23
2260 A397 24             .BYTE $24,$53,$19,$A1
2260 A398 53
2260 A399 19
```

```
2260  A39A  A1
2270  A39B  00                       .BYTE  $00,$1A,$5B,$5B
2270  A39C  1A
2270  A39D  5B
2270  A39E  5B
2280  A39F  A5                       .BYTE  $A5,$69,$24,$24
2280  A3A0  69
2280  A3A1  24
2280  A3A2  24
2290  A3A3  AE                       .BYTE  $AE,$AE,$A8,$AD
2290  A3A4  AE
2290  A3A5  A8
2290  A3A6  AD
2300  A3A7  29                       .BYTE  $29,$00,$7C,$00
2300  A3A8  00
2300  A3A9  7C
2300  A3AA  00
2310  A3AB  15                       .BYTE  $15,$9C,$6D,$9C
2310  A3AC  9C
2310  A3AD  6D
2310  A3AE  9C
2320  A3AF  A5                       .BYTE  $A5,$69,$29,$53
2320  A3B0  69
2320  A3B1  29
2320  A3B2  53
2330  A3B3  84                       .BYTE  $84,$13,$34,$11
2330  A3B4  13
2330  A3B5  34
2330  A3B6  11
2340  A3B7  A5                       .BYTE  $A5
2350  A3B8  69                       .BYTE  $69,$23,$A0
2350  A3B9  23
2350  A3BA  A0
2360  A3BB  D8           MNEMR       .BYTE  $D8,$62,$5A,$48
2360  A3BC  62
2360  A3BD  5A
2360  A3BE  48
2370  A3BF  26                       .BYTE  $26,$62,$94,$88
2370  A3C0  62
2370  A3C1  94
2370  A3C2  88
2380  A3C3  54                       .BYTE  $54,$44,$C8,$54
2380  A3C4  44
2380  A3C5  C8
2380  A3C6  54
2390  A3C7  68                       .BYTE  $68,$44,$E8,$94
2390  A3C8  44
2390  A3C9  E8
2390  A3CA  94
2400  A3CB  00                       .BYTE  $00,$B4,$08,$84
2400  A3CC  B4
2400  A3CD  08
2400  A3CE  84
2410  A3CF  74                       .BYTE  $74,$B4,$28,$6E
2410  A3D0  B4
2410  A3D1  28
2410  A3D2  6E
2420  A3D3  74                       .BYTE  $74,$F4,$CC,$4A
2420  A3D4  F4
2420  A3D5  CC
2420  A3D6  4A
2430  A3D7  72                       .BYTE  $72,$F2,$A4,$8A
2430  A3D8  F2
2430  A3D9  A4
2430  A3DA  8A
2440  A3DB  00                       .BYTE  $00,$AA,$A2,$A2
```

```
2440 A3DC AA
2440 A3DD A2
2440 A3DE A2
2450 A3DF 74                    .BYTE $74,$74,$74,$72
2450 A3E0 74
2450 A3E1 74
2450 A3E2 72
2460 A3E3 44                    .BYTE $44,$68,$B2,$32
2460 A3E4 68
2460 A3E5 B2
2460 A3E6 32
2470 A3E7 B2                    .BYTE $B2,$00,$22,$00
2470 A3E8 00
2470 A3E9 22
2470 A3EA 00
2480 A3EB 1A                    .BYTE $1A,$1A,$26,$26
2480 A3EC 1A
2480 A3ED 26
2480 A3EE 26
2490 A3EF 72                    .BYTE $72,$72,$88,$C8
2490 A3F0 72
2490 A3F1 88
2490 A3F2 C8
2500 A3F3 C4                    .BYTE $C4,$CA,$26,$48
2500 A3F4 CA
2500 A3F5 26
2500 A3F6 48
2510 A3F7 44                    .BYTE $44,$44,$A2,$C8
2510 A3F8 44
2510 A3F9 A2
2510 A3FA C8
2520 A3FB          END     .END END
```