```
    1 3401
   10 3401           \ @@@ @@@  @@
   11 3401           \  @  @   @  @
   12 3401           \  @  @@    @@
   13 3401           \  @  @    @  @
   14 3401           \ @@@ @     @@
   15 3401           \
 3010 3401 48        ;RR6 PHA SAVE A
 3020 3402 A9 00      LDA @0
 3030 3404 85 6F      STA WW7+1 CLR MSB OF CURSOR POSN IN W/S
 3040 3406 A5 B2      LDA ZZ19 ROW OF CURSOR
 3050 3408 0A         ASL A MULTIPLY BY 40 ((*4+1)*8)
 3060 3409 90 02      BCC RR7
 3070 340B E6 6F      INC WW7+1
 3080 340D 06 6F     ;RR7 ASL WW7+1
 3085 340F 0A         ASL A
 3090 3410 90 02      BCC RR8
 3100 3412 E6 6F      INC WW7+1
 3110 3414 18        ;RR8 CLC
 3120 3415 65 B2      ADC ZZ19
 3130 3417 90 02      BCC RR9
 3140 3419 E6 6F      INC WW7+1
 3150 341B 06 6F     ;RR9 ASL WW7+1
 3155 341D 0A         ASL A
 3160 341E 90 02      BCC RR10
 3170 3420 E6 6F      INC WW7+1
 3180 3422 06 6F     ;RR10 ASL WW7+1
 3185 3424 0A         ASL A
 3190 3425 90 02      BCC RR11
 3200 3427 E6 6F      INC WW7+1
 3210 3429 06 6F     ;RR11 ASL WW7+1
 3215 342B 0A         ASL A
 3220 342C 90 02      BCC RR12
 3230 342E E6 6F      INC WW7+1
 3240 3430 18        ;RR12 CLC
 3242 3431 69 70      ADC @#70 1ST ROW STARTS AT $2C70
 3244 3433 85 6E      STA WW7 STORE LSB OF RESULT
 3246 3435 90 02      BCC RR32
 3248 3437 E6 6F      INC WW7+1
 3250 3439 A5 6F     ;RR32 LDA WW7+1 GET MSB OF ANS
 3251 343B 18         CLC
 3252 343C 69 2C      ADC @#2C
 3253 343E 85 6F      STA WW7+1 STORE
 3254 3440 68         PLA RESTORE
 3260 3441 60         RTS
$    1 3442
   10 3442           \ @@@ @@@  @@
   11 3442           \  @  @   @  @
   12 3442           \  @  @@   @@@
   13 3442           \  @  @      @
   14 3442           \ @@@ @     @@
   15 3442           \
 1200 3442           \CLEAR ALL W/S
 1210 3442 A9 00     ;VV4 LDA @0
 1220 3444 A0 80      LDY @#80 START OF VIDEO #8000
 1230 3446 84 BD      STY ZZ24+1
 1240 3448 A8         TAY
 1250 3449 84 BC      STY ZZ24
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3104 3241 A9 2B      LDA @#2B
3105 3243 85 71      STA WW8+1
3106 3245 B1 6E     :SS4 LDA (WW7),Y GET PRESTEL CHAR
3107 3247 29 7F      AND @#7F REMOVE PARITY BIT
3108 3249 84 72      STY WW9 SAVE Y
3148 324B A6 B4      LDX WW18
3149 324D F0 06      BEQ SS5 CONCEAL FLAG CLEAR?
3151 324F A4 86      LDY WW19
3153 3251 D0 02      BNE SS5 REVEAL REQUESTED?
3155 3253 A9 20      LDA @#20 SPACE INSTEAD
3264 3255 C9 20     :SS5 CMP @#20 CONTROL CODE?
3265 3257 B0 03      BCS SS6 (NO)
3290 3259 20 79 31   JSR CG1 FIND WHICH CONTROL CODE & TAKE ACTION
3295 325C 20 DE 32  :SS6 JSR JJ1 CONVERT CHAR IN A TO SIMULATED CHAR
3297 325F A4 72      LDY WW9 GET Y
3299 3261 C8         INY NEXT CHAR
3300 3262 C0 28      CPY @40 END OF LINE?
3310 3264 D0 D9      BNE SS3
3320 3266 20 6A 32   JSR MM1 PRINT LINE ON VIDEO
3330 3269 60         RTS
$    1 326A
   10 326A          \ @@@ @@@ @@@@
   11 326A          \  @  @   @
   12 326A          \  @  @@  @@@
   13 326A          \  @  @     @
   14 326A          \ @@@ @   @@@
   15 326A          \
 1000 326A          \SQUEEZE 40*8 BYTES (STARTING AT #2800)
 1010 326A          \INTO 30*8 BYTES IN VIDEO (POINTED TO BY WW2)
 1020 326A          \IE. ONE LINE OF TEXT
 1030 326A          \(DESTROYS ALL REGISTERS & WW2)
 1040 326A A9 08   :MM1 LDA @8 SET COUNTER
 1050 326C 85 6A      STA WW5
 1060 326E A9 00      LDA @0 COPY START ADDR
 1070 3270 85 62      STA WW1
 1080 3272 A9 2B      LDA @#2B
 1090 3274 85 63      STA WW1+1
 1100 3276 A9 0A     :MM2 LDA @10 SET COUNTER FOR 40 BYTES
 1110 3278 85 66      STA WW3
 1120 327A           \SQUEEZE 4 BYTES (A,B,C,D) OF 6 BITS (POINTED TO BY WW1)
 1130 327A           \INTO 3 BYTES (E,F,G) OF 8 BITS EA (POINTED TO BY WW4)
 1140 327A A0 00     :MM3 LDY @0 SET DISPLACE TO 0
 1150 327C B1 62      LDA (WW1),Y GET A
 1160 327E 0A         ASL A
 1170 327F 0A         ASL A L,H,JUSTIFY BYTE
 1180 3280 91 64      STA (WW2),Y STORE AT E
 1190 3282 C8         INY Y=1
 1200 3283 B1 62      LDA (WW1),Y GET B
 1210 3285 4A         LSR A
 1220 3286 4A         LSR A
 1230 3287 4A         LSR A
 1240 3288 4A         LSR A GET BITS 5,4
 1250 3289 88         DEY Y=0
 1260 328A 11 64      ORA (WW2),Y OR WITH CONTENTS OF E
 1270 328C 91 64      STA (WW2),Y STORE AT E
 1280 328E C8         INY Y=1
 1290 328F B1 62      LDA (WW1),Y GET B
 1300 3291 0A         ASL A
 1310 3292 0A         ASL A
 1320 3293 0A         ASL A
 1330 3294 0A         ASL A L,H, JUSTIFY 4 LSBS
 1340 3295 91 64      STA (WW2),Y STORE AT F
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1350 3297 C8          INY Y=2
1360 3298 B1 62       LDA (WW1),Y GET C
1370 329A 4A          LSR A
1380 329B 4A          LSR A R.H. JUSTIFY BITS 5,4,3,2
1390 329C 88          DEY Y=1
1400 329D 11 64       ORA (WW2),Y OR WITH CONTENTS OF F
1410 329F 91 64       STA (WW2),Y STORE AT F
1420 32A1 C8          INY Y=2
1430 32A2 B1 62       LDA (WW1),Y GET C
1440 32A4 0A          ASL A
1450 32A5 0A          ASL A
1460 32A6 0A          ASL A
1470 32A7 0A          ASL A
1480 32A8 0A          ASL A
1490 32A9 0A          ASL A L.H. JUSTIFY 2 LSBS
1500 32AA 91 64       STA (WW2),Y STORE AT G
1510 32AC C8          INY Y=3
1520 32AD B1 62       LDA (WW1),Y GET D
1530 32AF 88          DEY Y=2
1540 32B0 11 64       ORA (WW2),Y OR WITH  CONTENTS OF G
1550 32B2 91 64       STA (WW2),Y STORE AT G
1560 32B4 A5 62       LDA WW1 GET NEXT "FROM" ADDR
1570 32B6 18          CLC
1580 32B7 69 04       ADC @4
1590 32B9 85 62       STA WW1
1600 32BB 90 02       BCC MM4
1610 32BD E6 63       INC WW1+1
1620 32BF A5 64      :MM4 LDA WW2 GET  NEXT "TO" ADDR
1630 32C1 18          CLC
1640 32C2 69 03       ADC @3
1650 32C4 85 64       STA WW2
1660 32C6 90 02       BCC MM5
1670 32C8 E6 65       INC WW2+1
1680 32CA C6 66      :MM5 DEC WW3
1690 32CC D0 AC       BNE MM3 NEXT 4 BYTES
1700 32CE A5 64       LDA WW2 GET NEXT "TO" ADDR
1710 32D0 18          CLC
1720 32D1 69 02       ADC @2
1730 32D3 85 64       STA WW2
1740 32D5 90 02       BCC MM6
1750 32D7 E6 65       INC WW2+1
1755 32D9            :MM6
1760 32D9 C6 6A       DEC WW5
1770 32DB D0 99       BNE MM2 NEXT 40 BYTES
1780 32DD 60          RTS
$    1 32DE
   10 32DE           \ @@@ @@@  @@
   11 32DE           \  @  @   @
   12 32DE           \  @  @@  @@@
   13 32DE           \  @  @   @  @
   14 32DE           \ @@@ @    @@
   15 32DE           \
 3000 32DE           \TRANSLATE PRESTEL CHAR (IN A) TO SIMULATED CHAR
 3010 32DE           \(8 BYTES OF 6 BITS EA), STORING AT (WW8),(WW8)+40,ETC
 3020 32DE           \(1 BYTE AT EA)
 3030 32DE A4 7C      :JJ1 LDY WW14
 3040 32E0 D0 03       BNE JJ20 GRAPHICS MODE
 3045 32E2 4C 78 33    JMP JJ2 ALPHANUMERICS
 3050 32E5 C9 40      :JJ20 CMP @#40
 3060 32E7 90 07       BCC JJ3 NOT BLAST THROUGH
 3070 32E9 C9 60       CMP @#60
 3080 32EB B0 03       BCS JJ3 NOT BLAST THROUGH
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3085 32ED 4C 78 33  JMP JJ2 BLAST THROUGH ALPHA
3600 32F0           \GRAPHICS
3620 32F0 48        :JJ3 PHA GET THE 6 BITS OF PATTERN FROM GR. CHAR.
3630 32F1 29 40      AND @$40
3640 32F3 4A         LSR A
3650 32F4 85 76      STA WW11
3660 32F6 68         PLA
3670 32F7 29 1F      AND @$1F
3680 32F9 18         CLC
3685 32FA 65 76      ADC WW11
3690 32FC 85 76      STA WW11 SAVE THE 6 BITS
3700 32FE 29 30      AND @$30 GET 2 MSB
3710 3300 4A         LSR A SHIFT TO 2LSB POSITION
3720 3301 4A         LSR A
3730 3302 4A         LSR A
3740 3303 4A         LSR A
3750 3304 20 67 33   JSR JJ4 GENERATE BIT PATTERN FOR 1ST 3 BYTES
3760 3307 8D 45 2C   STA $2C45 STORE
3770 330A 8D 46 2C   STA $2C46
3780 330D 8D 47 2C   STA $2C47
3790 3310 A5 76      LDA WW11 GET THE 6 BITS
3800 3312 29 0C      AND @$C GET MIDDLE 2 BITS
3805 3314 4A         LSR A SHIFT TO 2 LSB POSN.
3810 3315 4A         LSR A
3820 3316 20 67 33   JSR JJ4 GENERATE BIT PATTERN FOR MIDDLE 2 BYTES
3830 3319 8D 43 2C   STA $2C43 STORE
3840 331C 8D 44 2C   STA $2C44
3850 331F A5 76      LDA WW11 GET THE 6 BITS
3860 3321 29 03      AND @3 GET THE 2LSBS
3870 3323 20 67 33   JSR JJ4 GENERATE BIT PATTERN FOR LAST 3 BYTES
3880 3326 8D 40 2C   STA $2C40 STORE
3890 3329 8D 41 2C   STA $2C41
3900 332C 8D 42 2C   STA $2C42
3910 332F A9 40      LDA @$40 SET UP ADDRESS OF CHAR. PATTERN
3920 3331 85 68      STA WW4
3930 3333 A9 2C      LDA @$2C
3940 3335 85 69      STA WW4+1
3950 3337 A5 7A      LDA WW13
3960 3339 F0 29      BEQ JJ7 SEPARATED GRAPHICS?
3970 333B A9 00      LDA @0 (SEPARATED)
3980 333D 8D 40 2C   STA $2C40
3990 3340 8D 42 2C   STA $2C42
4000 3343 8D 43 2C   STA $2C43
4010 3346 8D 45 2C   STA $2C45
4020 3349 8D 47 2C   STA $2C47
4030 334C A9 1B      LDA @$1B
4040 334E 48         PHA
4050 334F 2D 41 2C   AND $2C41
4060 3352 8D 41 2C   STA $2C41
4070 3355 68         PLA
4080 3356 48         PHA
4090 3357 2D 44 2C   AND $2C44
4100 335A 8D 44 2C   STA $2C44
4110 335D 68         PLA
4120 335E 2D 46 2C   AND $2C46
4130 3361 8D 46 2C   STA $2C46
4140 3364 4C 8F 33  :JJ7 JMP JJ11 STORE CHAR. PATTERN IN WORKSPACE
4160 3367 85 78     :JJ4 STA WW12 PUT IN A THE BIT PATTERN FOR
4170 3369           \THE 2 BITS AT WW12
4180 3369 A9 00      LDA @0
4190 336B 46 78      LSR WW12
4200 336D 90 02      BCC JJ5
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4210 336F 09 38      ORA @#38
4220 3371 46 78     :JJ5 LSR WW12
4230 3373 90 02      BCC JJ6
4240 3375 09 07      ORA @7
4250 3377 60        :JJ6 RTS
5000 3378           \ALPHANUMERICS
5010 3378 85 68     :JJ2 STA WW4 MULTIPLY PRESTEL CHAR BY 8
5020 337A A9 03      LDA @3 SET COUNTER
5030 337C 85 6C      STA WW6
5040 337E A9 00      LDA @0
5050 3380 18        :JJ8 CLC
5060 3381 06 68      ASL WW4 MULTIPLY LSB BY 2
OUT OF RANGE:
5064 3383 F0 00      BEQ JJ19 SINGLE HEIGHT
5070 3385 2A         ROL A MULTIPLY MSB BY 2
5080 3386 C6 6C      DEC WW6
5090 3388 D0 F6      BNE JJ8
5100 338A           \MSB OF ANS IN A, LSB IN WW4
5110 338A 18         CLC
5120 338B 69 27      ADC @#27 ADD #2700 TO ANS, -> ADDR IN RAM OF CHAR PATTERN
5130 338D 85 69      STA WW4+1
5140 338F A4 B2     :JJ11 LDY ZZ19 PRESENT ROW
5150 3391 B1 8A      LDA (WW21),Y 2ND HALF OF D.H. THIS ROW?
5160 3393 D0 4F      BNE JJ16 (YES)
5170 3395 A4 7E      LDY WW15
5180 3397 F0 2E      BEQ JJ13 D.H. FLAG CLEAR
5190 3399 A0 00     :JJ17 LDY @0 (D.H.)
5200 339B A2 00      LDX @0
5210 339D A9 04      LDA @4 SET COUNTER
5220 339F 85 6C      STA WW6
5230 33A1 84 74     :JJ14 STY WW10
5240 33A3 8A         TXA
5250 33A4 A8         TAY
5260 33A5 B1 68      LDA (WW4),Y GET BYTE OF CHAR PATTERN
5270 33A7 A4 74      LDY WW10
5280 33A9 91 70      STA (WW8),Y STORE IN W/S
5290 33AB 48         PHA SAVE
5300 33AC 20 BD 33   JSR JJ15 ADD 40 TO Y
5310 33AF 68         PLA RESTORE
5320 33B0 91 70      STA (WW8),Y STORE AGAIN .
5330 33B2 20 BD 33   JSR JJ15 ADD 40 TO  Y
5340 33B5 E8         INX
5350 33B6 C6 6C      DEC WW6
5360 33B8 D0 E7      BNE JJ14
5370 33BA 4C E1 33   JMP JJ12
5380 33BD 98        :JJ15 TYA ADD 40 TO Y
5390 33BE 18         CLC
5392 33BF 69 28      ADC @40
5393 33C1 A8         TAY
5400 33C2 90 02      BCC JJ9 IF Y OVERFLOWS, INC POINTER
5410 33C4 E6 71      INC WW8+1
5420 33C6 60        :JJ9 RTS
5440 33C7 A2 00     :JJ13 LDX @0 (SINGLE HEIGHT)
5450 33C9 A0 00      LDY @0
5460 33CB A9 08      LDA @8 SET COUNTER
5470 33CD 85 6C      STA WW6
5480 33CF 84 74     :JJ10 STY WW10
5490 33D1 8A         TXA
5500 33D2 A8         TAY
5510 33D3 B1 68      LDA (WW4),Y GET BYTE OF CHAR PATTERN
5520 33D5 A4 74      LDY WW10
5530 33D7 91 70      STA (WW8),Y STORE IN W/S
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5540 33D9 20 BD 33   JSR JJ15
5550 33DC E8         INX
5560 33DD C6 6C      DEC WW6
5570 33DF D0 EE      BNE JJ10
5580 33E1 C6 71     :JJ12 DEC WW8+1 RESTORE POINTER
5590 33E3 60         RTS
5600 33E4           :JJ16\(D.H.-BOTTOM HALF)
5602 33E4 A5 7E      LDA WW15 GET D.H. FLAG
5604 33E6 F0 0E      BEQ JJ21 SINGLE HEIGHT
5610 33E8 18         CLC
5620 33E9 A5 68      LDA WW4
5630 33EB 69 04      ADC @4 SET WW4 TO POINT TO BOTTOM 4 BYTES OF CHAR PATTERN
5640 33ED 90 02      BCC JJ18
5650 33EF E6 69      INC WW4+1
5660 33F1 85 68     :JJ18 STA WW4
5670 33F3 4C 99 33   JMP JJ17
5680 33F6 A9 00     :JJ21 LDA @0 SPACE INSTEAD ON 2ND ROW
5690 33F8 85 68      STA WW4
5700 33FA A9 28      LDA @$28
5710 33FC 85 69      STA WW4+1
5720 33FE 4C C7 33   JMP JJ13
$     1 3401
   10 3401           \ @@@ @@@  @@
   11 3401           \  @  @    @  @
   12 3401           \  @  @@    @@
   13 3401           \  @  @    @  @
   14 3401           \ @@@ @     @@
   15 3401           \
3010 3401 48        :RR6 PHA SAVE A
3020 3402 A9 00      LDA @0
3030 3404 85 6F      STA WW7+1 CLR MSB OF CURSOR POSN IN W/S
3040 3406 A5 B2      LDA ZZ19 ROW OF CURSOR
3050 3408 0A         ASL A MULTIPLY BY 40 ((*+1)*8)
3060 3409 90 02      BCC RR7
3070 340B E6 6F      INC WW7+1
3080 340D 06 6F     :RR7 ASL WW7+1
3085 340F 0A         ASL A
3090 3410 90 02      BCC RR8
3100 3412 E6 6F      INC WW7+1
3110 3414 18        :RR8 CLC
3120 3415 65 B2      ADC ZZ19
3130 3417 90 02      BCC RR9
3140 3419 E6 6F      INC WW7+1
3150 341B 06 6F     :RR9 ASL WW7+1
3155 341D 0A         ASL A
3160 341E 90 02      BCC RR10
3170 3420 E6 6F      INC WW7+1
3180 3422 06 6F     :RR10 ASL WW7+1
3185 3424 0A         ASL A
3190 3425 90 02      BCC RR11
3200 3427 E6 6F      INC WW7+1
3210 3429 06 6F     :RR11 ASL WW7+1
3215 342B 0A         ASL A
3220 342C 90 02      BCC RR12
3230 342E E6 6F      INC WW7+1
3240 3430 18        :RR12 CLC
3242 3431 69 70      ADC @$70 1ST ROW STARTS AT $2C70
3244 3433 85 6E      STA WW7 STORE LSB OF RESULT
3246 3435 90 02      BCC RR32
3248 3437 E6 6F      INC WW7+1
3250 3439 A5 6F     :RR32 LDA WW7+1 GET MSB OF ANS
3251 343B 18         CLC
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3252 343C 69 2C      ADC @#2C
3253 343E 85 6F      STA WW7+1 STORE C
3254 3440 68         PLA RESTORE
3260 3441 60         RTS
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