```
CESRV> do hdisp2.in 681
Opened Command File: HDISP2.IN

_CESRV>  read e:681
nonlin_bpm:  Initializing bpm0 lookup table...  using input file
nonlin_bpm:  Initializing bpm1 lookup table...  using input file
nonlin_bpm:  Initializing bpm2 lookup table...  using input file
nonlin_bpm:  Initializing bpm48 lookup table...  using input file
nonlin_bpm:  Initializing bpm49 lookup table...  using input file
nonlin_bpm:  Initializing ARC lookup table...  using input file
nonlin_bpm: initializing quad offsets
Reading quad offsets from [cesr.orbit]detcal.ok
nonlin_bpm:  Initializing button calibration
 Read butns file U:[CESR.ORBIT.BUT.16]BUTNS.116302

NOTICE: HARDBEND TRIM COMMAND = 0 CU FOR: HB03
        I AM AUTO VETOING THIS HARDBEND TRIM!

NOTICE: HARDBEND TRIM COMMAND = 0 CU FOR: HB04
        I AM AUTO VETOING THIS HARDBEND TRIM!
 ETA DATA READ IN: L_ETA:ETA.00681

_CESRV>  veto eta 47e
Eta data used:  0W:2W 4W 7W:48E 46E 44E:0E

_CESRV>  veto eta 23e
Eta data used:  0W:2W 4W 7W:48E 46E 44E:24E 22E:0E

_CESRV>  veto vert 0:99

 Horiz Steering vars used:  1W:1E HB01:HB02 HB05:HB06
 Vert Steering vars used:
 SCIR Cam Rho vars used:
 H_Separator vars used:
 V_Separator vars used:

_CESRV>  veto hori hb01:hb06

 Horiz Steering vars used:  1W:1E
 Vert Steering vars used:
 SCIR Cam Rho vars used:
 H_Separator vars used:
 V_Separator vars used:

_CESRV>  clip bottom 0.8

_CESRV>  clip top 10.0

_CESRV>  scale bottom 0.8

_CESRV>  scale top 10.0

_CESRV>  out gif
Title1: Data: vert 1e -1120cu
Use this for the 1st title line <cr = yes>? yes
Title2:
Use this for the 2nd title line <cr = yes>?
 [CESR.PLOTF]MODE00119202.GIF Written

_CESRV>

_CESRV>  set orbit_x_wgt(0:99)=0
Set: ORBIT_X_WGT(  0: 99)

_CESRV>  set orbit_y_wgt(0:99)=0
Set: ORBIT_Y_WGT(  0: 99)
```

```
_CESRV>  set eta_a_wgt(0:99)=2.
Set: ETA_A_WGT(  0: 99)

_CESRV>  set eta_b_wgt(0:99)=0
Set: ETA_B_WGT(  0: 99)

_CESRV>  run
CHECKING FOR NON-ZERO BUMPS...
         CSR HBUMPING  17:   -1065
         CSR HBUMPING  20:     225
         CSR HBUMPING  23:    -148
         CSR HBUMPING  25:    -198
         CSR HBUMPING  27:     249
         CSR HBUMPING  31:       1
         CSR HBUMPING  32:     100
         CSR HBUMPING  35:     291
         CSR HBUMPING  55:    -205
         CSR HBUMPING  62:     587
         CSR HBUMPING  63:      91
         CSR HBUMPING  65:     -51
         CSR HBLIMING   1:     122
         CSR HBLIMING   2:      69
         CSR HBSAVING   2:   -1054
         CSR VBUMPING   2:     152
         CSR VBUMPING   5:    -348
         CSR VBUMPING   7:    -344
         CSR VBUMPING   8:      -1
         CSR VBUMPING  10:      86
         CSR VBUMPING  12:     360
         CSR VBUMPING  14:    -370
         CSR VBUMPING  15:     176
         CSR VBUMPING  16:     119
         CSR VBUMPING  17:      -8
         CSR VBUMPING  18:      94
         CSR VBUMPING  19:    -198
         CSR VBUMPING  26:     105
         CSR VBUMPING  27:    -116
         CSR VBUMPING  28:    -882
         CSR VBUMPING  29:     691
         CSR VBUMPING  30:    -357
         CSR VBUMPING  31:    -213
         CSR VBUMPING  33:     -58
         CSR VBUMPING  34:    -105
         CSR VBUMPING  42:     -72
         CSR VBUMPING  44:      60
         CSR VBUMPING  47:     195
         CSR VBUMPING  48:      84
         CSR VBUMPING  49:     -65
         CSR VBUMPING  50:     732
         CSR VBUMPING  51:    -265
         CSR VBUMPING  55:      26
         CSR VBUMPING  56:     -41
         CSR VBUMPING  57:     -45
         CSR VBUMPING  58:     -50
         CSR VBUMPING  60:       1
         CSR VBUMPING  63:      39
         CSR VBUMPING  66:      -9
         CSR VBUMPING  71:      29
         CSR VBUMPING  77:     -63
         CSR VBLIMING   1:     -78
         CSR VBLIMING   2:     -67
         CSR VBLIMING   4:     -92
         CSR PRETZING   1:    2961
         CSR PRETZING   4:     150
         CSR PRETZING   5:    -142
```

```
         CSR PRETZING   6:      -40
         CSR PRETZING  11:     -159
         CSR PRETZING  13:       91
Optimizing using: STEERING
Data to Optimize: ORBIT
Dmerit: Allocated dm_dv matrix  397  703
Dmerit: Read dMerit matrix from Digested Dmerit File.
Initial merit:   20.73976
   Loop      Merit  A_lambda
   1         6.752  1.00E-04
   2         6.610  1.00E-05
   3         6.588  1.00E-06
   4         6.588  1.00E-07
   5         6.588  0.00E+00

 User Energy Control is: Off
 The Beam Energy will change with pretzel, bumps, etc.
 MODEL Energy Shift:
       dE/E =      5.871E-09
       dE (MeV) =      0.000
       [Note: Actual Energy Change when Loading = -dE_model]

        Top10 merit        |     Top10 derivative      |      Top10 delta
   Name      ix     Value | Name      ix  Derivative | Name     ix      delta
 Eta_X      24        0.7  Horiz     91  -2.900E+01  Horiz     52      2217.
 Eta_X      26        0.7  Horiz     89  -2.154E+01  Horiz     55     -1593.
 Eta_X      83        0.4  Horiz      9  -1.701E+01  Horiz     53      1198.
 Eta_X      28        0.4  Horiz     59  -1.495E+01  Horiz     65     -1061.
 Eta_X      30        0.4  Horiz     69  -1.494E+01  Horiz     67       618.
 Eta_X      32        0.2  Horiz      7  -1.478E+01  Horiz      1      -581.
 Eta_X      22        0.2  Horiz     81  -1.395E+01  Horiz      7      -534.
 Eta_X      84        0.2  Horiz     71  -1.347E+01  Horiz     38      -526.
 Eta_X      81        0.1  Horiz     10  -1.337E+01  Horiz     57       449.
 Horiz      42        0.1  Horiz     26  -1.306E+01  Horiz     44      -416.
 Merit:     6.588093

 CU Steering Averages: [For used steerings except Hard Bends]
                Average     RMS  N_used
  Horizontal:       -54     124      53
  Vertical:           0       0       0

Merit sum for: Orbit_X           0.0000E+00
Merit sum for: Orbit_Y           0.0000E+00
Merit sum for: Eta_X             5.6121E+00
Merit sum for: Eta_Y             0.0000E+00
Merit sum for: dE/E              4.8075E-05

Merit sum for: Horiz Steering    9.7599E-01
                        X         |            Y
                  Model     Design |      Model     Design
       Chrom      0.265      0.996        1.426      0.652  ! dQ/(dE/E)
      dChrom      0.000                   0.000
 [dChrom = (Model - Data) - (Design - Ref) if a reference is being used.]
 [dChrom = (Model - Data) otherwise.]

_CESRV>  scale bottom 0.8

_CESRV>  scale top 10.
```