

AGS- Booster and RHIC lattices with racetrack

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MAY 1987

AGS - BOOSTER AND RHIC LATTICES
WITH RACETRACK

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AGS - BOOSTER AND RHIC LATTICES

WITH RACETRACK

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This note provides some information on the program RACETRACK, which is a computer code used for the simulation of nonlinear particle motion in accelerators. We have used this program (BNLDAG::DUA0:[PARSA1.RACETRACK]RACETRACK.EXE for RHIC, Booster and the 6GeV Light source lattices. We have included copies of the Booster and RHIC lattices in the RACETRACK input format for illustration. For the 6 GeV Light source lattice (and more information) and the source code see the "Guide to Accelerator Physics Program RACETRACK, ADD-AP-TN 6, that should be available soon, or BNLDAG::DUA0:[PARSA1.RACETRACK] Directory, for example;

RHIC.COM assigns input, output and runs the program

RHIC.LAT is the RHIC input lattice used with our VAX.VMS version as well as the modified CRAY version of the program RACETRACK.

RHIC.RACOUT is the RACETRACK output for the above RHIC input.

BOOSTER.LAT is the Booster input lattice

BOOSTER.racout is the Booster output lattice

Racetrack.for;10 is the version without NCLO routine (corresponds to RACETRACK.EXE;2). This routine is included in the Guide as a matter of information, (special element may be needed to use this routine, otherwise it has to be deleted as is done in this version we used for the RHIC and the Booster.

Further, note the followings:

- O This version allows a maximum number of 100 Elements, although this number can be changed e.g. we also have versions of this program with 300 different types of Elements that is being used for SSC lattice.
- O Zero length drift elements are not allowed

- O Elements not appearing in the BLOCK statements are treated as nonlinear elements with order 2 times the element lable. For example, Bending Magnet with lable number 3 would be treated as a sextupole with lable number $(2 \times 3 =) 6$
- O DYNAPFOR is one of the versions of this program used for SSC on CRAY Computers. This version allows only one set of multipoles.
- O FASTRAC is another modified version of RACETRACK that is about 100 times faster than the normal version, also used for SSC on CRAY computers. It includes some LIE Algebraic routines (from MARYLIE) and takes many sets of multipoles.

Following are sample RHIC and Booster input, output lattices,
available in the [PARSAI.RACETRACK] DIRECTORY;

RHIC: lot input to the program RACETRACK:

```

FLEXIBILITY /RHIC903%/ ONLY SEXTUPOLES [removed l=0 drifts,zp]
PRINTOUT OF INPUT PARAMETERS
NEXT
SINGLE ELEMENTS
DB11* 0 1.83928112
DB21* 0 2.23928112
DB20* 0 2.25676598
DB10* 0 1.85676598
DB91* 0 21.25667145
D781* 0 4.46159327
1672* 0 1.1
1671* 0 2.69802471
1562* 0 2.09387266
1561* 0 1.22223031
D451* 0 8.89728854
D341* 0 43.32501632
D231* 0 5.66153023
D121* 0 1.24908084
D013* 0 1.0
D012* 0 5.30089689
D011* 0 10.0
D120* 0 1.24908084
D230* 0 5.66153023
D340* 0 43.32501632
D450* 0 8.88065128
0561* 0 1.23892191
0562* 0 2.11056425
0671* 0 2.71545523
0672* 0 1.11748466
D780* 0 4.46159327
D890* 0 21.25667145
QF* 2 -0803343040 0.62
QD* 2 -0802058750 0.62
Q91* 2 -0813499890 0.4143845
Q90* 2 +0808351560 0.4143845
Q81* 2 +0813499890 0.70839435
Q80* 2 -0812847100 0.70839435
Q71* 2 -0813499890 0.80186184
Q70* 2 +0812268320 0.80186184

```

Q61	*	2		.081349890	0.59578475
Q60	*	2		-.0813846840	0.59578475
Q51	*	2		-.0683305230	0.62654244
Q50	*	2		+.0685966910	0.62654244
Q41	*	2		.081349890	0.41633416
Q40	*	2		-.0815714230	0.41633416
Q31	*	2		-.0683305230	0.56125882
Q30	*	2		+.0683106720	0.56125882
Q21	*	2		.0683305230	1.21042801
Q20	*	2		-.0683409560	1.21042801
Q11	*	2		-.0683305230	0.75534810
Q10	*	2		+.0683224480	0.75534810
B	*	1	-.004050477	9.475	
BS2	*	1	-.004050477	9.475	
BS11	*	1	-.003240677	4.52261691	
BS10	*	1	-.004959927	4.52261691	
BC11	*	1	-.005511640	3.30018198	
BC10	*	1	+.005511640	3.30018198	
BC21	*	1	+.003250156	4.40030559	
BC20	*	1	-.003250156	4.40030559	
SF	*	3	-.00000		
SD	*	3	.00000		
DSF1	*	3	-.01990		
DSF2	*	3	.01990		
DSD1	*	3	-.02970		
DSD2	*	3	.02970		
MB1	*	11	1.	1.	
MB2	*	11	1.	1.	
MC1	*	11	0.	0.	
MC2	*	11	0.	0.	
MF	*	11	0.	0.	
MD	*	11	0.	0.	
M91	*	11	0.	0.	
M90	*	11	0.	0.	
M81	*	11	0.	0.	
M80	*	11	0.	0.	
M71	*	11	0.	0.	
M70	*	11	0.	0.	
M61	*	11	0.	0.	
M60	*	11	0.	0.	
M51	*	11	0.	0.	
M50	*	11	0.	0.	
M41	*	11	0.	0.	
M40	*	11	0.	0.	
M31	*	11	0.	0.	
M30	*	11	0.	0.	
M21	*	11	0.	0.	
M20	*	11	0.	0.	
M11	*	11	0.	0.	
M10	*	11	0.	0.	
MS1A	*	11	0.	0.	
MS1B	*	11	0.	0.	
MS2A	*	11	0.	0.	
MS2B	*	11	0.	0.	
M21A	*	11	0.	0.	
M21B	*	11	0.	0.	
M20A	*	11	0.	0.	
M10B	*	11	0.	0.	
M11A	*	11	0.	0.	
M11B	*	11	0.	0.	

M10A* 11 0.
M20B* 11 0.
NEXT 0.

BLOCK DEFINITIONS

3 1 1 1

DB11 DB11
DB21 DB21
DB10 DB10
DB20 DB20
DB91 DB91
D781 D781
1672 1672
1671 1671
1562 1562
1561 1561
D451 D451
D341 D341
D231 D231
D121 D121
D013 D013
D012 D012
D011 D011
D120 D120
D230 D230
D340 D340
D450 D450
0561 0561
0562 0562
0671 0671
0672 0672
D780 D780
D890 D890
D120 D120
B B
BS2 BS2
BS11 BS11
BS10 BS10
BC11 BC11
BC10 BC10
BC21 BC21
BC20 BC20
QF QF
QD QD
Q91 Q91
Q81 Q81
Q71 Q71
Q61 Q61
Q51 Q51
Q41 Q41
Q31 Q31
Q21 Q21
Q11 Q11
Q90 Q90
Q80 Q80
Q70 Q70
Q60 Q60
Q50 Q50
Q40 Q40
Q30 Q30
Q20 Q20

)
 NEXT
 LINEAR OPTICS CALCULATION
 ELEMENT 50

NEXT
CHROMATICITY CORRECTION

SF 0.0
SD 0.0

NEXT
ITERATION ERRORS OF CLOSED ORBIT, TUNE ADJUSTMENT AND CHROMATICITY CALC.

100 0.0001	0.00001
10 0.00001	0.0001
10 0.001	0.01

NEXT
TRACKING PARAMETERS

10	10.00	0.0
23	-.0100	+.0100

NEXT COORDINATES—RECTANGULAR
INITIAL 1 0. 90.0 1.0

NEXT
MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10—> F15
25.0 19.4

[illegible]

NEXT
FLUCTUATION RANDOM STARTING NUMBER
0000000000005623845

NEXT
 END
 MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10 —> F15

[illegible]

NEXT COEFFICIENTS—/FORMAT CHANGED—F10 —> F15
MULTIPOLE COEFFICIENTS—25.0 19.4

25.0	19.4	0.00000	0.000
0.	0.00000	0.	0.000
0.	0.00000	0.	0.000131
-0.000000	0.000462	0.	0.000219
0.	0.000127	0.	0.000057
0.0000000	0.000219	0.	0.000091
0.	0.000053	0.	0.000023
0.00000	0.000083	0.	0.000034
0.	0.000018	0.	0.0000084
0.0000	0.000028	0.	0.0000011
-0.0000	0.0000061	0.	
0.0000		.	

```

NEXT PRINTOUT OF INPUT PARAMETERS
NEXT TUNE VARIATION
OF .827
QD .820
NEXT ORBIT ADJUSTMENT
1.00 1.00
MON=SPH
COR=DPH
COR=DPV
NEXT INITIAL COORDINATES
SET 0.0 0.0 1.99 0.00 -0.9 0.0
0.0 0.0 0.7 0.00 0.0 -0.1
NEXT INITIAL COORDINATES
SET 0.0 0.0 29.105 0.00019 0. 0.0B
0.0 0.0 8.315 0.00018 0.0 0.
NEXT COMBINATION OF ELEMENTS
SPVL 2.2143 SPVS
NEXT LIMITATION OF APERTURE
SPH RE 28. 28.
SPV EL 28. 28.
NEXT COMBINATION OF ELEMENTS
SPH 3.0 SPHA
SPV 3.0 SPVA
NEXT C-CELL QUADS FOR QX/QZ=.15/.08 WITHOUT ORBIT DIST
OF 2 2.878 .62 -.08034138
QD 2 2.878 1.8 .03427998
ITERATION ERRORS OF CLOSED ORBIT, TUNE ADJUSTMENT AND CHROMATICITY CALC.
50 0.00001 0.00001
10 0.000001 0.00001
10 0.00001 0.001
NEXT TRACKING PARAMETERS
1 1.0 0.
1 -.0000 .000
NEXT

```

Following shows the output generated for the RHIC.lat given above:

```

000000000000000000000000
0
O R A C E T R A C K O
O Version Nov.1986 O
0
000000000000000000000000

```

DATA BLOCK MULTIPOLE COEFFICIENTS
 RADIUS IN MM 25.000000
 BENDING STRENGTH IN MRAD 19.400000

	NORMAL		SKEW	
	MEAN	RMS-VALUE	MEAN	RMS-VALUE
1	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
2	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
3	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
4	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
5	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
6	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
7	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
8	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
9	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
10	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00

DATA BLOCK FLUCTUATIONS OF MULTIPOLES
 RANDOM STARTING NUMBER= 5623845

*** RING PARAMETERS ***

SINGLE ELEMENTS:

I	NO	I	NAME	I	TP	I	1/RHO	I	STRENGTH	I	LENGTH	I	X-POS	I	X-RMS	I	Z-POS	I	Z-RMS
1	1	1	DB11	1	0	1	0.00000000	1	0.00000000	1	1.839281120	1	0.00	1	0.00	1	0.00	1	0.00
1	2	1	DB21	1	0	1	0.00000000	1	0.00000000	1	2.239281120	1	0.00	1	0.00	1	0.00	1	0.00
1	3	1	DB20	1	0	1	0.00000000	1	0.00000000	1	2.256765980	1	0.00	1	0.00	1	0.00	1	0.00
1	4	1	DB10	1	0	1	0.00000000	1	0.00000000	1	1.856765980	1	0.00	1	0.00	1	0.00	1	0.00
1	5	1	DB91	1	0	1	0.00000000	1	0.00000000	1	21.256671450	1	0.00	1	0.00	1	0.00	1	0.00
1	6	1	D781	1	0	1	0.00000000	1	0.00000000	1	4.461593270	1	0.00	1	0.00	1	0.00	1	0.00
1	7	1	1672	1	0	1	0.00000000	1	0.00000000	1	1.100000000	1	0.00	1	0.00	1	0.00	1	0.00
1	8	1	1671	1	0	1	0.00000000	1	0.00000000	1	2.698024710	1	0.00	1	0.00	1	0.00	1	0.00
1	9	1	1562	1	0	1	0.00000000	1	0.00000000	1	2.093872660	1	0.00	1	0.00	1	0.00	1	0.00
1	10	1	1561	1	0	1	0.00000000	1	0.00000000	1	1.223230310	1	0.00	1	0.00	1	0.00	1	0.00
1	11	1	D451	1	0	1	0.00000000	1	0.00000000	1	8.897288540	1	0.00	1	0.00	1	0.00	1	0.00
1	12	1	D341	1	0	1	0.00000000	1	0.00000000	1	43.325016320	1	0.00	1	0.00	1	0.00	1	0.00
1	13	1	D231	1	0	1	0.00000000	1	0.00000000	1	5.661530230	1	0.00	1	0.00	1	0.00	1	0.00
1	14	1	D121	1	0	1	0.00000000	1	0.00000000	1	1.249080840	1	0.00	1	0.00	1	0.00	1	0.00
1	15	1	D013	1	0	1	0.00000000	1	0.00000000	1	1.000000000	1	0.00	1	0.00	1	0.00	1	0.00
1	16	1	D012	1	0	1	0.00000000	1	0.00000000	1	5.300896890	1	0.00	1	0.00	1	0.00	1	0.00
1	17	1	D011	1	0	1	0.00000000	1	0.00000000	1	10.000000000	1	0.00	1	0.00	1	0.00	1	0.00
1	18	1	D120	1	0	1	0.00000000	1	0.00000000	1	1.249080840	1	0.00	1	0.00	1	0.00	1	0.00
1	19	1	D230	1	0	1	0.00000000	1	0.00000000	1	5.661530230	1	0.00	1	0.00	1	0.00	1	0.00
1	20	1	D340	1	0	1	0.00000000	1	0.00000000	1	43.325016320	1	0.00	1	0.00	1	0.00	1	0.00

21	I	D450	I	0	I	0.000000	I	0.000000	I	0.000000	I	8.880651280	I	0.00	I	0.00	I	0.00	I
22	I	0561	I	0	I	0.000000	I	0.000000	I	0.000000	I	1.238921910	I	0.00	I	0.00	I	0.00	I
23	I	0562	I	0	I	0.000000	I	0.000000	I	0.000000	I	2.110564250	I	0.00	I	0.00	I	0.00	I
24	I	0671	I	0	I	0.000000	I	0.000000	I	0.000000	I	2.715455230	I	0.00	I	0.00	I	0.00	I
25	I	0672	I	0	I	0.000000	I	0.000000	I	0.000000	I	1.117484860	I	0.00	I	0.00	I	0.00	I
26	I	0780	I	0	I	0.000000	I	0.000000	I	0.000000	I	4.461593270	I	0.00	I	0.00	I	0.00	I
27	I	D890	I	0	I	0.000000	I	0.000000	I	0.000000	I	21.256671450	I	0.00	I	0.00	I	0.00	I
28	I	QF	I	2	I	0.000000	I	-0.0803343	I	0.620000000	I	0.620000000	I	0.00	I	0.00	I	0.00	I
29	I	QD	I	2	I	0.000000	I	-0.0802059	I	0.620000000	I	0.620000000	I	0.00	I	0.00	I	0.00	I
30	I	Q91	I	2	I	0.000000	I	-0.0813500	I	0.414384500	I	0.414384500	I	0.00	I	0.00	I	0.00	I
31	I	Q90	I	2	I	0.000000	I	0.0808352	I	0.708394350	I	0.708394350	I	0.00	I	0.00	I	0.00	I
32	I	Q81	I	2	I	0.000000	I	-0.0813500	I	0.801861840	I	0.801861840	I	0.00	I	0.00	I	0.00	I
33	I	Q80	I	2	I	0.000000	I	-0.0813500	I	0.801861840	I	0.801861840	I	0.00	I	0.00	I	0.00	I
34	I	Q71	I	2	I	0.000000	I	0.0812268	I	0.801861840	I	0.801861840	I	0.00	I	0.00	I	0.00	I
35	I	Q70	I	2	I	0.000000	I	0.0813500	I	0.595784750	I	0.595784750	I	0.00	I	0.00	I	0.00	I
36	I	Q61	I	2	I	0.000000	I	-0.0813847	I	0.595784750	I	0.595784750	I	0.00	I	0.00	I	0.00	I
37	I	Q60	I	2	I	0.000000	I	-0.0683305	I	0.626542440	I	0.626542440	I	0.00	I	0.00	I	0.00	I
38	I	Q51	I	2	I	0.000000	I	0.0685967	I	0.626542440	I	0.626542440	I	0.00	I	0.00	I	0.00	I
39	I	Q50	I	2	I	0.000000	I	0.0813500	I	0.416334160	I	0.416334160	I	0.00	I	0.00	I	0.00	I
40	I	Q41	I	2	I	0.000000	I	-0.0815714	I	0.561258820	I	0.561258820	I	0.00	I	0.00	I	0.00	I
41	I	Q40	I	2	I	0.000000	I	-0.0683305	I	0.561258820	I	0.561258820	I	0.00	I	0.00	I	0.00	I
42	I	Q31	I	2	I	0.000000	I	0.0683307	I	1.210428010	I	1.210428010	I	0.00	I	0.00	I	0.00	I
43	I	Q30	I	2	I	0.000000	I	0.0683305	I	0.755348100	I	0.755348100	I	0.00	I	0.00	I	0.00	I
44	I	Q21	I	2	I	0.000000	I	-0.0683305	I	0.755348100	I	0.755348100	I	0.00	I	0.00	I	0.00	I
45	I	Q20	I	2	I	0.000000	I	0.0683324	I	9.475000000	I	9.475000000	I	0.00	I	0.00	I	0.00	I
46	I	Q11	I	2	I	0.000000	I	-0.0040505	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
47	I	Q10	I	2	I	0.000000	I	-0.0040505	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
48	I	B	I	1	I	-0.0040505	I	-0.0032407	I	4.522616910	I	4.522616910	I	0.00	I	0.00	I	0.00	I
49	I	BS2	I	1	I	-0.0040505	I	-0.0049599	I	3.300181980	I	3.300181980	I	0.00	I	0.00	I	0.00	I
50	I	BS11	I	1	I	-0.0049599	I	0.000000	I	4.400305590	I	4.400305590	I	0.00	I	0.00	I	0.00	I
51	I	BS10	I	1	I	-0.0055116	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
52	I	BC11	I	1	I	0.0055116	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
53	I	BC10	I	1	I	0.0032502	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
54	I	BC21	I	1	I	0.0032502	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
55	I	BC20	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
56	I	SF	I	3	I	0.000000	I	-0.0199000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
57	I	SD	I	3	I	0.000000	I	0.0199000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
58	I	DSF1	I	3	I	0.0199000	I	-0.0297000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
59	I	DSF2	I	3	I	-0.0297000	I	1.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
60	I	DSD1	I	3	I	1.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
61	I	DSD2	I	3	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
62	I	MB1	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
63	I	MB2	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
64	I	MC1	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
65	I	MC2	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
66	I	MF	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
67	I	MD	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
68	I	M91	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
69	I	M90	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
70	I	M81	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
71	I	M80	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
72	I	M71	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
73	I	M70	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
74	I	M61	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
75	I	M60	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
76	I	M51	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
77	I	M50	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
78	I	M41	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
79	I	M40	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I
80	I	M31	I	1	I	0.000000	I	0.000000	I	0.000000	I	0.000000	I	0.00	I	0.00	I	0.00	I

NO. OF SUPERPERIODS AND SYMMETRY
NUMBER OF DIFFERENT BLOCKS
BLOCKS PER PERIOD

**BLOCKSTRUCTURE:
(BLOCKTYP—NO. OF SINGLE ELEMENTS—SINGLE ELEMENT TYPES)**

1	DB11	1	DB11
2	DB21	1	DB21
3	DB10	1	DB10
4	DB20	1	DB20
5	DB91	1	DB91
6	DB781	1	DB781
7	1672	1	1672
8	1671	1	1671
9	1562	1	1562
10	1561	1	1561
11	1451	1	1451
12	12341	1	12341
13	1231	1	1231
14	1121	1	1121
15	1013	1	1013
16	1012	1	1012
17	1011	1	1011
18	1120	1	1120
19	1230	1	1230
20	1340	1	1340
21	1450	1	1450
22	1561	1	1561
23	1562	1	1562
24	1671	1	1671
25	1672	1	1672
26	1780	1	1780
27	1890	1	1890

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28 D120 1 D120
29 B 1 B
30 BS2 1 BS2
31 BS11 1 BS11
32 BS10 1 BS10
33 BC11 1 BC11
34 BC10 1 BC10
35 BC21 1 BC21
36 BC20 1 BC20
37 QF 1 QF
38 QD 1 QD
39 Q91 1 Q91
40 Q81 1 Q81
41 Q71 1 Q71
42 Q61 1 Q61
43 Q51 1 Q51
44 Q41 1 Q41
45 Q31 1 Q31
46 Q21 1 Q21
47 Q11 1 Q11
48 Q90 1 Q90
49 Q80 1 Q80
50 Q70 1 Q70
51 Q60 1 Q60
52 Q50 1 Q50
53 Q40 1 Q40
54 Q30 1 Q30
55 Q20 1 Q20
56 Q10 1 Q10

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BLOCKSTRUCTURE OF SUPERPERIODE:

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1 MF QF SF DSF1 DB21 MB1 B MB2 DB11 MC1
11 QD MD QD QD SD DB21 MB2 B MB1 DB11 MC2
21 QF MF QF SF DSF2 DB21 MB1 B MB2 DB11
31 MC1 QD MD QD SD DB21 MB2 B MB1 DB11
41 MC2 QF MF QF SF DSF1 DB21 MB1 B MB2
51 DB11 MC1 QD MD QD SD SF DSF2 DB21 MB1 B
61 DB11 MC2 QF MF QF SF DSF1 DB21 MB1 B
71 MB2 DB11 MC1 QD MD QD SD SF DSF1 DB21 MB1
81 MB1 DB11 MC2 QF MF QF SF DSF1 DB21 MB1
91 B MB2 DB11 MC1 QD MD QD SD SF DSF1 DB21 MB1
101 B MB1 DB11 MC2 QF MF QF SF DSF1 DB21 MB1
111 MB1 B MB2 DB11 MC1 QD MD QD SD SF DSF1 DB21 MB1
121 MB2 B MB1 DB11 MC2 QF MF QF SF DSF1 DB21 MB1
131 MB1 Q81 D781 Q71 M71 Q71 I672 MS2A BS2 MS2B
141 I671 Q61 M61 Q61 I562 MS1A BS11 MS1A I561 Q51
151 MS1 Q51 D451 Q41 M41 Q41 D341 Q31 M31 Q31
161 D231 Q21 M21 Q21 D121 Q11 M11 Q11 D013 M21A
171 BC21 M21B D012 M11A BC11 M11B D011 D011 M10A BC10
181 M10B D012 M20A BC20 M20B D013 Q10 M10 Q10 D120
191 Q20 M20 Q20 D230 Q30 M30 Q30 D340 Q40 M40
201 Q40 D450 Q50 M50 Q50 O561 MS1B BS10 MS1B O562
211 Q60 M60 Q60 O671 MS2B BS2 MS2A O672 Q70 M70
221 Q70 D780 Q80 M80 Q80 D890 Q90 M90 QD MC1
231 DB10 MB2 B MB1 DB20 SF QF MF QF MC2
241 DB10 MB1 B MB2 DB20 SD DSD1 QD MD QD
251 MC1 DB10 MB2 B MB1 DB20 SF QF MF QF

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261	MC2	DB10	MB1	B	MB2	DB20	SD	DSD2	QD	MD
271	QD	MC1	DB10	MB2	B	MB1	DB20	SF	QF	MF
281	QF	MC2	DB10	MB1	B	MB2	DB20	SD	DSD1	QD
291	MD	QD	MC1	DB10	MB2	B	MB1	DB20	SF	QF
301	MF	QF	MC2	DB10	MB1	B	MB2	DB20	SD	DSD2
311	QD	MD	QD	MC1	DB10	MB2	B	MB1	DB20	SF
321	QF	MF	QF	MC2	DB10	MB1	B	MB2	DB20	SD
331	DSD1	QD	MD	QD	MC1	DB10	MB2	B	MB1	DB20
341	SF	QF	MF	QF	MC2	DB10	MB1	B	MB2	DB20
351	SD	DSD2	QD	MD	QD	MC1	DB10	MB1	B	MB2
361	DB20	SF	QF	MF	QF	MC2	DB10	MB1	B	MB2
371	DB20	SD	DSD1	QD	MD	QD	MC1	DB10	MB1	B
381	MB1	DB20	SF	QF	MF	QF	MC2	DB10	MB1	B
391	MB2	DB20	SD	SF	QF	MF	QF	MC2	DB10	MB1
401	B	MB1	DB20	SD	SF	QF	MF	QF	MC2	DB10
411	B	MB2	DB20	SD	DSD1	QD	MD	QD	MC1	DB10
421	MB2	B	MB1	DB20	SD	SF	QF	MF	QF	MC2
431	MB1	B	MB2	DB20	SD	DSD1	QD	MD	QD	MC1
441	DB10	MB2	B	MB1	DB20	SD	SF	QF	MF	QF
451	DB10	MB1	B	MB2	DB20	SD	DSD1	QD	MD	QD
461	MC1	DB10	MB2	B	MB1	DB20	SD	SF	QF	MF
471	MC2	DB10	MB1	B	MB2	DB20	SD	DSD1	QD	MD
481	Q90	D890	Q80	M80	Q80	D780	Q70	M70	Q70	O672
491	MS2A	BS2	MS2B	O671	Q60	M60	Q60	O562	MS1B	BS10
501	MS1B	O561	Q50	M50	Q50	D450	Q40	M40	Q40	D340
511	Q30	M30	Q30	D230	Q20	M20	Q20	D120	Q10	M10
521	Q10	D013	M20B	BC20	M20A	D012	M10B	BC10	M10A	D011
531	D011	M11B	BC11	M11A	D012	M21B	BC21	M21A	D013	Q11
541	M11	Q11	D121	Q21	M21	Q21	D231	Q31	M31	Q31
551	D341	Q41	M41	Q41	D451	Q51	M51	Q51	I561	MS1A
561	BS11	MS1A	I562	O61	M61	Q61	I671	MS2B	BS2	MS2A
571	I672	Q71	M71	Q71	D781	Q81	M81	Q81	D891	Q91
581	M91	QF	SF	DSF1	DB21	MB1	B	MB2	DB11	MC1
591	QD	MD	QD	SD	DSF2	DB21	MB2	B	MB1	DB11
601	QF	MF	QF	SF	DSF1	DB21	MB1	B	MB2	DB11
611	MC1	QD	MD	QD	SD	DSF1	DB21	MB1	B	MB2
621	MC2	QF	MF	QF	SF	DSF2	DB21	MB2	B	MB1
631	DB11	MC1	QD	MD	QD	SD	DSF1	DB21	MB1	B
641	DB11	MC2	QF	MF	QF	SF	DSF2	DB21	MB1	B
651	MB2	DB11	MC1	QD	MD	QD	SD	DSF1	DB21	MB1
661	MB1	DB11	MC2	QF	MF	QF	SF	DSF1	DB21	MB1
671	B	MB2	DB11	MC1	QD	MD	QD	SD	DSF1	DB21
681	B	MB1	DB11	MC2	QF	MF	QF	SF	DSF2	DB21
691	MB1	B	MB2	DB11	MC1	QD	MD	QD	SD	DSF2
701	MB2	B	MB1	DB11	MC2	QF	MF	QF	SD	DB21

*** TRACKING PARAMETERS ***

NUMBER OF REVOLUTIONS
 TRACKING START AT ELEMENT NO.
 INITIAL AMPLITUDE-H IN (MM)
 COUPLING EPS-Z/EPS-X
 NUMBER OF PARTICLES

10
 1
 10.000
 1.000
 1

—ENTRY ORBIT—/NO MONITORS SPECIFIED

DATA BLOCK CHROMATICITY CORRECTION			
CHROMATICITIES	BEFORE	AFTER	CORRECTION
HORIZONTAL	-56.7834824	-0.0100583	
VERTICAL	-56.7726791	-0.0484288	
SEXTUP. STRENGTHS	0.0000000	-0.0839277	INDEX SF
IN (M-2)	0.0000000	0.1699133	SD
DEFINITION: DXP=STRENGTH*(X+X-Z+Z)			DZF=-2*STRENGTH*X*Z
SEXTUPOLE SENSITIVITIES	X1/M1 X1/M2 Z1/M1 Z1/M2	-0.82515180E+03-0.73388219E+02 0.14863908E+03 0.40754676E+03	

DATA BLOCK CHROMATICITY CORRECTION			
CHROMATICITIES	BEFORE	AFTER	CORRECTION
HORIZONTAL	-0.0100583	0.0000000	
VERTICAL	-0.0484288	0.0000000	
SEXTUP. STRENGTHS	-0.0839277	-0.0839513	INDEX SF
IN (M-2)	0.1699133	0.1700407	SD
DEFINITION: DXP=STRENGTH*(X+X-Z+Z)			DZF=-2*STRENGTH*X*Z
SEXTUPOLE SENSITIVITIES	X1/M1 X1/M2 Z1/M1 Z1/M2	-0.82515180E+03-0.73388219E+02 0.14901161E+03 0.40754676E+03	

—ENTRY LINOPT—

RELATIVE ENERGY DEVIATION
FRACTIONAL TUNES -HORIZONTAL -0.1647034
-VERTICAL -0.1827588

NR	TYPE	L-TOTAL (M)	LENGTH (M)	BETAH (M)	ALFAH	PHIH (QE)	DISH (M)	DISPH (RAD)	CLOH (MM)	CLOPH (MRAD)	BETAV (M)	ALFAV	PHIV (QE)	DISV (M)	DISPV (RAD)	CLOV (MM)	CLOVP (MRAD)
0				27.34	0.01	0.00	1.41	-0.003	-14.5	0.013	9.15	0.02	0.00	0.00	0.000	0.0	0.000
1	QF	0.620	0.620	26.49	1.34	0.00	1.39	-0.075	-14.3	0.74	9.46	-0.52	0.01	0.00	0.000	0.0	0.000
2	SF	0.620	0.000	26.49	1.27	0.01	1.39	-0.071	-14.3	0.72	9.46	-0.50	0.01	0.00	0.000	0.0	0.000
3	DSF1	0.620	0.000	26.49	1.26	0.01	1.39	-0.071	-14.3	0.72	9.46	-0.49	0.01	0.00	0.000	0.0	0.000
4	DB21	2.859	2.239	21.35	1.04	0.02	1.23	-0.071	-12.7	0.72	12.32	-0.79	0.04	0.00	0.000	0.0	0.000
5	MB1	2.859	0.000	21.35	1.04	0.02	1.23	-0.071	-12.7	0.72	12.32	-0.79	0.04	0.00	0.000	0.0	0.000
6	B	12.334	9.475	10.41	0.12	0.13	0.74	-0.032	-7.7	0.33	38.97	-2.02	0.11	0.00	0.000	0.0	0.000
7	MB2	12.334	0.000	10.41	0.12	0.13	0.74	-0.032	-7.7	0.33	38.97	-2.02	0.11	0.00	0.000	0.0	0.000
8	DB11	14.174	1.839	10.31	-0.06	0.16	0.69	-0.032	-7.1	0.33	46.86	-2.27	0.12	0.00	0.000	0.0	0.000
9	OD	14.794	0.620	10.75	-0.66	0.17	0.68	0.003	-7.0	0.02	48.21	0.10	0.12	0.00	0.000	0.0	0.000
10	OD	15.414	0.620	11.97	-1.33	0.18	0.69	0.035	-7.1	-0.38	46.61	2.45	0.12	0.00	0.000	0.0	0.000
11	SD	15.414	0.000	11.97	-1.30	0.18	0.69	0.035	-7.1	-0.38	46.61	2.45	0.12	0.00	0.000	0.0	0.000
12	DB21	17.653	2.239	18.94	-1.81	0.20	0.77	0.035	-8.0	-0.37	36.84	2.03	0.13	0.00	0.000	0.0	0.000
13	MB2	17.653	0.000	18.94	-1.81	0.20	0.77	0.035	-8.0	-0.37	36.84	2.03	0.13	0.00	0.000	0.0	0.000
14	B	27.128	9.475	73.48	-3.95	0.24	1.29	0.074	-13.3	-0.76	10.84	0.71	0.21	0.00	0.000	0.0	0.000
15	MB1	27.128	0.000	73.48	-3.95	0.24	1.29	0.074	-13.3	-0.76	10.84	0.71	0.21	0.00	0.000	0.0	0.000
16	DB11	28.967	1.839	88.77	-4.36	0.25	1.42	0.074	-14.7	-0.76	8.69	0.46	0.24	0.00	0.000	0.0	0.000
17	QF	29.587	0.620	91.41	0.14	0.25	1.45	0.001	-14.9	-0.01	8.44	-0.05	0.25	0.00	0.000	0.0	0.000
18	QF	30.207	0.620	88.42	4.63	0.25	1.43	-0.072	-14.7	0.74	8.81	-0.56	0.27	0.00	0.000	0.0	0.000
19	SF	30.207	0.000	88.42	4.41	0.25	1.43	-0.069	-14.7	0.72	8.81	-0.54	0.26	0.00	0.000	0.0	0.000
20	DSF2	30.207	0.000	88.42	4.46	0.25	1.43	-0.069	-14.7	0.72	8.81	-0.54	0.26	0.00	0.000	0.0	0.000
21	DB21	32.446	2.239	69.62	3.93	0.25	1.27	-0.069	-13.1	0.72	11.98	-0.87	0.30	0.00	0.000	0.0	0.000
22	MB1	32.446	0.000	69.62	3.93	0.25	1.27	-0.069	-13.1	0.72	11.98	-0.87	0.30	0.00	0.000	0.0	0.000
23	B	41.921	9.475	16.33	1.69	0.30	0.80	-0.031	-8.1	0.34	41.66	-2.26	0.37	0.00	0.000	0.0	0.000

24 MB2	41.921	0.000	16.33	1.69	0.30	0.80	-0.031	-8.1	0.34	41.66	-2.26	0.37	0.00	0.000	0.0	0.00
25 DB11	43.761	1.839	10.90	1.26	0.32	0.74	-0.031	-7.5	0.34	50.46	-2.53	0.37	0.00	0.000	0.0	0.00
26 OD	44.381	0.620	9.75	0.63	0.33	0.73	0.007	-7.4	-0.03	52.03	0.02	0.38	0.00	0.000	0.0	0.00
27 QD	45.001	0.620	9.32	0.08	0.34	0.75	0.044	-7.5	-0.41	50.41	2.57	0.38	0.00	0.000	0.0	0.00
28 SD	45.001	0.000	9.32	0.10	0.34	0.75	0.042	-7.5	-0.40	50.41	2.44	0.38	0.00	0.000	0.0	0.00
29 DB21	47.240	2.239	9.41	-0.14	0.38	0.84	0.042	-8.4	-0.40	40.18	2.13	0.39	0.00	0.000	0.0	0.00
30 MB2	47.240	0.000	9.41	-0.14	0.38	0.84	0.042	-8.4	-0.40	40.18	2.13	0.39	0.00	0.000	0.0	0.00
31 B	56.715	9.475	21.84	-1.17	0.49	1.43	0.081	-14.0	-0.79	12.16	0.83	0.46	0.00	0.000	0.0	0.00
32 MB1	56.715	0.000	21.84	-1.17	0.49	1.43	0.081	-14.0	-0.79	12.16	0.83	0.46	0.00	0.000	0.0	0.00
33 DB11	58.554	1.839	26.51	-1.37	0.50	1.57	0.081	-15.4	-0.79	9.52	0.57	0.49	0.00	0.000	0.0	0.00
34 QF	59.174	0.620	27.39	-0.04	0.51	1.60	0.000	-15.7	0.00	9.23	0.03	0.50	0.00	0.000	0.0	0.00
35 OF	59.794	0.620	26.61	1.29	0.51	1.57	-0.081	-15.4	0.78	9.52	-0.51	0.51	0.00	0.000	0.0	0.00
36 SF	59.794	0.000	26.61	1.22	0.51	1.57	-0.077	-15.4	0.76	9.52	-0.49	0.51	0.00	0.000	0.0	0.00
37 DSF1	59.794	0.000	26.61	1.20	0.52	1.57	-0.076	-15.4	0.76	9.52	-0.48	0.50	0.00	0.000	0.0	0.00
38 DB21	62.034	2.239	21.70	0.99	0.53	1.40	-0.076	-13.7	0.76	12.34	-0.77	0.54	0.00	0.000	0.0	0.00
39 MB1	62.034	0.000	21.70	0.99	0.53	1.40	-0.076	-13.7	0.76	12.34	-0.77	0.54	0.00	0.000	0.0	0.00
40 B	71.509	9.475	11.08	0.13	0.64	0.87	-0.037	-8.4	0.37	38.59	-1.99	0.61	0.00	0.000	0.0	0.00
41 MB2	71.509	0.000	11.08	0.13	0.64	0.87	-0.037	-8.4	0.37	38.59	-1.99	0.61	0.00	0.000	0.0	0.00

TRACKING FOR CONSTANT ENERGY DEVIATION

TUNE CLO CLOP BET0 ALF0
X -0.1647034 -14.5217682 0.0126535 27.3358951 0.0126472
Z -0.1827588 0.0000000 0.0000000 9.1493728 0.0179607

REL. ENERGY DEVIATION= -0.01000

INI = 1 CPU-TIME SINCE LAST CALL= 368920.0MSEC.: TOTAL CPU-TIME= 368.920SEC. REAL TIME= 551.320SEC.

ENTRY ANFB—INIT.COORD.DISTR.=REC
—ITRA/ 1/AMP/ 10.000 5.785/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 10.000 AMPLITUDE-Z = 5.785 MM
EMIITANCE-X = 3.658 EMIITANCE-Z = 3.658 PI*MRAD*MM

PART. X-(MM) dx/ds(mrad) Z-(mm) dz/ds(mrad)
1 -4.522 0.008027 5.785 -0.011357
CPU-TIME SINCE LAST CALL= 28640.0MSEC.: TOTAL CPU-TIME= 397.560SEC. REAL TIME= 589.570SEC.

***** ALL PARTICLES STABLE *****

INI = 1 CPU-TIME SINCE LAST CALL= 10.0MSEC.: TOTAL CPU-TIME= 397.570SEC. REAL TIME= 589.578SEC.

ENTRY ANFB—INIT.COORD.DISTR.=REC
—ITRA/ 1/AMP/ 15.000 8.678/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 15.000 AMPLITUDE-Z = 8.678 MM
EMIITANCE-X = 8.231 EMIITANCE-Z = 8.231 PI*MRAD*MM

PART. X-(MM) dx/ds(mrad) Z-(mm) dz/ds(mrad)
1 0.478 0.005714 8.678 -0.017035
CPU-TIME SINCE LAST CALL= 29150.0MSEC.: TOTAL CPU-TIME= 426.720SEC. REAL TIME= 627.930SEC.

***** ALL PARTICLES STABLE *****

TRACKING FOR CONSTANT ENERGY DEVIATION

TUNE CLO CLOP BET0 ALF0
 X -0.1726695 0.0000000 0.0000000 50.1530668 0.0000000
 Z -0.1804024 0.0000000 0.0000000 8.4889710 0.0000690

REL. ENERGY DEVIATION= 0.00000

CPU-TIME SINCE LAST CALL= 13050.0MSEC.; TOTAL CPU-TIME= 439.770SEC. REAL TIME= 646.461SEC.

INI = 1
 ---ENTRY ANFB---INIT.COORD.DISTR.=REC
 ---ITRA/ 1/AMP/ 10.000 4.114/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 10.000 AMPLITUDE-Z = 4.114 MM
 EMITTANCE-X = 1.994 EMITTANCE-Z = 1.994 PI*MRAD*MM

PART. X-(MM) dx/ds(mrad) Z-(mm) dz/ds(mrad)
 1 10.000 0.000000 4.114 -0.000033

CPU-TIME SINCE LAST CALL= 29010.0MSEC.; TOTAL CPU-TIME= 468.780SEC. REAL TIME= 683.879SEC.

***** ALL PARTICLES STABLE *****

CPU-TIME SINCE LAST CALL= 10.0MSEC.; TOTAL CPU-TIME= 468.790SEC. REAL TIME= 683.898SEC.

INI = 1
 ---ENTRY ANFB---INIT.COORD.DISTR.=REC
 ---ITRA/ 1/AMP/ 15.000 6.171/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 15.000 AMPLITUDE-Z = 6.171 MM
 EMITTANCE-X = 4.486 EMITTANCE-Z = 4.486 PI*MRAD*MM

PART. X-(MM) dx/ds(mrad) Z-(mm) dz/ds(mrad)
 1 15.000 0.000000 6.171 -0.000050

CPU-TIME SINCE LAST CALL= 29020.0MSEC.; TOTAL CPU-TIME= 497.810SEC. REAL TIME= 720.500SEC.

***** ALL PARTICLES STABLE *****

TRACKING FOR CONSTANT ENERGY DEVIATION

TUNE CLO CLOP BET0 ALF0
 X -0.1544802 14.6999182 0.0325954 88.4356580 -0.0328517
 Z -0.1748366 0.0000000 0.0000000 7.3340322 -0.0510295

REL. ENERGY DEVIATION= 0.01000

CPU-TIME SINCE LAST CALL= 21700.0MSEC.; TOTAL CPU-TIME= 519.510SEC. REAL TIME= 755.129SEC.

INI = 1
 ---ENTRY ANFB---INIT.COORD.DISTR.=REC
 ---ITRA/ 1/AMP/ 10.000 2.880/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 10.000 AMPLITUDE-Z = 2.880 MM
 EMITTANCE-X = 1.131 EMITTANCE-Z = 1.131 PI*MRAD*MM

PART. X-(MM) dx/ds(mrad) Z-(mm) dz/ds(mrad)
 1 10.000 0.000000 2.880 0.020037

CPU-TIME SINCE LAST CALL= 29230.0MSEC.; TOTAL CPU-TIME= 548.740SEC. REAL TIME= 817.219SEC.
 ***** ALL PARTICLES STABLE *****

INI = 1 CPU-TIME SINCE LAST CALL= 10.0MSEC.; TOTAL CPU-TIME= 548.750SEC. REAL TIME= 817.230SEC.

ENTRY ANFB=INIT.COORD.DISTR=REC
 ITRA/ 1/AMP/ 15.000 4.320/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 15.000 AMPLITUDE-Z = 4.320 MM
 EMITTANCE-X = 2.544 EMITTANCE-Z = 2.544 PI*MRAD*MM
 PART. X-(MM) DX/dS(mrad) Z-(mm) dz/dS(mrad)
 1 29.700 0.038168 4.320 0.030056

CPU-TIME SINCE LAST CALL= 29620.0MSEC.; TOTAL CPU-TIME= 578.370SEC. REAL TIME= 885.340SEC.

***** ALL PARTICLES STABLE *****

FLEXIBILITY /RHIC903/ ONLY SEXTUPOLES [removed l=0 drifts,zp]
 PRINTOUT OF INPUT PARAMETERS

NEXT

SINGLE ELEMENTS

DB11*	0	1.83928112
DB21*	0	2.23928112
DB20*	0	2.25676598
DB10*	0	1.85676598
DB91*	0	21.25667145
D781*	0	4.46159327
1672*	0	1.1
1671*	0	2.69802471
1562*	0	2.09387266
1561*	0	1.22223031
D451*	0	8.89728854
D341*	0	43.32501632
D231*	0	5.66153023
D121*	0	1.24908084
D013*	0	1.0
D012*	0	5.3089689
D011*	0	10.0
D120*	0	1.24908084
D230*	0	5.66153023
D340*	0	43.32501632
D450*	0	8.88065128
0561*	0	1.23892191
0562*	0	2.11056425
0671*	0	2.71545523
0672*	0	1.11748486
D780*	0	4.46159327
D890*	0	21.25667145
QF*	2	-0.0803343040
QD*	2	0.62
Q91*	2	-0.0802058750
Q90*	2	-0.0813499890
Q81*	2	+0.0808351560
Q80*	2	+0.0813499890
Q71*	2	-0.0812847100
Q70*	2	-0.0813499890
	2	+0.0812268320

Q61 *	2		.081349890	0.59578475
Q60 *	2		-.0813846840	0.59578475
Q51 *	2		-.0683305230	0.62654244
Q50 *	2		+.0685966910	0.62654244
Q41 *	2		.081349890	0.41633416
Q40 *	2		-.0815714230	0.41633416
Q31 *	2		-.0683305230	0.56125882
Q30 *	2		+.0683305230	0.56125882
Q21 *	2		.0683305230	1.21042801
Q20 *	2		-.0683409560	1.21042801
Q11 *	2		-.0683305230	0.75534810
Q10 *	2		+.0683322480	0.75534810
B	1			9.475
BS2 *	1	-.004050477		9.475
BS1 *	1	-.003240677		4.52261691
BS10 *	1	-.004959927		4.52261691
BC1 *	1	-.005511640		3.30018198
BC10 *	1	+.005511640		3.30018198
BC21 *	1	+.003250156		4.40030559
BC20 *	1	-.003250156		4.40030559
SF *	3	-.00000		
SD *	3	.00000		
DSF1 *	3	-.01990		
DSF2 *	3	.01990		
DSD1 *	3	-.02970		
DSD2 *	3	.02970		
MB1 *	11	1.		
MB2 *	11	1.		
MC1 *	11	0.		
MC2 *	11	0.		
MF *	11	0.		
MD *	11	0.		
M91 *	11	0.		
M90 *	11	0.		
M81 *	11	0.		
M80 *	11	0.		
M71 *	11	0.		
M70 *	11	0.		
M61 *	11	0.		
M60 *	11	0.		
M51 *	11	0.		
M50 *	11	0.		
M41 *	11	0.		
M40 *	11	0.		
M31 *	11	0.		
M30 *	11	0.		
M21 *	11	0.		
M20 *	11	0.		
M11 *	11	0.		
M10 *	11	0.		
MS1A *	11	0.		
MS1B *	11	0.		
MS2A *	11	0.		
MS2B *	11	0.		
M21A *	11	0.		
M21B *	11	0.		
M20A *	11	0.		
M10B *	11	0.		
M11A *	11	0.		
M11B *	11	0.		

M10A* 11 0.
M20B* 11 0.
NEXT 0.

BLOCK DEFINITIONS

3 1 1 1

DB11 DB11
DB21 DB21
DB10 DB10
DB20 DB20
DB91 DB91
D781 D781
1672 1672
1671 1671
1562 1562
1561 1561
D451 D451
D341 D341
D231 D231
D121 D121
D013 D013
D012 D012
D011 D011
D120 D120
D230 D230
D340 D340
D450 D450
0561 0561
0562 0562
0671 0671
0672 0672
D780 D780
D890 D890
D120 D120
B B
BS2 BS2
BS11 BS11
BS10 BS10
BC11 BC11
BC10 BC10
BC21 BC21
BC20 BC20
QF QF
QD QD
Q91 Q91
Q81 Q81
Q71 Q71
Q61 Q61
Q51 Q51
Q41 Q41
Q31 Q31
Q21 Q21
Q11 Q11
Q90 Q90
Q80 Q80
Q70 Q70
Q60 Q60
Q50 Q50
Q40 Q40
Q30 Q30
Q20 Q20

Q10 Q10

NEXT

STRUCTURE INPUT

3*(

MF QF SF DSF1 DB21 MB1 B MB2
 DB11 MC1 QD MD MC2 QF DB21
 MB2 B MB1 DSF2 DB21 MB1 B MB2
 MF QF SF DSF2 DB21 MB1 B MB2
 DB11 MC1 QD MD MC2 QF DB21
 MB2 B MB1 DSF1 DB21 MB1 B MB2

)

5*(

M91 Q91 DB91 Q81 MB1 Q81 D781 Q71 M71 Q71
 1672 MS2A BS2 MS2B 1671 Q61 M61 Q61 1562
 MS1A BS11 MS1A 1561 Q51 M51 Q51 D451 Q41
 M41 Q41 D341 Q31 M31 Q31 D231 Q21 M21 Q21
 D121 Q11 M11 Q11 D013 M21A BC21 M21B D012
 M11A BC11 M11B D011 D011 M10A BC10 M10B
 D012 M20A BC20 M20B D013 Q10 M10 Q10 D120
 Q20 M20 Q20 Q20 Q30 M30 Q30 D340 Q40 MS1B
 M40 Q40 D450 Q50 M50 Q50 0561 MS1B BS10 MS1B
 0562 Q60 M60 Q60 0671 MS2B BS2 MS2A 0672
 Q70 M70 Q70 D780 Q80 M80 Q80 D890 Q90 M90
 QD QF MC1 DB10 MB2 B MB1 DB20 SF
 QF MC1 DSF1 QD MD MC2 DB10 MB1 B MB2
 DB20 SD DSD1 QD MD MC2 DB20 SF
 MB2 B MB1 DB20 SF QF MC1 DB10
 MC2 DB10 MB1 B MB2 DB20 SD DSD2 QD MD

)

QD QF MC1 DB10 MB2 B MB1 DB20 SF
 QF MC1 DSF1 QD MD MC2 DB10 MB1 B MB2
 DB20 SD DSD1 QD MD MC2 DB20 SF
 MB2 B MB1 DB20 SF QF MC1 DB10
 MC2 DB10 MB1 B MB2 DB20 SD DSD2 QD MD
 Q90 QF MC1 DB10 MB2 B MB1 DB20 SF
 QF MC1 DSF1 QD MD MC2 DB10 MB1 B MB2
 DB20 SD DSD1 QD MD MC2 DB20 SF
 MB2 B MB1 DB20 SF QF MC1 DB10
 MC2 DB10 MB1 B MB2 DB20 SD DSD2 QD MD
 Q30 M30 Q30 Q20 Q20 M20 Q20 D120 Q10 M10
 Q10 D013 M20B BC20 M20A D012 M10B BC10 M10A D011
 D011 M11B BC11 M11A D012 M21B BC21 M21A D013
 Q11 M11 Q11 D121 Q21 M21 Q21 D231 Q31 M31
 Q31 D341 Q41 M41 Q41 D451 Q51 M51 Q51 1561
 MS1A BS11 MS1A 1562 Q61 M61 Q61 1671 MS2B BS2
 MS2A 1672 Q71 M71 Q71 D781 Q81 MB1 Q81 DB91

2*(

MF QF SF DSF1 DB21 MB1 B MB2
 DB11 MC1 QD MD MC2 QF DB21
 MB2 B MB1 DSF2 DB21 MB1 B MB2
 MF QF SF DSF2 DB21 MB1 B MB2
 DB11 MC1 QD MD MC2 QF DB21
 MB2 B MB1 DSF1 DB21 MB1 B MB2
 MF QF SF DSF1 DB21 MB1 B MB2
 DB11 MC1 QD MD MC2 QF DB21
 MB2 B MB1 DSF2 DB21 MB1 B MB2
 MF QF SF DSF2 DB21 MB1 B MB2
 DB11 MC1 QD MD MC2 QF DB21
 MB2 B MB1 DSF1 DB21 MB1 B MB2

)

NEXT
 LINEAR OPTICS CALCULATION
 ELEMENT 50

SF	0.0
SD	0.0

100 0.0001	0.00001
10 0.00001	0.0001
10 0.001	0.01

10		0.0
2	10.00	
3	- .0100	+ .0100

10.	90.0	1.0
-----	------	-----

25.0	19.4	0	0
0	00000	0	0

[illegible][illegible][illegible][illegible]

0.	0.	0.0000
0.	0.0000	0.0000

0000000000005623845

LE COEFFICIENTS—/FORMAT CHANGED—F10 —> F13
35 0 19 4

[illegible][illegible][illegible][illegible][illegible]

25.0	19.4
------	------

[illegible]

0.	0.000127	0.	0.000131
0.	0.000462	0.	0.000219
-0.00000			

0.000000	0.000219	0.	0.000057
0.	0.000053	0.	0.000091

0.0000	0.000083	0.	0.000023
0.	0.000018	0.	0.000034

-0.000	0.000028	0.	0.000000
-0.000	0.000061	0.	0.000001

NEXT
PRINTOUT OF INPUT PARAMETERS

NEXT
TUNE VARIATION

QF .827
QD .820

NEXT
ORBIT ADJUSTMENT

1.00 1.00

MON=SPH
COR=DPH
COR=DPV

NEXT
INITIAL COORDINATES

SET 0.0 0.0 1.99 0.00 -.9 0.0
0.0 0.0 0.7 0.00 0.0 -.1

NEXT
INITIAL COORDINATES

SET 0.0 0.0 29.105 0.00019 0. 0.08
0.0 0.0 8.315 0.00018 0.0 0.

NEXT
COMBINATION OF ELEMENTS
SPVL 2.2143 SPVS

NEXT
LIMITATION OF APERTURE

SPH RE 28. 28.
SPV EL 28. 28.

NEXT
COMBINATION OF ELEMENTS

SPH 3.0 SPHA
SPV 3.0 SPVA

NEXT
C—CELL QUADS FOR QX/QZ=.15/.08 WITHOUT ORBIT DIST

QF 2 2.878 .62 -.08034138
QD 2 2.878 1.8 .03427998

ITERATION ERRORS OF CLOSED ORBIT, TUNE ADJUSTMENT AND CHROMATICITY CALC.

50 0.00001 0.00001
10 0.000001 0.00001
10 0.0001 0.001

NEXT
TRACKING PARAMETERS

1 1.0 0.
1 -.0000 .000

NEXT

BOOSTER.lst input to the program RACETRACK:

FLEXIBILITY /AGS BOOSTER (Sector Dipoles)/ ONLY SEXTUPOLES
PRINTOUT OF INPUT PARAMETERS

NEXT
SINGLE ELEMENTS

D1 0 0.3
D2 0 0.7
D3 0 1.0
D4 0 3.7
QF * 2 -.5583816500 0.251875

```

OD * 2 +.5754637800 0.251875
B * 3 -.072722042 2.400
SF * 3 -.00000
SD * 3 .00000
MB1 * 11 0. 1.
MF * 11 0. 1.
MD * 11 0. 1.
NEXT
BLOCK DEFINITIONS_____
1
D1 D1
D2 D2
D3 D3
D4 D4
B B
QF QF
QD QD
NEXT
STRUCTURE INPUT_____
6*( MD QD D1 MB1 B MB1 D2 SF D1 QF
MF QF D1 MB1 B MB1 D2 SD D1 QD
MD QD D1 QF MD QF D1 MB1 B MB1
D2 SD D1 QD QD D1 MB1
D3 QF MF QF D4 QD MD QD D1 MB1
B MB1 D2 SF D1 QF MF QF D1 MB1
MB1 D3 QD
)
NEXT
LINEAR OPTICS CALCULATION_____
ELEMENT 00
NEXT
CHROMATICITY CORRECTION_____
SF 0.0
SD 0.0
NEXT
ITERATION ERRORS OF CLOSED ORBIT, TUNE ADJUSTMENT AND CHROMATICITY CALC.
100 0.0001 0.00001
10 0.00001 0.00001
10 0.001 0.01
NEXT
TRACKING PARAMETERS_____
10
2 10.00 0.0
3 -.0100 +.0100
NEXT
INITIAL COORDINATES_____RECTANGULAR_____
1 0. 90.0 1.0
NEXT
MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10 —> F15—
10. 174.5
0. 0.00000 0. 0.000
0. 0.0000 0. 0.000
.000078 0.00000 0. 0.000
0. 0.00000 0. 0.000
-.00000024 0.0000 0. 0.000
0. 0.0000 0. 0.000
-.000000016 0.00000 0. 0.000
0. 0.00000 0. 0.000
0. 0.0000 0. 0.000

```

FLUCTUATION RANDOM STARTING NUMBER-

000000000005623845

NEXT

MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10 —> F15

25.0

19.4

2

000

[illegible]

MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10 —> F15

25.0

19.4

9

2

0.	0.	0.0000	0.	0.000	0.000
0.	0.	0.0000	0.	0.000	0.000
-0.000000	0.000462	0.000131	0.	0.000131	0.000131
0.	0.000127	0.000219	0.	0.000219	0.000219
0.000000	0.000219	0.000057	0.	0.000057	0.000057
0.	0.000053	0.000091	0.	0.000091	0.000091
0.	0.000083	0.000023	0.	0.000023	0.000023
0.0000	0.000018	0.000034	0.	0.000034	0.000034
0.	0.000028	0.000084	0.	0.000084	0.000084
-0.000	0.000061	0.000011	0.	0.000011	0.000011
-0.000					

PRINTOUT OF INPUT PARAMETERS

NEXT TIME VARIATION

QF .827

QD .820

ORBIT ADJUSTMENT_____

NOTES

MON=SPH
COP=DNH

COR=DPV

INITIAL COORDINATES

SET	θ_0	θ_1	θ_2	θ_3	θ_4
0.0	0.0	1.99	0.00	-0.9	0.0
0.0	0.0	0.00	0.00	0.0	0.0

0.0

NEXT INITIAL COORDINATES

SET	0.0	0.0	29.105	0.00019	0.	0.0B
-----	-----	-----	--------	---------	----	------

0.00

COMBINATION OF ELEMENTS

COMBINATION OF ELEMENTS
SPVL 2.2143

4.2170
NEXT

LIMITATION OF APERTURE:

SPH	RE	28.	28.
-----	----	-----	-----

SPV	28.	28.
EL	28.	28.

5
4
3
2
1
NEXT

COMBINATION OF ELEMENTS

SPH 3.0 SPHA
SPV 3.0 SPVA
NEXT
C—CELL QUADS FOR QX/QZ=.15/.08 WITHOUT ORBIT DIST
QF 2 2.878 .62 -.08034138
OD 2 2.878 1.8 .03427998
ITERATION ERRORS OF CLOSED ORBIT, TUNE ADJUSTMENT AND CHROMATICITY CALC.
50 0.00001 0.00001
10 0.000001 0.00001
10 0.0001 0.001

NEXT
TRACKING PARAMETERS

1 1.0 0.
1 -.0000 .000

NEXT

Following is the output for the booster.lat input given above:

000000000000000000000000
O
O R A C E T R A C K O
O Version Nov.1986 O
O
000000000000000000000000

/AGS BOOSTER (Sector Dipoles)/ ONLY SEXTUPOLES
PROGRAM MODE : FLEXIBILITY

DATA BLOCK MULTIPOLE COEFFICIENTS
RADIUS IN MM 10.000000
BENDING STRENGTH IN MRAD 174.500000

	NORMAL		SKEW	
	MEAN	RMS-VALUE	MEAN	RMS-VALUE
1	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
2	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
3	0.78000000E-04	0.00000000E+00	0.00000000E+00	0.00000000E+00
4	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
5	-0.24000000E-06	0.00000000E+00	0.00000000E+00	0.00000000E+00
6	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
7	-0.16000000E-08	0.00000000E+00	0.00000000E+00	0.00000000E+00
8	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
9	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00
10	0.00000000E+00	0.00000000E+00	0.00000000E+00	0.00000000E+00

DATA BLOCK FLUCTUATIONS OF MULTIPOLES

RANDOM STARTING NUMBER=

5623845

*** RING PARAMETERS ***

SINGLE ELEMENTS:

I	NO	I	NAME	I	TYP	I	1/RHO	I	STRENGTH	I	LENGTH	I	X-POS	I	X-RMS	I	Z-POS	I	Z-RMS	I
1	1	1	D1	1	0	1	0.0000000	1	0.0000000	1	0.300000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	2	1	D2	1	0	1	0.0000000	1	0.0000000	1	0.700000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	3	1	D3	1	0	1	0.0000000	1	0.0000000	1	1.000000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	4	1	D4	1	0	1	0.0000000	1	0.0000000	1	3.700000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	5	1	QF	1	2	1	0.0000000	1	-0.5583816	1	0.251875000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	6	1	QD	1	2	1	0.0000000	1	0.5754638	1	0.251875000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	7	1	B	1	3	1	-0.0727220	1	0.0000000	1	2.400000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	8	1	SF	1	3	1	0.0000000	1	0.0000000	1	0.000000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	9	1	SD	1	3	1	0.0000000	1	0.0000000	1	0.000000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	10	1	MB1	1	11	1	0.0000000	1	1.0000000	1	0.000000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	11	1	MF	1	11	1	0.0000000	1	1.0000000	1	0.000000000	1	0.00	1	0.00	1	0.00	1	0.00	1
1	12	1	MD	1	11	1	0.0000000	1	1.0000000	1	0.000000000	1	0.00	1	0.00	1	0.00	1	0.00	1

RINGSTRUCTURE:

NO. OF SUPERPERIODS AND SYMMETRY
NUMBER OF DIFFERENT BLOCKS
BLOCKS PER PERIOD

1 1
7
384

BLOCKSTRUCTURE:
(BLOCKTYP—NO. OF SINGLE ELEMENTS—SINGLE ELEMENT TYPES)

1 D1 1 D1
2 D2 1 D2
3 D3 1 D3
4 D4 1 D4
5 B 1 B
6 QF 1 QF
7 QD 1 QD

BLOCKSTRUCTURE OF SUPERPERIODE:

1 MD QD D1 MB1 B MB1 D2 SF D1 QF
11 MF QF D1 MB1 B MB1 D2 SD D1 QD
21 MD QD D4 QF MD D1 MB1 B MB1
31 D2 SD QD QF MD D1 MB1 B MB1
41 D3 QF MF QF D4 QD QD D1 MB1
51 B MB1 D2 SF D1 QF D1 MB1
61 B MB1 D3 QD QF D1 MB1 B MB1
71 D2 SF D1 QF MF QF D1 MB1

81 D2	SD	D1	QD	MD	QD	D4	QF	MF	QF
91 D1	MB1	B	MB1	D2	SD	D1	QD	MD	QD
101 D1	MB1	B	MB1	D3	QF	MF	QF	D4	QD
111 MD	QD	D1	MB1	B	MB1	D2	SF	D1	QF
121 MF	QF	D1	MB1	B	MB1	D3	QF	MD	QD
131 D1	MB1	B	MB1	D2	SF	D1	QF	MF	QF
141 D1	MB1	B	MB1	D2	SD	D1	QD	MD	QD
151 D4	QF	MF	QF	D1	MB1	B	MB1	D2	SD
161 D1	QD	QD	QD	D1	MB1	B	MB1	D3	QF
171 MF	QF	D4	QD	MD	QD	D1	MB1	B	MB1
181 D2	SF	D1	QF	MF	QF	D1	MB1	B	MB1
191 D3	QD	MD	QF	D1	MB1	B	MB1	D2	SF
201 D1	QF	MF	QF	D1	MB1	B	MB1	D2	SD
211 D1	QD	MD	QD	D4	QF	MF	QF	D1	MB1
221 B	MB1	D2	SD	D1	QD	MD	QD	D1	MB1
231 B	MB1	D3	QF	MF	QF	D4	QD	QF	QF
241 D1	MB1	B	MB1	D2	QF	D1	QD	MD	QF
251 D1	MB1	B	MB1	D3	QD	QF	QF	D1	MB1
261 B	MB1	D2	SF	D1	QF	MF	QF	D1	MB1
271 B	MB1	D2	SD	D1	QD	MD	SD	D1	QF
281 MF	QF	D1	MB1	B	MB1	D3	QF	MF	QF
291 MD	QD	D1	MB1	B	MB1	D3	QF	MF	QF
301 D4	QD	MD	QD	D1	MB1	B	MB1	D2	SF
311 D1	QF	MF	QF	D1	MB1	B	MB1	D3	QD
321 MD	QD	D1	MB1	B	MB1	D2	SF	D1	QF
331 MF	QF	D1	MB1	B	MB1	D2	SD	D1	QD
341 MD	QD	D4	QF	MF	QF	D1	MB1	B	MB1
351 D2	SD	D1	QD	MD	QD	D1	MB1	B	MB1
361 D3	QF	MF	QF	D4	QD	QF	QF	D1	MB1
371 B	MB1	D2	SF	D1	QF	MF	QF	D1	MB1
381 B	MB1	D3	QD	D1	QF	QF	QF	D1	MB1

*** TRACKING PARAMETERS ***

NUMBER OF REVOLUTIONS 10
 TRACKING START AT ELEMENT NO. 1
 INITIAL AMPLITUDE-H IN (MM) 10.000
 COUPLING EPS-Z/EPS-X 1.000
 NUMBER OF PARTICLES 1

—ENTRY ORBIT—/NO MONITORS SPECIFIED

DATA BLOCK CHROMATICITY CORRECTION

CHROMATICITIES	BEFORE	AFTER	CORRECTION
HORIZONTAL	-5.6460500	0.0275671	
VERTICAL	-5.4482371	0.0614673	

SEXTUP. STRENGTHS 0.0000000 -0.3498369 INDEX SF
 IN (M-2) 0.0000000 0.2616032 SD
 DEFINITION: DXP=STRENGTH*(X*X-Z*Z) / DZP=-2*STRENGTH*X*Z
 SEXTUPOLE SENSITIVITIES XI/M1 XI/M2 ZI/M1 ZI/M2 -0.25331974E+02-0.12293458E+02 0.89406967E+01 0.32782555E+02

DATA BLOCK CHROMATICITY CORRECTION
CHROMATICITIES BEFORE AFTER CORRECTION
HORIZONTAL 0.0275671 -0.0003725
VERTICAL 0.0614673 0.0000000

SEXTUPLE STRENGTHS -0.3498369 -0.3475496 INDEX SF
IN (M-2) 0.2616032 0.2591325
DEFINITION: $DXP=STRENGTH*(X+X-Z*Z) / DZP=-2*STRENGTH*X*Z$
SEXTUPLE SENSITIVITIES $X1/M1 \ X1/M2 \ Z1/M1 \ Z1/M2$ -0.25331974E+02 -0.12293458E+02 0.89406967E+01 0.33155084E+02

—ENTRY LINOPT—

RELATIVE ENERGY DEVIATION -0.0100000
FRACTIONAL TUNES -HORIZONTAL -0.1678175
-VERTICAL -0.1773635

NR	TYPE	L-TOTAL (M)	LENGTH (M)	BETAH (M)	ALFAH	PHIH (QE)	DISH (M)	DISPH (RAD)	CLOH (MM)	CLOPH (MRAD)	BETAV (M)	ALFAV	PHIV (QE)	DISV (M)	DISPV (RAD)	CLOV (MM)	CLOVP (MRAD)
0				3.87	0.02	0.00	0.34	-0.005	-4.4	0.097	12.94	-0.03	0.00	0.00	0.000	0.0	0.000
1	MD	0.000	0.000	3.87	0.02	0.00	0.34	-0.005	-4.4	0.10	12.94	-0.03	0.00	0.00	0.000	0.0	0.000
2	QD	0.252	0.252	4.02	-0.62	0.01	0.35	0.046	-4.5	-0.55	12.49	1.80	0.00	0.00	0.000	0.0	0.000
4	MB1	0.552	0.000	4.42	-0.73	0.02	0.36	0.046	-4.6	-0.55	11.44	1.70	0.01	0.00	0.000	0.0	0.000
5	B	2.952	2.400	9.67	-1.44	0.08	0.68	0.216	-8.0	-2.24	5.25	0.88	0.06	0.00	0.000	0.0	0.000
6	MB1	2.952	0.000	9.67	-1.44	0.08	0.68	0.216	-8.0	-2.24	5.25	0.88	0.06	0.00	0.000	0.0	0.000
8	SF	3.652	0.000	11.84	-1.74	0.09	0.83	0.221	-9.6	-2.27	4.18	0.67	0.08	0.00	0.000	0.0	0.000
10	QF	4.204	0.252	13.38	0.00	0.10	0.93	0.090	-10.6	-0.78	3.67	-0.03	0.10	0.00	0.000	0.0	0.000
11	MF	4.204	0.000	13.38	0.00	0.10	0.93	0.090	-10.6	-0.78	3.67	-0.03	0.10	0.00	0.000	0.0	0.000
12	QF	4.456	0.252	12.92	1.83	0.10	0.94	-0.045	-10.6	0.73	3.84	-0.64	0.11	0.00	0.000	0.0	0.000
14	MB1	4.756	0.000	11.84	0.98	0.11	0.92	-0.045	-10.6	0.73	4.26	-0.75	0.12	0.00	0.000	0.0	0.000
15	B	7.156	2.400	5.26	0.98	0.16	1.01	0.119	-10.6	-0.90	9.98	-1.63	0.18	0.00	0.000	0.0	0.000
16	MB1	7.156	0.000	5.26	0.98	0.16	1.01	0.119	-10.6	-0.90	9.98	-1.63	0.18	0.00	0.000	0.0	0.000
18	SD	7.856	0.000	4.07	0.74	0.18	1.10	0.113	-11.2	-0.87	12.44	-1.96	0.20	0.00	0.000	0.0	0.000
20	QD	8.407	0.252	3.49	0.03	0.20	1.18	0.283	-11.9	-2.58	14.20	-0.07	0.20	0.00	0.000	0.0	0.000
21	MD	8.407	0.000	3.49	0.03	0.20	1.18	0.283	-11.9	-2.58	14.20	-0.07	0.20	0.00	0.000	0.0	0.000
22	QD	8.659	0.252	3.62	-0.57	0.21	1.28	0.464	-12.8	-4.38	13.72	1.94	0.21	0.00	0.000	0.0	0.000
24	QF	12.611	0.252	13.30	-0.09	0.31	3.06	0.029	-29.6	-0.21	3.94	0.02	0.30	0.00	0.000	0.0	0.000
25	MF	12.611	0.000	13.30	-0.09	0.31	3.06	0.029	-29.6	-0.21	3.94	0.02	0.30	0.00	0.000	0.0	0.000
26	QF	12.863	0.252	12.88	1.74	0.31	3.01	-0.407	-29.1	3.98	4.09	-0.62	0.31	0.00	0.000	0.0	0.000
28	MB1	13.163	0.000	11.87	0.96	0.32	2.89	-0.407	-27.9	3.98	4.49	-0.72	0.32	0.00	0.000	0.0	0.000
29	B	15.563	2.400	5.54	0.96	0.36	2.08	-0.262	-20.1	2.52	9.92	-1.54	0.38	0.00	0.000	0.0	0.000
30	MB1	15.563	0.000	5.54	0.96	0.36	2.08	-0.262	-20.1	2.52	9.92	-1.54	0.38	0.00	0.000	0.0	0.000
32	SD	16.263	0.000	4.37	0.76	0.38	1.90	-0.281	-18.3	2.61	12.24	-1.89	0.39	0.00	0.000	0.0	0.000
34	QD	16.815	0.252	3.78	0.02	0.40	1.78	-0.016	-17.2	0.07	13.93	-0.04	0.40	0.00	0.000	0.0	0.000
35	QD	16.815	0.000	3.78	0.02	0.40	1.78	-0.016	-17.2	0.07	13.93	-0.04	0.40	0.00	0.000	0.0	0.000
36	QD	17.067	0.252	3.93	-0.62	0.41	1.80	0.243	-17.5	-2.46	13.44	1.94	0.40	0.00	0.000	0.0	0.000
38	MB1	17.367	0.000	4.33	-0.72	0.43	1.88	0.248	-18.3	-2.46	12.31	1.83	0.40	0.00	0.000	0.0	0.000
39	B	19.767	2.400	9.61	-1.45	0.49	2.65	0.395	-26.0	-3.95	5.55	0.98	0.45	0.00	0.000	0.0	0.000
40	MB1	19.767	0.000	9.61	-1.45	0.49	2.65	0.395	-26.0	-3.95	5.55	0.98	0.45	0.00	0.000	0.0	0.000
42	QF	21.019	0.252	13.28	0.05	0.50	3.09	-0.047	-30.4	0.35	3.78	0.01	0.50	0.00	0.000	0.0	0.000
43	MF	21.019	0.000	13.28	0.05	0.50	3.09	-0.047	-30.4	0.35	3.78	0.01	0.50	0.00	0.000	0.0	0.000
44	QF	21.271	0.252	12.79	1.87	0.51	3.02	-0.487	-29.7	4.63	3.93	-0.61	0.51	0.00	0.000	0.0	0.000
46	QD	25.223	0.252	3.63	-0.04	0.61	1.12	-0.314	-11.7	2.86	13.67	0.04	0.60	0.00	0.000	0.0	0.000
47	MD	25.223	0.000	3.63	-0.04	0.61	1.12	-0.314	-11.7	2.86	13.67	0.04	0.60	0.00	0.000	0.0	0.000
48	QD	25.474	0.252	3.81	-0.66	0.62	1.06	-0.152	-11.1	1.20	13.16	1.97	0.60	0.00	0.000	0.0	0.000
50	MB1	25.774	0.000	4.24	-0.78	0.63	1.02	-0.152	-10.8	1.20	12.01	1.86	0.60	0.00	0.000	0.0	0.000
51	B	28.174	2.400	9.91	-1.56	0.69	0.85	0.012	-9.9	-0.43	5.22	0.97	0.65	0.00	0.000	0.0	0.000

52 MB1	28.174	0.000	9.91	-1.56	0.69	0.85	0.012	-9.9	-0.43	5.22	0.97	0.65	0.00	0.000	0.0	0.00
54 SF	28.874	0.000	12.27	-1.89	0.70	0.86	0.018	-10.2	-0.47	4.04	0.74	0.67	0.00	0.000	0.0	0.00
56 QF	29.426	0.252	13.98	-0.09	0.71	0.85	-0.105	-10.2	0.99	3.47	0.04	0.70	0.00	0.000	0.0	0.00
57 MF	29.426	0.252	13.98	-0.09	0.71	0.85	-0.105	-10.2	0.99	3.47	0.04	0.70	0.00	0.000	0.0	0.00
58 QF	29.678	0.000	13.53	1.84	0.71	0.81	-0.225	-9.8	2.42	3.59	-0.54	0.71	0.00	0.000	0.0	0.00
60 MB1	29.978	0.000	12.46	1.74	0.72	0.74	-0.225	-9.1	2.42	3.94	-0.64	0.72	0.00	0.000	0.0	0.00
61 B	32.378	2.400	5.74	1.03	0.76	0.41	-0.056	-5.3	0.75	9.09	-1.50	0.79	0.00	0.000	0.0	0.00
62 MB1	32.378	0.000	5.74	1.03	0.76	0.41	-0.056	-5.3	0.75	9.09	-1.50	0.79	0.00	0.000	0.0	0.00
64 OD	33.630	0.252	3.87	0.02	0.80	0.34	-0.005	-4.4	0.10	12.94	-0.03	0.80	0.00	0.000	0.0	0.00
65 MD	33.630	0.000	3.87	0.02	0.80	0.34	-0.005	-4.4	0.10	12.94	-0.03	0.80	0.00	0.000	0.0	0.00
66 OD	33.882	0.252	4.02	-0.62	0.82	0.35	0.046	-4.5	-0.55	12.49	1.80	0.81	0.00	0.000	0.0	0.00
68 MB1	34.182	0.000	4.42	-0.73	0.83	0.36	0.046	-4.6	-0.55	11.44	1.70	0.81	0.00	0.000	0.0	0.00
69 B	36.582	2.400	9.67	-1.44	0.89	0.68	0.216	-8.0	-2.24	5.25	0.88	0.86	0.00	0.000	0.0	0.00
70 MB1	36.582	0.000	9.67	-1.44	0.89	0.68	0.216	-8.0	-2.24	5.25	0.88	0.86	0.00	0.000	0.0	0.00
72 SF	37.282	0.000	11.84	-1.74	0.90	0.93	0.090	-10.6	-0.78	4.18	-0.03	0.91	0.00	0.000	0.0	0.00
74 QF	37.834	0.252	13.38	0.00	0.91	0.93	0.090	-10.6	-0.78	3.67	-0.03	0.91	0.00	0.000	0.0	0.00
75 MF	37.834	0.000	13.38	0.00	0.91	0.93	0.090	-10.6	-0.78	3.67	-0.03	0.91	0.00	0.000	0.0	0.00
76 QF	38.086	0.252	12.92	1.83	0.91	0.94	-0.045	-10.6	0.73	3.67	-0.64	0.92	0.00	0.000	0.0	0.00
78 MB1	38.386	0.000	11.84	0.98	0.91	0.92	-0.045	-10.4	0.73	4.26	-0.75	0.93	0.00	0.000	0.0	0.00
79 B	40.786	2.400	5.26	0.98	0.96	1.01	0.119	-10.6	-0.90	9.98	-1.63	0.99	0.00	0.000	0.0	0.00
80 MB1	40.786	0.000	5.26	0.98	0.96	1.01	0.119	-10.6	-0.90	9.98	-1.63	0.99	0.00	0.000	0.0	0.00
82 SD	41.486	0.000	4.07	0.74	0.98	1.10	0.113	-11.2	-0.87	12.44	-1.96	1.00	0.00	0.000	0.0	0.00
84 OD	42.038	0.252	3.49	0.03	1.01	1.18	0.283	-11.9	-2.58	14.20	-0.07	1.01	0.00	0.000	0.0	0.00
85 MD	42.038	0.000	3.49	0.03	1.01	1.18	0.283	-11.9	-2.58	14.20	-0.07	1.01	0.00	0.000	0.0	0.00
86 OD	42.289	0.252	3.62	-0.57	1.02	1.28	0.464	-12.8	-4.38	13.72	1.94	1.01	0.00	0.000	0.0	0.00
88 QF	46.241	0.252	13.30	-0.09	1.11	3.06	0.029	-29.6	-0.21	3.94	0.02	1.10	0.00	0.000	0.0	0.00
89 MF	46.241	0.000	13.30	-0.09	1.11	3.06	0.029	-29.6	-0.21	3.94	0.02	1.10	0.00	0.000	0.0	0.00
90 QF	46.493	0.252	12.88	1.74	1.12	3.01	-0.407	-29.1	3.98	4.09	-0.62	1.11	0.00	0.000	0.0	0.00
92 MB1	46.793	0.000	11.87	0.96	1.17	2.08	-0.262	-20.1	2.52	9.92	-0.72	1.12	0.00	0.000	0.0	0.00
93 B	49.193	2.400	5.54	0.96	1.17	2.08	-0.262	-20.1	2.52	9.92	-0.72	1.12	0.00	0.000	0.0	0.00
94 MB1	49.193	0.000	5.54	0.96	1.17	2.08	-0.262	-20.1	2.52	9.92	-0.72	1.12	0.00	0.000	0.0	0.00
96 SD	49.893	0.000	4.37	0.76	1.19	1.90	-0.281	-18.3	2.61	12.24	-1.89	1.18	0.00	0.000	0.0	0.00
98 OD	50.445	0.252	3.78	0.02	1.21	1.78	-0.016	-17.2	0.07	13.93	-0.04	1.20	0.00	0.000	0.0	0.00
99 MD	50.445	0.000	3.78	0.02	1.21	1.78	-0.016	-17.2	0.07	13.93	-0.04	1.20	0.00	0.000	0.0	0.00
100 OD	50.697	0.252	3.93	-0.62	1.22	1.80	0.248	-17.5	-2.46	13.44	1.94	1.21	0.00	0.000	0.0	0.00
102 MB1	50.997	0.000	4.33	-0.72	1.23	1.88	0.248	-18.3	-2.46	12.31	1.83	1.21	0.00	0.000	0.0	0.00
103 B	53.397	2.400	9.61	-1.45	1.29	2.65	0.395	-26.0	-3.95	5.55	0.98	1.26	0.00	0.000	0.0	0.00
104 MB1	53.397	0.000	9.61	-1.45	1.29	2.65	0.395	-26.0	-3.95	5.55	0.98	1.26	0.00	0.000	0.0	0.00
106 QF	54.649	0.252	13.28	0.05	1.31	3.09	-0.047	-30.4	0.35	3.78	0.01	1.30	0.00	0.000	0.0	0.00
107 MF	54.649	0.000	12.79	0.05	1.31	3.09	-0.047	-30.4	0.35	3.78	0.01	1.30	0.00	0.000	0.0	0.00
110 QF	54.901	0.252	3.63	-0.04	1.41	1.12	-0.314	-11.7	2.86	13.67	0.04	1.40	0.00	0.000	0.0	0.00
111 MD	58.853	0.000	3.63	-0.04	1.41	1.12	-0.314	-11.7	2.86	13.67	0.04	1.40	0.00	0.000	0.0	0.00
112 OD	59.104	0.252	3.81	-0.66	1.43	1.06	-0.152	-11.1	1.20	13.16	1.97	1.41	0.00	0.000	0.0	0.00
114 MB1	59.404	0.000	4.24	-0.78	1.43	1.02	-0.152	-10.8	1.20	12.01	1.86	1.41	0.00	0.000	0.0	0.00
115 B	61.804	2.400	9.91	-1.56	1.49	0.85	0.012	-9.9	-0.43	5.22	0.97	1.46	0.00	0.000	0.0	0.00
116 MB1	61.804	0.000	9.91	-1.56	1.49	0.85	0.012	-9.9	-0.43	5.22	0.97	1.46	0.00	0.000	0.0	0.00
118 SF	62.504	0.000	12.27	-1.89	1.51	0.86	0.018	-10.2	-0.47	4.04	0.74	1.48	0.00	0.000	0.0	0.00
120 QF	63.056	0.252	13.98	-0.09	1.51	0.85	-0.105	-10.2	0.99	3.47	0.04	1.50	0.00	0.000	0.0	0.00
121 MF	63.056	0.000	13.98	-0.09	1.51	0.85	-0.105	-10.2	0.99	3.47	0.04	1.50	0.00	0.000	0.0	0.00
122 QF	63.308	0.252	12.46	1.84	1.52	0.81	-0.225	-9.8	2.42	3.59	-0.54	1.51	0.00	0.000	0.0	0.00
124 MB1	63.608	0.000	12.46	1.84	1.52	0.81	-0.225	-9.8	2.42	3.59	-0.54	1.51	0.00	0.000	0.0	0.00
125 B	66.008	2.400	5.74	1.03	1.57	0.41	-0.056	-5.3	0.75	9.09	-1.50	1.59	0.00	0.000	0.0	0.00
126 MB1	66.008	0.000	5.74	1.03	1.57	0.41	-0.056	-5.3	0.75	9.09	-1.50	1.59	0.00	0.000	0.0	0.00
128 OD	67.260	0.252	3.87	0.02	1.61	0.34	-0.005	-4.4	0.10	12.94	-0.03	1.61	0.00	0.000	0.0	0.00
129 MD	67.260	0.000	3.87	0.02	1.61	0.34	-0.005	-4.4	0.10	12.94	-0.03	1.61	0.00	0.000	0.0	0.00
130 OD	67.512	0.252	4.02	-0.62	1.62	0.35	0.046	-4.5	-0.55	12.49	1.80	1.61	0.00	0.000	0.0	0.00
132 MB1	67.812	0.000	4.42	-0.73	1.63	0.36	0.046	-4.6	-0.55	11.44	1.70	1.62	0.00	0.000	0.0	0.00
133 B	70.212	2.400	9.67	-1.44	1.69	0.68	0.216	-8.0	-2.24	5.25	0.88	1.67	0.00	0.000	0.0	0.00
134 MB1	70.212	0.000	9.67	-1.44	1.69	0.68	0.216	-8.0	-2.24	5.25	0.88	1.67	0.00	0.000	0.0	0.00

136 SF	70.912	0.000	11.84	-1.74	1.70	0.83	0.221	-9.6	-2.27	4.18	0.67	1.69	0.00	0.000	0.0	0.00
138 QF	71.464	0.252	13.38	0.00	1.71	0.93	0.090	-10.6	-0.78	3.67	-0.03	1.71	0.00	0.000	0.0	0.00
139 MF	71.464	0.000	13.38	0.00	1.71	0.93	0.090	-10.6	-0.78	3.67	-0.03	1.71	0.00	0.000	0.0	0.00
140 QF	71.716	0.252	12.92	1.83	1.71	0.94	-0.045	-10.6	0.73	3.84	-0.64	1.72	0.00	0.000	0.0	0.00
142 MB1	72.016	0.000	11.84	1.73	1.72	0.92	-0.045	-10.4	0.73	4.26	-0.75	1.73	0.00	0.000	0.0	0.00
143 B	74.416	2.400	5.26	0.98	1.77	1.01	0.119	-10.6	-0.90	9.98	-1.63	1.79	0.00	0.000	0.0	0.00
144 MB1	74.416	0.000	5.26	0.98	1.77	1.01	0.119	-10.6	-0.90	9.98	-1.63	1.79	0.00	0.000	0.0	0.00
146 SD	75.116	0.000	4.07	0.74	1.79	1.10	0.113	-11.2	-0.87	12.44	-1.96	1.80	0.00	0.000	0.0	0.00
148 CD	75.668	0.252	3.49	0.03	1.81	1.18	0.283	-11.9	-2.58	14.20	-0.07	1.81	0.00	0.000	0.0	0.00
149 MD	75.668	0.000	3.49	0.03	1.81	1.18	0.283	-11.9	-2.58	14.20	-0.07	1.81	0.00	0.000	0.0	0.00
150 QD	75.919	0.252	3.62	-0.57	1.82	1.28	0.464	-12.8	-4.38	13.72	1.94	1.81	0.00	0.000	0.0	0.00
152 QF	79.871	0.252	13.30	-0.09	1.92	3.06	0.029	-29.6	-0.21	3.94	0.02	1.91	0.00	0.000	0.0	0.00
153 MF	79.871	0.000	13.30	-0.09	1.92	3.06	0.029	-29.6	-0.21	3.94	0.02	1.91	0.00	0.000	0.0	0.00
154 QF	80.123	0.252	12.88	1.74	1.92	3.01	-0.407	-29.1	3.98	4.09	-0.62	1.92	0.00	0.000	0.0	0.00
156 MB1	80.423	0.000	11.87	1.65	1.93	2.89	-0.407	-27.9	3.98	4.49	-0.72	1.93	0.00	0.000	0.0	0.00
157 B	82.823	2.400	5.54	0.96	1.97	2.08	-0.262	-20.1	2.52	9.92	-1.54	1.99	0.00	0.000	0.0	0.00
158 MB1	82.823	0.000	5.54	0.96	1.97	2.08	-0.262	-20.1	2.52	9.92	-1.54	1.99	0.00	0.000	0.0	0.00
160 SD	83.523	0.000	4.37	0.76	1.99	1.90	-0.281	-18.3	2.61	12.24	-1.89	2.00	0.00	0.000	0.0	0.00
162 QD	84.075	0.252	3.78	0.02	2.01	1.78	-0.016	-17.2	0.07	13.93	-0.04	2.01	0.00	0.000	0.0	0.00
163 MD	84.075	0.000	3.78	0.02	2.01	1.78	-0.016	-17.2	0.07	13.93	-0.04	2.01	0.00	0.000	0.0	0.00
164 QD	84.327	0.252	3.93	-0.62	2.02	1.80	0.248	-17.5	-2.46	13.44	1.94	2.01	0.00	0.000	0.0	0.00
166 MB1	84.627	0.000	4.33	-0.72	2.04	1.88	0.248	-18.3	-2.46	12.31	1.83	2.01	0.00	0.000	0.0	0.00
167 B	87.027	2.400	9.61	-1.45	2.10	2.65	0.395	-26.0	-3.95	5.55	0.98	2.06	0.00	0.000	0.0	0.00
168 MB1	87.027	0.000	9.61	-1.45	2.10	2.65	0.395	-26.0	-3.95	5.55	0.98	2.06	0.00	0.000	0.0	0.00
170 QF	88.279	0.252	13.28	0.05	2.11	3.09	-0.047	-30.4	0.35	3.78	0.01	2.11	0.00	0.000	0.0	0.00
171 MF	88.279	0.000	13.28	0.05	2.11	3.09	-0.047	-30.4	0.35	3.78	0.01	2.11	0.00	0.000	0.0	0.00
172 QF	88.531	0.252	12.79	1.87	2.12	3.09	-0.487	-29.7	4.63	3.93	-0.61	2.12	0.00	0.000	0.0	0.00
174 QD	92.483	0.252	3.63	-0.04	2.22	1.12	-0.314	-11.7	2.86	13.67	0.04	2.20	0.00	0.000	0.0	0.00
175 MD	92.483	0.000	3.63	-0.04	2.22	1.12	-0.314	-11.7	2.86	13.67	0.04	2.20	0.00	0.000	0.0	0.00
176 QD	92.734	0.252	3.81	-0.66	2.23	1.06	-0.152	-10.8	1.20	12.01	1.86	2.21	0.00	0.000	0.0	0.00
178 MB1	93.034	0.000	4.24	-0.78	2.24	1.02	-0.152	-10.8	1.20	12.01	1.86	2.21	0.00	0.000	0.0	0.00
179 B	95.434	2.400	9.91	-1.56	2.30	0.85	0.012	-9.9	-0.43	5.22	0.97	2.26	0.00	0.000	0.0	0.00
180 MB1	95.434	0.000	9.91	-1.56	2.30	0.85	0.012	-9.9	-0.43	5.22	0.97	2.26	0.00	0.000	0.0	0.00
182 SF	96.134	0.000	12.27	-1.89	2.31	0.86	0.018	-10.2	-0.47	4.04	0.74	2.28	0.00	0.000	0.0	0.00
184 QF	96.686	0.252	13.98	-0.09	2.32	0.85	-0.105	-10.2	0.99	3.47	0.04	2.31	0.00	0.000	0.0	0.00
185 MF	96.686	0.000	13.98	-0.09	2.32	0.85	-0.105	-10.2	0.99	3.47	0.04	2.31	0.00	0.000	0.0	0.00
186 QF	96.938	0.252	13.53	1.84	2.32	0.81	-0.225	-9.8	2.42	3.59	-0.54	2.32	0.00	0.000	0.0	0.00
188 MB1	97.238	0.000	12.46	1.74	2.33	0.74	-0.225	-9.1	2.42	3.94	-0.64	2.33	0.00	0.000	0.0	0.00
189 B	99.638	2.400	5.74	1.03	2.37	0.41	-0.056	-5.3	0.75	9.09	-1.50	2.40	0.00	0.000	0.0	0.00
190 MB1	99.638	0.000	5.74	1.03	2.37	0.41	-0.056	-5.3	0.75	9.09	-1.50	2.40	0.00	0.000	0.0	0.00
192 QD	100.890	0.252	3.87	0.02	2.41	0.34	-0.005	-4.4	0.10	12.94	-0.03	2.41	0.00	0.000	0.0	0.00
193 MD	100.890	0.000	3.87	0.02	2.41	0.34	-0.005	-4.4	0.10	12.94	-0.03	2.41	0.00	0.000	0.0	0.00
194 QD	101.142	0.252	4.02	-0.62	2.43	0.35	0.046	-4.5	-0.55	11.44	1.80	2.42	0.00	0.000	0.0	0.00
196 MB1	101.442	0.000	4.42	-0.73	2.44	0.36	0.046	-4.6	-0.55	11.44	1.70	2.42	0.00	0.000	0.0	0.00
197 B	103.842	2.400	9.67	-1.44	2.50	0.68	0.216	-8.0	-2.24	5.25	0.88	2.47	0.00	0.000	0.0	0.00
198 MB1	103.842	0.000	9.67	-1.44	2.50	0.68	0.216	-8.0	-2.24	5.25	0.88	2.47	0.00	0.000	0.0	0.00
200 SF	104.542	0.000	11.84	-1.74	2.51	0.93	0.221	-9.6	-2.27	4.18	0.67	2.49	0.00	0.000	0.0	0.00
202 QF	105.094	0.252	13.38	0.00	2.52	0.93	0.090	-10.6	-0.78	3.67	-0.03	2.51	0.00	0.000	0.0	0.00
203 MF	105.094	0.000	13.38	0.00	2.52	0.93	0.090	-10.6	-0.78	3.67	-0.03	2.51	0.00	0.000	0.0	0.00
204 QF	105.346	0.252	12.92	1.83	2.52	0.94	-0.045	-10.6	0.73	3.84	-0.64	2.52	0.00	0.000	0.0	0.00
206 MB1	105.646	0.000	11.84	1.73	2.52	0.92	-0.045	-10.4	0.73	4.26	-0.75	2.54	0.00	0.000	0.0	0.00
207 B	108.046	2.400	5.26	0.98	2.57	1.01	0.119	-10.6	-0.90	9.98	-1.63	2.60	0.00	0.000	0.0	0.00
208 MB1	108.046	0.000	5.26	0.98	2.57	1.01	0.119	-10.6	-0.90	9.98	-1.63	2.60	0.00	0.000	0.0	0.00
210 SD	108.746	0.000	4.07	0.74	2.59	1.10	0.113	-11.2	-0.87	12.44	-1.96	2.61	0.00	0.000	0.0	0.00
212 QD	109.298	0.252	3.49	0.03	2.62	1.18	0.283	-11.9	-2.58	14.20	-0.07	2.62	0.00	0.000	0.0	0.00
213 MD	109.298	0.000	3.49	0.03	2.62	1.18	0.283	-11.9	-2.58	14.20	-0.07	2.62	0.00	0.000	0.0	0.00
214 QD	109.549	0.252	3.62	-0.57	2.63	1.28	0.464	-12.8	-4.38	13.72	1.94	2.62	0.00	0.000	0.0	0.00
216 QF	113.501	0.252	13.30	-0.09	2.72	3.06	0.029	-29.6	-0.21	3.94	0.02	2.71	0.00	0.000	0.0	0.00
218 QF	113.753	0.252	12.88	1.74	2.73	3.01	-0.407	-29.1	3.98	4.09	-0.62	2.72	0.00	0.000	0.0	0.00

220 MB1	114.053	0.000	11.87	1.65	2.73	2.89	-0.407	-27.9	3.98	4.49	-0.72	2.73	0.00	0.000	0.0	0.00
221 B	116.453	2.400	5.54	0.96	2.78	2.08	-0.262	-20.1	2.52	9.92	-1.54	2.79	0.00	0.000	0.0	0.00
222 MB1	116.453	0.000	5.54	0.96	2.78	2.08	-0.262	-20.1	2.52	9.92	-1.54	2.79	0.00	0.000	0.0	0.00
224 SD	117.153	0.000	4.37	0.76	2.80	1.90	-0.281	-18.3	2.61	12.24	-1.89	2.80	0.00	0.000	0.0	0.00
226 CD	117.705	0.252	3.78	0.02	2.82	1.78	-0.016	-17.2	0.07	13.93	-0.04	2.81	0.00	0.000	0.0	0.00
227 MD	117.957	0.000	3.93	0.02	2.82	1.78	-0.016	-17.2	0.07	13.93	-0.04	2.81	0.00	0.000	0.0	0.00
228 MB1	118.257	0.000	4.33	-0.72	2.84	1.88	0.248	-17.3	-2.46	13.44	1.94	2.81	0.00	0.000	0.0	0.00
231 B	120.657	2.400	9.61	-1.45	2.90	2.65	0.395	-26.0	-3.95	5.55	0.98	2.86	0.00	0.000	0.0	0.00
232 MB1	120.657	0.000	9.61	-1.45	2.90	2.65	0.395	-26.0	-3.95	5.55	0.98	2.86	0.00	0.000	0.0	0.00
234 QF	121.909	0.252	13.28	0.05	2.92	3.09	-0.047	-30.4	0.35	3.78	0.01	2.91	0.00	0.000	0.0	0.00
235 MF	121.909	0.000	13.28	0.05	2.92	3.09	-0.047	-30.4	0.35	3.78	0.01	2.91	0.00	0.000	0.0	0.00
236 QF	122.161	0.252	12.79	1.87	2.92	3.02	-0.487	-29.7	4.63	3.93	-0.61	2.92	0.00	0.000	0.0	0.00
238 CD	122.161	0.252	3.63	-0.04	3.02	1.12	-0.314	-11.7	2.86	13.67	0.04	3.01	0.00	0.000	0.0	0.00
239 MD	126.113	0.000	3.63	-0.04	3.02	1.12	-0.314	-11.7	2.86	13.67	0.04	3.01	0.00	0.000	0.0	0.00
240 CD	126.364	0.252	3.81	-0.66	3.04	1.06	-0.152	-11.1	1.20	13.16	1.97	3.01	0.00	0.000	0.0	0.00
242 MB1	126.664	0.000	4.24	-0.78	3.04	1.02	-0.152	-10.8	1.20	12.01	1.86	3.02	0.00	0.000	0.0	0.00
243 B	129.064	2.400	9.91	-1.56	3.10	0.85	0.012	-9.9	-0.43	5.22	0.97	3.06	0.00	0.000	0.0	0.00
244 MB1	129.064	0.000	9.91	-1.56	3.10	0.85	0.012	-9.9	-0.43	5.22	0.97	3.06	0.00	0.000	0.0	0.00
246 SF	129.764	0.000	12.27	-1.89	3.12	0.86	0.018	-10.2	-0.47	4.04	0.74	3.09	0.00	0.000	0.0	0.00
248 QF	130.316	0.252	13.98	-0.09	3.12	0.85	-0.105	-10.2	0.99	3.47	0.04	3.11	0.00	0.000	0.0	0.00
249 MF	130.316	0.000	13.98	-0.09	3.12	0.85	-0.105	-10.2	0.99	3.47	0.04	3.11	0.00	0.000	0.0	0.00
250 QF	130.568	0.252	13.53	1.84	3.13	0.81	-0.225	-9.8	2.42	3.59	-0.64	3.12	0.00	0.000	0.0	0.00
252 MB1	130.868	0.000	12.46	1.74	3.13	0.74	-0.225	-9.1	2.42	3.94	-1.50	3.20	0.00	0.000	0.0	0.00
253 B	133.268	2.400	5.74	1.03	3.18	0.41	-0.056	-5.3	0.75	9.09	-1.50	3.20	0.00	0.000	0.0	0.00
254 MB1	133.268	0.000	5.74	1.03	3.18	0.41	-0.056	-5.3	0.75	9.09	-1.50	3.20	0.00	0.000	0.0	0.00
256 CD	134.520	0.252	3.87	0.02	3.22	0.34	-0.005	-4.4	0.10	12.94	-0.03	3.22	0.00	0.000	0.0	0.00
257 MD	134.520	0.000	4.02	-0.62	3.23	0.35	0.046	-4.5	-0.55	12.49	1.80	3.22	0.00	0.000	0.0	0.00
258 CD	134.772	0.252	4.42	-0.73	3.24	0.36	0.046	-4.6	-0.55	11.44	1.70	3.22	0.00	0.000	0.0	0.00
260 MB1	135.072	0.000	9.67	-1.44	3.30	0.68	0.216	-8.0	-2.24	5.25	0.88	3.27	0.00	0.000	0.0	0.00
261 B	137.472	2.400	9.67	-1.44	3.30	0.68	0.216	-8.0	-2.24	5.25	0.88	3.27	0.00	0.000	0.0	0.00
262 MB1	137.472	0.000	9.67	-1.44	3.30	0.68	0.216	-8.0	-2.24	5.25	0.88	3.27	0.00	0.000	0.0	0.00
264 SF	138.172	0.000	11.84	-1.74	3.31	0.83	0.221	-9.6	-2.27	4.18	0.67	3.32	0.00	0.000	0.0	0.00
266 QF	138.724	0.252	13.38	0.00	3.32	0.93	0.090	-10.6	-0.78	3.67	-0.03	3.32	0.00	0.000	0.0	0.00
267 MF	138.724	0.000	13.38	0.00	3.32	0.93	0.090	-10.6	-0.78	3.67	-0.03	3.32	0.00	0.000	0.0	0.00
268 QF	138.976	0.252	12.92	1.83	3.32	0.94	-0.045	-10.6	0.73	3.84	-0.64	3.33	0.00	0.000	0.0	0.00
270 MB1	139.276	0.000	11.84	1.73	3.33	0.92	-0.045	-10.4	0.73	4.26	-0.75	3.34	0.00	0.000	0.0	0.00
271 B	141.676	2.400	5.26	0.98	3.38	1.01	0.119	-10.6	-0.90	9.98	-1.63	3.40	0.00	0.000	0.0	0.00
272 MB1	141.676	0.000	5.26	0.98	3.38	1.01	0.119	-10.6	-0.90	9.98	-1.63	3.40	0.00	0.000	0.0	0.00
274 SD	142.376	0.000	4.07	0.74	3.40	1.10	0.113	-11.2	-0.87	12.44	-1.96	3.41	0.00	0.000	0.0	0.00
276 CD	142.927	0.252	3.49	0.03	3.42	1.18	0.283	-11.9	-2.58	14.20	-0.07	3.42	0.00	0.000	0.0	0.00
277 MD	142.927	0.000	3.49	0.03	3.42	1.18	0.283	-11.9	-2.58	14.20	-0.07	3.42	0.00	0.000	0.0	0.00
278 QD	143.179	0.252	3.62	-0.57	3.43	1.28	0.464	-12.8	-4.38	13.72	1.94	3.42	0.00	0.000	0.0	0.00
280 QF	147.131	0.252	13.30	-0.09	3.53	3.06	0.029	-29.6	-0.21	3.94	0.02	3.51	0.00	0.000	0.0	0.00
281 MF	147.131	0.000	13.30	-0.09	3.53	3.06	0.029	-29.6	-0.21	3.94	0.02	3.51	0.00	0.000	0.0	0.00
282 QF	147.383	0.252	12.88	1.74	3.53	3.01	-0.407	-29.1	3.98	4.09	-0.62	3.52	0.00	0.000	0.0	0.00
284 MB1	147.683	0.000	11.87	1.65	3.54	2.89	-0.407	-27.9	3.98	4.49	-1.54	3.54	0.00	0.000	0.0	0.00
285 B	150.083	2.400	5.54	0.96	3.58	2.08	-0.262	-20.1	2.52	9.92	-1.54	3.59	0.00	0.000	0.0	0.00
286 MB1	150.083	0.000	5.54	0.96	3.58	2.08	-0.262	-20.1	2.52	9.92	-1.54	3.59	0.00	0.000	0.0	0.00
288 SD	150.783	0.000	4.37	0.76	3.60	1.90	-0.281	-18.3	2.61	12.24	-1.89	3.61	0.00	0.000	0.0	0.00
290 CD	151.335	0.252	3.78	0.02	3.62	1.78	-0.016	-17.2	0.07	13.93	-0.04	3.62	0.00	0.000	0.0	0.00
291 MD	151.335	0.000	3.78	0.02	3.62	1.78	-0.016	-17.2	0.07	13.93	-0.04	3.62	0.00	0.000	0.0	0.00
292 CD	151.587	0.252	3.93	-0.62	3.65	1.80	0.248	-17.5	-2.46	13.44	1.94	3.62	0.00	0.000	0.0	0.00
294 MB1	151.887	0.000	4.33	-0.72	3.71	2.65	0.395	-26.0	-3.95	5.55	0.98	3.67	0.00	0.000	0.0	0.00
295 B	154.287	2.400	9.61	-1.45	3.71	2.65	0.395	-26.0	-3.95	5.55	0.98	3.67	0.00	0.000	0.0	0.00
296 MB1	154.287	0.000	9.61	-1.45	3.71	2.65	0.395	-26.0	-3.95	5.55	0.98	3.67	0.00	0.000	0.0	0.00
298 QF	155.339	0.252	13.28	0.05	3.72	3.09	-0.047	-30.4	0.35	3.78	0.01	3.71	0.00	0.000	0.0	0.00
299 MF	155.339	0.000	13.28	0.05	3.72	3.09	-0.047	-30.4	0.35	3.78	0.01	3.71	0.00	0.000	0.0	0.00
300 QF	155.791	0.252	12.79	1.87	3.73	3.02	-0.487	-29.7	4.63	3.93	-0.61	3.72	0.00	0.000	0.0	0.00
302 CD	159.742	0.252	3.63	-0.04	3.83	1.12	-0.314	-11.7	2.86	13.67	0.04	3.81	0.00	0.000	0.0	0.00

303 MD	159.742	0.000	3.63	-0.04	3.83	1.12	-0.314	-11.7	2.86	13.67	0.04	3.81	0.00	0.000	0.0	0.00
304 CD	159.994	0.252	3.81	-0.66	3.84	1.06	-0.152	-11.1	1.20	13.16	1.97	3.82	0.00	0.000	0.0	0.00
306 MB1	160.294	0.000	4.24	-0.78	3.85	1.02	-0.152	-10.8	1.20	12.01	1.86	3.82	0.00	0.000	0.0	0.00
307 B	162.694	2.400	9.91	-1.56	3.91	0.85	0.012	-9.9	-0.43	5.22	0.97	3.87	0.00	0.000	0.0	0.00
308 MB1	162.694	0.000	9.91	-1.56	3.91	0.85	0.012	-9.9	-0.43	5.22	0.97	3.87	0.00	0.000	0.0	0.00
310 SF	163.384	0.000	12.27	-1.89	3.92	0.86	0.018	-10.2	0.47	4.04	0.74	3.89	0.00	0.000	0.0	0.00
312 CF	163.946	0.252	13.98	-0.09	3.93	0.85	-0.105	-10.2	0.99	3.47	0.04	3.91	0.00	0.000	0.0	0.00
313 MF	163.946	0.000	13.98	-0.09	3.93	0.85	-0.105	-10.2	0.99	3.47	0.04	3.91	0.00	0.000	0.0	0.00
314 CF	164.198	0.252	13.53	1.84	3.93	0.81	-0.225	-9.8	2.42	3.59	-0.54	3.93	0.00	0.000	0.0	0.00
316 MB1	164.498	0.000	12.46	1.03	3.98	0.41	-0.056	-5.3	0.75	9.09	-1.50	4.00	0.00	0.000	0.0	0.00
317 B	166.898	2.400	5.74	1.03	3.98	0.41	-0.056	-5.3	0.75	9.09	-1.50	4.00	0.00	0.000	0.0	0.00
318 MB1	166.898	0.000	5.74	1.03	3.98	0.41	-0.056	-5.3	0.75	9.09	-1.50	4.00	0.00	0.000	0.0	0.00
320 CD	168.150	0.252	3.87	0.02	4.02	0.34	-0.005	-4.4	0.10	12.94	-0.03	4.02	0.00	0.000	0.0	0.00
321 MD	168.150	0.000	3.87	0.02	4.02	0.34	-0.005	-4.4	0.10	12.94	-0.03	4.02	0.00	0.000	0.0	0.00
322 CD	168.402	0.252	4.02	-0.62	4.04	0.35	0.046	-4.5	-0.55	11.44	1.80	4.03	0.00	0.000	0.0	0.00
324 MB1	168.702	0.000	4.42	-0.73	4.05	0.36	0.216	-8.0	-0.24	5.25	0.88	4.08	0.00	0.000	0.0	0.00
325 B	171.102	2.400	9.67	-1.44	4.11	0.68	0.216	-8.0	-2.24	4.18	0.67	4.10	0.00	0.000	0.0	0.00
326 MB1	171.102	0.000	9.67	-1.44	4.11	0.68	0.216	-8.0	-2.24	4.18	0.67	4.10	0.00	0.000	0.0	0.00
328 SF	171.802	0.000	11.84	-1.74	4.12	0.93	0.090	-10.6	-0.78	3.67	-0.03	4.12	0.00	0.000	0.0	0.00
330 CF	172.354	0.252	13.38	0.00	4.13	0.93	0.090	-10.6	-0.78	3.67	-0.03	4.12	0.00	0.000	0.0	0.00
331 MF	172.354	0.000	13.38	0.00	4.13	0.93	0.090	-10.6	-0.78	3.67	-0.03	4.12	0.00	0.000	0.0	0.00
332 CF	172.606	0.252	12.92	1.83	4.13	0.94	-0.045	-10.6	0.73	3.84	-0.64	4.15	0.00	0.000	0.0	0.00
334 MB1	172.906	0.000	11.84	0.98	4.13	0.92	-0.045	-10.6	0.73	3.84	-0.75	4.15	0.00	0.000	0.0	0.00
335 B	175.306	2.400	5.26	0.98	4.18	1.01	0.119	-10.6	-0.90	9.98	-1.63	4.21	0.00	0.000	0.0	0.00
336 MB1	175.306	0.000	5.26	0.98	4.18	1.01	0.119	-10.6	-0.90	9.98	-1.63	4.21	0.00	0.000	0.0	0.00
338 SD	176.006	0.000	4.07	0.74	4.20	1.10	0.113	-11.2	-0.87	12.44	-1.96	4.22	0.00	0.000	0.0	0.00
340 CD	176.557	0.252	3.49	0.03	4.23	1.18	0.283	-11.9	-2.58	14.20	-0.07	4.22	0.00	0.000	0.0	0.00
341 MD	176.809	0.252	3.62	-0.57	4.24	1.28	0.464	-12.8	-4.38	13.72	1.94	4.23	0.00	0.000	0.0	0.00
342 CD	180.761	0.252	13.30	-0.09	4.33	3.06	0.029	-29.6	-0.21	3.94	0.02	4.32	0.00	0.000	0.0	0.00
344 CF	180.761	0.000	12.88	1.74	4.34	3.01	-0.407	-29.1	3.98	4.09	-0.62	4.33	0.00	0.000	0.0	0.00
346 CF	181.013	0.252	11.87	1.65	4.34	2.89	-0.407	-27.9	3.98	4.09	-0.72	4.34	0.00	0.000	0.0	0.00
348 MB1	181.313	0.000	5.54	0.96	4.39	2.08	-0.262	-20.1	2.52	9.92	-1.54	4.40	0.00	0.000	0.0	0.00
349 B	183.713	2.400	5.54	0.96	4.39	2.08	-0.262	-20.1	2.52	9.92	-1.54	4.40	0.00	0.000	0.0	0.00
350 MB1	184.413	0.000	4.37	0.76	4.41	1.90	-0.281	-18.3	2.61	12.24	-1.89	4.41	0.00	0.000	0.0	0.00
352 SD	184.965	0.252	3.78	0.02	4.43	1.78	-0.016	-17.2	0.07	13.93	-0.04	4.42	0.00	0.000	0.0	0.00
354 CD	184.965	0.000	3.78	0.02	4.43	1.78	-0.016	-17.2	0.07	13.93	-0.04	4.42	0.00	0.000	0.0	0.00
355 MD	185.217	0.252	3.93	-0.62	4.44	1.88	-0.248	-17.5	-2.46	13.44	1.94	4.42	0.00	0.000	0.0	0.00
356 CD	185.517	0.000	4.33	-0.72	4.45	2.65	0.395	-26.0	-3.95	12.31	1.83	4.43	0.00	0.000	0.0	0.00
358 MB1	187.917	2.400	9.61	-1.45	4.51	3.09	-0.047	-30.4	0.35	3.78	0.01	4.52	0.00	0.000	0.0	0.00
359 B	187.917	0.000	9.61	-1.45	4.51	3.09	-0.047	-30.4	0.35	3.78	0.01	4.52	0.00	0.000	0.0	0.00
360 MB1	189.169	0.252	13.28	0.05	4.53	3.02	-0.487	-29.7	4.63	13.67	0.04	4.62	0.00	0.000	0.0	0.00
362 CF	189.169	0.000	13.28	0.05	4.53	3.02	-0.487	-29.7	4.63	13.67	0.04	4.62	0.00	0.000	0.0	0.00
364 CF	189.421	0.252	12.79	1.87	4.63	1.12	-0.314	-11.7	2.86	13.16	1.97	4.62	0.00	0.000	0.0	0.00
366 CD	193.372	0.000	3.63	-0.04	4.63	1.12	-0.314	-11.7	2.86	13.16	1.97	4.62	0.00	0.000	0.0	0.00
367 MD	193.624	0.252	3.81	-0.66	4.64	1.06	-0.152	-11.1	1.20	12.01	1.86	4.62	0.00	0.000	0.0	0.00
368 CD	193.624	0.000	3.81	-0.66	4.64	1.06	-0.152	-11.1	1.20	12.01	1.86	4.62	0.00	0.000	0.0	0.00
370 MB1	193.924	0.000	4.24	-0.78	4.65	1.02	-0.152	-10.8	-0.43	5.22	0.97	4.67	0.00	0.000	0.0	0.00
371 B	196.324	2.400	9.91	-1.56	4.71	0.85	0.012	-9.9	-0.43	5.22	0.97	4.67	0.00	0.000	0.0	0.00
372 MB1	196.324	0.000	9.91	-1.56	4.71	0.85	0.012	-9.9	-0.43	5.22	0.97	4.67	0.00	0.000	0.0	0.00
374 CF	197.024	0.000	12.27	-1.89	4.73	0.86	0.018	-10.2	0.47	4.04	0.74	4.69	0.00	0.000	0.0	0.00
376 CF	197.576	0.252	13.98	-0.09	4.73	0.85	-0.105	-10.2	0.99	3.47	0.04	4.72	0.00	0.000	0.0	0.00
377 MF	197.576	0.000	13.98	-0.09	4.73	0.85	-0.105	-10.2	0.99	3.47	0.04	4.72	0.00	0.000	0.0	0.00
378 CF	197.828	0.252	13.53	1.84	4.74	0.81	-0.225	-9.8	2.42	3.59	-0.54	4.73	0.00	0.000	0.0	0.00
380 MB1	198.128	0.000	12.46	1.03	4.74	0.74	-0.0225	-9.1	0.75	9.09	-1.50	4.74	0.00	0.000	0.0	0.00
381 B	200.528	2.400	5.74	1.03	4.79	0.41	-0.056	-5.3	0.75	9.09	-1.50	4.81	0.00	0.000	0.0	0.00
382 MB1	200.528	0.000	5.74	1.03	4.79	0.41	-0.056	-5.3	0.75	9.09	-1.50	4.81	0.00	0.000	0.0	0.00
384 CD	201.780	0.252	3.87	0.02	4.83	0.34	-0.005	-4.4	0.10	12.94	-0.03	4.83	0.00	0.000	0.0	0.00

TRACKING FOR CONSTANT ENERGY DEVIATION

TUNE CLO BET0 ALF0
 X -0.1678175 -4.4122725 0.0971831 3.8691492 0.0228035
 Z -0.1773635 0.0000000 0.0000000 12.9367391 -0.0337965

REL. ENERGY DEVIATION= -0.01000

CPU-TIME SINCE LAST CALL= 123620.0MSEC.; TOTAL CPU-TIME= 123.620SEC. REAL TIME= 267.371SEC.

INI = 1
 ENTRY ANFB=INIT.COORD.DISTR.=REC
 ITTRA/ 1/AMP/ 10.000 18.285/ITR,CH10,CHID/ 1 0.0 90.0/14,PS10,PSID/ 0 0.0 0.0

AMPLITUDE-X = 10.000 AMPLITUDE-Z = 18.285 MM
 EMITTANCE-X = 25.845 EMITTANCE-Z = 25.845 PI*MRAD*MM

PART. X-(MM) dX/dS(mrad) Z-(mm) dZ/dS(mrad)
 1 5.588 0.038246 18.285 0.047770
 CPU-TIME SINCE LAST CALL= 9620.0MSEC.; TOTAL CPU-TIME= 133.240SEC. REAL TIME= 287.699SEC.

***** ALL PARTICLES STABLE *****

INI = 1
 ENTRY ANFB=INIT.COORD.DISTR.=REC
 ITTRA/ 1/AMP/ 15.000 27.428/ITR,CH10,CHID/ 1 0.0 90.0/14,PS10,PSID/ 0 0.0 0.0
 CPU-TIME SINCE LAST CALL= 10.0MSEC.; TOTAL CPU-TIME= 133.250SEC. REAL TIME= 287.949SEC.

AMPLITUDE-X = 15.000 AMPLITUDE-Z = 27.428 MM
 EMITTANCE-X = 58.152 EMITTANCE-Z = 58.152 PI*MRAD*MM

PART. X-(MM) dX/dS(mrad) Z-(mm) dZ/dS(mrad)
 1 10.588 0.008778 27.428 0.071654
 CPU-TIME SINCE LAST CALL= 9190.0MSEC.; TOTAL CPU-TIME= 142.440SEC. REAL TIME= 314.969SEC.

***** ALL PARTICLES STABLE *****

TRACKING FOR CONSTANT ENERGY DEVIATION

TUNE CLO BET0 ALF0
 X -0.1779817 0.0000000 0.0000000 3.6398207 0.0087721
 Z -0.1699993 0.0000000 0.0000000 13.6455935 0.0000000

REL. ENERGY DEVIATION= 0.00000

CPU-TIME SINCE LAST CALL= 4400.0MSEC.; TOTAL CPU-TIME= 146.840SEC. REAL TIME= 329.828SEC.

INI = 1
 ENTRY ANFB=INIT.COORD.DISTR.=REC
 ITTRA/ 1/AMP/ 10.000 19.362/ITR,CH10,CHID/ 1 0.0 90.0/14,PS10,PSID/ 0 0.0 0.0

AMPLITUDE-X = 10.000 AMPLITUDE-Z = 19.362 MM
 EMITTANCE-X = 27.474 EMITTANCE-Z = 27.474 PI*MRAD*MM

PART. X-(MM) dX/dS(mrad) Z-(mm) dZ/dS(mrad)
 1 10.000 -0.024100 19.362 0.000000

CPU-TIME SINCE LAST CALL= 9410.0MSEC.; TOTAL CPU-TIME= 156.250SEC. REAL TIME= 353.480SEC.
 ***** ALL PARTICLES STABLE *****

INI = 1
 ---ENTRY ANFB---INIT.COORD.DISTR.=REC CPU-TIME SINCE LAST CALL= 10.0MSEC.; TOTAL CPU-TIME= 156.260SEC. REAL TIME= 353.488SEC.
 ---ITRA/ 1/AMP/ 15.000 29.043/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 15.000 AMPLITUDE-Z = 29.043 MM
 EMITTANCE-X = 61.816 EMITTANCE-Z = 61.816 PI*MRAD*MM
 PART. X-(MM) DX/DS(mrad) Z-(mm) dZ/dS(mrad)
 1 15.000 -0.036150 29.043 0.000000
 CPU-TIME SINCE LAST CALL= 9470.0MSEC.; TOTAL CPU-TIME= 165.730SEC. REAL TIME= 370.031SEC.
 ***** ALL PARTICLES STABLE *****

TRACKING FOR CONSTANT ENERGY DEVIATION

	TUNE	C10	C1OP	BET0	ALF0
X	-0.1690690	6.2749172	-0.1979994	3.3597361	-0.0072168
Z	-0.1775219	0.0000000	0.0000000	14.3880179	0.0279959

REL. ENERGY DEVIATION= 0.01000

INI = 1
 ---ENTRY ANFB---INIT.COORD.DISTR.=REC CPU-TIME SINCE LAST CALL= 6050.0MSEC.; TOTAL CPU-TIME= 171.780SEC. REAL TIME= 384.211SEC.
 ---ITRA/ 1/AMP/ 10.000 20.694/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 10.000 AMPLITUDE-Z = 20.694 MM
 EMITTANCE-X = 29.764 EMITTANCE-Z = 29.764 PI*MRAD*MM
 PART. X-(MM) DX/DS(mrad) Z-(mm) dZ/dS(mrad)
 1 10.000 -0.176519 20.694 -0.040266
 CPU-TIME SINCE LAST CALL= 9780.0MSEC.; TOTAL CPU-TIME= 181.560SEC. REAL TIME= 403.590SEC.
 ***** ALL PARTICLES STABLE *****

INI = 1
 ---ENTRY ANFB---INIT.COORD.DISTR.=REC CPU-TIME SINCE LAST CALL= 10.0MSEC.; TOTAL CPU-TIME= 181.570SEC. REAL TIME= 403.602SEC.
 ---ITRA/ 1/AMP/ 15.000 31.041/ITR,CH10,CH1D/ 1 0.0 90.0/14,PS10,PS1D/ 0 0.0 0.0

AMPLITUDE-X = 15.000 AMPLITUDE-Z = 31.041 MM
 EMITTANCE-X = 66.970 EMITTANCE-Z = 66.970 PI*MRAD*MM
 PART. X-(MM) DX/DS(mrad) Z-(mm) dZ/dS(mrad)
 1 15.000 -0.165779 31.041 -0.060399
 CPU-TIME SINCE LAST CALL= 9540.0MSEC.; TOTAL CPU-TIME= 191.110SEC. REAL TIME= 427.508SEC.
 ***** ALL PARTICLES STABLE *****

FLEXIBILITY /AGS BOOSTER (Sector Dipoles)/ ONLY SEXTUPOLES
PRINTOUT OF INPUT PARAMETERS

NEXT
SINGLE ELEMENTS

D1	0		0.3
D2	0		0.7
D3	0		1.0
D4	0		3.7
QF	* 2	- .5583816500	0.251875
QD	* 2	+ .5754637800	0.251875
B	* 3	- .0727222042	2.400
SF	* 3	- .000000	
SD	* 3	.000000	
MB1	* 11	0.	1.
MF	* 11	0.	1.
MD	* 11	0.	1.

NEXT
BLOCK DEFINITIONS

1 1
D1 D1
D2 D2
D3 D3
D4 D4
B B
QF QF
QD QD
NEXT

STRUCTURE INPUT

6*(MD	QD	D1	MB1	B	MB1	D2	SF	D1	QF
	MF	QF	D1	MB1	B	MB1	D2	SD	D1	QD
	MD	QD	D4	QF	MF	QF	D1	MB1	B	MB1
	D2	SD	D1	QD	MD	QD	D1	MB1	B	MB1
	D3	QF	MF	QF	D4	QD	QD	D1	D1	MB1
	B	MB1	D2	SF	D1	QF	MF	QF	D1	MB1
	B	MB1	D3	QD						MB1

NEXT
LINEAR OPTICS CALCULATION

ELEMENT 00
NEXT

CHROMATICITY CORRECTION

SF 0.0
SD 0.0

NEXT
ITERATION ERRORS OF CLOSED ORBIT, TUNE ADJUSTMENT AND CHROMATICITY CALC.

100 0.0001 0.00001
10 0.00001 0.0001
10 0.001 0.01

NEXT
TRACKING PARAMETERS

10
2 10.00 0.0
3 -.0100 +.0100

NEXT
INITIAL COORDINATES RECTANGULAR

1 0. 90.0 1.0
NEXT

MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10 —> F15—

0.	10.	0.00000	0.	0.000
0.	174.5	0.00000	0.	0.000
.000078	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
-.00000024	0.00000	0.00000	0.	0.00
0.	0.00000	0.00000	0.	0.000
-.0000000016	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000

NEXT
FLUCTUATION RANDOM STARTING NUMBER—
000000000005623845

END
MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10 —> F15—

0.	25.0	0.00000	0.	0.000
0.	19.4	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000
0.	0.00000	0.00000	0.	0.000

NEXT
MULTIPOLE COEFFICIENTS—/FORMAT CHANGED—F10 —> F15—

0.	25.0	0.00000	0.	0.000
0.	19.4	0.00000	0.	0.000
-0.000000	0.000462	0.000127	0.	0.000131
0.	0.000219	0.000053	0.	0.000057
0.	0.000053	0.000018	0.	0.000023
0.	0.000018	0.000028	0.	0.000034
-0.000	0.000028	0.000061	0.	0.000084
-0.000	0.000061	0.000011	0.	0.000011

NEXT
PRINTOUT OF INPUT PARAMETERS—

NEXT
TUNE VARIATION—

OF
QD .827

NEXT
ORBIT ADJUSTMENT—

1.00 1.00

MON=SPH
COR=DPH
COR=DPV

NEXT
INITIAL COORDINATES—

SET 0.0 0.0 1.99 0.00 -0.9 0.0

NEXT
INITIAL COORDINATES—

0.0 0.0 0.7 0.00 0.0 -0.1

```
SET      0.0      0.0      29.105      0.00019      0.      0.0B
NEXT      0.0      0.0      8.315      0.00018      0.0
COMBINATION OF ELEMENTS
SPVL      2.2143      SPVS
NEXT
LIMITATION OF APERTURE
SPH      RE      28.      28.
SPV      EL      28.
NEXT
COMBINATION OF ELEMENTS
SPH      3.0      SPHA
SPV      3.0      SPVA
NEXT
C---CELL QUADS FOR QX/QZ=.15/.08 WITHOUT ORBIT DIST
QF      2      2.878      .62      -.08034138
OD      2      2.878      1.8      .03427998
ITERATION ERRORS OF CLOSED ORBIT, TUNE ADJUSTMENT AND CHROMATICITY CALC.
50      0.00001      0.00001
10      0.00001      0.00001
10      0.00001      0.001
NEXT
TRACKING PARAMETERS
1      1      1.0      0.
1      -.0000      .000
NEXT
```

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