Fermilab

TS-SSC 90-035
June 28, 1990

MEMO TO: Distribution

FROM: Jim Strait

SUBJECT: Yoke, Skin, and Magnet End Dimensions

The following are proposed dimensions for selected yoke components, the skin, and the magnet ends. (See also the attached figures.) Please evaluate these dimensions with respect to subsystems for which you are responsible and forward comments to me by 7/12/90. At this point these dimensions are for comment only and may be revised before final dimensions are set.

Skin thickness	5.00 mm	(0.197")
Yoke outer radius[1]	165.00 mm	(6.496")
End yoke inner radius[2]	146.00 mm	(5.748")
Radius of inner edge of bus slot[3]	116.00 mm	(4.567")
Bus slot height	26.92 mm	(1.060")
Bus slot half width	22.99 mm	(0.905")
Maximum outer radius of end clamp (minimum radius for expansion joint, ect.)[4]	110.00 mm	(4.331")

Notes

[1] The hole near the outer radius for yoke pack stacking pins and the notches for the fiducial bar have been moved radially inwards by approximately 0.25 mm (0.010") to accommodate the slightly smaller yoke O.D.

[2] The end yoke is 19 mm in radial thickness and extends from the end of the body yoke to the end plate. It is included principally as a mechanical element to support the skin and eliminate the large bending stress where the skin would otherwise "fall" off the end of the yoke. It is not decided yet whether it will be made of low carbon steel or high manganese stainless steel. David Orrell has made a preliminary estimate that if it were magnet steel, the field in the magnet end would increase by about 7%.

[3] The cooling channels have been moved down about 9 mm (0.354") to clear the end yoke. The yoke stacking holes and yoke-yoke alignment key slots have been moved down to maintain the same relationship to the bus slot.

[4] The actual radius of the current design for the end clamp is 99 mm (3.9"). Additional radial space is reserved for the possibility of making the end clamp of aluminum which requires it to have a greater radial thickness.

Distribution

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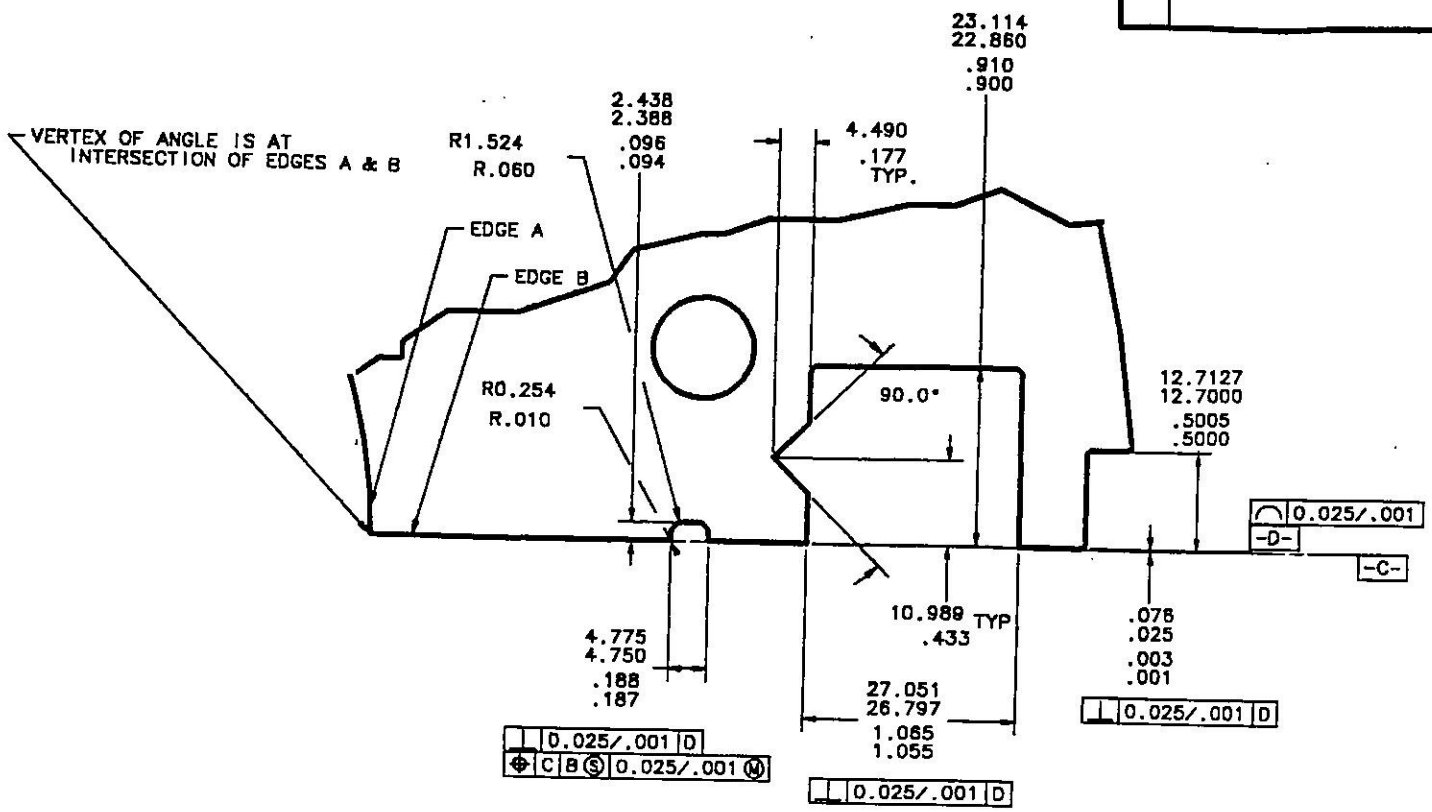
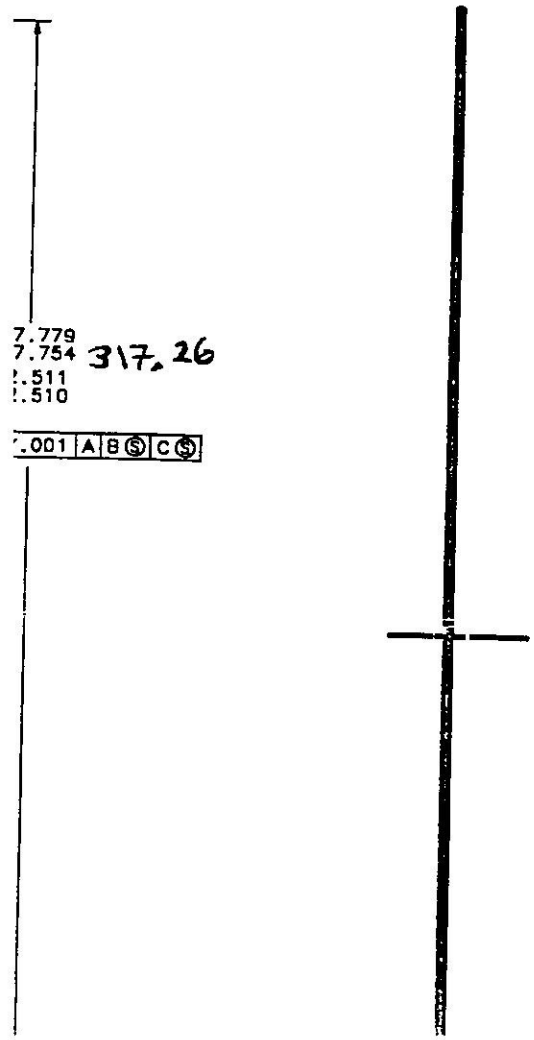
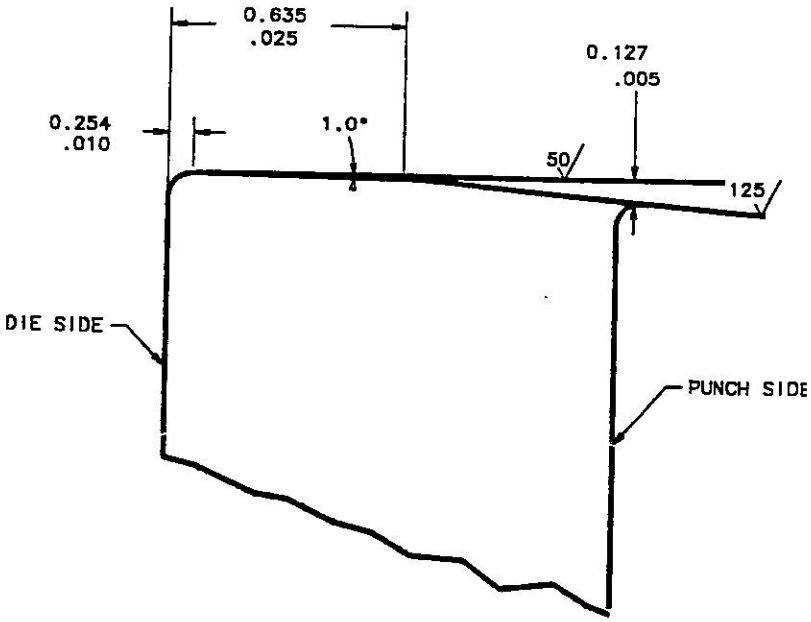
REV.	DESCRIPTION



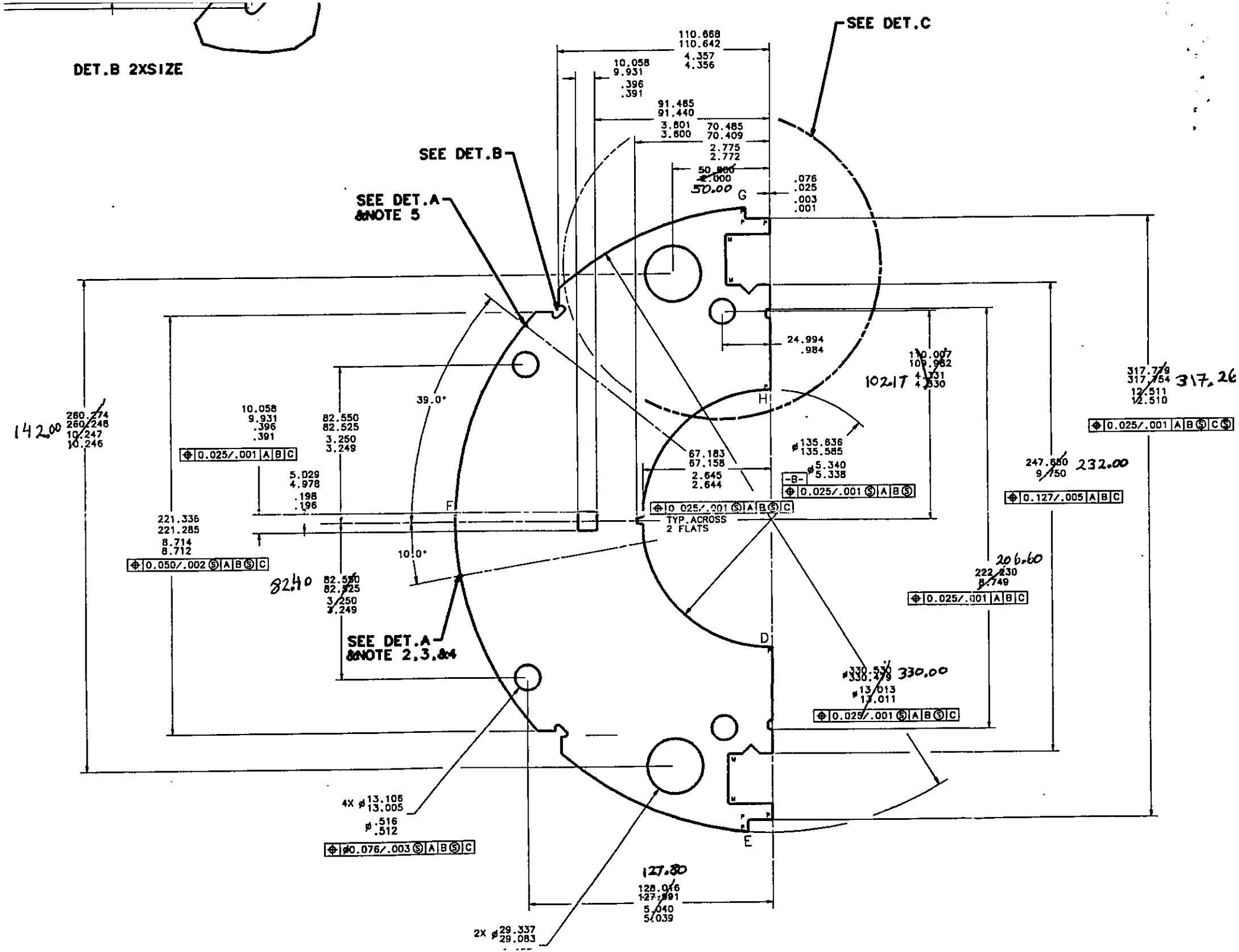
DET C 2XSIZE
SHOWN OUT OF POSITION

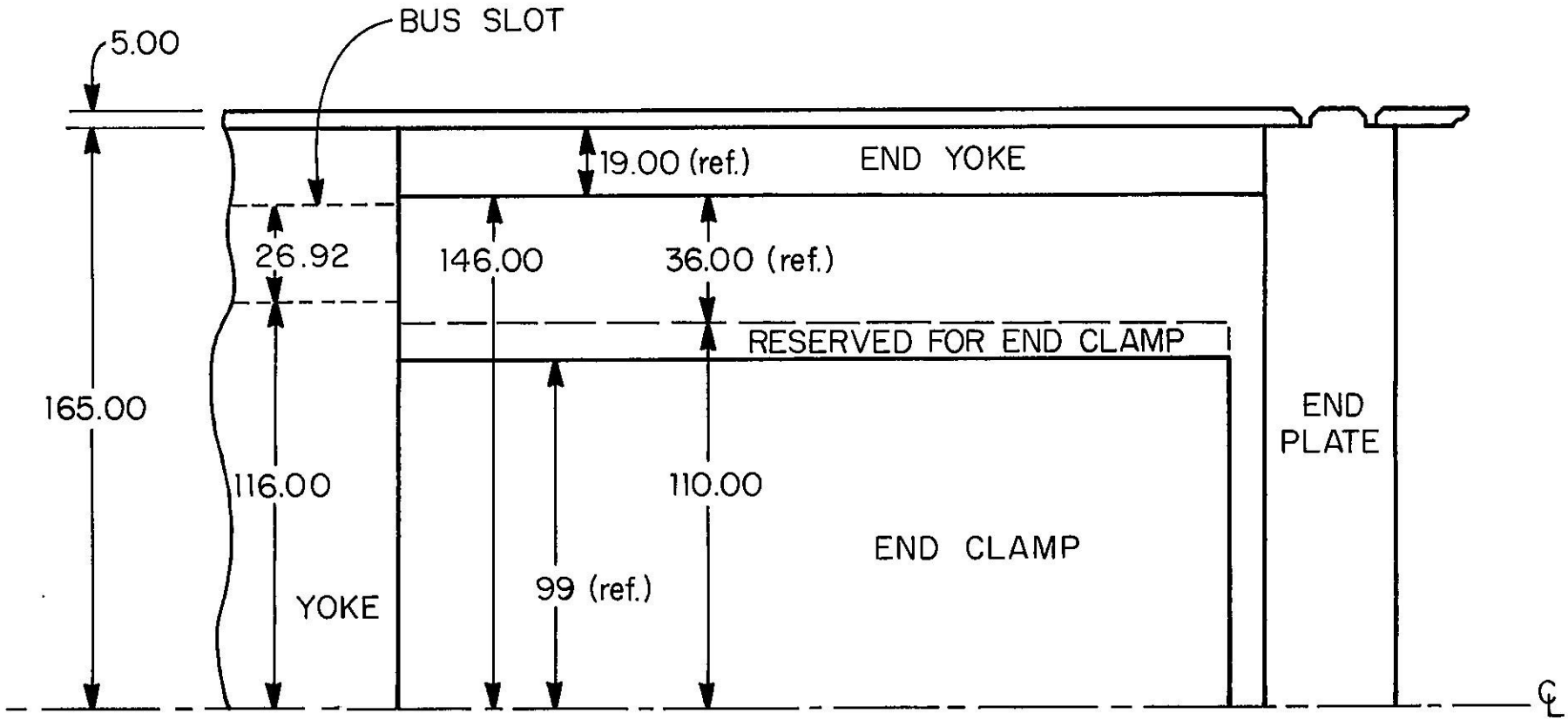




ENLARGED VIEW OF MAXIMUM MATERIAL
CONDITIONS FROM DIE OPERATIONS

CORNER RAD DATA


DET.B 2XSIZE
SEE DET.C
SEE DET.B
SEE DET.A
&NOTE 5
SEE DET.A
&NOTE 2,3,&4
110.668
110.642
4.357
4.356
10.058
9.931
.396
.391
91.485
91.440
3.601
3.600
70.485
70.409
2.775
2.772
50.000
50.00
.076
.025
.003
.001
G
24.994
.984
110.007
109.982
4.331
4.330
102.17
317.779
317.754
12.511
12.510
317.26
0.025/.001 A B C
142.00
260.274
260.246
10.247
10.246
10.058
9.931
.396
.391
82.550
82.525
3.250
3.249
39.0°
0.025/.001 A B C
5.029
4.978
.198
.196
67.183
67.158
2.645
2.644
ø135.636
135.585
ø5.340
5.338
-B-
0.025/.001 S A B S
247.650
9.750
232.00
0.127/.005 A B C
F
0.025/.001 S A B S C
TYP.ACROSS
2 FLATS
221.336
221.285
8.714
8.712
0.050/.002 S A B S C
10.0°
206.60
222.630
8.749
0.025/.001 A B C
82.40
82.550
82.525
3.250
3.249
D
ø330.530
330.479
330.00
ø13.013
13.011
0.025/.001 S A B S C
4X ø13.106
13.005
ø.516
.512
ø0.076/.003 S A B S C
E
127.80
128.016
127.991
5.040
5.039
2X ø29.337
29.083



PROPOSED MAGNET END
RADIAL DIMENSIONS (mm)

J. STRAIT 6-28-90