

AREA REQUIRED = $2.2Dt = 2.2 \times 3.375 \times .4985 \times 0.9$ ----- 3.331 SQ IN.

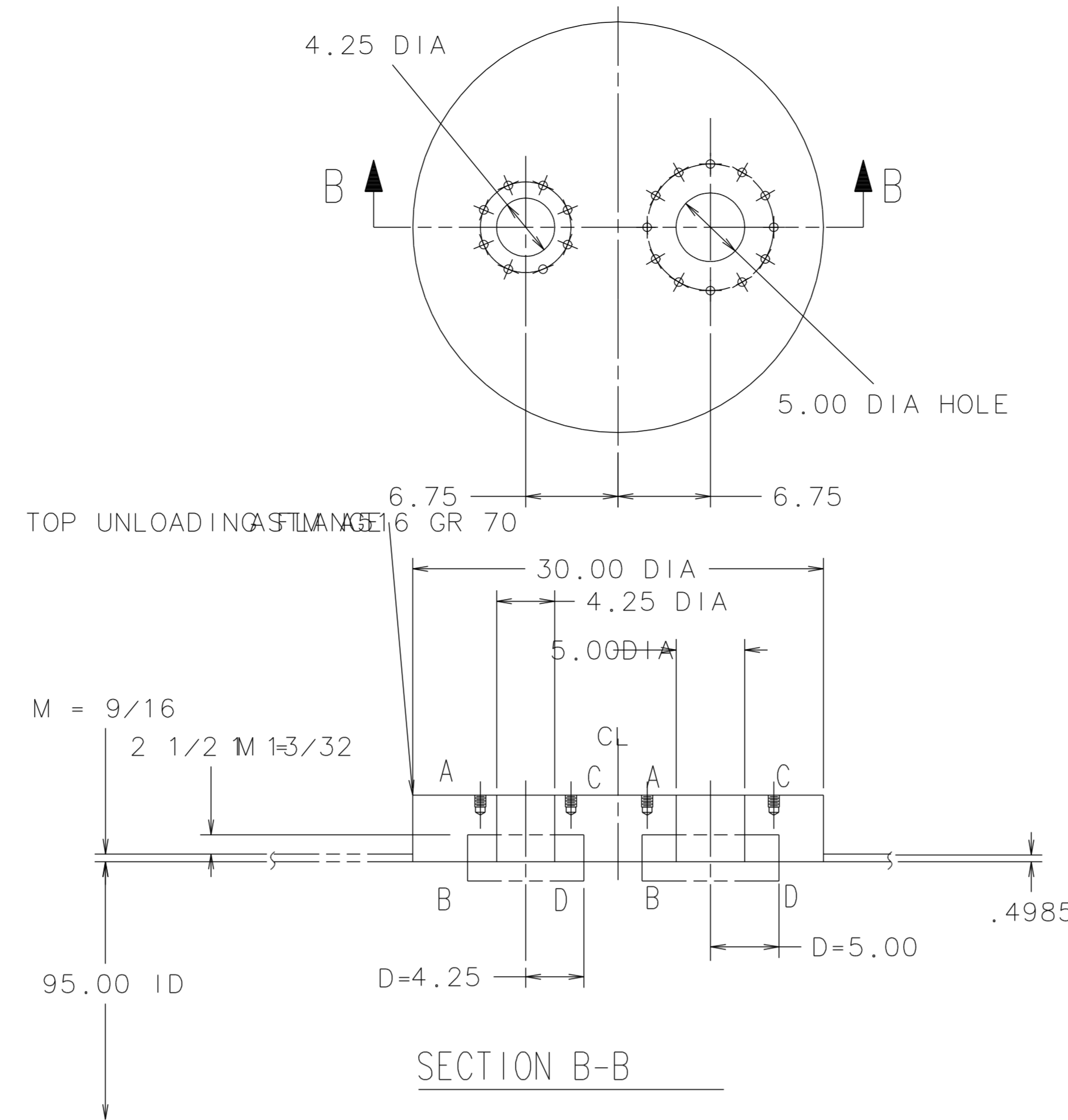
AREA AVAILABLE:

TANK SHELL: ----- 0.000 SQ IN.

FLANGE: $[2(3.375 - 3.375)(1 \frac{13}{32} + \frac{9}{16}) - 70,000]$
 81,000] ----- 5.742 SQ IN.
 FLANGE: $[2(.23 \times .34)](.5) - 70,000]$
 81,000] ----- 0.068 SQ IN.
 HOLES: $[2(.72) + .22](.62) - 70,000]$
 81,000] ----- -0.889 SQ IN.

TOTAL --- 4.921 SQ IN.
 AREA REQD --- 3.331 SQ IN.

EXCESS --- 1.590 SQ IN.



5.00 DIA HOLE
 AREA REQUIRED = $2.2Dt = 2.2(5.0)(.4985)(0.9)$ ----- 4.935 SQ IN.

AREA AVAILABLE:

TANK SHELL: ----- 0.000 SQ IN.

FLANGE: $[(2(5.00 - 5.00)] \times (1 \frac{13}{32} + \frac{9}{16}) - 70,000]$
 81,000] ----- 8.507 SQ IN.

TOTAL --- 8.507 SQ IN.
 AREA REQD --- 4.935 SQ IN.

EXCESS --- 3.572 SQ IN.

4.25 DIA HOLE
 AREA REQUIRED = $2.2Dt = 2.2(4.25)(.4985)(0.9)$ ----- 4.195 SQ IN.

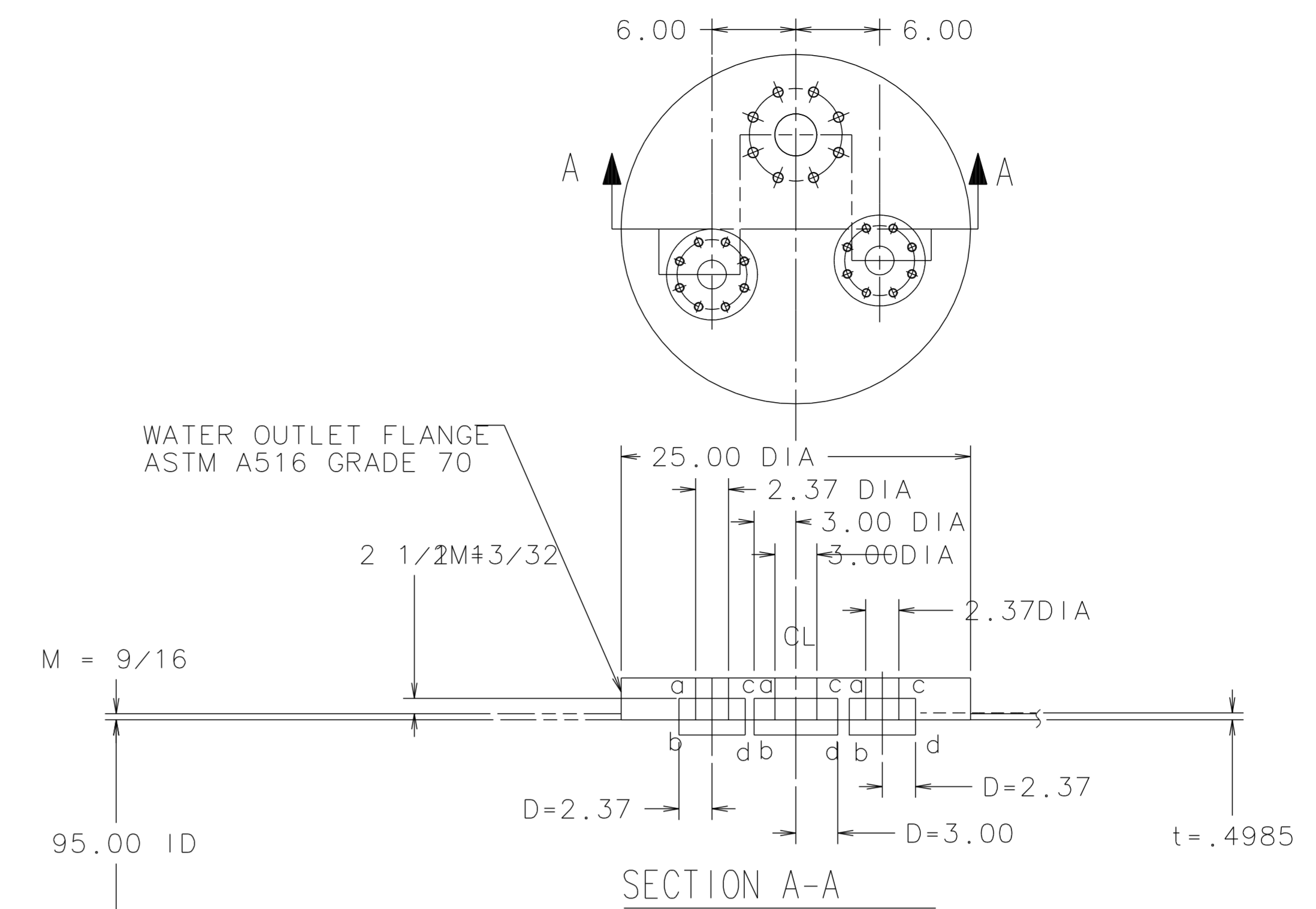
AREA AVAILABLE:

TANK SHELL: ----- 0.000 SQ IN.

FLANGE: $[(2(4.00 - 4.00)] \times (1 \frac{13}{32} + \frac{9}{16}) - 70,000]$
 81,000] ----- 7.231 SQ IN.

TOTAL --- 7.231 SQ IN.
 AREA REQD --- 4.195 SQ IN.

EXCESS --- 3.036 SQ IN.



2.37 DIA HOLE (2 PL)
 AREA REQUIRED = $2.2Dt = 2.2(2.37)(.4985)(0.9)$ ----- 2.339 SQ IN.

AREA AVAILABLE:

TANK SHELL: ----- 0.000 SQ IN.

FLANGE: $[(2(2.37 - 2.37)] \times (1 \frac{13}{32} + \frac{9}{16}) - 70,000]$
 81,000] ----- 4.032 SQ IN.

TOTAL --- 4.032 SQ IN.
 AREA REQD --- 2.339 SQ IN.

EXCESS --- 1.693 SQ IN.

3.00 DIA HOLE
 AREA REQUIRED = $2.2Dt = 2.2(3.00)(.4985)(0.9)$ ----- 2.961 SQ IN.

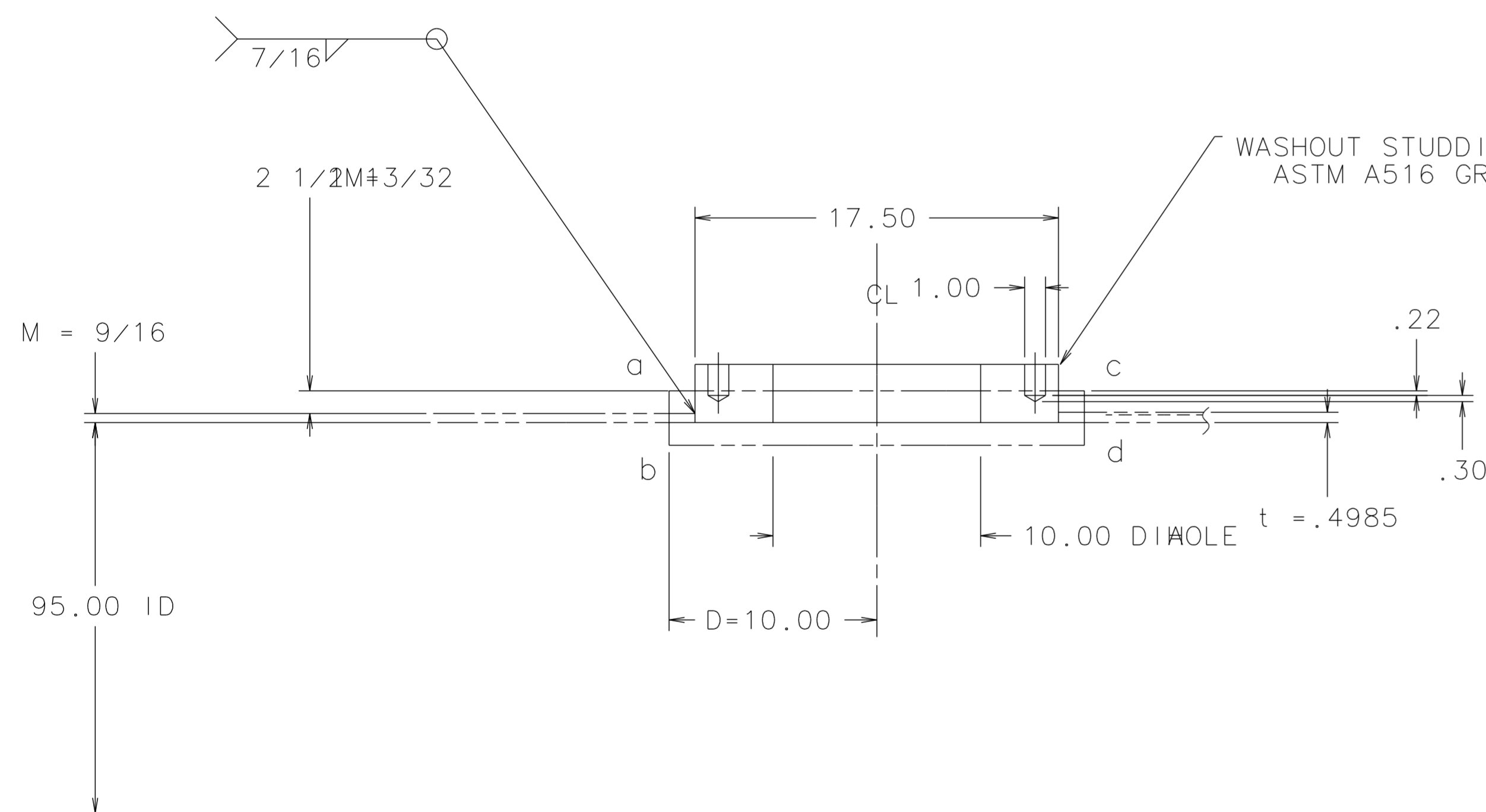
AREA AVAILABLE:

TANK SHELL: ----- 0.000 SQ IN.

FLANGE: $[(2(3.00 - 3.00)] \times (1 \frac{13}{32} + \frac{9}{16}) - 70,000]$
 81,000] ----- 5.104 SQ IN.

TOTAL --- 5.104 SQ IN.
 AREA REQD --- 2.961 SQ IN.

EXCESS --- 2.143 SQ IN.



AREA REQUIRED = $2.2Dt = 2.2 \times 10.00 \times .4985 \times 0.9$ ----- 9.870 SQ IN.

AREA AVAILABLE:

TANK SHELL: $[(2 \times 10.00) - 17.50](\frac{9}{16})$ ----- 1.406 SQ IN.

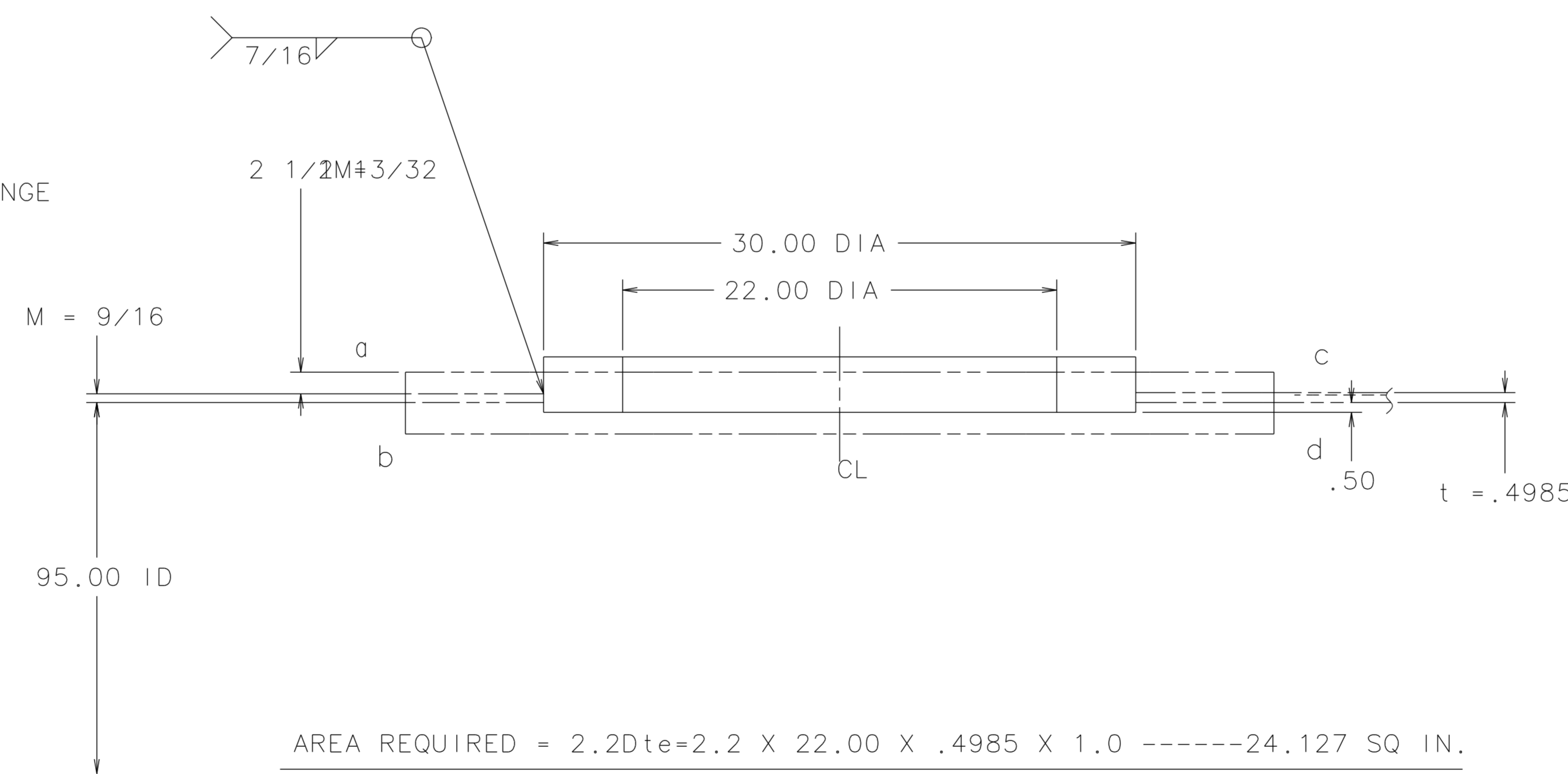
FLANGE: $(17.5 - 10.0)(1 \frac{13}{32} + \frac{9}{16}) - 70,000]$
 81,000] ----- 12.760 SQ IN.

WELD: $2(\frac{7}{16} \times \frac{7}{16}) \times .5 - 70,000]$
 81,000] ----- 0.165 SQ IN.

HOLES: $[2(.22) + .30](1.0) - 70,000]$
 81,000] ----- -0.640 SQ IN.

TOTAL --- 13.691 SQ IN.
 AREA REQD --- 9.870 SQ IN.

EXCESS --- 3.821 SQ IN.



AREA REQUIRED = $2.2Dt = 2.2 \times 22.00 \times .4985 \times 1.0$ ----- 24.127 SQ IN.

AREA AVAILABLE:

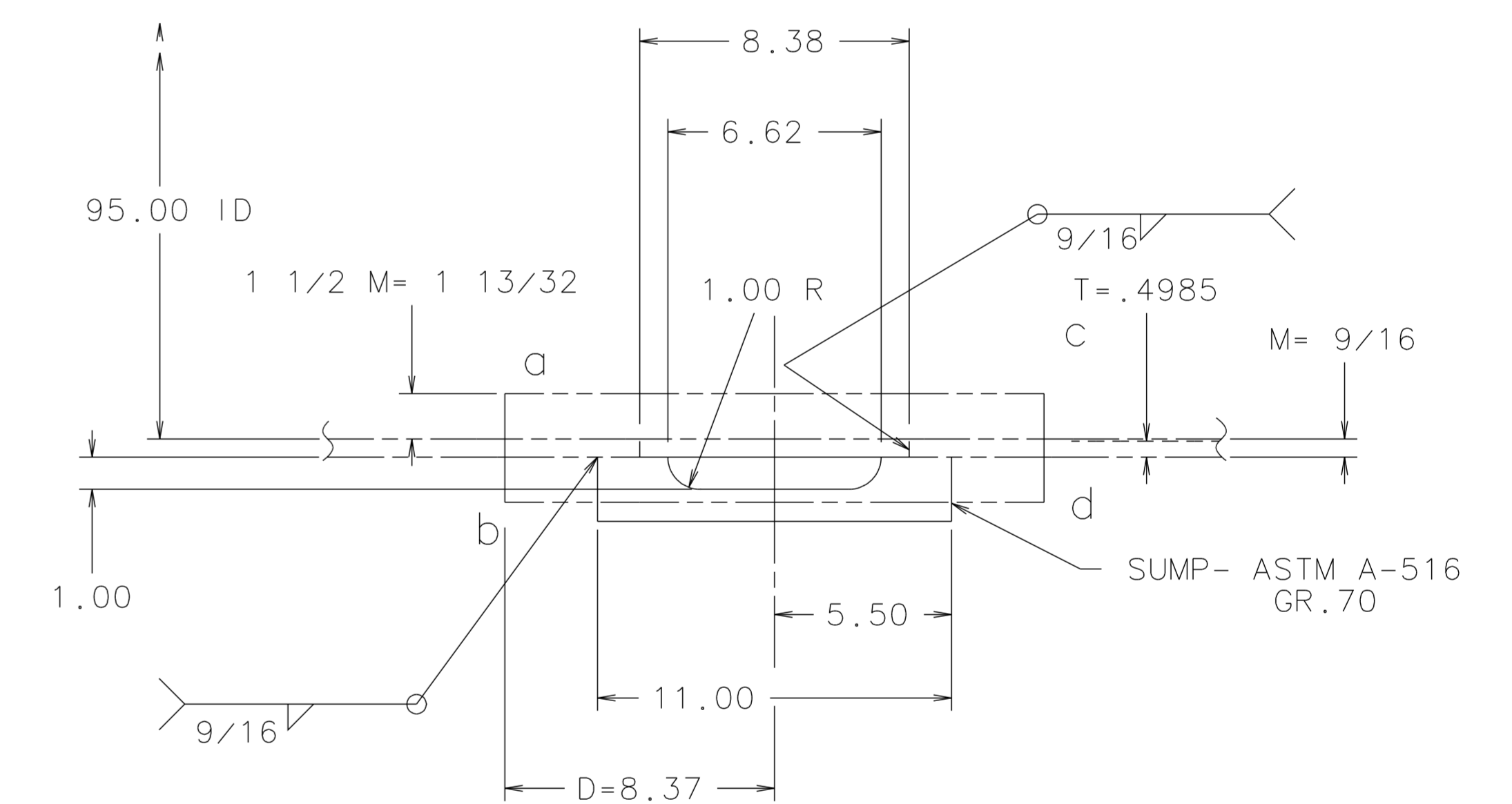
TANK SHELL: $[(2 \times 22.00) - 30.00](\frac{9}{16})$ ----- 7.875 SQ IN.

FLANGE: $(30.00 - 22.00)(1 \frac{13}{32} + \frac{9}{16} + .5) - 70,000]$
 81,000] ----- 17.068 SQ IN.

WELD: $2(\frac{7}{16} \times \frac{7}{16}) \times .5 - 70,000]$
 81,000] ----- 0.165 SQ IN.

TOTAL --- 25.108 SQ IN.
 AREA REQD --- 24.127 SQ IN.

EXCESS --- 0.981 SQ IN.



AREA REQUIRED: $2.2Dt = 2.2 \times 8.37 \times .4985 \times .9 = 8.261$ SQ IN.

AREA AVAILABLE:

TANK SHELL: $[(2 \times 8.37) - 8.37] \times \frac{9}{16}$ ----- 4.708 SQ IN.

SUMP FLANGE: $[(11 \times 1 \frac{13}{32}) - (6.62 \times 1.0)] - 70,000]$
 81,000] ----- 7.647 SQ IN.

CORNER RADIUS: $[2(1)(1)(1 - .25(3.14159))] - 70,000]$
 81,000] ----- 0.371 SQ IN.

WELD: $4(\frac{9}{16} \times \frac{9}{16} \times .5) - 70,000]$
 81,000] ----- 0.547 SQ IN.

TOTAL --- 13.273 SQ IN.
 AREA REQD --- 8.261 SQ IN.

EXCESS --- 5.012 SQ IN.

SHELL PLATE MATL AAR TC 128

$$t_{2SE} = \frac{Pd}{2SE} = \frac{850 \times 95.00}{2 \times 81,000 \times 1.0} = \frac{80.750}{162,000} = .4985$$

AAR APPLICATION NO. 951007

JCC 04-20-95

 PJD 05-01-95
 TBB 05-01-95

CALCULATIONS-
 NOZZLE REINF

5-U-7835
 NONE