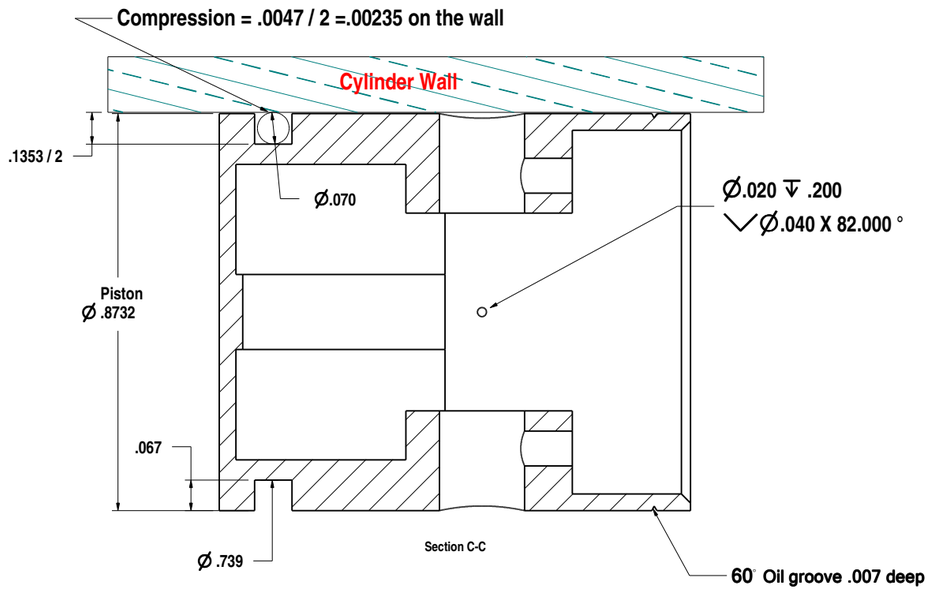
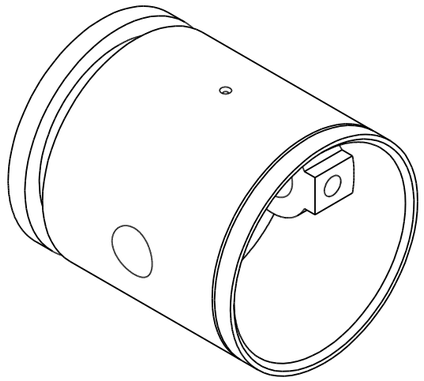


O - Ring Note

What I discovered about using an O-Ring (1/16 thick) for a piston was gathered from conversations with modelers who use them and actual measurements from several engines. What I discovered was that there seemed to be consistancy on the amount of "compression" that the O-Ring should have. Compression is defined as the total difference between the diameter of the O-Ring Groove and the cylinder ID. The number is between .004 and .005.



Measurements from three engines:

	Cylinder Bore	O-Ring Piston Groove OD	Difference	O-Ring Thickness (2 x O-Ring Dia.)	Total Compression
Engine 1	.8665	.731	.1355	.140	.0045
Engine 2	.8752	.740	.1352	.140	.0048
My Engine					
Target	.8743	.7393	.135	.140	.005
Actual	.8743	.739	.1353	.140	.0047

Procedure to the fit the Piston

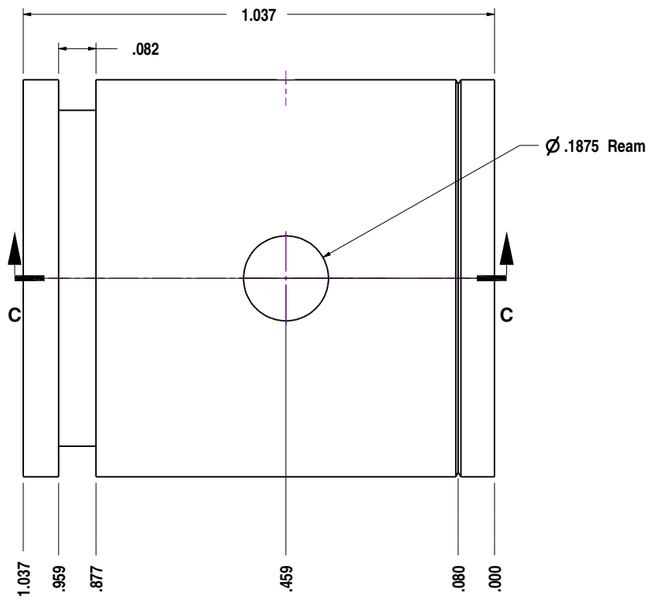
First, I bored the cylinder, then honed it. Now I have the Bore Diameter.

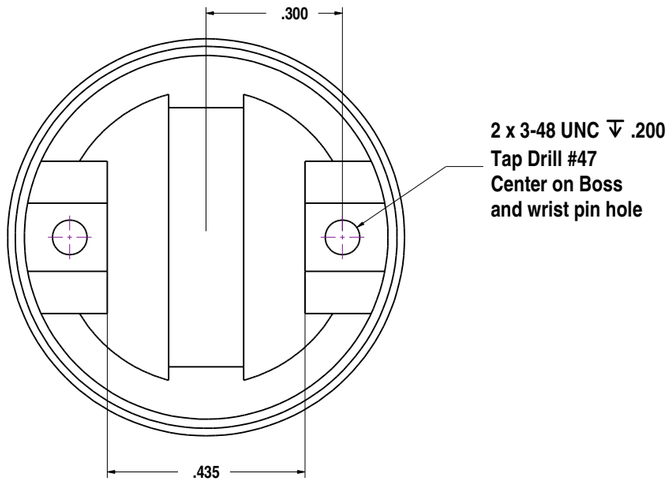
Second, I turned up the Piston to about .0005 - .001 less than the bore.

Third, I calculate the Groove OD:
O-Ring Cross Section Diameter x 2 minus .005. I then subtract that value from the Bore Diameter which provides the Groove OD.

Forth, I finish up all the other operations to finish the piston.

Last, I lap the piston until it stays at the top due to air compression and when you lift it off the table it just drops through the cylinder.





Bobs O-Ring Piston

Cast Iron casting
Cylinder Bore .8743
O-Ring .875 x .0625
(Actual Dem ID=.739, OD=.879, Diam=.070)

1/4 Scale Model C Gade by Morrison & Martin			
Model Modifications or New		SUBASSEMBLY: Cylinder	
PART: O-Ring Piston	DWG NO.		REV: 1
SCALE: 3 to 1	DATE: 3 / 12 / 2013	DRAWN BY: Bob Nawa	