

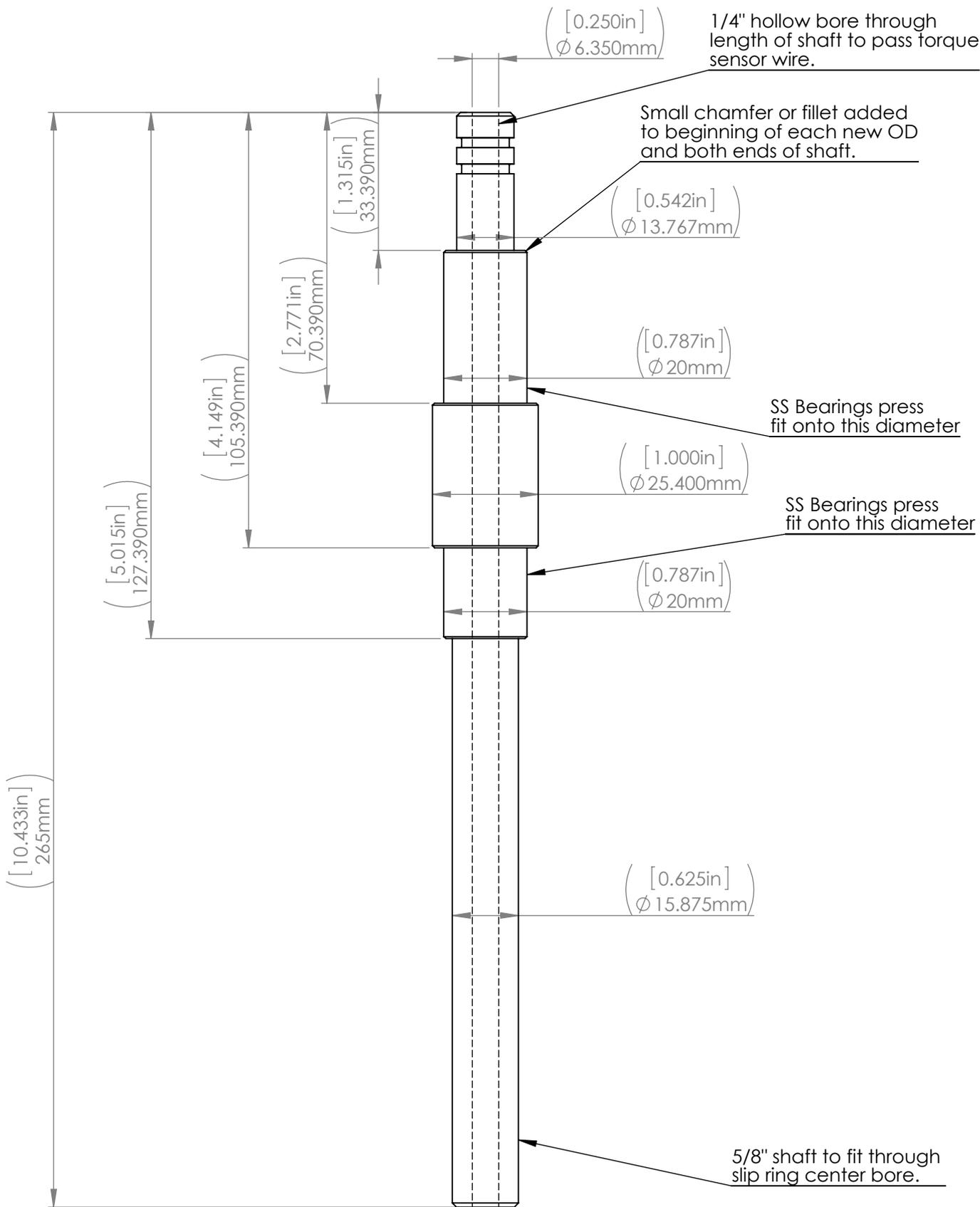
VIEW: Transparent

NOTES: The nacelle is a combination of many parts, houses the slip ring, and sprocket. The middle shell and side arm are made of aluminum and welded together to provide a water-tight seal.

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PART: Tidal Turbine Nacelle



VIEW: SIDE

NOTES: Custom stainless steel shaft. See details of O-ring groove dimensions on next sheet. Bearings need to be press fit onto OD of shaft.

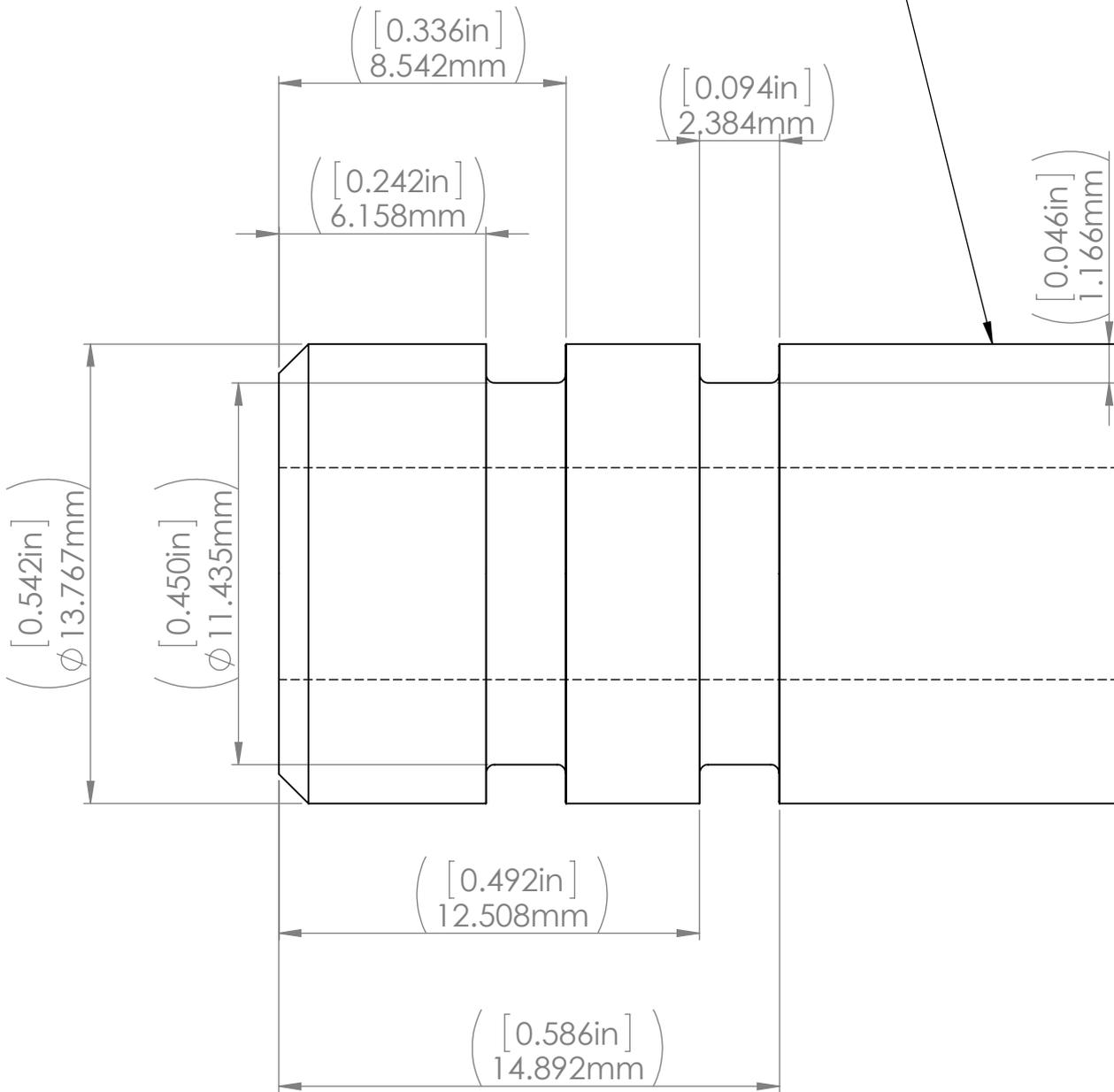
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MATERIAL: Stainless Steel

PART: Hollow Shaft

Dimple shaft after initial installation where set screws contact the shaft.

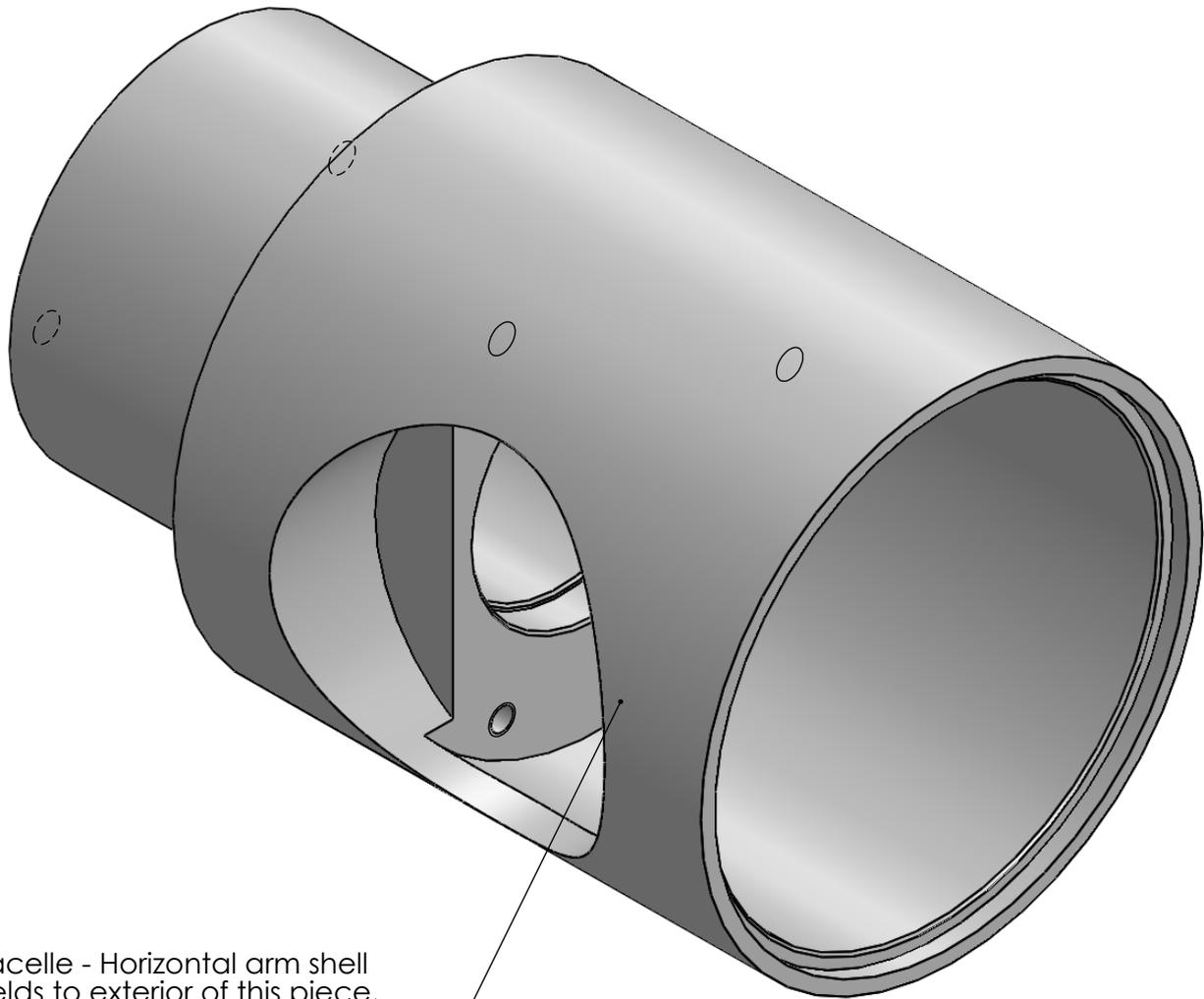


VIEW: O-Ring Groove

NOTES:

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PART: Hollow Shaft



Nacelle - Horizontal arm shell welds to exterior of this piece, creating a water-tight connection.

VIEW: 3D OVERVIEW

NOTES: Middle nacelle shell section. Start with solid aluminum bar. Multiple inner bore diameters accommodate various sized bearings, sprockets, seals, etc. Horizontal nacelle arm shell section welds perpendicular to this section.

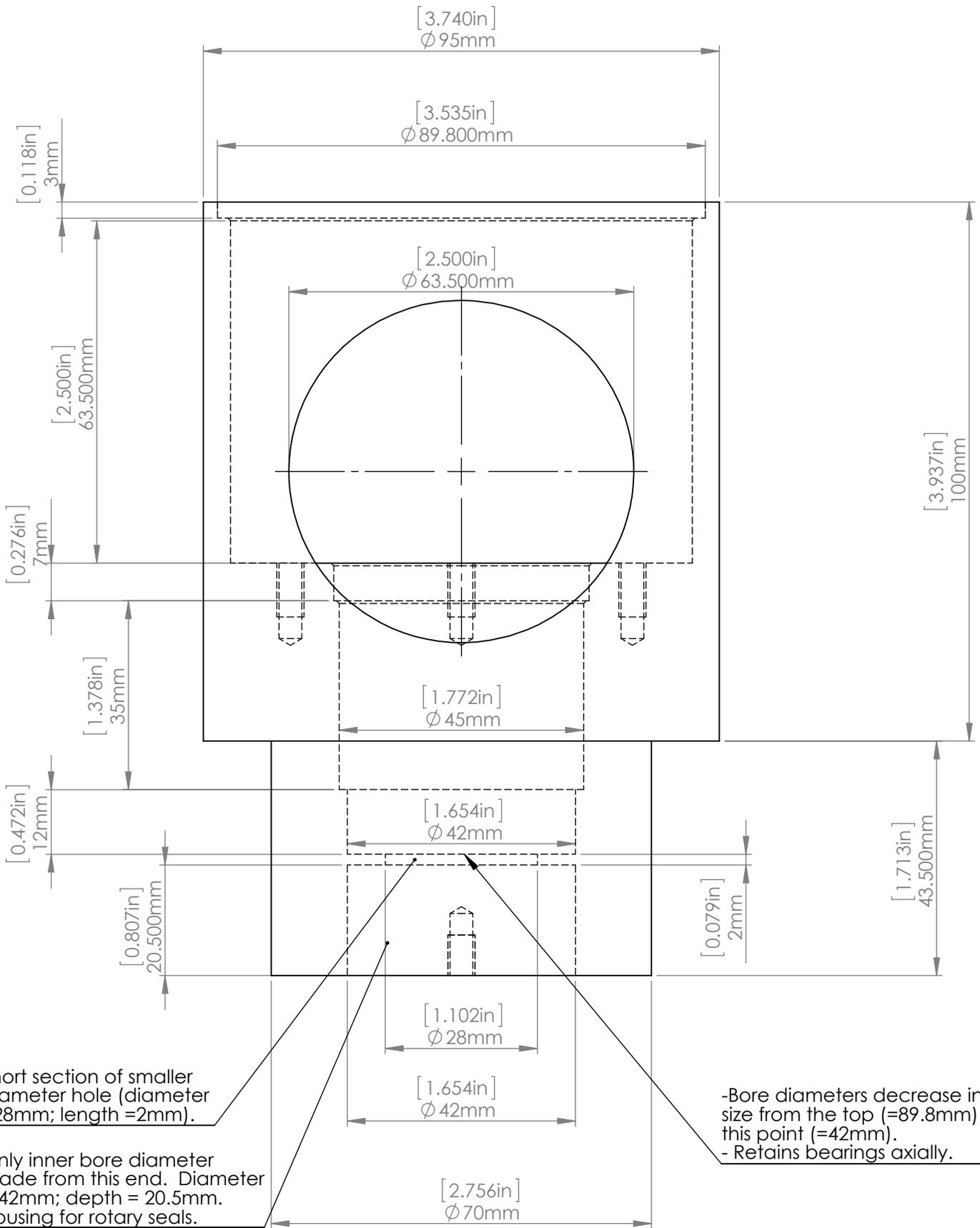
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Aluminum

PART: Nacelle - Middle Shell

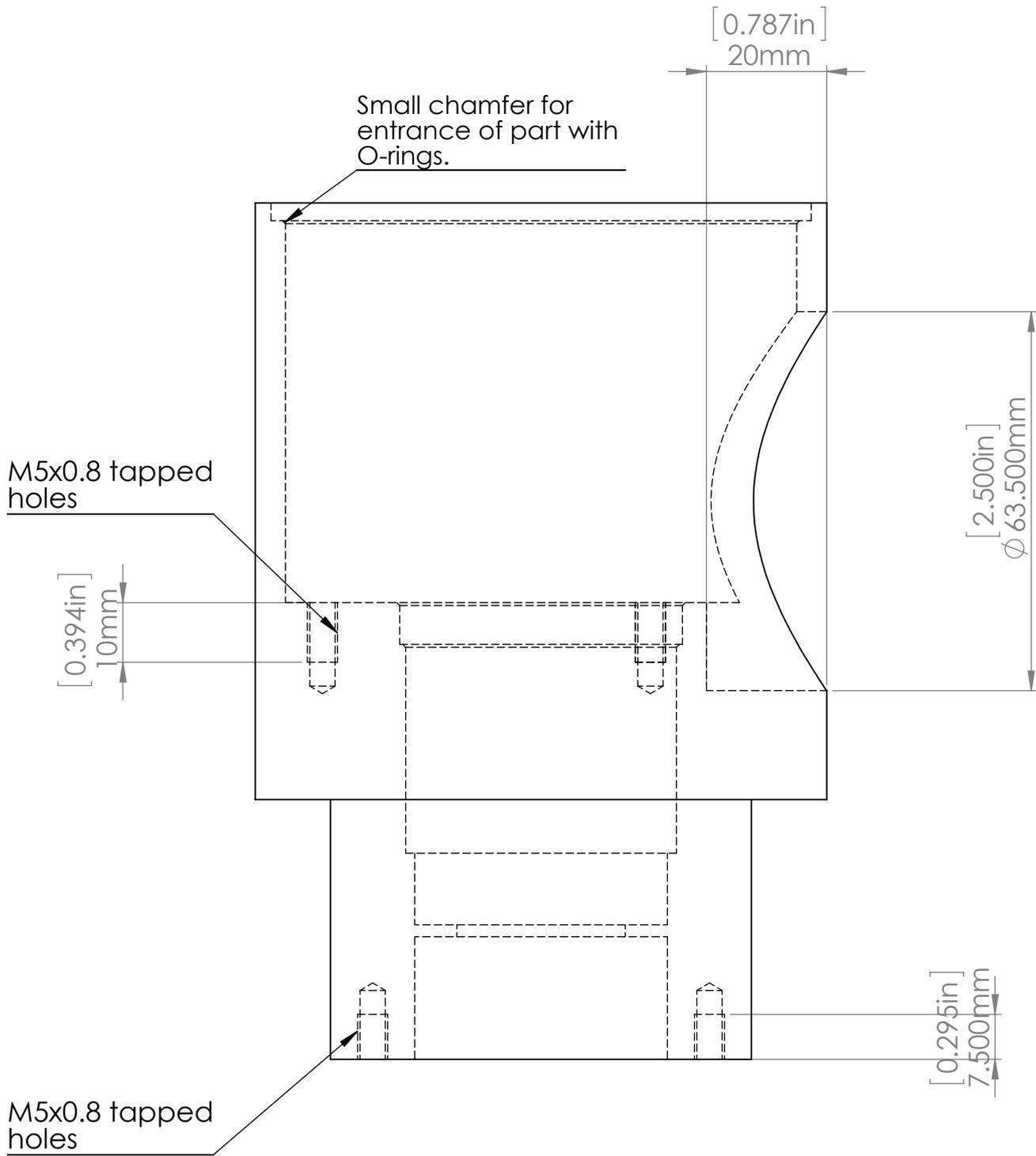


Short section of smaller diameter hole (diameter = 28mm; length = 2mm).

Only inner bore diameter made from this end. Diameter = 42mm; depth = 20.5mm. Housing for rotary seals.

-Bore diameters decrease in size from the top (=89.8mm) to this point (=42mm).  
- Retains bearings axially.

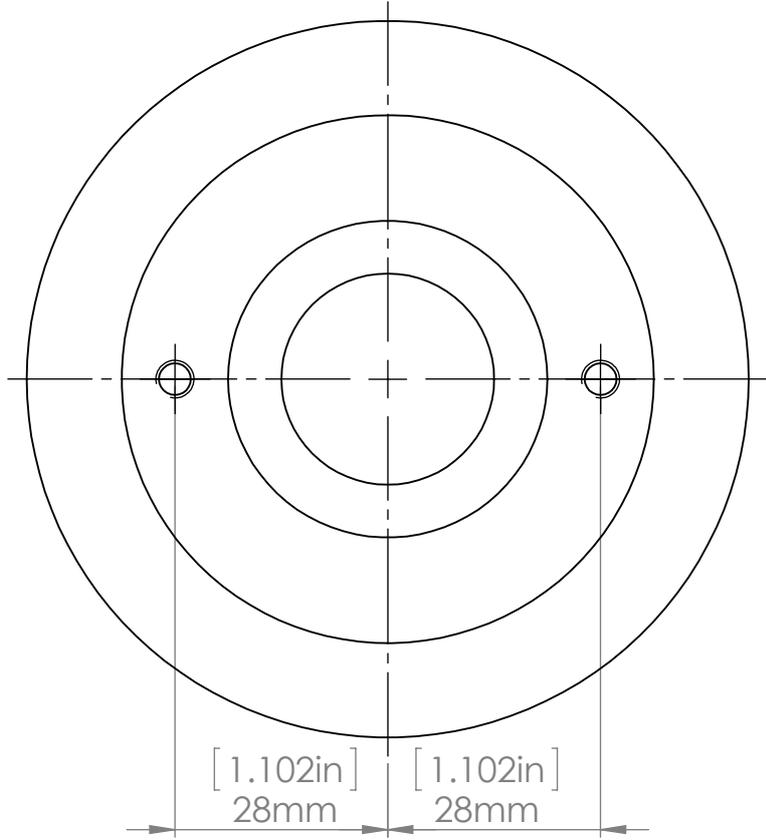
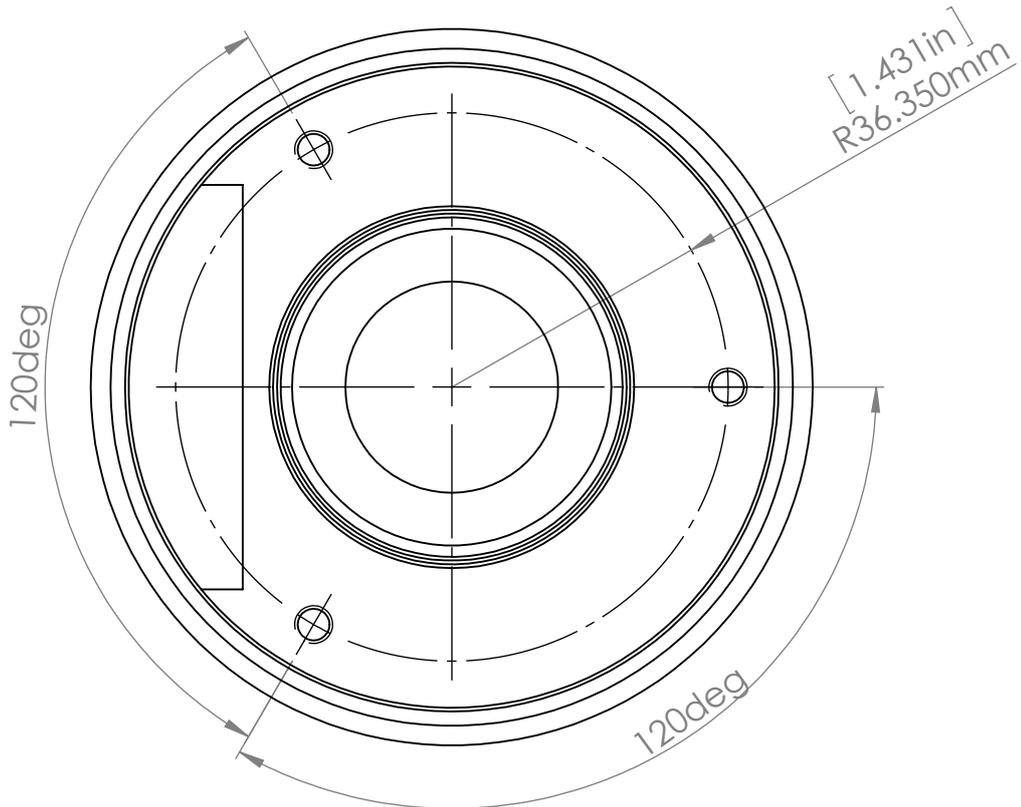
VIEW: SIDE		NOTES: Middle nacelle shell section. Start with solid aluminum bar. Multiple inner bore diameters accommodate various sized bearings, sprockets, seals, etc. Horizontal nacelle arm shell section welds perpendicular to this section.	
DRAWN BY	NAME	DATE	
  		SolidWorks Student Edition. For Academic Use Only. Aluminum	
PART:		Nacelle - Middle Shell	
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VIEW: TOP

NOTES: Middle nacelle shell section. Start with solid aluminum bar. Multiple inner bore diameters accommodate various sized bearings, sprockets, seals, etc. Horizontal nacelle arm shell section welds perpendicular to this section.

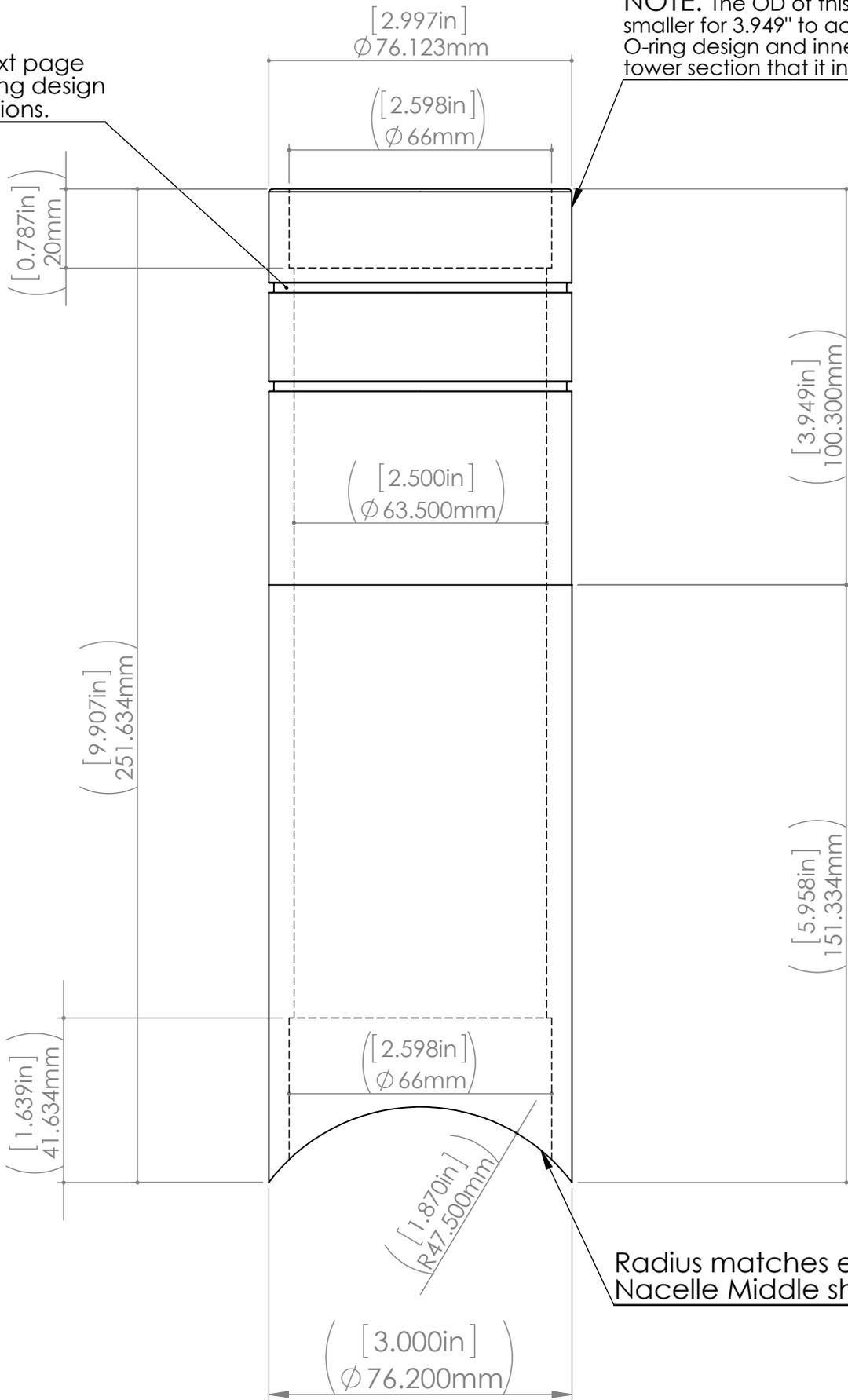
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VIEW: RIGHT, LEFT		NOTES: Middle nacelle shell section. Start with solid aluminum bar. Multiple inner bore diameters accomodate various sized bearings, sprockets, seals, etc. Horizontal nacelle arm shell section welds perpendicular to this section.
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  		PART: Nacelle - Middle Shell Material: Aluminum
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See next page for O-ring design dimensions.

NOTE: The OD of this pipe is slightly smaller for 3.949" to accommodate O-ring design and inner-bore of the tower section that it inserts into.



Radius matches exterior of Nacelle Middle shell.

VIEW:

TOP

NOTES:

Horizontal Side arm section with 2 O-rings. This piece gets welded to the exterior of the nacelle middle shell.

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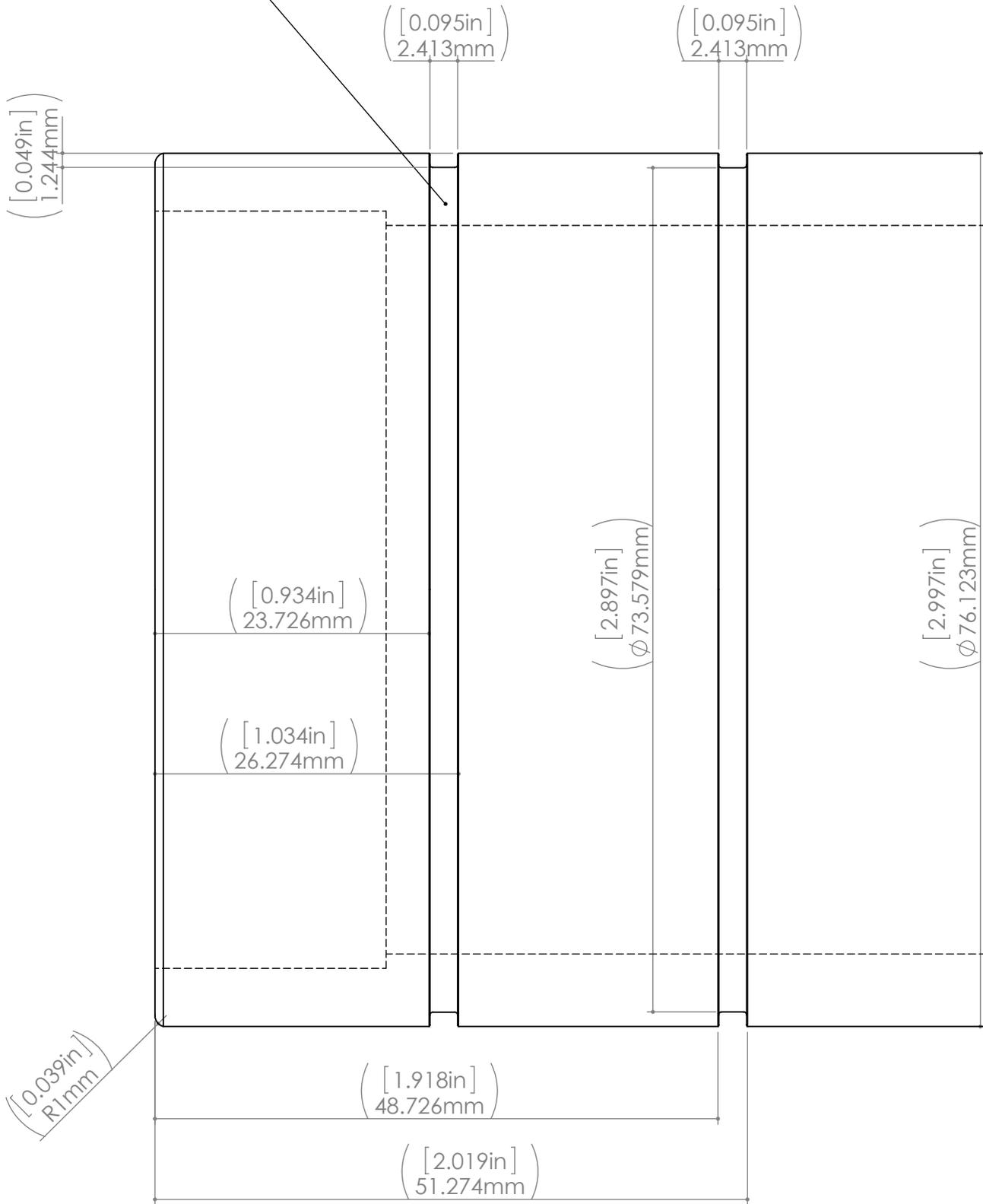
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Aluminum

PART:

Nacelle Side Arm

O-Ring grooves for AS568A-040



VIEW: O-Ring Grooves

NOTES: Close-up of O-ring groove design. This piece slides inside of the horizontal tube on the tower section with an ID of 3.000".

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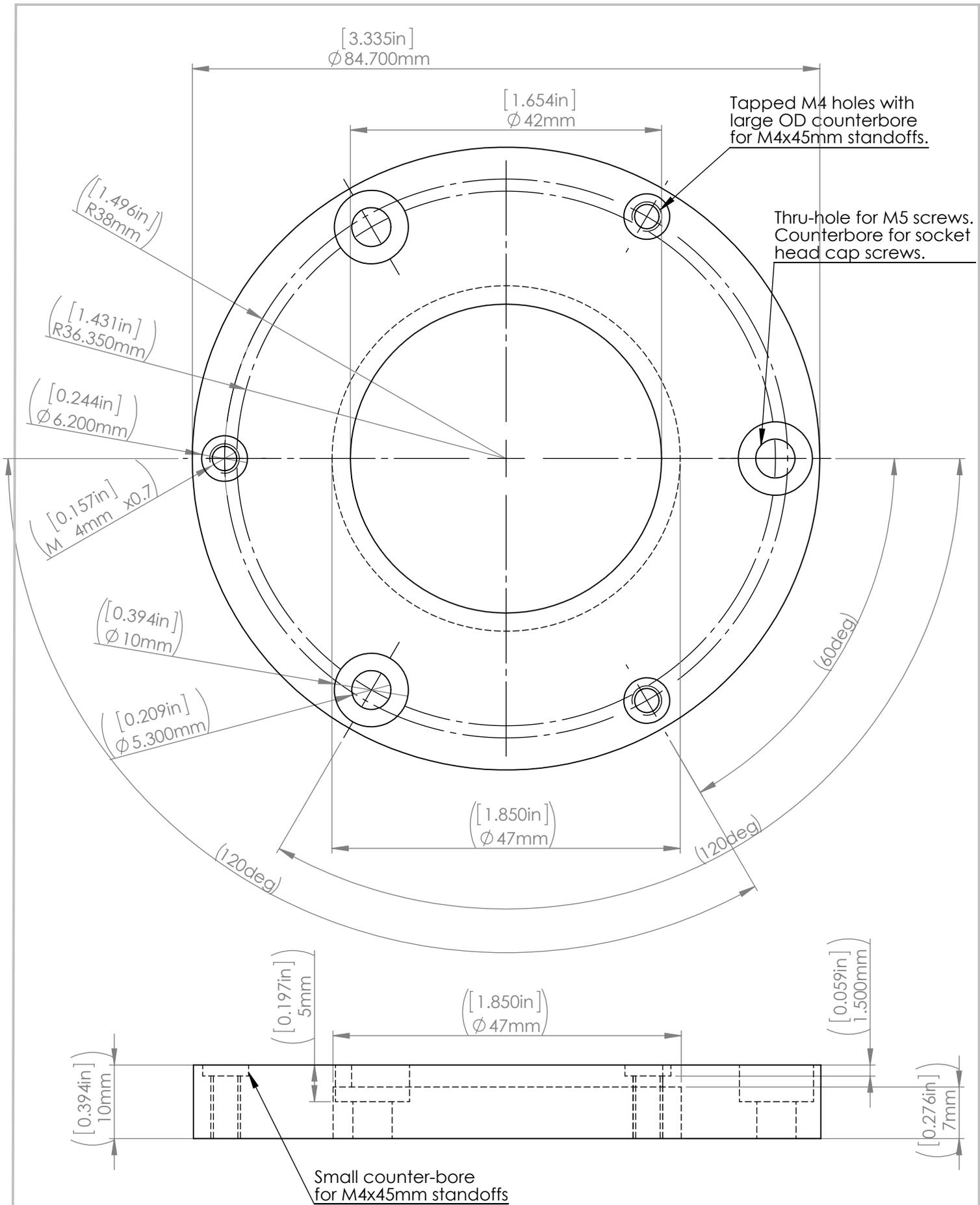
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Aluminum

PART:

Nacelle Side Arm

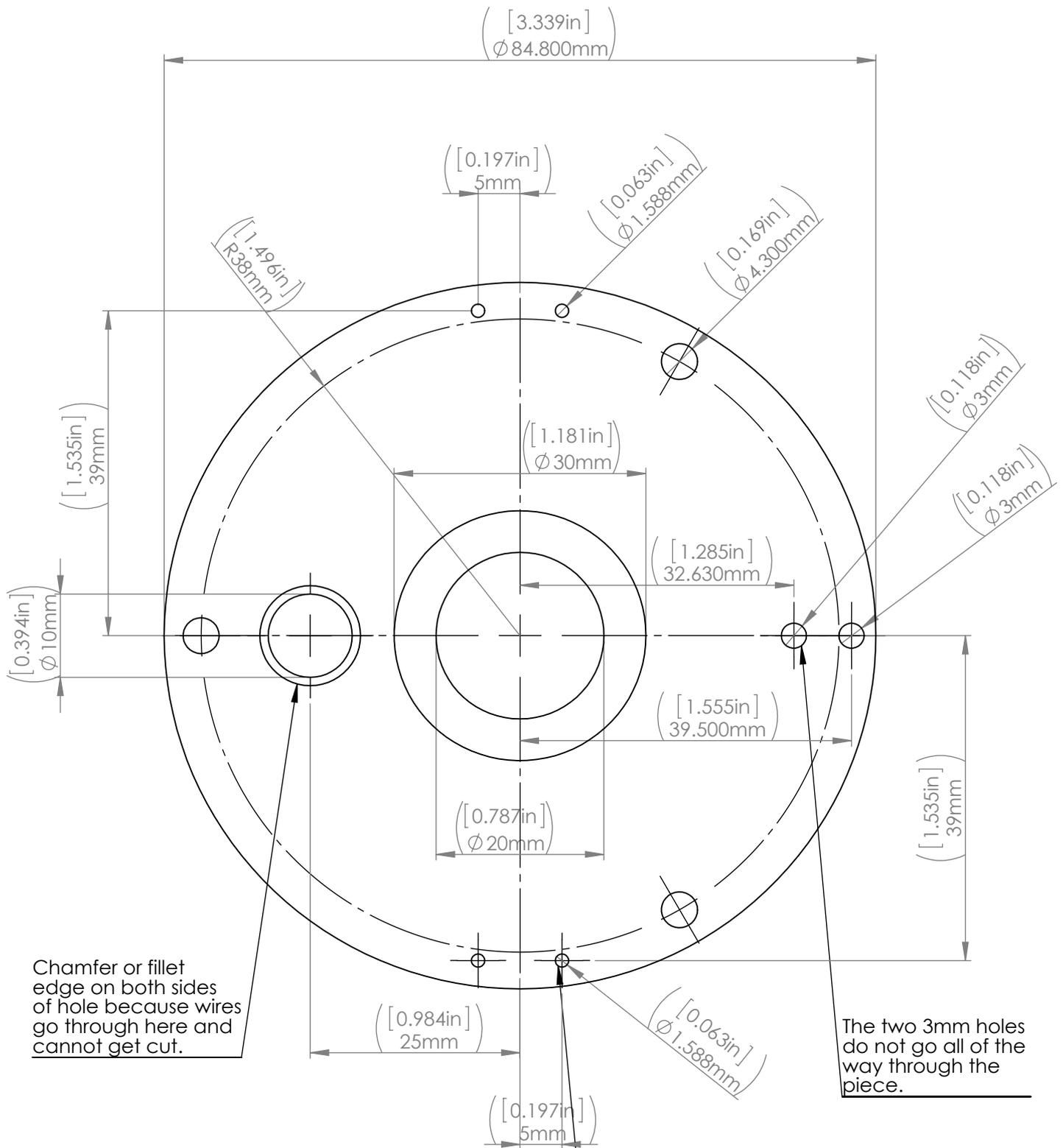


VIEW: TOP, SIDE

NOTES: Three counter-bored holes for M5 socket head cap screws attach this piece to the inside of the Nacelle Middle Shell. Another 3 small M4 threaded holes have a shallow counter-bore to nest the M4x45mm standoffs and are used for attached the downstream Nacelle insert piece.

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PART: Nacelle Inside Bearing Clamp



Chamfer or fillet edge on both sides of hole because wires go through here and cannot get cut.

The two 3mm holes do not go all of the way through the piece.

These 1/16" holes are for drain holes. One will remain open, and the other will have a 1/16" OD small tube press-fit into that will attach to a 1/16" suction tube.

VIEW: TOP

NOTES: Inserts into Nacell Middle Shell part way. 2 O-rings seal against Middle Shell and the Downstream Shell. Long hex cap screws thread through M4x45mm standoffs into the Bearing Clamp insert piece.

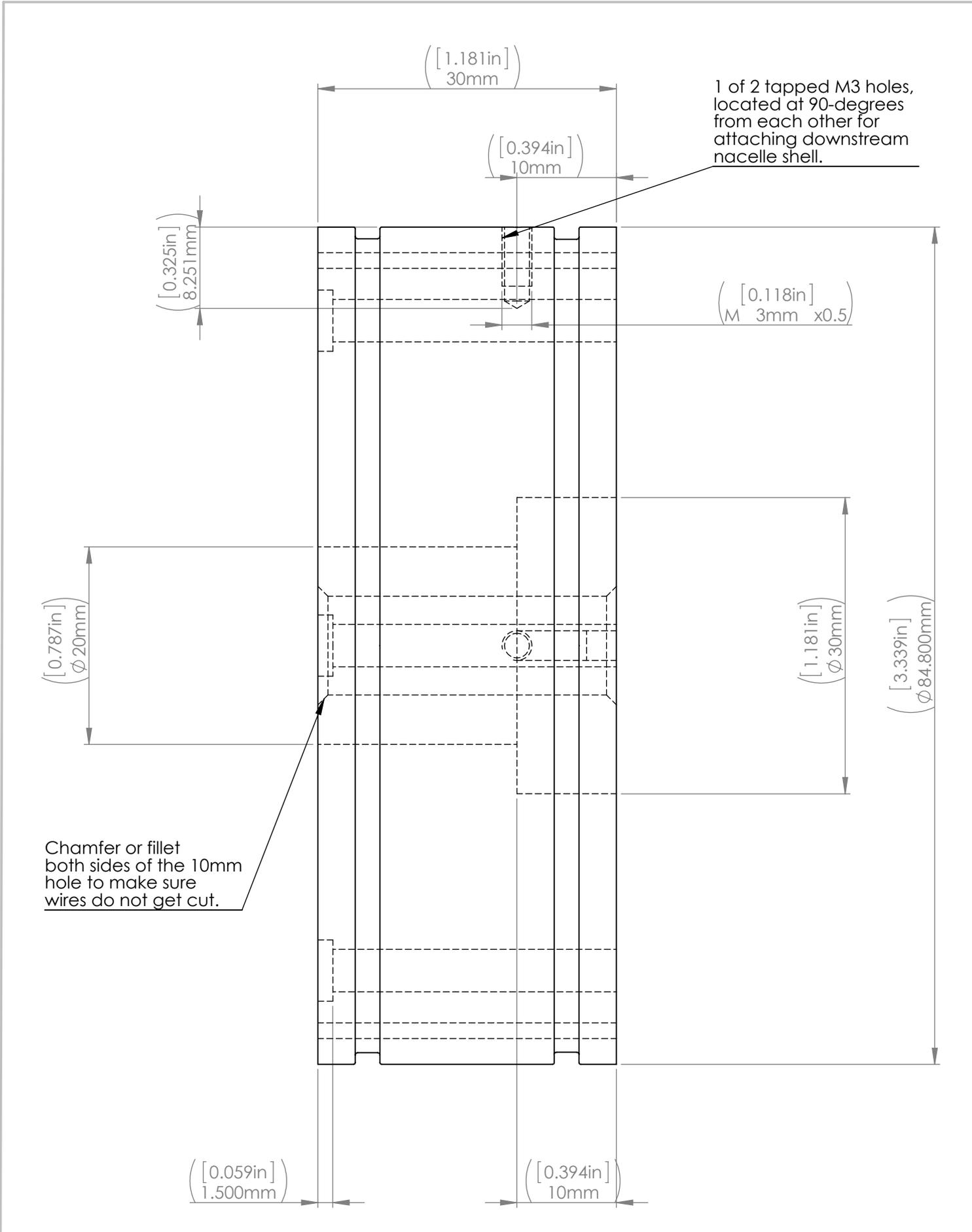
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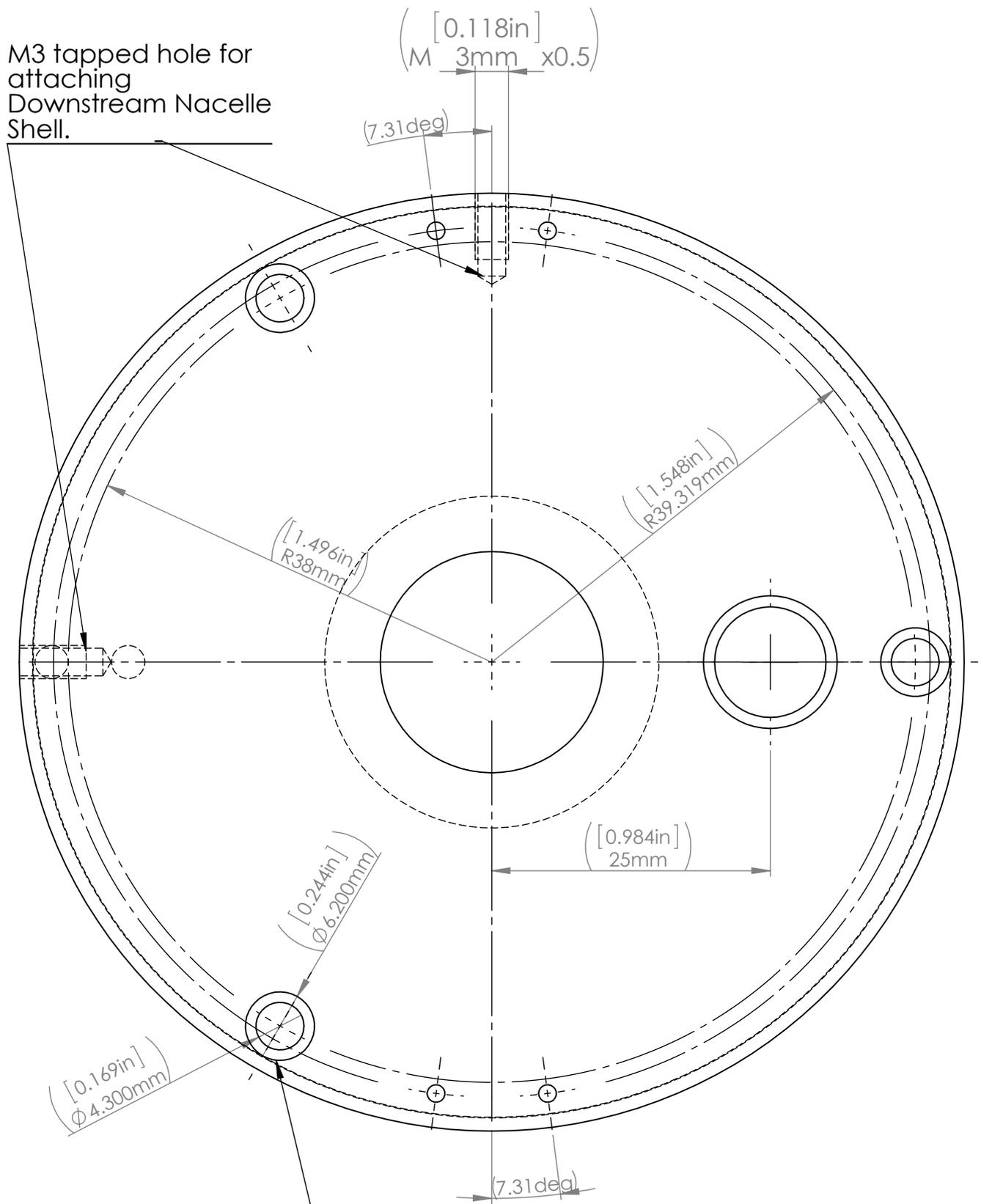
Aluminum

PART: Nacelle Downstream Insert



VIEW: SIDE		NOTES:	
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 		PART: Nacelle Downstream Insert Aluminum	
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M3 tapped hole for attaching Downstream Nacelle Shell.



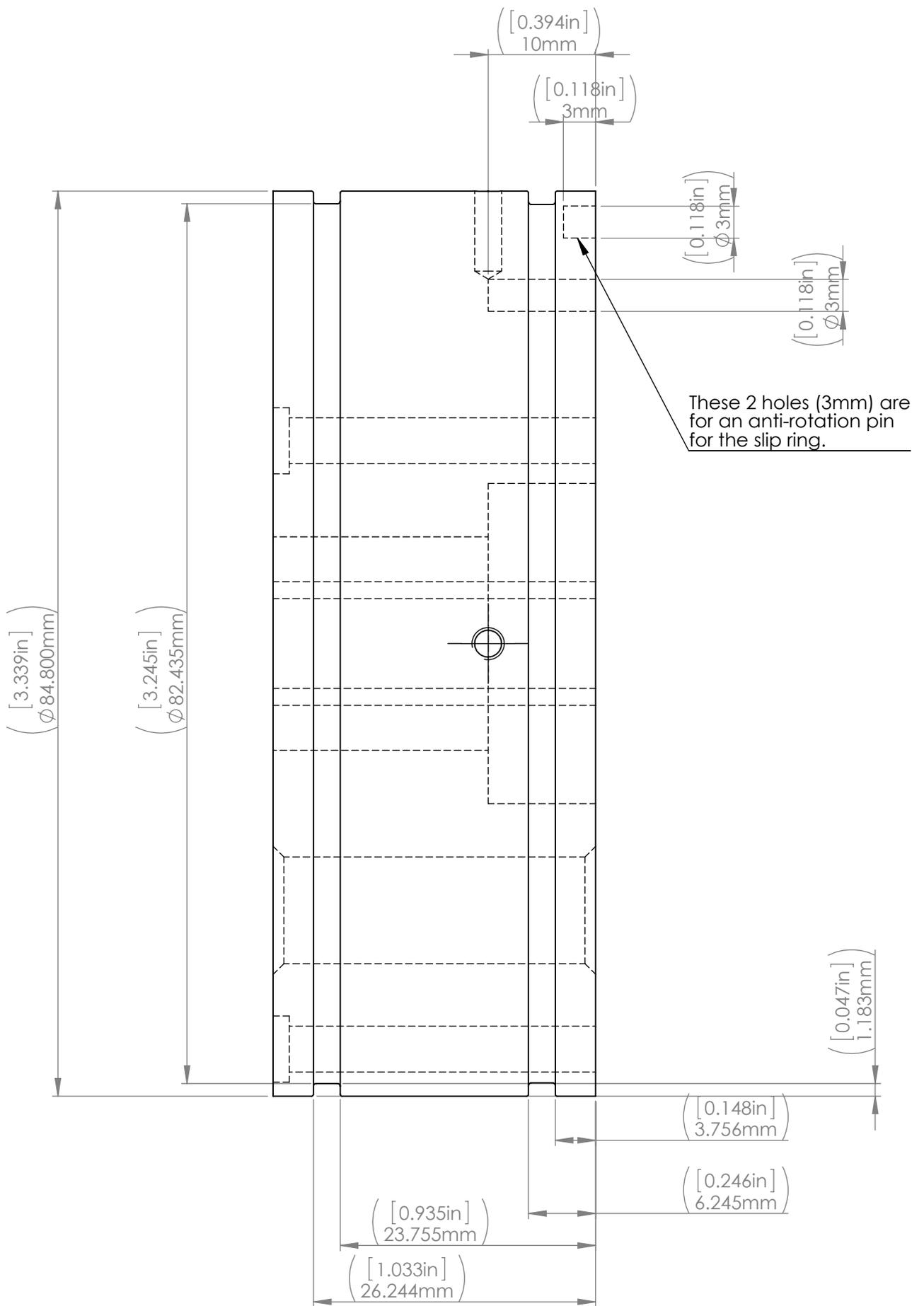
These 3 holes are thru-holes for long M4 socket head cap screws. On this side of the piece, there is a shallow counter-bore with OD 6.2mm for fitting the M4x45mm standoffs.

VIEW: BOTTOM

NOTES:

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PART: Nacelle Downstream Insert

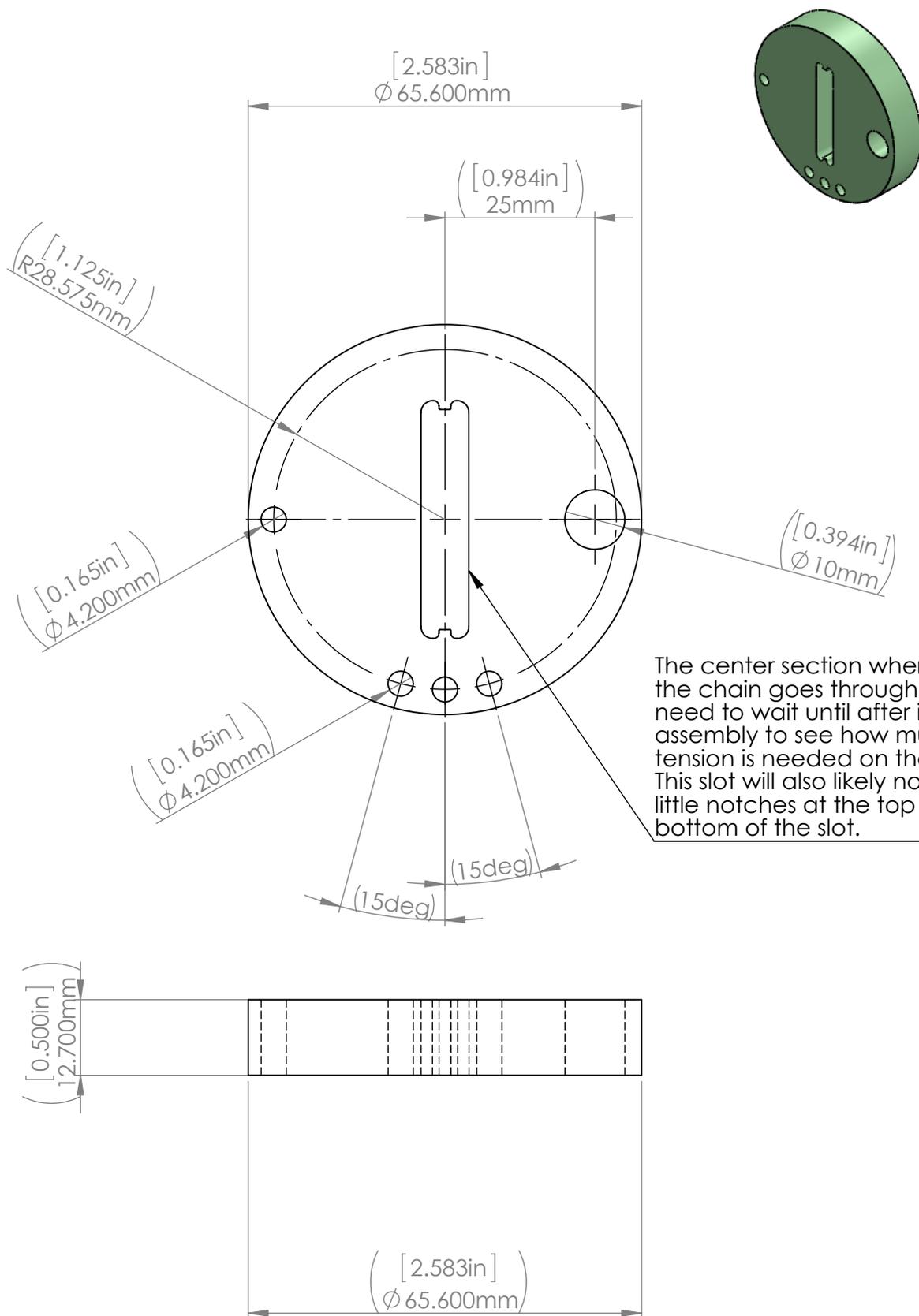


VIEW: SIDE 2

NOTES:

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 DATE: **Aluminum**

PART: Nacelle Downstream Insert



The center section where the chain goes through will need to wait until after initial assembly to see how much tension is needed on the chain. This slot will also likely not have little notches at the top and bottom of the slot.

VIEW: TOP, SIDE

NOTES: Custom made plastic chain guides that fit inside of the Nacelle side arm. Held together by #10-24 threadrod that tensions them together. Made from oil-impregnated plastic from McMaster.

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PART: Chain guides - Nacelle