


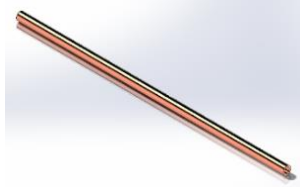

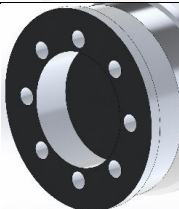
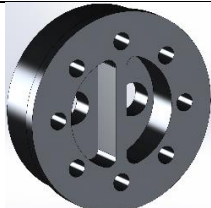

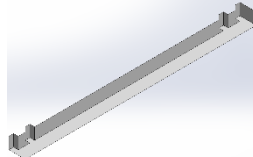
Operation/Assembly Manual

AH-64 Boeing Heat Exchanger Demonstrator

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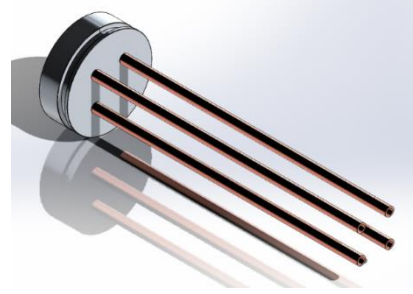
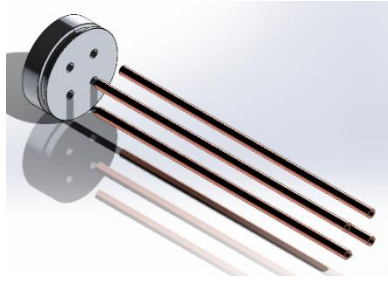
Parts List

Part Number	Description	Image	Quantity
1	JB Weld Marine		1
2	Copper Pipe		2
3	Inner End caps		2
4	End Cap 1		1
5	End Cap 2		1
6	Baffle		4
7	Baffle Stabilizer		2

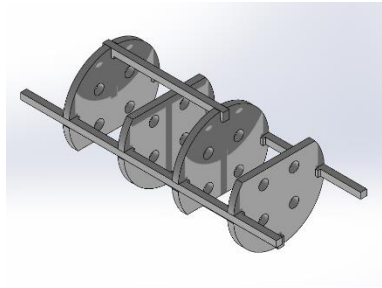
8	Baffle Main Support		2
9	Gasket 1		1
10	Gasket 2		1
11	3/16" O-ring		2
12	Male 1/2" NPT Barb fittings		4
13	5/16-24 1.5" cap head allen		8
14	5/16-24 1.75" cap head allen		8
15	Washer		16
16	Acrylic Shell		1

Assembly

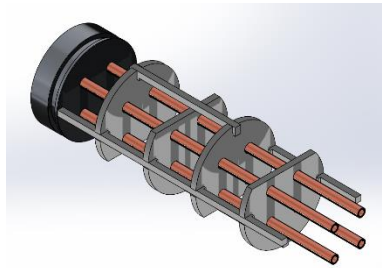
1. Affix four Copper Tubes (2) to first Inner End Cap (3-1) with JB Weld Marine (1); Allow to cure for 24 hours



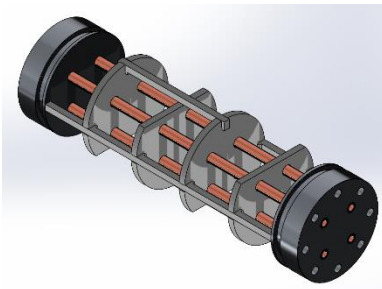
2. Affix Baffle Stabilizer (7) and Main Baffle Support (8) to Baffles (6), alternating Baffles by 180°.



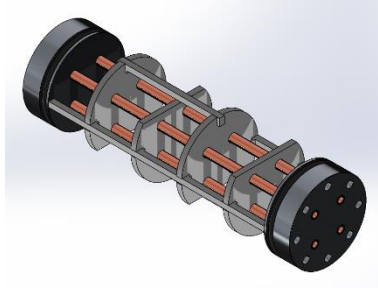
3. Slide Baffle-Spine assembly onto open ends of Copper Tubes



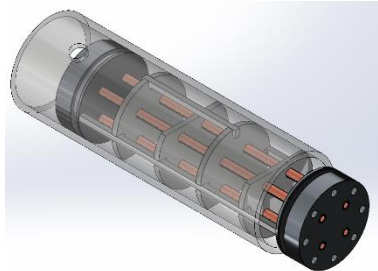
4. Affix other end of Copper Tubes to second Inner End Cap (3-2); Allow to cure for 24 hours.



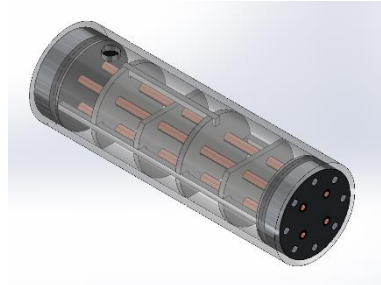
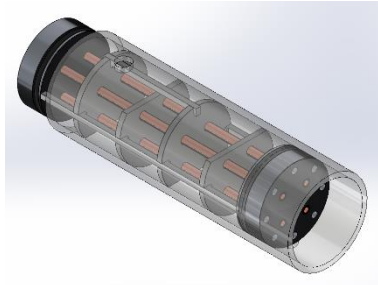
5. Place O-Ring in groove on first Inner End Cap.



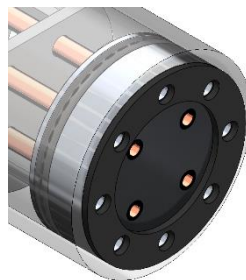
6. Slide assembly, empty groove first, into Shell (16) until empty groove is exposed from far end of Shell. Align inner assembly such that hole is opposite to the flat side of the nearest Baffle.



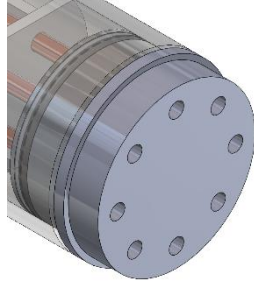
7. Place O-Ring in groove on second Inner End Cap (11-2); Slide assembly backward until Inner End Caps are flush with Shell.



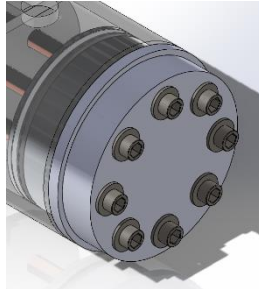
8. Align Gasket 1 (9) concentrically with first Inner End Cap (3-1).



9. Align End Cap 1 concentrically on top of Gasket 1.



10. Insert Bolts (13) with Washers (15) into End Cap 1 and tighten to 9ft-lbs.



11. Align Gasket 2 (10) concentrically with second Inner End Cap (3-2).

12. Align End Cap 2 (5) concentrically on top of Gasket 2.

13. Insert Bolts (14) with Washers (15) into End Cap 2 and tighten to 9 ft-lbs.

14. Insert Male ½” NPT Barb Fittings (12) into Shell holes (16) and End Cap 2 holes (5)

15. Reverse steps for disassembly; JB Weld can be removed using acetone and heat.

Operation

Affix to desired fluid loop setups to heat exchanger. Cold fluid loop should be attached to shell side barbs. Hot fluid loop should be attached to end cap side barbs.

Maintenance

1. Drain and dry periodically to prevent mold buildup.
2. Remove inner assembly and clean copper pipes to mitigate fouling.
3. Replace O-Rings, Gaskets, and JB Weld every 100 hours of operation.

Troubleshooting

1. JB Weld Leak
 - a. Remove JB Weld
 - b. Clean surfaces with acetone
 - c. Reapply JB Weld
2. Gasket Leak
 - a. Unscrew Allens from affected Gaskets and End Caps
 - b. Ensure full alignment between End Caps and Gaskets
 - c. Retorque Allens down to 9 ft-lbs
 - d. If leaks continue, replace gasket
3. O-Ring Leak
 - a. Remove outer end caps and remove inner assembly
 - b. Replace O-Ring
 - c. Reassemble inner assembly and end caps