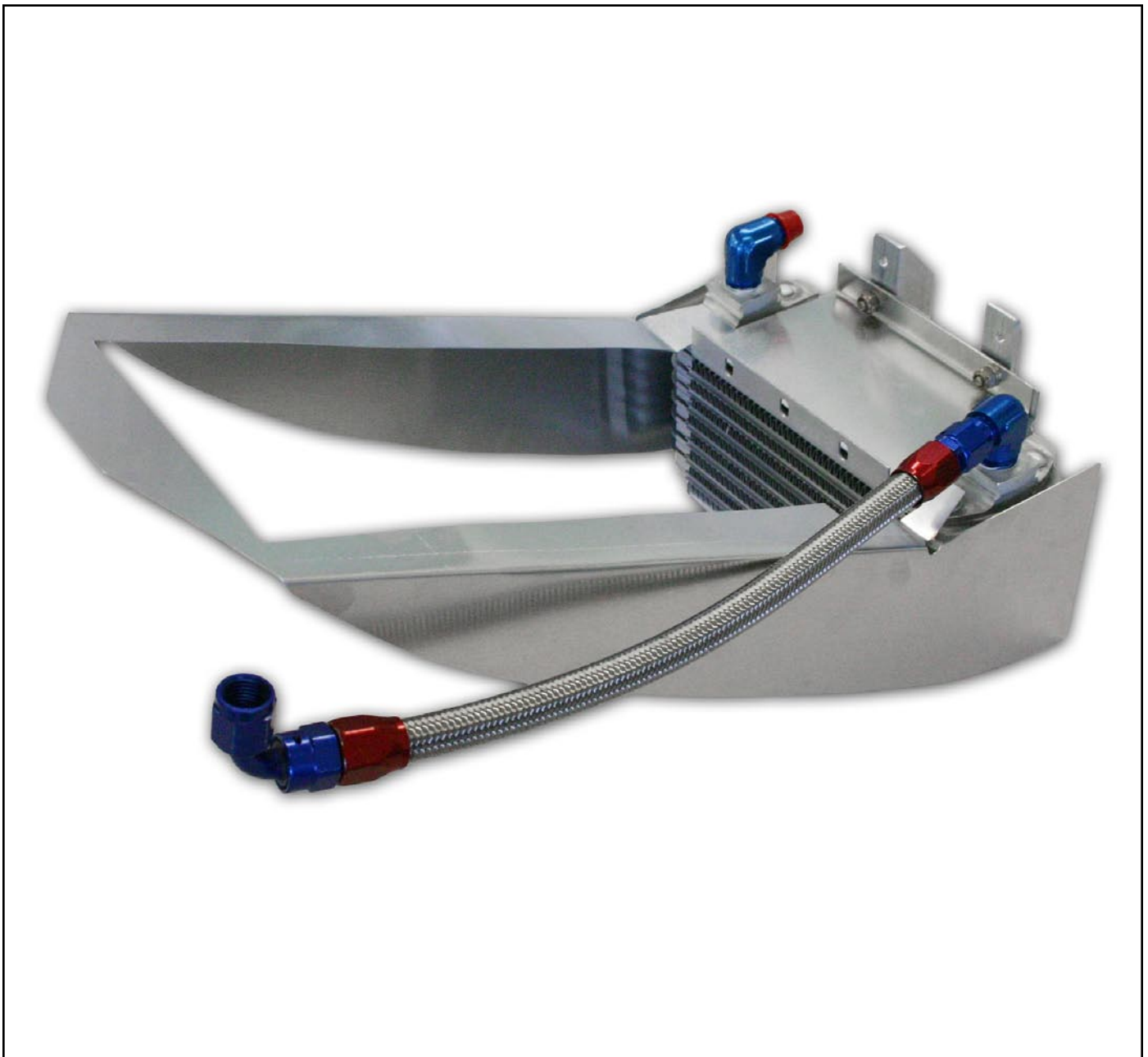




Aero-Classic Oil Cooler Upgrade

JABIRU 3300 OIL COOLER UPGRADE



AeroClassics Oil Cooler

This guide was written to help you achieve a dependable, proven Jabiru engine installation in your Sonex airframe using the Sonex/Jabiru Installation Kit. This Sonex/Jabiru specific guide supplements the Sonex drawings, Jabiru-provided manuals, and AeroCarb manual, but does not replace them. Used together, these resources will help you duplicate the Sonex-recommended Jabiru installation which has been proven successful through hundreds of flight hours.



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TABLE of CONTENTS

Materials List 3

- Materials List
- Materials Shopping List by Supplier

Oil Cooler Installation 4

Manufacture the Oil Cooler Brackets

- Modify the Oil Cooler
- Install the Oil Cooler and Shroud
- Notes on Oil Cooling and Duct Sealing
- Jabiru 2200 Oil Cooler Installations
- Plumb the Oil Cooler

Drawings Appendix A

- Oil Cooler Bracket, SNX-P20-42
- Oil Cooler Support, SNX-P20-43

Materials List

The following materials will be needed to install the Aero-Classics oil cooler. This list is also organized by supplier on the next page.

Important: Your particular installation may require items not listed here. This is only a suggested list of the most commonly needed parts.

Sonex Provided Parts

- SNX-P-20-44, Qty. 1, Oil Pan Baffle, Qty. 1
- 1" x 1" x 1/8" 6061-T6 Extrusion, 6" long, Qty. 2
- 2" x 2" x 1/8" 6061-T6 Extrusion, 6" long, Qty. 1

Oil Cooler Installation

In addition to the Sonex provided parts you will need:

- Oil Cooler, Aero-Classics 8000075
- Straight Hose Fitting, Size 06, Qty 3
Jeg's P/N 799-610020
- 90° Hose Fitting, Size 06, Qty 1
Jeg's P/N 799-613160
- AN 816-6D, Straight Nipple, Qty. 2
- MS20822-6-6D, 06-3/8" to 3/8" 90° Fitting, Qty. 2
- AN3-5A Bolt, Qty. 6
- AN960-1032 Washer, Qty. 12
- MS20365-1032 Stop Nut, Qty. 6
- MS21919-WDF8 Clamp, Qty. 1
- Baffle Seal

Miscellaneous

- Gasket sealer
- High-temp RTV
- Teflon paste

Materials Shopping List by Supplier

Important: Your particular installation may require items not listed here. This is only a suggested list of the most commonly needed parts.

Jeg's

1-800-345-4545

www.jegs.com

- Straight Hose Fitting, Size 06, Qty 3
P/N 799-610020
- 90° Hose Fitting, Size 06, Qty 1
P/N 799-613160
- 06 Pro-Flex Hose, 6 feet
P/N 799-632060

Wicks:

1-800-221-9425

www.wicksaircraft.com

- Oil Cooler, Aero-Classics 8000075
- MS21919-WDF8 Clamp, Qty. 1
- MS20822-6-6D, 06-3/8" to 3/8" 90° Fitting, Qty. 2
- AN816-6D Nipple, Qty. 2
- MS20365-1032 Stop Nut, Qty. 6
- AN960-1032 Washer, Qty. 12
- AN3-5A Bolt, Qty. 6
- Baffle Rubber (Cowl Seal), 1/8" x 3" x 9' Long
Wick's P/N SR3-1/8-ROLL

AeroClassics Oil Cooler

This oil cooler installation applies to the Jabiru 3300 only.

Assemble and Attach the Oil Cooler

Materials Needed:

- Aero-Classics Oil Cooler, Model 8000075
- AN3-5A Bolts, Qty 6.
- AN960-10 Washer, Qty. 12
- MS20365-1032 Stop Nut, Qty 6
- Aluminum Extrusions (provided)
- Baffle Seal
- Locktite 242

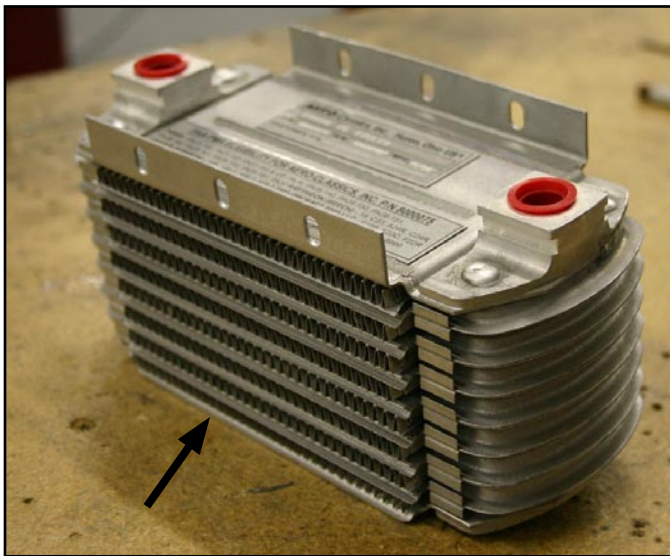
Manufacture the Oil Cooler Brackets

1. Manufacture the three mounting brackets (SNX-P20-43L and -R, and SNX-P20-42t. The details for these brackets are in the back of this manual.

Modify the Oil Cooler

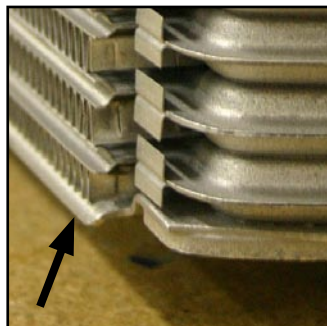
1. Remove a lower flange from the oil cooler to provide clearance for the cowling.

Note: There is no left or right to the oil cooler so either lower flange can be removed.



Above, a lower flange has been removed to clear the cowling. The side with the flange removed is now the "front" of the oil cooler.

Right, a close-up after the flange has been removed.

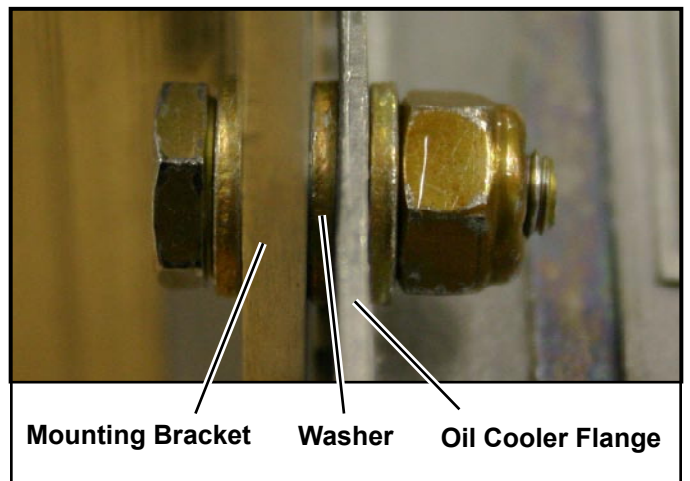
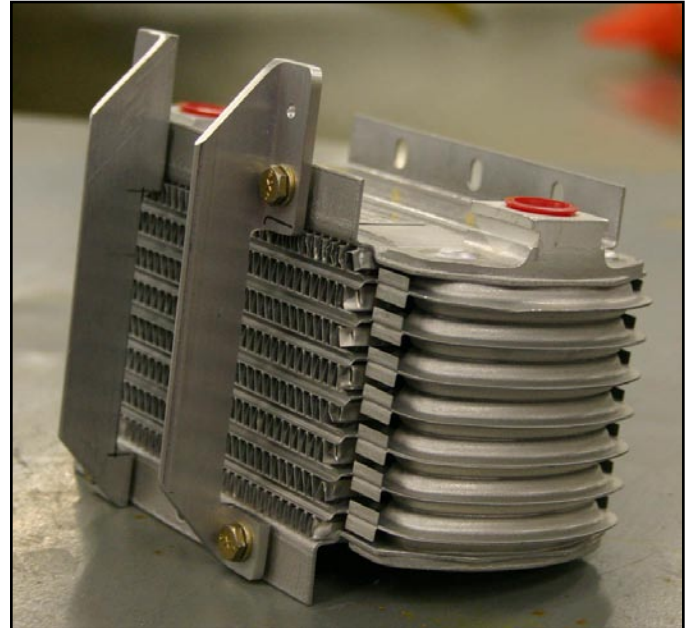


OIL COOLER INSTALLATION

Install the Oil Cooler and Shroud

1. Attach the -43L and -43R brackets to the "back" of the oil cooler, as shown in the photo below. The brackets are attached to the cooler with:
 - AN3-5A Bolt, Qty 4
 - AN960-10 Washer, Qty. 12
 - MS20365-1032 Elastic Stop Nut, Qty. 4

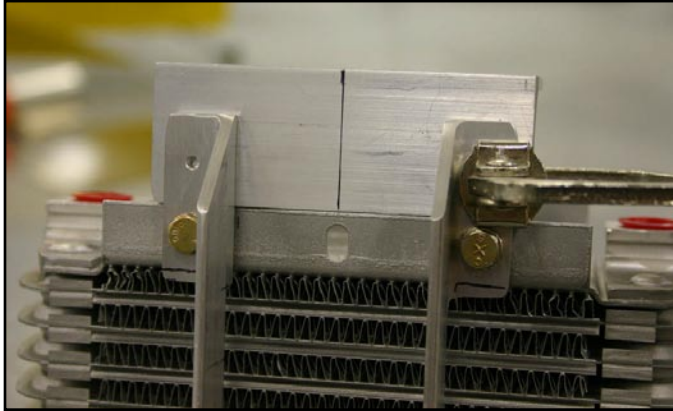
Note: One washer may need to be placed between the bracket and the oil cooler's flange as a spacer to prevent the brackets from contacting the cooling fins.



If needed, an MS20365-1032 washer can be placed between the oil cooler flange and the aluminum mounting bracket to keep the bracket from contacting the oil cooler's fins.

AeroClassics Oil Cooler

- Center the cooler mounting bracket on the oil cooler assembly and clamp it in place. The bottom of the vertical flange butts against the top of the oil cooler's flange.

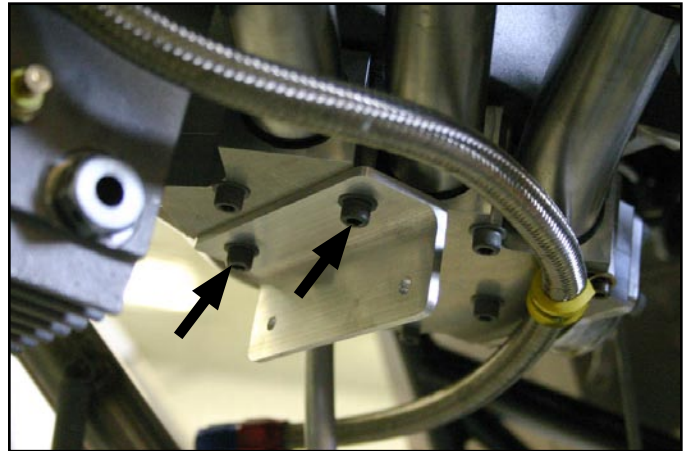


Center the Cooler Mounting Bracket on the oil cooler, with the flange pointing forward, and clamp it to the Cooler Support Brackets.

- Use the pilot hole in each Cooler Support Bracket as a guide to drill $3/16$ " holes through the brackets for AN3 hardware.
- Remove the front pair of cap screws from the bottom of the intake manifold. See photo next column.

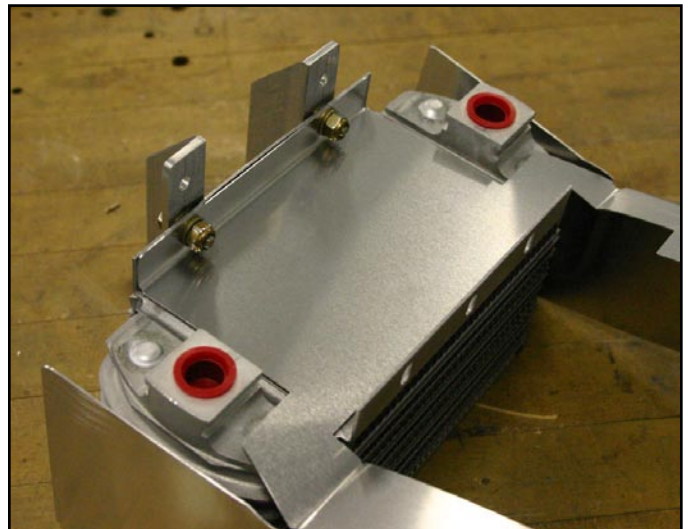
OIL COOLER INSTALLATION

- Mount the oil cooler bracket (SNX-P20-42) to the bottom of the intake manifold with the two cap screws removed in step 4. Use Loctite 242 on the threads of the screws.

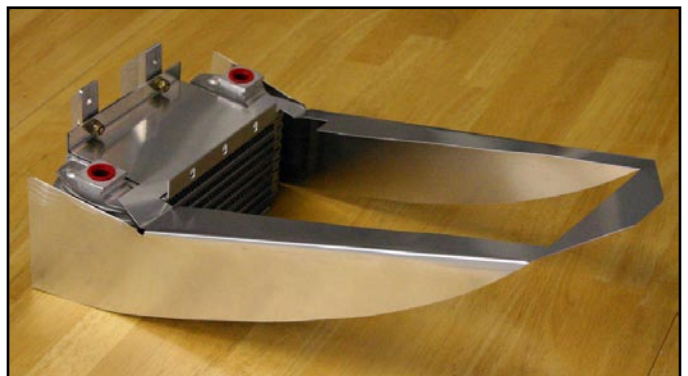


Bracket SNX-P20-42 attached to the intake manifold.

- Remove the upper nuts and washers from the oil cooler assembly, place the oil cooler baffle (SNX-P20-44) over the bolts and reinstall the washers and nuts. *Leave the nuts slightly loose. They will be tightened in step 7.*



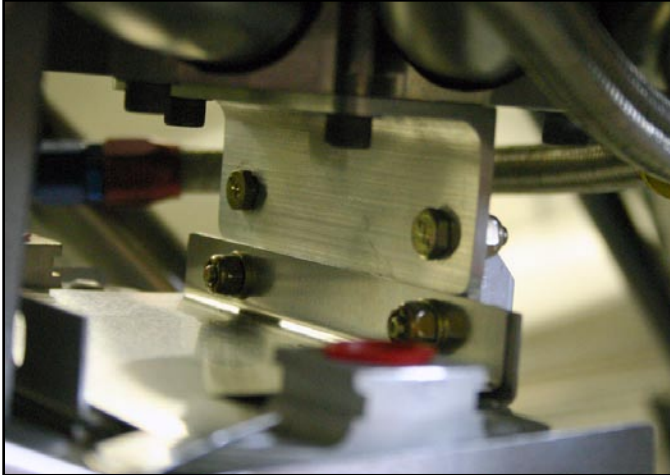
The oil cooler baffle is attached to the oil cooler assembly with the two upper bolts of the oil cooler assembly.



AeroClassics Oil Cooler

OIL COOLER INSTALLATION

7. Attach the oil cooler assembly to the cooler mounting bracket with:
AN3-5A Bolt, Qty 2
AN960-10 Washer, Qty. 2
MS20365-1032 Elastic Stop Nut, Qty. 2

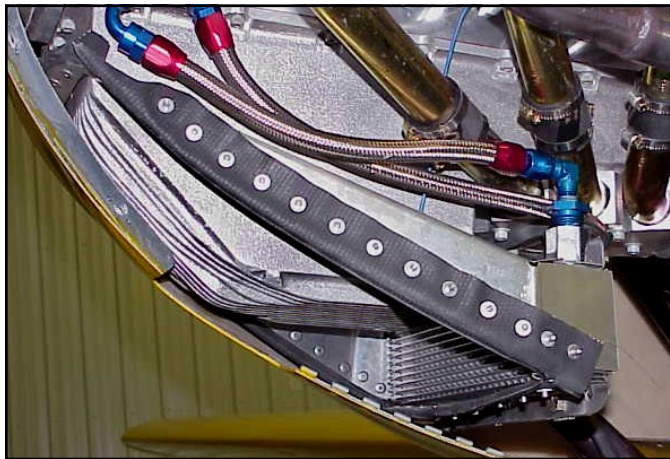


The oil cooler assembly is seen here mounted to the oil cooler bracket with two AN3-5A bolts, washers, and stop nuts.

8. Tighten the two nuts left loose in step 6.

Note: The front of the oil cooler shroud is not physically attached to anything. It is held in place by the cowling.

9. Fit one cowl half at a time and trim the oil cooler shroud to achieve a gap of 1/4" to 3/8" between the cowling and the baffles.
10. Install baffle seal material as needed to seal the gaps between the baffles, cowling, and oil pan. AAL-42 rivets were included with the kit for attaching baffle seal material (not included).



Baffle seal must be installed to seal the space between the metal baffles, cowling, and oil pan.

Notes on Oil Cooling and Duct Sealing

A complete seal is not critical in most applications. In general, oil cooling needs drop as the ambient temperature drops. Flight testing has shown that in temperatures below approximately 50 degrees (F) air flow through the oil cooler will need to be partially to fully blocked to allow oil temperatures to rise to an acceptable level. The air flow can be blocked simply with tape over the cowl opening, or using more complex methods such as an aluminum plate in front of the oil cooler.

In hotter climates more complete sealing may be required to force all incoming air through the oil cooler.

Flight testing your aircraft in your climate is the only way to determine what level of sealing is needed to keep your engine oil in the correct operating range, as defined in your engine's operator's manual.

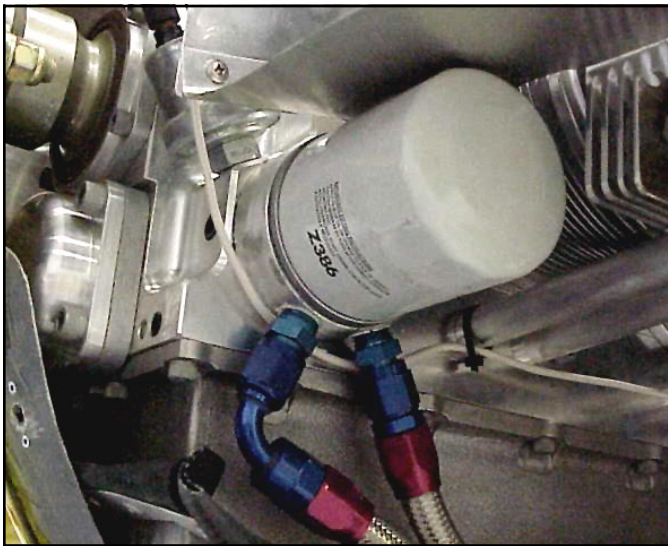
AeroClassics Oil Cooler

Plumb the Oil Cooler

Materials Needed:

- AN816-6D Nipple, Qty. 2
- MS20822-6-6D elbow, Qty. 2
- 90° swivel hose end (Jeg's p/n 799-613160), Qty. 1
- Straight hose end (Jeg's p/n 799-610020), Qty. 3
- MS21919-WDF8 Clamp, Qty. 1
- 06 Pro-flex Hose
- Teflon Paste

1. Remove the barbed fittings from the Jabiru-provided oil cooler adapter.
2. Drill through the existing hose fitting holes with a 7/16" drill and re-tap each hole with a 1/4 NPT tap.
3. Apply teflon paste (**do not use teflon tape**) to the threads of two (2) AN816-6D nipples and install them in the oil cooler adapter.
4. Install the oil cooler adapter and oil filter.

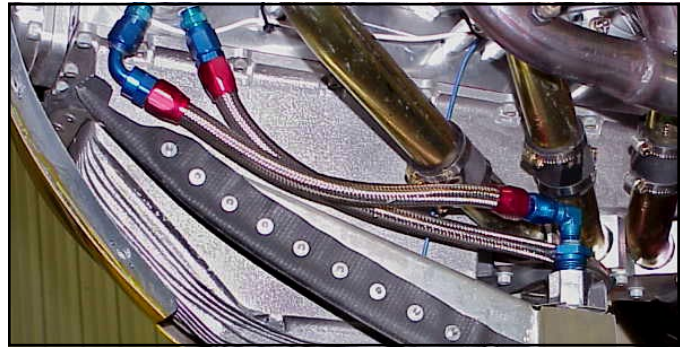


The barbed fittings are removed from the Jabiru-provided oil cooler adapter and replaced with threaded hose fittings.

5. Apply teflon paste (**do not use teflon tape**) to the threads of two (2) MS20822-6-6D elbows and install one in each of the oil cooler's ports. The elbow on the left side of the engine must face forward, the elbow on the right side must face aft.
6. Install a 90° swivel hose end (Jeg's p/n 799-613160) on a 12" piece of Pro-Flex hose.

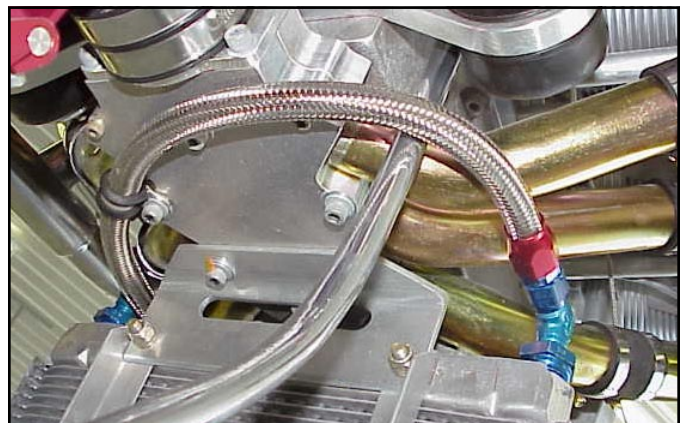
OIL COOLER INSTALLATION

7. Determine the proper length for the hose to reach from the oil cooler adapter to the oil cooler fitting on the left side of the engine, including end fittings, and trim the hose.



The installation of the oil hose on the left side of the engine is shown in this photo.

8. Install a straight hose end fitting (Jeg's p/n 799-610020) to the end of the Pro-Flex hose that attaches to the oil cooler.
9. Install the hose assembly. **Do not use sealing compounds or teflon tape on these fittings.**
10. Install a straight hose end fitting (Jeg's p/n 799-610020) to the end of a 30" piece of Pro-Flex hose.
11. Determine the proper length for the hose to reach from the oil cooler adapter to the oil cooler fitting on the right side of the engine, including end fittings, and trim the hose. The hose should follow a path that eliminates sharp bends. See photo below.



This photo, looking up at the bottom of the engine, shows the smooth bend the oil hose takes from the right side oil cooler port to the left side of the engine. While this is not an Aero Classic cooler installation, hose routing is the same.

AeroClassics Oil Cooler

OIL COOLER INSTALLATION

12. Install a straight hose end fitting to the end of the Pro-Flex hose that attaches to the oil cooler.
13. Install the hose assembly. **Do not use sealing compounds or teflon tape on these fittings.**
14. Secure the oil hose with a cushioned hose clamp (p/n MS21919-WDF8) mounted to the bottom of the intake manifold. Use an existing cap screw from the manifold to mount the hose clamp. Apply Loctite 242 to the manifold screw before re-installing it. See photo below.



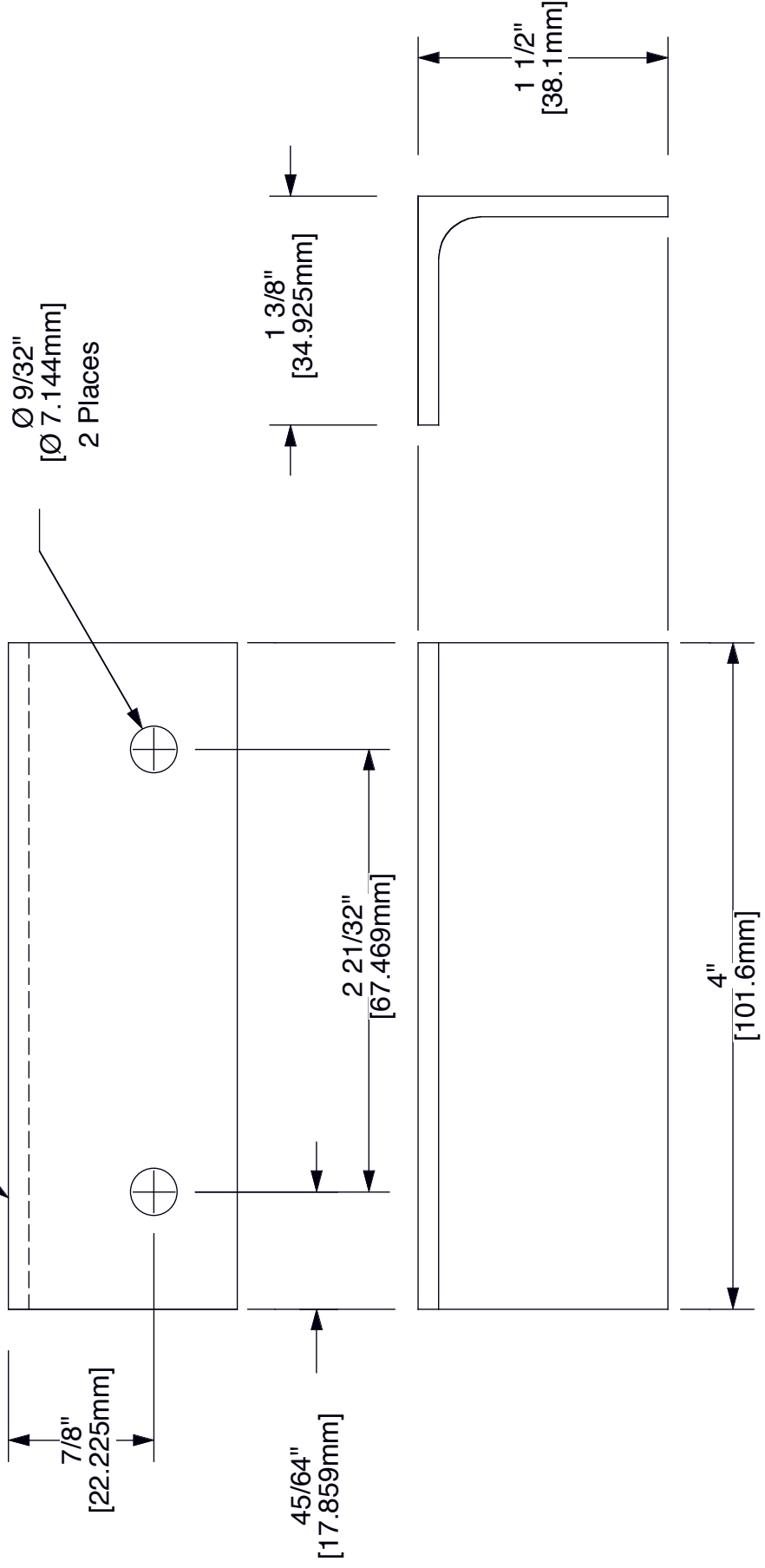
This photo identifies the cushioned hose clamp which secures the oil hose to the bottom of the intake manifold. While this is not an Aero Classic cooler installation, hose installation is the same.

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Revision Letter

Change Description

**-42 Oil Cooler Support Bracket 1 Req'd
Make From 2"x2"x1/8" Thick 6061-T6 Aluminum Angle**



sonex
3300 Oil Cooler Bracket

Drawing Scale
FULL

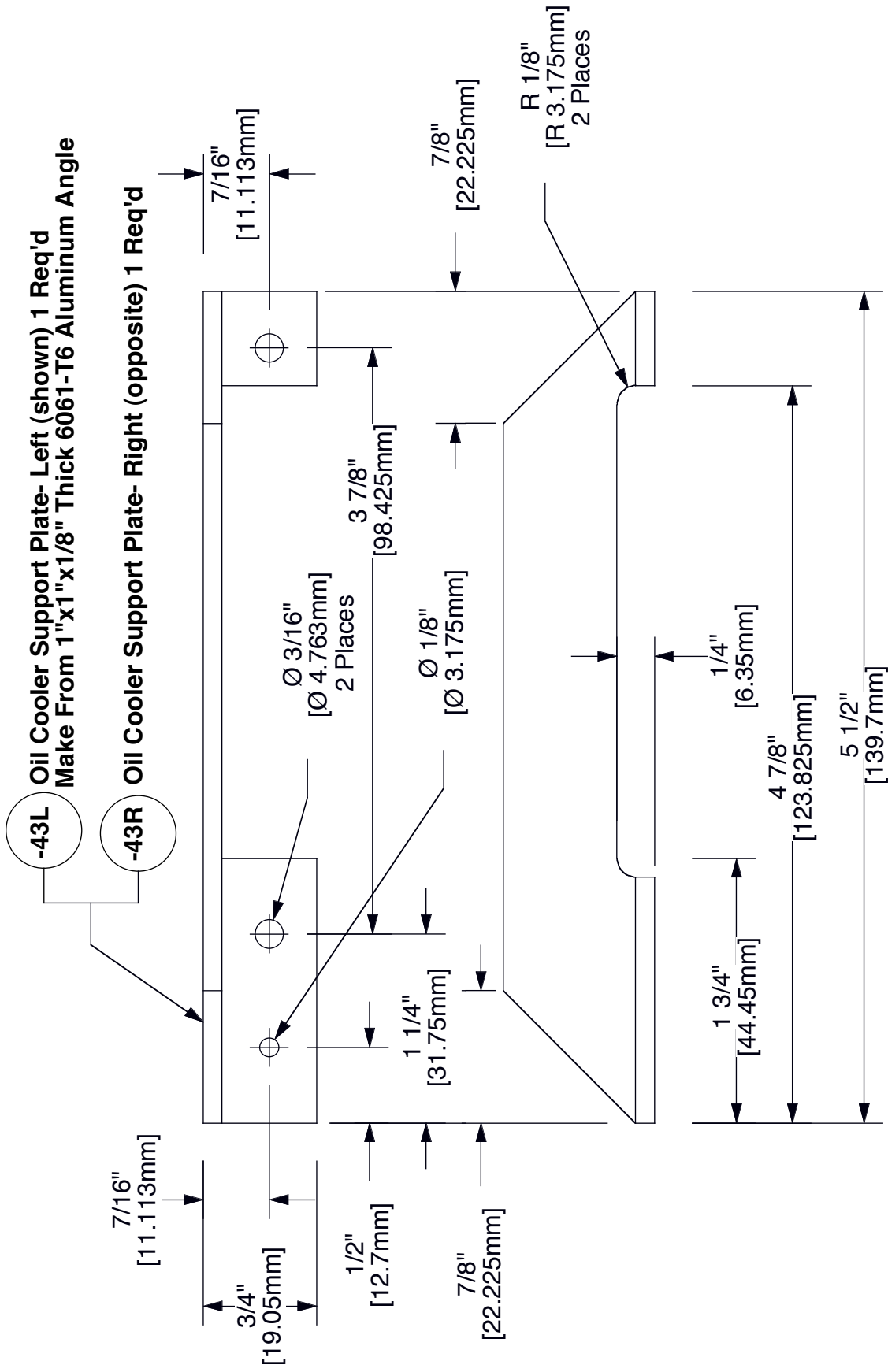
Drawing Number
SNX-P20-42

Revision
N/C

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Revision Letter

Change Description



sonex

3300 Oil Cooler Support

Drawing Scale FULL

Drawing Number SNX-P20-43

Revision N/C