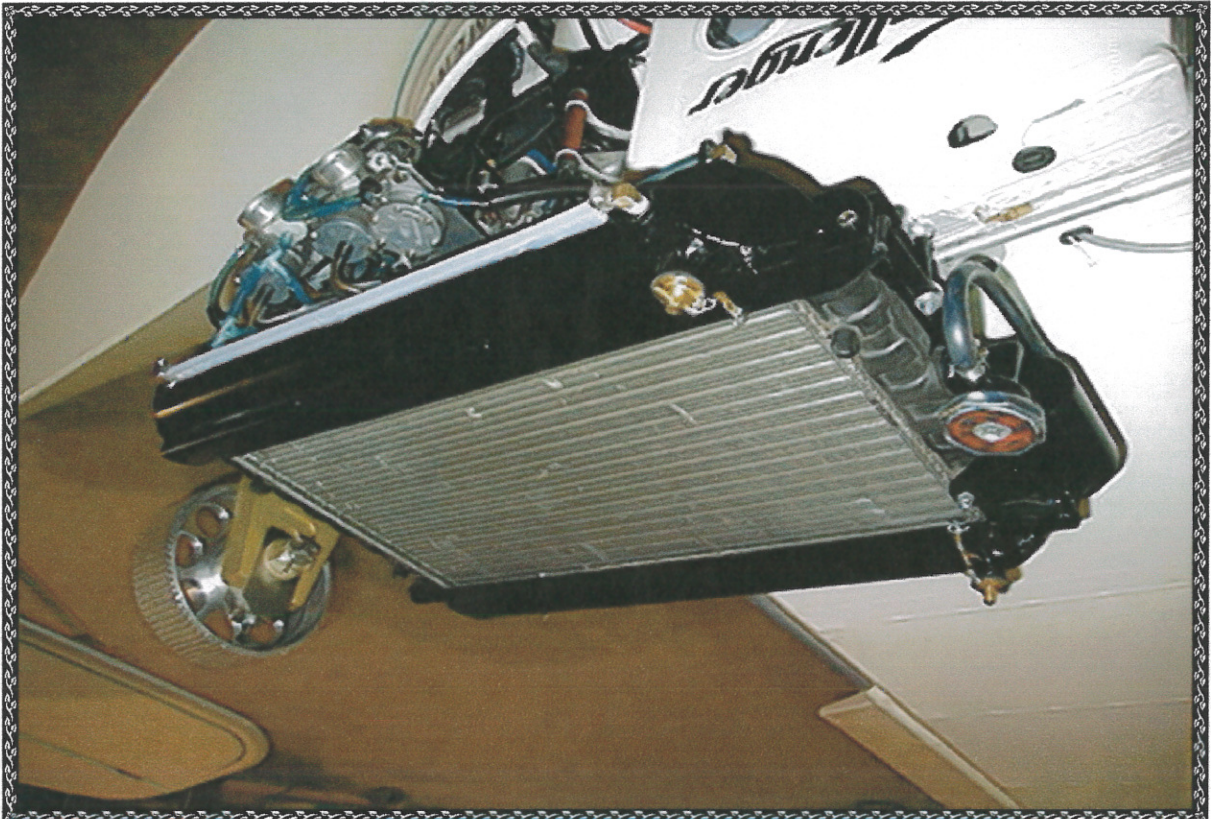
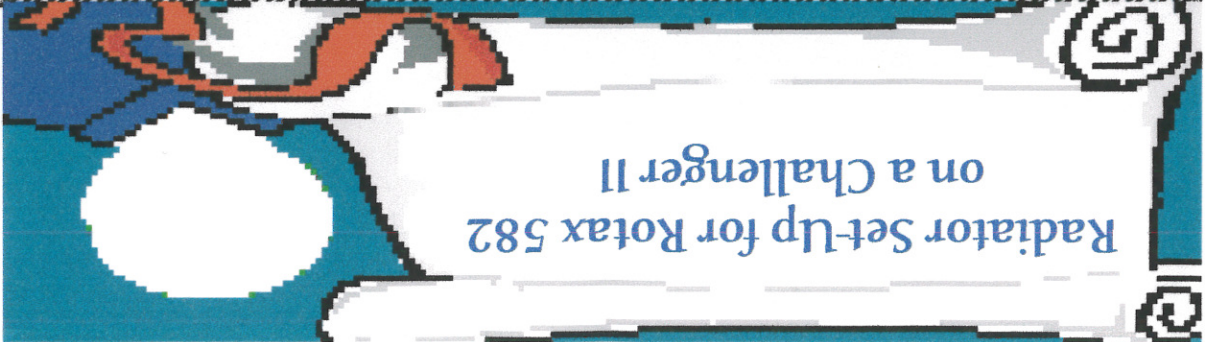




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Radiator Set-Up for Rotax 582  
on a Challenger II



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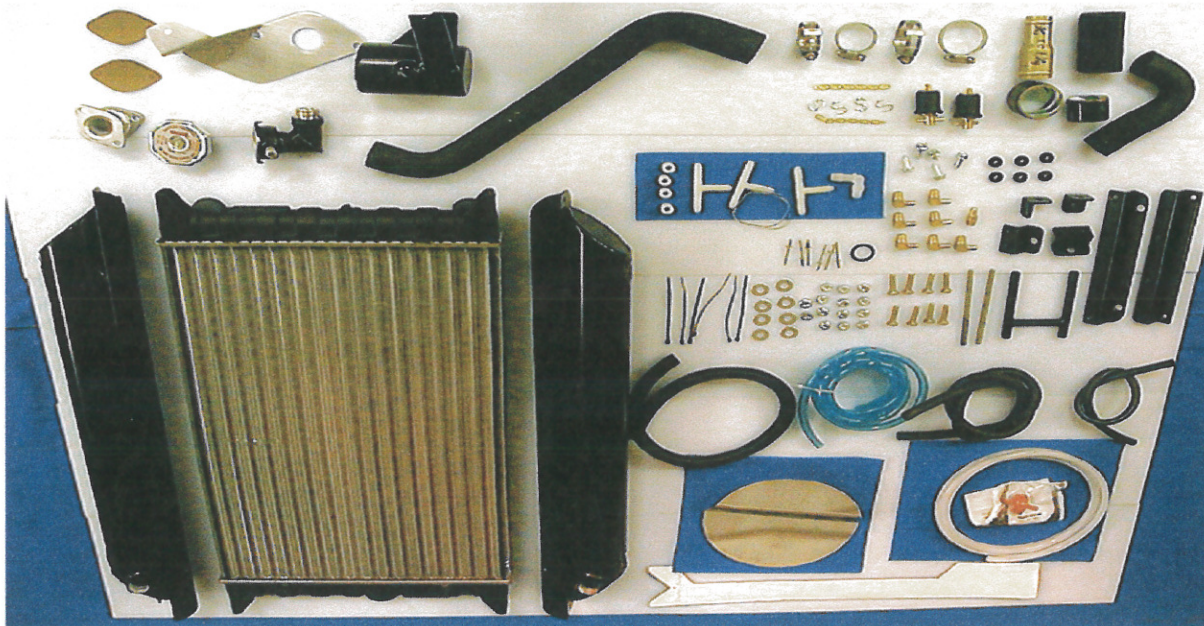


# Content:

# Parts Inventory of Basic Radiator Setup



## 582 Rotax on a Challenger II

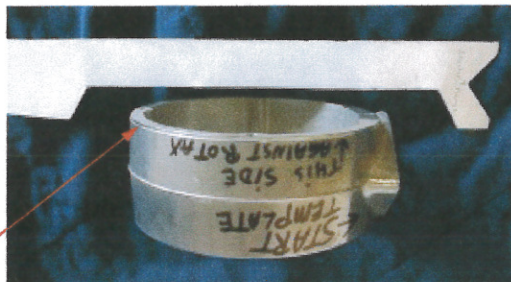


### Basic Radiator Parts Inventory

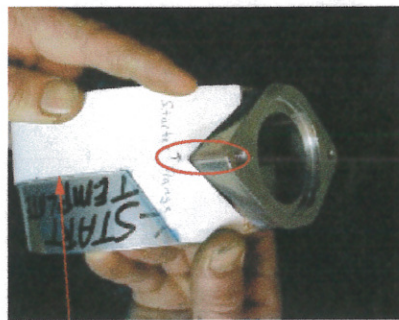
- 1 Formed 1"-1 1/4" portside transition hose
- 1 pre-assembled starboard transition hose
- 2 SS 1 1/4" hose clamps
- 2 SS 1" hose clamps
- 4 SS 1/4" hose clamps (not pic.)
- 1 transition flange
- 2 gaskets (silicon not recommended)
- 2 .025 safety wire
- 3 1/4" nylon tees
- 7 1/8" pipe to 1/4" 90 deg. male pipe adapter
- 1 1/8" pipe to 1/4" male pipe adapter
- 1 1/8" pipe to 3/8" 90 deg. male pipe adapter
- 1 1/4" barbed screen filter
- 1 fuel pump bracket
- 1 starter housing cutoff template
- 1 starter housing face plate
- 1 H bracket
- 2 Keel tube rivet-on short Z brackets
- 2 motor mount bolt-on L brackets
- 1 long top radiator Z bracket
- 1 long bottom radiator Z bracket
- 1 radiator cap
- 1 radiator overflow tank
- 1 radiator-cap assembly and O-ring
- 1 radiator
- right and left oil reservoir (112 oz.)
- 2 filler-plug assemblies
- 5 3/4" sheet metal screws
- 4 1/4" nylon bushings
- 8 1/4" x 1" #5 bolts
- 12 1/4" ny-lock nuts
- 12 #12 washers
- 2 jam nuts
- 2 4 1/4" 1/4" threaded rod
- 6 1/4" grommets
- 6 1/8" SS rivets
- 1 3/8" overflow tube
- 7 1/4" oil tube
- 3 1/4" sight tube
- 2 1/4" burp tube
- 1 loom

# Starter Housing Modification

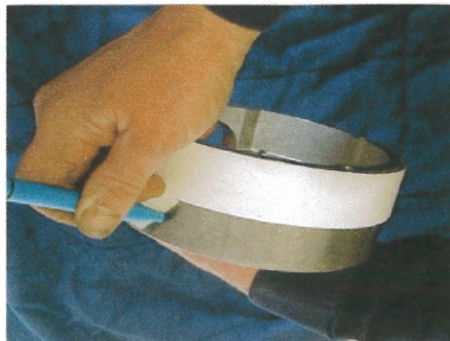
In for the electric starter housing to fit on your 582 Rotax, when mounted on the Chalmers, you will have to make some modifications. The following pictures illustrates how to mark for cutting using a template included with your kit. This is an option and as a builder you may have already overcome this obstacle.



On the starter housing, Align the template with the starter flange, also the inside of the template with the casting line.



Mark the angle cut on the other end of the template. ( It is not necessary to mark the center as the casting line should be your mark)



4.



This view is turned 180 deg.

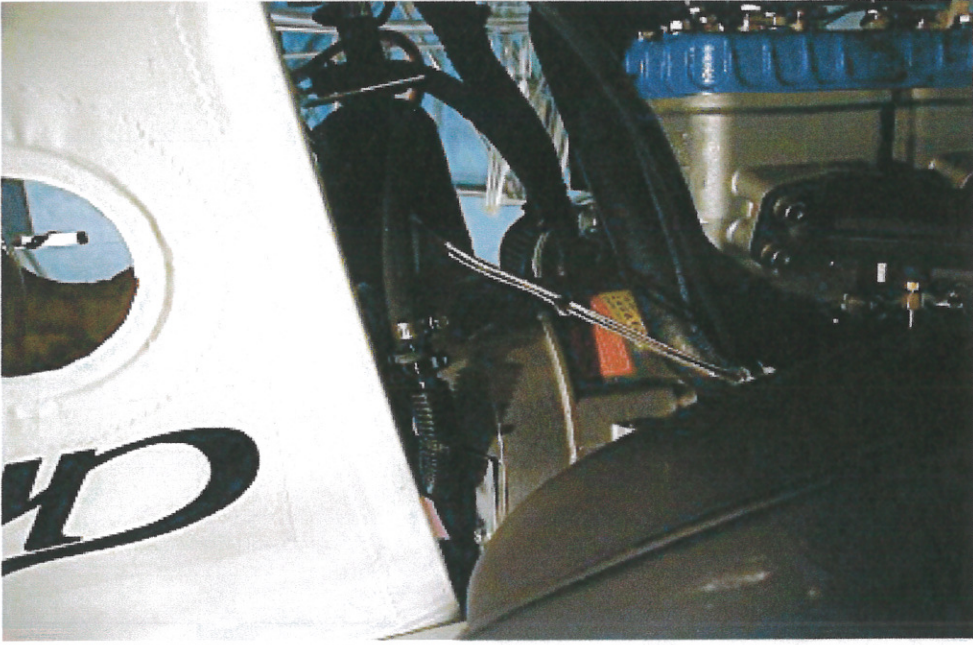


After securing the template so that it does not move, mark the angled cut with a fine line felt pen.

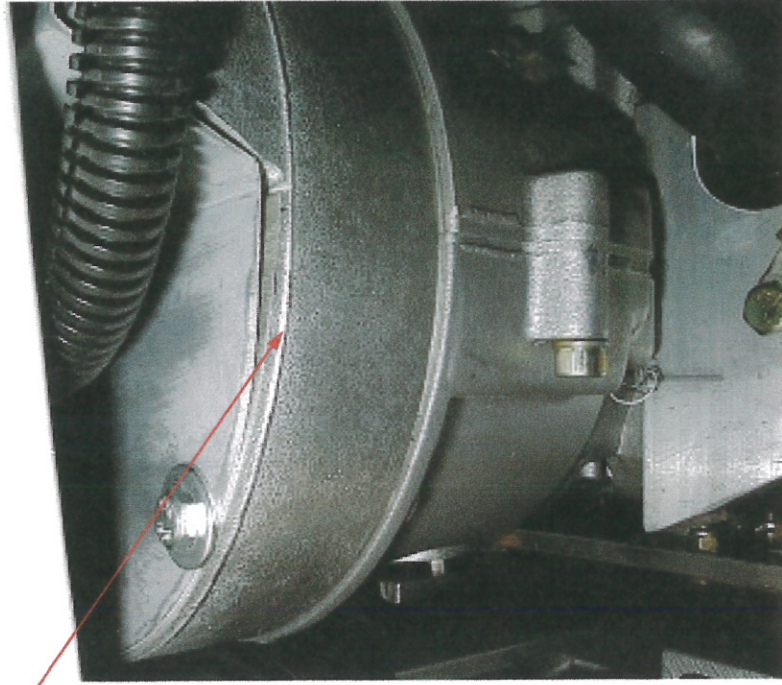
Cut marked section with a cutoff wheel. Place face plate on housing and mark for trimming. Finish trimming with a belt sander. Mark and drill holes. (This picture does not show cutoff)



4a.

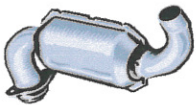


Tight fit



You can fashion a face plate using lexan if you wish. (Notice the casting line on this photo).

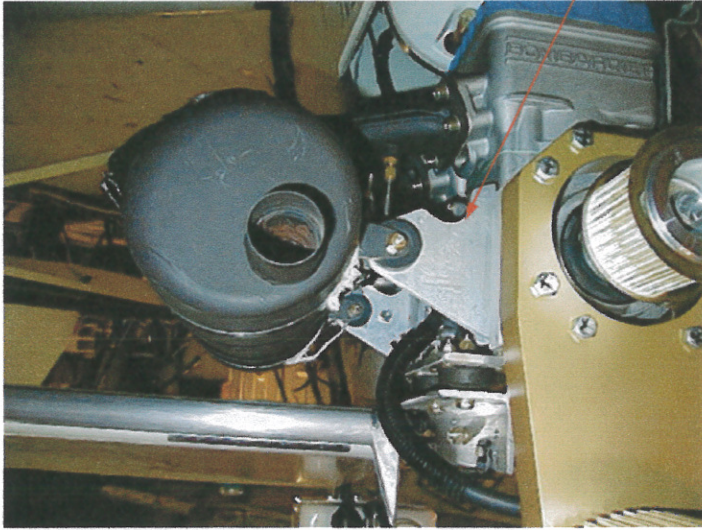
## Muffler Mount Assembly



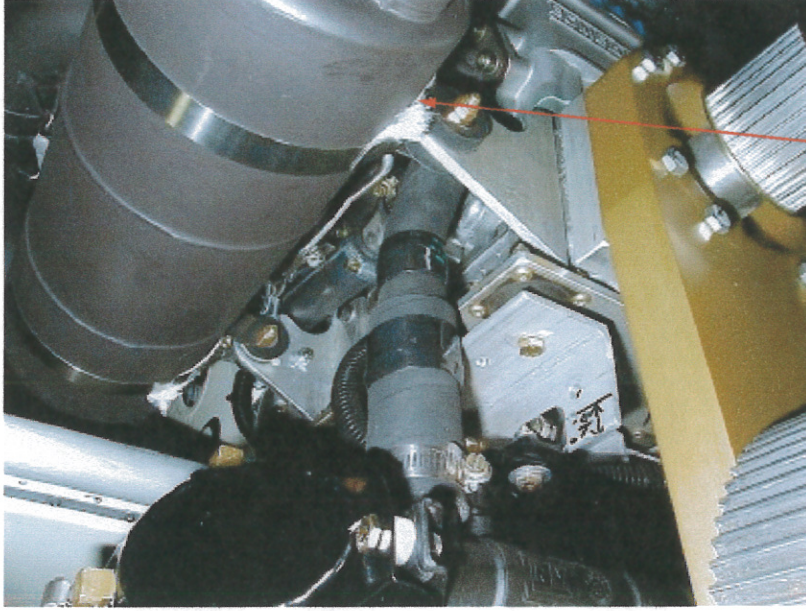
The following pictures depict the muffler mount assembly included with your kit. They are mostly self explanatory.

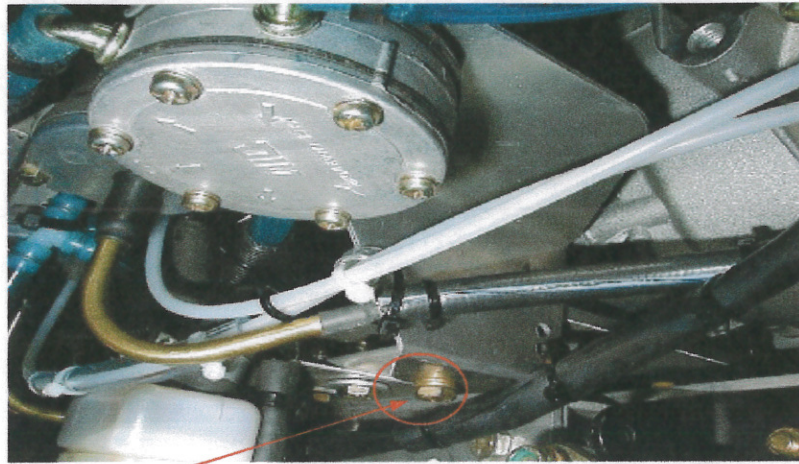
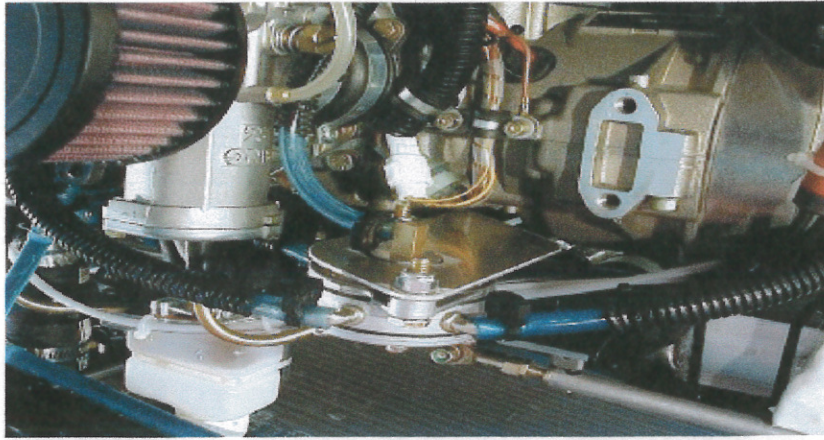


The mounting brackets face each other with the cutout down. Attach mounts with bolts and lock washers.

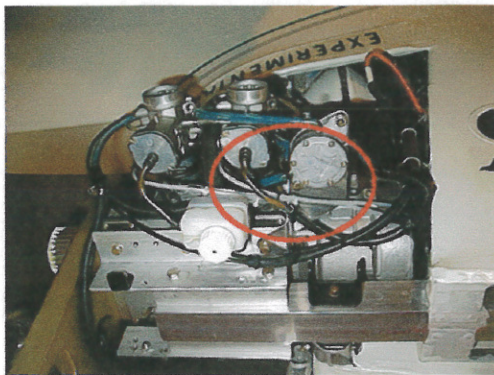


Remove bolts and rubber dampeners from U clamps. Install the U-clamps over the muffler clamps before sliding them over the muffler. (the clamps should be installed with tighten down.) Finish assembly by installing U-clamp to mounting bracket using rubber dampeners and hardware. Before tightening clamps install insulation under clamp. Tighten clamp to the point that you see the muffler start to bend in. (Do not over-tighten inspect during pre-flight) **Note:** Be sure that the clamps wear shipped with split lock self locking nuts. Not ny-lock.





Mount the fuel pump bracket using existing front motor mount bolt.



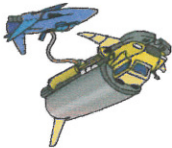
Top view of fuel pump after installation



Fuel pump bracket

*Relocating fuel pump by using fuel pump bracket allows room to mount the*

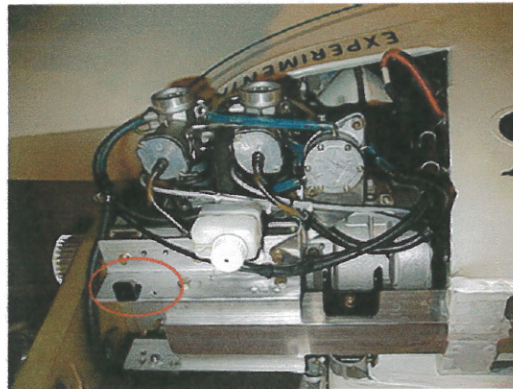
## Fuel Pump Bracket Installation



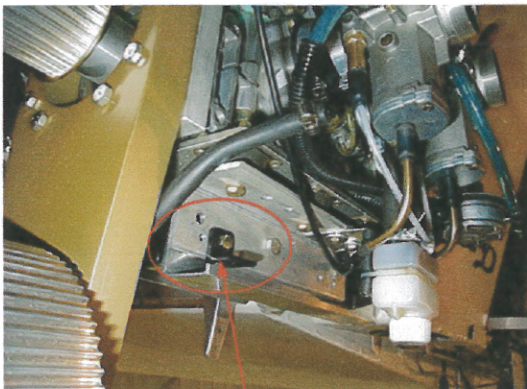
# Mounting Keel Tube Brackets



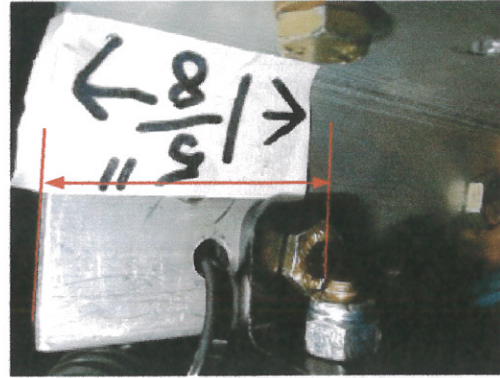
Mount rear L Brackets first.



This will be a point of measurement later.

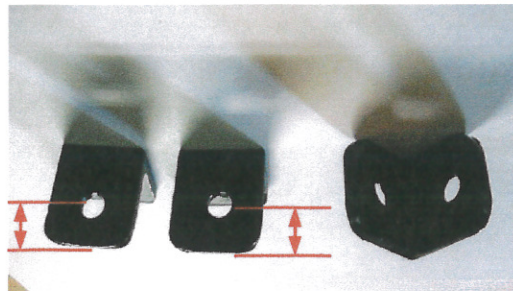


Measure 1 5/8" from rear of motor mount and 1/2" down, to locate center of hole to be drilled.

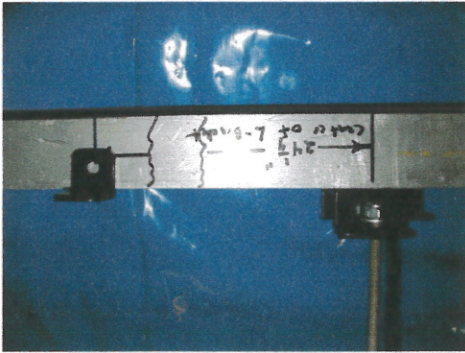
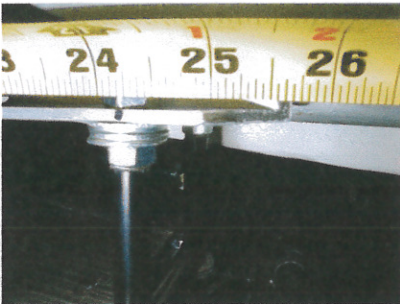




*By flipping the L-bracket from one hole to the other will allow for some adjustment. Start by using hole furthest out on L bracket to bolt thru to motor mount bracket.*

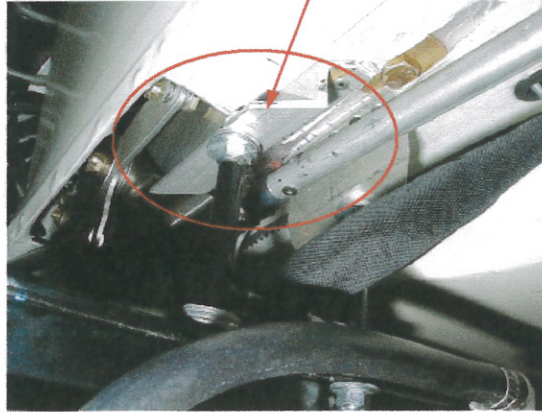


Bolt this side of the L-bracket with the shortest distance here, to the motor mount

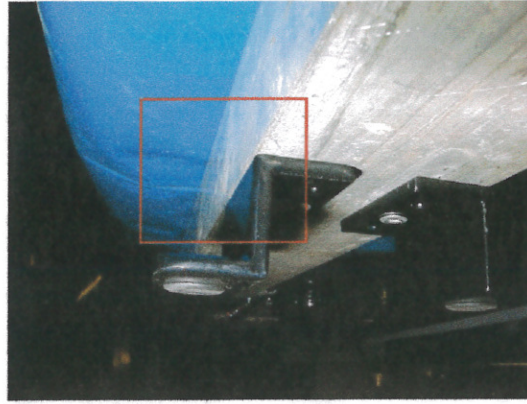


This picture is an illustration only. Not actual size.

Mount front Z-bracket 24 1/4" center to center using the L-bracket as reference.



Note: your Z-bracket will be black and not cut on an angle as depicted here.



7a.

It is **important** when mounting the Z-bracket that the outside edge is flush with the Keel tube, also that they are square. Use 1/8" SS rivets.



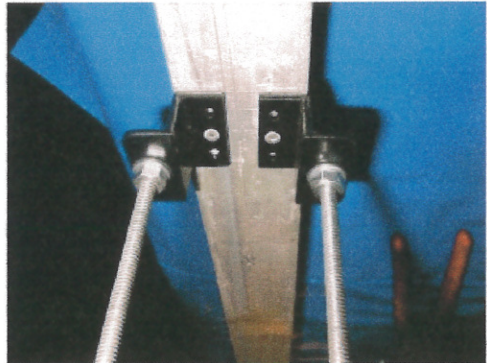
Screw ny-lock nut onto threaded rod using a pliers or vise grip and 7/16" wrench. **Do not hold on end.**



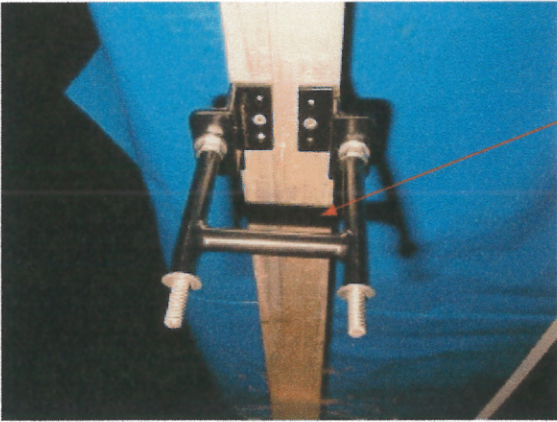
Add #12 washer and jam nut. Tighten jam nut (snug). Do not overtighten.



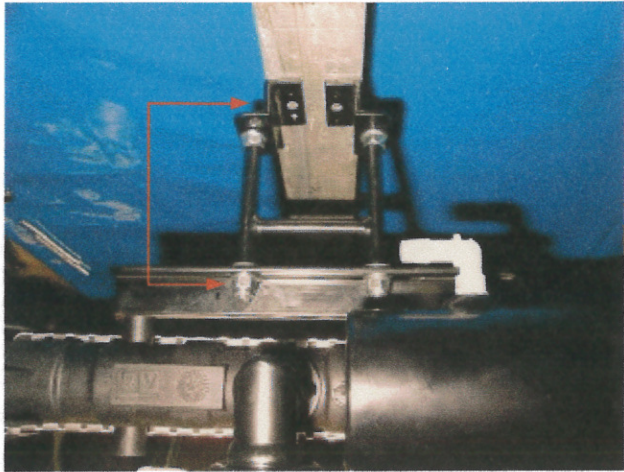
Be sure grommets are installed in Z-brackets. Use a #12 washer on top and bottom of each grommet. **Note:** Apply a little dish soap to grommet before inserting threaded rod.

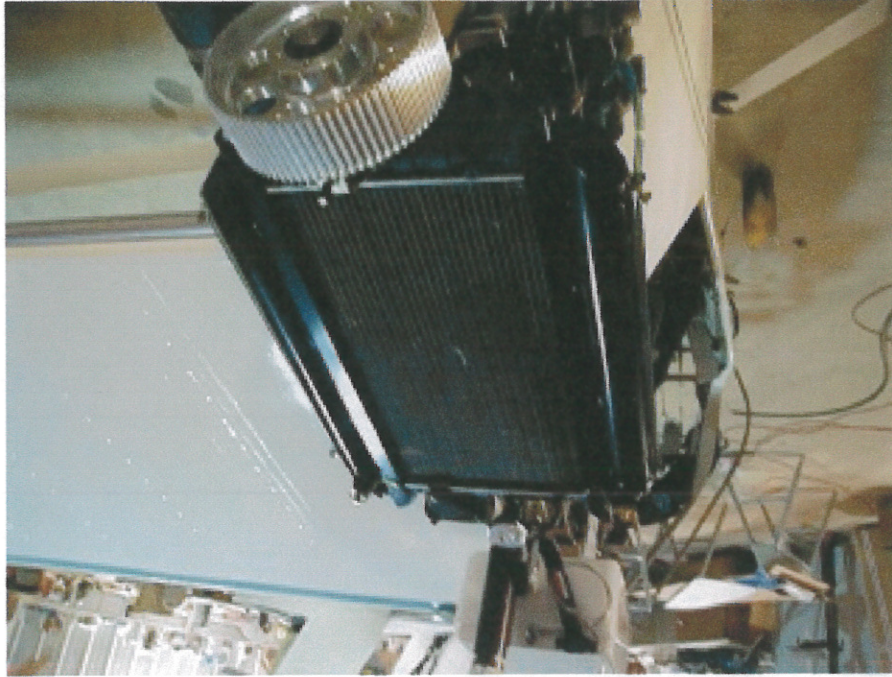


Install H-bracket. Be sure to install with cross member up and angle to the back. Install #12 washers.



- Completed assembly top to bottom.
- Ny-lock nut
- #12 washer
- Grommet inserted into long Z-bracket
- #12 washer
- Jam nut
- H-bracket
- #12 washer
- Grommet inserted into short Z-bracket
- #12 washer
- Ny-lock nut





Finish installation by attaching L-brackets to Long-Radiator Z-bracket using 1/4" bolt, #12 washer, and ny-lock nut. Install hardware down. Use only one washer on top of grommet.

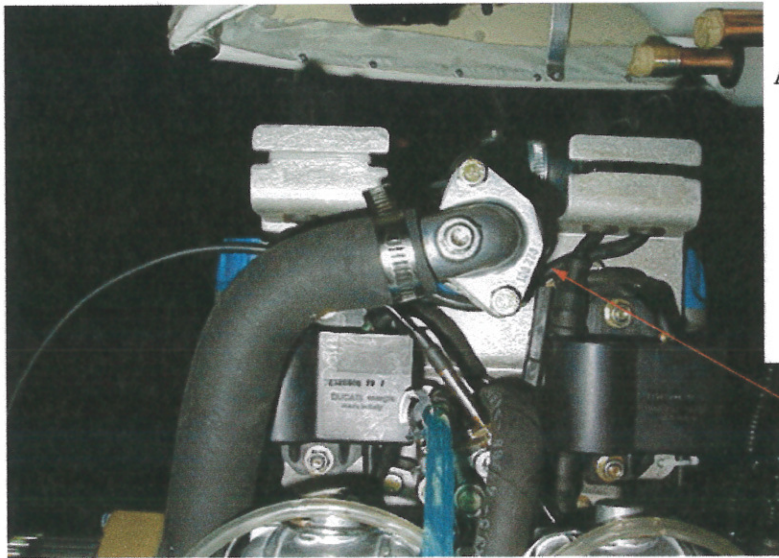


# Portside Radiator Hose Assembly

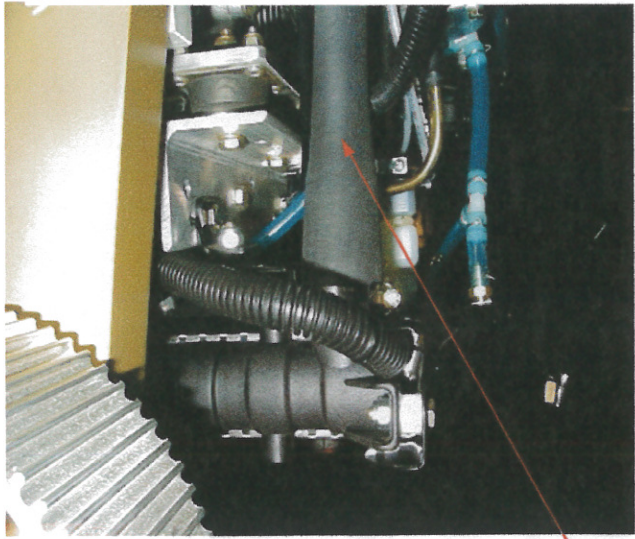
Begin assembly of radiator hoses installing the portside transition flange. **Caution:** When disassembling the bent outlet socket, observe position of the thermostat. Reinstall the thermostat in the same position it was originally installed.



Use the transition flange to change the position of the bent outlet socket. **Note:** You may need to cut holes in the gaskets provided. Permatex 300 recommended. If you use silicon be careful not to allow any to dislodge inside of the flange—may result in thermostat malfunction.

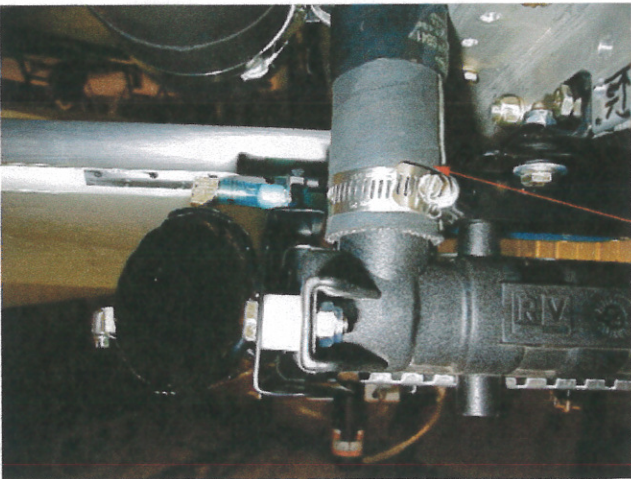
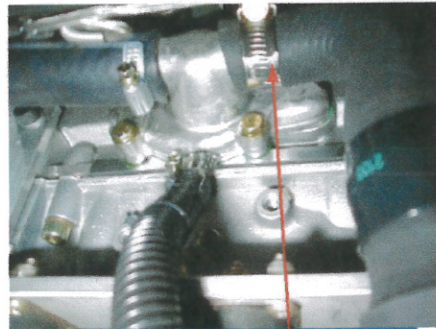


Install portside radiator hose. Connect upper 1/4" end of the hose to radiator, secure with hose clamp. The hose should protrude to the back. You will have to bend hose, against the formed arc, straightening the curve. Connect to the bent outlet socket using hose clamp. When installed, the hose should bow slightly back. This is intentional.

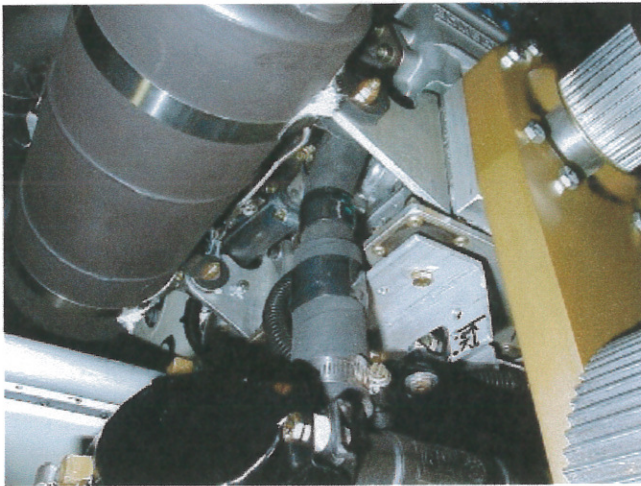


# Starboard Radiator Hose and Burp Tube Installation

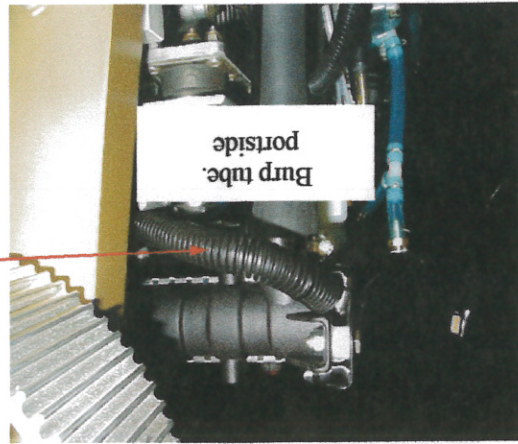
Starboard pre assembled transition hose



Connect starboard transition hose to the radiator and water pump housing as illustrated.



Burp tube, portside



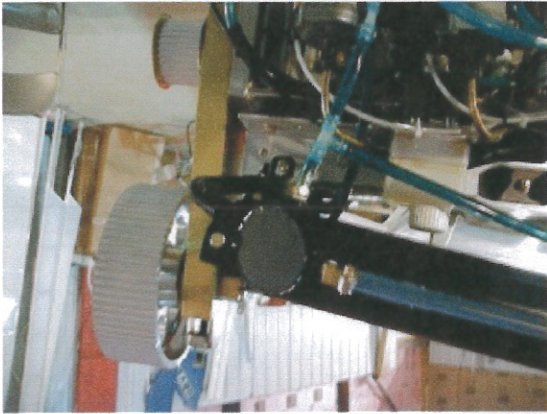
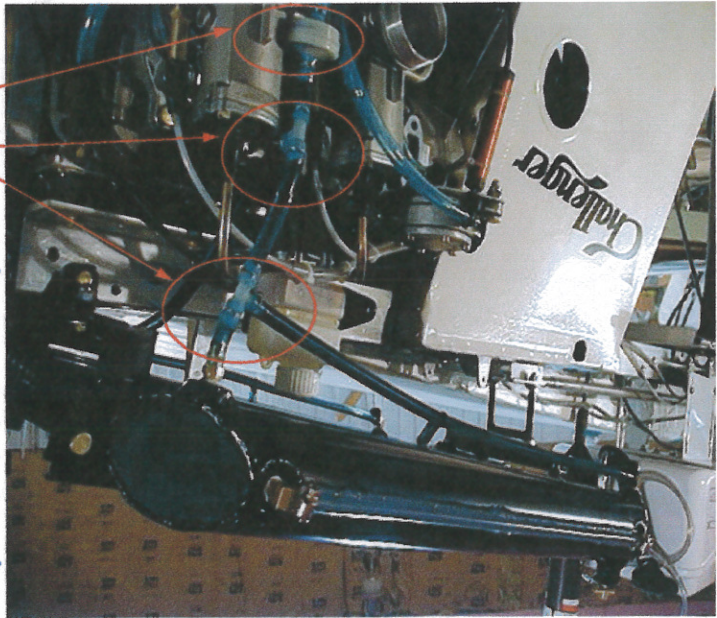
Install the burp tube from the portside rear of the radiator to the hose nipple located on the water pump housing. Position the loom over the burp tube to prevent chaffing. It is suggested that you tie off any loose tubing to prevent excess movement when in flight.

# Routing Oil Lines

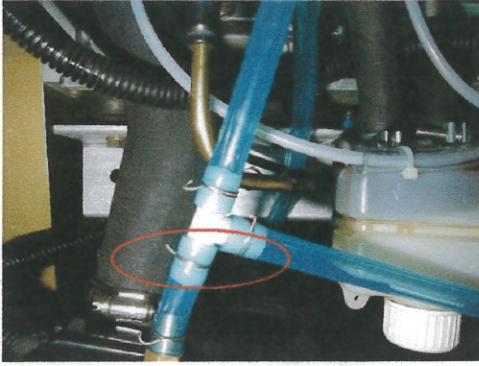


The following pictures are suggested oil line plumbing routes. Your radiator is furnished with oil line, tees, and safety wire. When routing oil lines be sure to connect the front and back of the reservoir oil lines with tees to make available oil to the pump in varying flight attitudes. (inverted flight not suggested.) Tie off oil lines to prevent adverse movement and chaffing.

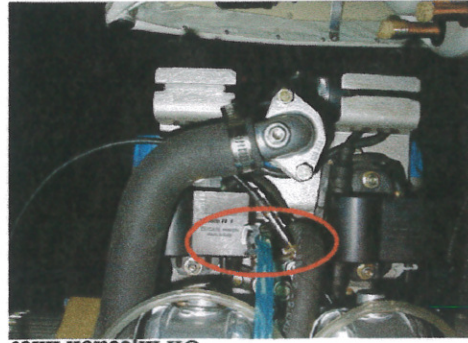
Tees - 2 of 3  
Oil filter



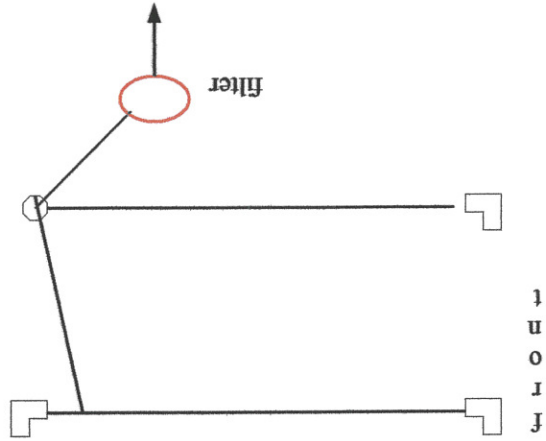
Use safety wire to secure hoses.



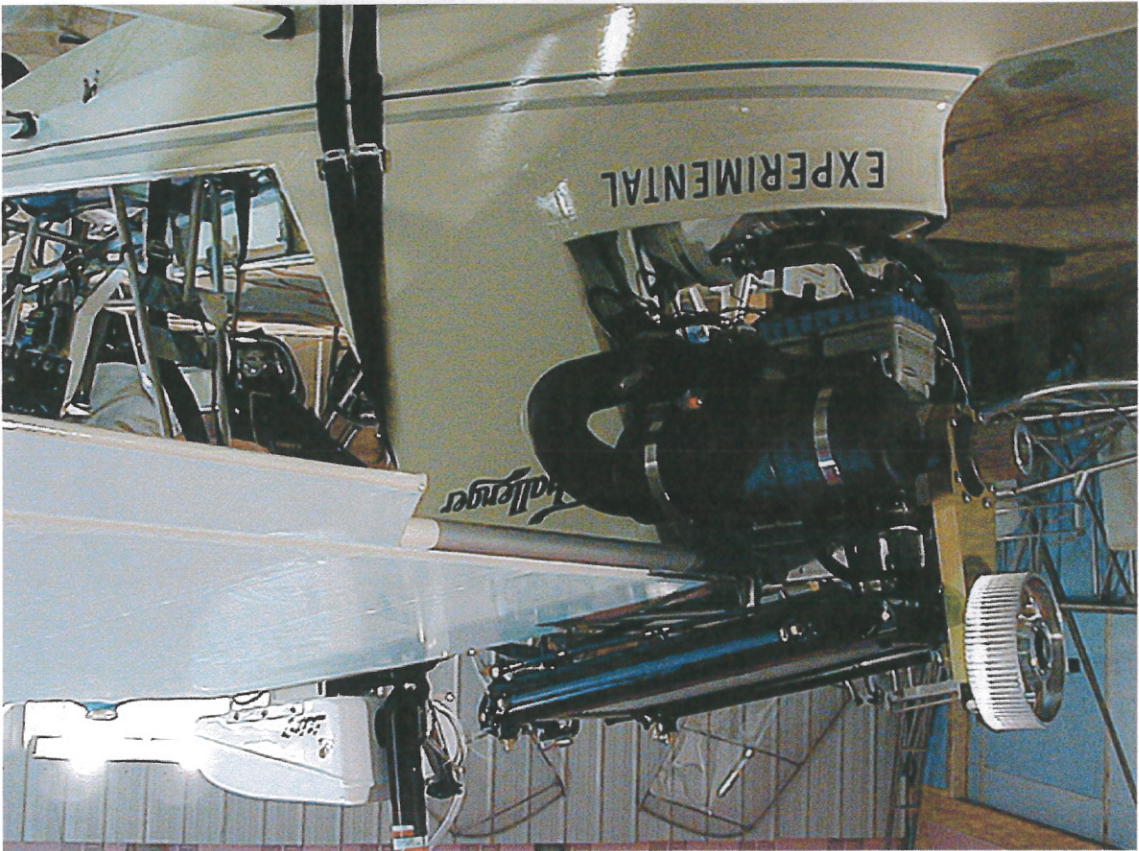
11.



Oil injection inlet



11a.



**Final Assembly**

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*[Faint, illegible text, likely bleed-through from the reverse side of the page.]*

- **Important – do not mix oils.**
- Proper warm up procedures should be strictly followed.

## Recommendations

- Inspect all installation
- Be sure hardware is properly secure
- Check oil line routing to prevent chaffing
- Fill oil reservoirs and allow air to purge from oil lines
- Check for oil leaks in areas of plumbing
- Pressure check radiator system to 13 psi
- Fill and bleed system according to suggested procedures in your Ro-  
tax engine manual

## Installation Inspection

