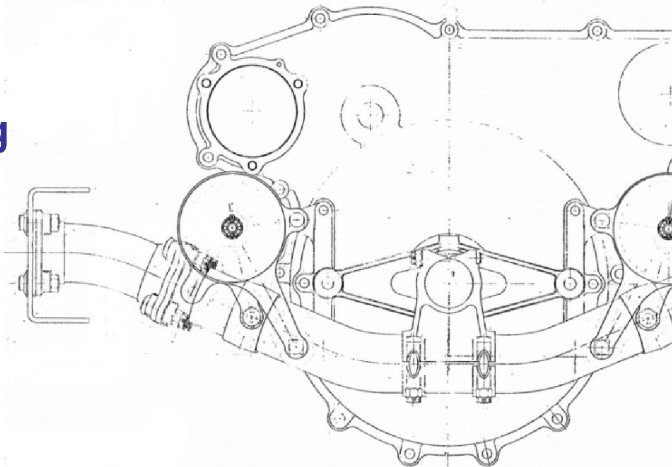


DIAMOND ENGINE MOUNT & TORQUE REACTION DAMPERS

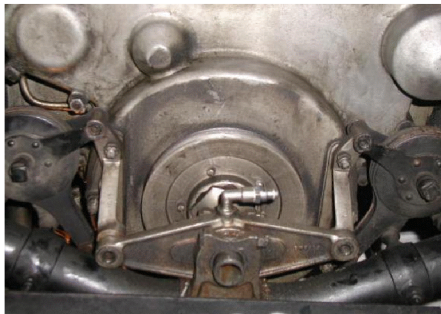
From end January 1932 onwards, dampers were added to the front of Phantom II engines to minimize the reaction of the engine to torque. The dampers were attached to a diamond shaped frame on the engine and to a chassis cross member located just in front of the engine. The following pages show how to modify the Pocher kit to add this distinctive feature.

IMPORTANT NOTE: There is not enough room between the Pocher engine and the Pocher radiator for the torque reaction damper assembly to fit. The Pocher radiator must be slimmed down to its right depth (as described in Vol.2 Chassis of the Build Notes) and its bottom hose connection moved lower. Even then, some juggling may be required to get everything to fit. Be prepared!!

**Partial
Drawing**



Prototype



Elements

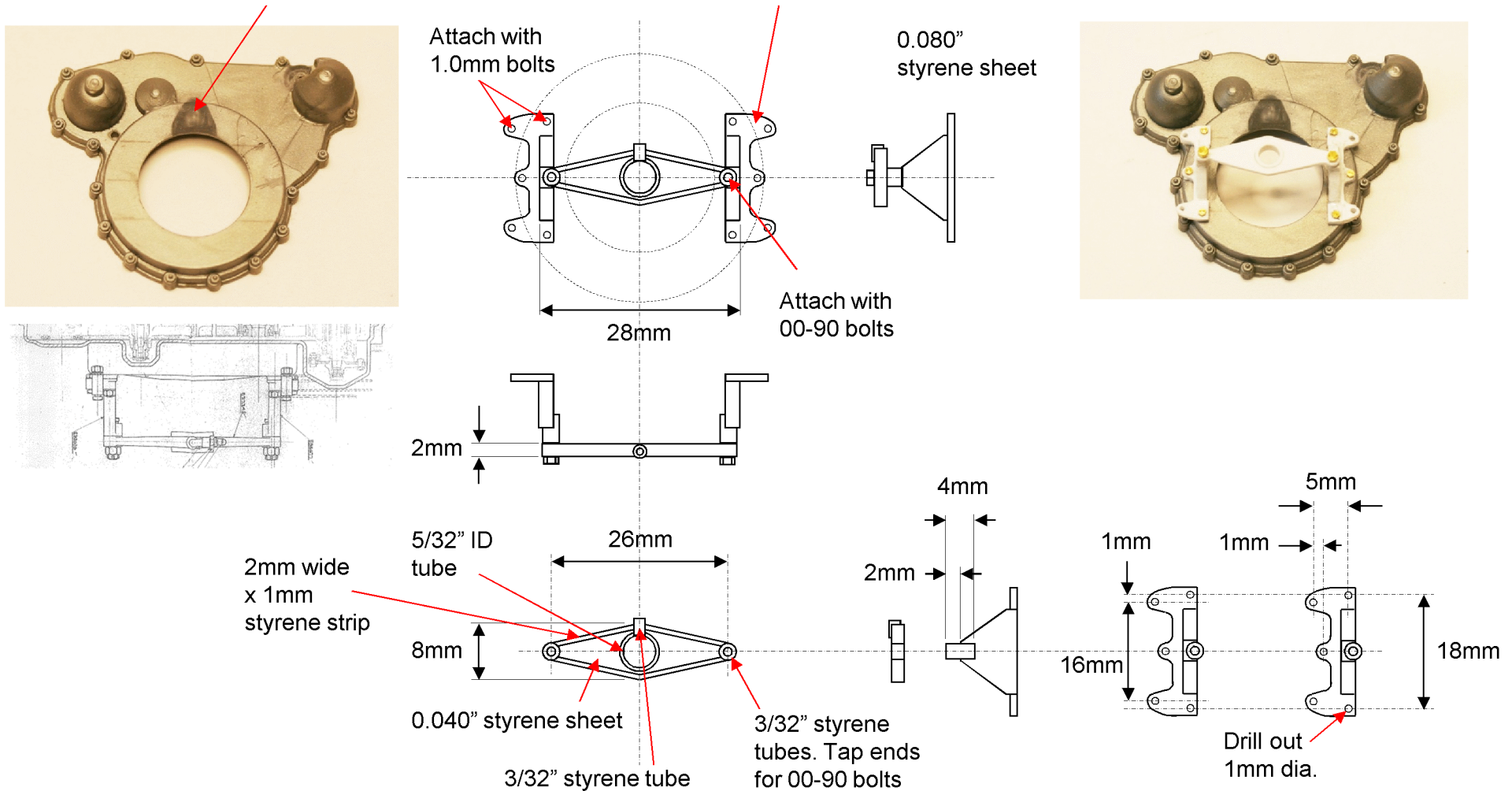
This is a complex assembly. However, each element will be covered in detail, as follows:

1. Diamond Frame
2. Dampers
3. Cross-member
4. Cross-member end flanges
5. Damper anchors & center support

DIAMOND ENGINE MOUNT

The diamond engine mount anchors the inner part of each damper and also acts as a support for the crankshaft. Here are the dimensions and mounting arrangement.

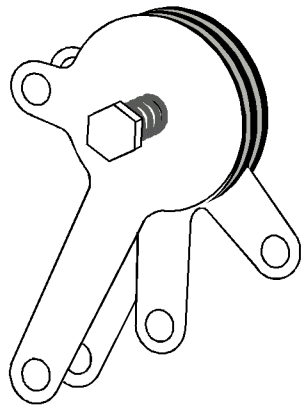
First remove the Pocher crankshaft support



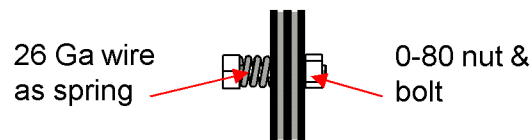
DAMPERS

There are two dampers, one on each side of the engine. The dampers consist of friction plates sandwiched between anchor plates.

Each anchor consists of three anchor plates and two friction disks. The two outer plates attach to the diamond frame and the center plate attaches to anchors on the cross-member. The stiffness of the damper was adjusted by tightening or loosening the center spring. On the model, for space reasons, the adjusting spring is placed on the front side of the dampers, not the rear side as on most prototypes.

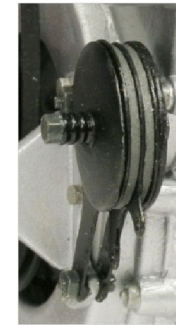
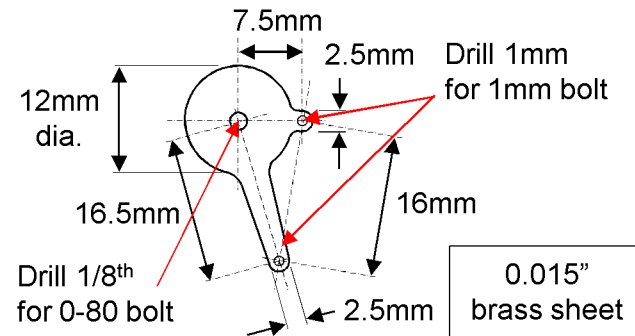


Center Bolt & Spring



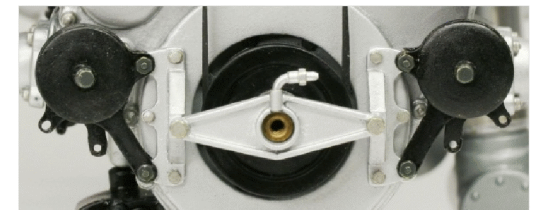
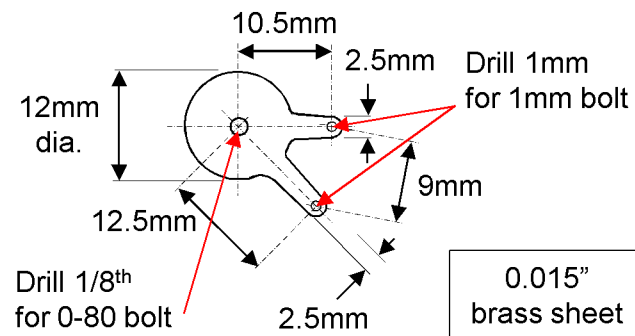
Outer Anchor Plate

(two each side)

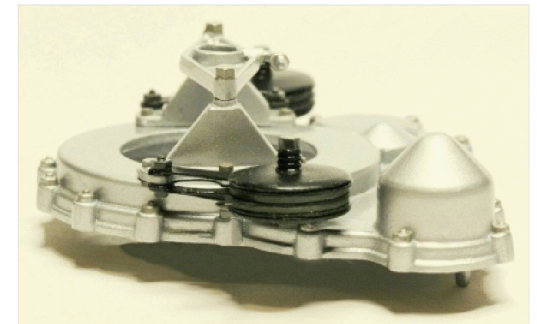
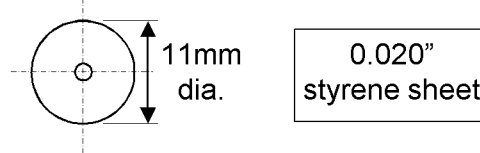


Under Construction

Inner Anchor Plate

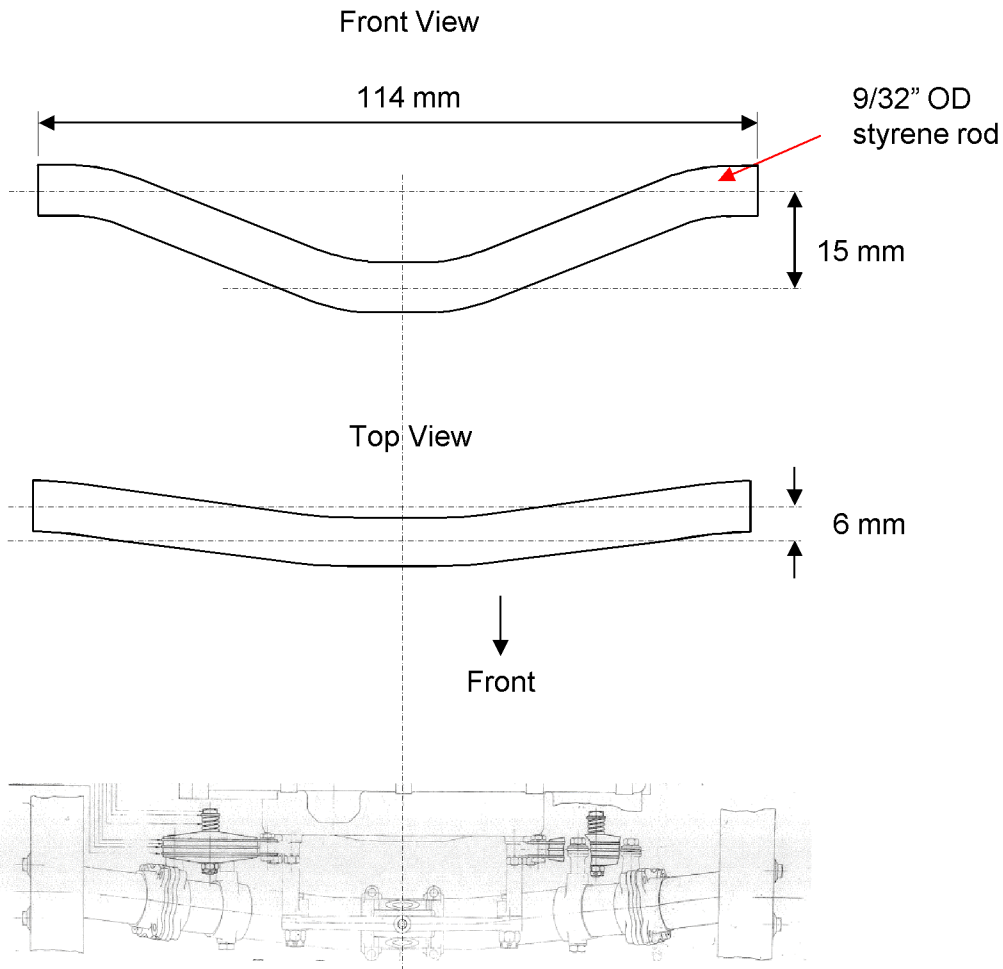


Friction Disk



CROSS MEMBER

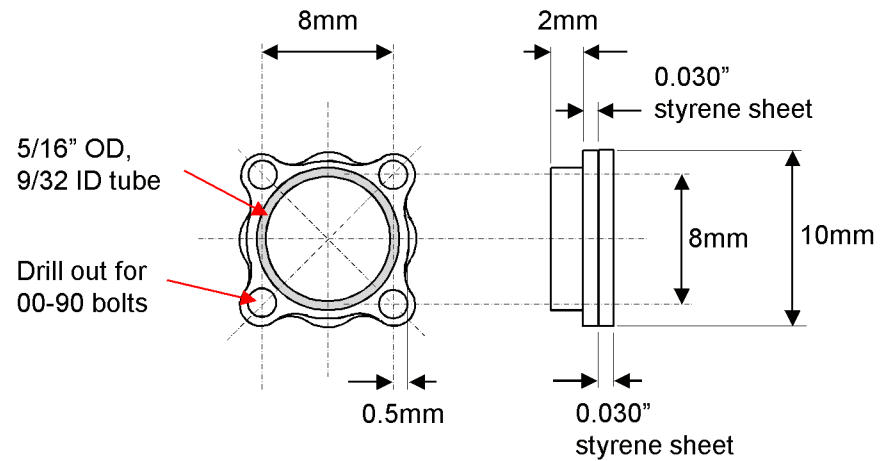
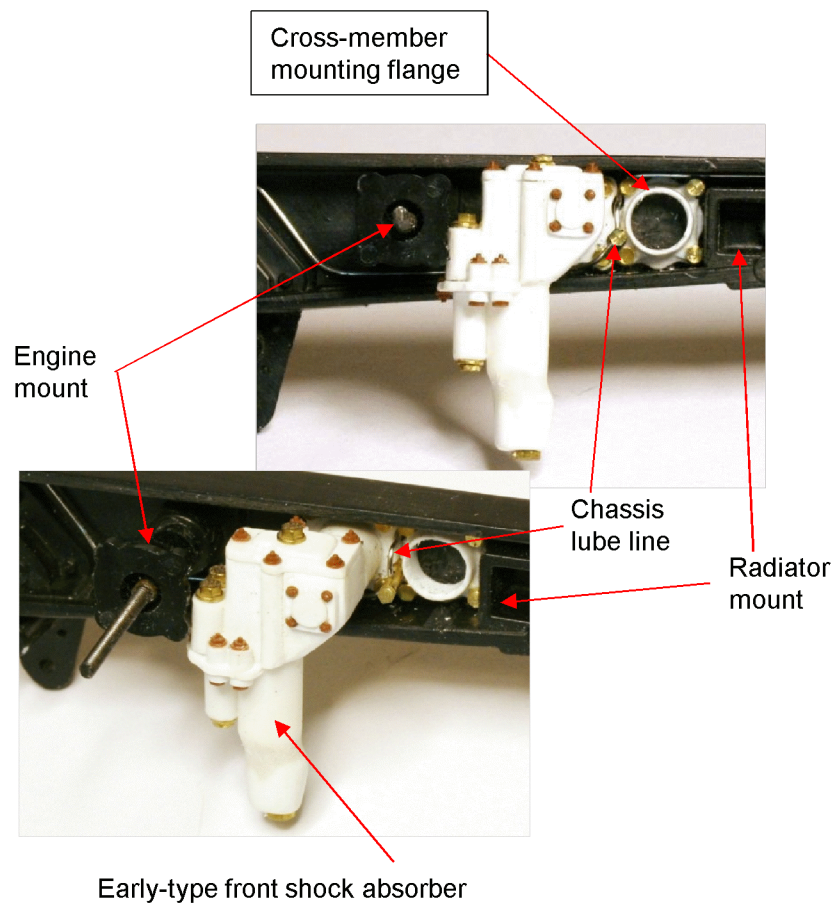
The cross-member is mounted just to the rear of the radiator. The cross-member is shaped to give clearance for the fan belt pulley and to lie underneath (and give support to) the crankshaft.



This cross-member was fabricated from four sheets of 0.080" (2mm) thick styrene glued together, then carved and sanded to the final shape

CROSS-MEMBER END FLANGES

In addition to torque reaction dampers, Phantom IIs, built between end January 1932 and end June 1933, had in-board, vertical-type, shock absorbers. To accommodate those shock absorbers, the cross-member end flanges are designed to squeeze between the engine, front shock absorber, and radiator mounts, as shown here. It gets complicated if the chassis lubrication lines are included.



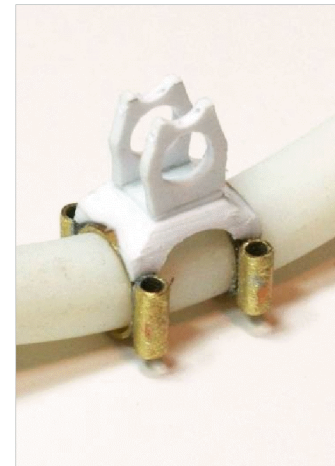
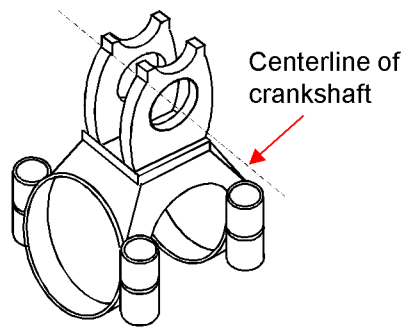
Model Flange



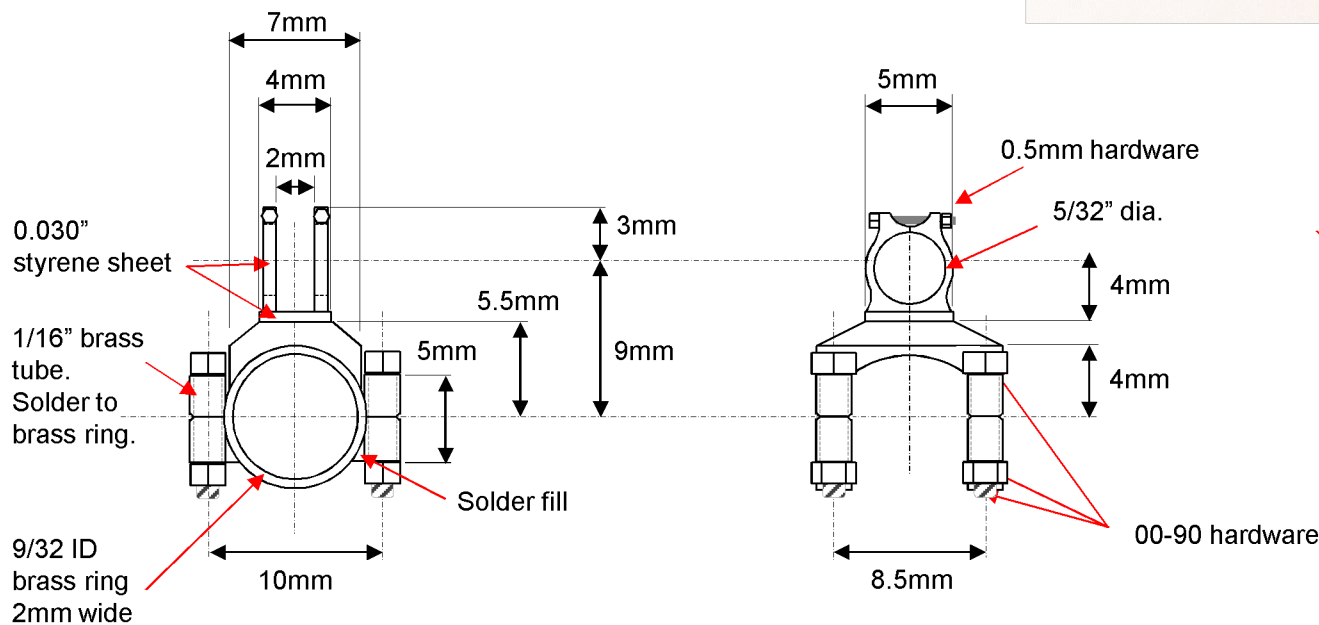
Attach flange to chassis with 00-90 hardware

CENTER SUPPORT

The center support is mounted in the middle of the cross-member. It cradles the end of the crankshaft and the diamond frame ...



Under Construction

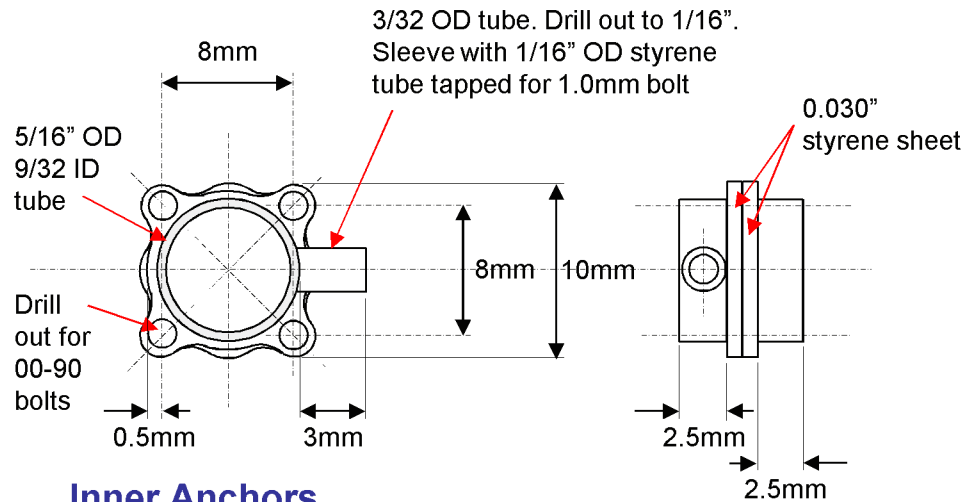


DAMPER ANCHORS

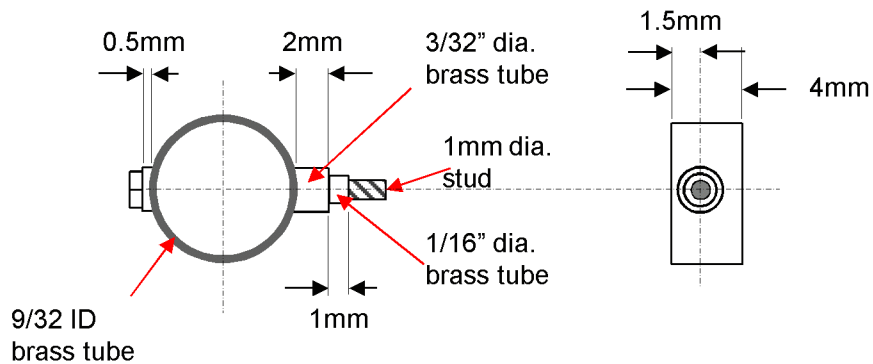
Four anchor brackets connect the dampers to the cross-member.

Outer Anchors

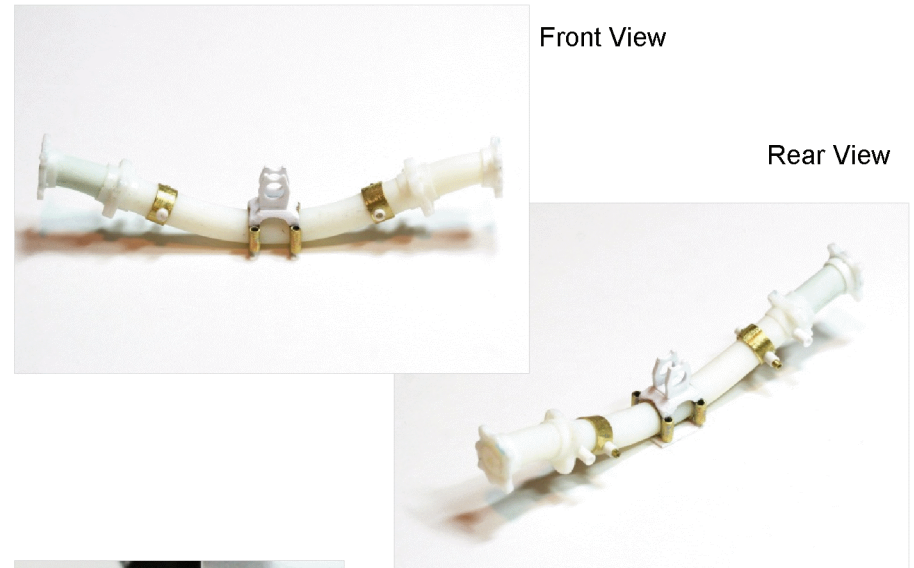
On prototypes, the cross-member was split into three pieces to allow for easy engine removal. Flanges connected the three pieces together. The inner flanges also acted as the outer anchor for the dampers.



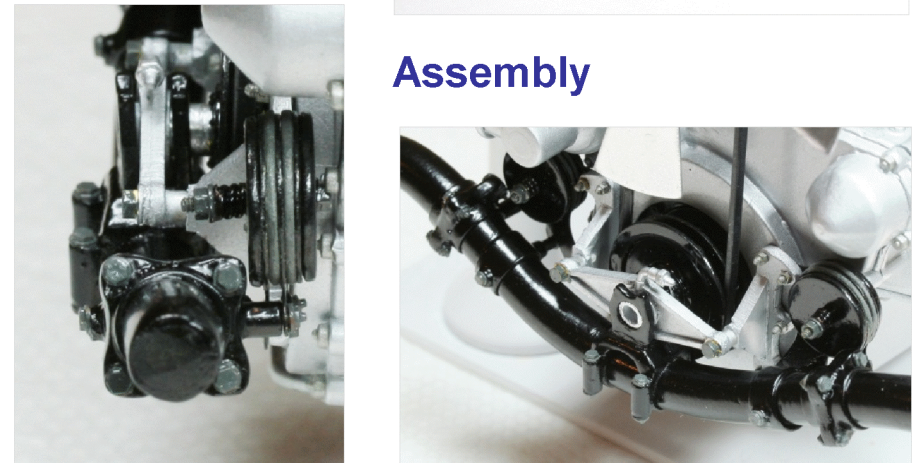
Inner Anchors



Under Construction

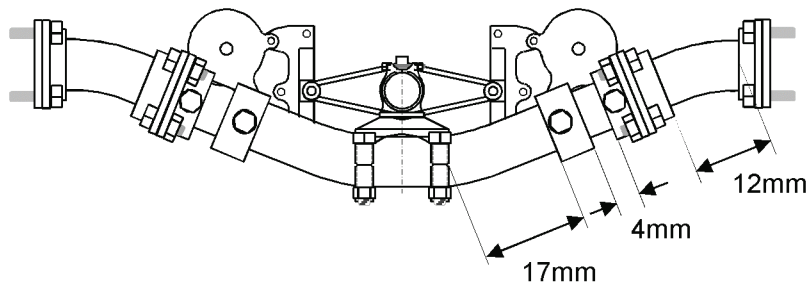
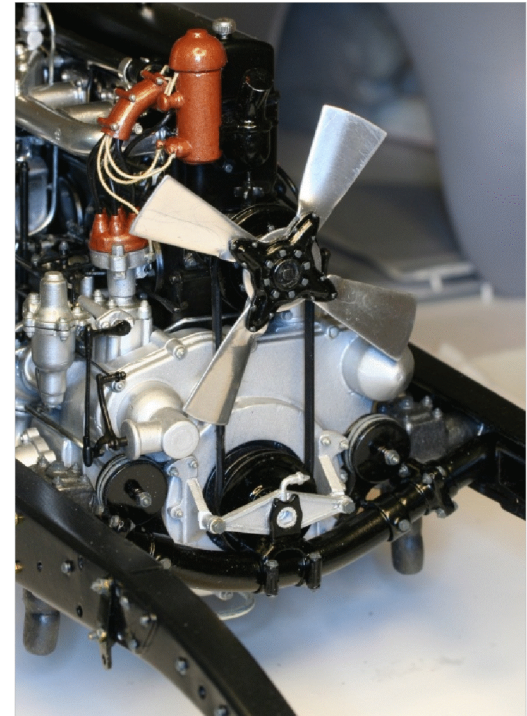
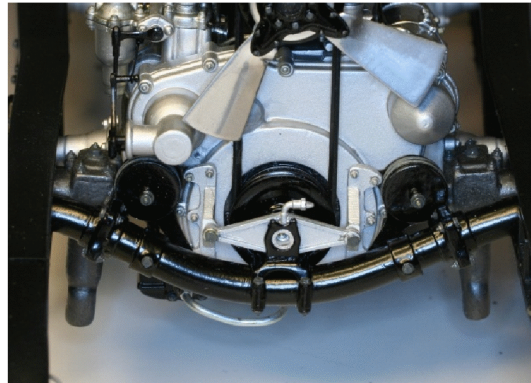
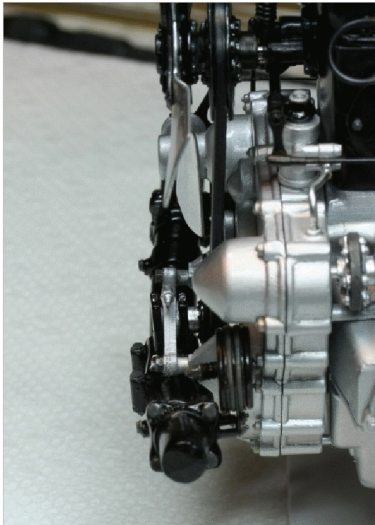


Assembly



COMPLETED ASSEMBLY

Here's the assembly, including the cross-member. The last two photos show it mounted on the engine and in the chassis frames ...



these are
approximate
dimensions only