

Engine Mounts

Mounts for Reciprocating Engines

Most aircraft equipped with reciprocating engines use an engine mount structure made of welded steel tubing. The mount is constructed in one or more sections that incorporate the engine mount ring, bracing members (V-struts), and fittings for attaching the mount to the wing nacelle.

The engine mounts are usually secured to the aircraft by special heat-treated steel bolts. The importance of using only these special bolts can be readily appreciated, since they alone support the entire weight of, and withstand all, the stresses imposed by the engine and propeller in flight. The upper bolts support the weight of the engine while the aircraft is on the ground, but when the aircraft is airborne another stress is added. This stress is torsional and affects all bolts, not just the top bolts. A typical engine mount ring shown in *Figure 8-16* discloses fittings and attachment points located at four positions on the engine mount structure. Each fitting houses a dynamic engine mount.



Figure 8-16. Engine mounting ring.

The section of an engine mount where the engine is attached is known as the engine mount ring. It is usually constructed of steel tubing having a larger diameter than the rest of the mount structure. It is circular in shape so that it can surround the engine, which is near the point of balance for the engine. The engine is usually attached to the mount by **dynafoal** mounts, attached to the engine at the point of balance forward of the mount ring. Other types of mounting devices are also used to secure the different engines to their mount rings.

As aircraft engines became larger and produced more power, some method was needed to absorb their vibration. This demand led to the development of the rubber and steel engine-suspension units called shock mounts. This combination permits restricted engine movement in all directions. These vibration isolators are commonly known as flexible, or elastic, shock mounts. An interesting feature common to most shock mounts is that the rubber and metal parts are arranged so that, under normal conditions, rubber alone supports the engine. Of course, if the engine is subjected to abnormal shocks or loads, the metal snubbers limit excessive movement of the engine. **Dynafoal** engine mounts, or vibration isolators, are units that give directional support to the engines. **Dynafoal** engine mounts have the mounting pad angled to point to the CG of the engines mass. [Figure 8-16]