

if that part either conforms to new part tolerances or meets the manufacturer's service limits. Ensure that used parts are airworthy and properly identified as a PMA or TSO part.

8-5. OIL SYSTEM LINES INSPECTION.

The inspection of the plumbing for an oil system is similar to the inspection of any other plumbing system. The tubing, hose, tube fittings, hose fittings, hose clamps, and all other components of the system are inspected for cracks, holes, dents, bulges, and other signs of damage that might restrict the oil flow or cause a leak. All lines are inspected to ensure that they are properly supported and are not rubbing against a structure. Fittings should be checked for signs of improper installation, over-torquing, excessive tension, or other conditions which may lead to failure.

8-6. OIL FILTER INSPECTION. The oil filter provides an excellent method for discovering internal engine damage. During the inspection of the engine oil filter, the residue on the screens, disks, or disposable filter cartridge and the residue in the filter housing are carefully examined for metal particles. A new engine or a newly-overhauled engine will often have a small amount of fine metal particles in the screen or filter, but this is not considered abnormal. After the engine has been operated for a time and the oil has been changed one or more times, there should not be an appreciable amount of metal particles in the oil screen. If an unusual residue of metal particles is found in the oil screen, the engine must be taken out of service and disassembled to determine the source of the particles. As an additional precaution, an oil analysis/trend analysis may prevent an engine failure in flight.

At oil changes, oil samples are often taken and sent to laboratories to be analyzed for wear by determining the amount of metal in the sample. Over time, a trend is developed and the engine can be removed from service before failure.

8-7. CYLINDER HOLD-DOWN NUTS AND CAP SCREWS. Great care is required in tightening cylinder hold-down nuts and cap screws. They must be tightened to recommended torque limits to prevent improper stressing and to ensure even loading on the cylinder flange. The installation of baffles, brackets, clips, and other extraneous parts under nuts and cap screws is not a good practice and is discouraged. If these baffles, brackets, etc., are not properly fabricated or made of suitable material, they may cause loosening of the nuts or cap screws even though the nuts or cap screws were properly tightened and locked at installation. Improper pre-stressing or loosening of any one of these nuts or cap screws will introduce the danger of progressive stud failure with the possible loss of the engine cylinder in flight.

8-8. REUSE OF SAFETYING DEVICES. Do not use cotter pins and safety wire a second time. Flat, steel-type wrist pin retainers and lock washers, likewise, must be replaced at overhaul unless the manufacturer's recommendations permit their reuse.

8-9. SELF-LOCKING NUTS FOR AIRCRAFT ENGINES AND ACCESSORIES. Self-locking nuts may be used on aircraft engines provided the following criteria are met:

- a. When their use is specified** by the engine manufacturer in the assembly drawing, parts list, and bills of material.
- b. When the nuts will not fall inside** the engine should they loosen and come off.
- c. When there is at least one full thread** protruding beyond the nut.
- d. Where the temperature will not exceed the maximum limits** established for the self-locking material used in the nut. On many