TELEDYNE CONTINENTAL® AIRCRAFT ENGINE

service bulletin

M89-5
Supersedes M79-11 and M87-10
Technical Portions Are FAA Approved

9 February 1989

SUBJECT: **ALTERNATOR AND DRIVE COUPLING INSTALLATION**

MODELS AFFECTED: IO/TSIO520, IO550, AND GTSIO520 Engines With Gear Driven Alternators

The gear driven alternators, which are not manufactured by TCM, used on subject engines are equipped with a drive coupling which has a spring assembly to help absorb torsional vibrations. This spring is wound in the opposite direction for the geared engines as compared to the direct drive engine. Coupling P/N 640933 is used on the geared engine and P/N 640934 is used on direct drive engines. Elastomer coupling P/N 646655 can be used as an option for 640933 or 640934.

The gear driven TCM alternators P/N 642056 and 642055, and subsequent part numbers used on some of the affected engine models are equipped with a bi-directional drive coupling P/N 646655 which has an elastomer section to help absorb torsional vibrations and provide a "shear" section. The proper installation of the coupling is important and special attention should be given to the following items.

Remove shipping spacer and washer from the alternator shaft and discard, if installed on TCM alternator. Follow vendor's instructions on alternators other than TCM.

WARNING...Installation of the drive coupling assembly on TCM alternators with the shipping washer in place will cause interference with the face gear on the crankshaft and will result in damage to the engine and alternator.

Install Woodruff key, coupling assembly and washer. The washer is a special thrust washer and must be installed with the bearing surface (copper color) toward the alternator. Install nut and tighten to 300 in. lbs. torque. If slots of nut do not align with the cotter pin hold in alternator shaft, the nut may be tightened further but not to exceed 450 in. lbs.

Do not back off nut to align holes. Install cotter pin as shown to insure clearance when alternator is installed in engine.

The elastomer coupling can be reused if a torque slippage check is completed. The torque required to slip the coupling elastomer when new must be 180 in. lbs. min. measured after 45 degrees of revolution at a rate of 1 to 2 degrees per second. Slippage must occur at O.D. of elastomer with no apparent damage to the elastomer for coupling in service more than 25 hours the slippage torque must not drop below 140 lbs.

(continued)

TELEDYNE CONTINENTAL MOTORS
Aircraft Products
PO Box 90 Mobile Alabama 36601

Insure that the alternator slips into the crankcase without binding and that the mounting flange is properly seated against the crankcase. Do not force the alternator into position as damage to the alternator and drive gears could result.

If there is stud interference with the mounting lug holes while mounting the subject alternators, do not force the alternator over the studs. Doing so could precipitate mount lug failure due to the resulting pre-load. If interference exists, it is permissible to enlarge the mount lug stud holes by drilling or reaming (as necessary) up to a maximum diameter of .387. Standard hole size is .337-.347.

Care must be taken during installation to assure that the alternator pilot enters the crankcase pilot bore squarely. Forcing entry with the attaching nuts may pre-stress the lugs to cause cracking and failure.

Install alternator gasket and alternator onto the engine. With the alternator pilot properly engaged in the pilot bore, run the attaching nuts up to the lug contact surfaces evenly and snug. Torque the nuts to 150-180 in. lbs. in diagonally opposite pairs.