CONTINENTAL ® AIRCRAFT ENGINE

service bulletin

M64-18
FAA-DER Approved

October 7, 1968

TO: Owners and Operators of Continental Aircraft Engines

SUBJECT: Field Conversion to Turbocharging of Continental Aircraft Engines.

Gentlemen:

In the design and construction of our naturally aspirated engines, it has been our policy to rate the engine at the maximum possible power to permit normal leanout at cruise without detonation for the particular grade of fuel to be used. At full power, the engines are set to mixture strengths necessary to properly cool and be detonation free. Service experience is abundant with such engines and reliability is quite predictable.

Engines altered in the field by addition of any type of supercharger will impart to the engine a new group of characteristics which are not predictable as to reliability. The danger of detonation and preignition is very real and can result in failure of basic engine components. Even without these abnormal stresses from detonation and preignition, the higher combustion chamber pressures and stresses which can result from supercharging with engines not designed for this characteristic may result in short engine life or failure.

Also, these conversions are not always equipped with automatic controls which are all important to prevent the possibility of over-boosting which results in over-stressing of engine components.

Later engines of 8.5 - 8.6 compression ratio, as previously stated, are rated to the highest power that can be tolerated with the use of high octane fuel. The engine is designed and qualified for the resulting peak cylinder pressures and stresses for all engine components. Under hot day leanout conditions at cruise the engine will not tolerate advanced magneto timing, substandard fuel, or other factors which increase pressure or temperature above that for which it was qualified.

Therefore, any effort to supercharge these engines would be risky, even with the so-called "normalizing" only. This is because sea level manifold pressures would be utilized at high altitude with resulting high manifold air temperatures that are above the maximums for detonation-free operation.

We are, therefore, not in a position to continue engine warranty on engines which were not originally designed for turbocharging but which have been converted to turbocharging in the field

TELEDYNE CONTINENTAL MOTORS
Aircraft Products Division
PO Box 90 Mobile Alabama 36601