

service bulletin

M78-8

25 August 1978

TO: Distributors, Dealers, Engine Overhaul Facilities, Owners and Operators of Teledyne Continental Motors' Aircraft Engines.

SUBJECT: IGNITION SYSTEM MAINTENANCE

MODELS

AFFECTED: L/TSIO-360-E, EB, and TSIO-360-F, FB Series Engines as Installed in Piper Turbo-Arrow and Seneca II Aircraft.

Gentlemen:

The Aircraft Service Department is continuing to receive reports of intermittent roughness during high altitude operation (above 12,000 feet) on these engines.

In most instances, the problem(s) is determined to be an ignition system component(s) requiring routine maintenance. The Piper Service Manuals for the Seneca II and Turbo-Arrow Aircraft include the statement: "For operation above 12,000 feet more frequent ignition system maintenance is required". It is not uncommon to have to perform complete routine servicing at 100 hour intervals or less when the aircraft is being operated consistently at high altitude.

We, at TCM, would like to point out some of the areas commonly overlooked during routine servicing of the ignition system and recommend that efforts be made to determine the cause of the problem(s) rather than immediately changing spark plugs or reducing plug gaps below minimum when occasional ignition system roughness occurs.

The Spark Plug Manufacturer's Service Manual and the Bendix Electrical Components Division Master Service Manual should always be referred to for the particular details of each cleaning and servicing operation.

Required items to check during troubleshooting and performance of routine ignition system maintenance are:

1) Spark Plugs

- a. Cleanliness should be equivalent of a new spark plug at both the firing and terminal barrel ends after servicing. The firing end should be cleaned using the proper vibrator cleaner or "Abrasive Blast" cleaner. The preferred method of cleaning the terminal well end is with the "Abrasive Blast" cleaner and the proper terminal well cleaner adapter. Terminal well cleaning is often overlooked and shows up as "terminal well flashover" during operation causing intermittent engine roughness.

- b. Ceramic should not be chipped or cracked in the firing end or terminal well end.
 - c. Electrodes for wear beyond 50% of their original thickness. Electrode gaps should be set at .016" for both fine wire and massive electrode plugs. A .015" go and .017" no go gauge should be used to check plug gaps.
 - d. Threads for cleanliness and deterioration. Threads on the shell and shielding barrel should be cleaned with a wire hand brush or power driven brush with wire size not exceeding .005" diameter.
 - e. After cleaning and visual inspection of spark plugs, test for satisfactory plug operation using an approved compression chamber test unit. The test pressure should be 135 psi at an electrode gap setting of .016".
- 2) Ignition Harness
- a. Using a High Tension Lead Tester, check ignition leads for high voltage leakage and resistance.
 - b. Check sleeves and ferrules on spark plug end of harness for cleanliness and cracks. Terminal sleeves should be handled only with clean dry hands. Clean with a lint-free cloth moistened in methylethyl-ketone or clean unleaded gasoline.
 - c. Check contact springs for corrosion or other signs of deterioration and replace as necessary.
3. Distributor Block and Cover Plate
- a. Check for signs of carbon tracking or arc-over to surrounding magneto structure. Check grommets for cleanliness and security.
4. Magneto Condition
- a. Check for internal cleanliness noting any signs of oil seal leakage.
 - b. Check contact point gap .018" \pm .006" and "E" gap 6° to 14°. Bendix Timing Kit 11-8150 should be used for this operation. Breaker points should always be inspected for signs of severe erosion or deterioration prior to checking point gap and "E" gap and replaced as required.
5. Magneto to Engine Timing

Adjust magneto to engine timing to 20° BTC using the procedures in section 8 of the TCM Overhaul Manual publication number X-30030A. Please remember that timing marks for the LTSIO-360 are on the outer edge of the crankshaft propeller flange. If propeller device equipment is installed on this engine, a universal propeller tip timing disc can be used similar to that sold by Borroughs Tool and Equipment Corporation, Kalamazoo, Michigan. The preferred method of engine timing is to use the positive stop method of determining T.D.C. and the propeller tip timing disc.

The Spark Plug Manufacturer's Service Manual is available through your local Spark Plug Distributor.

The Bendix Master Service Manual is available through your local Bendix Electrical Components Distributor or from:

Bendix Electrical Components Division
Sidney, New York 13838