

GLASTAR SERVICE BULLETIN 32, SUPPLEMENT A

MANDATORY



Note This publication **supplements** GlaStar Service Bulletin 32, which remains in effect; it **does not** supersede it.

Subject: O-320 and O-360 exhaust system [P/N 925-02000-01 and 925-03000-01, respectively] cracking


Applicability: Exhaust systems shipped prior to 7/31/97 **and** installed on Dynafocal-mount Lycoming engines

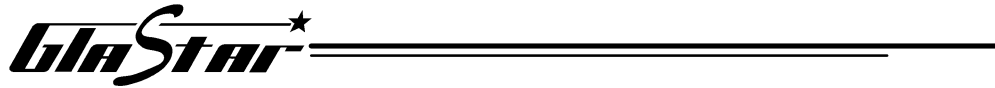
Discussion: In consultation with our exhaust vendor, we have determined that there are two main problems with the exhaust systems that are likely leading to the premature cracking failures we have observed.

First, the exhaust stack is simply too long. Since the stack is cantilevered off the muffler portion of the collector assembly inside the heat muff, the longer it is, the more strain it imposes on the muffler and the welded joint when the system vibrates. Shortening the stack will reduce its moment arm. Additionally, to the extent that harmonic vibrations may be contributing to the premature cracking, shortening the stack will change the harmonic characteristics of the system, perhaps enhancing the solution

Second, the 1/4" gap between the exhaust stack and the cowling called out in the cowling installation instructions is too small. When the engine and exhaust system vibrate particularly heavily (especially during engine start and low-RPM operation), the exhaust stack can easily move more than 1/4", thereby contacting the cowling. A slightly wider gap will have negligible drag effects and will prevent direct contact between the stack and the cowling.

We believe that solving these two problems in the manner outlined on the following page will prevent premature cracking of the exhaust system. Unfortunately, only time in service can positively confirm or disprove this belief. If further action is required, it will be outlined in a subsequent supplement to Service Bulletin 32.

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Required Actions: The following actions are required **before further flight**:


- A) Cut off the existing exhaust stack about **1-1/2" below** and **parallel to** the lower surface of the cowling where the pipe exits. This can be done in place with a hacksaw or a "Sawzall"-type utility saw, or the exhaust can be marked, removed from the aircraft, and trimmed with a chopsaw or other saw. Deburr the cut edges for safe inspection, grounding during fueling, etc.
- B) Enlarge the gap between the cowling and the exhaust stack to approximately **3/4"** all the way around the stack. This is most easily done with the cowling removed from the aircraft using a rotary file in a die grinder.

In addition to the preceding remedial actions, the following two inspection procedures are required until further notice:

- C) The **mandatory pre-flight inspection** of the exhaust stack that was prescribed in Service Bulletin 32 **remains in effect**. Prior to every flight, grasp the end of the exhaust stack firmly and wiggle it back and forth. There will naturally be a small amount of flex in the system, but any significant movement of the stack or any squeaking noise indicates the presence of cracking. **In addition**, inspect for evidence of contact between the exhaust stack and the cowling. This will most likely show up as rub marks on the stack. Relieve any points of contact on the cowling **before further flight**.
- D) At intervals not to exceed **every twenty-five hours of flight time**, the entire exhaust system should be visually inspected for cracking. Such an inspection should include the removal of the heat muff portion of the system to enable a thorough inspection of the joints between the main collector manifold and the outlets welded to it. This inspection can be scheduled to coincide with oil changes to minimize inconvenience and downtime.

Any evidence of cracking found will render the aircraft unairworthy until suitable repairs are made.

At such time as an adequate record of time in service without further cracking problems is established for these systems, these inspection requirements will be rescinded. Any such modification of these requirements will be communicated in a subsequent supplement to Service Bulletin 32.

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