

Piper PA-46 (Malibu) Series Aeroplanes

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## AIRWORTHINESS DIRECTIVE

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For the reasons set out in the background section, the CASA delegate whose signature appears below issues the following Airworthiness Directive (AD) under subregulation 39.1 (1) of CAR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

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**AD/PA-46/29**

**Turbine Inlet Temperature Gauge**

**8/2000**

**Applicability:** Models PA-46-310P and PA-46-350P aeroplanes, all serial numbers, that are equipped with a Lewis or Transicoil Turbine Inlet Temperature (TIT) Gauge and associated probe installed.

*Note 1: Relief from this Directive is available only if the gauge and probe have been replaced through a Supplemental Type Certificate or a modification approved pursuant to Civil Aviation Regulation (1988) 35 and not if a second TIT gauge was installed while retaining the Lewis or Transicoil gauge and probe.*

**Requirement: For Model PA-46-310P aeroplanes:**

1. Perform the following on the TIT System:
  - a. Clean and inspect the TIT gauge and probe in accordance with procedures in PA-46-310P/350P Maintenance Manual, Chapter 77-20-00 (section A.(1)(d), pages 1 and 2).
  - b. Calibrate the system in accordance with procedures in PA-46-310P/350P Maintenance Manual, Chapter 77-20-00 (pages 3 and 4).
2. Repair or replace any failed parts detected during the Requirement 1 inspection or calibration with serviceable parts as listed in Table 1.
3. Incorporate revised emergency procedures in Section 3 of the Aeroplane Flight Manual/Pilot's Operating Handbook (AFM/POH). This may be accomplished by inserting the following statement in the AFM/POH or by incorporating the appropriate revision, listed in Table 2, in the AFM/POH.
  - (i) If the turbine inlet temperature indication fails during takeoff, climb, descent, or landing, maintain FULL RICH mixture to assure adequate fuel flow for engine cooling.
  - (ii) If the turbine inlet temperature indication fails after cruise power has been set, maintain cruise power setting and lean to 6 gallons per hour (GPH) fuel flow above that specified in the Power Setting Table in Section 5 of the AFM/POH. Continually monitor engine cylinder head and oil temperatures to avoid exceeding temperature limits.

4. Lewis or Transicoil TIT gauges or probes may not be installed without assuring that they are airworthy and calibrated. This may be determined by using the procedures referenced in Requirement 1.

**For Model PA-46-350P aeroplanes:**

5. Perform the following on the TIT System:
  - a. Clean and inspect the TIT gauge and probe in accordance with the following procedures:
    - (i) For serial numbers 4622001 through 4622200 and 4636001 through 4636020, utilise the PA-46-350P Maintenance Manual, Chapter 77-20-00 (section 1.C, page 1).
    - (ii) For all serial numbers beginning with 4636021, utilise the PA-46-350P Maintenance Manual, Chapter 77-20-00 (section 1.C, page 1).
  - b. Calibrate the system in accordance with the following procedures:
    - (i) For serial numbers 4622001 through 4622200 and 4636001 through 4636020, utilise the PA-46-350P Maintenance Manual, Chapter 77-20-00 (section 1.I, pages 4 through 7).
    - (ii) For all serial numbers beginning with 4636021, calibration is not required.
6. Repair or replace any failed parts detected during the Requirement 5 inspection or calibration with serviceable parts as listed in Table 1.
7. Replace the probe with a new part number 481-389 or 481-392 probe.
8. Incorporate revised emergency procedures in Section 3 of the AFM/POH. This may be accomplished by inserting the following statement in the AFM/POH or by incorporating the appropriate revision, listed in Table 2, in the AFM/POH.
  - (i) If the turbine inlet temperature indication fails during takeoff, climb, descent or landing, set power per the POH Section 5 Power Setting Table and then lean to the approximate POH Power Setting Table fuel flow plus 4 GPH.
  - (ii) If the turbine inlet temperature indication fails after cruise power has been set, maintain the power setting and increase indicated fuel flow by 1 GPH. Continually monitor engine cylinder head and oil temperatures to avoid exceeding temperature limits.

9. Lewis or Transicoil TIT gauges or probes may not be installed without assuring that they are airworthy and calibrated. This may be determined by using the procedures referenced in Requirement 5.

<b>Table 1</b>	
<b>Equipment Name and Manufacturer</b>	<b>Part Number</b>
Lewis Turbine Inlet Temperature Analog Indicator	471-008. This is the only indicator that has a zero adjustment screw.
Lewis Turbine Inlet Temperature Digital Indicator	548-811. Since this indicator does not have a zero adjustment screw, you must return it to the factory for adjustment or replacement.
Lewis Turbine Inlet Temperature Probe	471-009 for PA-46-310P aeroplanes and 481-389 or 481-392 for PA-46-350P aeroplanes.

<b>Table 2</b>		
<b>AFM/POH Report No</b>	<b>Revision/Date</b>	<b>Affected Serial Numbers</b>
<b>Model PA-46-310P aeroplanes</b>		
VB-1200	16/19 March 1999	46-8408001 through 46-8608067 and 4608001 through 4608007
VB-1300	13/25 February 1999	4608008 through 4608140
<b>Model PA-46-350P aeroplanes</b>		
VB-1332	16/14 November 1997	4622001 through 4622200
VB-1609	1/21 November 1997	463001 through 4636020
VB-1602	1/28 November 1997	4636021 through 4636131
VB-1446	New/3 December 1997	4636132 through 4636195
VB-1710	New/23 February 1999	all serial numbers after 4636195

*Note 2: FAA AD 99-15-04 Revision 1 Amdt 39-11747 refers.*

- Compliance: For Requirement 1 - Within the next 100 hours time in service (TIS) after the effective date of this Directive.
- For Requirement 2 - Before further flight following the Requirement 1 inspection and calibration.
- For Requirement 3 - Within the next 100 hours TIS after the effective date of this Directive unless the applicable AFM/POH revision is incorporated (Refer to Table 2).
- For Requirement 4 - As of the effective date of this Directive.
- For Requirement 5 - Within the next 100 hours TIS after the effective date of this Directive.
- For Requirement 6 - Before further flight following the Requirement 5 inspection and calibration.
- For Requirement 7 - Upon accumulating 250 hours TIS on the currently installed TIT probe or within the next 100 hours TIS after the effective date of this Directive, whichever occurs later, and thereafter at intervals not to exceed 250 hours TIS.
- For Requirement 8 - Within the next 100 hours TIS after the effective date of this Directive unless the applicable AFM/POH revision is incorporated (Refer to Table 2).
- For Requirement 9 - As of the effective date of this Directive.

This Airworthiness Directive becomes effective on 10 August 2000.

- Background: This Directive is intended to detect and correct improperly calibrated TIT indicators or defective TIT probes. These conditions, if not detected and corrected, could result in improper engine operation and engine damage/failure with consequent loss of control of the aeroplane.



Eugene Paul Holzapfel  
Delegate of the Civil Aviation Safety Authority

23 June 2000