

# MANDATORY SERVICE BULLETIN NO. MSB 42-003

## **I. TECHNICAL DETAILS**

### **1.1 Category**

Mandatory.

### **1.2 Airplanes affected**

Type: DA 42  
Serial numbers: 42.004 up to and incl. 42.011

### **1.3 Time of Compliance**

within the next 100 flight hours but not later than 01-Oct-2005, whichever occurs first.

### **1.4 Subject**

Thielert Software m2.7  
ATA-Code: 75-00

### **1.5 Reason**

It has been found that if the outside air temperature in altitudes above 5000 ft is below -15 °C and if the aircraft is in a prolonged high altitude descent at idle power setting, the engine will cool out and might fail. Therefore the power setting must not be less than 30 % during descent above 5000 ft. If this Service Bulletin is carried out and the software m2.7 is installed, this power setting is no longer necessary.

### **1.6 Concurrent documents**

- Thielert Service Bulletin TM TAE 125-0004 - Rev.4
- LBA - Airworthiness Directive D-2005-145

### **1.7 Approval**

The technical information or instructions contained in this document relate to the Design Change Advisory No. MÄM 42-070 which has been approved under the authority of EASA Design Organization Approval No. EASA.21J.052.

The technical content of this document has been approved under the authority of DOA No. EASA.21J.052.

### **1.8 Accomplishment/Instructions**

- a) Comply with Thielert Service Bulletin TM TAE 125-0004 - Rev.4
- b) Incorporate Temporäre Revision / Temporary Revision TR-MÄM-42-070 into the Flughandbuch Dok. Nr. 7.01.05 / Airplane Flight Manual Doc. No. 7.01.05-E.

### **1.9 Mass (Weight) and CG**

Not affected

## **II. PLANNING INFORMATION**

### **2.1 Material & Availability**

TR-MÄM-42-070, Thielert Service Bulletin TM TAE 125-0004 - Rev.4 and LBA - Airworthiness Directive D-2005-145 in German and English language is part of this Service Bulletin

### **2.2 Special Tools**

none

### **2.3 Labor effort**

45 min

### **2.4 Credit**

none

## **2.5 Reference documents**

DA 42 Flughandbuch Dok. Nr. 7.01.05  
DA 42 Airplane Flight Manual, Doc. No. 7.01.05-E

## **III. REMARKS**

1. Accomplishment of the measures must be confirmed in the airplane technical log book.
2. In case of any doubt, contact Diamond Aircraft.



**Thielert Aircraft Engines GmbH**  
**Platanenstrasse 14**  
**09350 Lichtenstein, Germany**

Tel: +49 (37204) 6960  
Fax: +49 (37204) 69650  
www.centurion-engines.com  
info@centurion-engines.com

## **Technische Mitteilung / Service Bulletin**

Technische Mitteilung Nr. / Datum: TM TAE 125-0004, Revision 4 / 01.04.2005  
Service Bulletin No. / Date TM TAE 125-0004, Revision 4 / April 01<sup>st</sup>, 2005

Betrifft: neuer Stand Firmware und Mapping  
Subject: new version of firmware and mapping

Betroffenes Luftfahrtgerät: TAE 125-01  
Type affected: TAE 125-01

Betroffene Geräte-Nr.: alle  
Models affected: All

Einstufung: Kategorie 1 – Sicherheit  
Compliance: Category 1 – safety

Dringlichkeit: Maßnahmen sind innerhalb der folgenden 100 Flugstunden durchzuführen, spätestens aber bis zum 01.10.2005.

Accomplishment: Measures have to be completed within the next 100 flight hours, latest by October 1<sup>st</sup>, 2005.

Grund: Korrekturmaßnahme zur Vermeidung eines möglichen Leistungsverlustes nach langandauernden Sinkflügen in Leerlaufstellung bei niedrigen Außentemperaturen.

Reason: Corrective action to prevent loss of power after prolonged descent at idle power setting at low outside air temperatures.

Maßnahmen: Bis zur Durchführung der nachstehenden Maßnahme ist für langandauernde Sinkflüge oberhalb 5000ft eine Leistungsstellung von nicht weniger als 30% zu wählen.  
Installation der neuen Software.  
Installationshinweise siehe Betriebs- und Wartungshandbuch des TAE 125-01 (OM 02-01).

Correction: Until corrective action as described below is carried through, the power setting for prolonged descents above 5000ft has to be selected not less than 30%.

Installation of the new software.  
For installation instructions see Operation and Maintenance Handbook of the TAE 125-01 (OM 02-01).



**Thielert Aircraft Engines GmbH**  
**Platanenstrasse 14**  
**09350 Lichtenstein, Germany**

Tel: +49 (37204) 6960  
 Fax: +49 (37204) 69650  
 www.centurion-engines.com  
 info@centurion-engines.com

## Technische Mitteilung / Service Bulletin

**Technische Mitteilung Nr. / Datum:** TM TAE 125-0004, Revision 4 / 01.04.2005

**Service Bulletin No. / Date:** TM TAE 125-0004, Revision 4 / April 01<sup>st</sup>, 2005

**Hinweise: /Remarks:**

Neues Mapping für Variante <i>New Mapping for variant</i>				
Flugzeug Aircraft	Verdichtung Compression	Bordnetz Electr. system	Bezeichnung Designation	Teilenummer Partnumber
DA 40	18:1	14 V	T14V270DIA	50-7610-55-105R7
C 172	18:1	14 V	T14V270CES	20-7610-55-104R7
PA28	18:1	14 V	T14V270PIP	40-7610-55106R7
DR400	18:1	14 V	T14V270APEX	60-7610-55106R7
DA 40	18:1	28 V	T28V270DIA	50-7610-55-106R5
C 172	18:1	28 V	T28V270CES	20-7610-55-105R5
PA28	18:1	28 V	T28V270PIP	40-7610-55107R5
DA42	18:1	28 V	R28V270DIA	50-7610-55107R3
Neue Firmware alle Varianten 18:1 <i>New Firmware all variants 18:1</i>			TAE-125 m2.7	02-7610-55-101R7

Mapping für Variante <i>Mapping for variant</i>				
Flugzeug Aircraft	Verdichtung Compression	Bordnetz Electr. system	Bezeichnung Designation	Teilenummer Partnumber
DA 40	19:1	14 V	S14V230DIA	50-7610-55-105R3
C 172	19:1	14 V	S14V230CES	20-7610-55-104R3
Neue Firmware alle Varianten 19:1 <i>New Firmware all variants 19:1</i>			TAE-125 m2.32	02-7610-55-101R4

Die Technische Mitteilung TM TAE 125-0006 Software 18:1 wird mit sofortiger Wirkung ungültig.  
*Service Bulletin TM TAE 125-0006 Software 18:1 is withdrawn with immediate effect.*

**Zulassung:** Die technischen Informationen, die in diesem Dokument enthalten sind, wurden im Rahmen der Befugnisse der EASA- Genehmigung als Entwicklungsbetrieb Nr. EASA.21J.010 genehmigt.

**Approval:** The technical information contained in this document has been approved under the authority of EASA Design Organisation Approval no. EASA.21J.010.

**Datum der Bekanntgabe: 30.04.2005**

**Muster:** Thielert Aircraft Engines  
TAE125

**AD der ausländischen Behörde:**  
-keine-

**Geräte-Nr.:**  
4631

**Technische Mitteilungen des Herstellers:**  
Thielert Aircraft Engines Technische Mitteilung TM TAE 125-0004,  
Revision 4 vom 01.04.2005

**Betroffenes Luftfahrtgerät:**

Thielert Aircraft Engines  
TAE125

- **Baureihen:** TAE125-01

- **Werk-Nrn.:** Alle

**Betrifft:**

Leistungsverlust des Triebwerks nach langandauernden Sinkflügen in Leerlaufstellung bei niedrigen Außentemperaturen.

**Maßnahmen:**

Im Rahmen dieser Lufttüchtigkeitsanweisung sind folgende Maßnahmen vorgesehen:

1. Bis zur Durchführung des Full Authority Digital Engine Control Unit (FADEC) Software-Updates ist für langandauernde Sinkflüge oberhalb 5000ft eine Leistungsstellung von nicht weniger als 30% zu wählen.
2. Durchführung des FADEC Software-Updates gemäß Betriebs- und Wartungshandbuch Nr. OM 02-01.

Alle erforderlichen Maßnahmen müssen nach der genannten Technischen Mitteilung des Herstellers durchgeführt werden.

**Fristen:**

Für die Durchführung der einzelnen Maßnahmen sind folgende Fristen festgelegt worden:

Maßnahme 1:

Sofort nach dem Datum der Bekanntgabe dieser Lufttüchtigkeitsanweisung.

Maßnahme 2:

Innerhalb der nächsten 100 Flugstunden oder bis zum 01.10.2005. Verbindlich ist der zuerst eingetretene Zeitpunkt!

Durch die vorgenannten Mängel ist die Lufttüchtigkeit des Luftfahrtgerätes derart beeinträchtigt, daß es nach Ablauf der genannten Fristen nur in Betrieb genommen werden darf, wenn die angeordneten Maßnahmen ordnungsgemäß durchgeführt worden sind. Im Interesse der Sicherheit des Luftverkehrs, das in diesem Fall das Interesse des Adressaten am Aufschub der angeordneten Maßnahmen überwiegt, ist es erforderlich, die sofortige Vollziehung dieser LTA anzuordnen.

**Rechtsbehelfsbelehrung:**

Gegen diese Verfügung kann innerhalb eines Monats nach Bekanntgabe Widerspruch eingelegt werden. Der Widerspruch ist schriftlich oder zur Niederschrift beim Luftfahrt-Bundesamt, Hermann-Blenk-Str. 26, 38108 Braunschweig einzulegen.

*LTA's werden auch im Internet unter <http://www.lba.de> publiziert*

\*\*\*



**Airworthiness  
Directive**

**D-2005-145**

**Luftfahrt-Bundesamt**  
Airworthiness Directive Section  
Hermann-Blenk-Str. 26  
38108 Braunschweig  
GERMANY

**Thielert Aircraft Engines**

Effective Date: 30 April 2005

**Affected:**

Kind of aeronautical product: Aircraft Engine  
Manufacturer: Thielert Aircraft Engines GmbH, Platanenstrasse, Lichtenstein, Germany  
Type: TAE125  
Models affected: TAE125-01  
Serial Numbers affected: All  
German Type Certificate No.: 4631

**Subject:**

Software update of the Full Authority Digital Engine Control Unit (FADEC) due to a software error.

**Reason:**

Due to a software error in the Full Authority Digital Engine Control Unit (FADEC) loss of power incidents after prolonged descent at idle power setting at low outside air temperatures have been determined during operation. The actions specified in this airworthiness directive are intended to prevent loss of power incidents after prolonged descent at idle power setting, which could result in an emergency landing.

**Action:**

The following actions are required by this airworthiness directive:

1. Unless the software update of the Full Authority Digital Engine Control Unit (FADEC) has been carried out, the power setting for prolonged descents above 5000ft must not fall below 30%.
2. Software update of the Full Authority Digital Engine Control Unit (FADEC) in compliance with the Operation and Maintenance Handbook No. OM 02-01.

All mentioned actions must be accomplished in accordance with the referenced manufacturer service bulletin.

**Compliance:**

For the necessary actions mentioned above the following compliance times have been laid down:

1. Immediately after the effective date of this airworthiness directive.
2. Within the next 100 flight hours or before 01 October 2005, whichever occurs first.

**Technical publication of the manufacturer:**

Thielert Service Bulletin No. TM TAE 125-0004, Revision 4, of 01 April 2005. This service bulletin becomes herewith part of this AD and may be obtained from:

Thielert Aircraft Engines GmbH  
Platanenstrasse 14  
09350 Lichtenstein, GERMANY  
Tel: +49-37204-6960, Fax: +49-37204-69650  
info@centurion-engines.com  
[www.centurion-engines.com](http://www.centurion-engines.com),

**EASA-Approval**

Approved by EASA under approval-No. 2005-2921 on 01 April 2005.

## TEMPORARY REVISION

### TR-MÄM-42-070

### TAE SOFTWARE 2.7

This Temporary Revision TR-MÄM-42-070 is approved in conjunction with the Mandatory Design Change Advisory MÄM 42-070 and is valid in conjunction with the latest revision of the DA 42 Airplane Flight Manual until this temporary revision has been incorporated into the Airplane Flight Manual.

The limitations and information contained herein either supplement or, in the case of conflict, override those in the Airplane Flight Manual.

The technical information contained in this document has been approved under the authority of DOA No. EASA.21J.052.

Doc. No.	Section	Affected Pages
7.01.05-E	2	2-11a
	4B	4B-16a, 4B-17a
	5	5-11a, 5-12a, 5-14a, 5-16a, 5-18a
	7	7-28a, 7-51a, 7-56a

#### **Instruction**

- Print this document on yellow paper (single-sided).
- Insert this cover page as the first page of the AFM.
- Insert the other pages of this Temporary Revision in front of the corresponding AFM pages.

Doc. # 7.01.05-E	TR-MÄM-42-070	01-Apr-2005	Cover Page
------------------	---------------	-------------	------------

Color and significance of the caution alerts on the G1000

***The first two lines in the table are amended to read:***

Caution-alerts (amber)	Meaning / Cause
L/R ECU A FAIL	* A fault has occurred in the left / right engine ECU A (one reset of minor faults is possible) or * ECU A is being tested during the FADEC-test procedure during the 'before take-off-check.'
L/R ECU B FAIL	* A fault has occurred in the left / right engine ECU B (one reset of minor faults is possible) or * ECU B is being tested during the FADEC-test procedure during the 'before take-off-check.'

**4B.4.2 L/R ECU A FAIL**

***Paragraph (b) is amended to read:***

**(b) 'ECU A' caution during flight**

**NOTE**

In case of a failure in the electronic ECU (Engine Control Unit) 'A' the system automatically switches to ECU 'B'.

1. Press the ECU TEST button for more than 2 seconds to reset the caution message.

*If the ECU A caution message re-appears, or cannot be reset:*

2. Land on nearest suitable airfield.
3. The engine must be serviced after landing.

*If the ECU A caution message can be reset:*

2. Continue flight.
3. The engine must be serviced after landing.

**4B.4.3 L/R ECU B FAIL**

***Paragraph (b) is amended to read:***

**(b) 'ECU B' caution during flight**

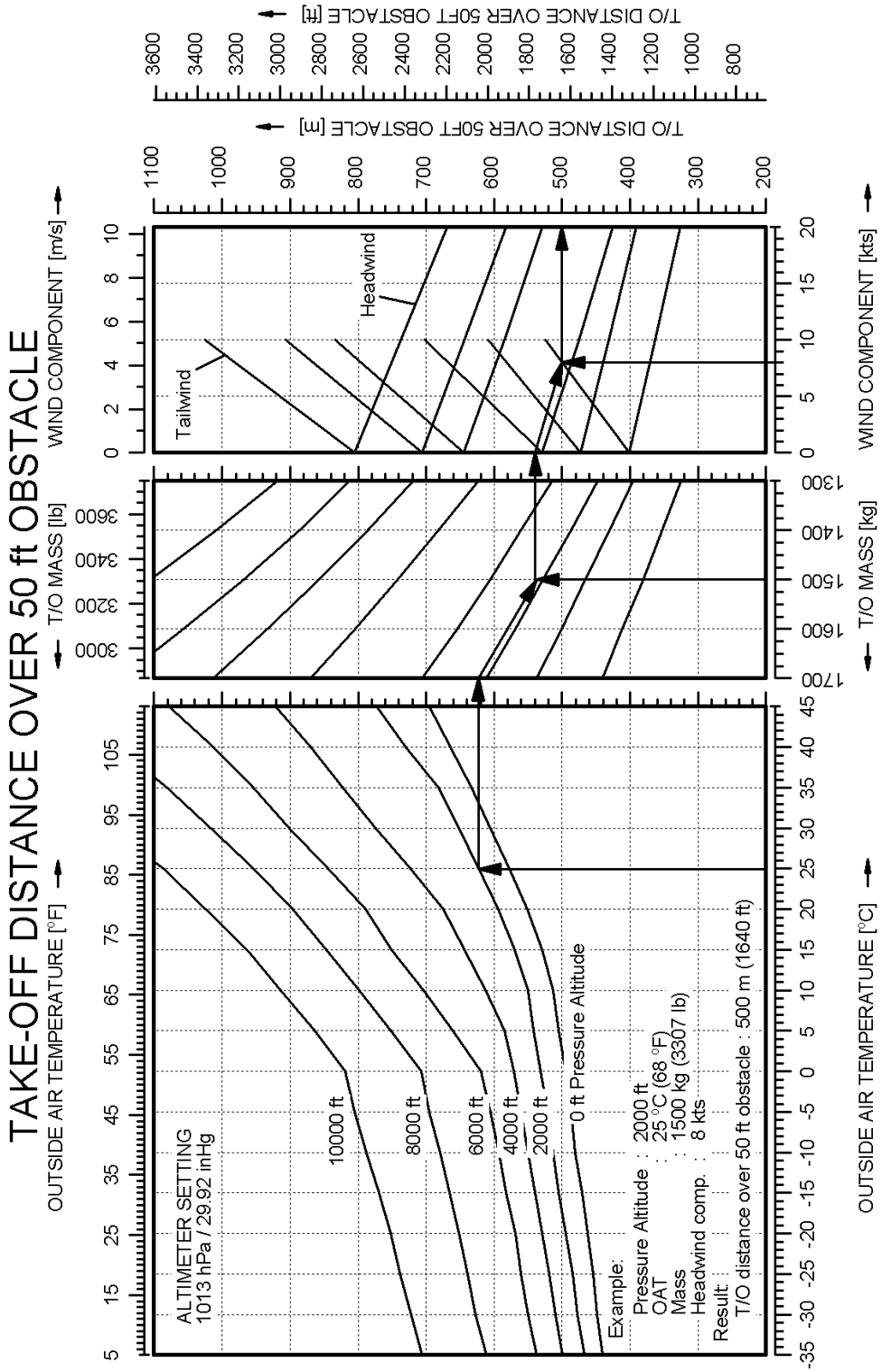
1. Press the ECU TEST button for more than 2 seconds to reset the caution message.

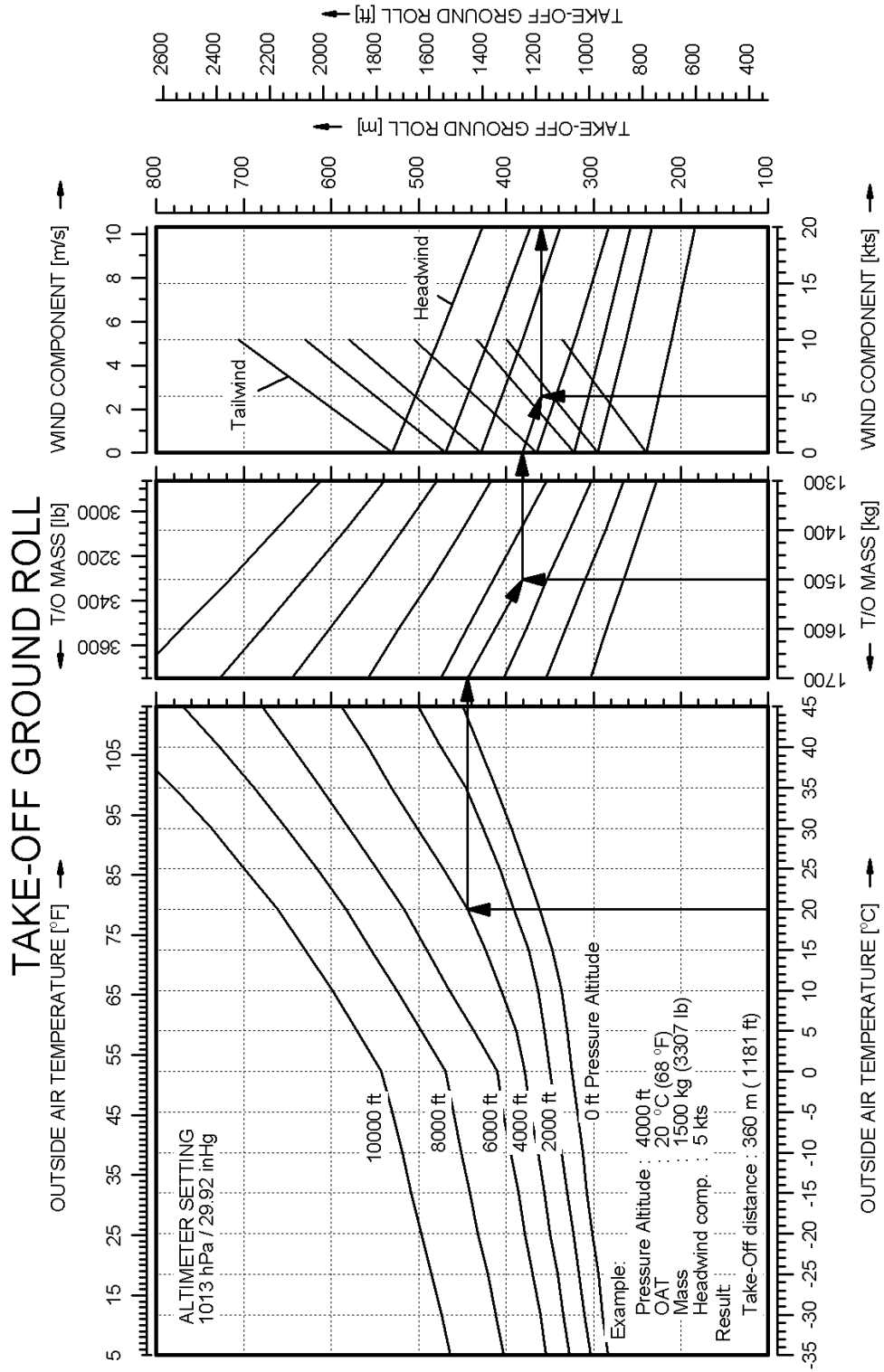
*If the ECU B caution message re-appears, or cannot be reset:*

2. Land on nearest suitable airfield.
3. The engine must be serviced after landing.

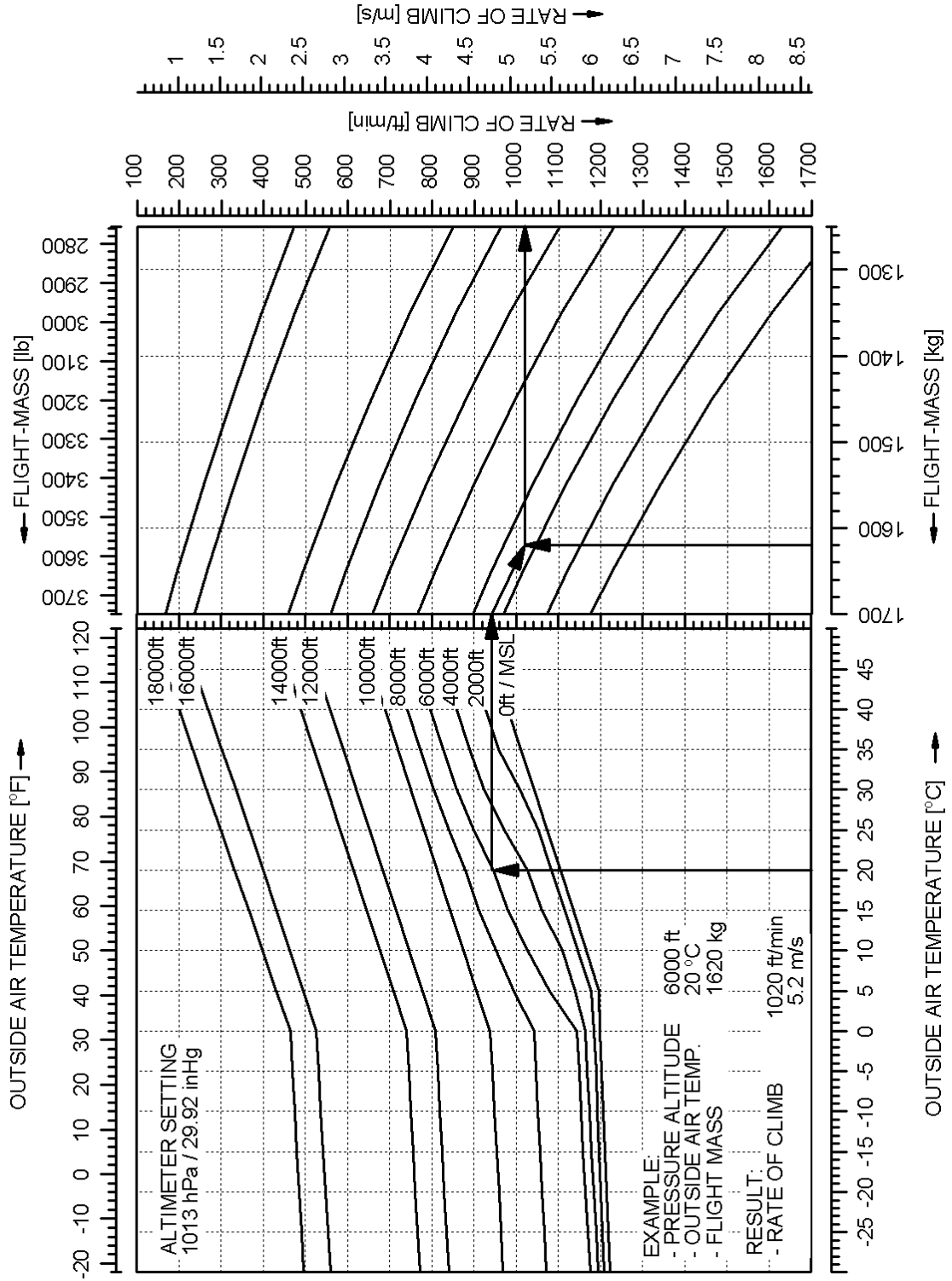
*If the ECU B caution message can be reset:*

2. Continue flight.
3. The engine must be serviced after landing.

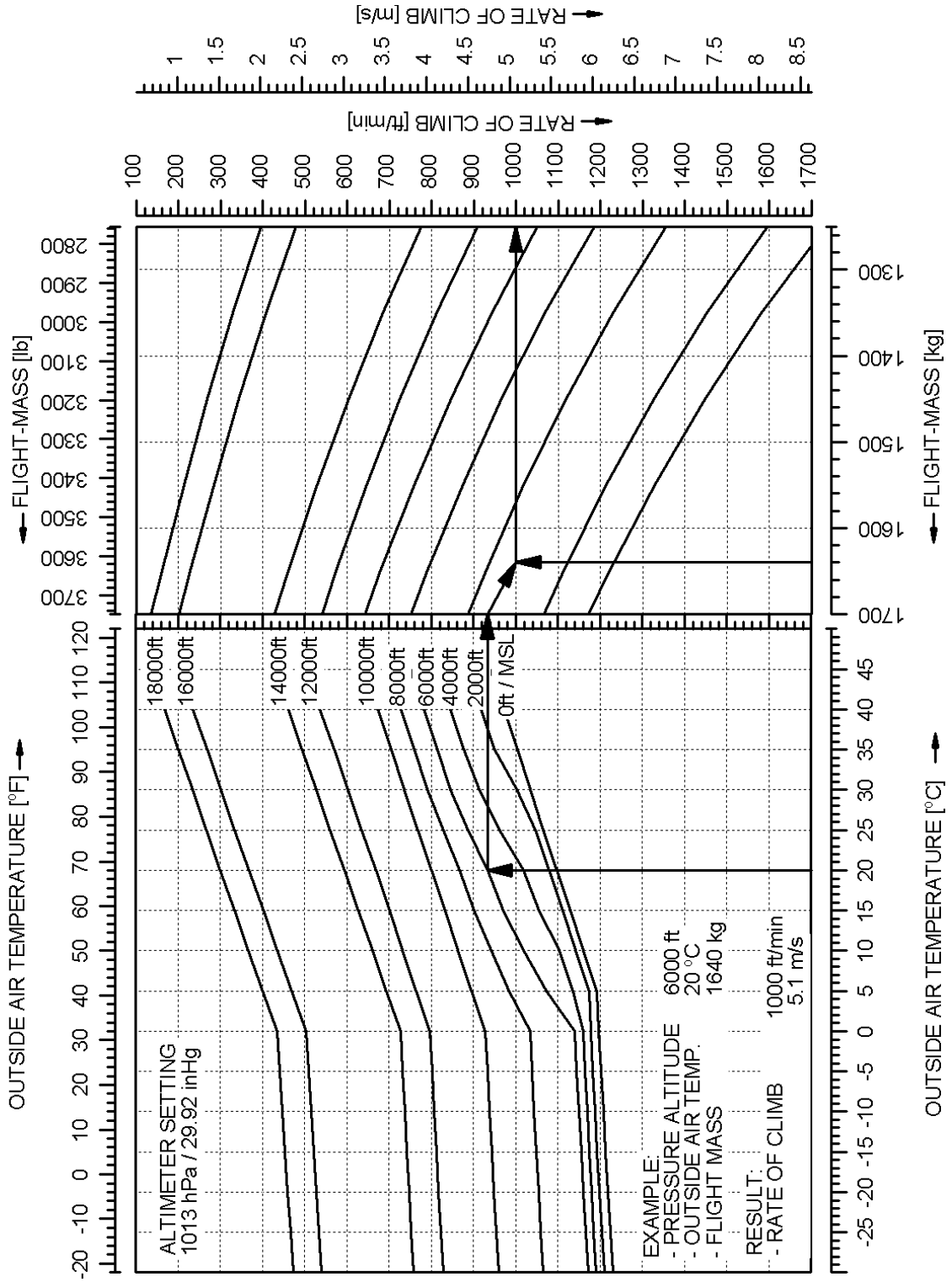




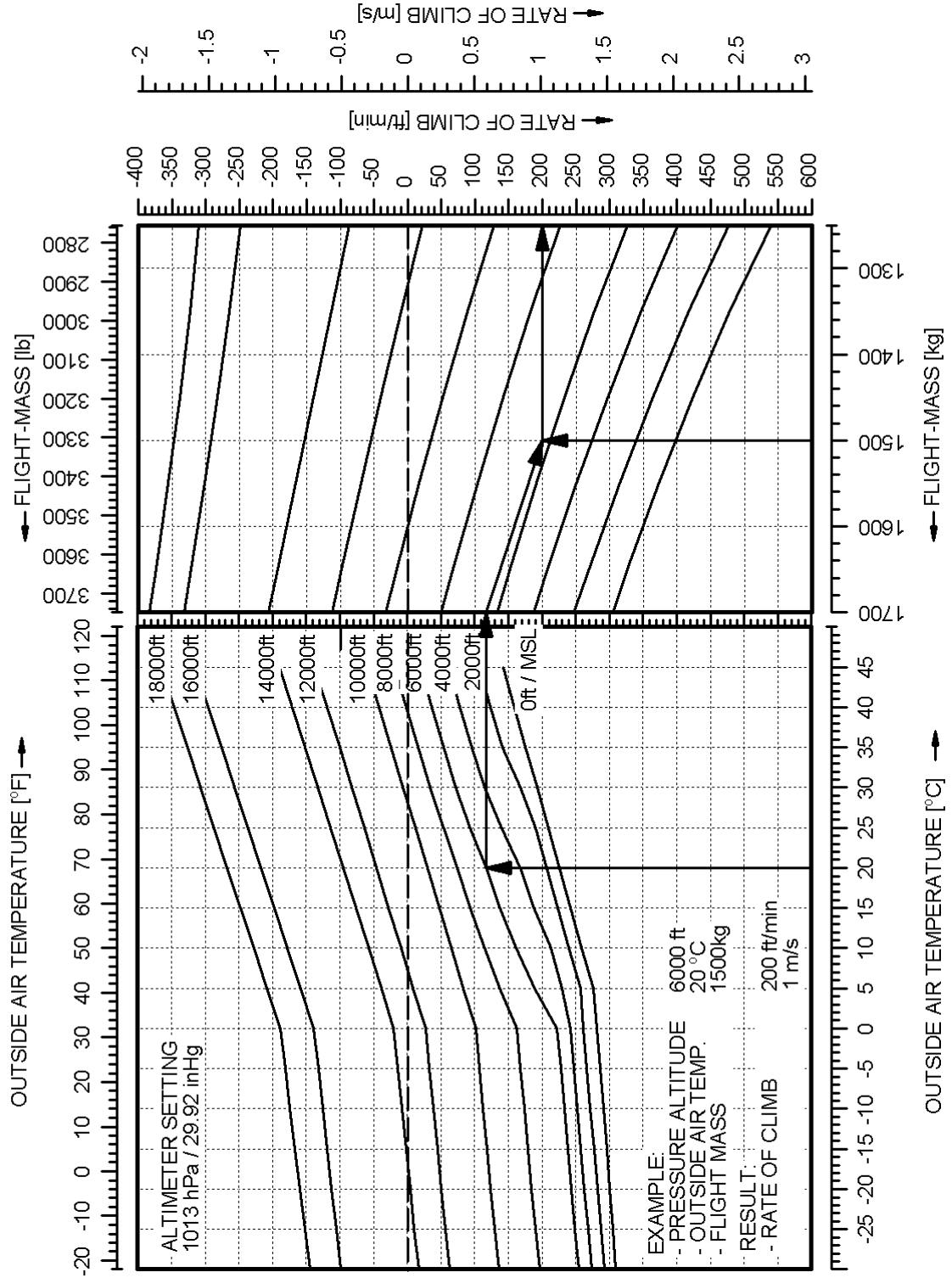
# CLIMB PERFORMANCE - TAKE-OFF CLIMB



# CLIMB PERFORMANCE - CRUISE CLIMB



# ONE ENGINE INOPERATIVE CLIMB / DESCENT



ECU TEST***The text is amended to read:***

- █ There are two ECU TEST buttons, one for each engine. Depending on the position of the power lever and the engine speed, the ECU TEST button has two different functions.

- █ *Power lever at IDLE and RPM below approximately 900:*

By pushing and holding the button until the end of the procedure, the self-test of each engine control unit is started. The procedure is possible on the ground as well as during flight, but only if the power lever is in the IDLE position. Otherwise the test will not start. During the procedure the ECU performs a switch from ECU A to ECU B with the propeller cycling. The propeller RPM is monitored automatically by the ECU. When switching from one ECU to the other, a slight shake of the engine may occur. Finally the ECU switches back from ECU B to ECU A. After that both caution lights must extinguish and the engine must run without a change.

- █ *Power lever above IDLE, or RPM above approximately 900:*

- █ If an ECU A or ECU B caution message is displayed, the ECU TEST button can be pressed for more than 2 seconds to reset the message. The reset is possible only once, and only in case of system faults of minor criticality.

***The following text is added at the end of the text on page 7-51:***

A fault in one of the ECU's is indicated by a caution message on the PFD (L/R ECU A/B FAIL). In case of minor faults, the annunciation can be reset once by pressing the ECU TEST button for more than 2 seconds. However, the annunciation will re-appear upon the next attempt to start the engine. After the indication of the L/R ECU A/B FAIL caution message, the engine must be serviced, even if the caution message could be reset.

Caution alerts on the G1000

***The first two lines in the table are amended to read:***

Caution-alerts	Meaning / Cause
L/R ECU A FAIL	<p>The annunciation is active when a fault in ECU A has occurred.</p> <p>In case of minor faults, the annunciation can be reset once by pressing the ECU TEST button for more than 2 seconds. However, the annunciation will re-appear upon the next attempt to start the engine.</p>
L/R ECU B FAIL	<p>The annunciation is active when a fault in ECU B has occurred.</p> <p>In case of minor faults, the annunciation can be reset once by pressing the ECU TEST button for more than 2 seconds. However, the annunciation will re-appear upon the next attempt to start the engine.</p>