

# MANDATORY SERVICE BULLETIN

## MSB 42-109/2

supersedes MSB 42-109/1

### **I TECHNICAL DETAILS**

#### **I.1 Category**

Mandatory.

#### **I.2 Airplanes affected**

Type: DA 42, DA 42 M with TAE 125-02-99 engines and dual mass flywheel installed

Serial numbers: 42.004 through 42.427  
42.M001 through 42.M027  
42.AC001 through 42.AC151

#### **I.3 Date of effectivity**

05-Dec-2014

#### **I.4 Time of Compliance**

Within 100 flight hours from the date of effectivity, but not later than 01-Dec-2015.

At first installation of an engine with dual mass flywheel after 01-Dec-2015

**NOTE:** Prior compliance with MSB 42-109 does not preclude compliance with this MSB.

#### **I.5 Subject**

Installation of a start assist relay for ECU start phase monitoring.

ATA-Code: 80-10

#### **I.6 Reason**

A possible overload of the gearbox drive shaft under specific engine start conditions on engines with a dual mass flywheel installed has been identified. To prevent such overload conditions, the engine manufacturer has updated its installation requirements to install an additional start monitoring input to the ECU and a new Firmware and Software Mapping (ref. I.7). This Service Bulletin describes the work necessary to install the required relays in a DA 42 or DA 42 M airplane.

#### **I.7 Concurrent Documents**

Technify Motors GmbH Service Bulletin SB TMG 125-1018 P1, Revision 1 or later.

Diamond Aircraft Industries GmbH MSB 42-007/16 or later.

### **I.8 Approval**

The technical information or instructions contained in this document relate to the Design Change Advisories No. MÄM 42-843 and MÄM 42-887, which have been approved under the authority of EASA Design Organization Approval ref. EASA.21J.052.

The technical content of this document has been approved under the authority of DOA ref. EASA.21J.052.

### **I.9 Accomplishments / Instructions**

Comply with WI-MSB 42-109, latest effective issue.

### **I.10 Mass (Weight) and CG**

The change in mass and CG is negligible.

## **II PLANNING INFORMATION**

### **II.1 Material and Availability**

See WI-MSB 42-109, latest effective issue.

### **II.2 Special Tools**

None.

### **II.3 Labour Effort**

Approx. 5 hours.

### **II.4 Credit**

None.

### **II.5 Reference Documents**

DA 42 Airplane Maintenance Manual, Doc. No. 7.02.01, latest effective issue.

## **III REMARKS**

1. All work must be done by a certified aircraft service station or a certified aircraft maintenance mechanic.
2. All work, particularly that which is not especially described in this Service Bulletin, must be done in accordance with the referenced Maintenance Manual.
3. Completion of all work must be recorded in the log book.
4. In case of doubt contact Diamond Aircraft Industries GmbH.

**EXECUTION REPORT TO  
SERVICE BULLETIN  
MSB 42-109/2**

## AIRPLANE INFORMATION

Airplane Serial Number \_\_\_\_\_

Airplane Registration \_\_\_\_\_

Airplane Operator \_\_\_\_\_

Hours of operation of airplane \_\_\_\_\_

No. of landings \_\_\_\_\_

Hours of operation-engine LH \_\_\_\_\_

RH \_\_\_\_\_

Typical operation of airplane private, club, training, other \_\_\_\_\_

\_\_\_\_\_  
Date, Name, SignPlease fax the completed form to Fax No. +43-2622-26700-1369 or e-mail to  
airworthiness@diamond-air.at

# WORK INSTRUCTION

## WI-MSB 42-109

### **I GENERAL INFORMATION**

#### **I.1 Subject**

Installation of a start assist relay for ECU start phase monitoring to prevent overload of the gearbox drive shaft under specific engine start conditions on engines with a dual mass flywheel installed.

#### **I.2 Reference Documents**

DA 42 Series Airplane Maintenance Manual, Doc. No. 7.02.01, latest effective issue.

#### **I.3 Remarks**

- a) All work must be done by a certified aircraft service station or a certified aircraft maintenance mechanic.
- b) All work, in particular if not described in this work instruction, must be done in accordance with the referenced maintenance manual.
- c) For conversion factors between SI units and US/Imperial units refer to AMM Chapter 02.
- d) In case of doubt, contact Diamond Aircraft Industries GmbH.

### **II DRAWINGS, SPECIAL TOOLS & MATERIALS**

#### **II.1 Drawings**

D60-9224-30-05, Schematic, Starter Engaged Input to ECU

#### **II.2 Special Tools**

None.

### II.3 Material

Quantity	Part Number	Description
2	D60-2406-16-00	Start Info, Diode Assembly
2	40-8010-E000601	Board Starter Info
2	36154	Ring Terminal
2	66105-4	Socket
2	D-436-36	Splice, red
2	D-436-37	Splice, blue
30	PLT1MM30	Cable Tie
30	PLT2SM30	Cable Tie
0.5m	608036-1	Silicone Tape

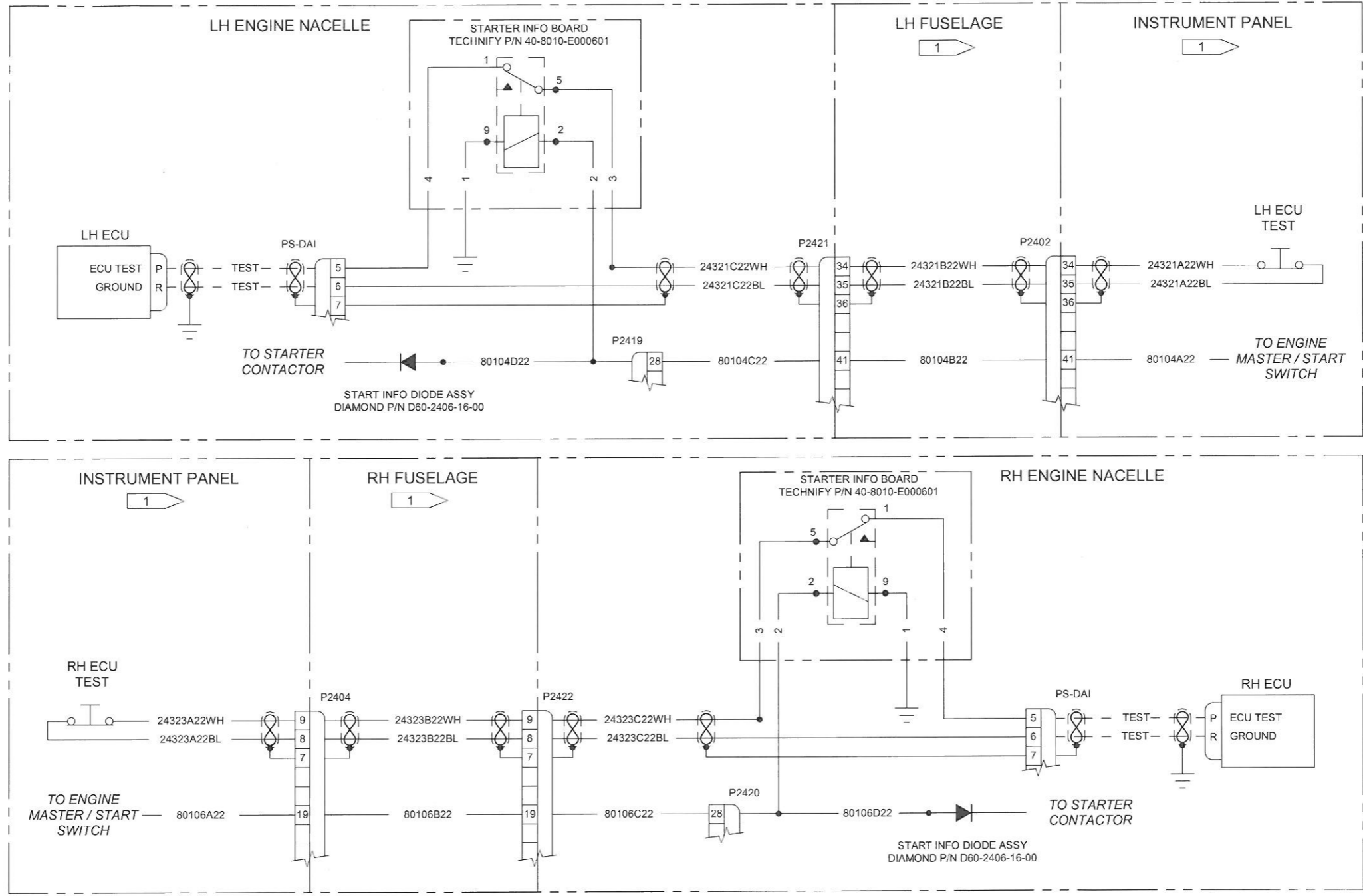
Material including drawing is available from Diamond Aircraft Industries or from Technify Motors GmbH.

## III INSTRUCTIONS

1	Disconnect the main battery for maintenance i.a.w. AMM Section 24-31.
2	Disconnect the ECU backup and alternator excitation batteries i.a.w. AMM Section 24-30.
3	Remove the LH/RH Nacelle Cap ECU access panels i.a.w. AMM Section 52-40.
4	Remove the LH/RH engine top cowlings i.a.w. AMM Section 71-10.
5	Disconnect wire 80104D22 (LH) and 80106D22 (RH) from the engine starter contactors.
6	Cut-off the ring terminals of the wires disconnected above and splice the Start Info, Diode Assemblies P/N D60-2406-16-00 onto the wires.
7	Connect the ring terminal of the Start Info, Diode Assemblies to the engine starter contactor.
8	Secure the Start Info, Diode Assemblies to the engine harness using cable ties.
9	Crimp the sockets P/N 66105-4 onto the wires labelled "4" of both Start Info Boards P/N 40-8010-E000601.
10	Disconnect and disassemble the LH/RH PS-DAI connectors and extract Position 5, wires 24321C22WH (LH) and 24323C22WH (RH).
11	Insert the sockets of the Start Info Boards into Position 5 of connectors PS-DAI.
12	Cut-off the sockets of wires 24321C22WH (LH) and 24323C22WH (RH) and splice the wires labeled "3" of the Start Info Boards onto the wires using Splice, red P/N D-436-36.

13	Re-assemble the LH/RH PS-DAI connectors. Use silicone tape at the strain relief. Re-connect the LH/RH PS-DAI connectors.
14	Disconnect and disassemble the connectors P2419 (LH) and P2420 (RH). Locate the wires 80104D22 (LH) and 80106D22 (RH) at Position 28 of the connectors.
15	If neccessary, cut the wires labelled "2" of the Start Info Board to appropriate length. Splice the wire labelled "2" of the Start Info Boards into the wires mentioned above using Splice, blue P/N D-436-37.
16	Re-assemble the connectors P2419 and P2420. Use silicone tape at the strain relief. Re-connect the connectors.
17	Cut the wire labelled "1" of the Start Info Boards to appropriate length and crimp the ring terminals onto the wires. Connect the ring terminals to the ground studs, where the shields of connectors PS-DAI are connected.
18	Clean working areas, check for foreign objects.
19	Install the LH/RH engine top cowlings i.a.w. AMM Section 71-10.
20	Install the LH/RH Nacelle Cap ECU access panels i.a.w. AMM Section 52-40.
21	Connect the ECU backup and alternator excitation batteries i.a.w. AMM Section 24-30.
22	Connect the main batter after maintenance i.a.w. AMM Section 24-31.
23	Install ECU firmware and mapping in accordance with MSB 42-007/16 or later effective issue.
24	Check all altered, replaced, repaired parts for proper function.
25	Test all systems in working area for function.
26	Make all necessary entries in the airplane and engine logs.

REVISION					
REV	SH	ZONE	DESCRIPTION	DATE	APPROVAL
-	01	ALL	MÄM 42-843 FIRST RELEASE	15.10.14	SEE ÄM
A	01	ALL	MÄM 42-843/a P/N of Technify Starter Info Board corrected	28.11.14	SEE TB



**FLAG NOTES**

1 SHOWN FOR REFERENCE ONLY.

<b>DIMENSIONS METRIC</b> FIRST ANGLE PROJECTION UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM DIMENSION TOLERANCES 2 DECIMAL ±0,25 1 DECIMAL ±0,5 DECIMAL ±1 ANGLE ±1° RAD ±0,5		<b>IDENTIFICATION MARKINGS</b> DP-S-17-00001 CLASSIFICATION: <b>NONE</b> INTERCHANGEABLE PART <b>NO</b> THIS DRAWING WAS PRODUCED USING SOFTWARE: <b>SOLID EDGE ST6</b> FILENAME <b>D60-9224-30-05a.dft</b>		<b>Diamond Aircraft Industries GmbH</b> DEPARTMENT: SIGN DRAWN: <b>Kowarsch</b> CHECKED: <b>Kowarsch</b> QA: <b>N/A</b> STRESS: <b>N/A</b> MANUF.: <b>N/A</b> SYSTEM: <b>N/A</b> APPROVED: <b>TL</b>		Diamond Aircraft Industries N. A. Otto-Straße 5 A-2700 Wiener Neustadt DEPARTMENT: SIGN DATE: <b>28.11.14</b> PROJECT: <b>DA 42 /M</b> TITLE: <b>Schematic, Starter Engaged Input to ECU</b> DWG.ORIG.: <b>DAIA</b> DWG.NO.: <b>D60-9224-30-05</b> CODE: <b>710197</b> SCALE: <b>NTS</b> SH: <b>01</b> OF <b>01</b>	
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