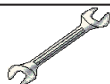


EMERGENCY ALERT SERVICE BULLETIN

SUBJECT: ENGINE CONTROLS - Twist grip

Functional check and installation of a protection for micro-contacts 53Ka and 53Kb and 65K (IDLE / FLIGHT mode)

For the attention of



AIRCRAFT CONCERNED	NUMBER	Version(s)	
		Civil	Military
AS350	05.00.61	B3	
AS550	05.00.41		C3
EC130	05A009	B4	

Revision No.	Date of issue
Revision 0 (AS350 - EC130)	2009-11-16
Revision 1 (AS350 - EC130) Revision 0 (AS550)	2012-11-22
Revision 2 (AS350 - EC130) Revision 1 (AS550)	2013-08-13

Summary:

The purpose of Revision 0 of this ALERT SERVICE BULLETIN was to ensure correct operation of engine controls during autorotation training.

Revision 0 of this ALERT SERVICE BULLETIN is covered by EASA Airworthiness Directive No. 2009-0256. The purpose of Revision 1 of ALERT SERVICE BULLETINS Nos. 05.00.61 (AS350) and 05A009 (EC130) or Revision 0 of ALERT SERVICE BULLETIN No. 05.00.41 (AS550), was to specify that helicopters embodying modification 074263 are not concerned by this ALERT SERVICE BULLETIN.

Reason for last Revision:

The purpose of Revision 2 of ALERT SERVICE BULLETINS Nos. 05.00.61 (AS350) and 05A009 (EC130) or ALERT SERVICE BULLETIN No. 05.00.41 (AS550) is to:

- Extend its effectivity to helicopters embodying modification 074263.
- Bring forward the first compliance time limit and periodic inspection due date.
- Include additional inspections in the operating procedure.

Revision 2 (AS350 – EC130) and Revision 1 (AS550) affect compliance with the previous revisions of this ALERT SERVICE BULLETIN.

Application:

EUROCOPTER renders compliance with this ALERT SERVICE BULLETIN mandatory.

1. PLANNING INFORMATION

1.A. EFFECTIVITY

1.A.1. Helicopters/installed equipment

AS350 and AS550 helicopters equipped with the ARRIEL 2B1 engine (MOD 073254) associated with the two-channel FADEC, embodying modification 073261 (new twist grip).
EC130 helicopters equipped with the ARRIEL 2B1 engine associated with the two-channel FADEC, embodying modification 073773 (new twist grip).

NOTA

*Refer to the aircraft individual inspection record (MOD record),
the equipment log cards (FMs) or the aircraft log book to identify
the actual configuration of the helicopter.*

1.A.2. Non-installed equipment

Not applicable.

1.B. ASSOCIATED REQUIREMENTS

Not applicable.

1.C. REASON

Revision 0 and Revision 1:

During trouble-shooting analysis at the EUROCOPTER works, it was found that there is the risk of a dormant failure of one of the two micro-contacts 53Ka or 53Kb following the introduction of modification 073254. Failure of the other micro-contact, associated with this dormant failure, can prevent switching from "IDLE" mode to "FLIGHT" mode during training for autorotation, which can compel the pilot to continue autorotation until the final phase.

EUROCOPTER consequently made it mandatory to check for correct opening and closing of the micro-contacts 53Ka and 53Kb, in order to prevent this dormant failure.

Revision 2 (AS350 - EC130) or Revision 1 (AS550):

Following a recent incident (significant loss of power in flight) which occurred during an offshore flight, the subsequent investigations and tests revealed that the operation of the implicated micro-contacts could be altered due to environmental constraints (malfunction related to the possible presence of salt water on the micro-contact terminals).

Technical analysis revealed that modification 074263, introduced by ALERT SERVICE BULLETINS 80.00.09 (AS350), 80.00.06 (AS550), 80A005 (EC130) Revision 0, is necessary but does not enable cancellation of the instructions given in this ALERT SERVICE BULLETIN. These instructions are therefore maintained for concerned helicopters given in paragraph 1.A.1.

Consequently, the revision of this ALERT SERVICE BULLETIN takes into account the results of these latest tests and renders the following mandatory:

- An extension of the effectivity for helicopters embodying modification 074263,
- A reduction of the time limit for first compliance and the periodic check to 330 flying hours,
- Removal/installation of the micro-contact,
- A visual inspection to ensure there is no corrosion,
- Application of a varnish to make the micro-contacts water-tight,
- An electrical insulation check,
- A functional test for the correct opening and closing of the 53Ka, 53Kb and 65K micro-contacts.

1.D. DESCRIPTION

- A visual inspection to ensure there is no corrosion on the micro-contacts.
- Electrical test and check.

1.E. COMPLIANCE

1.E.1. Compliance at the works

Helicopters/installed equipment:

Not applicable.

Non-installed equipment:

Not applicable.

1.E.2. Compliance in service

Helicopters/installed equipment:

For all concerned helicopters given in paragraph 1.A.1.:

- Comply with paragraph 3. of this ALERT SERVICE BULLETIN **within 10 flying hours or 7 days** (whichever comes first).

THEN

- 1) For the concerned helicopters given in paragraph 1.A.1. which operate or have operated since the previous compliance with paragraph 3 of this ALERT SERVICE BULLETIN in salt laden conditions [salt laden conditions persist when an aircraft is ship-based, based less than 1 km from the coast or performs an offshore flight at low altitude (below 1,000 feet)]:

- Comply with paragraph 3. of this ALERT SERVICE BULLETIN every **330 flying hours or 6 months** (whichever limit comes first).

OR

- 2) For the concerned helicopters given in paragraph 1.A.1. which do not operate and have never operated since the previous compliance with paragraph 3 of this ALERT SERVICE BULLETIN in salt laden conditions:

- Comply with paragraph 3. of this ALERT SERVICE BULLETIN every **660 flying hours or 12 months** (whichever limit comes first).

Non-installed equipment:

Not applicable.

1.F. APPROVAL

Approval of modifications:



Not applicable.

Approval of this document:

The technical information contained in this ALERT SERVICE BULLETIN Revision 0 (AS350 - EC130) was approved on November 12, 2009 under the authority of EASA Design Organization Approval No. 21J.056 for helicopters of civil version subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 1 (AS350 - EC130) was approved on November 20, 2012 under the authority of EASA Design Organization Approval No. 21J.056 for helicopters of civil versions subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 0 (AS550) was approved on November 20, 2012 by the EUROCOPTER Airworthiness Department for export military versions.

The technical information contained in this ALERT SERVICE BULLETIN (AS350 - EC130) Revision 2 was approved on August 13, 2013 under the authority of EASA Design Organization Approval No. 21J.056 for helicopters of civil versions subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 1 (AS550) was approved on August 13, 2013 by the EUROCOPTER Airworthiness Department for export military versions.

1.G. MANPOWER

Qualification :
1 Avionics technician.



Time for the operations:
4 hours



Estimated helicopter grounding time:
1/2 day

1.H. WEIGHT AND BALANCE

Not applicable.

1.I. EFFECT ON ELECTRICAL LOADS

Not applicable.

1.J. SOFTWARE MODIFICATION EMBODIMENT RECORD

Not applicable.

1.K. REFERENCES

Aircraft Maintenance Manual (AMM):

- Task 24-00-00, 3-1.
- Task 53-51-00, 4-2.
- Task 76-12-03, 4-1
- Task 76-12-03, 4-1b
- Task 76-12-03, 5-1.

Standard Practices Manual (MTC):

- Work Card: 20.04.03.401
- Work Card: 20.04.03.103

1.L. DOCUMENTS AFFECTED

Not applicable.

1.M. INTERCHANGEABILITY OR MIXABILITY OF PARTS

Not applicable.

2. MATERIAL INFORMATION

2.A. MATERIAL: PRICE - AVAILABILITY - PROCUREMENT

For any information on the price of components, contact the EUROCOPTER Network Sales & Customer Relations Department.

NOTE 1

On the purchase order, please specify the mode of transport, the destination, and the serial numbers of the helicopters to be modified.

NOTE 2

*For ALERT SERVICE BULLETINS, order by:
Telex: HELICOP 410 969F
Fax: +33 (0)4.42.85.99.96.*

2.B. INFORMATION CONCERNING INDUSTRIAL SUPPORT

For any information on technical assistance, contact the EUROCOPTER Network Sales & Customer Relations Department.

For any technical details, contact EUROCOPTER Technical Support:

Fax: +33 (0)4 42 85 99 66

Email: Avionics.Technical-Support@eurocopter.com

2.C. MATERIAL REQUIRED FOR EACH HELICOPTER/COMPONENT

Products to be ordered separately:

As per Work Cards and Tasks mentioned in this ALERT SERVICE BULLETIN and the list below:

Material P/N	Qty	Item	Key Word	Former P/N	Instruction
E0718-00-30	A/R	10	Heat-shrink sheath		
E0718-02-30	A/R	11	Heat-shrink sheath		
ECS2228.10	A/R	12	Vernelec 43022 varnish or equivalent		

The products can be ordered separately, from the INTERTURBINE AVIATION LOGISTICS company:

Website: <http://www.interturbine.com>

Telephone: +49.41.91.809.300

AOG: +49.41.91.809.444

Tools:

Key Word	Qty	Part Number	Item
Megohmmeter	1	Off the shelf	zz
Ohmmeter	1	Off the shelf	yy

2.D. MATERIAL TO BE RETURNED

Not applicable.

3. ACCOMPLISHMENT INSTRUCTIONS

3.A. GENERAL



CAUTION

APPLY THE ROTOR BRAKE TO PREVENT ANY RISK OF STARTING.

Read and comply with the general instructions as per AMM Task 24-00-00, 3-1.
Carry out the check described below, on the pilot's and copilot's side.

3.B. OPERATIONAL PROCEDURE

3.B.1. Visual inspection to ensure there are no marks, residues or corrosion (Figure 1)

- Remove the lower front cowl as per AMM Task 53-51-00, 4-2.
- Remove the protective cowl (b).
- Inspect the wiring side of micro-contacts (c), (d) and (e) in order to ensure that there are no marks, residues or corrosion (DETAIL A - Figure 1).
- If there are marks, residues or corrosion, comply with paragraph 3.B.2.
- If there are no marks, residues or corrosion, comply with paragraph 3.B.3.

3.B.2. Procedure in the event of marks, residues or corrosion (Figures 1, 2 and 3)

- Disconnect electrical connector 87DELTAP1 (a).
- Loosen and remove micro-contacts (c, d) and (e) as per AMM Task 76-12-03, 4-1 (AS350 and AS550) or 76-12-03, 4-1b (EC130).
- For each micro-contact, note the position of the wires on the terminals.
- Remove and discard the sheath.
- Remove any varnish present.
- Unsolder the wires.
- Clean the wire side as per MTC Work Card 20.04.03.401 or 20.04.03.103.

As per Figure 3:

- Strip and tin the wires over a length of 4mm: Detail B.
- Position two pieces of sheath: one 10 mm piece of sheath (10) and one 8mm piece of sheath (11): Detail B.
- Preform the wire strands into a hook shape: Detail C.
- Position the preformed wire strands in the contact hole of the micro-contact: Detail D.
- Weld using a welding iron set to 340°C (tolerance -15°C to +30°C): Detail E.
- Apply varnish (12) with a brush to the welds of the electrical terminals and unused terminals to protect them from corrosion. Comply with MTC Work Card 20.04.03.103 without oven-drying the component: Detail E.
- Leave to dry until the varnish hardens.
- Position the sheath (10) up against the weld and shrink fit it: Detail E.

- Position the sheath (11) up against the micro-contact and shrink fit it: Detail F.

**CAUTION**

**WHEN INSTALLING THE MICRO-CONTACT (C, D) AND (E),
TORQUE TIGHTEN TO A VALUE BETWEEN 0.25 AND
0.3 N.M (2.21 - 2.65 IN.LB).**

- Install micro-contacts (c, d) and (e) as per AMM Task 76-12-03, 4-1 (AS350 and AS550) or 76-12-03, 4-1b (EC130).
- Carry out an insulation test as per paragraph 3.B.3.

3.B.3. Insulation test (Figures 1 and 2)

- If not previously disconnected, disconnect electrical connector 87DELTAP1 (a).
- Carry out an electrical insulation test at 50 volts using a megohmmeter (zz) connected between:
 - . the housing of micro-contact 53Ka and terminals A and B of connector 87DELTAP1.
 - . the housing of micro-contact 53Kb and terminals D and F of connector 87DELTAP1.
 - . the housing of micro-contact 65K and terminals D and E of connector 87DELTAP1.Values higher or equal to 10 MΩ are acceptable.
- If the values displayed are lower than 10 MΩ, replace the concerned micro-contact as per AMM Task 76-12-03, 4-1 (AS350 and AS550) or 76-12-03, 4-1b (EC130).
- Comply with paragraph 3.B.4.

3.B.4. Checking the IDLE and FLIGHT controls on the pilot's and copilot's twist grips (Figure 2)

- Connect an ohmmeter (yy) to terminals A and B of micro-contact 53Ka.
- Turn the twist grip from "IDLE" to "FLIGHT" and from "FLIGHT" to "IDLE":
 - . Check on the ohmmeter (yy) that the micro-contact closes in the "IDLE" position and opens as soon as the twist grip is turned from the "IDLE" position to the "FLIGHT" position.
 - . If the check result is not correct, replace the concerned micro-contact as per AMM Task 76-12-03, 4-1 (AS350 and AS550) or 76-12-03, 4-1b (EC130).
- Disconnect the ohmmeter (yy) and connect it to terminals D and F of micro-contact 53Kb.
- Turn the twist grip from "IDLE" to "FLIGHT" and from "FLIGHT" to "IDLE":
 - . Check on the ohmmeter (yy) that the micro-contact closes in the "IDLE" position and opens as soon as the twist grip is turned from the "IDLE" position to the "FLIGHT" position.
 - . If the check result is not correct, replace the concerned micro-contact as per AMM Task 76-12-03, 4-1 (AS350 and AS550) or 76-12-03, 4-1b (EC130).
- Disconnect the ohmmeter (yy) and connect it to terminals D and E of micro-contact 65K.
- Turn the twist grip from "IDLE" to "FLIGHT" and from "FLIGHT" to "IDLE":
 - . Check on the ohmmeter (yy) that the micro-contact closes in the "IDLE" position and opens as soon as the twist grip is turned from the "IDLE" position to the "FLIGHT" position.
 - . If the check result is not correct, replace the concerned micro-contact as per AMM Task 76-12-03, 4-1 (AS350 and AS550) or 76-12-03, 4-1b (EC130).
- Disconnect the ohmmeter (yy).
- Connect the electrical connector 87DELTAP1 (a).
- Install the protective cowling (b).
- Install the lower front cowling as per AMM Task 53-51-00, 4-2.
- Comply with paragraph 3.B.5.

3.B.5. Application of varnish (Figure 3)

- If varnish is absent or flaky, apply varnish (12) with a brush to the welds of electrical terminals and unused terminals to protect them from corrosion. Comply with MTC Work Card 20.04.03.103 (MTC) without oven-drying the component: Detail E.
- Leave to dry until the varnish hardens.
- Position the sheath (10) up against the weld and shrink-fit it: Detail E.
- Position the sheath (11) up against the micro-contact and shrink-fit it: Detail F.
- Comply with paragraph 3.B.6.

3.B.6. Tests

- Conduct the operational tests and indicating tests of the twist grip as per AMM Task 76-12-03, 5-1.

3.C. IDENTIFICATION

Identification of the modification:

Not applicable.

Identification of this document:

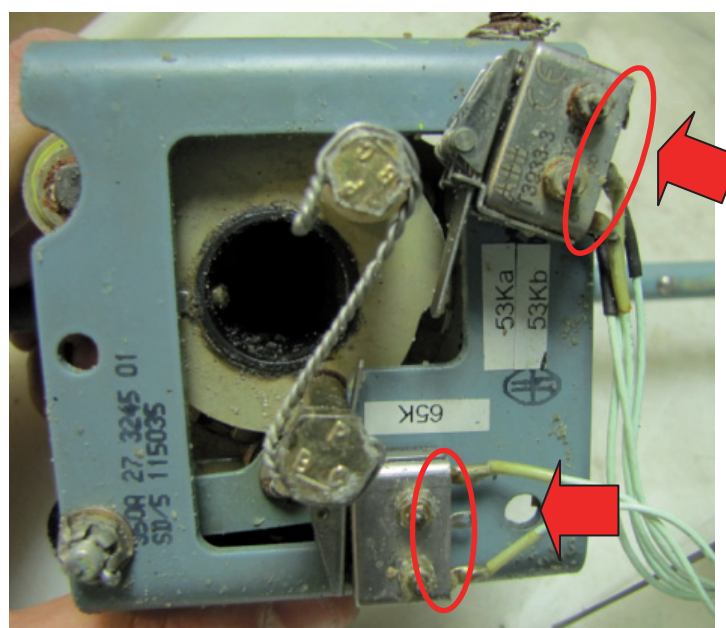
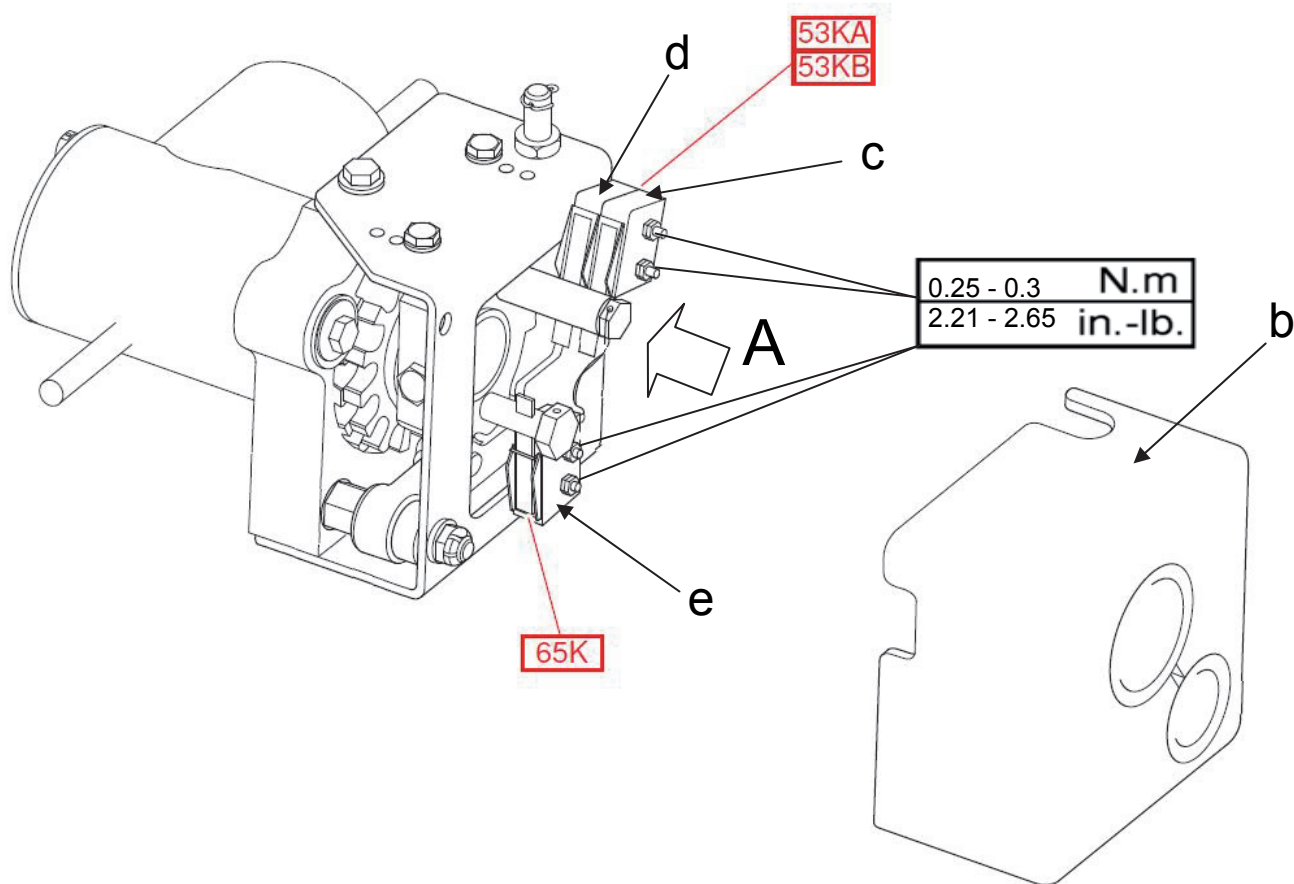
Record compliance with the last revision of this document in the helicopter documents.

3.D. OPERATING AND MAINTENANCE INSTRUCTIONS

Not applicable.

4. ANNEXE

Not applicable.



DETAIL A

Figure 1

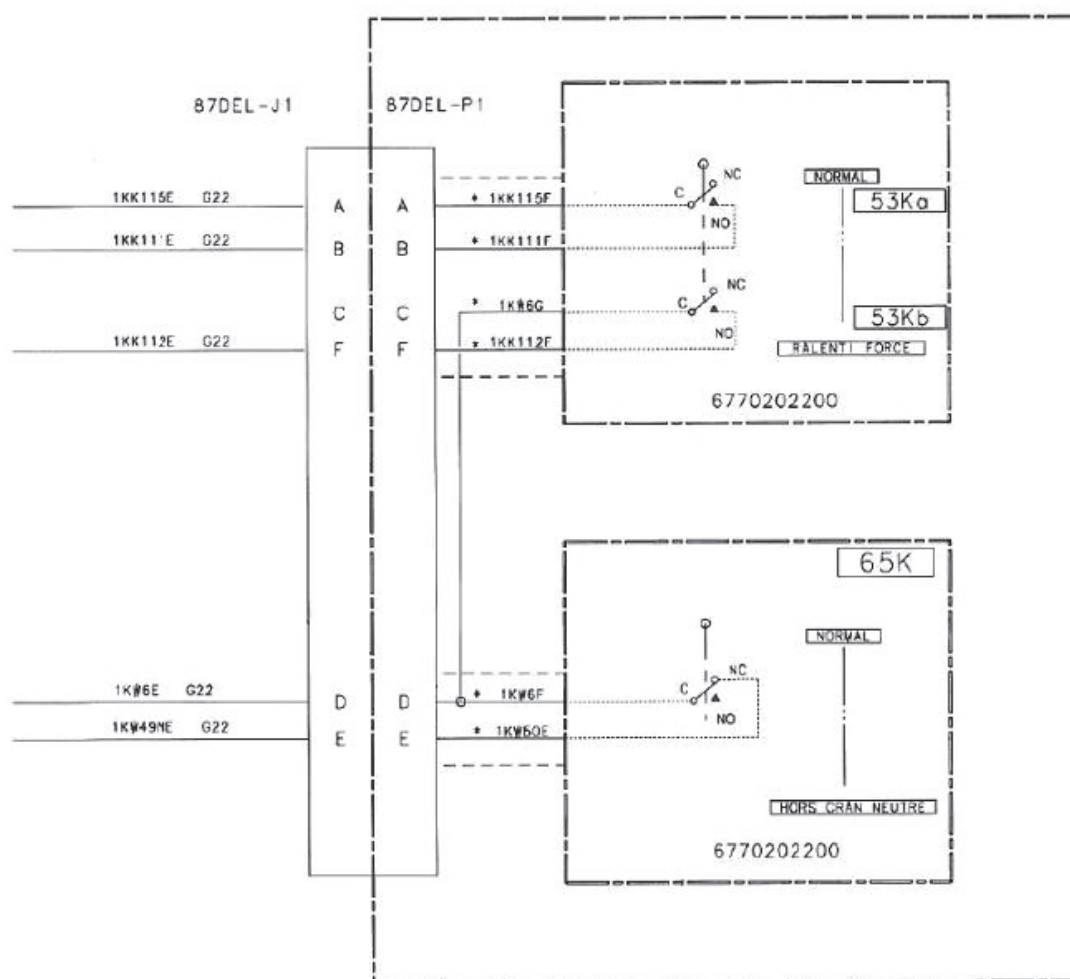
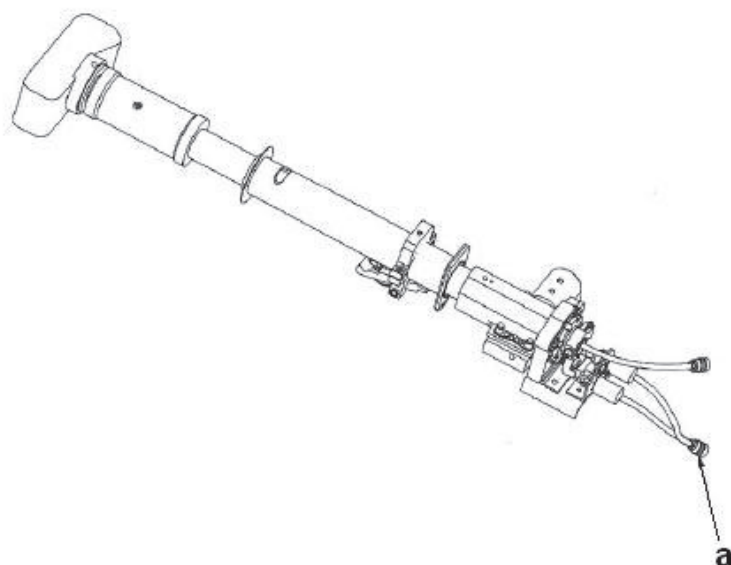
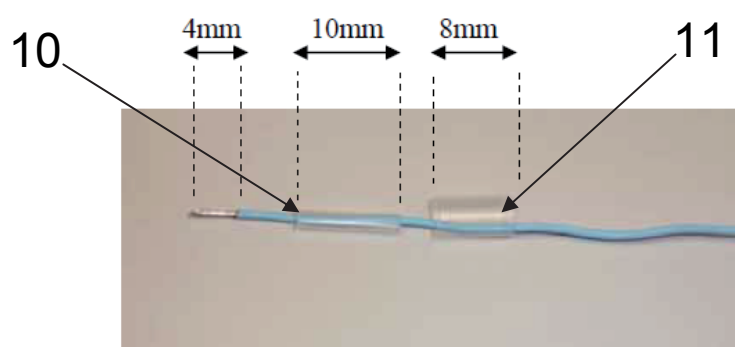
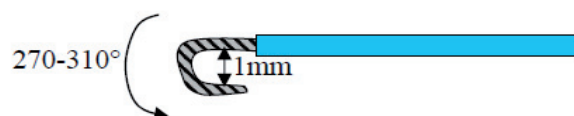


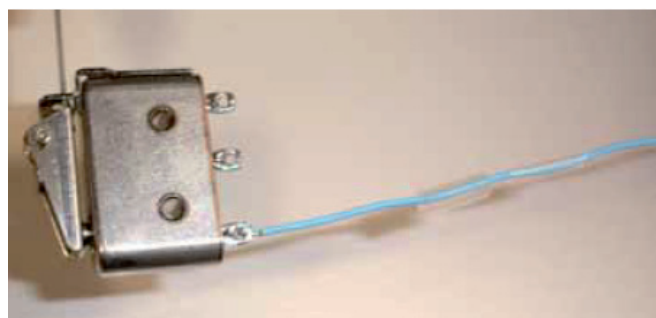
Figure 2: Electrical continuity test of micro-contacts 53Ka, 53Kb and 65K



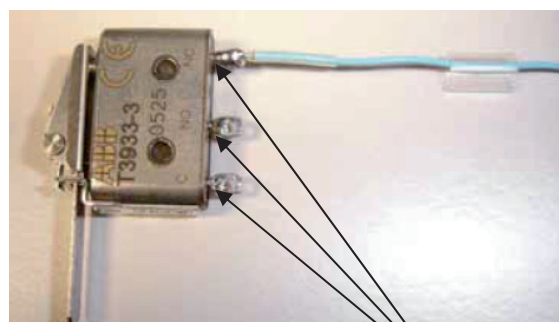
B



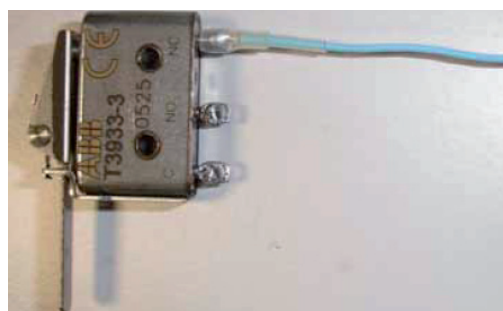
C



D



E



F

Figure 3