Subject : Installation of transponder and transponder antenna

Effectivity : All LS gliders and motorgliders

Accomplishment : For transponder installation

Reason : To achieve perfect transponder signal transmission the antenna should be installed according to the following instructions.

Instructions :

1. LS gliders and motorgliders with carbon fibre fuselage

At all LS gliders and motorgliders one of the following installation is possible:

a) Outboard KA 60 “shark” antenna , installed according to drawing Z183
b) Outboard “Transflex 4 “ whip antenna , installed according to drawing Z188
c) Inboard antenna BD1 installed at fin shear web according to drawing Z182 (only possible during production).

2. LS gliders with glas fibre fuselage

At all LS gliders with a GFRP fuselage the following installation is possible:

a),b),c) refer to point 1.
d) Inboard antenna (BD1) installed in the fuselage according to drawing Z190.

3. All

Installation of the transponder including antenna cable is outlined in Appendix 1 to TN DG-G-03.

4. LS motorgliders: After installation, compensation of each magnetic direction indicator must be performed.

Material :

1. LS gliders and motorgliders with carbon fibre fuselage

a) 1 x antenna Honeywell KA60, self-adhesive aluminium foil approx. 30x30cm large or aluminium foil 30x30cm (11.8 x 11.8) in and spray adhesive, 2 x fireproof rubber grommet HV D17.5. antenna cable Aircell 7, 1 x BNC-connector, 1 x BNC-elbow adapter, silicone.
b) 1x antenna Funkwerk TRANSFLEX4
2 bolts M5x20DIN965-A2, 2 washers 5,3DIN125 St zn, 2 selflocking nuts M5DIN985-8 zn, further material refer to a)
c) 1x transponder antenna BD1W, antenna cable Aircell 7, 1 x BNC-connector, epoxy resin and hardener, cotton-flocks

2. LS gliders with glas fibre fuselage

a),b),c) refer to point 1
d) 1x transponder antenna BD1W, 1 x attachment Z190/1, 1 x pipe clamp with rubber profile DIN3016 20-15, 1 x bolt DIN912 M6x20, antenna cable Aircell 7, 1 x BNC-connector, epoxy resin and hardener, cotton-flocks

a

3. All:

Approved Transponder Mode A/C or Mode S,
enclosure 1 for TN DG-G-03 and drawings see instructions.

Weight and balance : Execute a C.G. weighing after installation.

Remarks : Instead of the antenna Honeywell KA 60 other approved antenna built in the same way from other suppliers may be used.

The antenna Honeywell KA60 may be replaced by the antenna Funkwerk TRANSFLEX4 without further instructions, as the distance of the mounting holes is the same.

The installation must be executed by the manufacturer or by a licensed workshop and to be inspected and filed in the aircraft logs by a licensed inspector.
The proper functioning of the system must be verified by an avionics inspector with the appropriate authorisation.

This TN is only valid with a release document form DG-F-G-03 which indicates model and ser. no. of the aircraft in which the transponder shall be installed and the type of transponder to be used.
The release document must be requested from the TC holder (DG Flugzeugbau GmbH).

Bruchsal, date:
January 30. 2008
Author:
Dipl. Ing. Wilhelm Dirks

EASA approved on 25.02.2008
under Approval No. EASA. EASA.A.C.09114



Correction a 15.06.2011

Enclosure 1 for technical note TN DG-G-03

Instructions for transponder installation

Required materials see TN DG-G-03.

1. Installation of the transponder antenna

For the installation please refer to the respective drawing listed in TN DG-G-03.

2. Installation of the ground plane

As a counterbalance to the antenna, self adhesive aluminium foil or aluminium foil fixed with spray adhesive approx. 300mm x 300mm (11.8 x 11.8 in.) has to be fitted according to the respective drawing.
Before fitting the foil, degrease the surfaces with acetone.
With the BD1 antennas no ground plane is necessary.

3. Antenna cable installation

3.1 To enable proper antenna cable installation the following parts must be removed:

- Instrument panel cover (if it is not combined with the canopy frame)
- seat tray
- baggage compartment covers if possible
- GFRP oxygen cylinder support if possible

3.2 Antenna cable installation
The aerial cable is delivered over length without terminals.
It is recommended to wrap the cable ends with insulating tape in order to “round” the ends. This makes the installation of the antenna cable easier.

LS gliders

Route the antenna cable from the instrument panel to the landing gear box parallel to the instrument lines.
It is recommended to use a “pull-through” aid, since the empty pipe has tight radii.
If a cable duct is installed, route the cable trough this duct.

LS motorgliders

In order to protect the antenna cable against damages caused by the engine vibration, additional protection should be installed. Therefore adequate means (e.g. “Spiral wrap”, mesh tube…) should be installed on the cable at critical zones (e.g. where the cable is routed over edges).

All
Depending on the type of transponder attach a HF-Connector TNC (threaded) or HF-Connector BNC (bayonet lock) to the front end of the antenna cable.

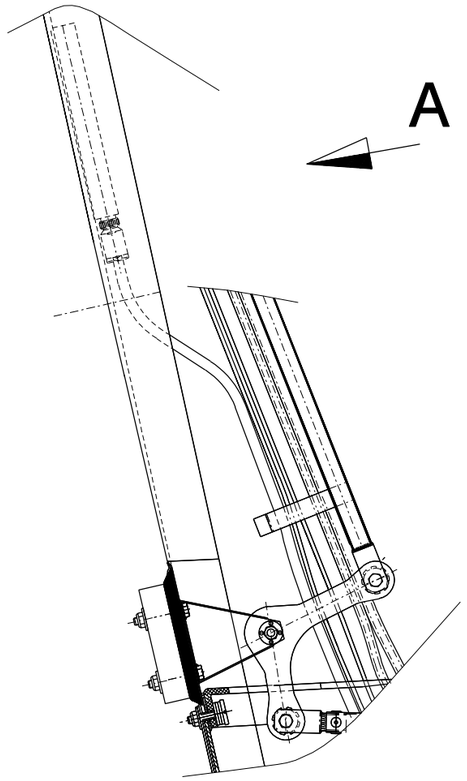
4. Installation of the transponder
Install the transponder to a suitable place on the instrument panel.
Connect the HF-Connector to the transponder. Power supply takes place via a 3A circuit breaker or a 3A fuse. Install the circuit breaker or the fuse holder to a free space in the front instrument panel and mark it "XPDR".
For mode C,S the static pressure port of the transponder or altitude encoder must be connected to the aircraft static pressure system by using a "T"- fitting.

5. Reinstall all parts removed under 3.1.
Prior installation of all parts removed in step 3.1.,the following checks must be carried out:

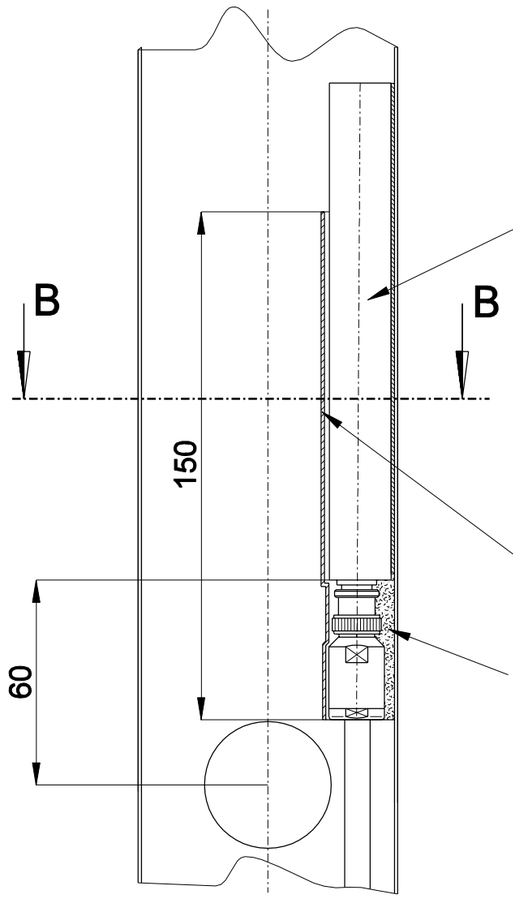
- check aircraft if foreign objects occur
- check freedom of movement of each aircraft control (is the distance between pushrods and antenna cable sufficient?)

6. Post installation inspection
The remarks of TN DG-G-03 must be taken into consideration during installation and post installation inspection of the transponder system.
Proper function of the system must be checked by an avionics inspector with adequate authorisations according national regulations.

Flugrichtung
direction of flight



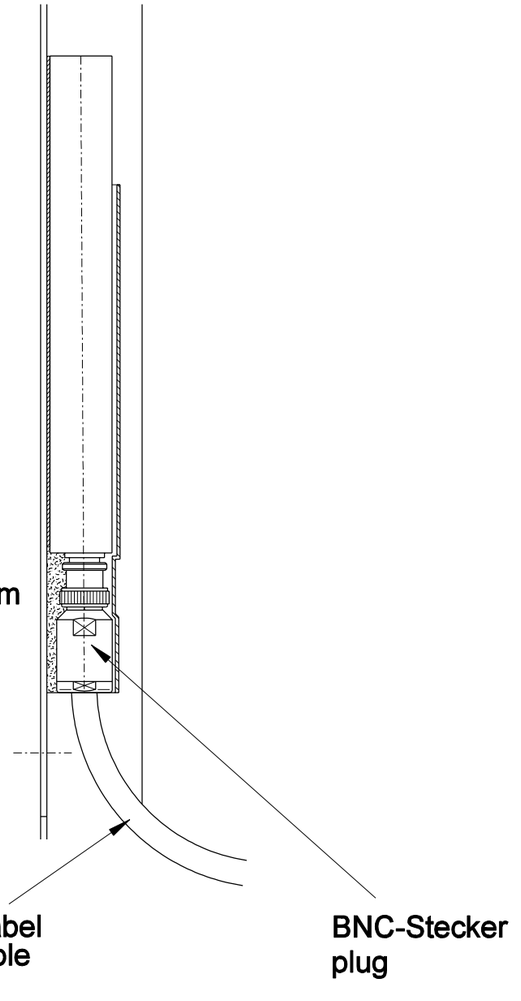
Ansicht / view A
M 1:2



Transponderantenne BD1
transponder antenna ⓐ

2 Lagen / 2 layers
92125 +-45° 100mm x 150mm

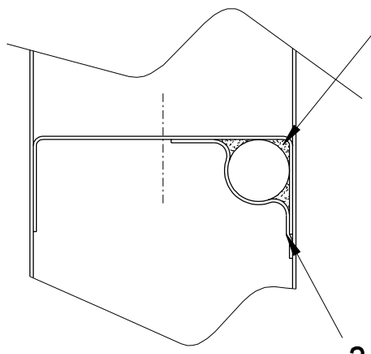
Microballoons-Harz
resin thickened with
Microballoons



Antennenkabel
antenna cable
AIRCELL 7

BNC-Stecker
plug

Schnitt B-B
cross section



Microballoons-Harz
resin thickened with
Microballoons

2 Lagen / 2 layers
92125 +-45° 100mm x 150mm

Installation of aerial for transponder in vertical fin LS8 / LS10

Toleranzen nach Arbeitsanweisung BA 1				
Schweißen nach Arbeitsanweisung SA 1				
a	Korrekturen		25.01.08	Mandl
Ausg.	Änderung	ÄM	Tag	Name

	Tag	Name
Gez.	27.06.07	R. v.d. Bos
Gepr.		
Norm.		

Maßstab 1:2 1:5

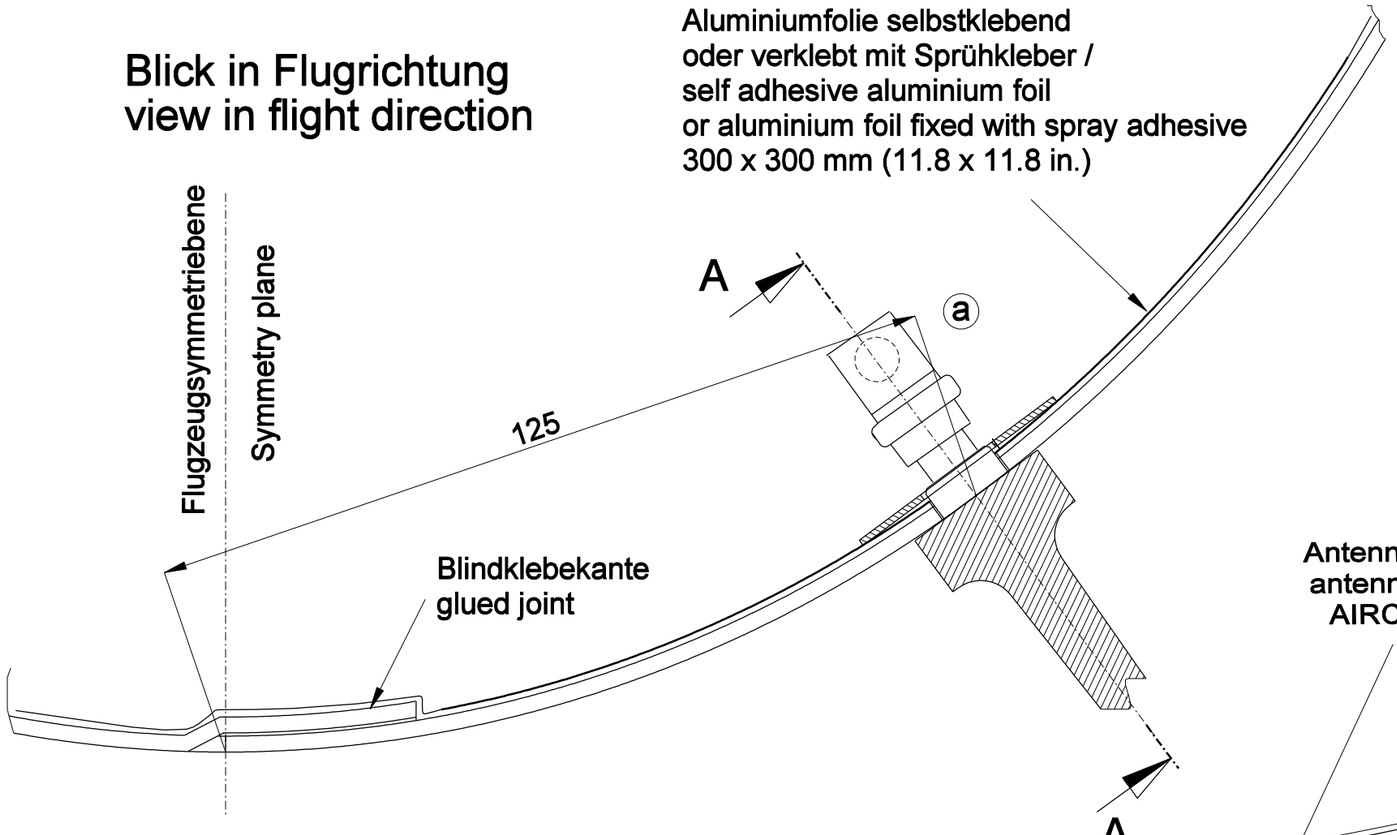
Maße ohne Toleranz- ang. nach:

Transponderantenne
in Seitenflosse
LS 8/ LS 10

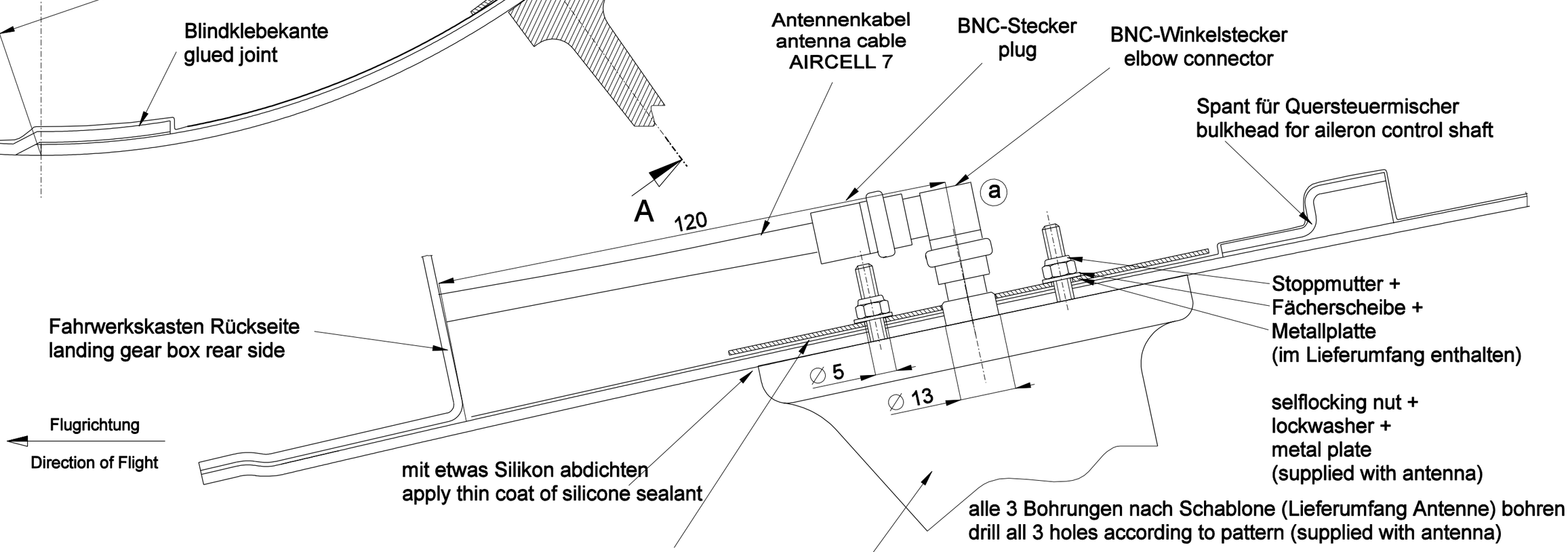
DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

Z182

Blick in Flugrichtung
view in flight direction



Schnitt A-A
cross section



Installation of aerial for transponder in LS sailplanes and motorgliders

Toleranzen nach Arbeitsanweisung BA 1				
Schweißen nach Arbeitsanweisung SA 1				
b	Ground plane enl.		24.01.08	Mandl
a	Stecker und Kabel		10.12.07	F.Müller
Ausg.	Änderung	ÄM	Tag	Name

	Tag	Name
Gez.	27.06.07	R. v.d. Bos
Gepr.		
Norm.		

Maßstab 1:2 1:5

Maße ohne Toleranz-ang. nach:

Aussenliegende Transponderantenne

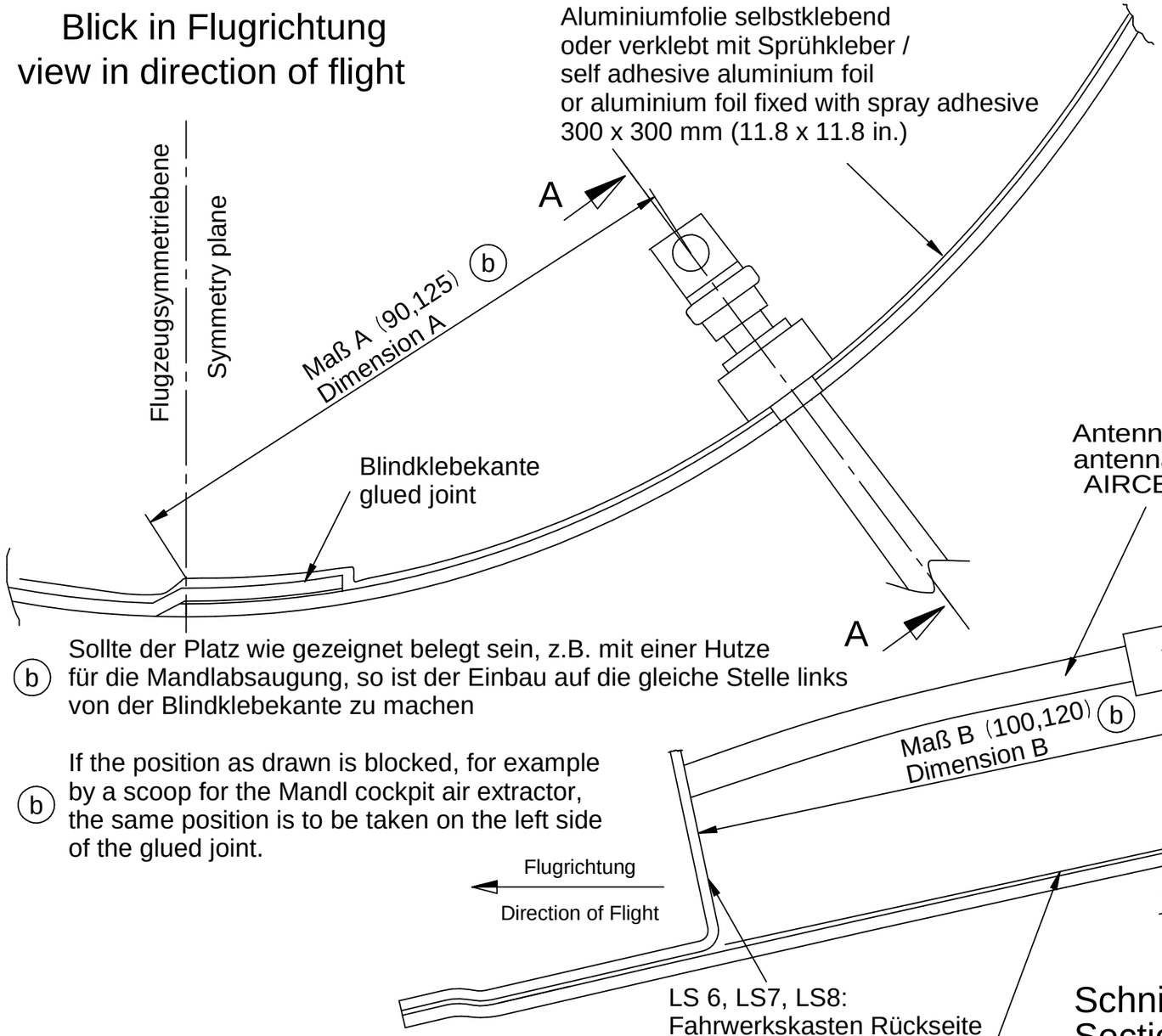
Alle LS

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

DG

Z183

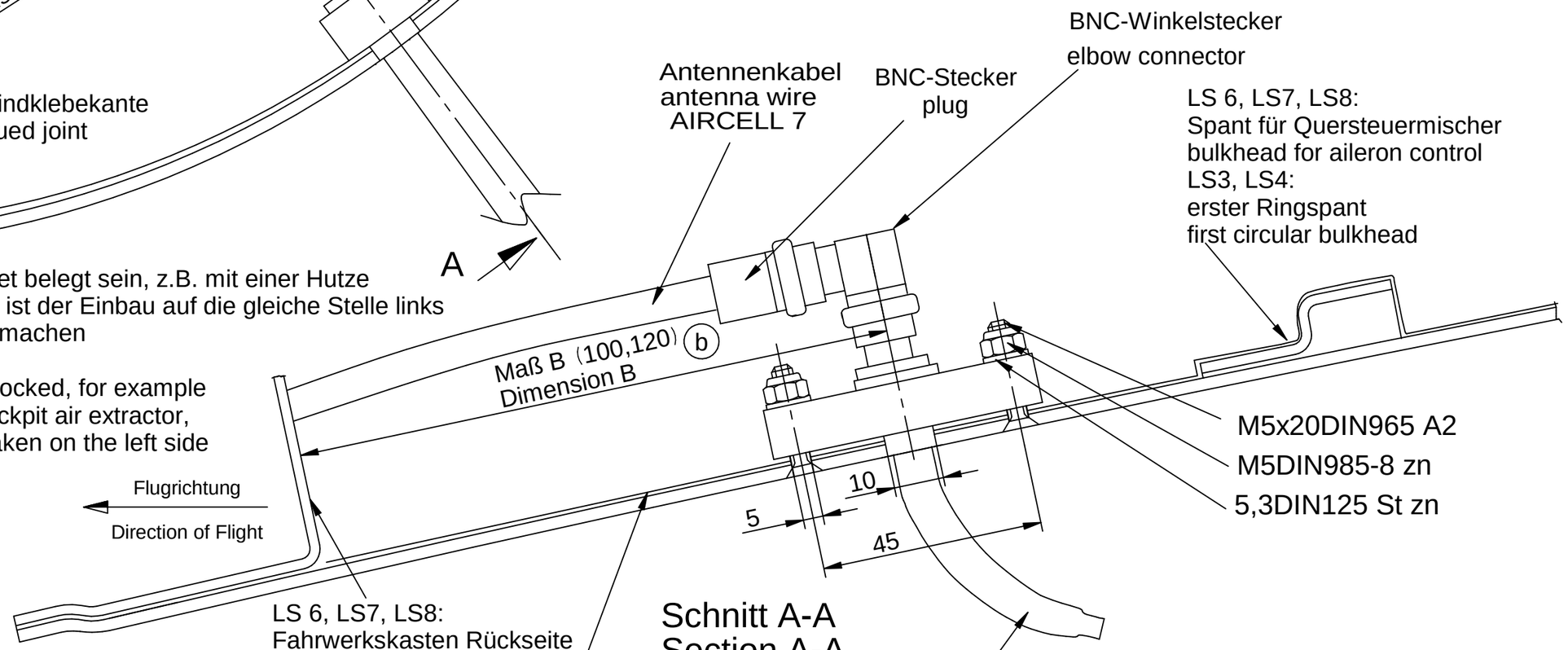
Blick in Flugrichtung
view in direction of flight



b	Bemaßungstabelle Dimensioning table	
Muster **Type**	**Maß A** **Dimension A**	**Maß B** **Dimension B**
LS3, LS4	90	100
LS6, LS7, LS8	125	120

b Sollte der Platz wie gezeignet belegt sein, z.B. mit einer Hutze für die Mandlabsaugung, so ist der Einbau auf die gleiche Stelle links von der Blindklebekante zu machen

b If the position as drawn is blocked, for example by a scoop for the Mandl cockpit air extractor, the same position is to be taken on the left side of the glued joint.



Schnitt A-A
Section A-A

Installation of aerial for transponder in LS sailplanes and motorgliders

Toleranzen nach Arbeitsanweisung BA 1
Schweißen nach Arbeitsanweisung SA 1

Ausg.	Änderung	ab Wnr	Datum	Name
b	Maße für Glasrümpfe (LS1, LS3, LS4) ergänzt		12.02.15	JBW
a	Groundpl. enlarged		24.01.08	Mandl

	Datum	Name
Gez.	10.12.07	F.Müller
Gepr.		
Norm.		

Maßstab: 1:1 (2:1)

Maße ohne Toleranz-ang. nach: ISO2768-m

Aussenliegende Transponderantenne alle LS

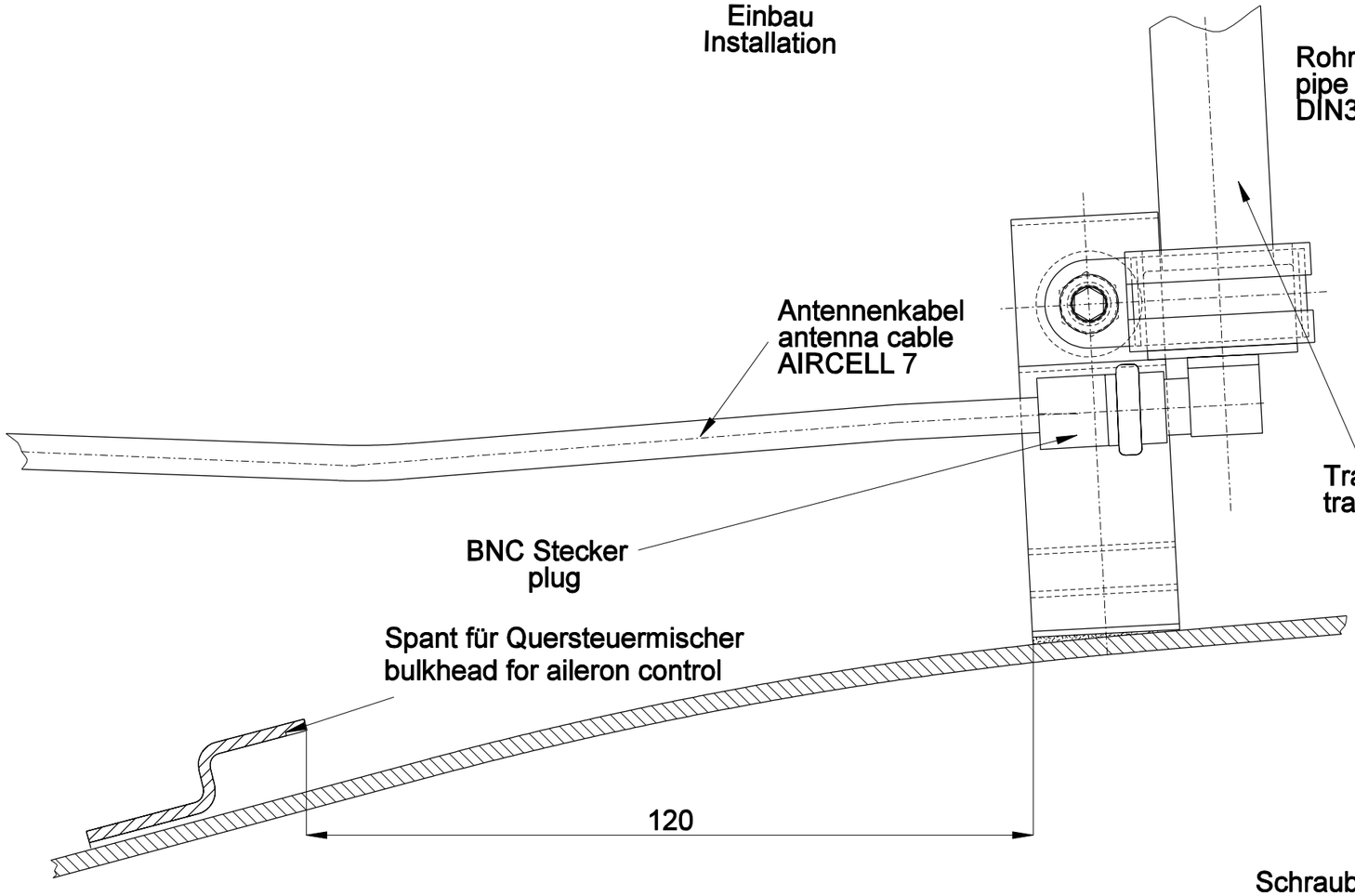
DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

DG Flugzeugbau GmbH
Z188

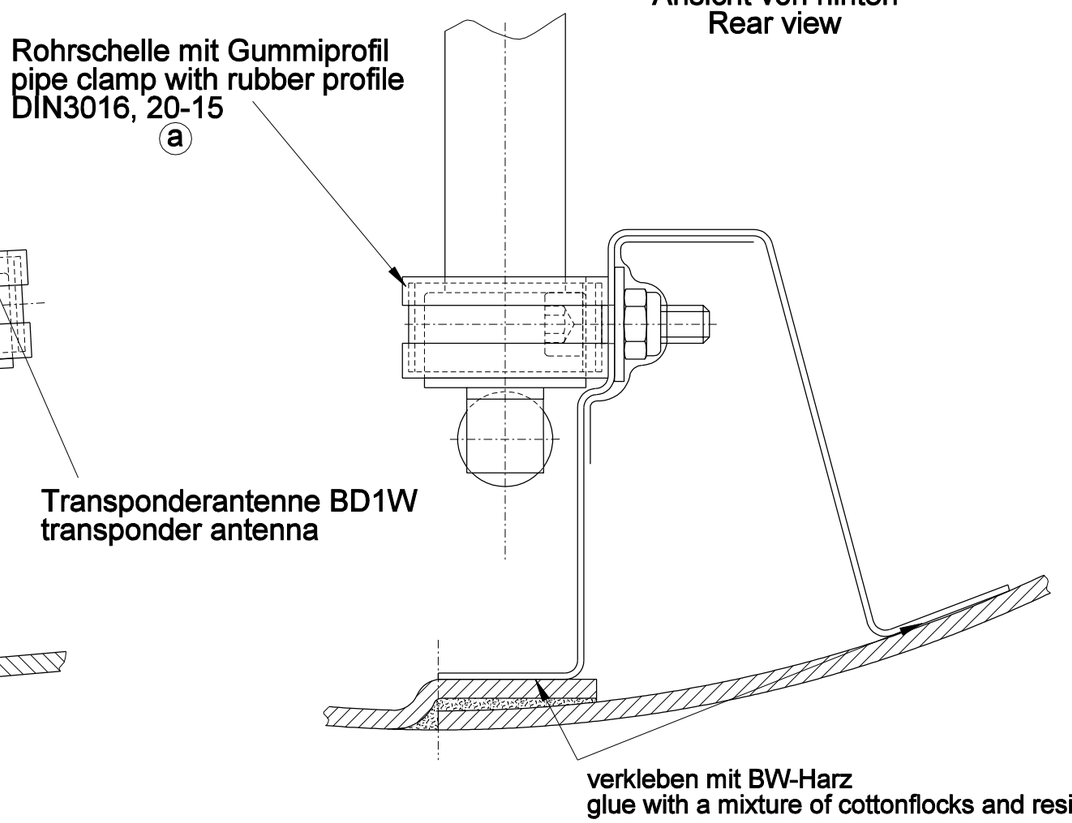
Seite 1
von 1

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DG Flugzeugbau GmbH.

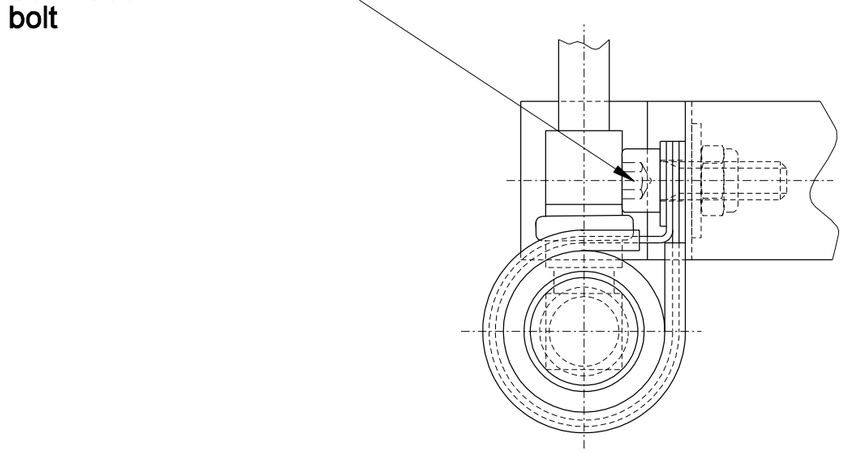
Einbau
Installation



Ansicht von hinten
Rear view



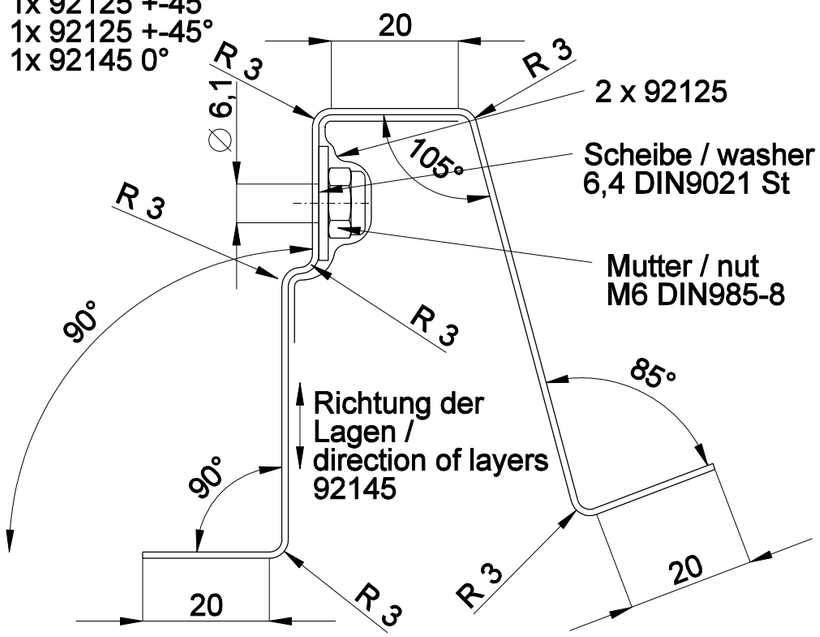
Draufsicht
Top view

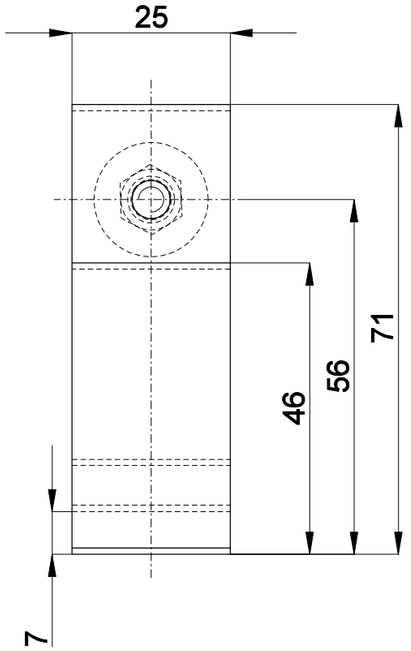


Belegung / lay-up:

1x 92145 0°
1x 92125 +-45°
1x 92125 +-45°
1x 92145 0°

Teil 1
part 1





Toleranzen nach Arbeitsanweisung BA 1				
Schweißen nach Arbeitsanweisung SA 1				
a	20-15 statt 25-15		15.06.11	W.Dirks
Ausg.	Änderung	ÄM	Tag	Name

	Tag	Name
Gez.	24.01.08	Mandl
Gepr.		
Norm.		

Maßstab 1:1

Maße ohne Toleranz-ang. nach:

Transponderantenne für
GFK LS-Segelflugzeuge
transponder antenna for
GFRP LS-Sailplanes

Teil 1: GFK Halterung
part 1: GFRP mounting bracket

DG
Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

Z190