

- 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
- 3. All:**
Approved Transponder Mode A/C or Mode S,
enclosure 1 for TNM DG-G-02 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.

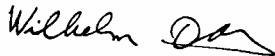
The installation must be executed by the manufacturer or by a licensed workshop and to be inspected and filed in the aircraft logs by a licensed inspector. The proper functioning of the system must be verified by an avionics inspector with the appropriate authorisation.

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 through 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).

Enclosure 1 for technical note TN DG-G-03

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:

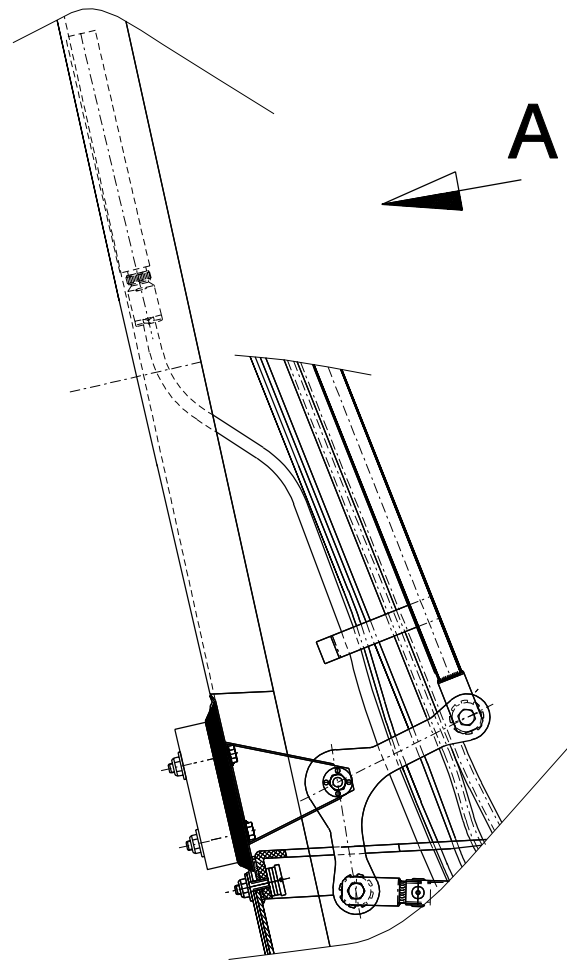
- check aircraft if foreign objects occur
- check freedom of movement of each aircraft control (is the distance between pushrods and antenna cable sufficient?)

6. Post installation inspection

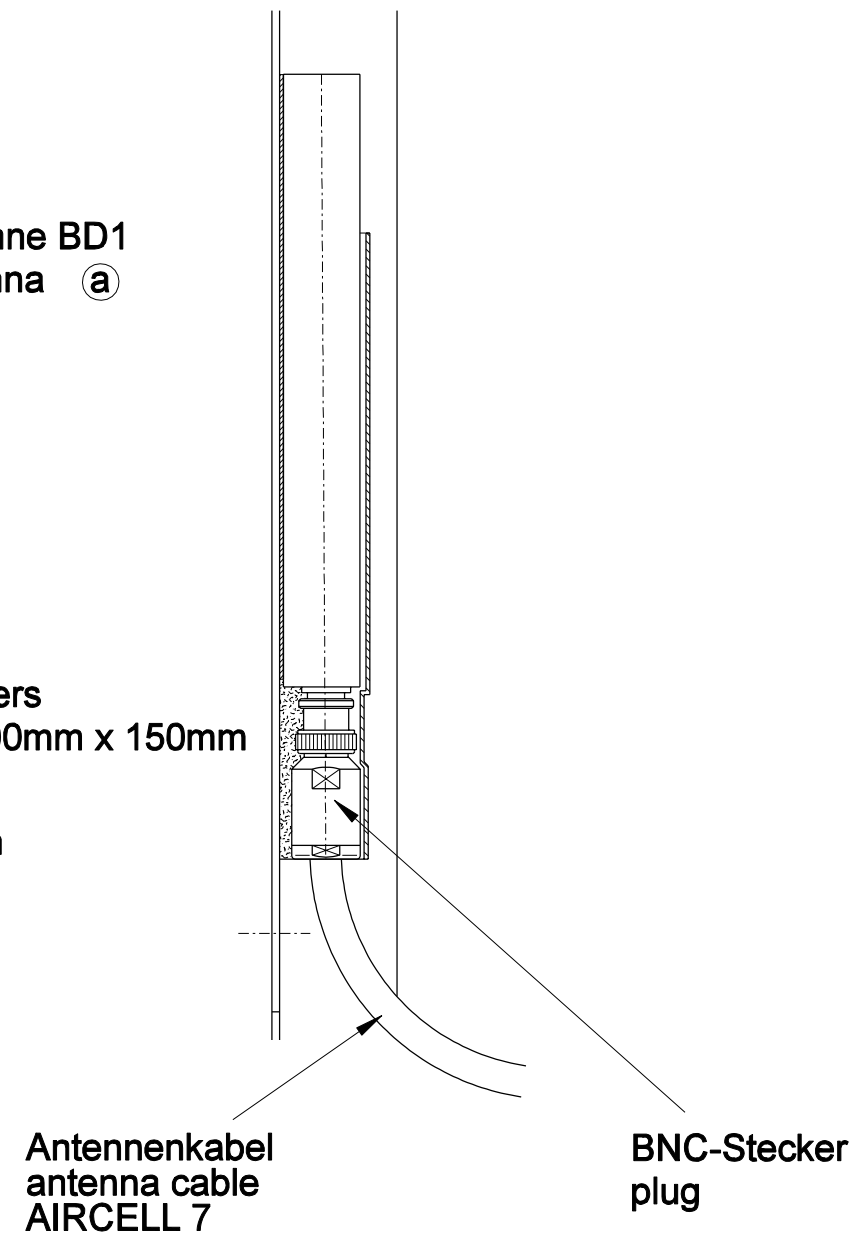
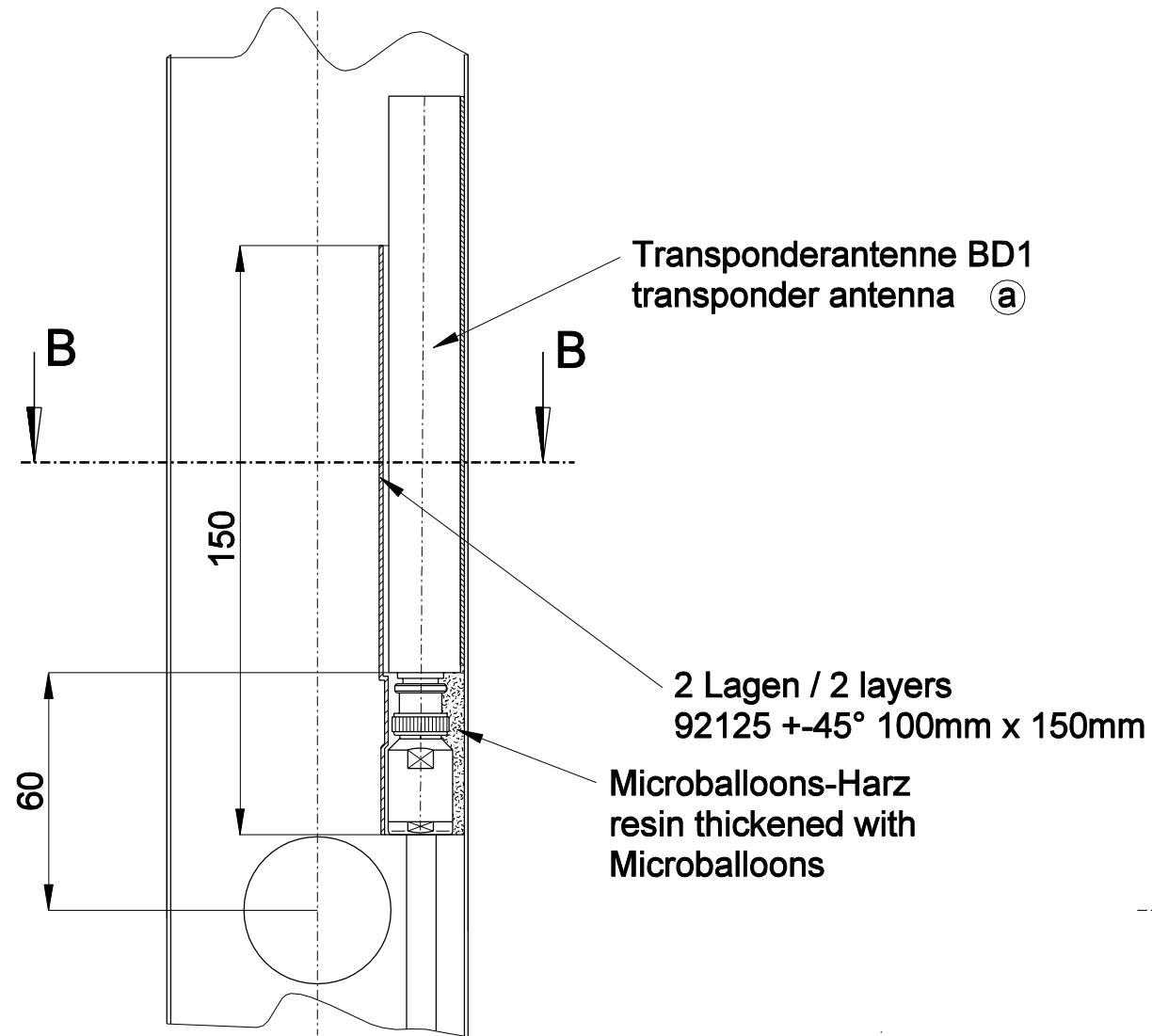
The remarks of TN DG-G-03 must be taken into consideration during installation and post installation inspection of the transponder system.

Proper function of the system must be checked by an avionics inspector with adequate authorisations according national regulations.

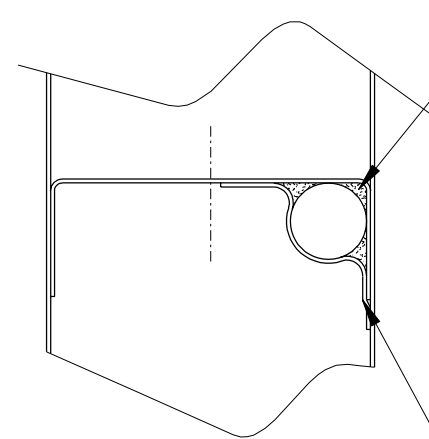
Flugrichtung
direction of flight



Ansicht / view A
M 1:2




Schnitt B-B
cross section



Microballoons-Harz
resin thickened with
Microballoons

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

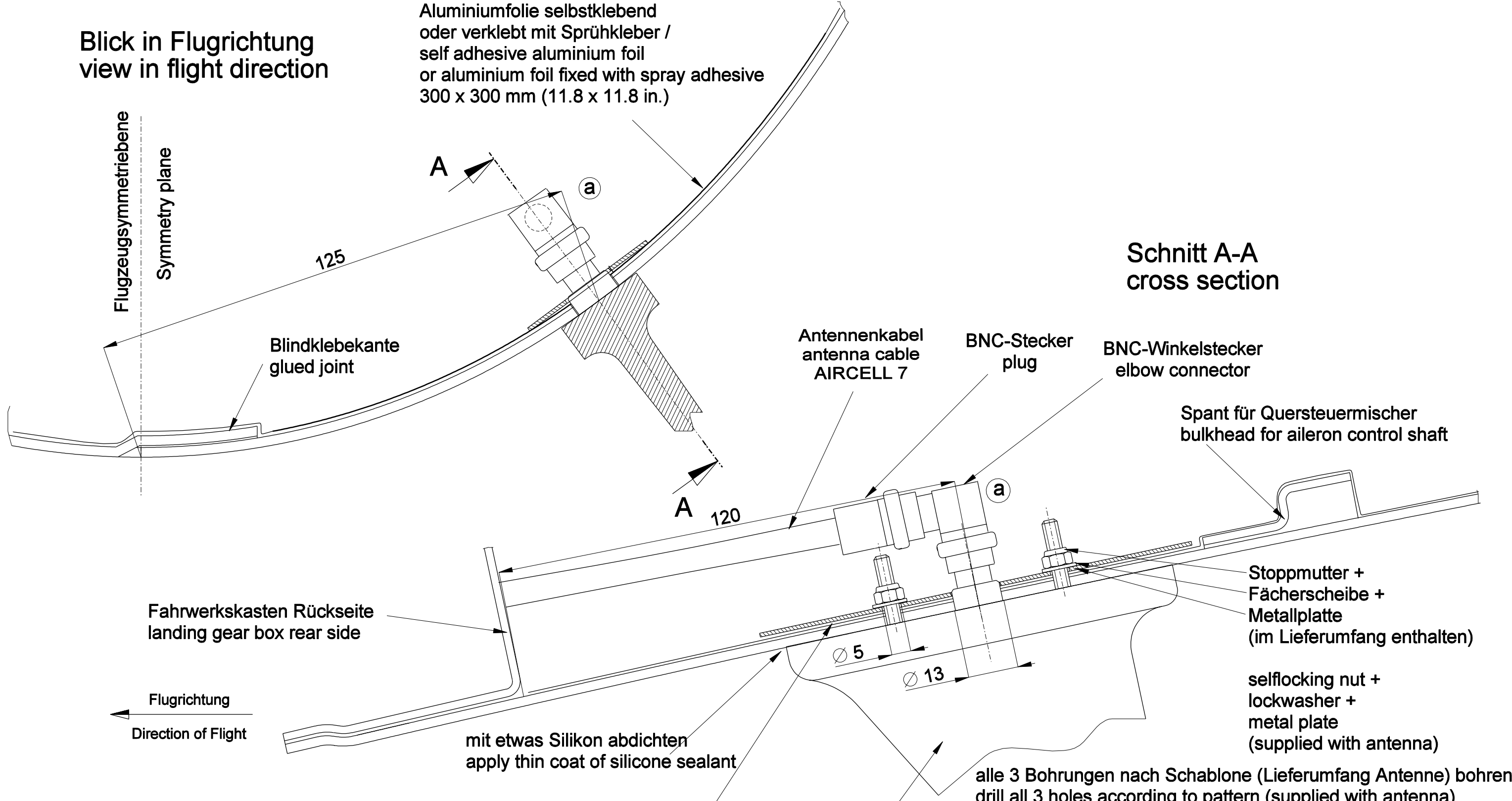
Installation of aerial for transponder
in vertical fin LS8 / LS10

Toleranzen nach Arbeitsanweisung BA 1				Tag	Name	DG Flugzeugbau GmbH 76646 Bruchsal Otto-Lilienthal-Weg 2
Schweißen nach Arbeitsanweisung SA 1				Gez.	27.06.07 R. v.d. Bos	
				Gepr.		
				Norm.		 Z182
				Maßstab	1:2	
					1:5	
				Maße ohne Toleranzang. nach:		
a	Korrekturen	25.01.08	Mandl	Transponderantenne in Seitenflosse LS 8/ LS 10		
Ausg.	Änderung	AM	Tag Name			

Blick in Flugrichtung
view in flight direction

Aluminiumfolie selbstklebend
oder verklebt mit Sprühkleber /
self adhesive aluminium foil
or aluminium foil fixed with spray adhesive
300 x 300 mm (11.8 x 11.8 in.)

Flugzeugsymmetrieebene
Symmetry plane



Schnitt A-A
cross section

Fahrwerkskasten Rückseite
landing gear box rear side

Flugrichtung
Direction of Flight

mit etwas Silikon abdichten
apply thin coat of silicone sealant

Aluminiumfolie selbstklebend
oder verklebt mit Sprühkleber /
self adhesive aluminium foil
or aluminium foil fixed with spray adhesive
300 x 300 mm (11.8 x 11.8 in.)


Antenne
aerial
Honeywell KA 60 / KA 61

alle 3 Bohrungen nach Schablone (Lieferumfang Antenne) bohren
drill all 3 holes according to pattern (supplied with antenna)

Stopfmutter +
Fächerscheibe +
Metallplatte
(im Lieferumfang enthalten)

selflocking nut +
lockwasher +
metal plate
(supplied with antenna)

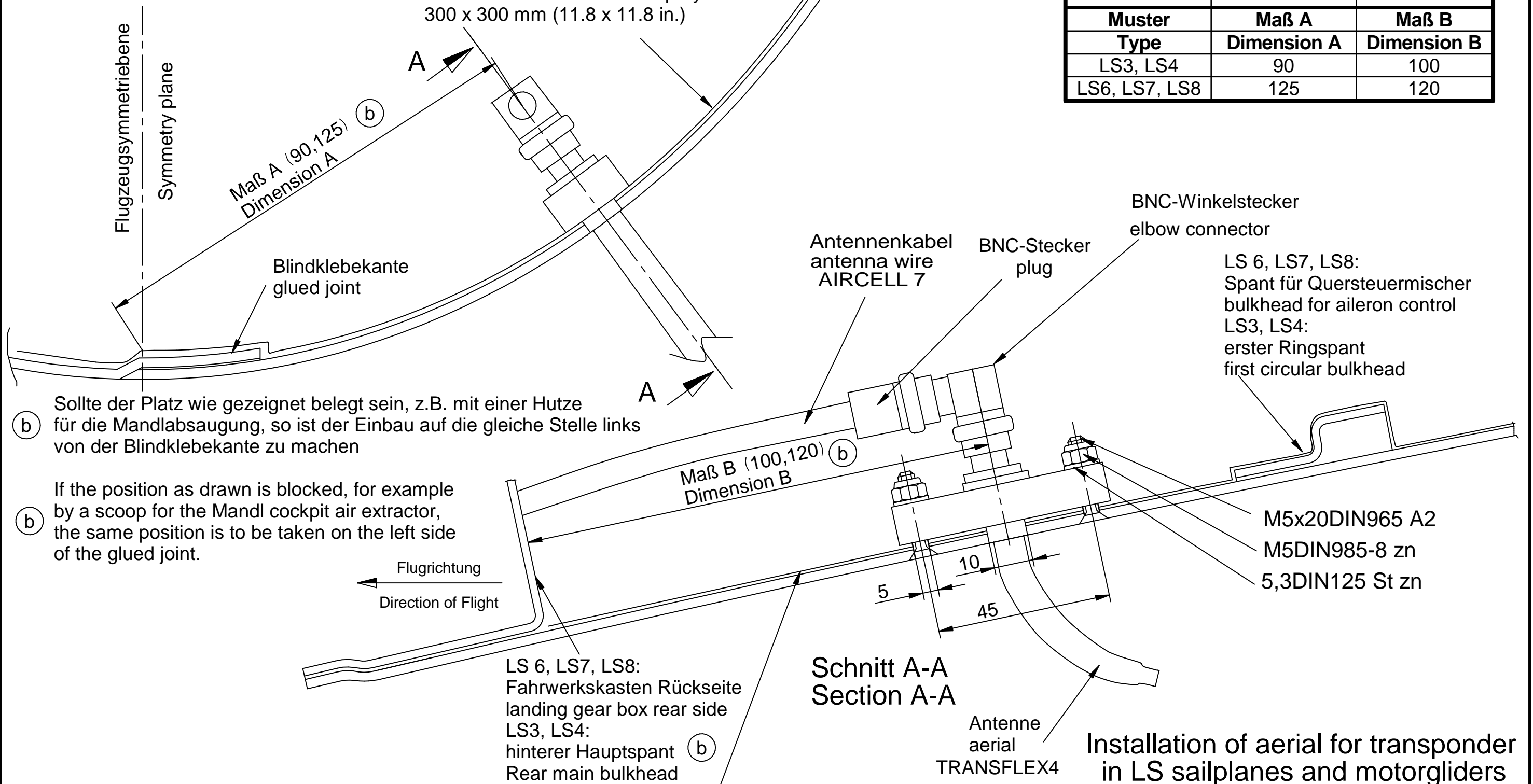
Installation of aerial for transponder
in LS sailplanes and motorgliders

Toleranzen nach Arbeitsanweisung BA 1				Tag	Name	DG Flugzeugbau GmbH 76646 Bruchsal Otto-Lilienthal-Weg 2
Schweißen nach Arbeitsanweisung SA 1				Gez.	27.06.07 R. v.d. Bos	
				Gepr.		
				Norm.		Aussenliegende Transponderantenne Alle LS
				Maßstab	1:2 1:5	
				Maße ohne Toleranz- ang. nach:		
b	Ground plane ent.	24.01.08	Mandl			
a	Stecker und Kabel	10.12.07	F.Müller			
Ausg.	Änderung	AM	Tag	Name		 Z183

**Blick in Flugrichtung
view in direction of flight**

Aluminiumfolie selbstklebend
oder verklebt mit Sprühkleber /
self adhesive aluminium foil
or aluminium foil fixed with spray adhesive
300 x 300 mm (11.8 x 11.8 in.)

(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 gezeichnet belegt sein, z.B. mit einer Hütze 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.

LS 6, LS7, LS8:
Spant für Quersteuermischer
bulkhead for aileron control
LS3, LS4:
erster Ringspant
first circular bulkhead

M5x20DIN965 A2
M5DIN985-8 zn
5,3DIN125 St zn

LS 6, LS7, LS8:
Fahrwerksgasten Rückseite
landing gear box rear side
LS3, LS4:
hinterer Hauptspant
Rear main bulkhead

Aluminiumfolie selbstklebend
oder verklebt mit Sprühkleber /
self adhesive aluminium foil
or aluminium foil fixed with spray adhesive
300 x 300 mm (11.8 x 11.8 in.)

Toleranzen nach Arbeitsanweisung BA 1 Schweißen nach Arbeitsanweisung SA 1				
Ausg.	Änderung	ab Wnr	Datum	Name
b	Maße für Glasrumpfe (LS1, LS3, LS4) ergänzt		12.02.15	JBW
a	Groundpl. enlarged		24.01.08	Mandl

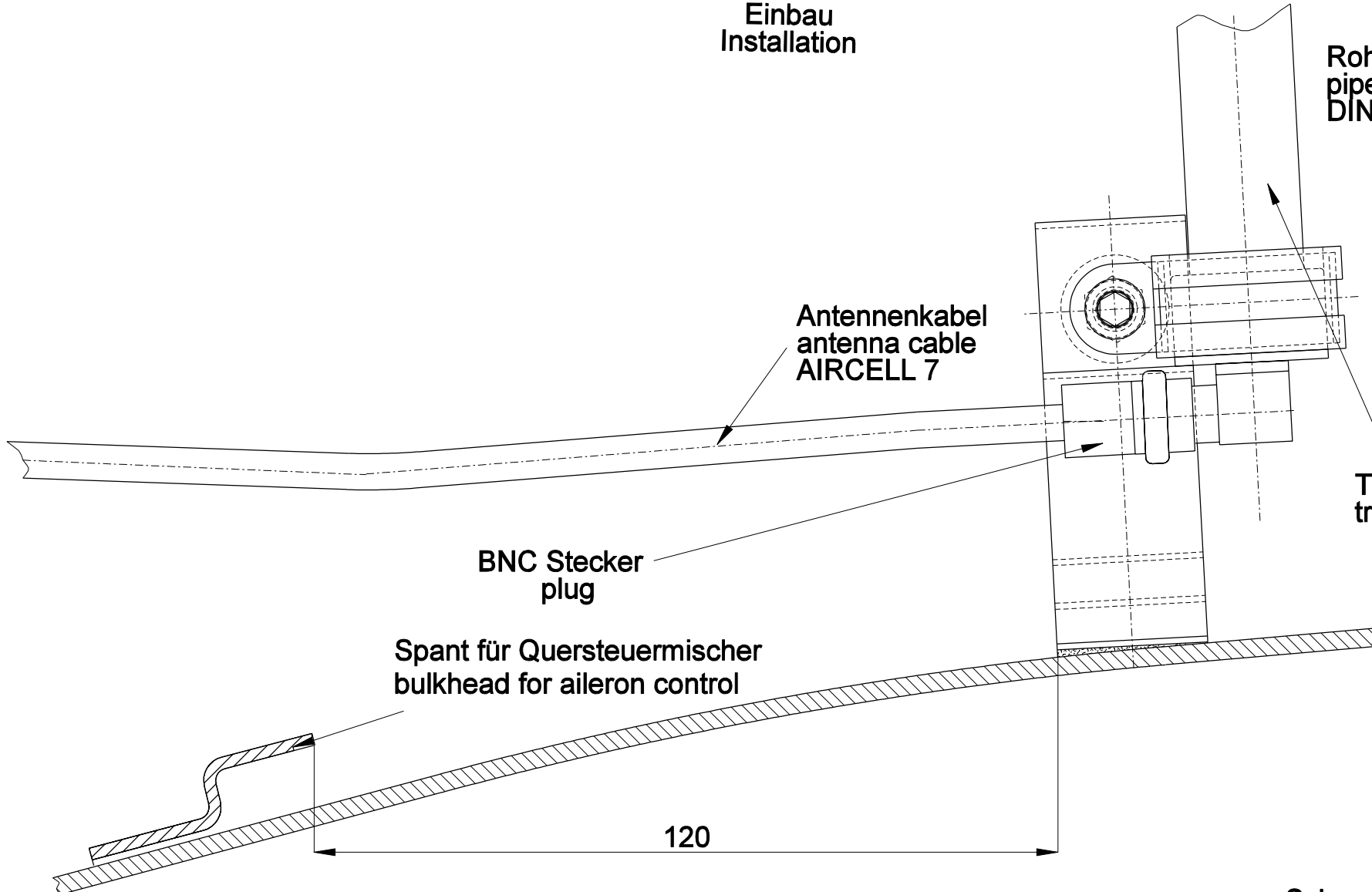
Datum		Name	
Gez.	10.12.07	F.Müller	
Gepr.			
Norm.			
Maßstab: 1:1 (2:1)		Aussenliegende Transponderantenne alle LS	

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

DG Flugzeugbau GmbH
Z188

Seite 1
von 1

Einbau
Installation



Rohrschelle mit Gummiprofil
pipe clamp with rubber profile
DIN3016, 20-15

a

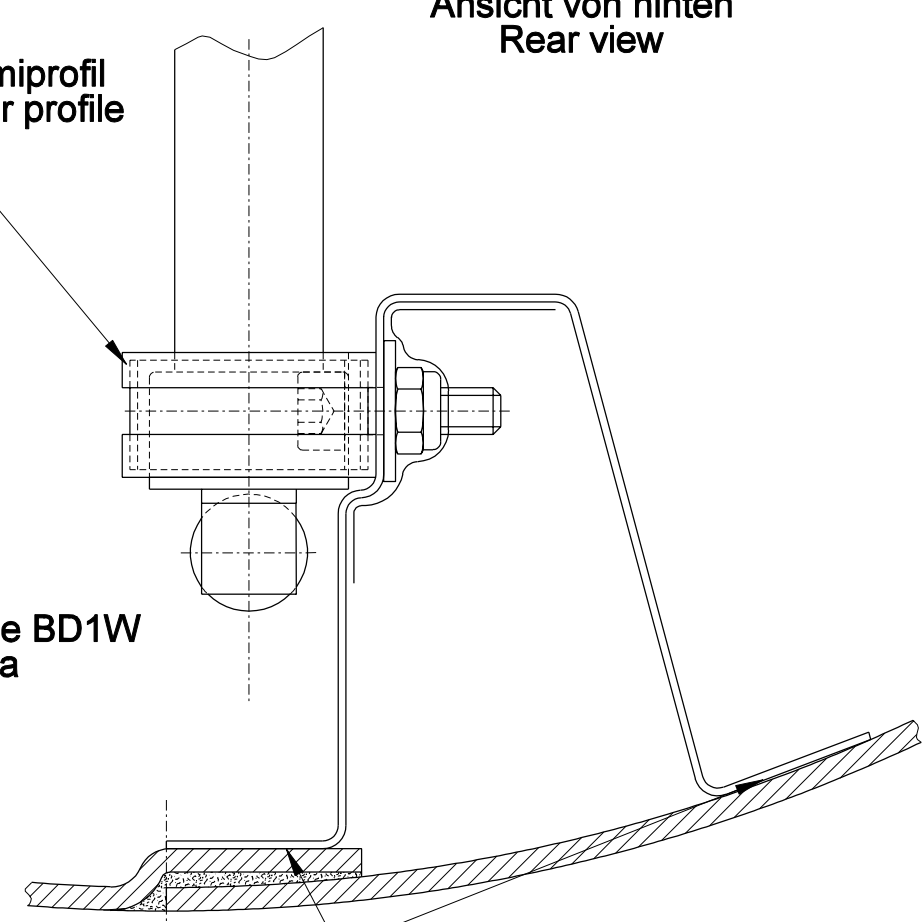
Transponderantenne BD1W
transponder antenna

BNC Stecker
plug

Spant für Quersteuermischer
bulkhead for aileron control

120

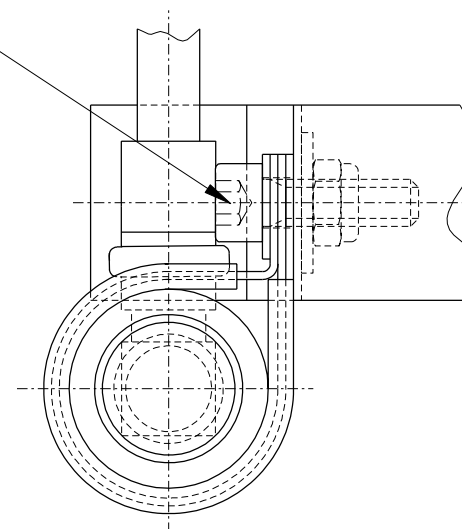
Ansicht von hinten
Rear view



verkleben mit BW-Harz
glue with a mixture of cottonflocks and resin

Draufsicht
Top view

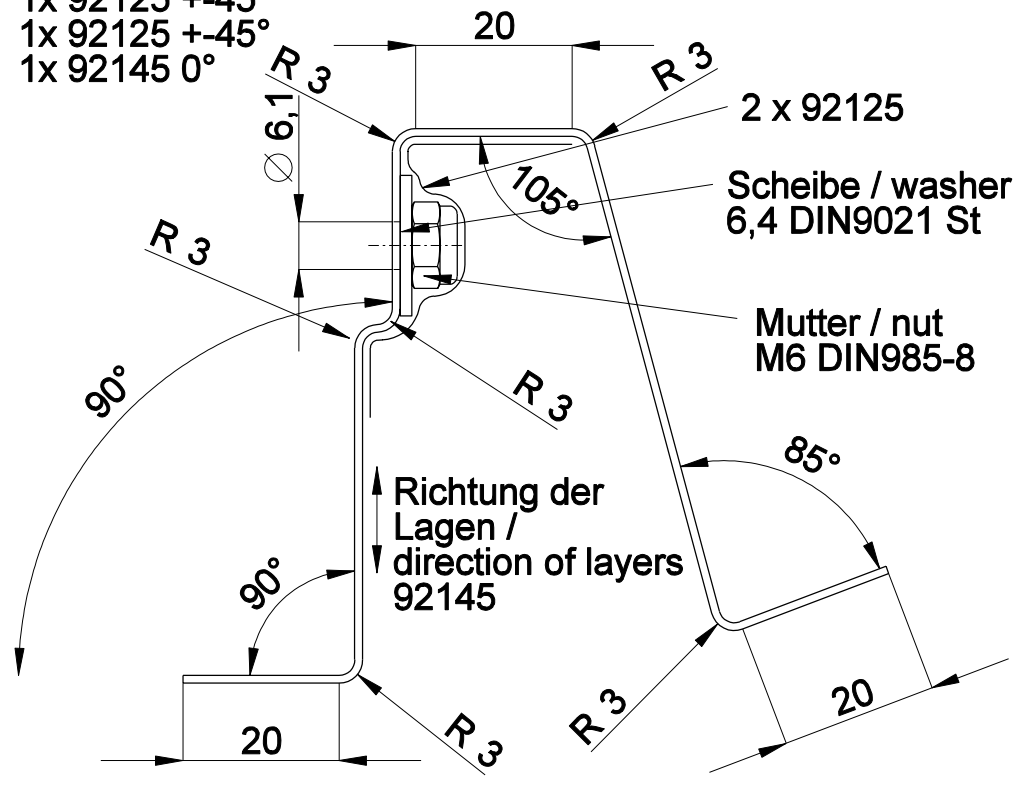
Schraube M6x20 DIN912
bolt



Belegung / lay-up:

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

Teil 1
part 1

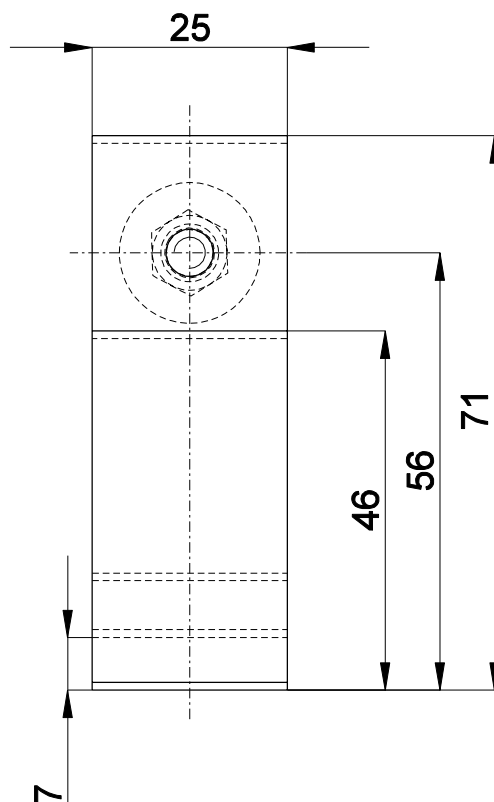


2 x 92125

Scheibe / washer
6,4 DIN9021 St

Mutter / nut
M6 DIN985-8

Richtung der
Lagen /
direction of layers
92145



Toleranzen nach Arbeitsanweisung BA 1

Schweißen nach Arbeitsanweisung SA 1

Tag Name

Gez. 24.01.08 Mandl

Gepr.

Norm.

Maßstab

1:1

Maße ohne Toleranzang. nach:

Teil 1: GFRP Halterung

part 1: GFRP mounting bracket

a 20-15 statt 25-15 15.06.11 W.Dirks

Ausg. Änderung ÄM Tag Name

DG
Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2



Z190