Working instruction No. 2 for TN DG-G-08
Installation of 406 MHZ ELT in LS sailplanes and motorgliders

Caution: The normal antennas supplied with 406 MHZ ELTs need a ground plane if not screwed to a metal aircraft. The radius of such ground plane should be the same as the length of the antenna (approx 600 mm). Such installation is impossible in most sailplanes and motorgliders. Thus special antennas are required. Possible antennas and favourable installation positions for ELTs and antennas are given in this working instruction.
All ELTs must be mounted with the actuation direction in parallel to the longitudinal axis of the aircraft.

1. **ELT installation in the cockpit:**
   It is possible to install a short ELT on the rear end of the side-console on the right or left hand side. In such case a „portable antenna“ must be installed with a BNC elbow plug directly to the ELT. To fix the ELT mounting tray 4 blind-rivet-nuts M5 (respectively M4 for Ameri-King Ak-451) must be riveted into the support of the removable seat-shell. Drill dia. 6 mm holes in the seat-shell at these places.
   Drill a dia. 15 mm hole in the seat-shell support for the remote control wiring. Install a rubber grommet (HV D15, d9, B6, h2) in the hole. Drill a larger hole (dia. 18 mm) in the seat-shell.
   Install the remote control in the instrument panel or at a more forward position in the side-console. Run the wiring below the right hand side-console.
   a) **Kannad 406 Compact or Kannad AF Integra 406 GPS ELT** with Kannad Whip antenna ANT 100 (BNC) P/N 0124206: The installation position is at the right hand side, as the antenna is mounted to the right hand side of the ELT. This allows to rotate the antenna so far inboard that it will not interfere with the canopy when closing the canopy. In some cases it may be necessary to remove a small part of the textile side cover to provide enough space for the mounting tray.



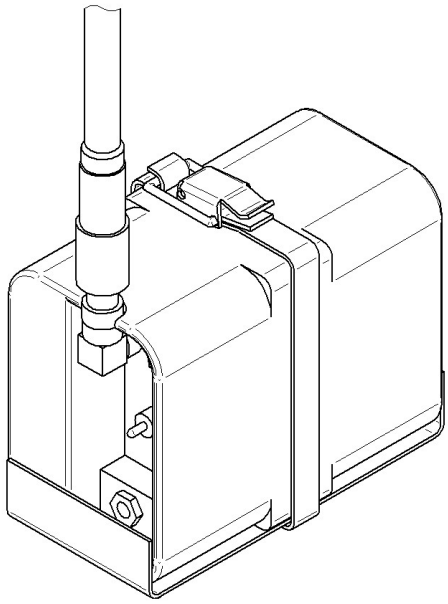


In the LS6, LS7, LS8 and LS10 models the thread of the eye bolt for the landing gear spring should be shortened to enable the ELT to be positioned as far back as possible.. It is preferable to use the small mounting tray S18840502-01. Also however the universal mounting tray S18840502-02 may be used and shortened at the rear end as far as necessary.

b) **Artex ME406** with „portable antenna 110-775“: The installation is similar to the Kannad ELT installation, but on the left hand side as the antenna is mounted on the left hand side of the ELT.

Caution: As control rods are running below the left side console make sure that you don't damage the control rods or their guides and that the ELT mounting bolts don't interfere with the controls. If necessary shorten the bolts.

c) **Ameri-King AK451** with portable whip antenna Model 451017-4S: The installation is similar to the Kannad ELT, but with screws M4. It is possible to install the ELT either on the left or right hand side cockpit side console. Due to the limited space it is not possible to use the original mounting. Therefore it is necessary to produce a new one, shown in drawing Z207. It is also required to adapt the Holder for ELT. For this purpose the holder has to be lined with two felt strips. Additional the holder has to be drilled on two points opposed to the side of the locking latch, see drawing Z207. Furthermore a notch for the antenna has to be made, as shown in drawing Z207.



2. Installation of the ELT in the baggage compartment (only LS sailplanes with automatic control hook ups)

The following ELT types may be installed:
Kannad 406 Compact or Kannad AF Integra 406 GPS ELT, Artex ME406, ACK E-04 ELT, Ameri-King AK-451.

Install the remote control in the instrument panel or at a more forward position in the side console. (only Kannad and Artex). Run the wiring below the right hand side-console. As the antenna can't be mounted directly to the ELT a special antenna type BD3 must be used.



a) **Fuselages not constructed from carbon fibre**: The antenna assy. Z194 (incl. BD3 and antenna wire) must be installed at the top of the baggage compartment (glued with epoxy resin/hardener thickened with cotton-flocks) to the fuselage shell.

Caution There should be no solar panel above the antenna as this will reduce the antenna performance.



b) **Fuselages constructed from carbon fibre** (LS8-b, LS8-sb, LS10-s): Install the antenna BD3 in front of the instrument panel according to installation plan 9EP22.

Caution: Make sure that the antenna cable is installed loose (in waves) so that it can elongate in case of damage to the fuselage and won't be torn off or cut by sharp edges of a broken composite part.

3. Installation of the ELT alongside the landing gear box (only LS10)

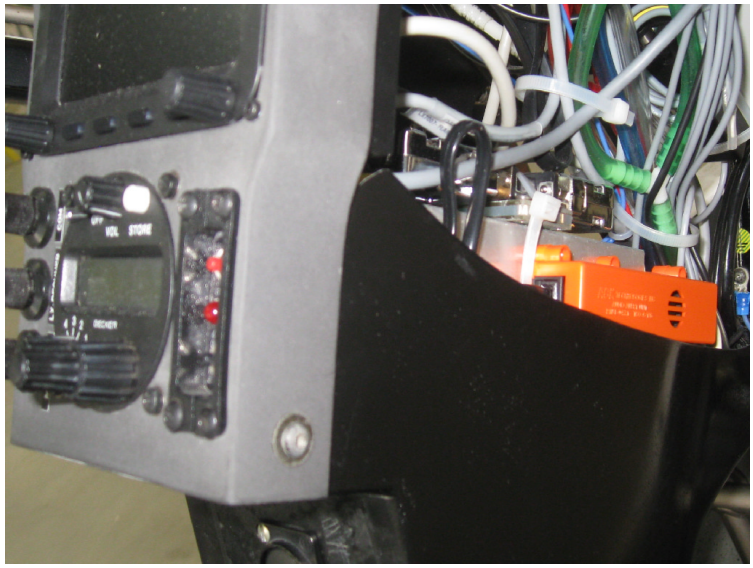
Install the ELT on the holder 9R96 at the right hand side of the landing gear box according to installation plan 9EP24 (see also AFM section 7.17.3). Install an „ELT access cover" according to drawing 4R07-091 (issue a). The radio loudspeaker installed at that location must be mounted to the access cover. Lengthen the switch at the ELT with a Nylon-tube 4x1x25.

Install the remote control in the instrument panel. Run the wiring below the right hand side-console.

4. Note and cautionary advice for ACK E-04 ELT an Ameri-King AK-451

a)Note for ACK E-04 ELT: The installation of an ACK E-04 only makes sense if an ELT ACK E-01 (same size) was already installed. Otherwise installation of other ELTs is much easier.

Caution for ACK E04: The remote control and the Audio alert unit of the ACK E-04 (in the wiring between remote control and ELT) must be installed in the instrument panel, (see photo).



b) Caution for AK-451:

The remote control and the Audio alert unit of the AK-451 (the Audio alert unit wiring is connected to the remote control via a T- connector) must be installed in the instrument panel.

5. Notes for all 406 MHZ ELT installations

Info: 406 MHZ ELTs transmit a country code (e.g. 038 for Germany) and the ser. No. of the ELT. These features will be checked by the electronics inspector.
The ELT must be registered to assign this data to the aircraft and to send messages.

Caution: After installation, a functional check and inspection must be performed by a licensed electronics inspector.

The ELT must be switched off during ground transport

Caution: To be able to use the ELT outside the aircraft after an accident a „portable antenna" should be carried on board.
An ELT installation with a „portable antenna", if possible, is therefore the cheapest alternative.

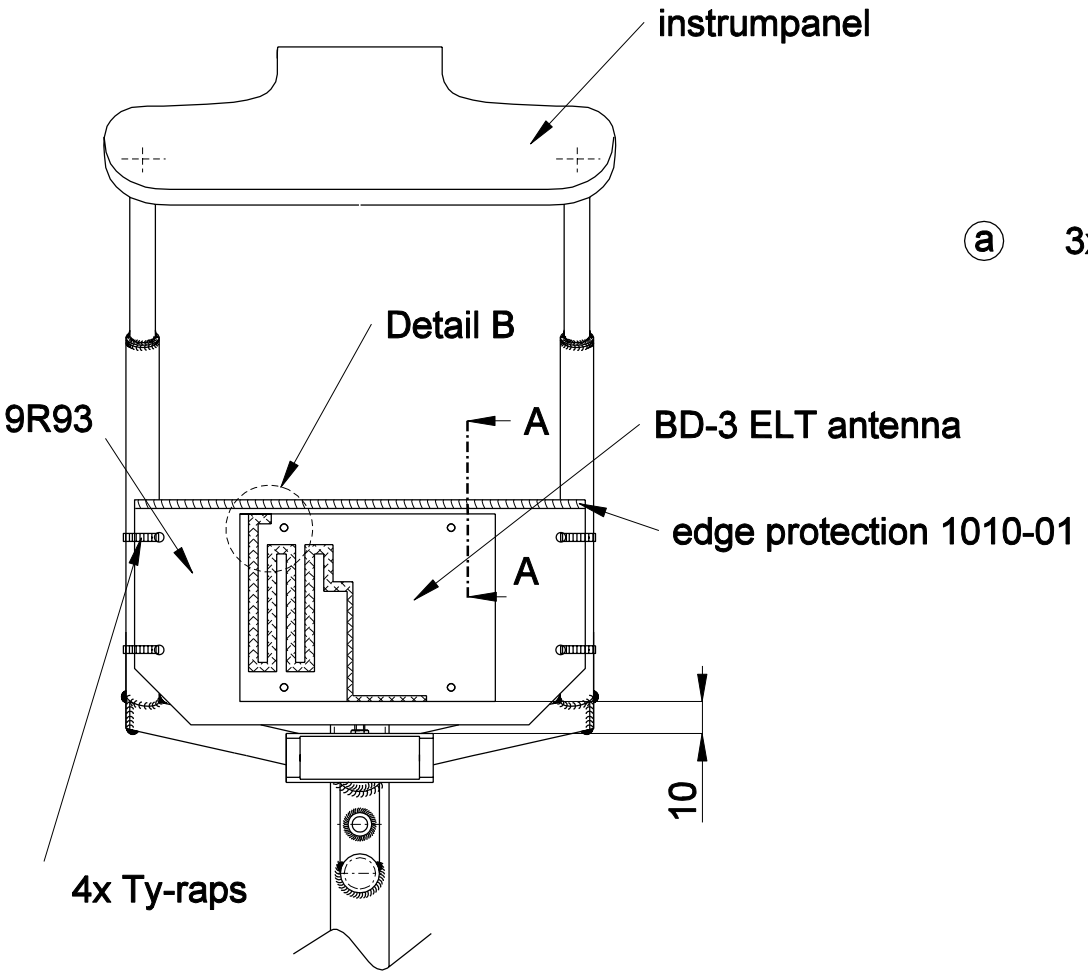
6. Material

In addition to the material delivered with the ELT (mounting tray, remote control, wiring) the following material will be needed:

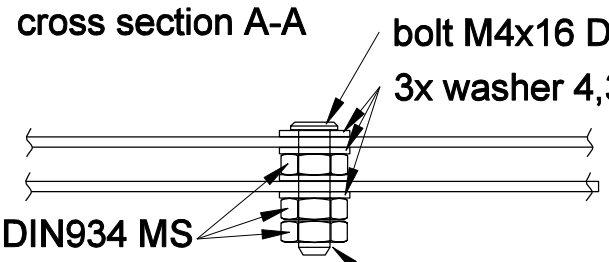
Installation according to	Number of items	Designation
1.	1	rubber grommet HV D15, d9, B6, h2
1. a)	1	Kannad Whip antenna ANT 100 (BNC) P/N 0124206
1. b)	1	„portable antenna 110-775" forArtex ME406
1. c)	1	Ameri-King Ak-451 portable whip antenna model 451017-4S
1. a) +1. b) +1.c)	1	BNC elbow plug
1. a) + 1. b)	4	blind-rivet nuts M5 for Kannad, Artex, ACK
1. c)	4	blind-rivet nuts M3 for Ameri-King
1. a) + 1. b) + 2.	4	bolts M5x20 DIN 912-8.8 zn
	4	countersunk head screw M3x20 DIN 963-4.8 zn for Ameri-King AK-451
1. c)	1	drawing Z207 with material given on the drawing
2.	4	self-locking nuts M5 DIN985-8 zn
	4	self-locking nuts M3 DIN 985-8 zn for Ameri-King AK-451
2.	4	washers 5,3 DIN9021 St zn
	10	washer 3,2 DIN9021 St zn for Ameri-King AK-451
2. a)		antenna assy. Z194 (incl. antenna BD3 and antenna wire)
2. a)		Epoxy resin/hardener and cotton flocks according to repair or maintenance manual
2. b)		drawing 9EP22 with material given on the drawing
3.		drawing 9EP24 with material given on the drawing (except for 9R56)
3		drawing 4R07-091 (issue a) „ ELT access cover" with material given on the drawing
all	diverse	cable ties (Ty-raps)

Revision	Modification	issue	Name
1	installation of Ameri-King AK-451 added	01.12.12	Hiesinger
2	Designation corrected Ameri-King portable whip antenna model 451017-4S	5.03.2013	W. Dirks

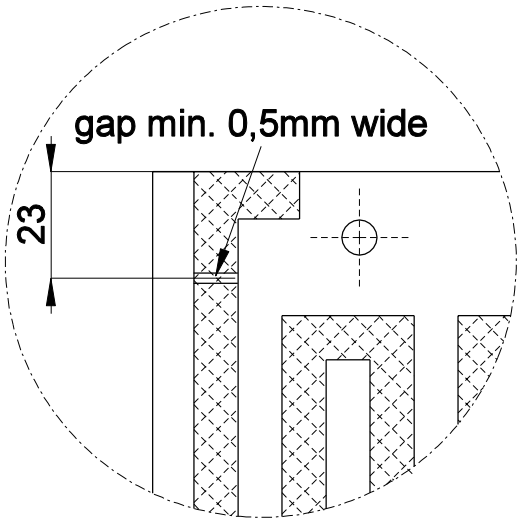
view form top



cross section A-A



Detail B



FILIGHT DIRECTION

Toleranzen nach Arbeitsanweisung BA 1				
Schweißen nach Arbeitsanweisung SA 1				
a	MS		25.05.09	R. Klur
Ausg.	Änderung	ÄM	Tag	Name

	Tag	Name
Gez.	03.03.09	R. Klur
Gepr.		
Norm.		

Maßstab : :

Maße ohne Toleranz-ang. nach:

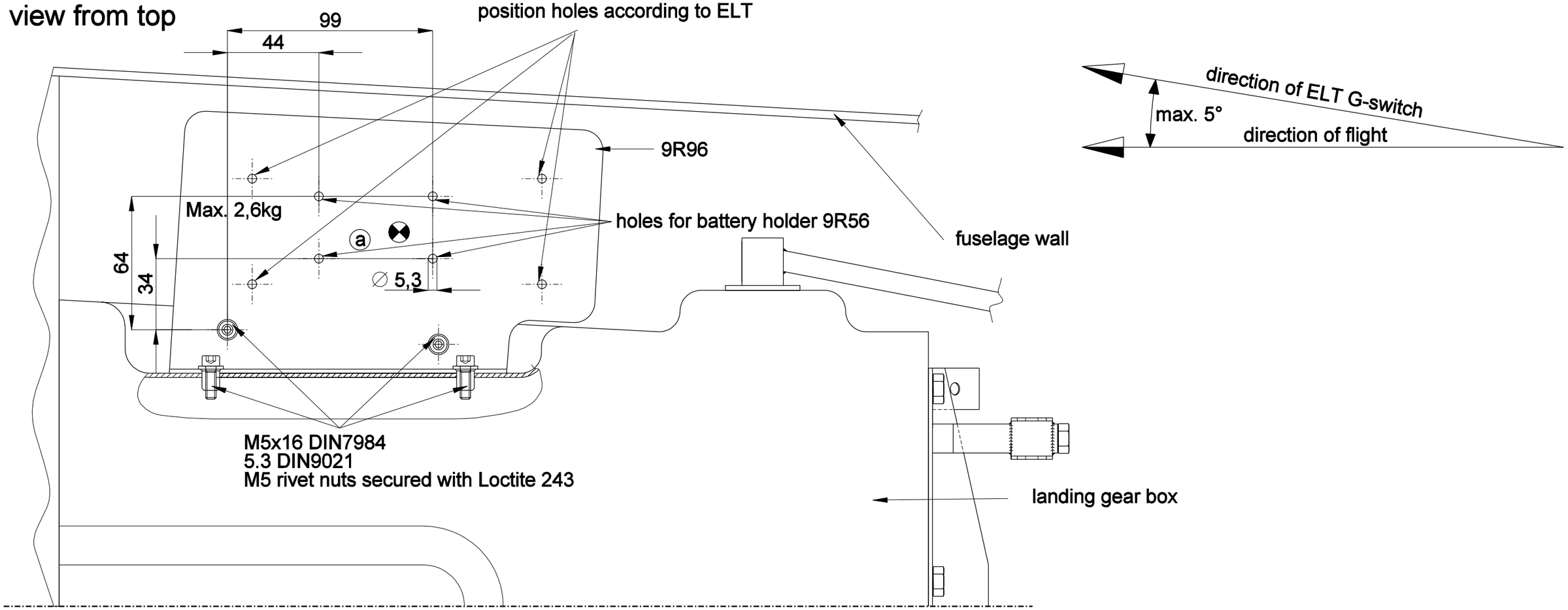
Installation 406 MHz ELT antenna BD-3

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76646 Bruchsal
Otto-Lilienthal-Weg 2

DG

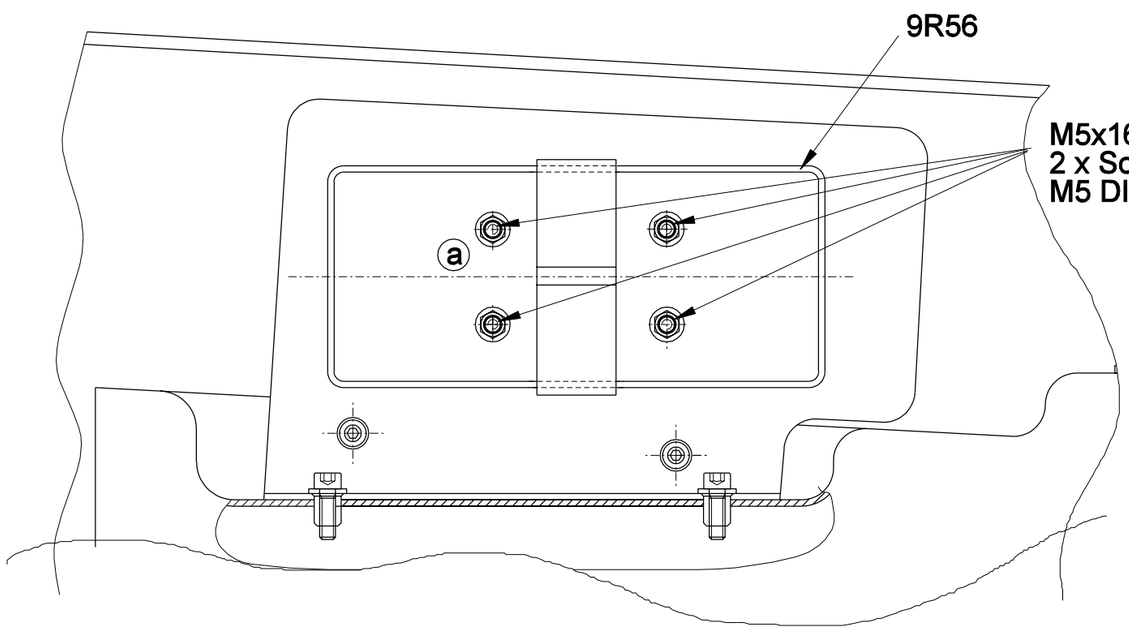
9Ep22

view from top



installation additional battery (shown withour battery)

direction of flight



Toleranzen nach Arbeitsanweisung BA 1				
Schweißen nach Arbeitsanweisung SA 1				
a	div. Änderungen		25.05.09	R. Klur
Ausg.	Änderung	ÄM	Tag	Name

	Tag	Name
Gez.	18.03.09	R. Klur
Gepr.		
Norm.		

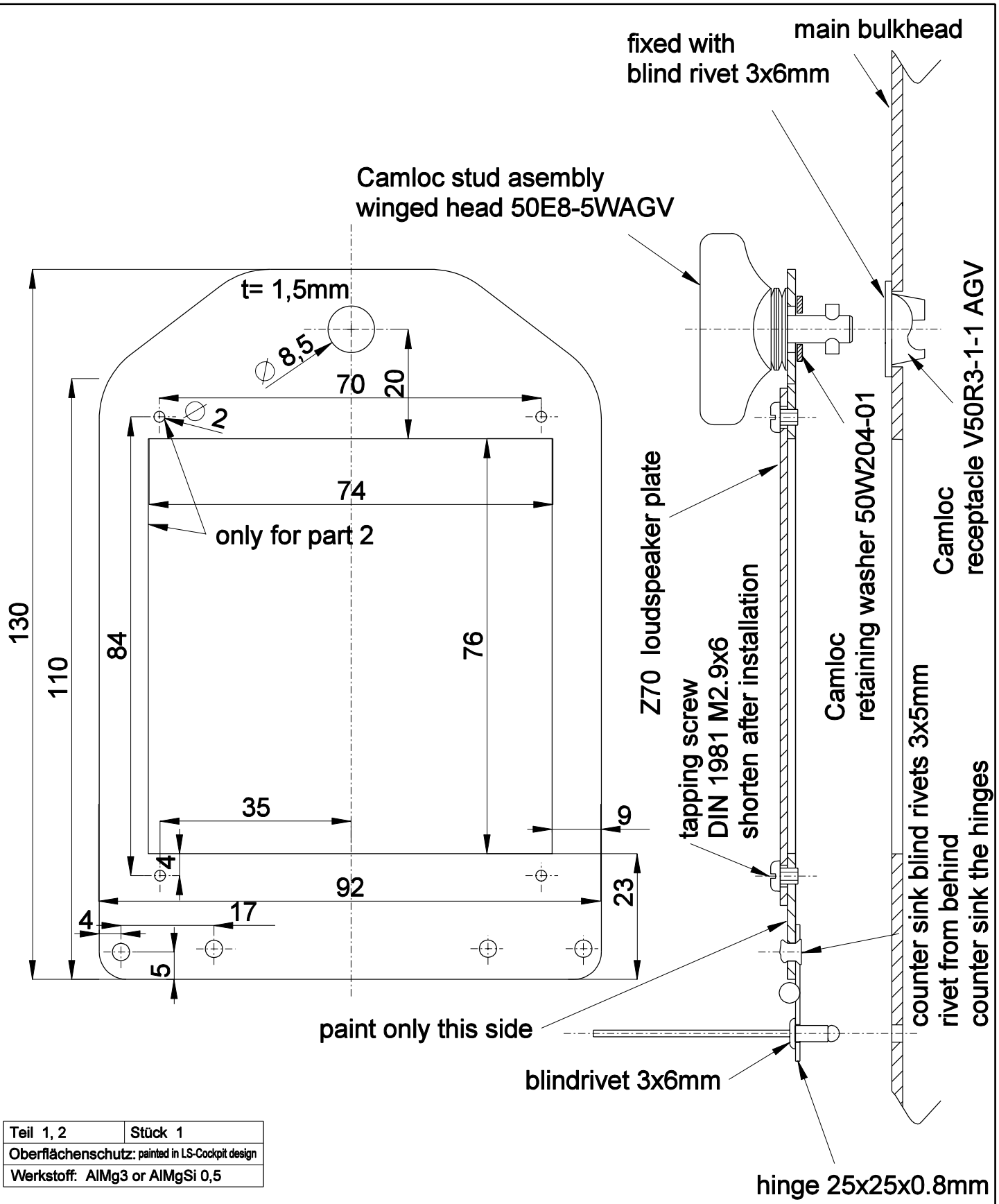
Maßstab 1:2 :

Maße ohne Toleranz-ang. nach:

installation plan ELT or additional battery

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2

9Ep24



Teil 1, 2	Stück 1
Oberflächenschutz: painted in LS-Cockpit design	
Werkstoff: AlMg3 or AlMgSi 0,5	

Toleranzen nach Arbeitsanweisung BA 1

Schweißen nach Arbeitsanweisung SA 1

Ausg.	Änderung	ÄM	Tag	Name
a	div. Änderungen		07.12.11	Strobel

	Tag	Name
Gez.	14.10.02	Gerlach
Gepr.		
Norm.		

Maßstab 1:1 :

Maße ohne Toleranz-ang. nach:

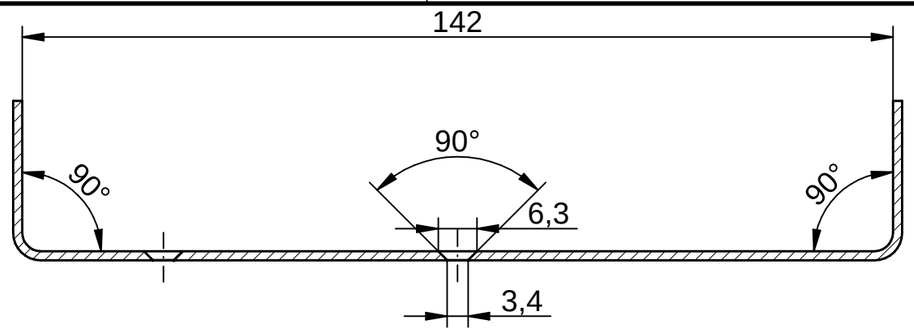
ELT access cover

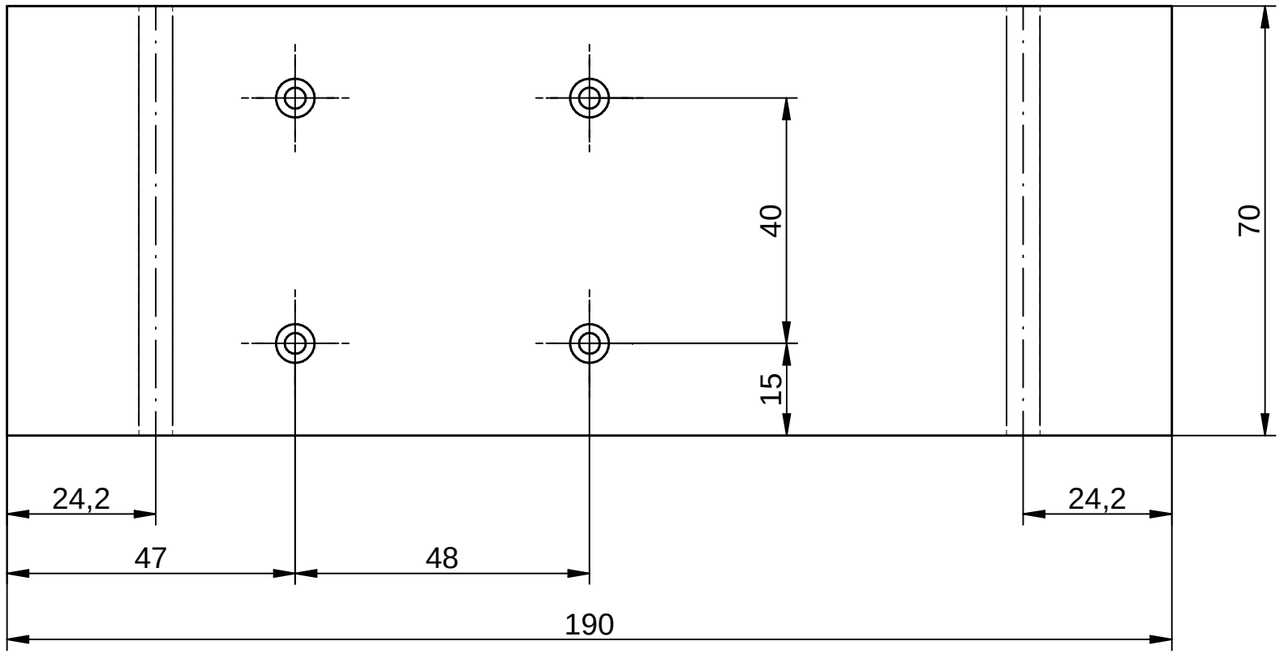
part 1 without loudspeaker

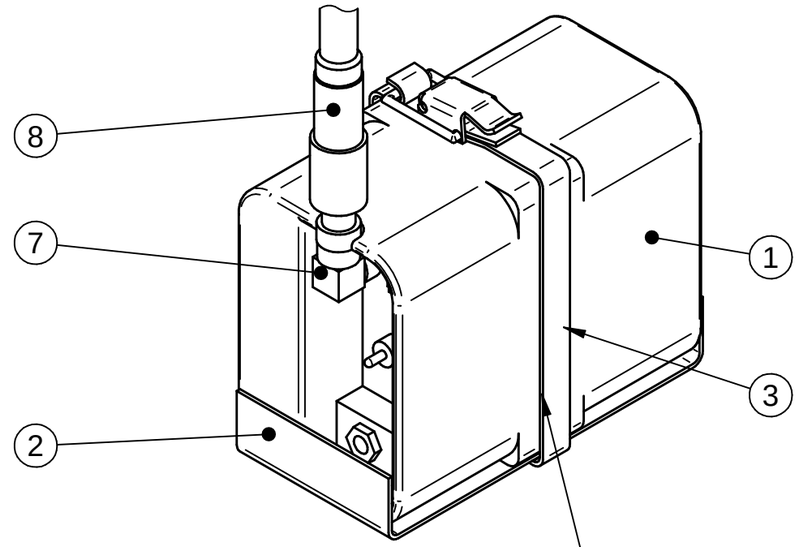
part 2 with loudspeaker

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4R07-091



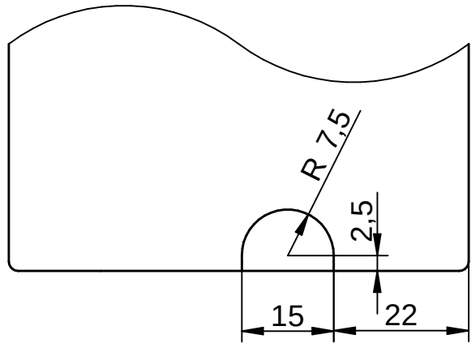


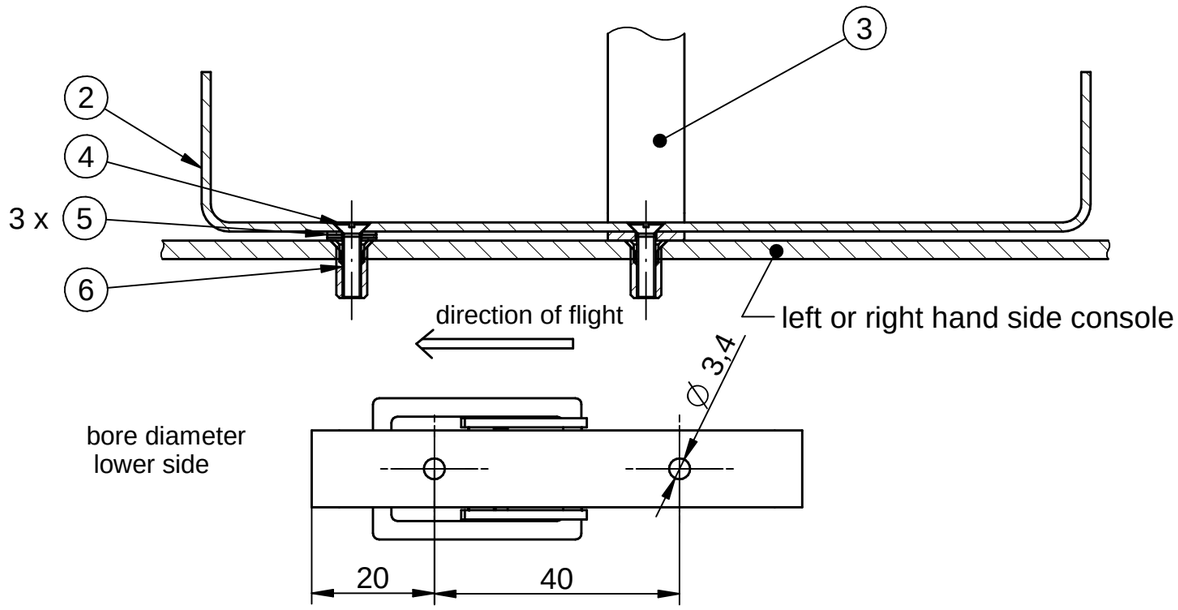


The ELT holder 3 has to be lined on both sides and on the upper side with a 10mm wide and 3mm thick piece of self-adhesive felt.

(1:2)

Recess at the ELT-body for the portable whip antenna





pos.	QTY	part number	description	semi-finished item	material	supplier
1	1		ELT AK 541			
2	1	Z207/1	ELT mounting tray		AlMg3 1,5mm thick	
3	1	P/N 450 014	Holder for ELT from mounting AK-451			
4	4	DIN 963-M3x20-4.8zn	countersunk head screw M3x20			
5	6	DIN125A-3,2 St zn	washer 3,2			
6	4		blind-rivet nuts M3			
7	1		BNC elbow plug			
8	1	451017-1B	Ameri-King Portable whip Antenna			

tolerances according to work instruction BA 1
welding according to work instruction SA 1

Rev.	description	S/N	date	name

	date	name
design	27.11.12	Hiesinger
checked		
approved		

scale: 1:1 (1:2)

unless otherwise noted dimensions are in mm

Title:
Installation ELT AK 541

DG Flugzeugbau GmbH
76646 Bruchsal
Otto-Lilienthal-Weg 2
Germany

DWG-No.: Z207

page 1
of 1

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