

Service Info No. 87/14
Installation of PowerFLARM in DG two-seaters

General notes for PowerFLARM installation: Each sailplane or motorglider may be equipped with different instrumentation, therefore it is not possible to give precise installation instructions which will meet each existing instrumentation.

This Service Info provides an overview of useful Power FLARM installations already performed. FLARM and POWERFLARM equipment is not part of the required minimum equipment. Therefore it's not necessary to approve each installation separately. Use TN DG-G-07 as means of approval for PowerFLARM installations.

Warning:

1. Frequencies: In the USA and in Australia different frequencies are used for FLARM than in the rest of the world. USA 915 MHz, Australia 921 MHz, others 868 MHz. This means that both FLARM and PowerFLARM units and antennas for USA and Australia are different to those for the rest of the world. As there is only some MHz difference for the frequencies used in USA and Australia the PowerFLARM unit and the FLARM antennas will be delivered such that they will suit both frequencies.

2. Differences of the core units: The version of PowerFLARM core units may be determined from the data plate:

FLAPFCxxAxxxxxx for USA and Australia and FLAPFCxxExxxxxx for the rest of the world, x are serial No.s.. The polarity of the antenna sockets is reversed.

3. Differences of the antennas: For USA and Australia: the connector of the FLARM antenna is equipped with a centre socket, the connector of the ADS-B antenna is equipped with a centre pin. As the ADS-B-Antenna is the same all over the world also an antenna with a centre socket may be used together with an adapter with 2 centre pins.

For the rest of the world: the connector of the FLARM antenna is equipped with a centre pin and the connector of the ADS-B antenna is equipped with a centre socket.

General hints for antenna installations:

- a) FLARM Antennas are marked with a red heat shrink tubing at the connector,
ADS-B Antennas are marked with a blue (or black) heat shrink tubing at the connector.
- b) Mount antennas vertically.
- c) Don't kink or bend antennas.
- d) Antennas shouldn't touch other components, of course except for the antenna mounting.
- e) Antennas should have large distance to electrically conductive material (e.g. steel, carbon fibres), FLARM-antennas minimum 100mm).
- f) Antennas should have the max. possible distance from each other.
- g) Don't extend the antenna wire, buy antennas with long enough wires.
- h) If you mount antenna wires with cable-ties make sure not to squeeze the wire by over-tightening the cable ties.

1. Necessary parts:

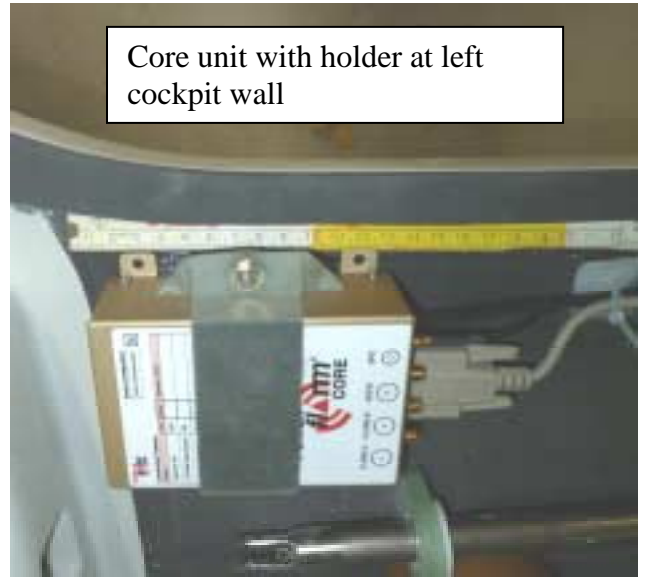
1 x PowerFLARM-Set consisting of core unit and antennas
in addition 1x ADS-B antenna (Butterfly/Garrecht Part.No.: 1.0.0.0005)
Holder for core unit Z208/1 + Z208/2
FLARM-displays as desired
Cable-ties, textile tape and suitable glues.

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2. Installation of the core unit

The core unit should be installed in the rear Cockpit under the left hand side cover according to drawing Z209.

- a) Remove left hand side cover.
- b) Glue core unit installed in holder Z208/1 to the fuselage wall according to the photo, make sure that the cover will still fit. The sockets at the core unit must show to the front.
Use suitable Epoxy resin/hardener (e.g. L285/H285 or H286 thickened with cotton flocks) as glue.
Secure the unit with mounting bracket Z208/2.



Wire the power supply wires to the distributors (for instruments) in the front instrument tower. Install an on/off switch in the positive wire (to switch off the unit for a reset) and a 0.5A fuse. Install switch and fuse on the front instrument panel. Mark fuse and switch.

Run the wiring from the core unit underneath the left canopy brink towards the bulkhead between front and rear cockpit and from there to the rear instrument tower. Then run the wiring from there through one of the cable tubes to the front instrument tower.



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3. Antenna installations

An overview of the installation positions is shown on the attached drawing Z211.

3.1 GPS Antenna

Glue the GPS antenna to the bulkhead between front and rear cockpit see photo. Drill a dia. 8 mm hole horizontally into the bulkhead at the left hand side of the antenna. Run the antenna wire through this hole, through the rear instrument tower and underneath the left hand side canopy bring to the core unit. Store excess wire in the bulkhead or in the instrument tower.



3.2 FLARM-Antenna

Glue the FLARM-Antenna (small Dipol-antenna, supplied with PowerFLARM) to the left hand side fuselage wall (baggage compartment area) with the double-sided adhesive tape already attached to the antenna (see photo). Run the wire underneath the canopy brink to the core unit. Fix the wire with cable ties to the empty holes in the core unit. Fix the wire to the fuselage shell with instant glue. Run the excess wire to the front with the other wiring.



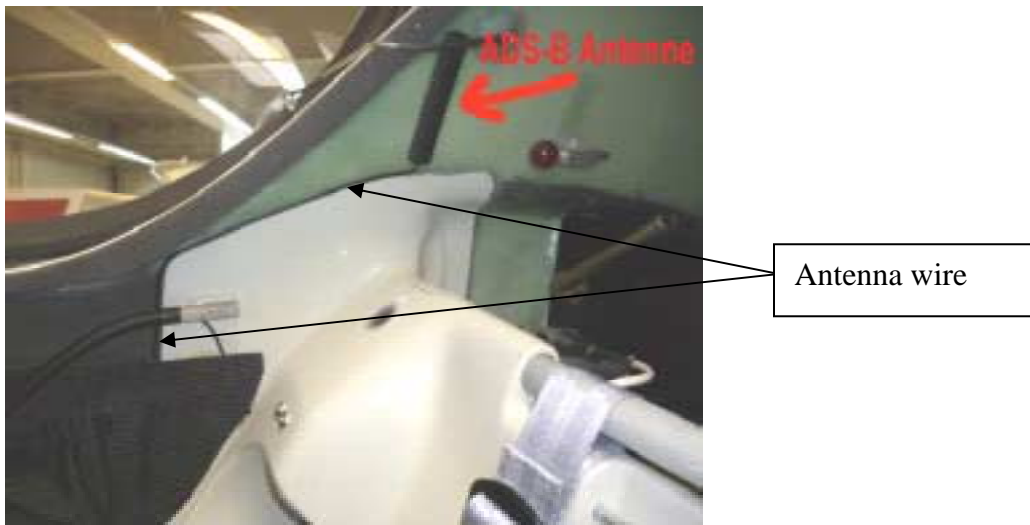
Fix all wires at the left hand cockpit side with cable tie holders and cable ties. You may install some additional cable ties to bundle the wires between the holders.

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3.3 ADS-B-Antenne

Glue the ADS-B-antenna to the right hand side fuselage wall (baggage compartment area) with the double-sided adhesive tape already attached to the antenna (see photo).

Run the wire along the edge of the main bulkhead and fix it there with instant adhesive. Then run the wire through the hole for microphone wire and Bowden cables. To accomplish this you have to loosen the upper rear end of the map pocket from the fuselage shell, fix again with contact adhesive e.g. Pattex. Then run the wire inside the main bulkhead above the landing gear box towards the left hand side. From there run the wire downwards to the tube for the rudder cable and then forwards to the large hole in the horizontal part of the left hand side of the seat pan, fix to the tube with cable ties. From there run the wire upwards to the core unit and fix it with textile fabric to the fuselage wall.



4. Displays

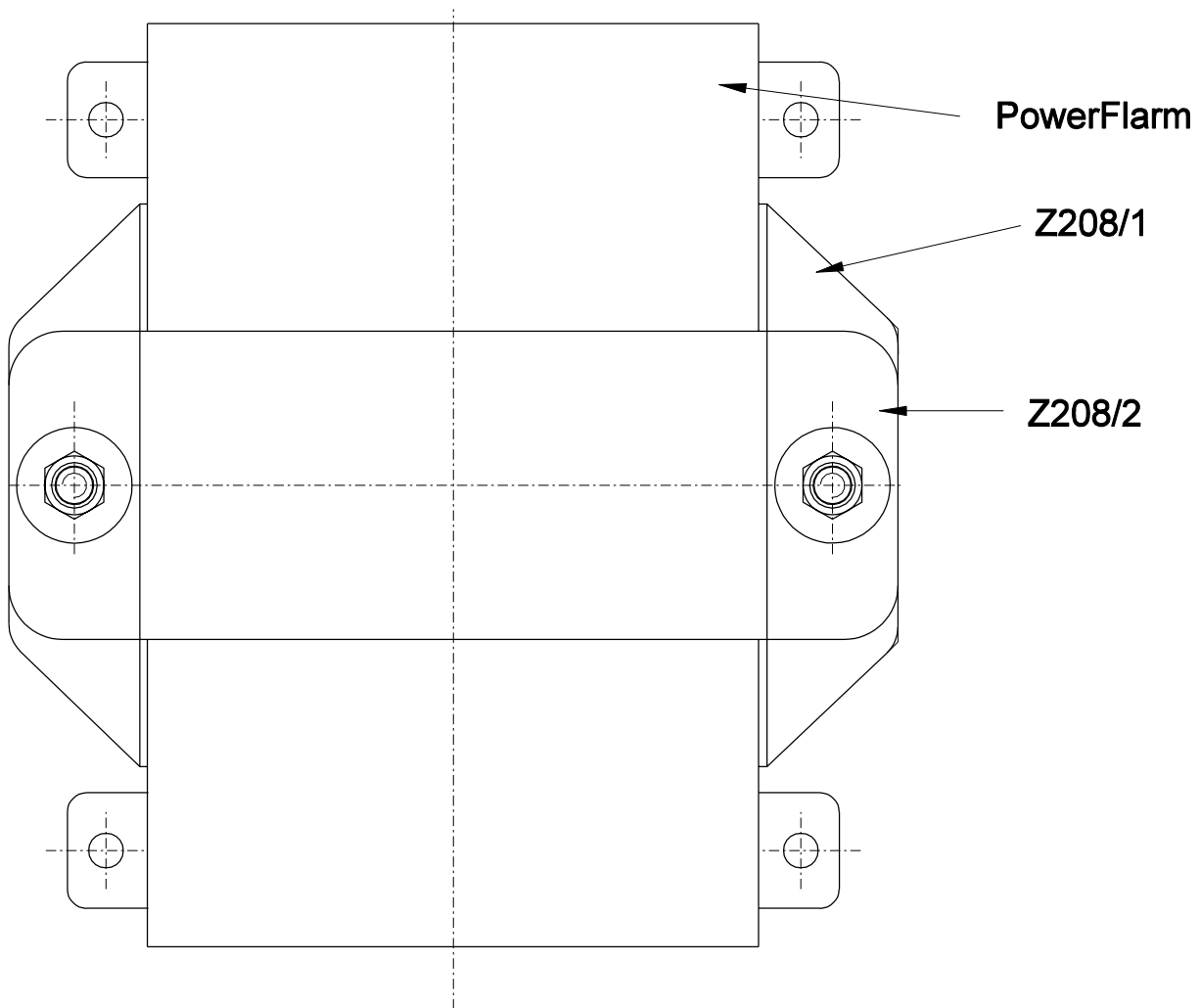
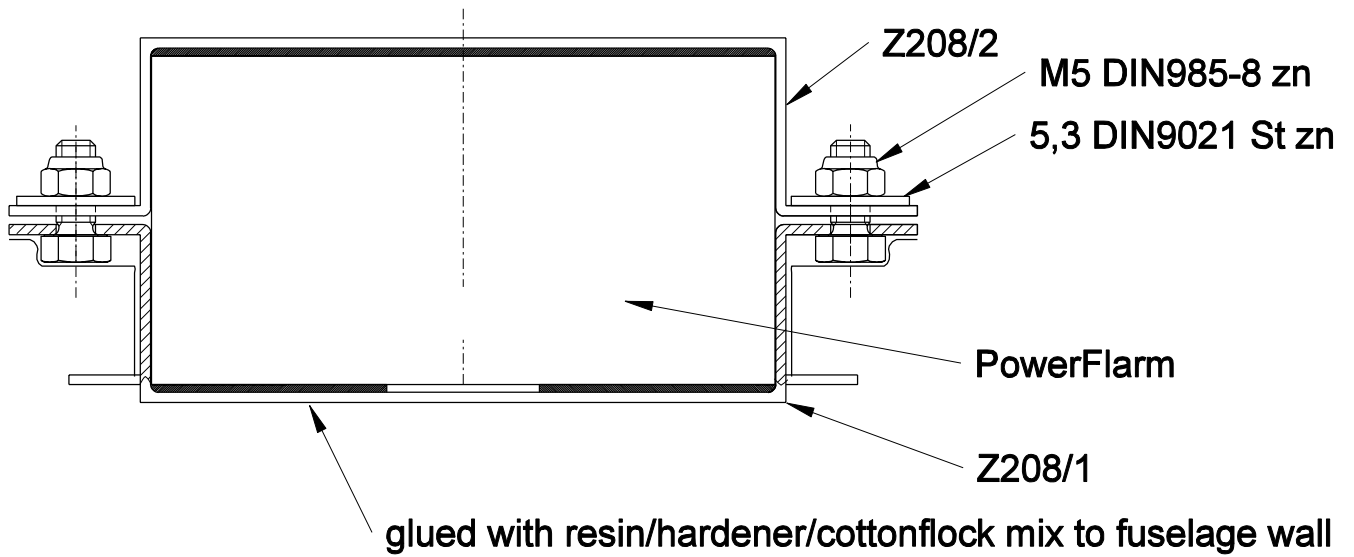
Install the displays at suitable positions on the instrument panel.


Run the wiring from the front instrument panel through one of the cable tubes to the rear instrument tower and from there underneath the canopy brink to the core unit.

5. Attachments:

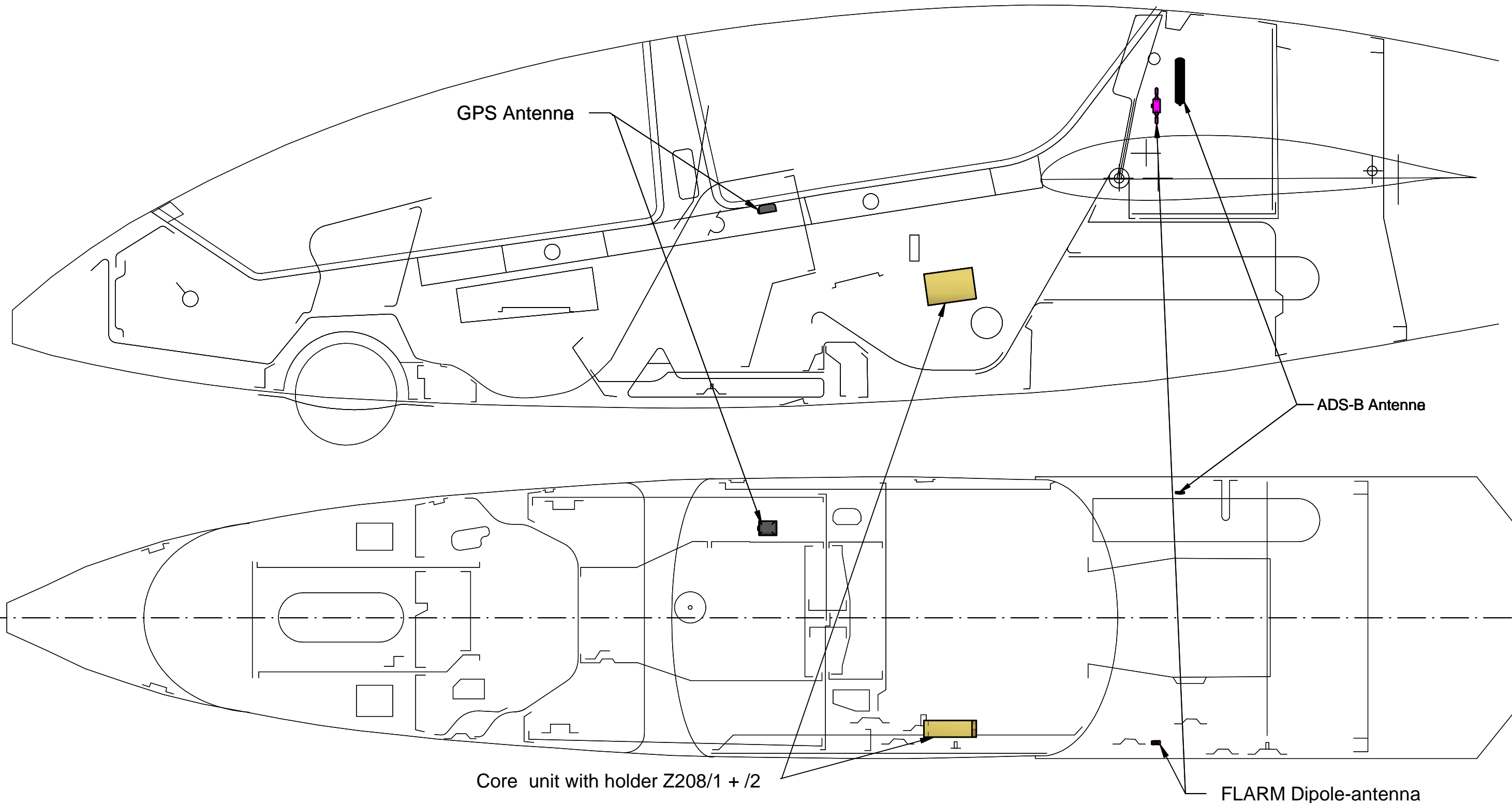
Drawing Z209 Installation of holder for core unit


Drawing Z211 Installation positions for PowerFLARM



Toleranzen nach Arbeitsanweisung BA 1					Tag	Name	DG Flugzeugbau GmbH 76646 Bruchsal Otto-Lilienthal-Weg 2
Schweißen nach Arbeitsanweisung SA 1					Gez.	14.08.13 W. Dirks	
					Gepr.		
					Norm.		
					Maßstab	PowerFlarm installation holder	 Z209
					1:1		
					:		
					Maße ohne Toleranzang. nach:		
Ausg.	Änderung	ÄM	Tag	Name			

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 DG Flugzeugbau GmbH.



1	Pos.	Stück	Bauteilnummer	Beschreibung	Halbzeug	Werkstoff	Lieferant
				Toleranzen nach Arbeitsanweisung BA 1 Schweißen nach Arbeitsanweisung SA 1			DG Flugzeugbau GmbH 76646 Bruchsal Otto-Lilienthal-Weg 2
					Gez. 15.01.14	Name Donkels	
					Gepr.		
					Norm.		
					Maßstab: 1:10	Installation positions PowerFLARM DG-500/1000	
					Maße ohne Toleranzang. nach: ISO2768-m		
	Ausg.	Änderung	ab Wnr	Datum	Name		 DG Flugzeugbau GmbH Z211 Seite 1 von 1