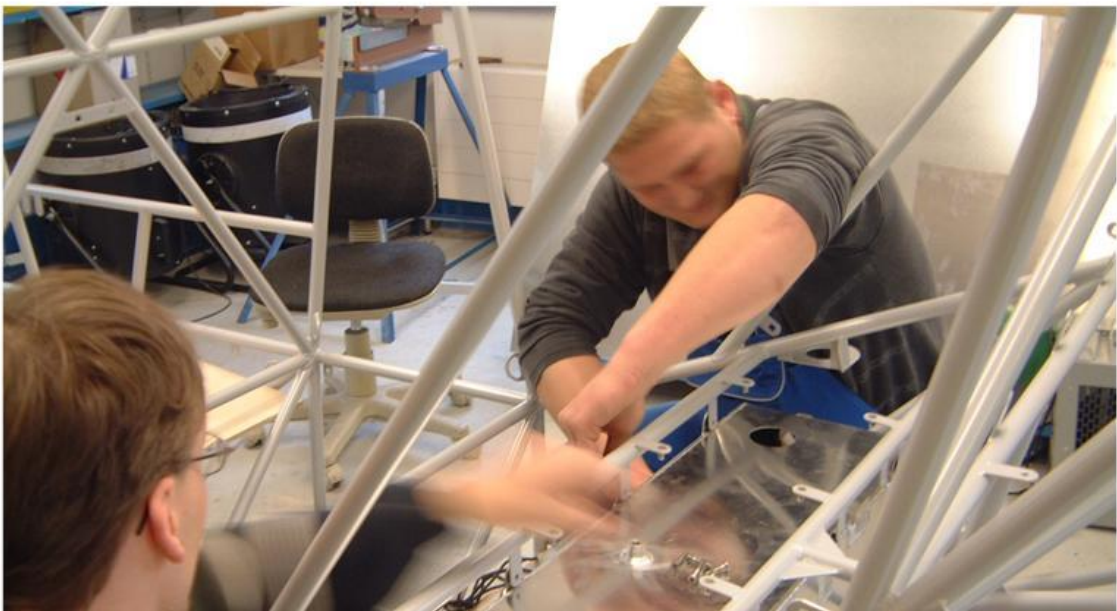




Maintenance Manual

Hot Air-Airship AS 105 GD Version GD/4 and GD/6



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Maintenance Manual AS 105 GD

This Maintenance Manual is issued for the Hot Air-Airship

Registration: _____ **SN Envelope: H-**_____ **SN Gondola: G-**_____

This is to confirm, that this Maintenance Manual for the above mentioned Hot Air-Airship is a legal document. It is written in accordance with the actual build standard and this build standard complies with the Certificate of Airworthiness.

This Manual is valid for the following serial numbers: Envelope: SN 0050, SN 0056 and subsequent numbers; Gondola: SN 0025, SN 0027 and subsequent numbers. This manual is valid for previous serial numbers, if the Technical Note EASA.AS.002-14 is implemented.

The gondola type plate (manufactured from fire proof material) is attached to the firewall above the engine. A second plate is attached to the envelope in front of the keel opening (gondola position).

The regulations, accident prevention instructions and guidelines i.e. rules relevant for the operation of pressurized gas cylinders and liquid gas devices are to be obeyed in conjunction with the instructions of this Flight- and the Maintenance Manual. Furthermore, relevant regulations independent from the aviation sector concerning refilling procedures of pressurized gases have to be obeyed.

The Hot Air-Airship shall only be operated in accordance with the instructions and defined operational limitations of the Flight Manual and this Maintenance Manual. If there are any questions or doubts regarding the selection of materials or repair procedures contact CAMERON BALLOONS LIMITED.

The following definitions apply to warnings, cautions and notes used in this Flight Manual:

WARNING means that the non-observation of the corresponding procedure leads to an immediate or important degradation of the flight safety.

CAUTION means that the non-observation of the corresponding procedure leads to a minor or to a more or less long term degradation of flight safety.

NOTE draws the attention to any special item not directly related to safety but which is important or unusual.

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A: Supplement and Revision Status

Changes and supplements are listed on this page.

Revision No.	Affected Sections	Affected Pages	Pages To Be Added	Date of Approval
1	Annex	2 to 8	2 to 8	5. November 2012
2	Annex	2 to 9	2 to 9	15. February 2013
3	Section 3	1 of 6	1 of 6	15. February 2013
4	Section 0	1 to 4	1 to 4	28. April 2014
	Section 3	6	6	05. Mai 2014
5	Section 0	1 to 2	1 to 2	11 October 2019 Mod C784
	Section 3	2	2	11 October 2019 Mod C784
	Section 4	1	1	XX October 2019 Mod C772

B: Abbreviations

Abkürzung	
Abreviation	
AD/LTA	Luftfahrttechnische Anweisung (LTA)
	Airworthiness Directive
AdL	Aufrechterhaltung der Lufttüchtigkeit
	Airworthiness Management
APO/PO	Genehmigter Herstellungsbetrieb
	Approved Production Organisation
ARS	Personal zur Prüfung der Lufttüchtigkeit
	Airworthiness Review Staff
ARC	Bescheinigung über die Prüfung der Lufttüchtigkeit
	Airworthiness Review Certificate
CAA	Zivile Luftfahrtbehörde von Großbritannien
	Civil Aviation Authority United Kingdom
CAME/CAMO	Handbuch/Unternehmen zur Führung und Aufrechterhaltung der Lufttüchtigkeit
	Continuing Airworthiness Management Exposition/Organisation
CS	Freigabeberechtigtes Personal
	Certifying Staff
CofA	Lufttüchtigkeitszeugnis
	Certificate of Airworthiness
EASA	Europäische Agentur für Flugsicherheit
	European Aviation Safety Agency
DO	Entwicklungsbetrieb
	Design Organisation
LBA	Luftfahrt-Bundesamt
MEL	Mindestausrüstungsliste
	Minimum Equipment List
MOM/MO	Instandhaltungshandbuch/Instandhaltungsbetrieb
	Maintenance Organisation Manual/Maintenance Organisation
MTOW	Höchstabfluggewicht
	Maximum Take Off Weight
RPM	Umdrehungen pro Minute
	Revolution per minute
QM	Qualitätsmanagement
	Quality Management
SoC	Übereinstimmungsbescheinigung für Luftfahrzeuge
	Aircraft Statement of Conformity
SLL	Laufzeitbegrenzte Teile
	Service Life Limit
SSU	Seitenruder Steuerkraft Unterstützung
	Side Rudder Steering Power Assistant
TC	Kennblatt
	Type Certificate

1 Periodical Inspections and Maintenance (EASA Approved)

The regular scheduled inspections after each 12½ and 25 operational hours (minor inspections) can be performed by the operator according to the manufacturers' maintenance program specified in the sections 1.1 and 1.2.

See ROTAX Maintenance Manual for inspection instructions on the engine. The actual operation time is determinant for all work on the propulsion engine. Inspection instructions for the propeller are specified in the Helix Maintenance Manual.

For the amount of torsional moments of the different screws please refer to Chapter 5 or to the manufacturers' manuals.

There are two aircraft logbooks; one records envelope hours and the other one engine hours.

The inspections to be carried out after each 50, 100 and 300 operational hours (major inspections) are specified in sections 1.3, 1.4, 1.5 and include the checks of the minor inspections.

The major inspections are to be carried out by the manufacturer or by a certified maintenance & repair station. The envelope grab test has to be carried out by a qualified person.

1.1 12½ -Hour-Inspection

Envelope / Fins

- Check envelope, fins and rudder for visible damage
- Check gear belt of Side Rudder Steering Power Assistant (SSU) for signs of wear (if fitted)
- Steering lines run free and no damage on knots (Overhand double Loop)

Gondola

- The instructions for the inspection of the propulsion engine are specified in the ROTAX Operating- and/or Maintenance manual
- Check anti-vibration mounts of the engine and the exhaust for security
- Check spark plugs on sediments and electrode gap (0.4 – 0.5 mm)
- Check reduction gearbox oil level
- Check petrol fuel filter for contamination
- Check air filter mounting for security
- Check O-rings of the propane fuel fittings for sealing and lubricate with silicone grease
- Check propeller for damage
- Check burner function (incl. AutoHeat, if fitted)
- Side Rudder Steering Power Assistant (if fitted)
- Propulsion engine for proper function

1.2 25- Hour-Inspection

Envelope / Fins

- Perform 12½ hour inspection as detailed in section 1.1
- Check catenary curtains, rigging lines, rudder lines and eyelets for signs of wear
- Check temperature labels (bow, amidships and stern), the max. permitted temperature is 127 °C
- Check all Velcro's and locks on the rip panel and fins for correct function
- Check fabric membrane for damage

Gondola

- The instructions for the inspection of the propulsion engine are specified in the ROTAX Maintenance Manual.
- Perform 12½ -hours-inspection as detailed in section 1.1
- Inspect frame for visible damage
- Check and re-tighten nuts and bolts of the engine mountings
- Check propane hoses for signs of wear
- Check burner mounting for safe fixing and no slackness
- Check function: envelope temperature gauge, variometer and altimeter
- Check tyres for damage and correct pressure
- Check radiator and radiator hoses for leaks
- Check anti-vibration mounts of the engine mountings and the exhaust for security
- Check wires and wire connections

1.3 50-Hour-Inspection / Annual Inspection

Envelope/Fins

- Perform 25-hours-inspection as detailed in section 1.2
- Inspect fabric membrane attachments to the envelope
- Check that rip panel locks close properly
- Check the 4 karabiners of the envelope suspension for closing properly
- Check pressure relief valves for damage and brittleness of bungee cords
- Check all seams and load tapes of the air intake scoop for signs of wear
- Perform grab test of the top area of the envelope and of areas which are notably discoloured (ref. 1.3.1)

Gondola

Perform 25-hours-inspection as detailed in section 1.2

A. Engine

The instructions for the inspection of the propulsion engine are specified in the ROTAX Operating- and/or Maintenance Manual. The most common screwing torques are specified in Chapter 5.

- Check fasten tight of engine mounting bolts
- Check anti-vibration mounts for signs of wear or damage
- Replace spark plugs
- Check propeller mounting bolts and locking wire
- Check battery connections and wiring for of abrasion or corrosion
- Check function of battery: run electric fan system for about 10 minutes.
- Actuate the engine starter without ignition for 30 seconds. If the battery fails, inspect and replace if necessary)

B. Electric pressurisation system

- Check for vibrations
- Check fan blades for damage (cracks)

C. Burner, Propane system and Liquid pilot lights

- Check propane cylinders for leaks
- Check burner coils for damage
- Check electronic ignition and pilot lights
- Check and re-tighten the main jets of the burner
- Check pressure gauge
- Check function of solenoid valves
- Check burner for leaks using a leak detecting spray
- Check propane hoses for leaks under operating pressure
- Check liquid pilot light system for proper function; if either of the flames has become weak, clean the vaporisers and the jets/filters or if appropriate replace
- Replace both 9 Volt batteries situated in housing below the burner plate

D. Petrol system

- Check seal of fuel tank cap
- Check petrol fuel lines and fuel stop for signs of wear and leaks

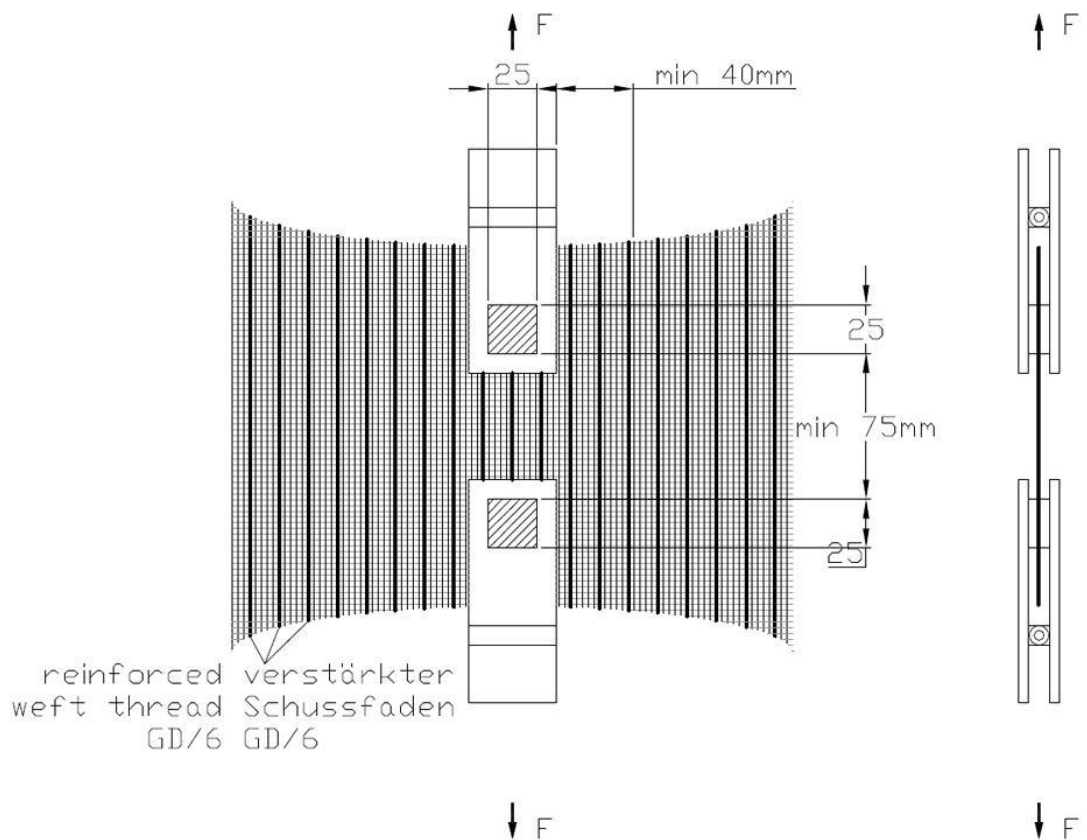
E. Fire extinguishers

- Check fire extinguishers for valid maintenance tag

1.3.1 Grab-Test

The envelope fabric is to be fixed between two mounting clamps (2.5 cm / 1 inch wide) parallel to the fibres. The distance between the clamps should be 7.5 cm. The fabric has to be stretched in the warp and afterwards in the weft direction. The minimum stress values are given in the chart below. If the envelope fabric resists the minimum stress values given in the chart below it is airworthy.

Envelope Fabric	AS 105 GD/4	AS 105 GD/6
warp	15 kg	23 kg
weft	30 kg	46 kg



If the fabric in the top part of the envelope is made of different colours each of the colours must be tested (Top means the longitudinal gores between the catenary load tapes visible from inside and outside the envelope).

1.4 100-Hour-Inspection

- Perform 50-hour inspection as detailed in section 1.3

1.5 300-Hour-Inspection

Envelope

- Perform 50-hour inspection as detailed in section 1.3

Gondola

- Perform 50-hour inspection as detailed in section 1.3
- Overhaul engine and propeller by manufacturer or an authorised workshop
- Check and calibrate flight instruments (envelope pressure gauge, altimeter and variometer) by an authorised workshop

2 Non-Scheduled Inspections

2.1 Inspection after overheating of envelope

If it is suspected that the temperature limit has been exceeded, the temperature indicating tags (tempi labels) inside the top of the envelope must be examined bow, amidships and stern.

These tags have silver coloured “windows” with temperature marks. When the respective temperature has been reached the windows turn black. These tags register the maximum temperature that the envelope skin has ever reached.

NOTE: The temperature inside the envelope is always higher than the indicated temperature on the tags showing the temperature of the envelope skin.

That means that usually the maximum envelope fabric temperature permitted has not been reached when the flight instrument indicates so. For the thermal stress of the envelope, the temperature indicator tags are the relevant reference.

- If one of the tags shows 127°C or above, or if the envelope shows notably discoloured fabric parts: perform grab test as detailed in section 1.3.1 and enter the result in the log book
- Stitch new temperature indicator tag on the envelope next to the existing one

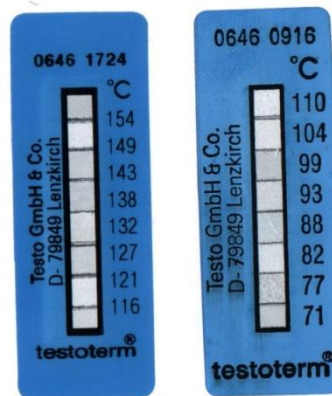


Figure 1: Temperatur Indicator Tags

2.2 Inspection after suspected exceeding of envelope pressure limitations

Envelope pressure above 15 mm H₂O (150 Pa) can lead to a dangerous overexpansion of the fabric. Exceeding of limitations can be caused by one or more of the following incidents:

- Exceeding the maximum take off weight (MTOW)
- Wrong adjustment of envelope overpressure valves
- Overheating the envelope (too much burning)
- Exceeding max. permitted engine rpm
- Over-pressurisation of the envelope (above 15 mm H₂O /150 Pa)

The envelope must be closely examined then for signs of overstress like enlarged stitch holes or stress marks of the envelope seams and seams covered by load tapes.

The longitudinal sewn-on load tapes (inside and outside the top of the envelope (Catenary load tapes) are subject to the highest loads and have to be inspected over the whole length.

If the envelope shows signs of overstressing, perform a grab test as detailed in section 1.3.1.

2.3 Inspection of the gondola after a hard landing

Depending on the force of the touch-down the gondola may be visibly damaged.

In any case the gondola has to be checked for damages:

- The frame work for cracking paint, visible cracks in the welded seams
- The front and rear gear (tyres, wheels and axes)
- Seats (damages and tears)
- The wooden floor plates in the foot-, cylinder- and battery-compartment
- The propeller and the propeller protection guard (the distance between propeller and guard at least 2.5 cm)
- Visible tears in the shock mounts of the engine
- Distortion in the burner frame and/or retainers

WARNING: If there is any doubt about findings on the gondola the manufacturer should be contacted.

3 Repair Instructions

All work carried out on the airship must be entered in the log book and signed by the person responsible for the work. All repair work on pressurised systems has to be released to service by CS / ARS for hotair airships. (The change of O-rings is not classified as a repair.)

WARNING: The manufacturer should be contacted if there is any doubt about material choice or working procedures.

Any damage which could directly impair the airworthiness of the airship (major repair) or work on the pressurised gas system has to be repaired or carried out by the manufacturer or an authorised maintenance and repair workshop. These repairs have to be approved by CS-Personal or comparable licensed staff for Hotair-Airships.

3.1 Envelope

The envelope is maintained following standard procedures for Hot-Air-Balloons. All seams are French felled seams and stitched appropriately with a twin needle machine using a chain stitch 8 mm apart and a stitching length of 6 to 8 stitches per 2.5 cm.

- The thread is a metric 40 polyester continuous filament
- The end of a seam is locked by 2 cm reverse sewing
- Only materials specified by the CAMERON BALLOONS are to be used for repairs. The materials are listed in the spare parts catalogue
- The load tapes are to be folded back by 2 cm at the end and to be lock-stitched to avoid the ends fraying
- Load tape joints have to have a minimum overlapping length of 25 cm
- For replacing loops, pulleys and lines always copy the original attachment method

WARNING: Any repairs of the envelope have to be done with fabric of the same specification.

3.1.1 Minor repairs on envelope and fins

The airship is of a non-rigid construction and the envelope is completely pressurised when in operation. For repairs, the French felled seam is to be used wherever the manufacturer used it originally. No distortion or creases are permitted as they could cause the envelope to rip.

Adhesive patches may only be used on the fins because this fabric is polyurethan coated. The damaged section is to be overlapped by 2.5 cm from all edges and the fabric has to be cleaned with a fat solvent. The sticky patches are to be used on both sides of the fabric.

3.1.2 Loadtape repair

Load tapes are to be reinforced if they are discoloured or visibly damaged. A new strip of load tape is to be sewn on top of the damaged section with an overlap of 50 cm on both sides of the damage.

The overlapping load tape is secured with between 2 and 4 rows of parallel 3-step zig-zag stitching (depending on the width of the load tape) along the length of the joint. Minimum distance from edge about 2 mm, zigzag width 6-9mm and length 6mm +/- 2mm.

The stitching is secured by back-tacking for 20 mm at the ends of each row.

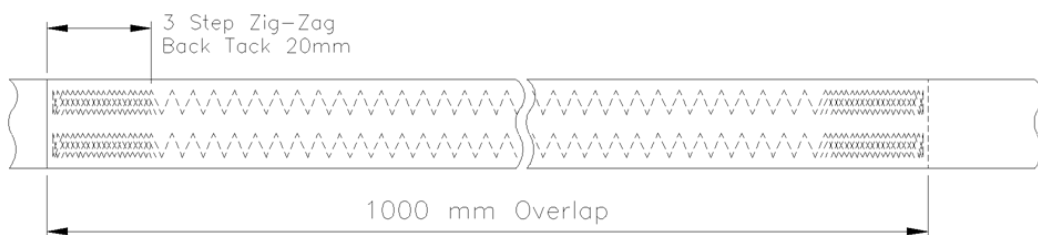


Figure 2: Example: repair of the 20 mm wide load tape zigzag

3.1.3 Repair of lines and ropes

On principle the original Overhand-Loop Knot has to be used (Photo) for the attachment of lines or ropes. Lines and ropes must always be completely replaced.



3.1.4 Replacement of flying wires and karabiners

Damaged steel cables have to be replaced by spare parts delivered by the manufacturer. The cables are protected at their ends towards the load tapes with Nomex fabric sleeves. Damaged karabiners have to be replaced with new ones of the same type and the same break strength.

3.2 Gondola Frame

The frame is manufactured from tubular steel with the material number 1.7214.9 (weldable, chromium-molybdenum steel suitable for heat treatment). All welding is to be done using the Tungsten Inert Gas (TIG or WIG) method.

The hook up points for the envelope are welded to the gondola top frame. All welding work to the frame is to be performed by a certified welder in a aeronautical certified workshop. Welding work has to be released to service by CS / ARS. The work has to be documented by a report to the technical airship file.

Damages of the powder coat of the framework can be repaired by simple brush painting (car painting accessories and methods).

3.3 Propulsion engine

The engine is a liquid cooled ROTAX 582 two-stroke-engine fitted with a reduction gearbox for the propeller drive. Maintenance and inspection are only to be carried out by an authorised workshop. Standard maintenance and repair instructions of the engine are described in the ROTAX manuals.

3.4 Propeller

When the gondola is standing on the ground, avoid running the propeller on loose stones, sand or long grass.

The operator can repair damages to the gel coat (see operation- and installation instructions of the manufacturer Helix) All other damages can only be repaired by the manufacturer.

3.5 Envelope pressurisation system

The manufacturer is to be consulted when the envelope fabric pressure relief valves are damaged as correct operation of the valves is essential. Electric pressurisation fans can be replaced by a competent person if damaged.

3.6 Burner

Only parts and components listed in the Spare Parts Catalogue must be used.

Threaded joints are to be sealed with Loctite 572 or PTFE tape. The complete propane fuel system is to be tested for leaks after any replacement of parts.

The burner is to be handed over to the manufacturer or a certified workshop for repair if it is mechanically damaged.

Repairs of valves, pressure gauges, fittings and vapor pressure regulators are only to be carried out by the manufacturer or a licensed workshop.

Repair work on pressurised systems has to be released to service by experienced maintenance staff (CS / ARS). The change of O-rings is not classified as a repair.

3.6.1 Cleaning of liquid pilot light system

The liquid pilot light system is comparable to the Cameron Stratus System. For cleaning and maintaining refer to the Cameron Hot Air Balloon Maintenance Manual Issue 10-2, Amendment 2, March 2008 or a later EASA approved revision (see <http://www.cameronballoons.co.uk>).

3.7 Propane system

All maintenance and/or repairs on propane cylinders may only be performed by qualified technicians and according to the manufacturer's information.

Before cleaning the propane cylinders they have to be professionally discharged. Remove the contents gauge and rinse the cylinders with some alcohol to clean away heavy oils and water impurities. The cylinders have to be completely dried up (upside down).

Threads are sealed with Loctite 572 compound or PTFE tape, if seal is not achieved otherwise (e.g. gaskets, copper washers). Pressurise system and check for leaks after any work is completed (SEE, SMELL and LISTEN).

Inspect all hoses for abrasion. Repair of hoses is not permitted. Aged and damaged hoses are to be replaced. New hoses are to be ordered from the manufacturer according to the equipment and spare parts list. The swaging socket is marked with the date of manufacture. Hoses are to be replaced at least after ten years.

CAUTION: Repair work on pressurised systems has to be released to service by experienced maintenance staff (CS / ARS). (The change of O-rings is not classified as a repair.)

3.8 Petrol system

If the petrol filter is often dirty, the petrol tank should be emptied and cleaned. The fuel lines should be washed through with clean petrol. Tighten hose clamps and check system for leaks after completed work.

3.9 Electric system and wiring diagram

The electric system is fed from a 12 Volt "lead-gel" battery located under the front row of seats. The battery is charged by the engine alternator.

The following components consume electricity from the starter battery:

- Pressurisation fan system
- Solenoid blast valves
- Electronic pilot light ignition
- Starter motor (propulsion engine)
- VHF Radio
- Transponder (if fitted)
- Altimeter
- Variometer
- Envelope temperature gauge
- Engine temperature gauge
- Engine revolution counter
- Petrol fuel tank contents gauge
- Petrol fuel pump
- Side Rudder Steering Power Assistant (SSU) (if fitted)
- AutoHeat (if fitted)

The wiring diagrams of the version AS 105 GD/4 are included in Annex 2.1 – 2.2. The wiring diagrams of the version AS 105 GD/6 are included in Annex 3.1 – 3.2. Annex 4.1 shows the transponder installation of the GD/4 and GD/6. The diagram of the Side Rudder Steering Power Assistant (SSU) is included in Annex 4.2 (if fitted), the diagram of the AutoHeat (if fitted) in Annex 4.3.

3.10 Instrumentation

All maintenance work and/or repairs on the flight control instruments have to be carried out by authorised personnel.

Only the following instruments are to be used for replacement:

Part	Manufacturer	Display
Propulsion Engine		
Engine Revolution Counter	ROTAX part No 966074	0 - 2 000 RPM: yellow background 2 000 - 6 200 RPM: green background 6 200 - 8 000 RPM: red background
Radiator fluid temperature gauge	VDO Type 310010012K120STB	40° - 120°C red marked at 80°C
Petrol Tank Contents gauge	VDO Type 301010002K	full, half, empty
Alternator Warning light	GEFA-FLUG	6 red LED's
Burner		
Manometer	WIKA	0 – 4 bar red marked 4 – 12.8 bar green marked 12.8 – 18 bar red marked
Envelope		
Envelope pressure Manometer	Grillo DA 85 Display range 0 – 20 mm H ₂ O	0 – 5 mm H ₂ O yellow marked 5 – 15 mm H ₂ O green marked above 15 mm H ₂ O red marked
Envelope temperature	Flytec Type 3040	Display range: 20° - 155°C
Flight Instruments		
Altimeter	Flytec Type 3040	Display range: 0 - 24 000 ft
Variometer	Flytec Type 3040	Display range: ± 10 m/s (2 000 ft/min)
Inclinometer	CME	Effective range +/- 15°
Avionics		
VHF Aviation Transceiver	Dittel FSG 2T	118 – 136.975 MHz 25 kHz frequency separation incl. Voltmeter
VHF Aviation Transceiver	Dittel KRT2	118 – 136.975 MHz 8.33 and 25 kHz channel spacing incl. Voltmeter
Transponder (optional)	Garrecht VT 01 EASA.210.384	Mode A/C, Mode S

4 Life Limited Parts (EASA Approved)

The parts mentioned in the following table must be overhauled or replaced in any case with new ones when they are aged as tabulated below.

Part/Component	Time Period
2 x 9 V Batteries (below burner plate)	Annual inspection
2 x 9 V batteries (top of envelope Flytec 3040) transmitter	Annual inspection
Spark Plugs	50 operating hours inspection
Rubber high pressure Gas-Hose	10 years installed life
First-Aid Kit	10 years
Velcro soft (Rip-System)	100 flying hours
Velcro hard (Rip-system)	200 flying hours
Propulsion Engine	Overhauling/Replacement after 300 operating hours
Propeller	Time between overhaul 600 operating hours Max. lifetime 900 hrs
Fire-Extinguisher	Every 2 years Inspection (qualified entity)
Catenary-System	On condition
Envelope Fabric	On condition (see section 1.3.1)
4-Point Static Harness Restraint System	On condition (belt webbing and mounting parts free of damage)
SSU-Gear Belt	Change after 10 years
All flexible petrol hoses	5 years installed life.

5 Torque Specifications

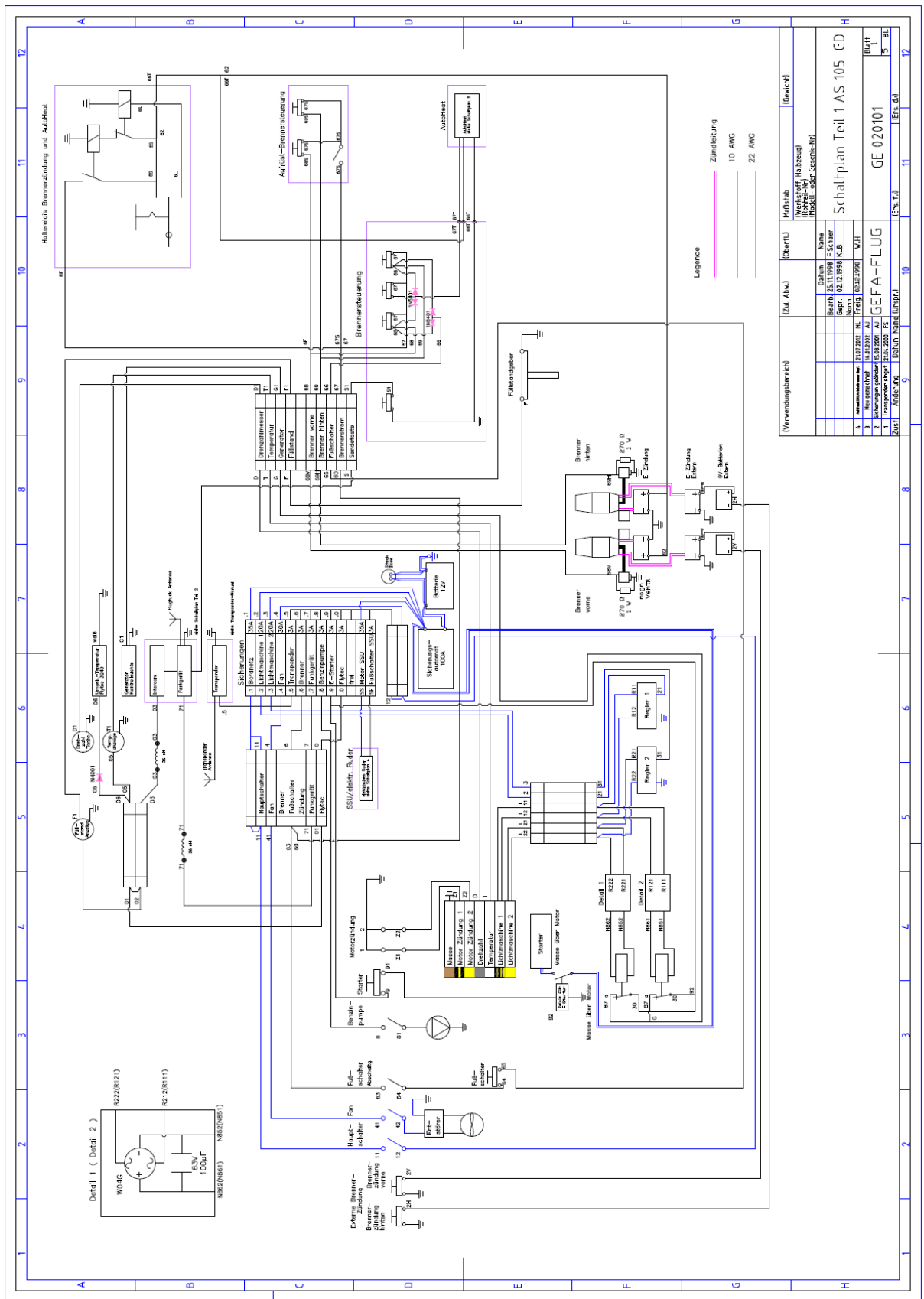
The most common screwing torques are specified in this table. For other torque specifications refer to the manufacturers manuals.

Component	Size	Torque Nm	
		GD/4	GD/6
Rear Axle	M 10	45	45
Front Axle	M 6	45	12
Bottom and Top Clamp	M 6	n.a.	10
Engine Strut	M 6	12	12
Engine Bolts	M 10	38	38
Bracket for Shockmount	M 10	45	45
Contact shock mount – frame	M 7	12	12
Sparkplugs (cold engine, thread greased) Elektrode Distance 0,4 – 0,5 mm	n.a.	27	27
Exhaust System	M 8	24	24
Propeller Driving Pulley	M 8	25	25
Main Burner Jets (thread greased)	n.a.	16	16
Pilot Light Jets		hand-tight	



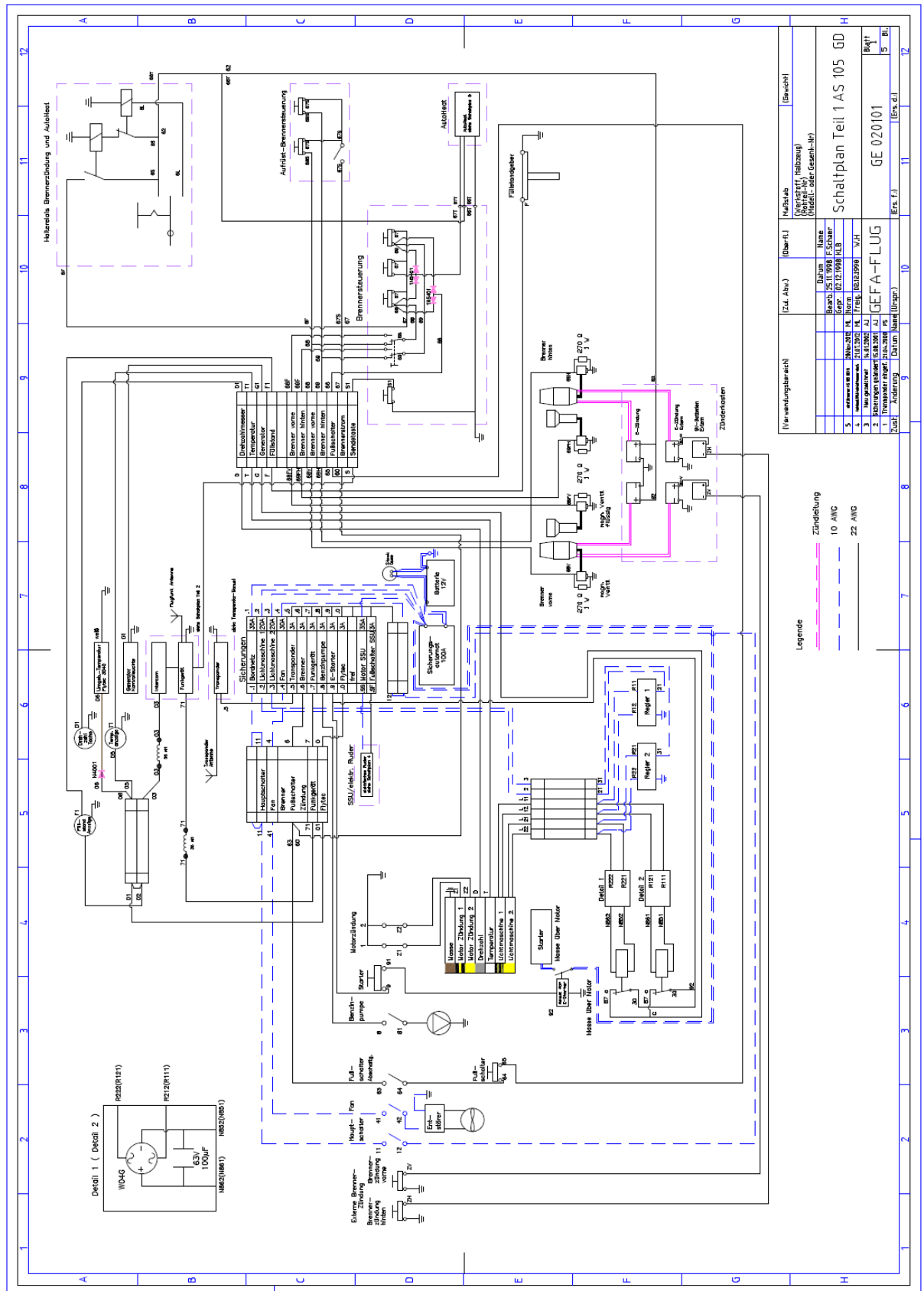
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Annex 2.1 a Wiring Diagram GD/4 with Standard Burner

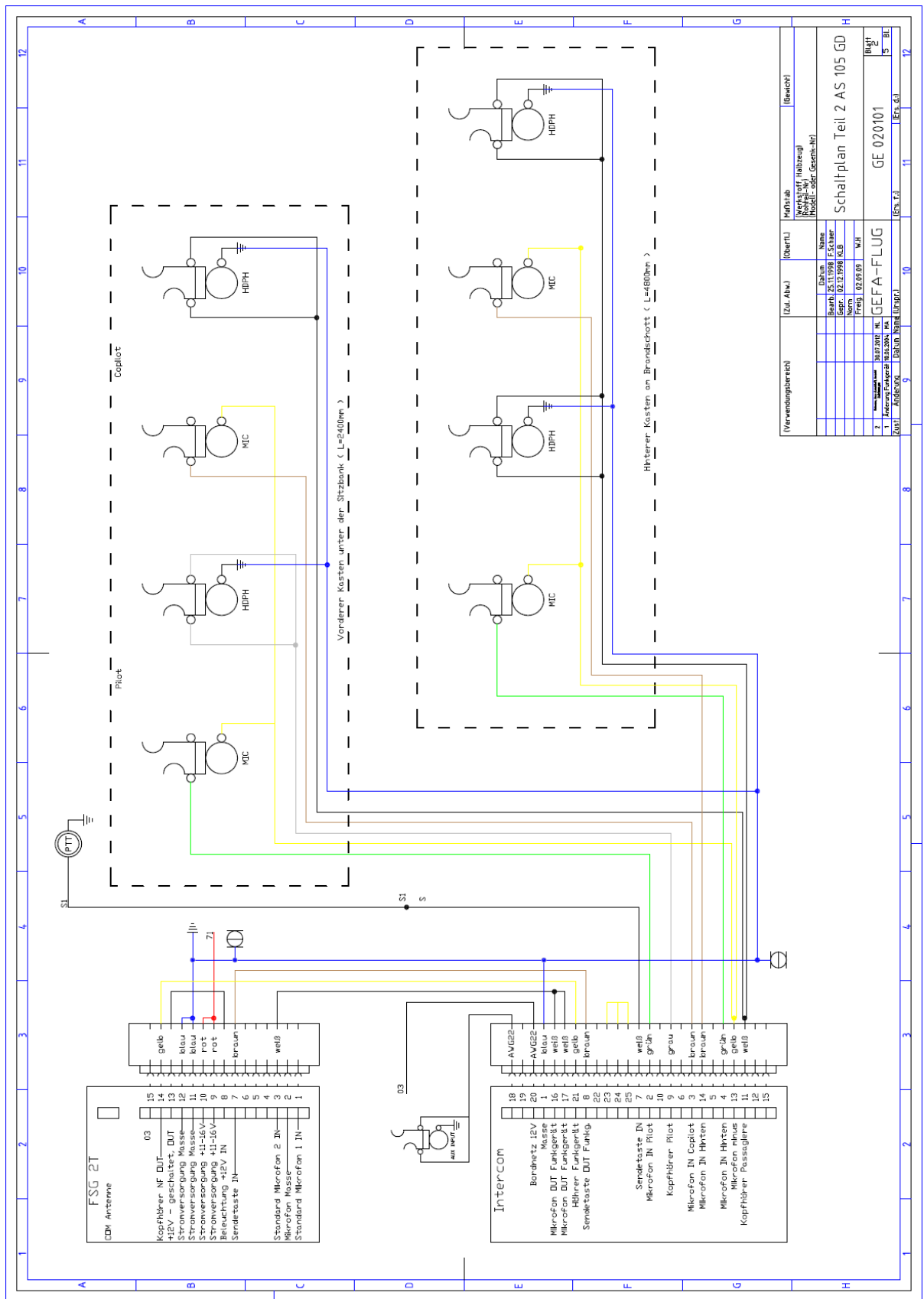


Verwendungsbereich		Zu. Anw.	Übertl.	Hersteller	Titel
				GEFA-FLUG	Schaltplan Teil 1 AS 105 GD
					GE 020101
					15-Bl.

Annex 2.1 b Wiring Diagram GD/4 with Burner „Liquid Fire“

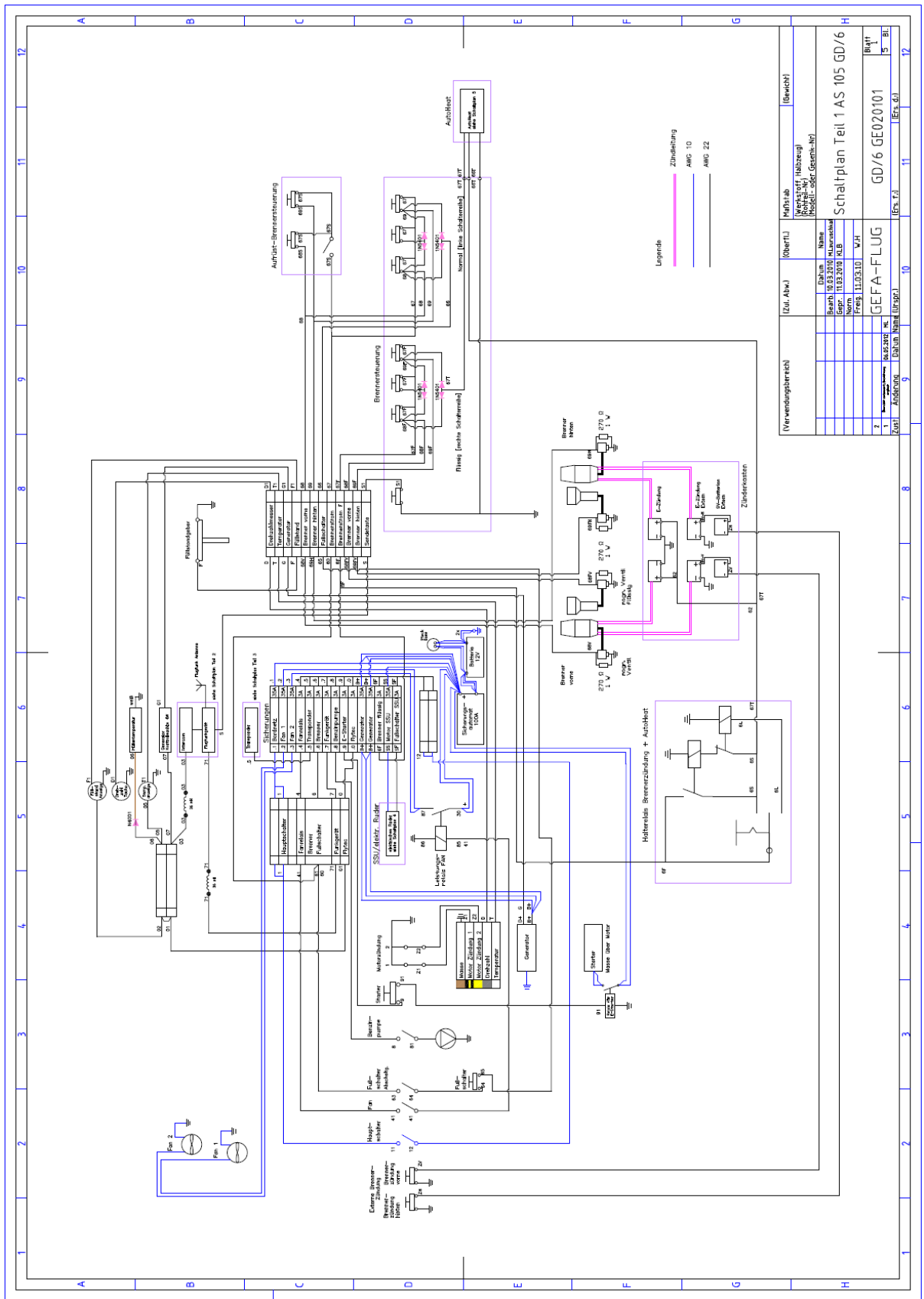


Annex 2.2 Aviation Transceiver and Intercom GD-4

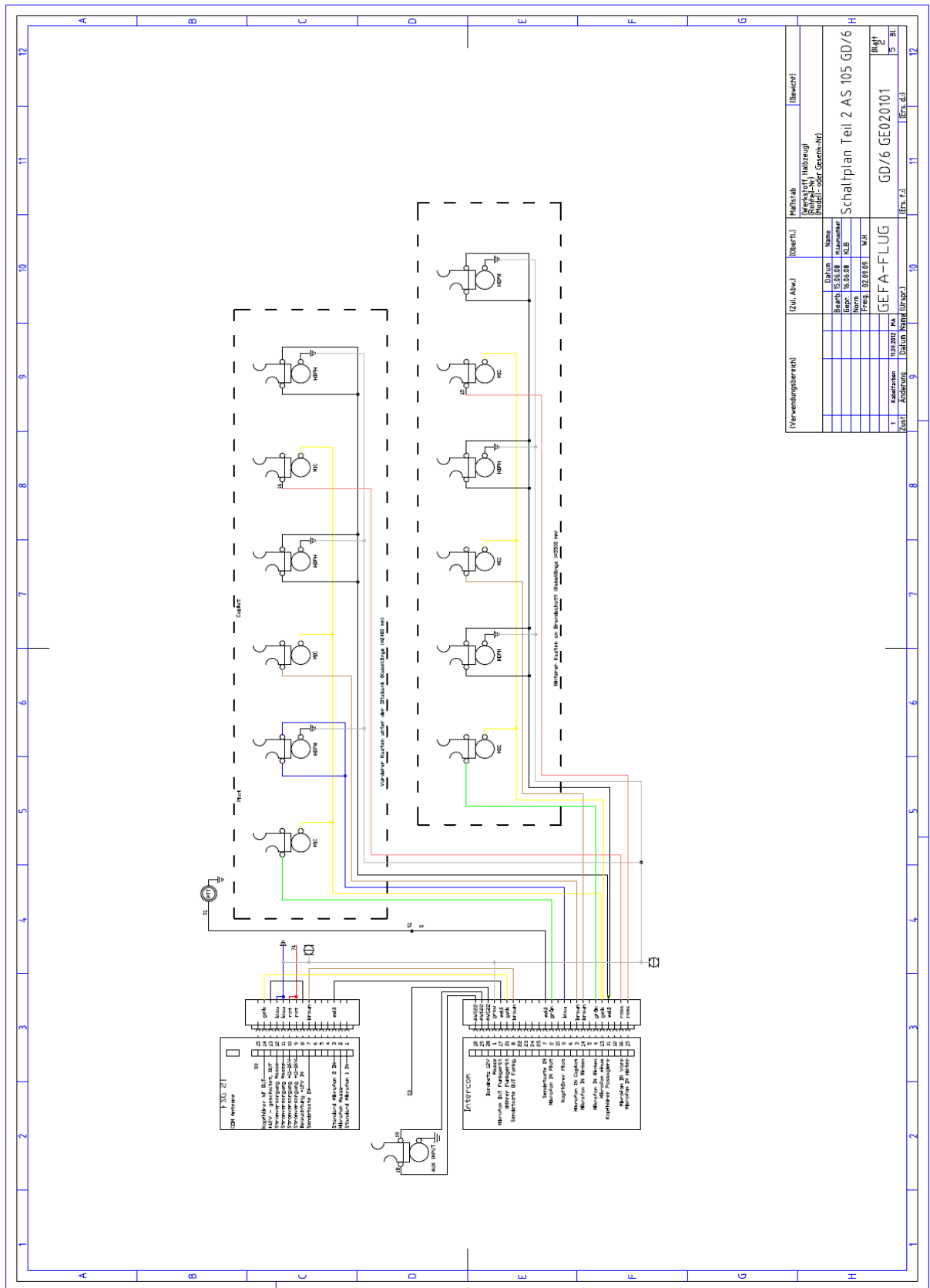


Verwendungsbereich	(Zu: Abw.)	(ObertL)	Teilnr. (Werkstoff, Halbzeug) Modell- oder Gegen-Nr.	(Bereich)
			Schaltplan Teil 2 AS 105 GD	
			GEFA-FLUG	
			GE 020101	
Zust. / Änderung	Datum	Nr./Urspr.		
1				
2				
Zust. / Änderung	Datum	Nr./Urspr.		

Annex 3.1 Wiring Diagram GD-6

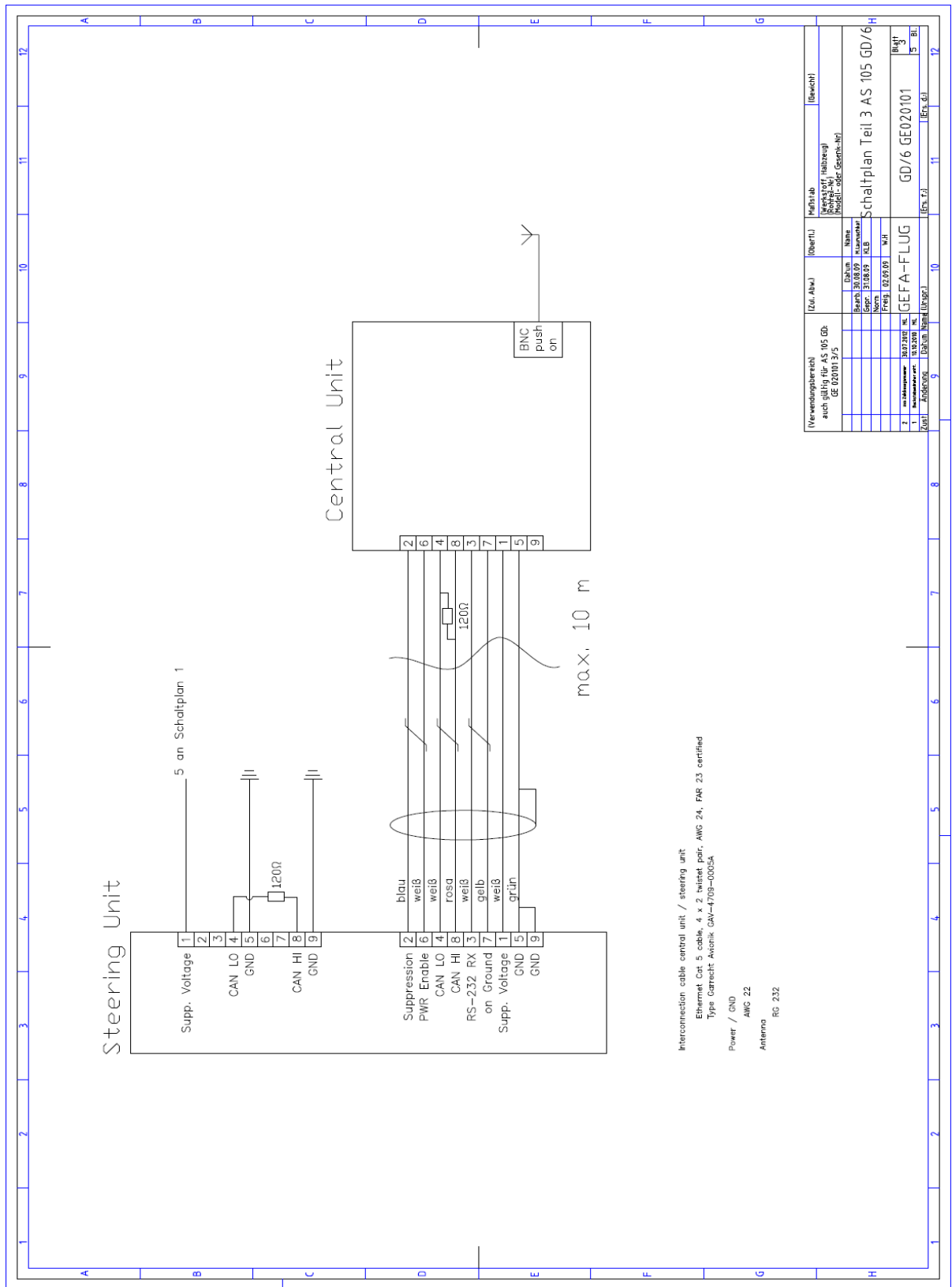


Annex 3.2 Aviation Transceiver and Intercom GD-6

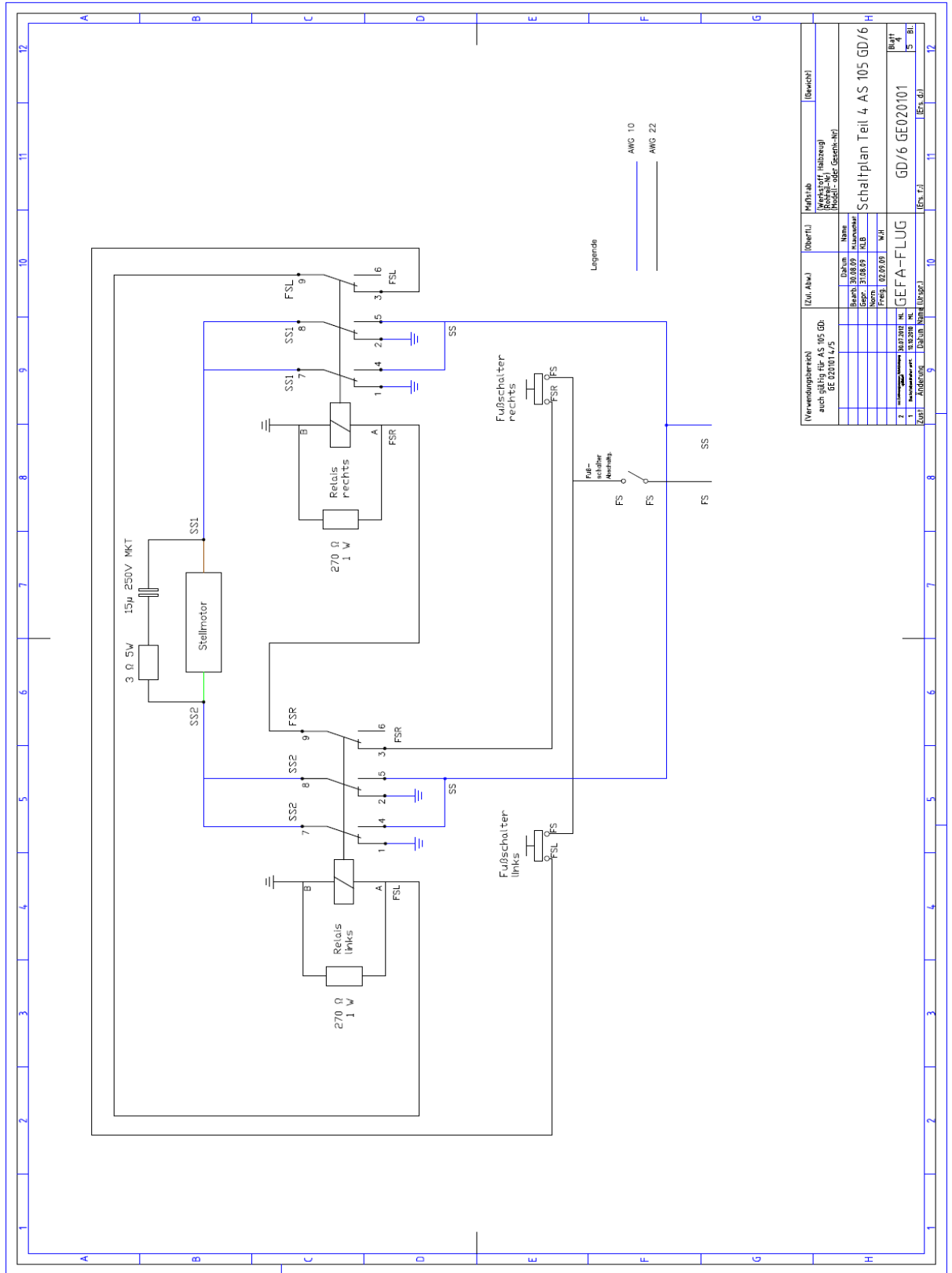


Verwendungsbereich		Zul. Abw.	Obertl.	Mehrstab	(Gewicht)
				(Abbildung, Modell- oder Gegenst.)	
Schaltplan Teil 2 AS 105 GD/6					
1		Kaufdatum	11/2012	MA	
Zust.		Änderung	Datum	Urspr.	
				GEFA-FLUG	
				GD/6 GEF020101	
					Blatt 2
					5 von 6
					(Ers. F.)
					(Ers. G.)

Annex 4.1 Transponder (optional) GD-4 and GD-6



Annex 4.2 Side Rudder Steering Power Assistant (SSU) optional GD-4 and GD-6



Annex 4.3 Burntime Sequencer „AutoHeat“ (optional) GD-4 and GD-6

