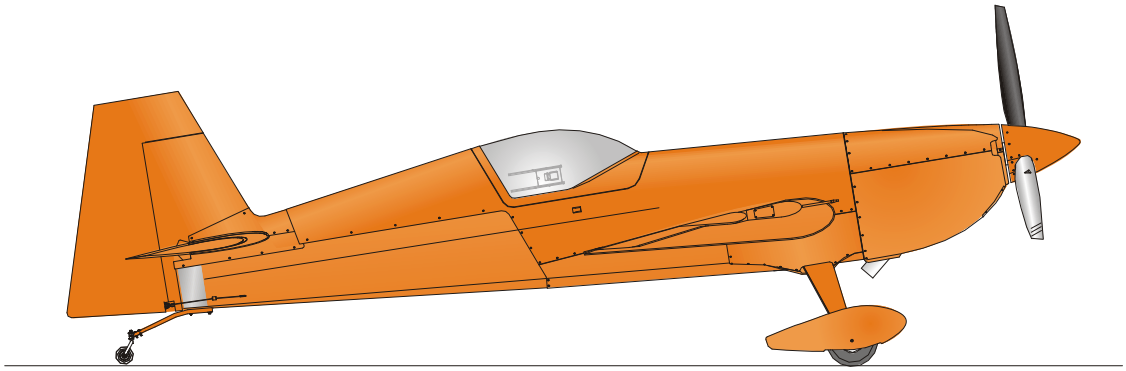
MAINTENANCE MANUAL
EXTRA 300/SC

First Edition

Doc. No: EA-0C702



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Log of Revisions

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List of Service Bulletins/Service Letters

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STRUCTURES

PROPELLER

POWER PLANT

MISCELLANEOUS

Chapter 01

Introduction

Table of Contents

01-00-00 GENERAL

According to the regulations of the FAR part 23, this service manual provides educated maintenancestaff with information necessary for servicing, maintaining and repair of the EXTRA 300/SC. This manual contains a detailed description of systems including time limits for the particular components, troubleshooting and instructions for the performance of inspection and maintenance work. The instructions, that are necessary for disassembly, check, repair, maintenance or overhaul of vendor equipment are not incorporated in this manual.

The modification instructions ("Umrüstanweisungen") of installed optional equipment shall be collected in Chapter 95.

Use the latest revisions of the following documents in connection with this Maintenance Manual:

Aircraft:

- Pilot´s Operating Handbook and Airplane Flight Manual
- Parts Catalogue
- Service Bulletins
- Aircraft Record
- Airplane Log Book and Engine Log Book

N O T E

Check the following Airplane Log Book documents are up-to-date and in accordance with the current national aviation authority regulations.

Carried in the airplane:

- Aircraft Airworthiness Certificate
- Aircraft Registration Certificate
- Aircraft Radio Station Licence
- Certificate of Insurance
- Weight and Balance Data Sheet and associated papers
- Equipment list

Engine: **Lycoming AEIO-580-B1A**
incl.: **Christen Inverted Oil System**

- Operation and Installation Manual AEIO-580 (P/N:60297-32)
- Maintenance and Overhaul Man. AEIO-580 (P/N: LMO-AEIO-580)
- Service Letters, Bulletins and Instructions INDEX
- Service Letters, Bulletins and Instructions

Manufacturer: LYCOMING ENGINES
652 Oliver Street,
Williamsport, PA 17 701, USA

Propeller: **MTV-9-B-C/C 198-25 (3-blade)**
MTV-14-B-C/C 190-130 (4-blade)

- Operation- and Installation Manual E-124
- Overhaul Manual and Parts List E-220
- Service Bulletins

Manufacturer: MT-Propeller Entwicklung GmbH,
Airport Straubing, 94348 Atting,
Germany

Magneto: **SLICK No. 6350 and 6393**

- 4300/6300 Ser. Magneto Maintenance and Overhaul Manual (L-1363F)
- Service Bulletins (refer to Lycoming Service Letters, Bulletins and Instructions INDEX)

Manufacturer: Champion Aerospace LLC
1230 Old Norris Road
Liberty, South Carolina , USA 29657

Magneto Start Booster: SlickSTART SS1001

- Operation, Maintenance and Troubleshooting Manual L-1492
- Service Bulletins

Manufacturer: UNISON INDUSTRIES
530 Blackhawk Part Avenue
Rockford, IL 61104 , USA

Cleveland Wheels & Brakes

- Maintenance Manual
- Service Bulletins

Manufacturer: Parker Hannifin Corporation
1160 Center Road
Avon, Ohio 44011, USA

HOOKER HARNESS

- General Restraint System Installation Guidelines

Manufacturer: HOOKER HARNESS
324 East Stephenson Street
Freeport, Illinois 61032, USA

Pointer 3000-10 ELT

- Operation and Installation Instructions

Manufacturer: Pointer Avionics
76 Woolwich St. N.
PO Box 271
Breslau, Ontario
N0B 1M0, Canada

Artex ME406 ELT

- Description, Operation, Installation and Maintenance Manual ME406 and ME406HM ELT (P/N: 570-1600)

  Manufacturer: Artex Aircraft Supplies
  P.O. Box 1270
  Canby, Oregon 97013

Kannad 406 AF ELT

- Installation and Operation Manual 406 AF-COMPACT ELT (P/N: DOC08038E Rev. 04)
- Initial Installation Manual 406 AF-INTEGRA ELT (P/N: DOC09081C Rev. 02)
- Operation Manual 406 AF-INTEGRA ELT (P/N: DOC09078C Rev. 02)

  Manufacturer: Kannad Aviation (McMurdo Group)
  Orolia SAS
  Z.I. des 5 Chemins BP 23
  56520 Guidel (F)

Electronics International MVP-50P

- Installation Instructions II 0425051 (Rev. I)
- Operating Instructions OI 1002051 (Rev. D)

  Manufacturer: Electronics International Inc.
  63296 Powell Butte Hwy
  Bend, OR 97701

Other Vendor Equipment

(Vendor publication should be obtained directly from the vendor.)

- Operation- and Installation Manuals
- Service Bulletins

01-00-01 Trade Marks

Even when the ware or brand names used in this manual are not marked as registered trade-marks, this does not mean, that these names are free in the sens of trademark legislation.

01-10-00 SAFETY

To keep the security risks during the execution of the inspection and maintenance work as low as possible, observe the following points:

- Inspection and maintenance work has to be carried out only by qualified and authorized personnel.
- The execution has to be in accordance with the respective national safety requirements.
- Before beginning any work, this Maintenance Manual has to be read and understood. In case of doubt or lack of information the manufacturer has to be contacted for advice.
- The safety notes given in this manual are to be observed unconditionally.

  Refer to Chapter 02-10-06 for information concerning safety notes.

Chapter 02

How to Use the Service Manual

Table of Contents

02-00-00 GENERAL

The set-up of the manual, the chapters and the handling correspond to the regulations of the Air Transport Association of America, ATA Specification No. 100. Only the numbering of the pages and the layout have been changed to make working with this manual easier.

02-10-00 MANUAL DESCRIPTION

02-10-01 Manual Set-Up

The manual consists of groups, which are subdivided in chapters. Additionally there are preceding pages, which contain the List of Effective Pages, the Lists of Service Bulletins and the Record of Revisions. In the list of chapters the groups are marked by capital characters.

02-10-02 Chapter Set-Up

The chapter numbering system used in this manual represents the chapter set-up. It is a conventional dash-number breakdown. The number is composed of three elements which consist of two digits each:

02-10-02

chapter - section - subject

The first element shows the chapter (here: "How to Use the Service Manual"). The second element shows the first subdivision, which is called "section" (here: "MANUAL DESCRIPTION"). The third element shows the "subject", which is handled within the respective section (here: "Chapter Set-Up"). The first three digits refer to the definitions of the ATA Specification 100, where they exist; the other digits are

defined by the manufacturer. If a more detailed breakdown is necessary, bold faced headlines like the following are used:

Powerplant

02-10-03 Page Numbering

The page numbering begins at the coversheet of each chapter with "Page 1". In contrast to the ATA Specification 100, the particular sections and subjects don't start with a new numbering.

02-10-04 Figure Numbering

The figures are numbered in such a way that the first figure in each chapter starts at "*Figure 1*".

02-10-05 Layout

Apart from the headers and footers the layout consists of two columns. The right column contains text, titles, tables, schedules and figures (figures also can fill the whole page); the left column contains the chapter numbering, boxed textmarkers for notes and safety notes as well as explanations. The following figure1shows more details:

① *manufacturer´s masthead and manual title*

② *section and subject titles*

③ *chapter numbering*

④ *title*

⑤ *bar marking revised parts*

⑥ *boxed textmarker for notes and safety notes*

⑦ *explanations e.g. to tables*

⑧ *figure title and number*

⑨ *date of first issue resp. last revision*

⑩ *chapter and page numbers*

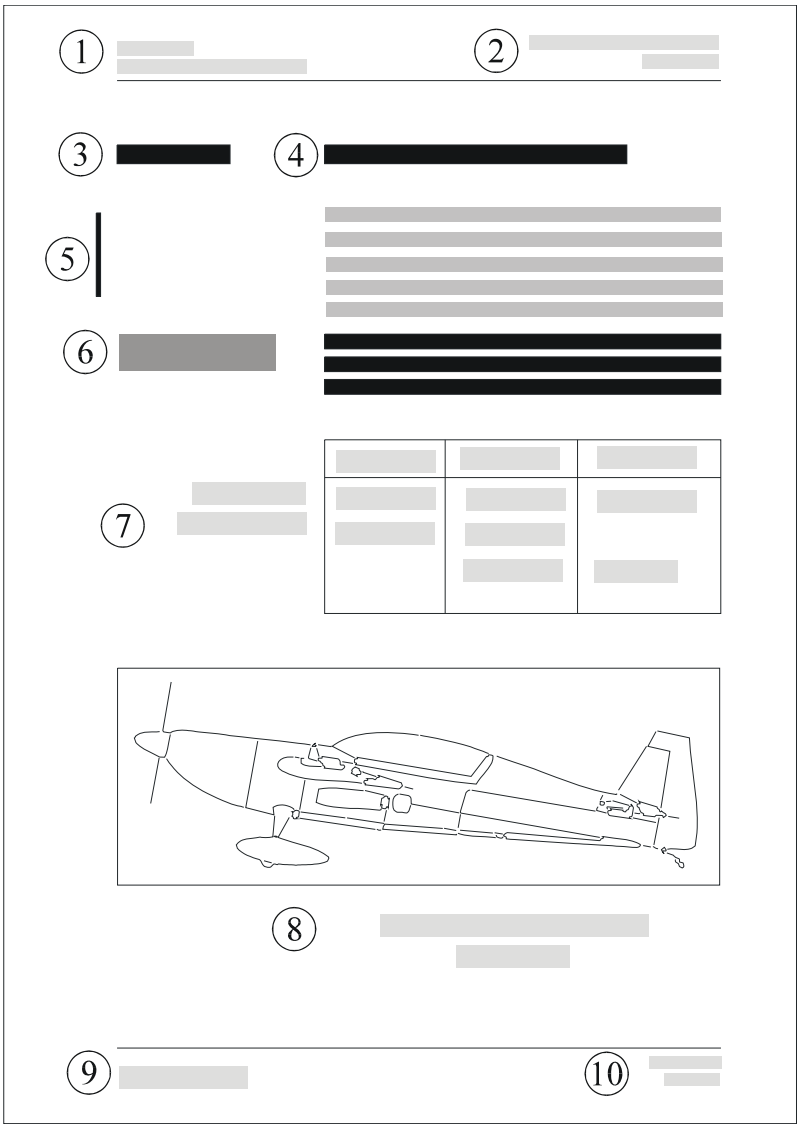

Figure 1 Layout

02-10-06 Notes/Safety Notes

Safety notes in this manual are marked by a boxed textmarker in the margin column and written in semi-bold characters. This manual distinguishes three warning levels:

DANGER — **Indicates a hazardous situation which, if not avoided, will result in death or serious injury.**

WARNING — **Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**

CAUTION — **Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**

Additional information given in this manual are also marked by boxed textmarkers in the left column and are written in semi-bold characters:

NOTICE — **Is used to adress practices not related to physical injury.**

IMPORTANT — **Represents an important hint. Often used when the non-observation could endanger pilot or passengers during flight.**

NOTE — **Represents an useful or remarkable hint.**

02-20-00 HANDLING

02-20-01 Revisions

Maintenance manuals and other technical publications in current revision status are available over the World Wide Web direct link:

http://www.extraaircraft.com/techservice.php

Cross-check your documents against these publications and replace pages as necessary. Paper copies of publications will continue to be available if this is your preferred format of publications. Orders can be placed by contacting Extra Aircraft
at e-mail: ExtraAircraft@ExtraAircraft.com
or facsimile: +49-(0) 2858-9137-30.

N O T E

Pages of this maintenance manual may not be exchanged and no alterations of or additions to the approved contents may be made without the EXTRA Flugzeug-produktions- und Vertriebs GmbH/EASA approval.

If revision of pages is necessary, observe the following steps:

N O T E

Change revised pages immediately upon receipt.

1 Take out the old pages and destroy them.

2 Insert the new pages following the chapter and page numbers.

3 Replace the old pages "B-E = Log of Effective Pages".

4 Enter the date on page "A = Log of Revisions" and on page "2 = Record of Revision" of Ch. 04 if necessary.

Each revised page is marked at the bottom by the date of revision; revised parts of the new page are marked by a bar on the left margin.

02-20-02 Service Bulletin

The Service Bulletins describe *which* procedures and *how* and *when* they are to be carried out. Enter the receipt of each Service Bulletin in the Service Bulletin List (page E).

N O T E

The owner is responsible for incorporating Service Bulletins to the above mentioned Service Bulletins List (page E).

02-20-03 Checklists

Observe the following steps when working with checklists:

1 Copy the respective check list for performing a check.

2 Enter the date at the top of the table.

3 Select the items to be worked out. The "O" at the beginning of the line is written in the column which indicates the point of time when an item has to be worked out. Specification for the first column are given by footnotes.

4 Work out the particular items and sign after execution (responsible mechanic and inspector) using the respective boxes behind the item.

5 After completion of the inspection check file the list with entries in the Aircraft Records.

6 Certify the completion of check in the Aircraft Log Book.

Chapter 03

General Description

Table of Contents

03-00-00 GENERAL

This chapter shows a short survey of the particular systems. A more detailed description of the systems you find in the respective chapters (see: CONTENTS page E).

The EXTRA 300/SC (refer to Figure 1) is designed as a light weight, single-engine, single-seat, low-wing monoplane using composite and steel materials. It has a fixed main landing gear and a tail wheel unit with full-swivel capability.

View EXTRA 300/SC
Figure 1

03-10-00 DESCRIPTION

03-10-01 Construction

Manufacturer:	EXTRA-FLUGZEUGBAU GmbH Flugplatz Dinslaken D-46569 Hünxe, Germany
Fuselage:	steel tube design, covered with fabric and aluminium sheet metal, single piece canopy side hinged
Wing:	fibre composite design
Stabilizers :	fibre composite design
Landing gear:	2 main wheels, 1tail wheel, fibre composite strut design
Seat:	Seat to pedal distance, seat angle and seat back rest adjustable, 5 piece harness

03-10-02 Flight Control System

Pitch control:	push-pull rods
Roll control:	push-pull rods
Yaw control:	cable system
Pitch trim:	trim tab on the right elevator, Bowden cables, electrical control

03-10-03 Brake System

Main wheels:	hydraulically operated disc brakes, hydraulic cylinders actuated by brake pedals
Tail wheel:	no brake

03-10-04 Powerplant

Engine

Manufacturer:	TEXTRON LYCOMING Williamsport Division 652 Oliver Street Williamsport Plant 17 701 USA
Type:	AEIO - 580 B1A (6 cyl. air cooled, fuel injection, independent magneto ignition system, inverted flight oil system, special antivibration counter-weights)
Rated horsepower:	315 hp at 2700 rpm

Propeller

Manufacturer:	MT Propeller Entwicklung GmbH & Co. KG Airport Straubing D-94348 Atting, Germany
Type:	MTV-9-B-C/C198-25 (3-blade wood composite, hydraulic variable pitch with constant speed regulator, Propeller diameter: 198 cm)

03-10-05 Fuel System

Tanks:	2 integral wing tanks, 2 center and 1 acro tanks behind the firewall (cockpit side)
Fuel supply:	mechanical engine driven pump, additional electrically operated boost pump

03-10-06 Electrical system

Power supply:	engine driven 12 V alternator, integrated DV converter, 28 Ah starter battery, master switch
Circuits:	equiped with automatic circuit breakers
Ignition:	magneto system, independent from electrical power supply

03-10-07 Instruments

Standard (minimal) equipment installed:

Air speed indicator (0-240 kts)
Altimeter
Magnetic compass
Compass correction card
Tachometer
Oil pressure indicator
Oil temperature indicator
Manifold pressure indicator
Fuel flow indicator
Exhaust gas temperature indicator
Cylinder head temperature indicator
Ammeter
Fuel quantity indicators (Wing/Center tanks)
Acceleration indicator (G-Meter)

Chapter 04

Airworthiness Limitations

Record of Revisions Chapter 04

Rev. No.	Date of Revision	Revised Pages	Description of Revision	EASA Approval Date and Sign of Approval
1st Ed	16. June 2008	All	Original	17. July 2008; EASA.A.C.08679
1	12. February 2019	5	reference corrected	

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04-00-00 GENERAL

For each inspection listed here, refer to the applicable Chapter in this manual.

IMPORTANT

It is the operator's responsibility to make sure that time limits or life limits for items in this chapter are not exceeded.

The airworthiness limitations items include mandatory replacement times and structural inspection intervals which may only be changed with permission of the applicable airworthiness authority.

This airworthiness limitation section is approved by the regulatory authority and specifies maintenance required under paragraphs 43.16 and 91.403 of the Federal Aviation Regulations, unless an alternative program has been approved by the regulatory authority.

04-00-01 Temperature Limit

Composite structure is qualified up to 72°C (162°F). Structure temperatures above this limit are not approved. Not to exceed this temperature limit, only appropriate colour specification for composite structure as given by the manufacturer document EA-03205.19 must be used when finish restoration is required.

In case of doubt regarding to the classification of colour, contact EXTRA Flugzeugproduktions- und Vertriebs- GmbH.

04-00-02 Operating Time

Only the airframe and components as listed in Chapter 04-10-00 are subject to a permissible operating time; concerning all other components recommended replacement times are given in Chapter 05-10-03.

The reliability of the composite primary parts has been convincingly demonstrated by fatique testing (Two times design life 2x6000 = 12000 hrs).

IMPORTANT

Every 1000 flight hours the "Significant Items Inspection" contained in Chapter 05-20-05 of this manual must be performed. This 1000 hours inspection releases the aircraft for further 1000 hours operation, up to max. of 6000 hours.

IMPORTANT

Prior to 6000 flight hours the "Major Inspection" contained in Chapter 04-20-00 must be performed. This inspection may release the aircraft for further operation, subject to approval of the regulatory authority.

04-10-00 LIFE LIMITED COMPONENTS

04-10-01 General

The replacement time of the life limited components listed in Ch. 04-10-02 must be accomplished not later than the specified period of operation for that component or in accordance with the manufacturer´s service data or airworthiness directives.

04-10-02 Replacement Time

Items shown here must be replaced during the regular maintenance periods.

Item	Replace
Wing	6000 h
Aileron	6000 h
Vertical Stabilizer	6000 h
Rudder	6000 h
Horizonal Stabilizer	6000 h
Elevator	6000 h
Landing Gear Spring	6000 h

04-10-03 Service Life Limited Components

The service life of the EA 300/SC composite structure as listed in section 04-10-02 has been set to 6000 flight hours. A "Major Inspection" on reaching 6000 flight hours may provide the necessary clearance for further flight. This "Major Inspection" is contained in Chapter 04-20-00.

04-20-00 MAJOR INSPECTION

The EXTRA 300/SC has been manufactured utilizing the latest knowledge of composite construction and requires new experience about those parts subject to wear. Until now insufficient experience about this point has been acquired. When such information is available it will be accomodated in later revisions of this manual and will include a major inspection procedure.

Chapter 05

Time Limits/Maintenance Checks

Table of Contents

05-00-00 GENERAL

This chapter contains charts for time limits, scheduled maintenance and unscheduled maintenance, and enables licensed personnel to carry out correct inspections on the EXTRA 300/SC. The periodic inspections and checks described and their recommended time intervals are minimum requirements for maintaining the aircraft in an airworthy condition. Further information will be given by the information service (Service Bulletins, Service Letters, etc.).

If operation of aircraft requires more frequent servicing, the check intervals may be shortened. However the check intervals must not be exceeded without explicit permission from the regulatory authority. Additional checks as well as changes must also be agreed by the regulatory authority.

In general this Manual does not give any information about vendor equipment. Such information can be taken from the vendor equipment maintenance instructions (refer to Chapter 01). However for practicability reason most of the applicable vendor equipment inspections are incorporated in the following checklists. But it has to be noted that the latest editions of inspections given by the vendors remain decisive. So, before beginning an inspection, the inspections of vendor equipment presented here must be compared with the originals referenced under the respective headlines of the checklists, and, in case of doubt (e.g. if originals have changed before changes could be transferred to this Manual by the Revision Service), contact EXTRA-Flugzeugproduktions- und Vertriebs- GmbH for advice. The maintenance instructions referenced in the checklists are also valid if further inspection of vendor equipment is necessary.

NOTE

For working with checklists refer to Chapter 02-20-03.

DANGER

Do not rotate the propeller nor allow any person to stay in the propeller operating area when performing an inspection or check with the master switch "ON" and the battery connected. The engine may be started unintentionally and may cause serious injuries or death.

05-10-00 TIME LIMIT COMPONENTS

05-10-01 General

All components not listed herein should be inspected as detailed in Chapter 05-20 „Maintenance Checks“ and repaired, overhauled as required. It is recommended that overhaul or replacement of components should be accomplished not later than the specified period of operation for that component or in accordance with the manufactures service data or airworthiness directives.

05-10-02 Overhaul Schedule

Items shown here must be overhauled at the times indicated.

Item	**Overhaul**
Engine (Textron Lycoming)	*
Engine accessories	together with engine
Magneto (Slick)	together with engine *
Propeller (MT-Propeller)	*
Governor (Woodward or MT-Propeller)	*
All other components	on condition

** refer to latest issue of Manufacturer´s Service Bulletin and Maintenance and Overhaul Manual*

05-10-03 Recommended Replacement Times

It is recommended to replace the items shown in the following schedule at the times indicated. The times may be modificated by the respective national authorities.

Item	Replace
Battery Concorde	on condition
Batteries of the ELT (Pointer)	2 years **
Batteries of the ELT (Artex) Batteries of the ELT (Kannad)	After use in an emergency. After an inadvertant activation of unknown duration. When the total of all known transmissions exceeds one hour. On or before battery replacement (expiration) date.
Wheels (Cleveland, Parker)	on condition
Tires	on condition
Oil hoses, rubber type (MIL-DTL-6000C34)	on condition
Brake hoses & sensing hoses (Knapp Hoerbiger)	on condition
Fuel, oil & sensing hoses (PTFE Type MIL-DTL-25579)	on condition, but in engine comp. at the latest together with engine removal
Wingtip strobe light	If any one LED fails, the unit must be replaced.
Seat belts (Hooker)	Rework** or replace after a period of 6 years in use, service life limit of national aviation authority must be considered.
Brake and brake assembly (Cleveland, Parker)	on condition
Rudder control cable	on condition
Fairleads	on condition
Shock mounts (Barry Controls) Shock mounts (Lord)	on condition, but at the latest at each engine overhaul
Bolts and nuts	on condition ***

*** on the recommendation of the manufacturer*

**** if not stated otherwise*

05-10-04 Time Between Inspection

Inspect these equipment items at the times shown:

Item	Time between Inspection
Battery (Concorde)	Refer to Concorde Servicing Instruction (capacity check)
Static Pressure System	Every 24 calendar months in accordance with 14 CFR Ch. 1 Part 43 App. E
ATC Transponder	For US registered airplanes: Every 24 calendar months in accordance with 14 CFR Ch. 1 Part 43 App. F Par. C and F. For airplanes registered in other countries: Observe the latest national aviation regulations.
EI MVP-50P	12 months or 100 hours

05-20-00 SCHEDULED MAINTENANCE CHECKS

05-20-01 General

Scheduled maintenance checks or tasks must be carried out at 25, 50, 100, 200, 300, 400, 500 and 1000 hour intervals. In addition an annual inspection equal to the 100 hour inspection has to be performed.

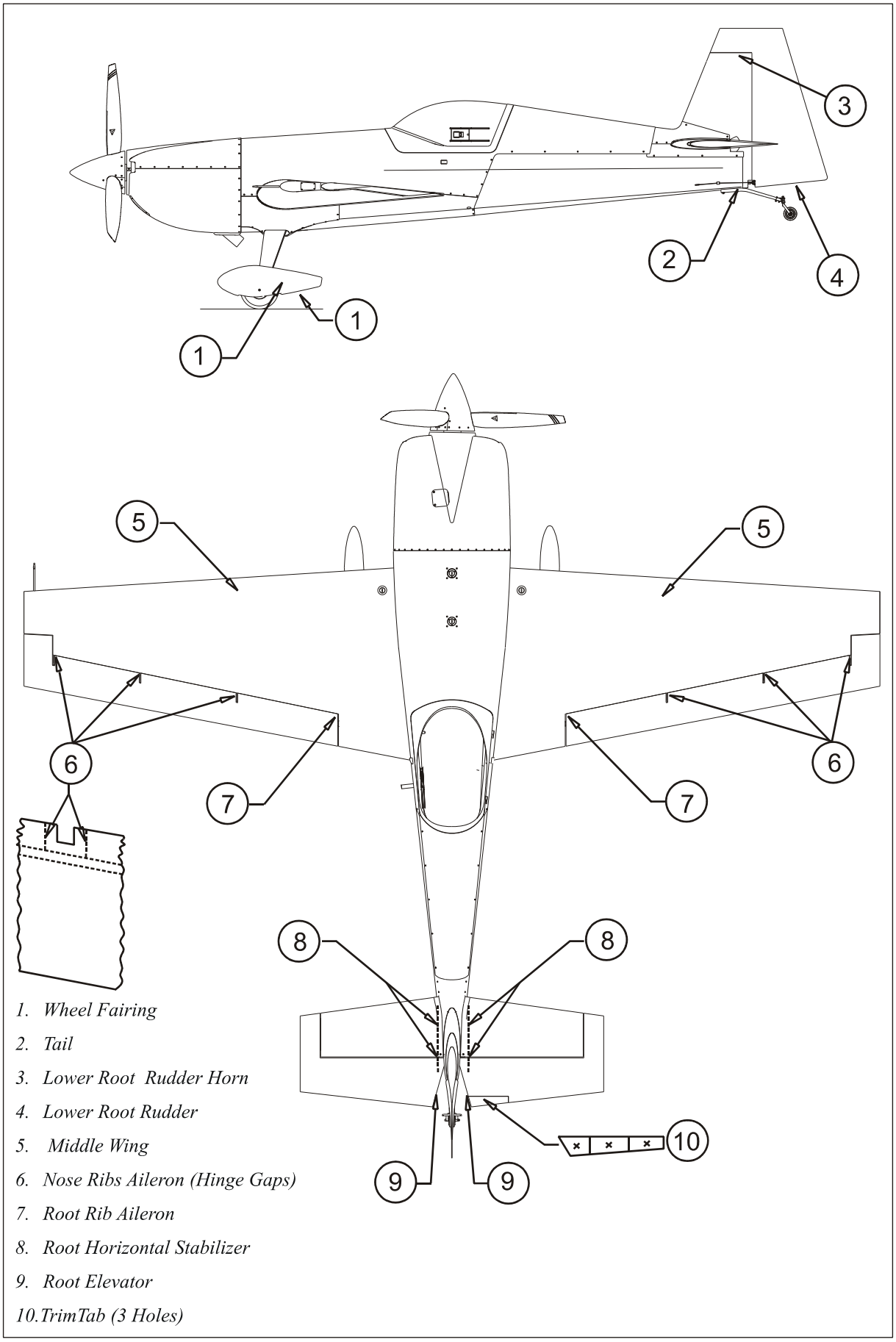
The following pages show a drain hole chart (Figure 1) and lubrication charts (Figures 2 - 4) which can be used in connection with the checklists.

05-20-02 25 Hour Inspection - Engine

A 25 hour inspection is necessary for the engine, because the engine is not equipped with an external oil filter. Therefore the engine oil has to be changed and the oil screen cleaned after every 25 hours. Refer to Figure 2 "Lubrication Chart 25 hours".

05-20-03 25 Hour Inspection - Aircraft

After the first 25 hours, a check equal to the 100-hour maintenance check has to be performed. Refer to Chapter 05-20-04.



1. *Wheel Fairing*
2. *Tail*
3. *Lower Root Rudder Horn*
4. *Lower Root Rudder*
5. *Middle Wing*
6. *Nose Ribs Aileron (Hinge Gaps)*
7. *Root Rib Aileron*
8. *Root Horizontal Stabilizer*
9. *Root Elevator*
10. *TrimTab (3 Holes)*

Figure 1 ***Drain and Vent Holes***

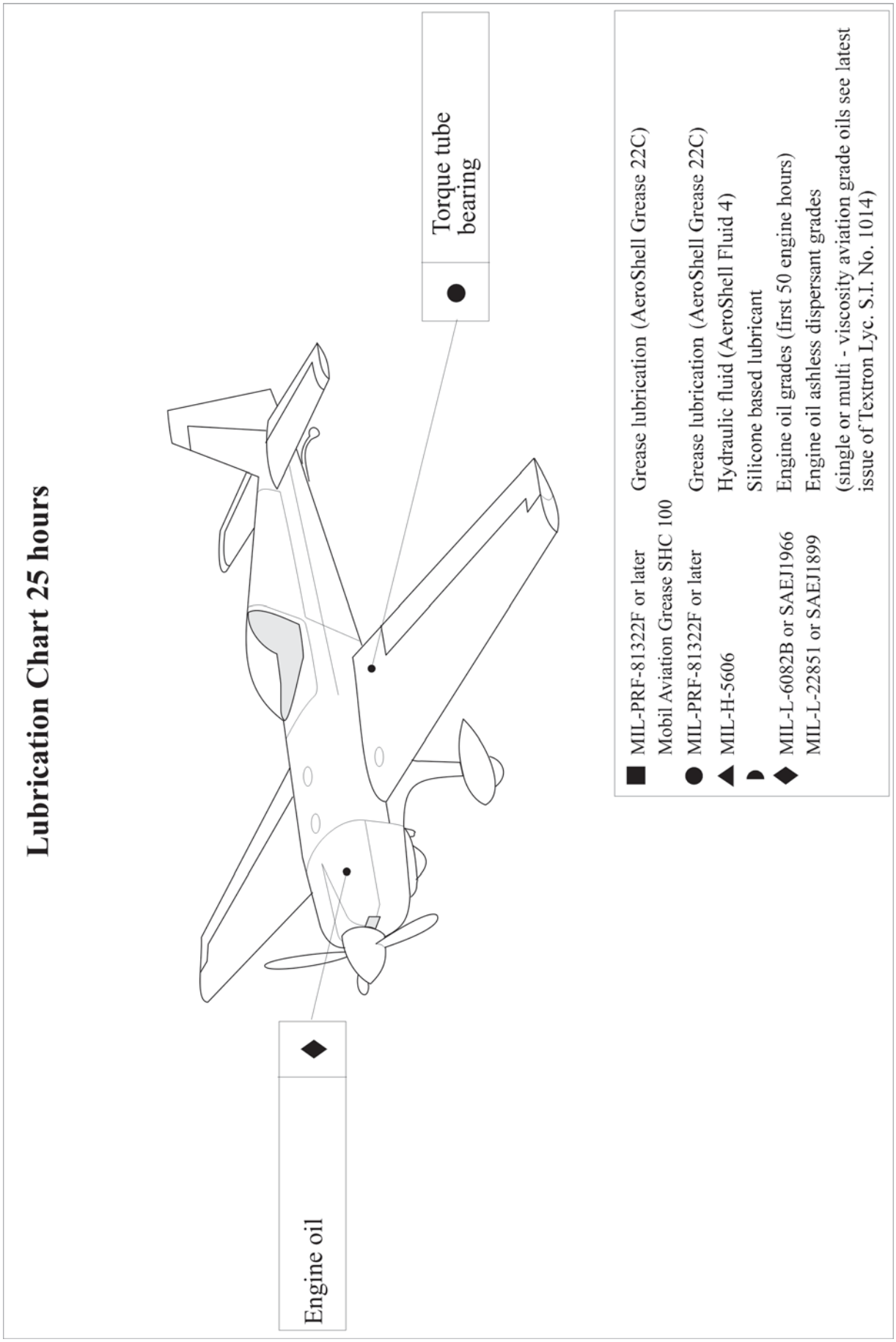


Figure 2 ***Lubrication Chart 25 hours***

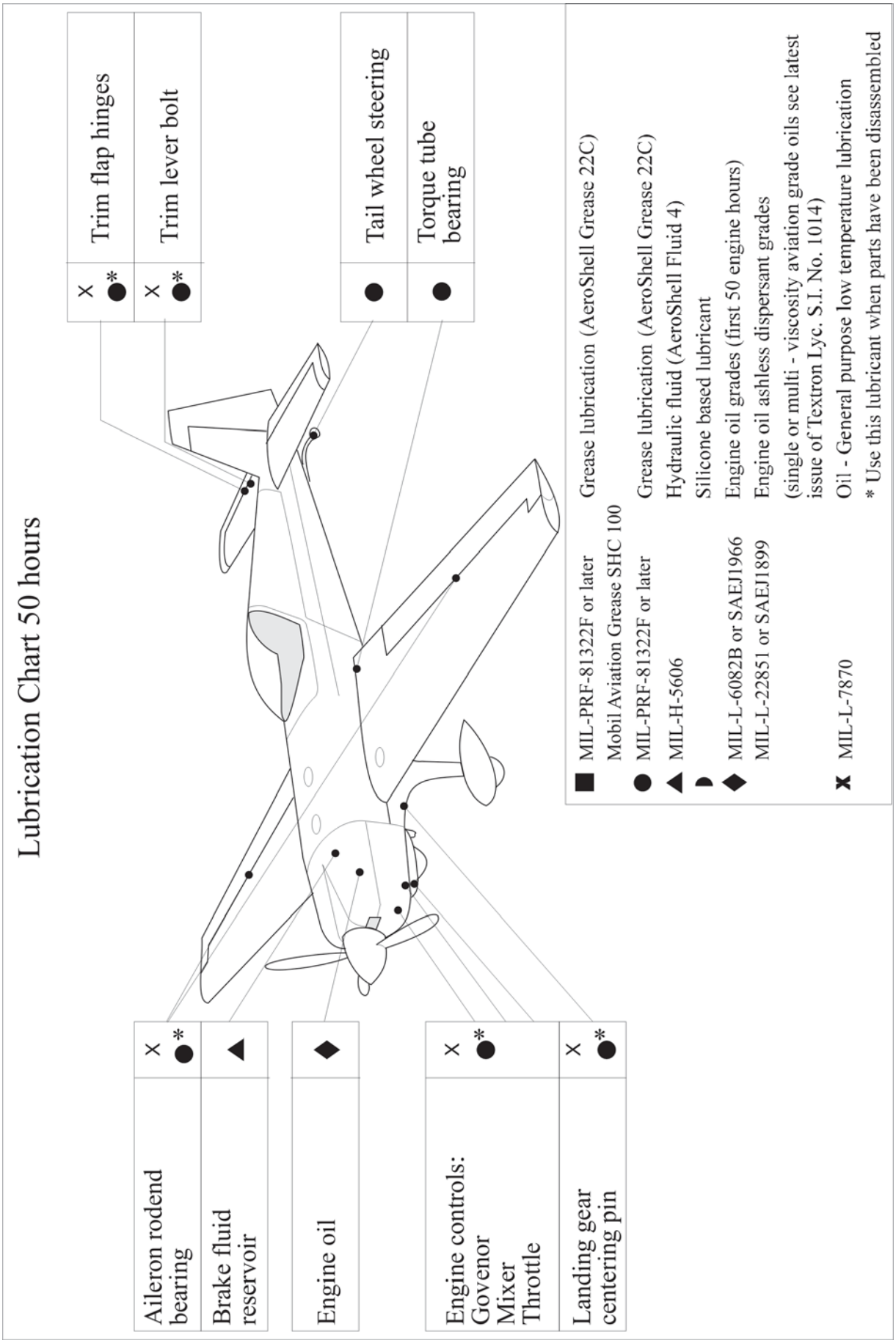


Figure 3 ***Lubrication Chart 50 hours***

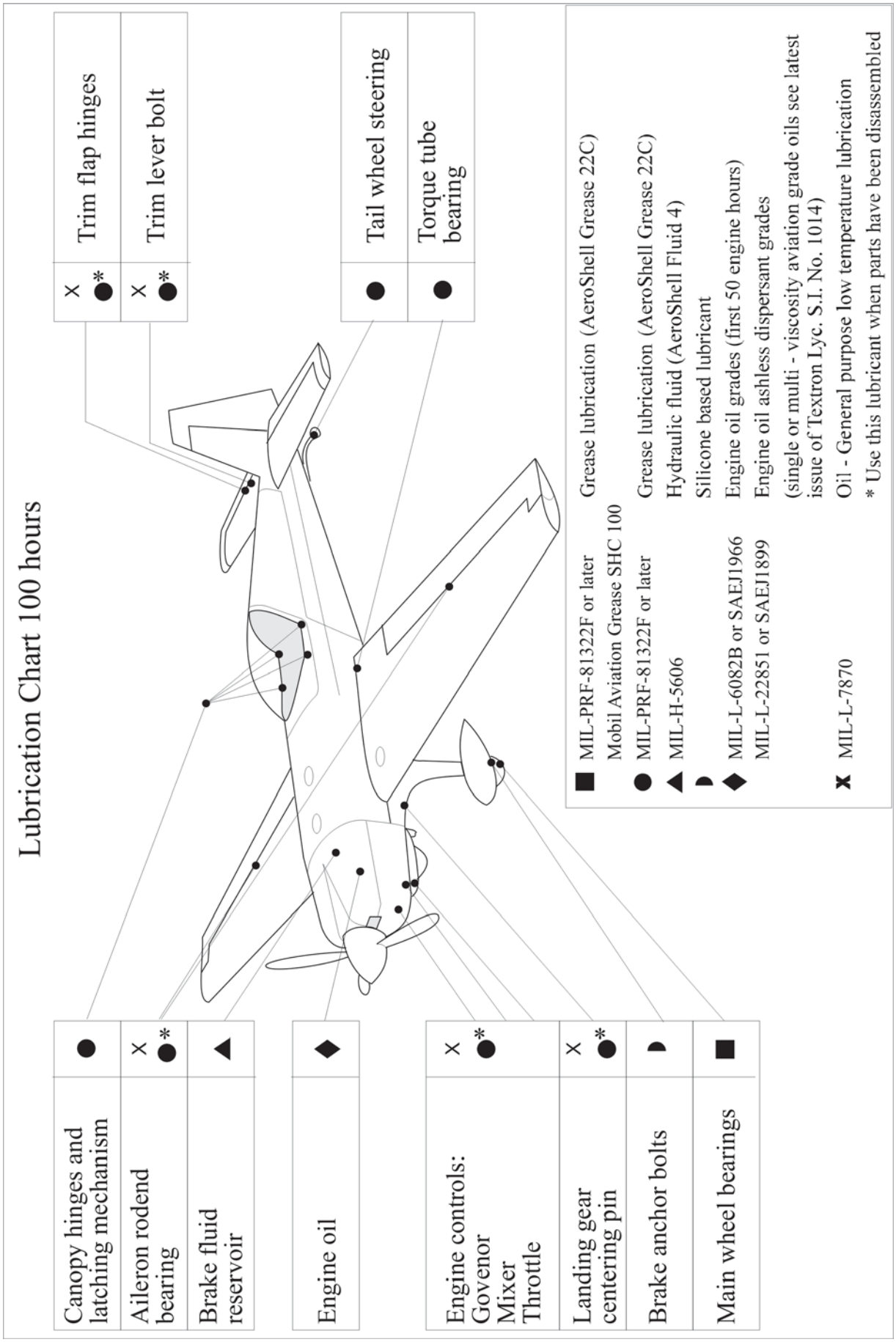


Figure 4 ***Lubrication Chart 100 hours***

05-20-04 Maintenance Checks Schedule

The maintenance checks described in this Chapter include all the scheduled checks which must be performed. Use the following schedule and the lubrication charts (Figures 2-4).

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
			Operational Checks		
	O	O	1 Start engine (in accordance with the Pilot`s Operating Handbook)		
	O	O	2 Check the fuel quantity indication.		
	O	O	3 Check oil pressure and temperature.		
	O	O	4 Check generator output.		
	O	O	5 Check magneto RPM-drop at 1800 RPM. (Allowed drop is 175 RPM and no greater diff. between L + R from 50 RPM)		
	O	O	6 Check ignition OFF function at 1000 RPM for a short moment.		
	O	O	7 Check response of the engine by power setting changes.		
	O	O	8 Check the propeller response at 1800 RPM when changing pitch.		
	O	O	9 Check idle speed is between 650 and 750 RPM.		
	O	O	10 Check the fuel flow and manifold pressure indicator.		
	O	O	11 Check the EGT and CHT indicator.		
	O	O	12 Check mixer function per CHT/EGT indication.		
	O	O	13 Check idle mixture.		
	O	O	14 Check the function of the fuel selector valve.		
	O	O	15 Check the radio and the other electronic equipment.		
	O	O	16 Shut down engine using mixture lever. Check the alternator warning light or ammeter.		

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
	O	O	17 Check the optional electronic g-meter for the maximum g-loading. If extreme value exceeds ±10 G, contact EXTRA-Flugzeugproduktions und Vertriebs- GmbH. Correct date and time of the g-meter.		
	O	O	18 Ignition OFF, main switch OFF, remove ignition key.		
	O	O	19 Check if ignition key is removable in OFF-position only, and if key functions in accordance with the requirements of the Teledyne Continental Service Bulletin No. 636.		
			Propeller		
			(refer to latest edition of MT-Propeller Operation and Installation Manual E-124 and Service Bulletins)		
			DANGER **Ground magneto primary circuit before working on propeller**		
		O	1 Remove spinner and check for cracks.		
	O	O	2 Check blade shake, max. 3 mm or 1/8 inch.		
	O	O	3 Check blade angle play, max. 2°.		
		O	4 Inspect outside condition of the hub and parts for cracks, corrosion, deterioration.		
		O	5 Inspect check nut for high pitch stop for tightness.		
	O	O	6 Check all safety means to be intact.		
	O	O	7 Check flange bolts or stopnuts for tightness.		
		O	8 Check front and rear spinnerplate for cracks and fixing.		
	O	O	9 Inspect bladeroot and hub for oil- and grease leaks.		
		O	10 Check position and condition of counterweights.		
	O	O	11 Check blades for cracks in the fibreglass-cover and blade erosion sheet. No cracks allowed. Refer to MT-Propeller SB No. 8		
O[1]			12 Overhaul propeller or perform a tear-down inspection.		

1 *refer to MT-Propeller Service Bulletin No. 1*

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
			Engine compartment		
			(Refer to latest edition of Textron Lycoming Operator´s and Maintenance Manual and SB's, and Slick Magneto Maintenance and Overhaul Manual and SB's.)		
			DANGER **Ground magneto primary circuit before working on engine.**		
	O	O	1 Remove engine cowling as per Chapter 71.		
	O	O	2 Inspect cowling and air inlet screen for damage, cracks, distortion, overheated areas and loose or missing blind nuts and secure attachment of oil level access plate.		
	O	O	3 After this inspection clean cowling.		
O[1]	O[2]	O	4 Drain oil sump in accordance with Chapter 12-10-04 “Engine Oil Replenishing”		
O[1]	O	O	5 Clean oil suction screen at oil change, check suction screen for metal particles, shavings, or flakes. Consider Lyc. SB N° 480 latest issue.		
O[1]	O	O	6 Clean oil pressure screen at oil change, check pressure screen for metal particles, shavings, or flakes. Consider Lyc. SB N° 480 latest issue.		
		O	7 Inspect oil temperature sensor unit for leaks and security.		
	O	O	8 Inspect flexible oil lines, oil return lines and fittings for leaks, security, chafing, dents, and cracks (ref: FAA AC 43.13-1A).		
O[3]			9 Replace flexible oil lines.		
		O	10 Clean and inspect oil radiator and attachment.		
O[4]			11 Remove and flush oil radiator.		
	O	O	12 Inspect Christen Inverted Oil System for general condition, leaks, secure mounting and tight connections.		

1 each 25 hours
2 a spectrographic oil analysis is recommended at every 50 hours oil change.
3 at engine TBO per Lycoming SB 240
4 each 500 hours

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
O[1]			13 Clean and flush the Inverted Oil System with a suitable petroleum solvent, such as varsol according to Lycoming Operator's Manual.		
O[2]	O	O	14 Service engine with recommended lubricating oil in accordance with Chapter 12-10-04.		
	O	O	15 Inspect condition of spark plugs (clean and adjust gap as required, adjust per Lycoming Service Instruction 1042). If fouling of spark plugs has been apparent, rotate bottom plugs to upper plugs and vice versa.		
	O	O	16 Inspect spark plug cable leads and ceramics for corrosion and deposits.		
	O	O	17 Perform a hot engine differential compression check in accordance with Chapter 72-30 of the Lycoming AEIO-580-B1A Maintenance and Overhaul Manual .		
		O	18 Inspect cylinders for cracked or broken fins.		
	O	O	19 Check cylinders for evidence of excessive heat which is indicated by discoloration.		
		O	20 Check fuel injector nozzles for loseness. Tighten to 60 inch pounds torque. Check fuel lines for fuel stains which are indicative for fuel leaks.		
	O	O	21 Inspect rocker box covers for evidence of oil leaks. If found, replace gasket; torque cover screws 50 Inch-pounds.		
O[3]			22 Remove rocker box covers and check for freedom of valve rockers when valves are closed. Look for evidence of abnormal wear or broken parts in the area of valve tips, valve keeper, springs and spring seats.		

1 each 300 hours
2 each 25 hours
3 each 400 hours

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
		O	23 Inspect ignition harness for general condition, free from fraying or chafing and insulators for high tension leakage and continuity.		
		O	24 Inspect SlickSTART, refer to Unison Operation, Maintenance, and Troubleshooting Manual.		
		O	25 Inspect magneto and accessories according to Slick Magneto Maintenance and Overhaul Manual.		
		O	26 Check fuel injector for general condition, clean fuel inlet screen.		
	O	O	27 Inspect intake gaskets and seal-rings for leaks and flanges for tightness.		
	O	O	28 Inspect flexible fuel lines, fuel injection lines and fittings for leaks, security, chafing, dents, and cracks; replace or overhaul as required or at engine overhaul). Check fire protection.		
	O	O	29 Check fuel system for leaks.		
O[1]	O	O	30 Remove, clean and inspect gascolator screen and fuel filter bowl as per Chapter 28-20-02.		
	O	O	31 Inspect throttle, mixture, and propeller governor controls for security, travel, and operating conditions. Observe the hints given in the **Inspections**-paragraph of chapter 20-10-09 **Control Cables**.		
O[2]		O	32 Inspect all external exhaust surfaces for signs of leakage.		
O[2]		O	33 Inspect all external exhaust joints, slip joints, clamps, couplings for misalignment, warpage, broken, loose or missing fasteners, clamps, gaskets or seals and abnormal wear.		
O[2]		O	34 Inspect all interior exhaust areas for blockage, restrictions, dents or protrusions into the exhaust flow path.		
O[2]		O	35 Inspect muffler, heat exchanger for general condition.		
O[2]		O	36 Inspect exhaust stack to flange interface for cracks in welds or weld heat affected area, blown out or missing gaskets.		

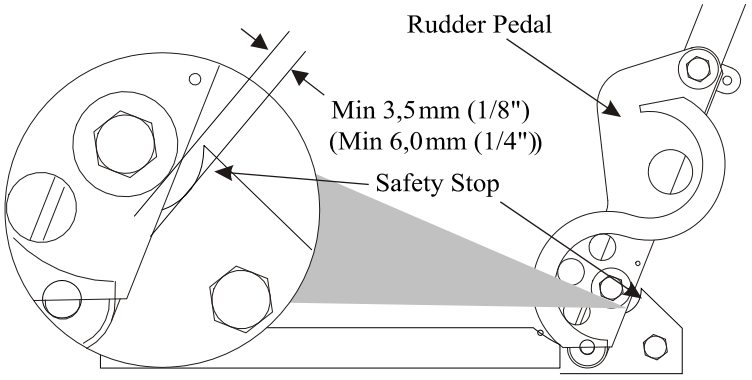
1 clean at least every 90 days
2 at engine replacement

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:	
O[1]		O	37 Inspect all exhaust welds and areas adjacent to the welds for cracks or weld separation.			
O[1]		O	38 Inspect bent exhaust areas and turns for erosion, thinning, bulging or burn through.			
O[1]		O	39 Inspect surrounding exhaust structures for heat damage or burning.			
		O	40 Inspect crankcase for cracks, leaks, and security of seam bolts.			
	O	O	41 Check engine mounted accessories such as pumps, temperature and pressure sensing units for leaks, secure mounting and tight connections.			
	O	O	42 Inspect engine mount for cracks and loose mountings.			
	O	O	43 Inspect engine baffles free from cracks and fraying.			
		O	44 Inspect all wiring connected to the engine or accessories			
	O	O	45 Inspectengine shock mounts for deterioration (replace as required).			
		O	46 Inspect firewall seals.			
		O	47 Inspect alternator, cable connections and accessories.			
		O	48 Inspect security of alternator mounting			
		O	49 Inspect starter and starter drive			
	O	O	50 Check brake fluid level (fill as required).			
	O	O	51 Clean engine if necessary.			
	O	O	52 Lubricate all controls per lubrication chart.			
O[2]			53 Overhaul or replace propeller governor as required.			
O[3]			54 Complete overhaul of engine or replace with factory rebuilt			
	O	O	55 Reinstall engine cowling.			

1 at engine replacement
2 refer to Woodward Service Bulletin No. 33580
3 *refer to Lycoming Service Instruction No. 1009*

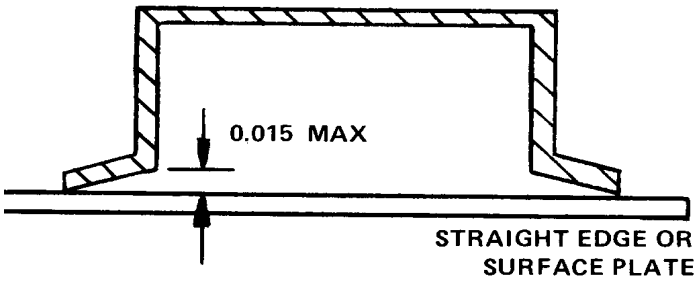
as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
				Fuselage		
	O	O	1	Remove tail fairing, tail side skins, main fuselage cover and landing gear cuffs per Chapter 51 and 53.		
		O	2	Remove bottom fuselage cover per Chapter 53.		
	O	O	3	Inspect main fuselage cover, bottom fuselage cover, tail fairing, tail side skins and landing gear cuffs for general condition, dents, cracks and loose screws and rivets.		
	O	O	4	Check installed parts for general condition and security of attachment.		
	O	O	5	Inspect fuselage for foreign matters.		
		O	6	Inspect steel tube construction for general condition, corrosion and cracks, above all in areas of load stress (e.g. wing, stabilizer, engine and seat attachments).		
	O	O	7	Visually inspect steel tube construction in the area of horizontal stabilizer attach brackets for cracks. In case of doubt remove horizontal stabilizer and use a dye check penetrant. In case of cracks are found contact EXTRA-Flugzeugproduktions- und Vertriebs- GmbH for repair advice.		
	O	O	8	Inspect fabric cover for general condition.		
		O	9	Inspect wooden longerons for damage.		
		O	10	Clean and lubricate canopy hinge and latching mechanism.		
		O	11	Inspect breather line for obstructions and security.		
		O	12	Inspect main and auxiliary wing spar connector for general condition.		
				Seat belts		
		O	1	Check seat belts for security, attachment, proper operation, and condition.		
		O	2	Check webbing; inspect for fuzzy edges at the adjusters, inspect whether edges start to fray, inspect whether webbing lost its color (top and bottom sides have a different shades).		

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
		O	3 Check hardware; inspect for corrosion, check whether buckles mate properly. Check the buckles for easy opening.		
		O	4 Check ratchet assembly; inspect for corrosion, loss of plating, discoloration, slippage and wear; check for ease of operation. If the harness does not pass the check, it has to be reworked or replaced. Contact the harness manufacturer in case of doubt.		
		O	5 Check proper attachment of shoulder harness as per chapter 25-10-03.		
			Fuel system		
	O	O	1 Inspect the fuel lines for leaks, security, chafing, dents and cracks. Replace fuel lines as required.		
	O	O	2 Inspect fuel selector valve for operation and proper pointer indication.		
	O	O	3 Drain fuel system.		
	O	O	4 Check acro- and center tank attachment.		
	O	O	5 Check acro-, center- and both wingtanks for leaks.		
	O	O	6 Check boost pump.		
	O	O	7 Check fuel filler caps for security and proper operation.		
	O	O	8 Check proper seat and condition of sealing lip.		
			Flight controls		
	O	O	1 Remove wing access panels.		
	O	O	2 Inspect control surfaces for security of attachment, free movement, dents, delaminations and cracks.		
	O	O	3 Check spades visually for general condition. Inspect spade support for corrosion, cracks and deformations. Ensure proper attachment to aileron.		
	O	O	4 Inspect elevator trim system for proper operation and rigging.		
	O	O	5 Inspect hinges for condition, cracks and security; hinge bolts, hinge bearings, selflocking nuts.		
	O	O	6 Check free play in control system: torque tube, control surfaces, control stick, rod end bearing, deflector limiter.		

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
O[1]	O	O	7	Lubricate rear torque tube bearing.		
	O	O	8	Lubricate aileron rodend bearings, trim flap hinges and trim lever bolt.		
	O	O	9	Inspect rudder control cables following the *Inspection Procedure* presented in Chapter 27-20-04.		
		O	10	Check for minimum 3.5 mm (1/8") clearance of rudder pedal versus safety stop when fully deflected for rudder cables having 50 h flight time minimum. On newly installed rudder cables the minimum spacing is 6 mm (1/4"). This check is to be performed with zero loading on the rudder pedals. 		
		O	11	Rough check of safety stop clearance. With a force of approx. 90 kg (200 lbs) acting on the fully deflected rudder pedal the safety stop shall not be reached. If the stop is reached the control system indicates a too high flexibility which needs to be traced. In this case contact EXTRA for advice.		
	O	O	12	Inspect all flight control ventilation holes for obstruction.		
		O	13	Visually inspect metal push/pull control rods for corrosion, cracks, or other visible damage, especially at their end fittings. In case of suspected cracks, remove push/pull control rod, strip the paint in the suspected area and carry out a detailed inspection using a magnifying glass (x10). Replace the related control rod in case a crack is found otherwise reapply surface treatment and reinstall push/pull control rod.		

1 each 25 hours

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
		O	14	Visually inspect fiber composite push/pull control rods for cracks, impacts or other visible damage, especially at their end fittings. No gap between aluminum head and rod is allowed. Contact the manufacturer in case a gap is detected.		
				Landing gear		
	O	O	1	Check landing gear for general condition.		
	O	O	2	Visually inspect main landing gear spring for dents and cracks.		
		O	3	Visually inspect main landing gear spring for deformations, especially in the area of the mounting clamps. Inspect the axle attachments, when wheels and brake callipers are removed (refer to paragraph "Wheels" below).		
	O	O	4	Inspect landing gear spring mounting clamps and bolts for security.		
		O	5	Lubricate landing gear centering pin and landing gear mounting clamps hinge bolts.		
		O	6	Check wheel rake (10° ± 0.5°) and toe-in (2.5° ± 0.5°) (landing gear not loaded) as per chapter 32.		
				Fairings:		
	O	O	1	Disassemble fairings.		
	O	O	2	Check fairings for dents and cracks.		
	O	O	3	Check fairing ventilation hole for obstruction.		
				Wheels		
				(refer to on-aircraft inspections presented in the latest edition of Cleveland Wheels & Brakes Maintenance Manual and Service Bulletins for wheel, tire and break inspections)		
	O	O	1	Visually inspect the wheels for corrosion, cracks, or other visible damage.		
	O	O	2	Check wheel nuts to be sure they are properly installed and have not worked loose. Bolt threads should be flush to 1-1/2 threads extending beyond the nut. Nuts should be on the side of wheel opposite the brake disc (outboard side of wheel).		

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
	O	O	3 Inspect the brake disc for rust, excessive grooves, large cracks, coning or other visible damage. Check if disc thickness is more than 0.325in/8.255mm. Coning of disc in excess of 0.015 in /0.381 mm is cause for replacement. 		
		O	4 Remove wheels and wheel bearings. Inspect wheel bearing grease for contamination and solidification.		
		O	5 Inspect snap rings and grease seals for distortion or wear. Replace grease seal felts if they are hard or contaminated. Lightly saturate grease seals should be replaced if cracked, dried out, or distorted.		
		O	6 Inspect wheel bearings for excessive wear or damage. Replace on condition.		
		O	7 Repack bearings with MIL-PRF-81322F or later, Mobil Aviation Grease SHC 100 or equivalent. Reinstall wheels and secure.		
	O	O	8 Check wheel bearing clearance and wheels for free rotation.		
			Tires		
	O	O	1 Visually inspect tires for cuts, flat spots, and tread or sidewall damage. If changing of tires is necessary follow the instructions, including off-aircraft inspection of wheels, presented in the Cleveland Wheels & Brakes Component Maintenance Manual.		
	O	O	2 Check inflation pressure (2.6 bar/38 psi). Proper inflation will provide maximum tire and wheel life.		

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
				Brake system		
	O	O	1	Inspect brake assemblies for general condition.		
	O	O	2	Inspect master cylinders for leaks.		
		O	3	Inspect brake system plumbing for leaks and hoses for bulges and deterioration.		
		O	4	Lubricate anchor bolts using Silicone-based lubricant.		
	O	O	5	Visually inspect the brakes for corrosion, cracks, or other visible damage. Check inlet fitting bosses and anchor bolt lugs for cracks.		
	O	O	6	Check back plate attachment bolts to insure they are properly torqued and have not worked loose. Gaps between the back plate and cylinder would be evidence of this.		
	O	O	7	Check fit of brake cylinder anchor bolts in torque plate bushings for sloppiness. This can be accomplished by grasping the cylinder and moving it; slight movement is normal. Excessive movement is cause for removal and detailed inspection.		
	O	O	8	Linings should be visually checked for extreme chipping on the edges. Lining worn to a minimum thickness of 0.100 inch (2.54 mm) must be replaced.		
	O	O	9	Visually check torque plate for corrosion, cracks, loose anchor bolt bushings, or other visible damage. Anchor bolt bushings must be flat against torque plate surface.		
	O	O	10	Check for any brake fluid leaks.		
	O	O	11	Check brake fluid level.		
				Tail-wheel landing gear		
	O	O	1	Check tail-wheel landing gear for general condition.		
	O	O	2	Check tail-wheel landing gear spring for dents, cracks, and delaminations.		
	O	O	3	Check tail-wheel rubber tire condition.		

as specified	each 50 hours	each 100 hours		Inspections	Date: / Serial No.:	Inspector: / Mechanic:
	O	O	4	Inspect tail wheel fork and steering arm attachment stopnut for security.		
	O	O	5	Check for general condition and function. Pay attention to the free movement of the rudder.		
	O	O	6	Check the connector springs for light precompression.		
	O	O	7	Check the wheelfork for free rotation and steering function, damage, dents, cracks and corrosion.		
	O	O	8	Inspect wheelfork for damage, dents, cracks and corrosion.		
	O	O	9	Inspect the axle bolt and nut for fretting, wear, damage, and stretch.		
	O	O	10	Lubricate tail wheel steering.		
				Wing		
	O	O	1	Check wing for dents, cracks, and delaminations.		
		O	2	Inspect wing spar main bolts for looseness and security.		
		O	3	Check the safety wire and the safety screw of the wing main spar bolt.		
		O	4	Inspect wing spar flange bushing for looseness and bearing load by moving the wing tip up and down to detect play. No play allowed.		
		O	5	Inspect wing auxiliary spar attachment.		
		O	6	Inspect wing ventilation holes for obstruction.		
	O	O	7	Check inside wing structure in the area of access panels.		
				Horizontal and Vertical Stabilizers		
	O	O	1	Check stabilizers for dents, cracks; stone nicks and delaminations.		
	O	O	2	Inspect stabilizer spar main bolts for looseness and security.		
	O	O	3	Inspect stabilizer auxiliary spars attachment.		
		O	4	Inspect stabilizer ventilation holes for obstruction.		

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
			Instruments		
		O	1 Inspect panel mounting for security and safety.		
		O	2 Check operation, mounting, and wiring of switches for condition and safety.		
		O	3 Check automatic circuit breaker mounting and wiring for condition and safety.		
			4 **Reserved**		
	⚠		**WARNING** **Risk of blinding due to LED radiation. Do not stare into beam. Wear eye protection.**		
		O	5 Check wing-tip strobe lights for security and operation. If any one LED fails, the units must be replaced. Inspect the lens. Replace the unit if there is excessive scratching, discoloration or cracking.		
	O	O	6 Inspect compass and compass deviation card for proper indication and compensation.		
O[1]			7 Magnetic compass compensation.		
		O	8 Check pitot/static air pressure lines for condition and leaks, perform operational check.		
O[1]		O	9 Check MVP-50P per Electronics International Inc. ICA.		
			Electrical system		
	O	O	1 Check engine bonding.		
	O	O	2 Check tank bonding (wing- and center tank).		
		O	3 Check system wiring free from fraying or cracks.		
		O	4 Visually inspect battery and attachment.		
	O	O	5 Charge battery as per CONCORDE Service Instructions.		
O[2]			6 Perform battery capacity check.		

1 *Annual, each twelve calendar month*
2 *Annual, each twelve calendar month or 200 h, whichever comes first*

as specified	each 50 hours	each 100 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
			General		
O[1]	O	O	1 Perform checks given for special equipment installed. Refer to manufacturer instructions and the *Handling, Servicing and Maintenance* paragraphs of the related POH supplements.		
O[1]	O	O	2 Perform checks and maintenance for the ELT. Follow the applicable instructions prepared by the respective ELT manufacturer (Refer to Chapter 01).		
O[1]	O	O	3 Reinstall access panels per Ch. 51 and 53.		
O[1]	O	O	4 Aircraft conforms to Specifications of respective Authority		
O[1]	O	O	5 All required airworthiness directives complied with.		
O[1]	O	O	6 All EXTRA mandatory Service Bulletins complied with.		
O[1]	O	O	7 All vendor Service Bulletins and Service Letters complied with.		
O[1]	O	O	8 Check for proper flight manual.		
O[1]	O	O	9 Aircraft papers in proper order.		

1 as required

05-20-05 Significant Items Inspection

Every **1000 flight** hours the "Significant Items Inspection" must be performed **in addition** to the 100-hour inspection.

It is recommended to replace all bolt connections, which are affected by this inspection. A complete inspection kit "EA300SC 1000 Std.Insp" is available from EXTRA.

1000 hours	Date: / Serial No.:	Inspector: / Mechanic:	
	Inspections EXTRA 300/SC		
	Wing		
O	1 Remove wing as per Chapter 57.		
O	2 Inspect main spar bolts and auxiliary spar bolts for wear, grooves, dents and cracks.		
O	3 Magnaflux or fluorescent dye-check of the wing main spar bolts by authorized personnel is required.		
O	4 Remove ailerons as per Chapter 27.		
O	5 Remove strobe/navigation lights as per Chapter 33.		
	Leading edge		
O	6 Detailed visual inspection on the surface for erosion, scratches, stone nicks and impact damages.		
O	7 Detailed visual inspection on the top to bottom shell bonding for dents, cracks and delaminations.		
	Main spar section		
O	8 Check skin to spar bonding for delaminations by coin tapping (refer to Chapter 20-10-06).		
O	9 Detailed visual inspection on the sparweb for dents, cracks and delaminations by visual inspection through wing access holes and strobe/navigation light openings using a boroscope.		
	Auxiliary spar section		
O	10 Check bonding skin/spar for delamination by coin tapping.		
O	11 Detailed visual inspection on the aux. spar web for dents, cracks and delaminations. Pay particular attention to the cutout for aileron cantilever.		
O	12 Inspect aileron cantilevers for cracks and deformations. Check for proper surface protection.		

1000 hours		Date:	Inspector:	
		Serial No.:	Mechanic:	
		Inspections		
O	13	Inspect aileron cantilever bearings for play. Check for free movement and cleanliness.		
O	14	Inspect attachment fitting for cracks, damage and corrosion. Check for link bolts security.		
		Spar carry-through		
O	15	Check main bolt flange bushings for secure bonding to the spar. Rebond loose bushings as per Chapter 51-70-09.		
O	16	Visually inspect spar for dents and cracks. Inspect for delaminations by coin tapping (refer to Chapter 20-10-06).		
		Wing trailing edge		
O	17	Check top to bottom shell bonding for cracks and delaminations by coin tapping (refer to Chapter 20-10-06).		
		Root and Tip		
O	18	Inspect grounding wires, Pitot/static hoses and attachments.		
O	19	Inspect rivets of electrical bonding visually.		
O	20	Inspect root rib for cracks, delaminations and insecure bonding to skin and spars by coin tapping (refer to Chapter 20-10-06).		
O	21	Check tip area visually for general condition (inside by boroscope through strobe/navigation light opening).		
		Surface general		
O	22	Check paint visually for general condition (blisters etc.).		
O	23	Check laminate for erosion, scratches and nicks.		
O	24	Visual inspect for damage caused by footsteps.		
		Aileron		
O	1	Remove ailerons from wing as per Chapter 27.		
O	2	Check root and tip rib bonding to the skin laminate by coin tapping.		
O	3	Check skin to spar bonding for delaminations by coin tapping.		
O	4	Check top to bottom shell bonding for cracks and delaminations by coin tapping (refer to Chapter 20-10-06).		
O	5	Check hinge points (mounting brackets) and actuator for damages and cracks. Ensure proper attachment.		

1000 hours	Inspections	Date: / Serial No.:	Inspector: / Mechanic:	
O	6 Inspect spades visually for general condition. Check spade support for corrosion, cracks and deformations. Ensure proper attachment to aileron.			
O	7 Inspect ventilation holes for obstruction.			
	Surface general			
O	8 Check paint visually for general condition (blisters etc.).			
O	9 Check laminate for erosion, scratches and nicks.			
	Rudder			
O	1 Remove rudder as per Chapter 27.			
O	2 Inspect tip area bonding to the skin laminate by coin tapping.			
O	3 Inspect skin to lower horn rib bonding for delaminations by coin tapping and for cracks.			
O	4 Inspect skin to spar bonding for delamination by coin tapping.			
O	5 Inspect trailing edge bonding for cracks and delaminations by coin tapping.			
O	6 Detailed visual inspection of mounting brackets for damages and cracks. Ensure proper attachment. Replace bolts and stop nuts. Check for proper torque in accordance with Chapter 20-10-03.			
O	7 Remove bottom hinge bracket and bellcrank as per Chapter 27.			
O	8 Inspect rudder structure in the area of the bottom hinge for cracks and delamination by coin tapping.			
O	9 Reinstall bottom hinge bracket and bellcrank as per Chapter 27.			
O	10 Check bellcrank for damage, cracks and proper attachment.			
O	11 Visually inspect ventilation holes for obstruction. Refer to Chapter 05-20-01, figure 1 "Drain and Vent Holes".			
O	12 Check paint visually for general condition (blisters etc.).			
O	13 Check laminate for erosion, scratches and stone nicks.			
	Vertical Stabilizer			
O	1 Remove vertical stabilizer as per Chapter 55.			
	Leading edge			
O	2 Check surface for erosion, scratches, stone nicks and impact damages.			
O	3 Check left to right shell bonding for dents, cracks and delamination.			

1000 hours		Date:	Inspector:	
		Serial No.:	Mechanic:	
		Inspections		
		Front spar section		
O	4	Check skin to spar bonding for delamination by coin tapping (refer to Chapter 20-10-06).		
O	5	Detailed visual sheet metal attachment fitting for damage, corrosion and link bolts security.		
		Rear spar section		
O	6	Check skin to spar bonding for delamination by coin tapping .		
O	7	Detailed visual inspection of rear spar web for dents, cracks and delamination. Pay particular attention to the cut out for rudder cantilever.		
O	8	Inspect cantilever bearings for play. Check for free movement and cleanliness.		
O	9	Check steel sleeve for secure bonding to the spar.		
O	10	Replace attachment bolts and stop nuts. Check for proper torque in accordance with Chapter 20-10-03.		
		Root and Tip		
O	12	Check root rib for cracks, delamination and secure bonding to skin and spars by coin tapping.		
O	12	Inspect tip rib visually for general condition.		
		Horizontal Stabilizer		
O	1	Remove elevator as per Chapter 27.		
		Leading edge		
O	2	Check surface for erosion, scratches, stone nicks and impact damage.		
O	3	Check top to bottom shell bonding for dents, cracks and delamination.		
		Front spar section		
O	4	Check skin to spar bonding for delamination by coin tapping.		
		Rear spar section		
O	5	Check skin to spar bonding for delamination by coin tapping.		
O	6	Inspect elevator bracket bearings for play. Check for free movement and cleanliness.		
O	7	Inspect central attachment fitting for cracks, damage and corrosion. Check for link bolts security.		

1000 hours		Date: / Serial No.:	Inspector: / Mechanic:	
		Inspections		
		Spar carry-through		
O	8	Visually inspect spars for dents and cracks. Inspect for delaminations by coin tapping.		
O	9	Replace attachment bolts and stop nuts. Check for proper torque in accordance with Chapter 20-10-03.		
O	10	Check steel sleeves for secure bonding to the spar. Rebond loose bushings as per Chapter 51-70-09.		
		Root and Tip		
O	11	Check root rib for cracks, delamination and secure bonding to skin and spars by coin tapping.		
O	12	Inspect tip area visually for general condition.		
O	13	Inspect tip area bonding to the skin laminate by coin tapping.		
		Elevator		
O	1	Check tip rib bonding to the skin laminate by coin tapping.		
O	2	Check bonding skin/spar for delaminations by coin tapping.		
O	3	Check trailing edge bonding and trim tab cutout for cracks and delamination by coin tapping.		
O	4	Detailed visual inspection of mounting brackets for damage, cracks and proper attachment. Replace stop nuts. Check for proper torque in accordance with Chapter 20-10-03.		
O	5	Check center section for delamination by coin tapping.		
O	6	Remove elevator actuator.		
O	7	Detailed visual inspection of actuator lever for damage, cracks and proper attachment.		
O	8	Detailed visual inspection of trim tab hinges, actuator lever for damage, cracks, excessive wear and proper bonding to the laminate. Detailed visual inspection for delamination.		
O	9	Inspect drain and vent holes for obstruction (refer to figure 1).		
		Surface general		
O	11	Check paint for general condition (blisters etc.).		
O	12	Check laminate for erosion, scratches, stone nicks and impact damages.		
O	13	Reinstall elevator actuator lever.		

1000 hours	Date:	Inspector:	
	Serial No.:	Mechanic:	
	Inspections		
	Fuselage		
O	1 Remove cuffs, main and bottom fuselage cover as per Chapter 53.		
O	2 Inspect cuffs, main and bottom fuselage cover for soft areas, dents, cracks, delamination, damaged screw holes and tearing of edges. Inspect heat shield for cracks and loose rivets.		
O	3 Inspect tubular steel frame visually for corrosion, scratches and damages.		
O	4 Check wing main spar attachment for damage and corrosion. Inspect for dents and cracks.		
O	5 Detailed visual inspection of the sheet metal of the wing auxiliary spar attachment for damage, corrosion. Inspect the sheet metal supports using a fluorescent dye penetrant to insure no cracks are evident.		
	Control system		
O	1 Detailed visual inspection of torque tube for damages, cracks, free-play (especially in the rear torque tube bearing). Check travel stop adjustments.		
O	2 Inspect bell cranks for damage, corrosion, security of mounting and link bolts through wing access holes.		
O	3 Inspect metal control rods for corrosion. Inspect for loose or popped rivets. Check for general condition.		
O	4 Check fiber composite control rods for general condition.		
O	5 Inspect rod end bearing for play. Check for free movement and cleanliness.		
O	6 Inspect control rods for loose or popped rivets, and bearing play. Check for general condition.		
O	7 Inspect control sticks (rear & front) for full travel, proper rigging, free-play, security of mounting and direction of control surface movement with relation to stick movement.		
O	8 Detailed visual inspection of control cables and PTFE-coating.		
O	9 Check condition, attachment and function of trim servo.		
O	10 Detailed visual inspection of trim tab actuator levers for damages and cracks. Ensure proper attachment and condition of friction.		
O	11 Check trim actuator rods for condition. Inspect for play.		

1000 hours		Date: / Serial No.:	Inspector: / Mechanic:	
		Inspections		
O	12	Check condition of trim Bowden cable. Inspect for buckles and chafing.		
		Main landing gear		
O	1	Remove landing gear as per Chapter 32.		
O	2	Remove wheels and brakes as per Chapter 32.		
O	3	Visually inspect complete main landing gear spring for dents, cracks and deformations, especially in the area of mounting clamps and the axle attachments.		
O	4	Inspect main landing gear spring in the area of brakes for damage of overheating.		
O	5	Inspect the center bushing for wear and looseness.		
O	6	Check mounting clamps for damage and corrosion. Inspect for dents and cracks.		
O	7	Inspect mounting clamp bolts and nuts for fretting, wear, damage, and stretch. Check for proper torque (refer to Chapter 20-10-03).		
O	8	Check brake discs for warping and wear. Inspect wheel brake cylinder mounting bracket for wear.		
O	9	Inspect brake lines for leakage, dents, cracks, chafing, kinks and security of anchorage.		
O	10	Replace axle attachment bolts and nuts.		
O	11	Check tires for general condition.		
		Tail-wheel landing gear		
O	1	Inspect glass fibre spring visually for dents, cracks and delaminations.		
O	2	Inspect mounting bolts and nuts for fretting, wear, damage, stretch and proper torque.		
O	3	Check tail-wheel for general condition and function. Pay attention to the free movement of the rudder.		
O	4	Check connector springs for light precompression.		
O	5	Inspect wheel fork visually for damage, dents, cracks and corrosion.		
O	6	Inspect axle bolt and nut for fretting, wear, damage, and stretch.		
O	7	Check rubber tire for general condition.		

1000 hours	Date:	Inspector:	
	Serial No.:	Mechanic:	
	Inspections		
	Engine compartment		
O	1 Remove engine cowling halves.		
O	2 Check firewall for dents, cracks and deformation. Visual inspection of firewall sealant for porosity and general condition.		
O	3 Inspect tubular engine mount for dents, cracks and corrosion. Check all bolts for security and condition.		
O	4 Visual inspection of rubber mounts (shock mounts) for porosity and general condition.		
O	5 Inspect flexible hoses for damage and leakage.		
O	6 Check electric wiring for proper connection.		
O	7 Check electrical bonding braids for proper connection.		
O	8 Visual inspection of inverted oil system for general condition according to CHRISTEN 801 instruction. Refer to the applicable TEXTRON LYCOMING Operator`s or Maintenance Manual (refer to Chapter 1).		
O	9 Carry out general engine check as instructed by the applicable TEXTRON LYCOMING Operator`s or Maintenance Manual (refer to Chapter 01).		
O	10 Visual inspection of cowling for dents, cracks, delamination and smoke marks.		
	Hardware		
O	1 Check harness attachment fittings for cracks, deformations and corrosion.		
O	2 Check bolts and nuts in critical areas for fretting, wear, damage, stretch, proper torque and safety.		
O	3 Visual inspection of tank fastening straps for cracks, damage and corrosion.		
O	4 Visually inspect tanks and tank shell for leakage. Check proper drainage.		
O	5 Visual inspection of battery fastening straps for cracks, damage and corrosion.		
O	6 Inspect the "quick pins" of the seat adjustment for cracks, deformations, wear and corrosion. Check proper function.		

1000 hours		Date:	Inspector:	
		Serial No.:	Mechanic:	
		Inspections		
O	7	Inspect the "quick pins" of the mechanical pedal adjustment for cracks, deformations, wear and corrosion. Check proper function.		
O	8	Visual inspection of rudder pedal mounting to the attachment fittings. Check bolts for security.		
O	9	Inspect instrument panel for cracks and damaged screw holes. Check proper attachment and support.		
O	10	Check instrument cover for dents, cracks, delamination, damaged screw holes and tearing of edges.		
		Surface general		
O	1	Visual check of paint for deteriorated paint.		
		General		
O	1	Reinstall the wing as per Chapter 57.		
O	2	Check for security of the main spar bolts and safety-screws.		
O	3	Reinstall stabilizers as per Chapter 55.		
O	4	Reinstall control surfaces as per Chapter 27.		
O	5	Reinstall navigation/strobe lights as per Chapter 33.		
O	6	Reinstall wheels and brakes as per Chapter 32.		
O	7	Reinstall landing gear as per Chapter 32.		
O	8	Reinstall wheel fairings as per Chapter 51.		
O	9	Reinstall fuselage covers as per Chapter 53.		

05-50-00 UNSCHEDULED MAINTENANCE CHECKS

Unscheduled checks are only performed after abnormal events, which could possibly have caused damage to the aircraft or impaired the airworthiness.

IMPORTANT

In case of abnormal events or any exceedance of given limitations (load factor, never exceed speed, etc.) the manufacturer has to be contacted to find appropriate maintenance procedures. Therefore the procedures described in the following could be subjected to changes.

05-50-01 Violent Stopping of the Engine (Propeller Strike)

In a case where the propeller has struck the ground or the engine has been stopped violently (shock loading), the complete engine has to be disassembled and checked by an authorized company. The crankshaft might be damaged. Refer to the Lycoming AEIO-580-B1A Mainternance and Overhaul Manual.

The propeller has to be checked and repaired by an authorized company according to MT-propeller instruction. Refer to MT-propeller "Operation- and Installation Manual E-124".

Magnetos must be overhauld according to Magneto Maintenance and Overhaul Manual (See Chapter 01).

05-50-02 Hard Landing

After an extremely hard landing or other unusual loads on the landing gear, perform a check as described in the following, even when there are no obvious signs of damage: If there are indications that structural parts are damaged, the manufacturer has to be consulted for possible and suitable repair methods.

		Date:	Inspector:
		Serial No.:	Mechanic:
		Inspections	
		Landing gear	
O	1	Examine landing gear mounting clamps for defects (e.g. cracks and deformed areas).	
O	2	Check clamp bolts of the landing gear for cracks, replace when necessary.	
O	3	Examine wheel track and check if measurement correspond to the value given in Chapter 06-10-01.	
O	4	Remove and check the fairings for delamination, deformations and cracks.	
O	5	Check the landing gear spring for delamination, deformations and cracks, especially in the area of the axle attachment.	
O	6	Check fuselage structure in the area of landing gear attachment for deformation and cracks.	
O	7	Examine wheel base and check if measurement correspond to the value given in Chapter 06-10-01.	
O	8	Check tires for cuts in the side wall.	
O	9	Check wheel halves and brake discs for impacts, cracks and distortion according to CLEVELAND instruction.	
O	10	Check tail wheel for deformation and cracks, especially in the area of the axle attachment.	
O	11	Check fuselage structure in the area of the tail wheel for deformation and cracks.	
		Control surfaces	
O	12	Check control surfaces for proper operation.	
O	13	Check control surface hinges for cracks, security and free movement.	
O	14	Check the balance weights of the elevator for security of attachment.	
O	15	Check the spades for security of attachment.	
		Engine	
O	1	Check engine mount.	

05-50-03 Engine Fire

After an engine fire, perform a check as described in the following:

For damage evaluation consult the manufacturer, before the aircraft is put back into service.

	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
O	1 Check all cables and hoses, replace when necessary		
O	2 Check engine according to the Lycoming Manual		
O	3 Check fire wall and engine cowling for damage by high temperatures (e.g. signs of blisters on the protective paint) If necessary renew the firewall sealant. Protective paint does not need to be reapplied.		

05-50-04 Lightning Strike

In the event of a lightning strike in flight or on ground (actual or suspected) check the following:

	Inspections	Date: / Serial No.:	Inspector: / Mechanic:
O	1 Check engine according to Lycoming Service Bulletin 401.		
O	2 Check the skin of the strike area for burns and melting		
O	3 Inspect bolts and fasteneners for burns and melting .		
O	4 Check the electrical system, with running engine, for correct operation.		
O	5 Check the avionic and antenna for correct operation.		
O	6 Check the magnetic compass for correct readings.		
O	7 Overhaul Magnetos according to Magneto Maintenance and Overhaul Manual (See Chapter 01).		

05-50-05 Flightline Inspections

These checks include pre-flight and postflight checks, as they are described in Sections 3 and 4 ("EMERGENCY PROCEDURES" and "NORMAL PROCEDURES") of the PILOT´S OPERATING HANDBOOK. When the aircraft is in operation, perform these checks daily.

Chapter 06

Dimensions and Areas

Table of Contents

06-00-00 GENERAL

The for measuring and weighing the aircraft relevant reference planes are the following:

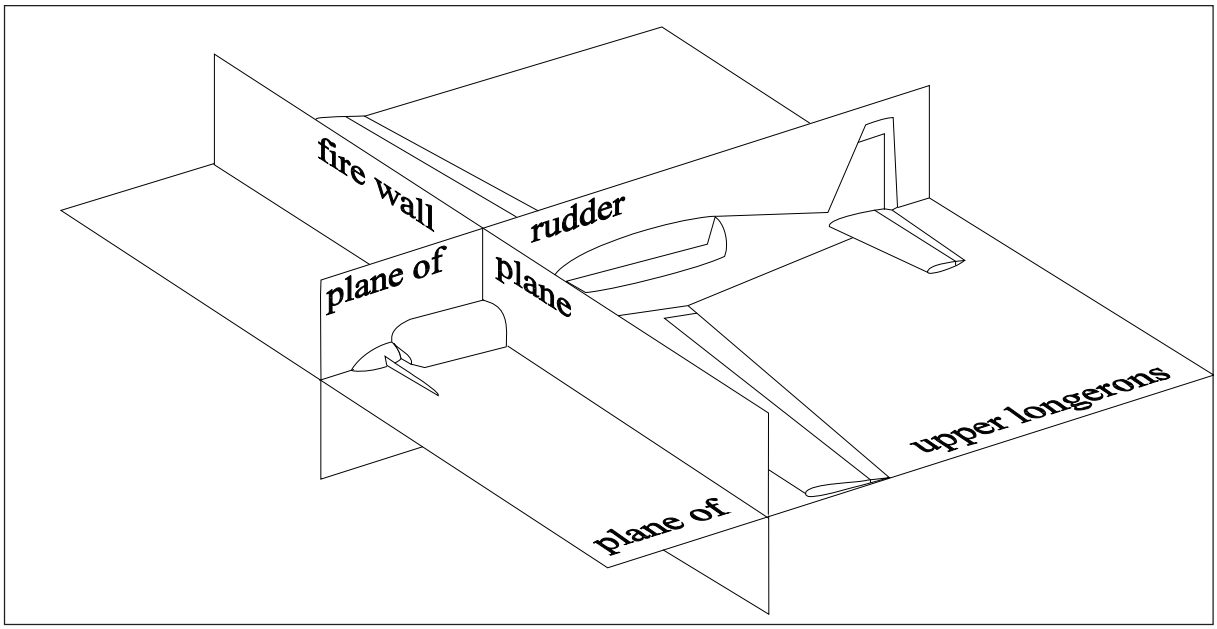
Reference Planes

Plane of upper longerons (horizontal plane)

Plane of rudder (Vertical/symmetry plane)

Fire wall plane (Vertical plane)

The following figure1shows the aircraft planes :



Axes and planes
Figure 1

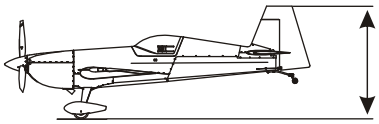
Unless otherwise stated, all measurements given in this manual are in metric (additional in feet) and are measured parallel to the corresponding reference planes.

06-10-00 MAIN DATA

06-10-01 Main Dimensions

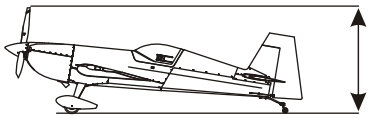
(Refer to Figure 2)

Length:	6.72 m (22.05 ft)



Height 1

Height 1:	2.55 m (8.36 ft)



Height 2

Height 2:	2.42 m (7.94 ft)
Span:	7.50 m (24.61 ft)
Wheelbase:	4.87 m (15.98 ft)
Wheel-track:	1.80 m (5.91 ft)
MTOW:	Normal category 870 kg (1918 lbs) Acrobatic category 780 kg (1720 lbs)

06-10-02 Wing

Span:	7.50 m (24.61 ft)	
Area:	9.81 m² (105.60 ft²)	
Airfoil:	Root: MA 14.9 S.	Tip: MA 12 S
Chord:	Root: 1.786 m.	Tip: 0.830 m
MAC:	1.366 m (4.48 ft)	
Aileron area:	2 x 0.876 m² (2 x 9.429 ft²)	
Aileron deflection:	± 30°, tolerance ± 2°	

06-10-03 Horizontal Tail

Span:	2.66 m (8.73 ft)
Area:	2.14 m² (23.03 ft²)
Airfoil:	NACA 0009

06-10-04 Elevator

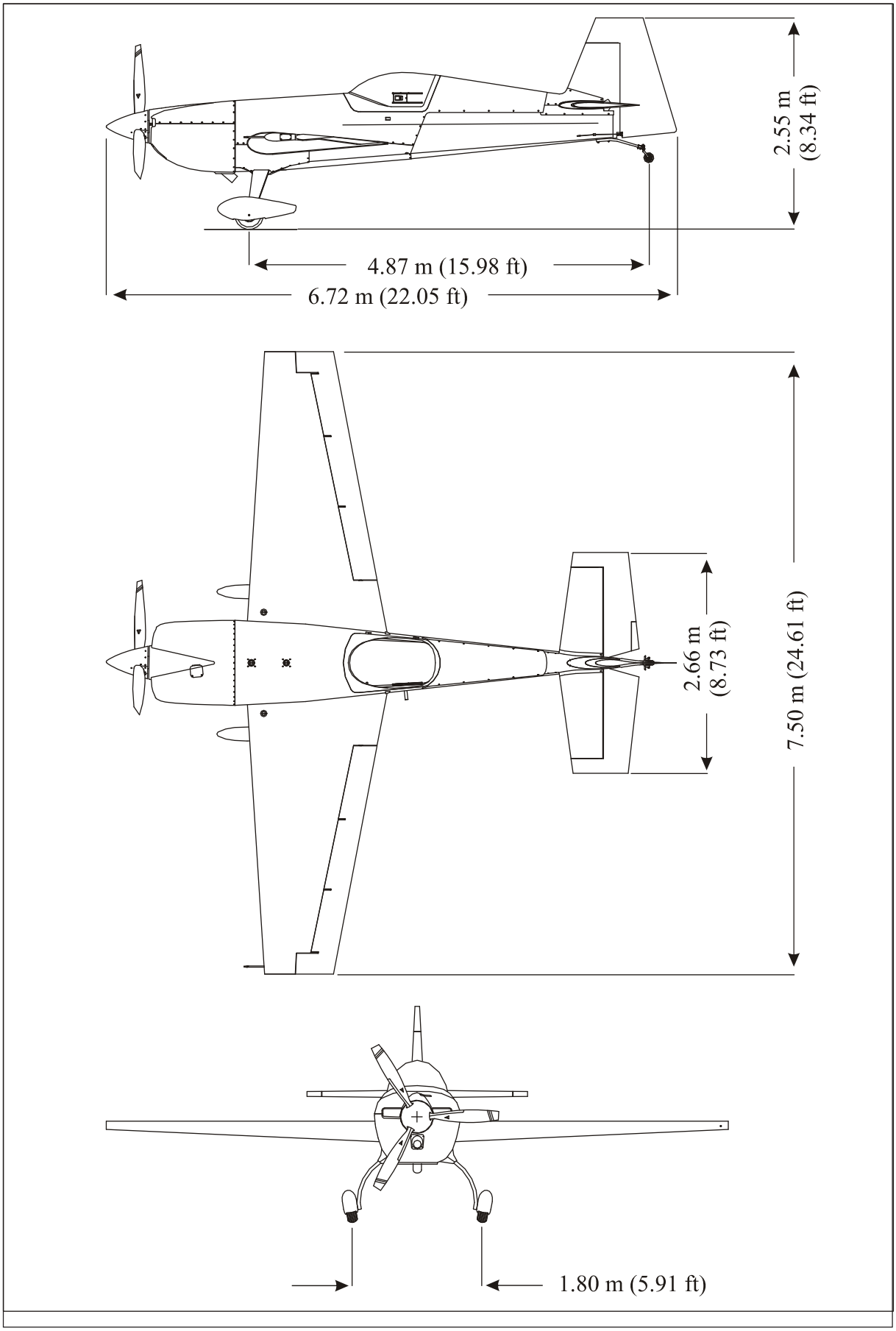
Area:	1.05 m² (11.30 ft²)
Elevator-deflection:	up 25°, down 25°, tolerance ± 1°
Trim-tab-deflection:	up 32°, down 32°, tolerance ± 2°

06-10-05 Vertical Tail

Area:	1.55 m² (16.68 ft²)
Airfoil:	Wortmann FX 71-L-150/30

06-10-06 Rudder

Area:	0.79 m² (8.50 ft²)
Rudder deflection:	left 30°, right 30°, tolerance ± 2°



Three-View EXTRA 300/SC
Figure 2

Chapter 07

Lifting and Shoring

Table of Contents

07-10-00 JACKING

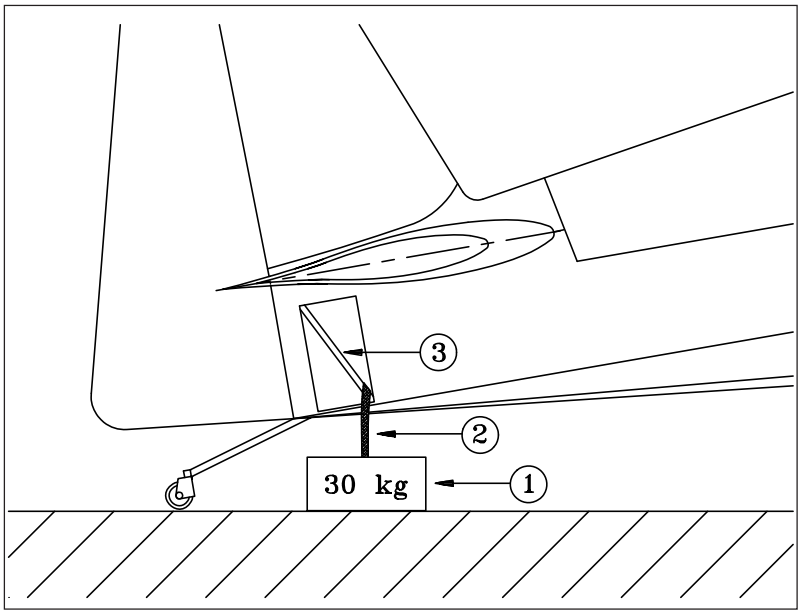
07-10-01 Balance Weight

Prior to the removal of the horizontal and/or vertical stabilizer(s) or prior to shoring the aircraft as described in Chapter 07-20-00 it is necessary to weight the tail to prevent aircraft from tilting onto the nose. In this case follow the steps described below (refer to Figure 1):

1 Put a weight (1) of min. 30 kg under the tail.

2 Remove the RH tail side skin and the tail cone access panel per Chapter 51.

3 Connect the weight with the now accessible steel tube (3) by means of a strap (2). Prevent damage of paint and control cables.



Balance Weight
Figure 1

07-20-00 SHORING

Shoring the Extra 300/SC is necessary, when the main landing gear or the tail wheel has to be removed or installed.

07-20-01 Shoring the Front

1 Remove the fore access panels up to aft the main landing gear as per Chapter 51-00-01.

2 Install a balance weight (3, Figure 2) at the tail as per Chapter 07-10-01.

3 Hoist the aircraft by means of both engine hoisting points (1).

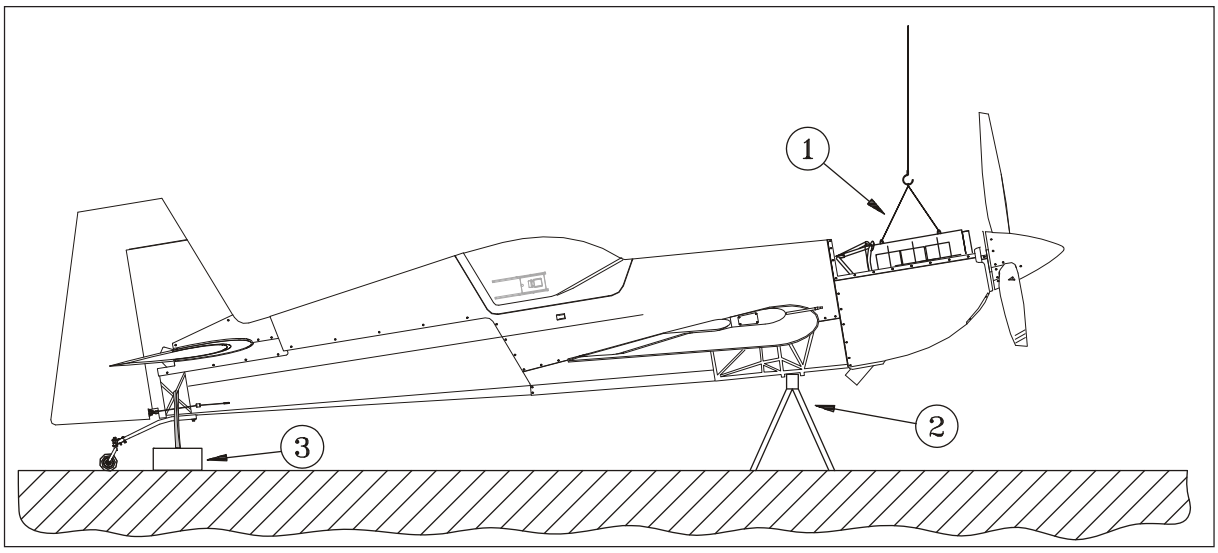
NOTICE

Prevent damage of ventilation tubing, brake lines and center tank drain, when shoring the aircraft.

4 Shore the aircraft by means of two supports (2), which are to put under the left and right bottom longeron each in the area behind the landing gear as shown in Figure 2. This is possible also, when the landing gear is installed.

WARNING

Maintain hoisting strap as a security device to prevent nose over of the aircraft during maintenance work.



Shoring the Front
Figure 2

07-20-02 Shoring the Tail

Refer to Figure 3.

1 Secure the main wheels with wheel chocks.

2 Make available two ca. 2.5 feet high, ca. 1 foot wide and ca. 3 feet long supports.

3 Cushion the supports.

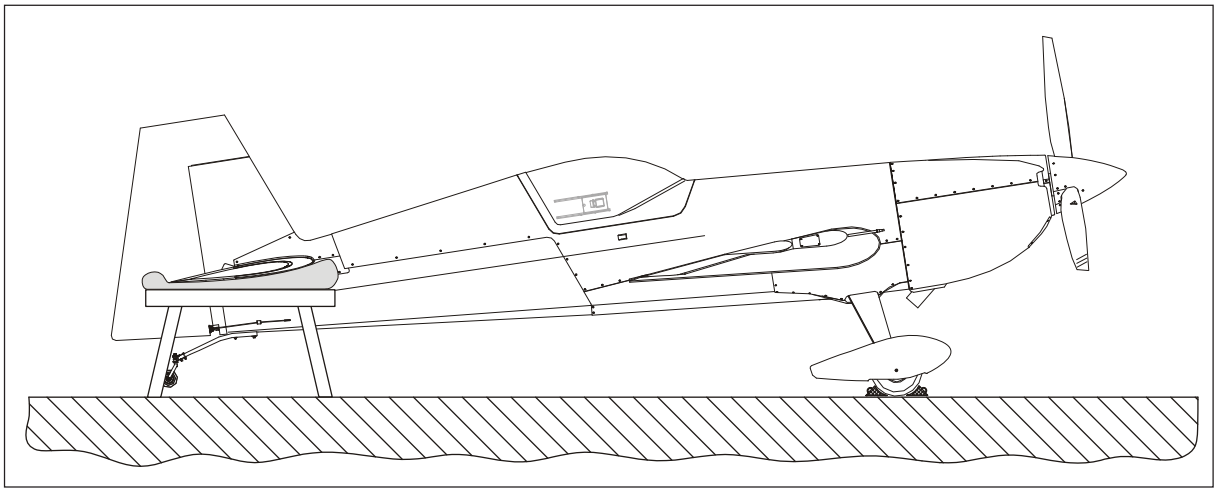
NOTICE

Don´t handle the elevator when lifting the tail.

WARNING

Do not lift the tail higher than necessary for supporting. The aircraft may tilt onto the nose.

4 Lift the tail some centimeters by handling carefully the horizontal fins and put the cushioned supports under each side of the horizontal stabilizer.



Shoring the Tail
Figure 3

Chapter 08

Leveling and Weighing

Table of Contents

08-00-00 GENERAL

This chapter contains all informations and procedures that are necessary for weighing and leveling the EXTRA 300/SC and for determining the Center of Gravity.

Weigh the aircraft and determine the Center of Gravity each 4 years, after installation of additional equipment or after repairs.

IMPORTANT

Weigh, read the scales and calculate with carefulness. Incorrect weighing or determination of Center of Gravity endanger the pilot and the aircraft.

08-10-00 WEIGHING AND CALCULATION OF C OF G

N O T E

Weigh the aircraft only on even floor and in closed halls (wind protected). Use three identical scales.

1 Ensure that the aircraft is fully equipped with equipment in locations according to the equipment list (PILOT´S OPERATING HANDBOOK & FLIGHT MANUAL (POH&FM), Section 6.6).

2 Defuel the aircraft (wing tanks, front and rear center tanks) to the unusable fuel level.

3 Replenish engine oil to the minimum sump capacity for acrobatic flight (refer to POH&FM Section 1.7)

4 Remove foreign objects (e.g. tools, luggage).

5 Clean and dry the aircraft.

6 Put the seat to middle position and close canopy.

7 Weigh two of those wheel chocks that will be used for securing the main wheels. Enter the weight below in Page 5 "Tare weight scale 1/2 (chocks)".

8 Weigh the jack that will be used for jacking the tail wheel. Enter the weight below in Page 5 "Tare weight scale 3 (jack)".

9 Roll the main wheels onto the scales 1 and 2.

10 Level the aircraft as per ch. 08-20-00.

11 Put the control surfaces to neutral position.

12 Drop perpendiculars from the underside of the fire wall, the centers of the main wheels and the tail wheel and mark on the floor to get the arms X_1 and X_2 (see Page 6).

13 Enter the arms on page 6.

14 Read the scales and enter the weights below. Calculate the net weights and transfer the values to Page 6.

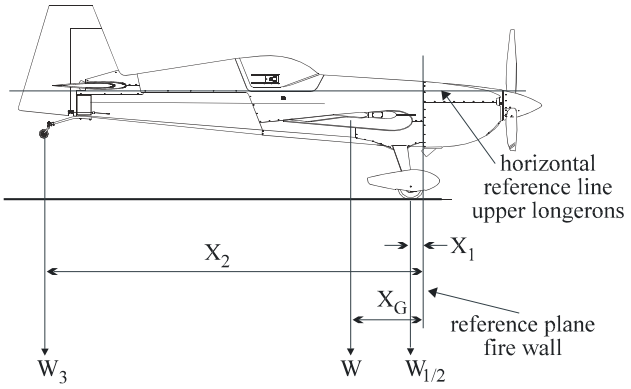
15 Calculate C of G using the formula given below (Page 6).

Gross weight scale 1	..... kg
Tare weight scale 1 (chocks)	–..... kg
Net weight scale 1 (W_1)	..... kg
Gross weight scale 2	..... kg
Tare weight scale 2 (chocks)	–..... kg
Net weight scale 2 (W_2)	..... kg
Gross weight scale 3	..... kg
Tare weight scale 3 (jack)	–..... kg
Net weight scale 3 (W_3)	..... kg

Empty Weight and Center of Gravity Position
EA 300/SC

Data according to "TC Data-Sheet" and "Pilot´s Operating Handbook and EASA approved Airplane Flight Manual" Doc.-No.: EA - 0C701

Equipment according to Equipment List dated: . . . . . .



Legend:

X_1 = Arm: fire wall - main wheels
X_2 = Arm: fire wall - tail wheel
X_G = Arm: fire wall - Center of Gravity
W_1 = Net weight main wheel LH
W_2 = Net weight main wheel RH
W_3 = Net weight tail wheel
W = Empty weight

$$X_G = \frac{W_1 \cdot X_1 + W_2 \cdot X_1 + W_3 \cdot X_2}{W}$$

$$W = W_1 + W_2 + W_3$$

Item	Weight	Arm	Moment
Main wheel LH	(W_1) . . . . . kg ·	(X_1) . . . . . cm =	. . . . . kgcm
Main wheel RH	(W_2) . . . . . kg ·	(X_1) . . . . . cm =	. . . . . kgcm
Tail wheel	(W_3) . . . . . kg ·	(X_2) . . . . . cm =	. . . . . kgcm
Empty weight	(W) . . . . . kg	**Total moment**	. . . . . kgcm

$$\frac{\text{Total moment}}{\text{Empty weight}} = X_G$$

Empty weight is (W) . . . . . kg*

W_{max}: 619 kg (Acro Cat. I)
W_{max}: 623 kg (Acro Cat. II)

Center of Gravity is (X_G) . . . . . cm aft fire wall.

Weighing performed by: . . . . . .

Aircraft Inspector: . . . . . Sign: . . . . . .

** If value exceeds the given tolerances, contact the manufacturer.*

08-20-00 LEVELING

NOTE

Level the aircraft only on even floor and in closed halls (wind protected).

1 Secure each main wheel with two wheel chocks.

WARNING

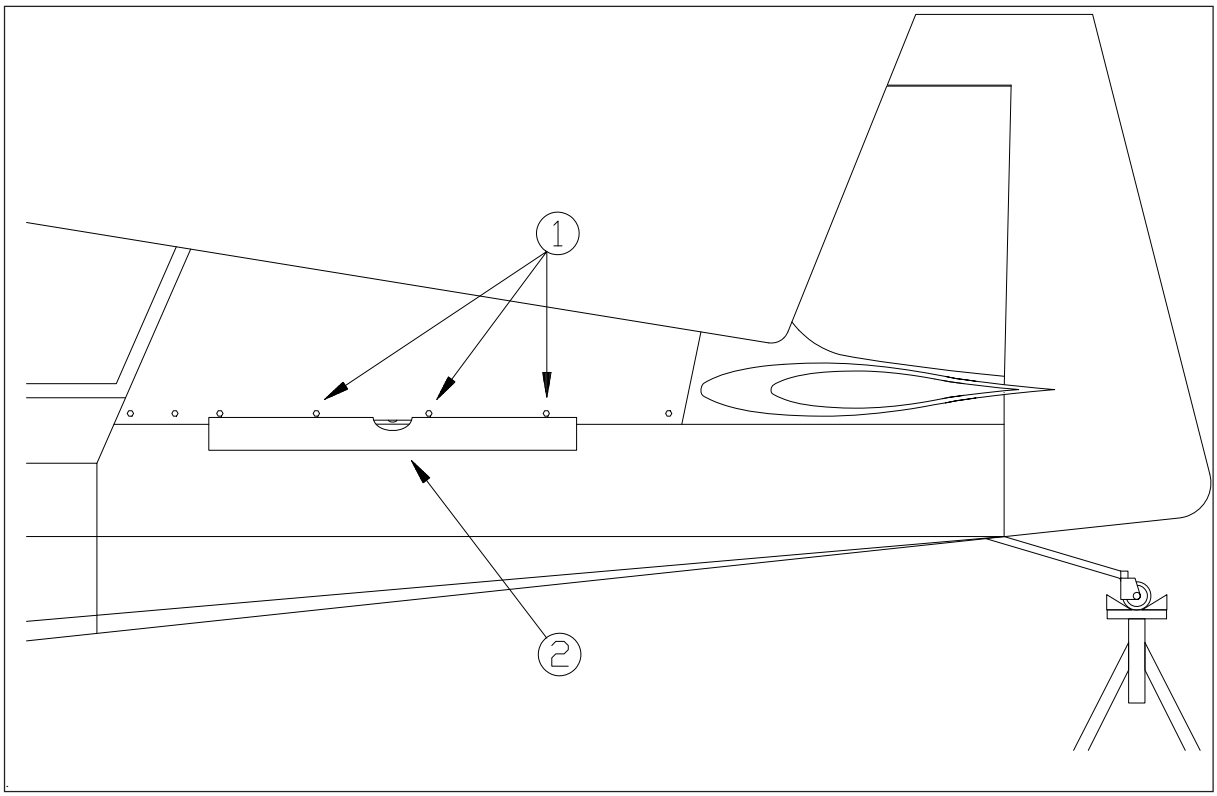
Do not lift tail wheel higher than necessary for leveling. The aircraft may tilt onto the nose.

NOTICE

Prior to levelling, ensure aircraft is clear of obstructions.

2 Lift tail and put the jack (height: ~90 cm (~3 ft)) under the tail wheel, which has to be in the rearmost position.

3 Level the aircraft to its horizontal reference line using a spirit level (2), which is to put under the bolts of the rear part of the main fuselage cover (1) (refer to Figure 1). Adjust pitch by changing the jack height.



Leveling
Figure 1

Chapter 09

Towing and Taxiing

Table of Contents

09-00-00 GENERAL

This chapter describes the procedures and precautions nescessary for proper ground handling of the EXTRA 300/SC.

09-10-00 TOWING

DANGER

When preparing for ground handling operation ensure that the ignition switch is off.

The aircraft should be moved on the ground by hand without using a towing vehicle or tow bar. For moving the aircraft on the ground, push by hand the wing leading edges or pull at the inboard portion of the propeller blades.

09-20-00 TAXING

Before attempting to warmup or taxi the aircraft, ground personnel should be checked by qualified pilots or other responsible personnel. All taxiing should be done at slow speed, and the controls should be positioned such that the effects of gusty wind are minimized.

N O T I C E

Taxiing over loose gravel or cinders should be done at low engine speed to minimize damage to the airframe surfaces due to stone damage.

The aircraft is taxiing as follows:

1 Start and warm engine up in accordance with the Pilot´s Operating Handbook (PN: EA-0C701) Section 4.3 "Starting Procedures".

N O T I C E

Only operate with the propeller at minimum blade angle (High RPM).

2 Taxi forward a few feet and check brake effectiveness.

3 While taxiing, make shallow turns to test the brakes and the steerable tail wheel if installed.

4 Keep the Mixture in "FULL RICH" position.

Chapter 10

Parking, Mooring, Storage and Return to Service

Table of Contents

10-00-00 GENERAL

This chapter provides the procedures recommended to park or to moor the aircraft so that the likelihood of ground damage is minimized.

10-10-00 PARKING/STORAGE

When parking the aircraft, set the nose in the wind. Additionally both main wheels must be chocked fore and aft to prevent movement of the aircraft.

NOTICE

When chocking the wheels, ensure that the chocks used are not too large to come in contact with the wheel farings. The use of too large chocks may damage the farings.

NOTE

For maximum protection, hangar the aircraft during severe weather and strong winds.

The outdoor storage requires adequate mooring and tie-down facilities. The following precautionary measures are recommended for keeping the aircraft serviceable and ready-to-fly.

1. Refer to Chapter 10-20-00 " Mooring" for mooring instructions.

⚠ DANGER

Do not rotate the propeller with the master switch on and the battery connected. The engine could start unintenionally and may course serious injuries or death.

2. Maintain an oil film on internal engine parts, frequently pull the propeller through. Run the engine for 15 minutes at 1500 RPM (or until oil temperature normalizes) once every two weeks.

3. After the engine run, pressurize the fuel system, push the mixture control to RICH, and open throttle half way to fill the fuel injector with fuel.
4. Install protective covers over pitot tube, engine cowling openings, canopy, etc.
5. Maintain a good wax finish on all exterior surfaces.

10-20-00 MOORING

This section provides the procedures recommended for a normal tie-down of the aircraft.

Proper tie-down procedure is the best precaution against damage to the aircraft by gusty or strong winds. To tie-down the aircraft securely, proceed as follows:

1. Head the aircraft into the wind
2. Place chocks fore and aft of each main wheel.

NOTICE

When chocking the wheels, ensure that the chocks used are not too large to come in contact with the wheel farings. The use of chocks that are too large may damage the farings.

3. Drive stakes into the ground approximately three feet outboard of each wing tip and to either side of tail wheel.
4. Install one tie-down ring in each wing tip rib.
5. Tie a sufficiently strong rope to each wing tie-down ring and anchor to the ground stakes. Allow a little slack in each tiedown rope.
6. Tie the center of the rope to the tail wheel fork and anchor the rope ends to the ground stakes at either side of the tail wheel.
7. Ensure that the canopy is closed waterproof and locked.

10-30-00 RETURN TO SERVICE

If the aircraft has been storage for an extended period of time, it is advisable to perform a 50-hour periodic inspection. Refer to Chapter "05-20-04 Maintenance Checks Schedule".

Chapter 12

Servicing

Table of Contents

12-00-00 GENERAL

This chapter describes the procedures and precautions nescessary for proper servicing of the EXTRA 300/SC. The specified intervals (refer to Chapter 5) are considered adequate to meet average requirements under normal operating conditions.

It is advisable, however, to shorten service and maintenance intervals when operating under abnormal conditions, such as extreme temperature ranges, dusty atmospheric conditions, high humidity and moisture, rough runways, or unusual operating requirements.

12-10-00 REPLENISHING

The replenishing procedures contained in this section provide the proper methods for replenishing consumed fuel, engine oil and brake fluid. Also included are methods for inflation of tires.

12-10-01 Refueling

Refueling is accomplished by pumping or pouring fuel into the two wing tanks or/and the center tanks through their respective filler caps. When fueling the aircraft, the following safety precauntions must be followed:

DANGER

Never refuel the aircraft with the engine running.

* **Always ensure that the aircraft is grounded before refueling.**
* **Ensure that no one is smoking within 100 feet of the aircraft.**
* **Ensure that all aircraft electrical systems are deenergized while refueling.**
* **Ensure that no aircraft radar or powerful transmitters are operating within 100 feet of the aircraft during fueling.**
* **If fuel is spilled, ensure that the area of spillage is thoroughly flushed with water and that all residual fuel and vapor have dissipate or neutralized prior to starting the aircraft engine.**

Fuel Grade and Limitations

The recommended minimum aviation grade fuel for the AEIO-580-B1A engine is AVGAS 100 or 100LL.

IMPORTANT

Under no circumstances should fuel of lower octane rating or automotive fuel (regardless of octane rating) be used. It is recommended that personnel be familiar with Service Instruction No.1070 regarding specified fuel for Lycoming engines.

Fuel System Capacities

The EXTRA 300/SC fuel system capacities are as follows:
Total fuel capacity 224 litres (59.2 US Gallon).
Usable fuel capacity 221 litres (58.4 US Gallon).

IMPORTANT

For acrobatic flight wing tanks must be empty.

For acrobatic flight (front & rear center and acro tank):
Usable fuel capacity 101 litres (26.7 US Gallon).

IMPORTANT

After refueling, it has to be ensured that all fuel tank caps are securely installed prior to flight.

Additionally one has to wait at least five minutes for moisture and sediment to settle before draining and checking the fuel drain valves.

12-10-02 Defueling

DANGER

During the aircraft defueling observe the safety precautions specified in section "12-10-01 Refueling".

Using appropriate containers, defuel the aircraft by opening the drain valves of the wing fuel tank, the gascolator and the acro fuel tank (refer to Chapter 12-10-03).

Opening of the fuel filler caps may speed up the draining process.

12-10-03 Fuel Drains

The EXTRA 300/SC has three fuel drain valves to provide for drainage of moisture and sediment. The center- and acro tank drain valve is located at the RH bottom of the fuselage behind the landing gear, the wing tank drain is located at the left side. The third drain which is interconnected to the fuel gascolator is located in the lowest point at right side of the firewall.

DANGER

Do not drain the fuel system when the engine or the exhaust is hot or while the wind is strong.

A quantity of fuel must be drained prior to the first flight of the day and at least five min. after refueling to inspect for water and/or contamination. Continue draining each drain valve until free of water or contamination.

IMPORTANT

After draining, you have to be sure that the fuel drain valve is returned to the closed position and the valve is not leaking outside the aircraft.

12-10-04 Replenishment of Engine Oil

The engine oil replenishment is accomplishment by pouring oil into the oil filler tube. The oil quantity can be conveniently checked by use of the dipstick, which is attached to the oil filler cap.

Oil quantity

The oil quantity is checked as follows:

1 Check oil level after engine has been stopped long enough for oil to drain back into sump.

2 Open the hatch on the upper part of the cowling.

3 Unscrew oil filler cap with dipstick from engine oil filler tube.

4 Remove oil filler cap with dipstick from engine and wipe oil from dipstick with a clean cloth or paper towel.

5 Return oil filler cap with dipstick into filler tube and tighten finger tight.

6 Unscrew and remove oil filler cap with dipstick. Check oil level on dipstick versus the markings stamped on the dipstick.

7 If replenishment is required see "Replenishment of Engine Oil" below.

8 Return oil filler cap with dipstick into filler tube and tighten oil filler cap finger tight.

NOTICE

When tightening the oil filler cap ensure that it is secure. But do not overtighten, as this may damage the "O" ring seal in the cap.

9 Close the hatch on the upper part of the cowling.

Replenish engine oil

Replenish engine oil using oil of the following specification:

Aviation Grade Straight Mineral oil

MIL-L-6082 or SAE J1966 Aviation Grade Straight Mineral oil shall be used to replenish oil supply during the first 25 hours of operation and at the first 25-hour oil change. Continue to use this grade of oil the first 50 hours of operation or until oil consumption has stabilized. The aircraft is delivered from EXTRA-Flugzeugproduktions- und Vertriebs- GmbH with proper break-in oil (MIL-L-6082 Aviation Grade Straight Mineral oil).

Ashless Dispersant Oil

MIL-L-22851 or SAE J1899 Ashless Dispersant Oil shall be used after the first 50 hours of the engine operation.

Additive Oil

If an engine has been operating on straight mineral oil for several hundred hours, a change to additive oil should be undertaken with caution. If the engine is in an extremely dirty condition, the switch to additive oil should be deferred until after engine has been overhauled.

When changing from straight mineral oil to additive oil take the following precautionary steps:

IMPORTANT

Do not mix additive oil and straight mineral oil. Drain straight mineral oil from engine and fill with additive oil.

Do not operate engine longer than five hours before again changing oil.

Check oil screen for evidence of sludge.

Change oil and clean oil screen element every 10 hours if sludge is evident. Resume normal oil drain periods after sludge conditions improve.

Recommended Viscosity of Engine Oil:

Average Ambient Air Temperature	MIL-L-6082 or SAE J1966 Spec. Mineral Grades	MIL-L-22851 or SAE J1899 Spec. Ashless Dispersant Grades
All Temperature	----------	SAE 15W50 or SAE 20W50
Above 27°C (80°F)	SAE 60	SAE 60
Above 16°C (60°F)	SAE 50	SAE 40 or SAE 50
-1°C (30°F) to 32°C (90°F)	SAE 40	SAE 40
-18°C (0°F) to 21°C (70°F)	SAE 30	SAE 30, SAE 40 or SAE 20W40
-18°C (0°F) to 32°C (90°F)	SAE 20W50	SAE 20W50 or SAE 15W50
Below -12°C (10°F)	SAE 20	SAE 30 or SAE 20W30

NOTE

Refer to latest revision of Lycoming Service Instruction No. 1014 for further information.

Replenish engine oil as follows:

1 Open the hatch on the upper part of the cowling and unscrew oil filler cap.

2 Using a clean paper towel wipe any oil foreign material from the edges of the filler tube opening. Also wipe oil from the dipstick.

3 Pour oil of proper specification and viscosity into oil filler tube to achieve desired oil level.

4 Reinstall oil filler cap with dipstick and tighten finger tight. Close the hatch on the upper part of the cowling and secure engine cowling.

Oil System Capacities:

	U.S. Quarts	Liters	Imp. Quarts
Total Engine Capacitiy	16	15.18	13.32
Minimum Safe Quantity:	9	8.53	7.49

12-10-05 Oil Change

The engine oil must be changed after 25 hours of operation. It should be refilled in accordance with section "12-10-04 Engine Oil Replenishing" and the latest revision of Lycoming Service Instruction No. 1014.

At the time of oil change the engine oil screens should be removed, cleaned, and inspected for metal particles.

Change engine oil as follows:

1 Remove the cowling of the aircraft.

2 Cut the safety wire securing the oil drain plug.

3 Place a suitable container under the oil drain.

4 Unscrew engine oil drain plug and allow the oil to drain thoroughly.

5 Remove oil pressure screen housing from engine accessory housing.

6 Remove oil pressure screen from its housing.

7 Inspect oil pressure screen for metal particles and clean.

8 Assemble oil pressure screen to its housing.

9 Reinstall oil pressure screen housing to the engine accessory housing using a new gasket.

IMPORTANT **Ensure oil sump is empty prior to the following step.**

10 Disconnect oil hose from oil suction sump fitting.

11 Cut the safety wire and remove the hex sump plug with oil suction sump fitting.

12 Remove oil suction screen from sump, inspect for metal particles and clean.

NOTICE

When the oil suction screen is removed, extreme care must be taken to ensure that the sump plug, located in the extreme end of the scavenger oil chamber is not dislodged from its location. If this plug is not secure in its correct location, lubrication failure will occur with severe damage to the engine.

13 Reinstall the oil suction screen.

14 Reinstall hex sump plug using a new O-ring and secure with wire.

15 Connect oil hose with oil suction sump fitting. Fitting can be alligned by loosing and refastening its counternut.

16 Replenish oil as per Chapter 12-10-04.

12-10-06 Replenishment of Brake Fluid

In order to assure proper brake action, it is necessary to have positive transfer of hydraulic pressure through the system. Any air trapped in the system must be removed. Follow the procedure described below using a bleed tank (1, Figure 1):

1 Remove engine cowlings as per Chapter 71-10-00.

2 Remove fluid reservoir filler plug and screw a clear plastic hose with appropriate fitting into the filler hole at the top of the fluid reservoir.

3 Remove bleeder fitting cap (3) of the wheel brake assembly (2).

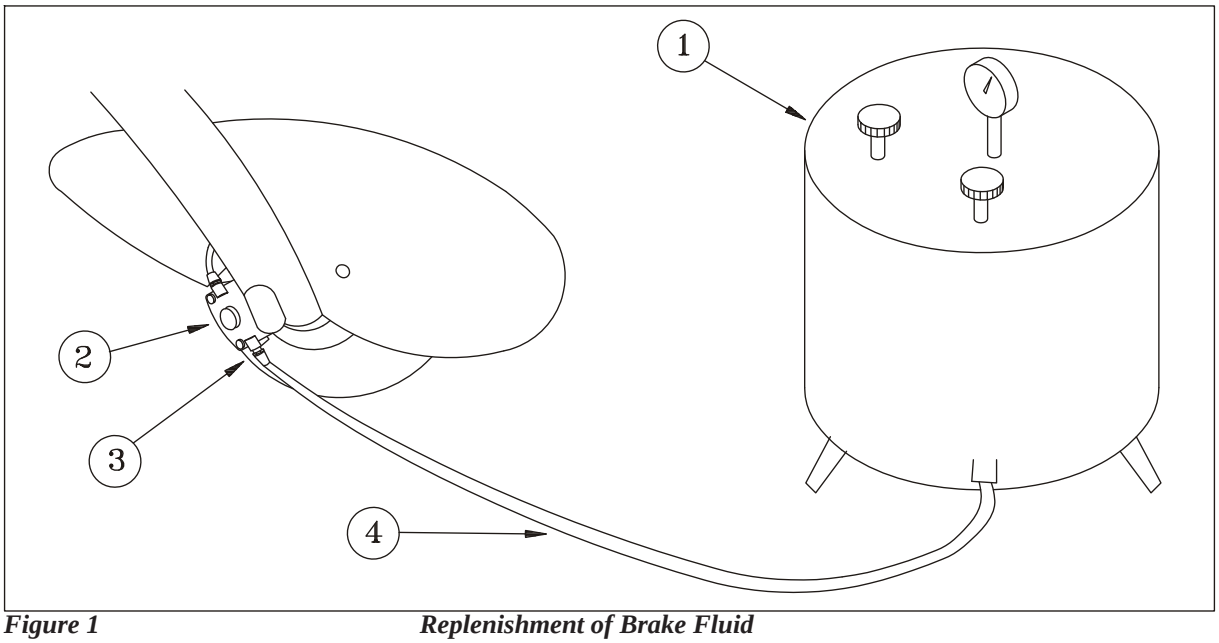


Figure 1 ***Replenishment of Brake Fluid***

4 Be certain that the bleeding equipment to be used is absolutely clean and is filled with brake fluid that conforms to Specification MIL-H-5606, (refer to Chapter 05-20 Lubrication Charts) and is uncontaminated.

5 Maintain an adequate supply of fluid during the entire operation. A low fluid supply will allow air to be drawn into the system.

6 Ensure master cylinders are in neutral position.

7 Attach the connector hose (4) to the bleeder fitting.

8 Turn the bleeder fitting 1/2 rotation to the left for opening.

9 Slowly pump clean hydraulic fluid in the system. Bleeding should continue until no more air bubbles are expelled from the system (observe the immersed end of the clear hose), and a firm brake pedal is obtained (fill each side of the system with min. 0.33 ltr (0.1 U.S. Gallons) for complete change). Fill the fluid reservoir up to full reservoir capacity.

10 Reinstall fluid reservoir filler plug.

11 Close bleeder fitting.

12 Disconnect the connector hose.

13 Reinstall bleeder fitting cap.

14 Check the brake operation.

15 Reinstall engine cowlings as per Chapter 71-10-00.

12-10-07 Tire Inflation

For the EXTRA 300/SC the required tire pressure is 2620 hPa (38 Psi) for both main wheels. Use regulated air pressure to inflate tires.

12-20-00 SCHEDULED SERVICING

12-20-01 Exterior Cleaning

The painted surface of the aircraft features a long lasting, all-weather finish and should require no buffing or rubbing out in normal conditions. However, it is desirable to wash and polish it to preserve the outstanding exterior. Cleaning is best accomplished with cool water, mixed with a mild aircraft detergent, if required.

NOTICE

Do not use so called "mild" household detergents to wash aircraft exterior. Such detergents may damage finish and corrode aluminum components.

In order to remove especially heavy dirt from the wing leading edges due to insect splatter and the like, it is good practice to undertake cleaning immediately after the flight, since deposits of this kind are more difficult to remove when dry. All lubricated components are to be covered before cleaning.

Roughly twice a year, the complete surface should be treated with a non-silicone car polish and repolished to high gloss. But do not apply wax or use pre-wax cleaners during initial paint curing period. Use only mild aircraft detergent and cool water when washing exterior during the first 90 days after repainting.

NOTICE

Never use cleaning agents containing silicone!

In order to maintain good visibility at all times, the acrylic glass (Plexiglas) canopy and the optional polycarbonate window in the bottom fuselage cover should be given good care and kept clean at all times. Techniques and materials used to clean glass should be avoided since acrylic glass and polycarbonate are softer than glass and subject to damage by solvents and abrasive glass cleaning agents.

Therefore one should pay particular attention to using ample water applied with clean sponges and leather, while even the smallest dust partiles will tend to scratch the glazing.

NOTICE

Never dry polish plexiglass or polycarbonate!

Dull or scratched canopy or window sections can be returned to their transparent state by treating with especially formulated plexiglass cleaning agents.

12-20-02 Interior Cleaning

Prior the first acrobatic flight of the day it is recommended to clean the interior with a vacuum cleaner to remove dust and loose dirt. If liquid is spilled on the cockpit floor, blot it up promptly with cleansing tissue or rags. Continue blotting until no more liquid is taken up.

NOTICE

Never use gasoline, benzine, alcohol, acetone, carbon tetracloride, fire extinguisher fluid, anti-ice fluid, lacquer thinner, or glass cleaner to clean the canopy or the window in the bottom fuselage cover. These materials will damage the canopy or the window and may cause severe crazing.

12-20-03 Engine Cleaning

Accumulation of dirt and oil within the engine compartment creates a fire hazard and hampers inspection. All cleaning operations have to be performed in well ventilated work areas, and it is ensure that adequate fire-fighting and safety equipment is available.

NOTICE

Clean engine and components with respect to the applicable manufacturer manuals.

The engine is cleaned as follows:

1 After running, allow the engine to cool before cleaning.

NOTICE

The magnetos, magneto start booster, alternator, starter, the air inlets, and the engine cowling (the inside of the engine cowling is covered with water soluble fire protection paint (up to SN SC035)) must be protected against cleaning agents.

2 Wash down engine compartment using a nonflammable engine cleaning agent.

3 Thoroughly rinse with clean, warm water to remove all traces of cleaning agents.

4 It is very important not to start the engine before the cleaning agent has been completely removed or has evaporated.

12-30-00 UNSCHEDULED SERVICING

12-30-01 Removal of Snow and Ice

After snowfall, the snow should be removed immediately from the surface of the aircraft. Otherwise the water formed from melted snow will freeze on the surface or in slots and gaps of fairings.

NOTICE

Do not use sharp tools for removing the snow.

If the aircraft shows sign of ice formation, it is recommended to defrost indoors. Remove as much snow as possible with a soft hand broom, make sure the wheels and brakes are clear, and tow the aircraft into a room with elevated temperature. This method is particularly desirable, since it will melt any undetected ice and snow that could constitute a flight hazard.

Chapter 20

Standard Practices - Airframe

Table of Contents

20-00-00 GENERAL

The design of the airframe is according to standard procedures and requires no special tools or procedures for maintenance. For that reason, only the bolts used in the EXTRA 300/SC with relevant torque values and measuring techniques are described in the following.

20-10-00 STANDARD PRACTICES AIRFRAME

20-10-01 Type of Bolts

For the EXTRA 300/SC, LN-bolts (LN="Luftfahrt Norm"), AN-bolts (AN="Army/Navy") and DIN-bolts (DIN="Deutsche Industrie Norm") are used. The type of bolt can be identified by the designation on bolt head and by the surface treatment.

LN-Bolts

Hex head LN 9037, LN 9038 K and LN 9355 aircraft bolts are made of high-strength type 1.7220.5 alloy steel. The bolts are centerless ground, threaded after heat treatment and cadmium plated per specification LN 9368-3000.2.

Bolts according LN 9037 are standard aircraft bolts with undrilled shank. The specification LN 9355 indicates bolts with shank drilled for cotter pin. The specification LN 9038 K indicates bolts with drilled head for safety wire and a thread up to the head.

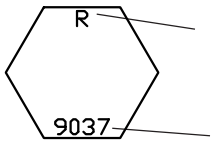
The adding numbers after the dash of bolt spec. indicates the dimensions of the bolt. These numbers are not marked on the head of the LN bolt. Measure the diameter and length to specify the type dimension of the LN bolt. The length of LN aircraft bolt is measured from under the head to the end of the shank.

Example: LN 9037-08042

Bolt Head Identification

Metric thread size (M8=8mm) and Lenght (042=42mm/ 1.65 inch)

Bolt Head:



Letter (R,L,P,H = Identification of Manufacturer)

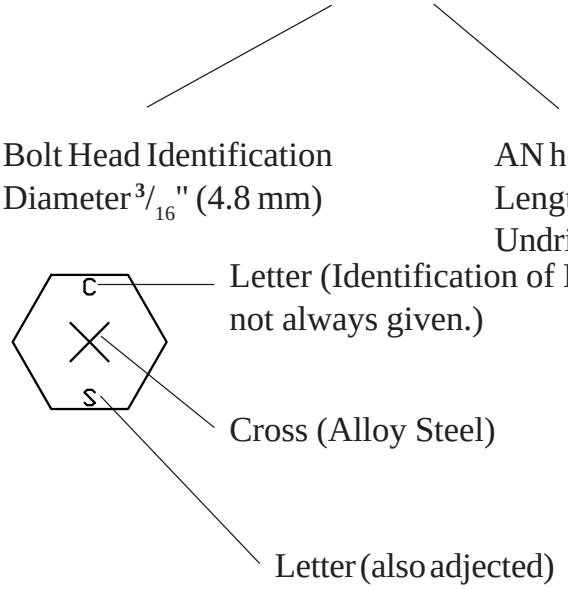
LN Specification

AN-Bolts

Hex head AN aircraft bolts are made of high-strength type 4037 or 8740 alloy steel. The bolts are centerless ground, threaded after heat treatment and cadmium plated per specification QQ-P-416A, Type II, Class 3.

For the EXTRA 300/SC bolts with shank drilled for cotter pin or drilled head for safety wire are used. The adding letter "A" after the dash number specifies bolts with undrilled shank. For bolts with drilled head a letter "H" is added after the AN number. The length of AN aircraft bolts is measured from under the head to the end of the shank.

Example: AN 3 - 5A



DIN-Bolts

Hex head DIN 931, DIN 933 and hex socket head DIN 912 bolts are standard bolts made of steel with undrilled shank. The surface treatment is chromatized yellow.

Unlike the DIN 931 and DIN 912 the thread of a DIN 933 bolt goes up to the head. The numerical code shown on the head of a DIN bolt specifies the strength type. Also, most bolts will bear a wide variety of finitials or symbols which identify the manufacturer. Measure the diameter and length to specify the type dimension of the DIN bolt. The length of DIN bolt is measured from under the head to the end of the shank.

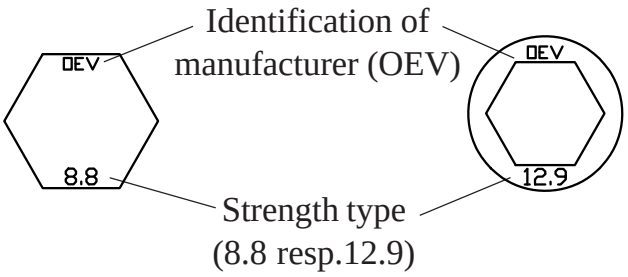
Example: DIN 931, M10 x 80 - 8.8

Bolt Head Identification

Standard hex head bolt
Metric thread size M10
Length 80mm (3.15")
Strength type 8.8

Bolt Head:

DIN 931/933: DIN 912:



20-10-02 Width Across Flats for Metric Bolts

Thread diameter	Width across flats
M4	7 mm
M5	8 mm
M6	10 mm
M8	13 mm
M10	17 mm
M12	19 mm
M16	24 mm
M20	30 mm
M24	36mm

20-10-03 Torque Values

Nuts, except of counter nuts are mainly stop nuts according to LN 9348 or selflocking nuts according to AN 363.

a) Standard torque values allowed for bolts and nuts according to DIN and LN must be adhered to as follows:

Metric thread size	Torque value (Nm) Torque value	(in.lbs)
M4	1,8	16
M5	3.9-4.3	35-38
M6	6.2-6.8	55-60
M8	15.2-16.8	144-148
M10	29.5-32.5	261-287
M12x1.5	51-57	452-504

b) Standard torque values allowed for bolts and nuts according to AN and MS must be adhered to as follows:

Thread Size	Torque Value	
	(Nm)	(in.lbs)
1/4-28	3.4 - 4.5	30 - 40
5/16-24	6.7 - 9.5	60 - 85
3/8-24	10.7 - 12.5	95 - 110
7/16-20	30.5 - 33.9	270 - 300
1/2-20	32.8 - 46.3	290 - 410
9/16-18	88.1 - 67.8	480 - 600

IMPORTANT

On all bolt connections, the specified torque and locking method must be observed. Do not reuse stop nuts if they can be run up finger tight!

20-10-04 Special Torque Values

Adhere to the special torque values for the following items:

Item	Torque value (Nm)	(in.lbs)
Top Half of the Main Landing Gear Mounting Clamp (Bolt LN9037-10054)	10	89
Engine Mounting (Bolts AN7-50A / Metal Stop Nut NAS 363C-720)	55	480
Engine Mount to Fuselage (Bolt Din 912, M12-12.9 / Stop Nut DIN 985, M12-8-B2C)	80	720
Longeron Cutout Bridge (Upper Bolts DIN 912 M8-8.8 / Stop Nut LN 9348-08) (Lower Bolt DIN 912 M10x230 / Stop Nut LN 9348-10)	18 33	160 292
Horizontal Stabilizer Front Spar Bolts (Bolt LN 9037-10054 / Stop Nut LN 9348-10)	33	292
Horizontal Stabilizer Rear Spar Bolts (Bolt LN 9037-10050 / Stop Nut LN 9348-10)	33	292
Vertical Stabilizer Rear Spar Bolt (Bolt LN 9037-10065 / Stop Nut LN 9348-10)	38	336
Wing Main Spar Safety-Bolts (Bolt LN 9038 K-08020)	15	133
Brake Back Plate Bolts (Cleveland)	Refer to Cleveland Maintenance Manual	
Wheel Assembly Bolts (Cleveland)		
Torque for Engine	Refer to Lycoming Overhaul Manual	
Torque for Propeller	See MT-propeller Installation Manual E-124	

IMPORTANT

On all bolt connections, the specified torque and locking method must be observed. Do not reuse stop nuts if they can be run up finger tight!

20-10-05 Measuring Techniques

When using stop nuts, the safety torque (friction torque or braking torque) should be added to the table standard values. This value is indicated on the dial of the torquemeter, before the nut contacts the attachment surface.

Always torque nuts for fastening, if possible. When bolts are torqued there might be an additional torque value due to shaft friction. This torque can be determined by a torquemeter before the bolt head contacts the attachment surface and should be added to the table value.

20-10-06 Coin Tapping

Inspection for damage is more critical for composite structure than for conventional structures. A large washer or similar object is a valuable tool for detecting debonds in the airframe surface. When a large washer is lightly bounced against a solid structure, a clear metallic ring should be heard. If delamination is present, a dull thud will be heard. This procedure is shown in the following Figure 1:

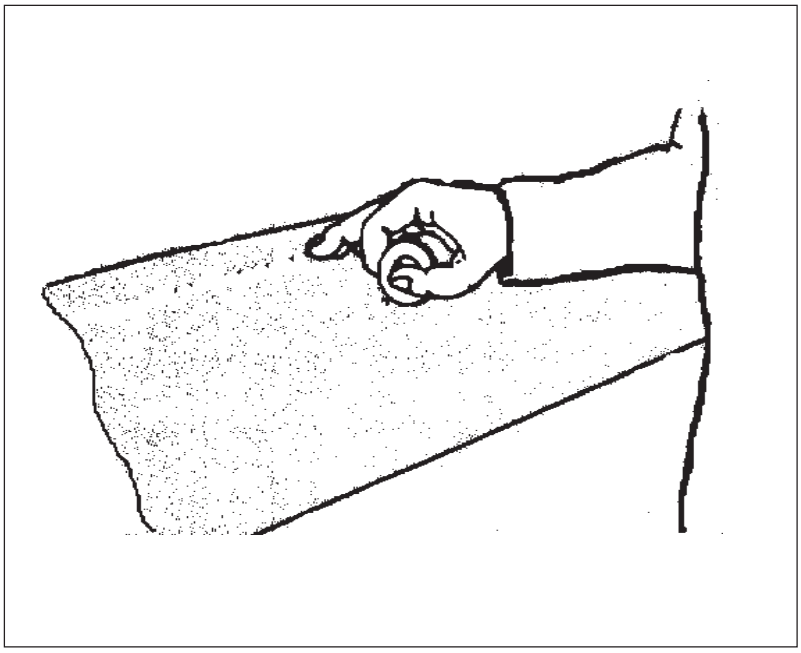


Figure 1 Coin Tapping

20-10-07 Flexible Hose

For the fuel system aft of the firewall the EXTRA 300SC is equipped with PTFE-hoses.

For the brake system generally PA hoses (high tensile synthetic fibre hoses) are used, which are also installed as sense lines for engine instruments. The connection types of those hoses are outlined in Figure 2.

In the engine compartment PTFE hoses with integrated fire sleeves are used as fuel, lubrication oil, smoke oil and sensing lines.

Replacement of Flexible Hose

External forces can significantly reduce hose life or cause failure. Mechanical loads, which must be considered include those caused by:

- excessive flexing, twisting, kinking
- tensile or side loads
- too small bend radius and
- vibration.

Any hose that has been kinked or bent to a radius smaller than the minimum bend radius, and any hose that has been cut or is cracked or is otherwise damaged should be removed and discarded.The entire hose assembly must be replaced, if damage or failure occurs within a flexible hose assembly.

Visual Inspection Hose/Fitting

Any of the following conditions require replacement of the hose assembly:

- Fitting slippage on hose,
- Cracked or damaged fittings;
- Leaks at fitting or in hose;
- Hard, stiff, heat cracked, or charred hose;
- Kinked, crushed, flattened or twisted hose;

- Damaged, cracked, cut or abraded cover (any reinforcement exposed);
- Blistered, soft, degraded, or loose cover.

Installation of Flexible PTFE Hose Assemblies

In general hose assemblies should be handled with care to prevent excessive bending, twisting and kinking since this reduces the life of the hose assembly considerably. Particular attention must be given to preclude hoses from wear, snagging, kinking, bending smaller than minimum bend radius and cutting, any of which can cause premature hose failure. Large diameter hoses and very short hose assemblies are more prone to kinking. Special care must be taken to prevent twisting of hose assemblies that do not incorporate assembly fittings with spanner flats to counteract while the nut is turned to the connection fitting (e.g. Parker/Statoflex PTFE hose type 101). Twisting of the hose can be determined from the identification markings running along its length.

The flexible hose should be installed so that it will be subject to a minimum of flexing during operation.

Installation of PA Hose with Hoerbiger HS3AM Axial Plug

1 Install the plug-in screw into the adapter (e.g. firewall, brake) (see Figure 2, Sheet 2).

2 Simply insert the axial plug into the plug-in screw until it is snapped as outlined in Figure 2, Sheet 2.

Removal of PA Hose with Hoerbiger HS3AM Axial Plug

1 Screw out the plug-in screw together with the snapped axial plug (see Figure 2, Sheet 2).

2 Disconnect the plug-in screw from the axial plug by inserting a sleeve (7 x 30 x 0.5 mm) as outlined in Figure 2, Sheet 2.

Installation of PA Hose with Hoerbiger H31A Axial Plug

1 Install the plug coupling M into the adapter (e.g. firewall, brake) (see Figure 2, Sheet 2).

2 Insert the plug coupling W into plug coupling M until it is snapped as outlined in Figure 2, Sheet 2.

Removal of PA Hose with Hoerbiger H31A Axial Plug

1 Disconnect the plug coupling W from the plug coupling M by bending the clamps as outlined in Figure 2, Sheet 2.

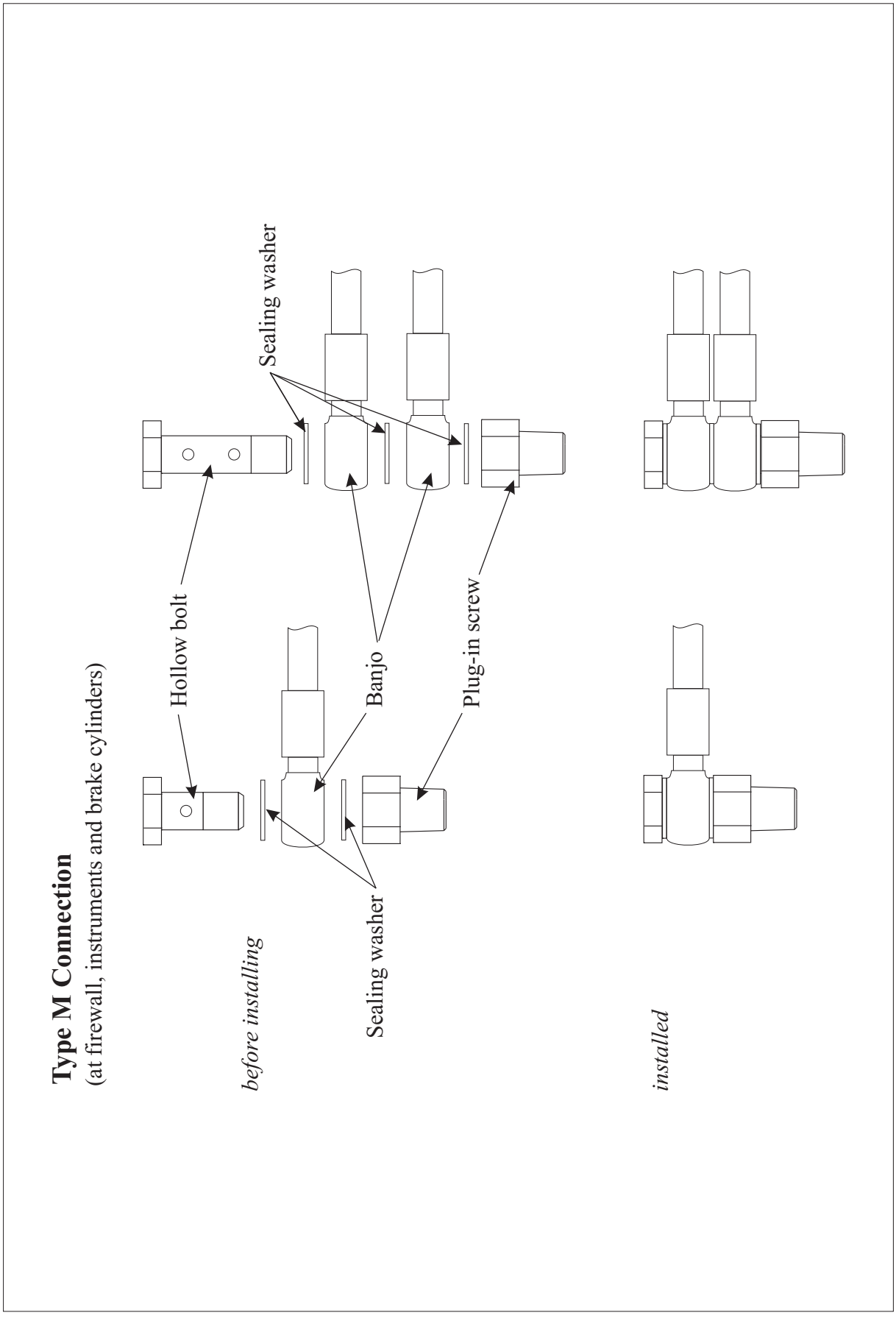


Figure 2, Sheet 1 ***Connection Types PA Hoses***

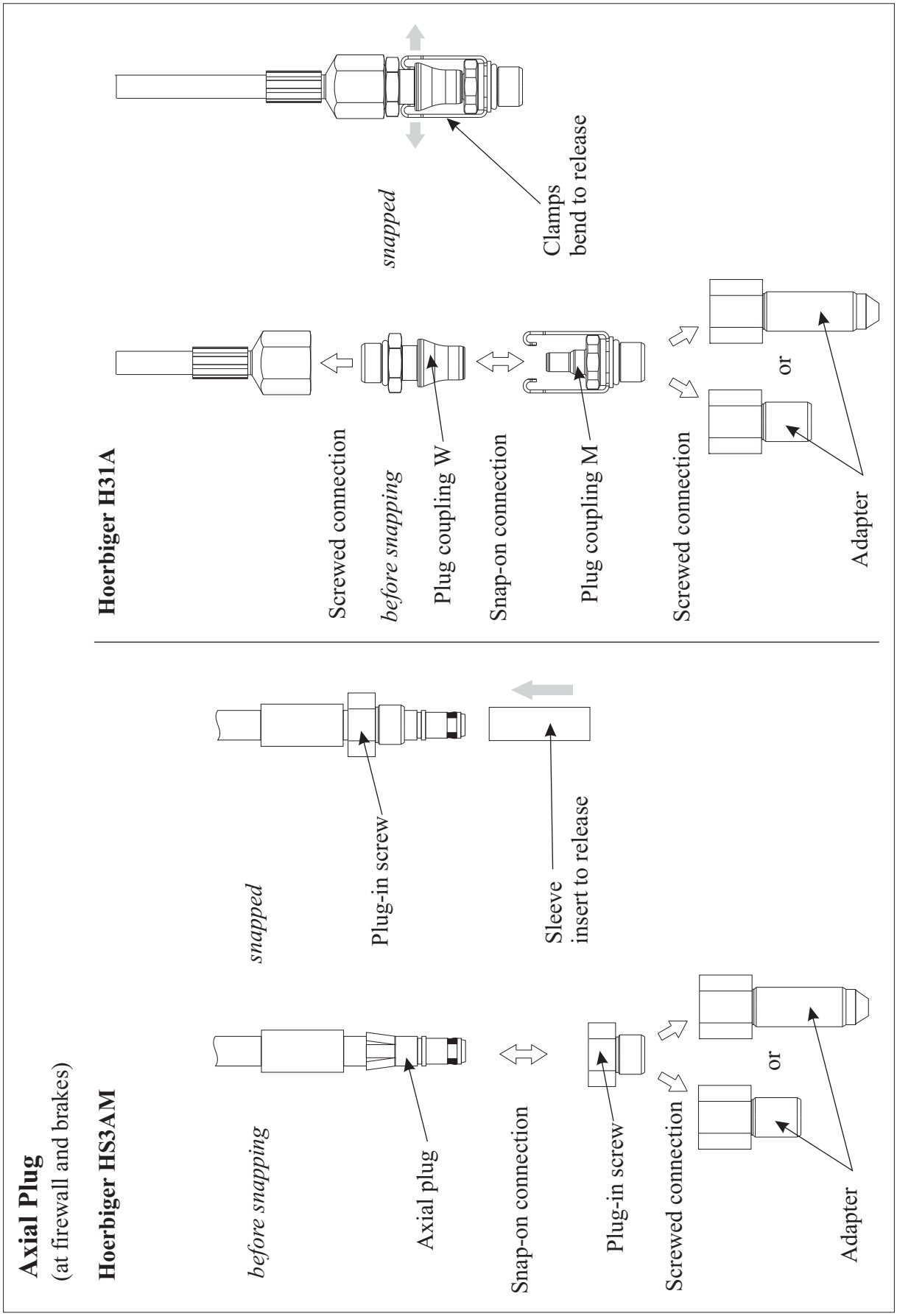


Figure 2, Sheet 2 ***Connection Types PA Hoses***

20-10-08 Fittings

For the oil lubrication and the fuel system only AN-fittings are used in the EXTRA 300/SC. Generally these fittings are made of aluminium alloy and are colored blue for identification purposes. For firewall penetration special fittings made of stainless steel are used. The dash number following the AN number indicates the size of the hose for which the fitting is made, in 16ths of an inch. This size measures the inner diameter (I.D.) of the hose. The material code letter (Aluminum alloy: code D) follows the dash number.

Example: Elbow AN 822-8D

N O T E

Apply Loctite 577 on all National Pipe Threads (NPT) before installation.

20-10-09 Control Cables

Control cables are used for the following systems of the EXTRA 300/SC:

- Engine (Throttle, Mixture and RPM control)
- Trim
- Heating (optional)

Consider the following information when working on engine control cables, refer to Figure 3:

Hard and abrupt power control inputs may impose high dynamic peak loads to the related sliding parts when reaching the travel stops of the engine fuel injector servo. Repeating peak loads may result in unacceptable additional wear and free play at the pivot points. Once the free play of the pivot point would increase, the swivel angle of the sleeve might increase beyond limits. An increased swivel angle in combination with an unacceptable high friction of sliding parts may result in a kink occurring at the pivot point and the end of the swivel sleeve while pushing the control lever forward from idle to full throttle position. Finally the solid wire might be forced to bend at the pivot point and at its terminal connection, which would result in a failure because it is not designed to withstand a significant bending load.

A bent nickel-plated brass swivel sleeve as well as wear and excessive free play at the pivot (swivel) points and sliding parts are an indication of misalignment and/or hard and abrupt control inputs. Those signs should be found early within the regular maintenance. This is a clear indication of an unacceptable control cable condition, which might result in a malfunction.

As soon as a control cable becomes difficult to operate, the reason should be identified. An increase in no-load (cable free and unattached) friction or an increase in travel length of a control cable are a good indication of pending performance problems and/or control cable failure.

The following notes, cautions and warnings describe application and installation information:

WARNING

Do not install the control cable with the power on or the engine running. Serious injury or death could result.

NOTICES

Protect the cable from contaminants such as fuel, oil, water, dirt and chemicals, which may damage the control cable.

Protect the control cable from physical damage by paint, kinking, vibration, etc., which may damage the control cable.

IMPORTANT

A gradual or sudden increase in the no-load (cable free and unattached) friction of a control cable is a good indication of pending performance problems and/or control cable failure. Serious injury or death may result. Replacement is required.

A gradual or sudden decrease in the stroke (travel) length of the control cable is a good indication of pending performance problems and/or control cable failure. Serious injury or death may result. Replacement is required.

Control cables which have moisture inside of them or have frozen, must be replaced. Do not apply heat to attempt to remove the moisture. Applying heat will not remove the moisture. Serious injury or death may result. Replacement is required.

NOTES

Installation should be accomplished by a licensed “A” and/or “P” mechanic.

Control cables are designed to be non-repairable. Do not perform any repairs to this control cable.

Cables are designed to be contaminant resistant; not contaminant proof.

The usable stroke must be centered within the available travel.

The swivel angle must be centered within the available swivel angle.

The minimum bend radius is 6".

Control cables are lubricated for the life of the control cable. Do not remove the seals or lubricate the control cable.

Inspections

Observe the following hints when performing inspections on the control cables:

A cable must be replaced whenever:

- excessive free play is felt at the control even after all cable connections have been verified as in good working order.
- visual inspection shows chafing, breakage or bent, loose or worn parts.
- evidence of moisture is found inside (or control cable has frozen).
- a gradual or sudden decrease in the stroke (travel) length of the control cable has been detected.

- a gradual or sudden increase in the no-load (cable free and unattached) friction of a control cable has been detected.

Correct routing of the control cable whenever:

- misalignment, unacceptable high internal friction due to bends below minimum radius of 6" or malfunction of sliding elements has been detected.
- the usable stroke is not centered within the available travel.
- the swivel angle is not centered within the available angle.

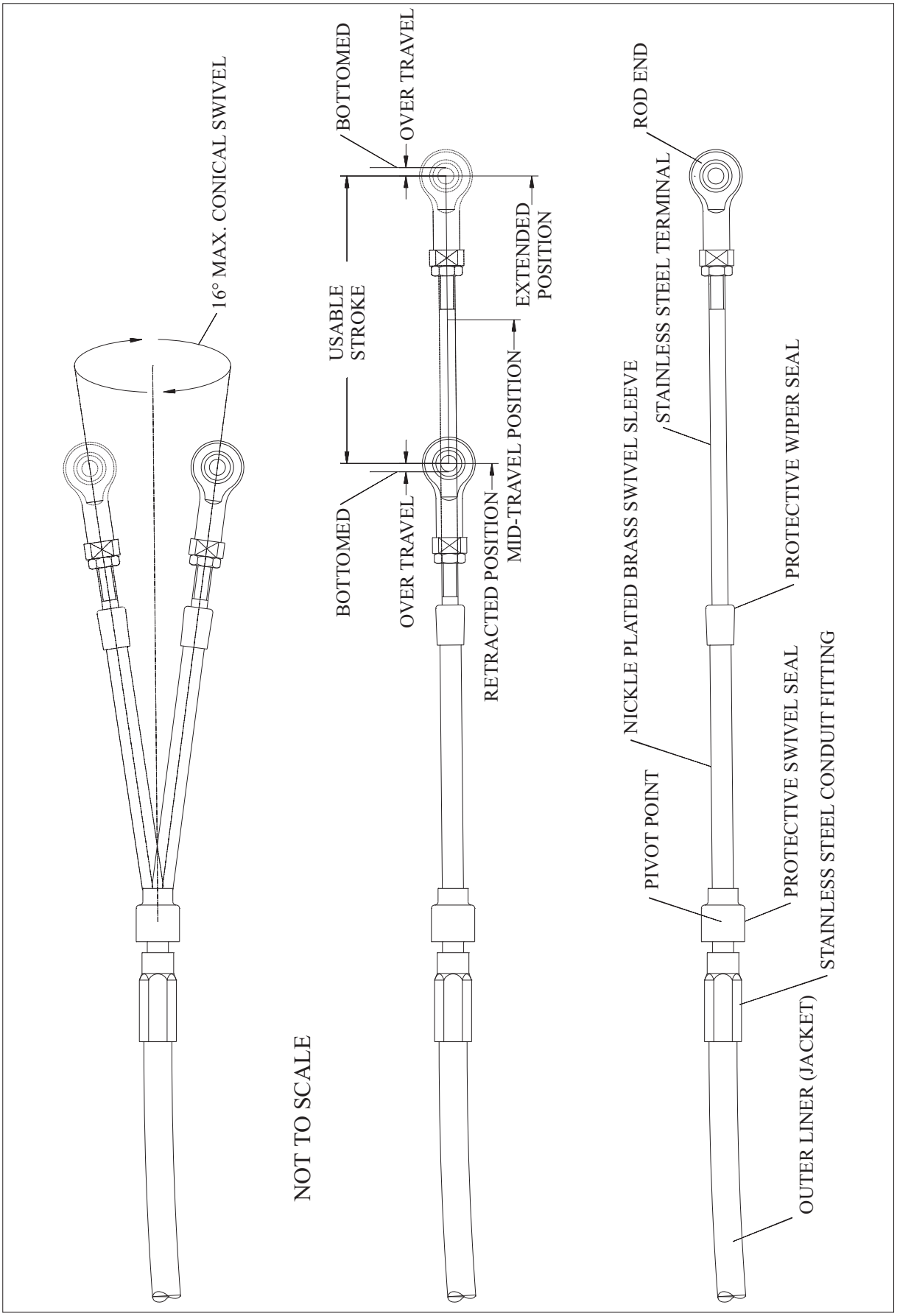


Figure 3 ***Control Cables***

20-10-10 Firewall Sealant

For firewall sealing various products can be used (refer to Chapter 51-30-04).

Replacement

1 Before using any product, read and understand the applicable Technical Data Sheet (TDS) and Material Safety Data Sheet (MSDS).

2 To ensure proper sealing and to avoid unintended chemical reactions with other products always remove old firewall sealant completely prior to application of new sealant.

3 Apply new firewall sealant with a thickness of 3 mm (1/8 inch).

20-10-11 PR-812

Application

Also refer to PR-812 Technical Data Sheet (TDS) and Material Safety Data Sheet (MSDS).

IMPORTANT

Proper mixing and correct proportions are extremely important to obtain required results.

1 Prepare PR-812 firewall sealant by mixing brown part A with black part B with weight ratio 2.5:100.

2 Clean the surfaces to be sealed with solvents.

3 Immediately thereafter, dry these areas with a new dry cloth.

4 Seal the gap between the firewall and the respective component with PR-812 firewall sealant. Minimum sealant thickness on firewall side is 3 mm (1/8 inch).

Cure time @ 25°C (77°F), 50% RH for a fillet 3 mm (1/8 inch) thick:

- tack free: approx. 24 hours
- to tough rubber: approx. 72 hours
- to performance properties: approx. 14 days

20-20-00 ASSEMBLY INSTRUCTION

20-20-01 General

NOTE

Make appropriate logbook entry of compliance with this Assembly Instruction after Container Shipping.

In case of the aircraft is delivered in a container it has to be assembled on arrival.

For assembly of aircraft main components follow the instructions as outlined in the Chapter 20-20-02.

These instructions can not replace the skill, craftsmanship and sound technical knowledge of qualified personnel. In case of doubt or lack of information, the manufacturer of the respective component should be contacted for advice.

Unless otherwise specified all bolts and connections should be torqued as listed in Chapter 20-10-03. At some locations special torque values considered necessary. Refer to Chapter 20-10-04. The stated direction "Front" and "Rear" are to be considered in respect of pilot`s seating direction.

20-20-02 Assembly Instruction after Container Shipping

Complete each step of the assembly procedure in the order shown below.

1 Check the condition of fastening of the aircraft components in the container. Note any damage.

2 Remove the fuselage/engine assembly from the container. Prevent the aircraft from nosing over by keeping down the tail.

3 Weight the tail per Chapter 07.

4 Remove the aircraft components out of the container. Small parts, hardware, spinner dome and the wheel fairings you find in the cockpit.

5 Inspect all removed items for damage prior to assembly. Damaged items have to be replaced or if possible repaired according to Chapter 51.

N O T I C E

In order to prevent the aircraft from nosing over the assembly has always to start with the empennage.

6 Prior to assembly remove engine cowling, main fuselage cover, and canopy per Chapters 51 and 53.

N O T E

In contrast to the instructions given in the respective Chapters don't reinstall these items before completion of the whole assembly.

7 Remove provisional attached rudder and vertical stabilizer per Chapters 27 and 55.

8 Install horizontal stabilizer with elevator per Chapter 55. The procedure described there is also applicable to the installation of the complete horizontal tail. Consider to connect the ground bonding lead of the elevator too.

9 Connect elevator push pull rod actuator lever per Chapter 27-30-01.

10 Connect trim wire to the tab actuator lever using fitted clamp.

11 Inspect for full travel and elevator deflection in relation to stick movement.

12 Install the vertical stabilizer per Chapter 55.

13 Reinstall rudder to the vertical stabilizer per Chapter 27-20-00.

14 Inspect for full travel and rudder deflection in relation to rudder pedal movement.

15 Install the wing per Chapter 57.

16 Install navigation/strobe lights per Chapter 33-40-11.

17 Install propeller in accordance with MT-Propeller installation instructions E-124 latest revision.

18 Remove tail weight.

19 Check if all switches are in Off-position and connect battery.

22 Perform operational check of electrical equipment.

21 Inspect trim tab for full travel and deflection in relation to the trim indication.

22 Shut-off master switch after completion.

23 Perform operational check and rigging of control system.

24 Inspect fluid filled lines for leaks.

25 Check security of main spar bolts.

26 Install wheel fairings, main fuselage cover and rear support angle, canopy, engine cowlings, and access panels (Refer to Chapter 51-00-01 and 53).

27 Check all control surfaces for freedom of movement and security.

28 Perform a compass compensation according to „Aircraft Inspection and Repair FAA AC 43.13-1B“.

29 Check correct servicing of aircraft.

30 Perform an engine run up. Refer to Chapter "05-20-04 Maintenance Checks Schedule". Start the engine in accordance with the Pilot’s Operating Handbook and Airplane Flight Manual (POH).

31 Inspect aircraft for foreign objects.

32 Final inspection by licensed aircraft inspector.

IMPORTANT

After first flight check fuselage interior/exterior for fuel leaks. Check all bolts on fairings and cover sheets for tight fit.

Chapter 21

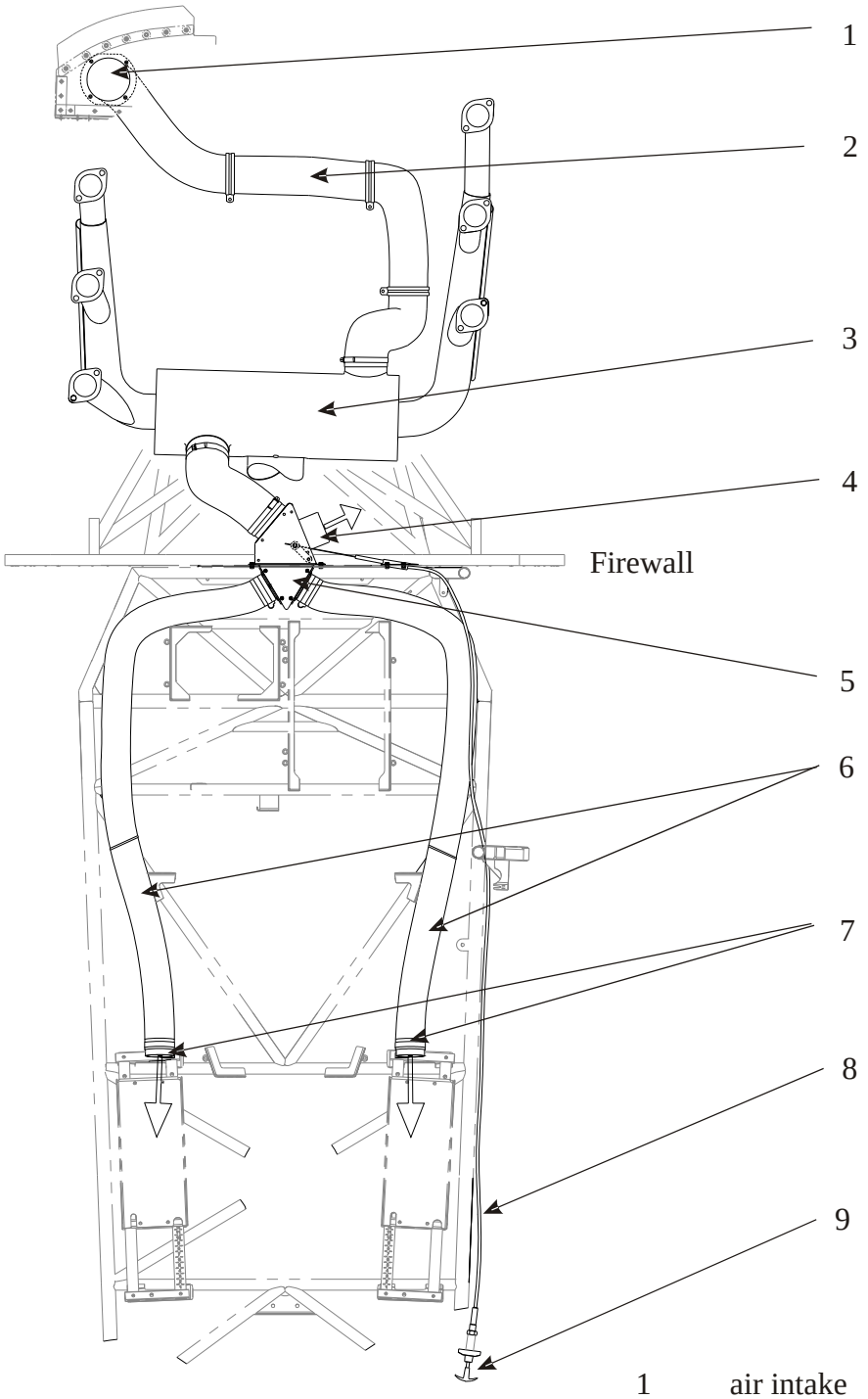
Air Conditioning

Table of Contents

21-40-00 HEATING

The EXTRA 330/SC can be equipped with a cabin heating system, which allows feeding the cockpit with warm air. The system uses fresh outside air, which is heated up by the engine exhaust muffler. The system is controlled by a handle in the rear cockpit.

On the left front engine baffle a 3” air intake (1, Figure 1) with screen is positioned. From there fresh air is routed through a 3" ducting (2) to the exhaust muffler heat shroud (3), where it is heated up. An inlet box (4) is placed on the engine side of the firewall. Using the control handle (9) the warm air can there be guided into the cockpit or dumped overboard. Turning the handle to the right as far as it will go fixes the Bowden cable (8). A distribution box (5) is located on the aft side of the firewall. The distribution box incorporates the flanges for the 2" ducting (6) to the air outlets (7) at the pilot’s feet.



1	air intake
2	3" ducting
3	exhaust muffler heat shroud
4	selector box
5	distribution box
6	2" ducting
7	air outlets
8	Bowden cable
9	control handle

Figure 1 ***Heating System***

21-40-01 Inlet Box

Removal/Installation

Refer to Figure 2.

1 Remove engine cowlings as per Chapter 71.

2 Remove bottom fuselage cover as per Chapter 53.

3 Loosen the hose clamp (8).

4 Disconnect the hose (9) from the inlet box (7).

5 Loosen the Bowden cable attachment bolt (6).

6 Disconnect the Bowden cable (5) from the linkage.

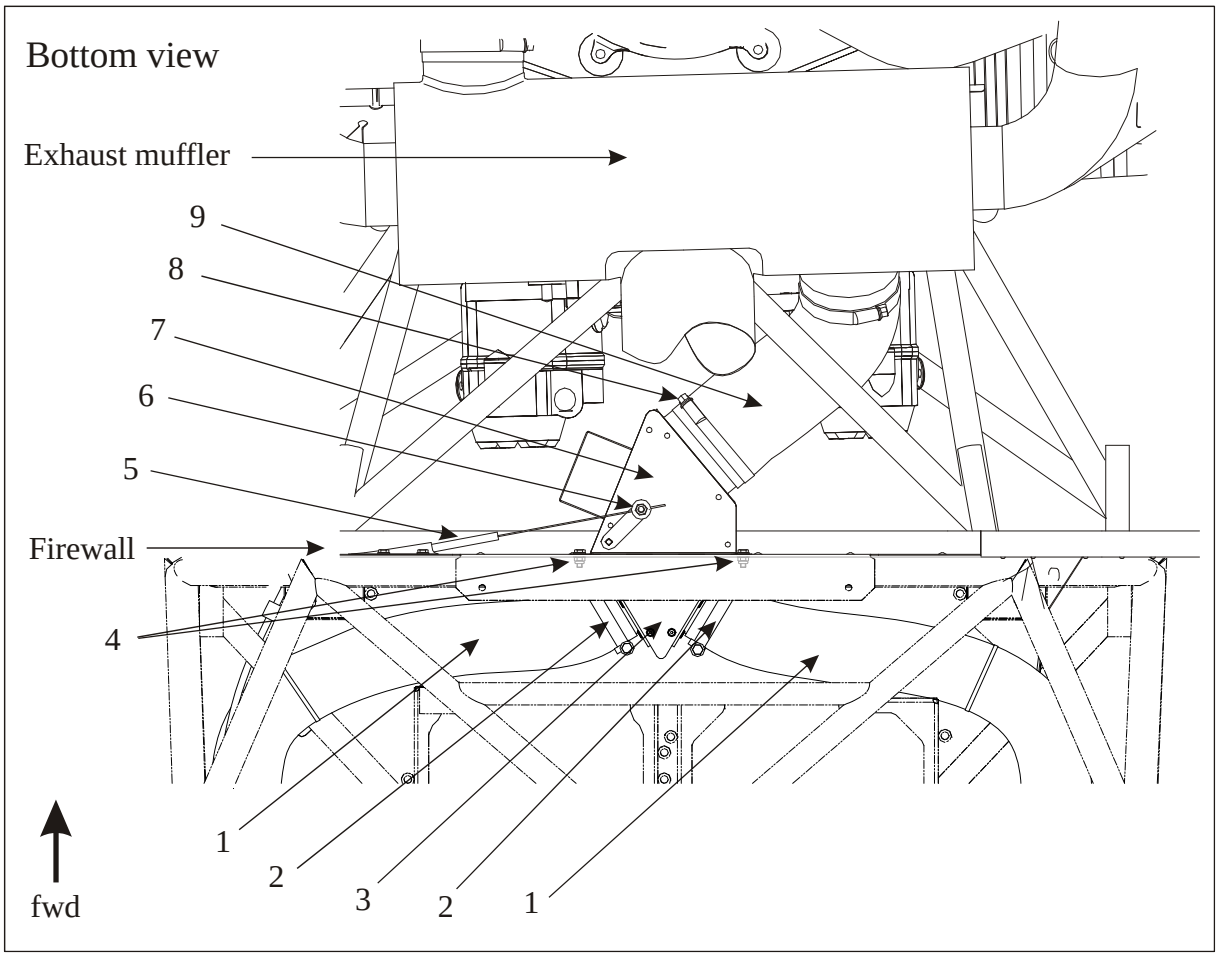


Figure 2 ***Heating Boxes***

N O T E

When removing the inlet box, the distribution box is also unfastened. Both boxes are attached by the same bolts.

7 Remove the four heating boxes attachment bolts (4).

8 Remove the inlet box (7).

9 Install in reverse sequence of removal.

21-40-02 Distribution Box

Removal/Installation

Refer to Figure 2.

1 Remove engine cowlings as per Chapter 71.

2 Remove bottom fuselage cover as per Chapter 53.

3 Loosen the hose clamps (2).

4 Disconnect the hoses (1) from the distribution box (3).

N O T E

When removing the distribution box, the inlet box is also unfastened. Both boxes are attached by the same bolts.

5 Remove the four heating boxes attachment bolts (4).

6 Remove the distribution box (3).

7 Install in reverse sequence of removal.

21-40-03 Bowden Cable

Refer to Chapter 20 for general information about handling of control cables.

Removal

Refer to Figure 3.

1 Remove engine cowlings as per Chapter 71.

2 Remove main and bottom fuselage cover as per Chapter 53.

3 Disconnect Bowden cable from the inlet box actuator arm (10).

4 Remove clamp sheet (9, 11) attachment bolts on the firewall.

5 Loosen hose clamp (8).

6 Mark Bowden cable (2) routing and remove the attachment self-clinching plastic straps (3).

7 Remove attachment nut and washer (5) of the control handle (1).

8 Pull the control handle (1) with the complete Bowden cable (2) aft to remove from aircraft. Secure label plate (6), clamp sheets (9, 11) and attachment nut and washer (5).

Installation

Refer to Figure 3.

1 Thread the Bowden cable (2) end through the respective attachment tube (4).

2 Thread the attachment nut and washer (5) on the Bowden cable.

3 Ensure nut (7) is fastened.

4 Place label plate (6) and align.

5 Attach the control handle (1) and the label plate (6) by means of its attachment nut and washer (5).

6 Position the Bowden cable (2) along the prior marked routing.

7 Fasten the Bowden cable (2) with self-clinching plastic straps (3) in place.

8 Thread the Bowden cable end through the hose clamp (8).

9 Thread the Bowden cable through the firewall.

10 Renew the sealing of the clamp sheets (9, 11). Use firewall sealant (refer to Chapter 51-30-04).

N O T E

Ensure distance of cable housing end to clamp sheet is 50 mm (refer to detail C of figure 3) when installing the clamp sheets.

11 Install the clamp sheets (9, 11).

12 Fasten the hose clamp (8).

13 Ensure inlet box actuator is in closed position.

14 Push control handle (1) to the full forward position. Then pull aft 5 mm (refer to detail A of figure 3).

15 Install the Bowden cable to the inlet box actuator (10).

16 Check full travel.

Rigging

Refer to Figure 3.

1 Loosen Bowden cable attachment bolt on the inlet box actuator (10).

2 Place inlet box actuator (10) to the closed position.

3 Adjust main handle (1) to the full forward minus 5 mm position (refer to detail A of Figure 3).

4 Fasten Bowden cable attachment bolt on the inlet box actuator (10).

5 Check full travel.

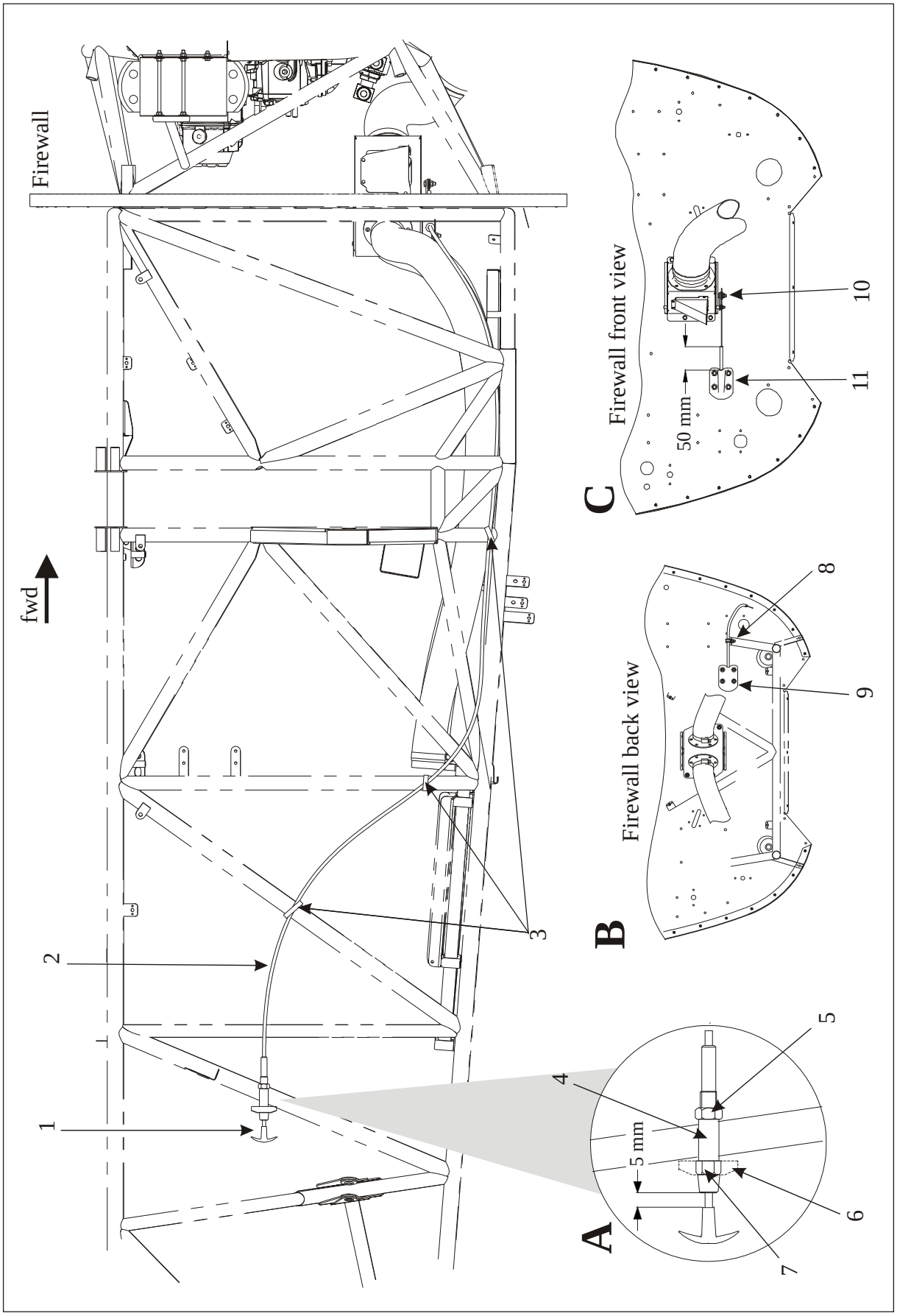


Figure 3 ***Heating Bowden Cable***

Chapter 23

Communication

Table of Contents

23-00-00 GENERAL

The aircraft is equipped with a BECKER communication system. Maintenance work or overhaul of the this system requires consultation of the manufacturer. (Refer to BECKER Flugfunkwerk GmbH).

23-10-00 Speech communication

The VHF-communication system consists of:

1 transmitter/receiver, VHF radio (BECKER AR 4201)

2 circuit breaker 5Amp.

3 VHF whip antenna (POINTER TSO-C91A)

4 switch (radio master)

23-10-01 BECKER AR 4201

NOTE

The informations given for VHF radio AR 4201 are based on the manufacturer´s operator´s and installation manual. Refer to BECKER operator´s and installation manual for further information.

Installation Instruction

The AR 4201 VHF transceiver is installed in the instrument panel, rear mounted and secured with 4 M3-screws. For the electrical installation the AR 4201 is interconnected through the wiring harness ref.431.001-950 following the wiring diagram (see section "Wiring Diagram" in the Becker instruction booklet and refer to Chapter 92 "Schematics" in this manual).

23-10-02 Circuit Breaker

The AR 4201 VHF transceiver is protected against elect. short circuit by a 5 Amp.circuit breaker on the instrument panel.

23-10-03 VHF Whip antenna (POINTER TSO-C91A)

The VHF whip antenna is installed in the fuselage and is towered with the whip into the rudder fin (Refer to Figure 2). A "RG 50" coaxial cable connects this whip antenna directly to the AR 4201 VHF transceiver.

The VHF whip antenna is removed as follows:

1 Assure the master switch is OFF

2 Remove the main fuselage cover as per Chapter 51.

3 Disconnect the antenna to the coaxial cable.

4 Remove the nut holding the antenna to the support plate.

5 Remove the antenna carefully from the bottom fuselage cover.

Chapter 24

Electrical Power

Table of Contents

24-00-00 GENERAL

This Chapter describes the electrical power system and its operation. This covers the battery system and the alternator system.

The battery system consists of Concorde RG-25 XC battery, the master relay and the associated wiring. The battery is located at the left bottom aft of the firewall; the master relay some centimeters above. The charging socket is located on the left fuselage side next to the firewall.

The alternator system consists of the alternator (B&C Specialty, SD-8), the voltage regulator (B&C Specialty, PMR1C), and the overvoltage module (B&C Specialty, PM/OV). The voltage regulator is adjusted to 13.8 Volts. The overvoltage module cuts the circuit at 14.7 volts. The alternator is mounted at the aft of the engine. The voltage regulator is located at the upper left of the firewall (cockpit side). The overvoltage module is installed behind the instrument panel. The related overvoltage protection circuit breaker ("OV Protect") is installed next to the master switch.

24-30-00 DC-GENERATION

(Refer to Figure 0 of Chapter 91) Power for the electrical system is provided by an alternator and/or the battery. The alternator serves as the main component to power the electrical system and charge the battery during normal conditions. The battery is used for starting the engine and powering the electrical system when alternator power is not available (engine not running). The battery also powers the electrical system in case of alternator failure.

A rocker type master switch is used for energizing the master relay, which connects power to the electrical system.

The alternator's magnetic field is provided by a series of permanent magnets secured inside a cup-shaped housing. As this magnetic housing rotates around a fixed wire core, the result is alternating current. A rectifier-type regulator converts the alternating current into direct current and varies the output voltage of the alternator to meet the requirements of the electrical system loads. An ammeter is installed into the system to provide an indication of current flow from or to the battery.

The negative side of the battery is connected to the aircraft steel tube design (negative ground). This provides a ground for the system through use of the steel tube design. The positive side of the battery is connected to the coil of the master relay. This relay remains in relaxed state until the master switch is placed to the ON-position. Placing the master switch in the ON-position provides a ground for the master relay energizing this relay. With the master relay energized, a circuit exists from the battery through an ammeter to the bus bar.

The bus bar powers the electrical equipment and accessories furnished on the aircraft. The energized master relay will also allow power from the battery to the starter relay.

The alternator supplies power to the bus bar through the 10 amp alternator circuit breaker. With the alternator power available, the battery will be charged from the bus bar. The ammeter, which is in series with the battery and the bus bar will indicate the current flow to the battery. When the battery reaches a state of full charge, the ammeter will show an indication near "0".

Maintenance Practices

IMPORTANT

If replacement of wiring passing the firewall is necessary, renew the sealing of the bushing grooves and gaps at the engine side of the firewall. Use firewall sealant as presented in Chapter 51-30-04.

24-30-01 Battery

Removal/Installation

NOTICE

Ensure the master switch is in Off-position.

1 Remove the main fuselage cover as per Chapter 51-00-01.

2 Disconnect the electrical wiring.

3 Remove the 4 attachment nuts (LN9348-06) and the top attachment frame.

4 Remove the battery.

5 Install in reverse sequence of removal.

Charging

NOTE

It is recommended to switch the master switch to the OFF-position while charging the battery. This ensures an effective charging process.

1 Connect the charging plug to the socket.

2 Disconnect the charging plug from the socket when charging is completed.

24-30-02 Master Relay

Removal/Installation

NOTICE

Ensure the master switch is in Off-position.

1 Remove the main fuselage cover as per Chapter 51-00-01.

2 Disconnect electrical wiring.

3 Remove the DIN933 M5x12 attachment bolts, the DIN9021 M5x20 washers and the LN9348-05 stopnuts.

4 Remove the master relay.

5 Install in reverse sequence of removal.

24-60-00 DC ELECTRICAL LOAD DISTRIBUTION

(Refer to Figure 0 of Chapter 91) From the main bus which physically corresponds to the bus bar the electrical load is distributed through circuit breakers and switches.

The bus bar is located at the back side of the circuit breakers, the circuit breakers themselves are located at the lower rear instrument panel so as the lever switches. Subminiature pushbutton switches for the radio are mounted on the control sticks and the throttle controls.

More information concerning the wiring shows Figure 0 of Chapter 91.

Maintenance Practices

IMPORTANT

If replacement of wiring passing the firewall is necessary, renew the sealing of the bushing grooves and gaps at the engine side of the firewall. Use firewall sealant as presented in Chapter 51-30-04.

24-60-01 Circuit Breaker

Removal/Installation

NOTICE

Ensure the master switch is in Off-position.

1 Remove the main fuselage cover as per Chapter 51.

2 Loosen the bus bar attachment screws and remove bus bar if necessary.

3 Disconnect wiring.

4 Remove the attachment nut at the front side of the instrument panel.

5 Remove the circuit breaker.

6 Install in reverse sequence of removal.

24-60-02 Lever Switch

Removal/Installation

NOTICE

Disconnect battery

1 Remove the Main fuselage cover as per Chapter 51.

2 Disconnect wiring from the switch.

3 Remove the attachment nut at the front side of the instrument panel.

4 Remove the switch.

5 Install in reverse sequence of removal.

24-60-03 Subminiature Pushbutton Switch

Removal/Installation

NOTICE

Disconnect battery

1 Remove the attachment nut.

2 Tie out the switch some centimeters.

3 Loosen the soldered connections.

4 Remove the switch.

5 Install in reverse sequence of removal.

24-60-04 Relay

Removal/Installation

1 Disconnect battery and external power.

2 Remove the LH cuff as per chapter 51.

NOTICE

Possible damage of internal relay mechanism due to rotational displacement of contact and coil eletrical terminals.
Use a back-up wrench to hold the bottom nut stationary when applying/releasing the outer nut.

3 Disconnect electrical wiring.

4 Remove the DIN933 M5x12 attachment bolts, the DIN9021 M5x20 washers and the LN9348-05 stopnuts.

5 Remove the relay.

6 Install in reverse sequence of removal.

⚠ DANGER

Serious injuries or death due to unintentional rotating of the propeller when switching on the master switch with defective starter relay.
Do not allow any person in the propeller operating area when switching on the master switch after having worked on the starter relay.

Chapter 25

Equipment and Furnishings

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25-10-00 FLIGHT COMPARTMENT

The pilot seat of the EXTRA 300/SC is standard equipped with special aerobatic seat belt/shoulder harnesses. An aircraft document bag is installed on the right cockpit side.

25-10-01 Seat

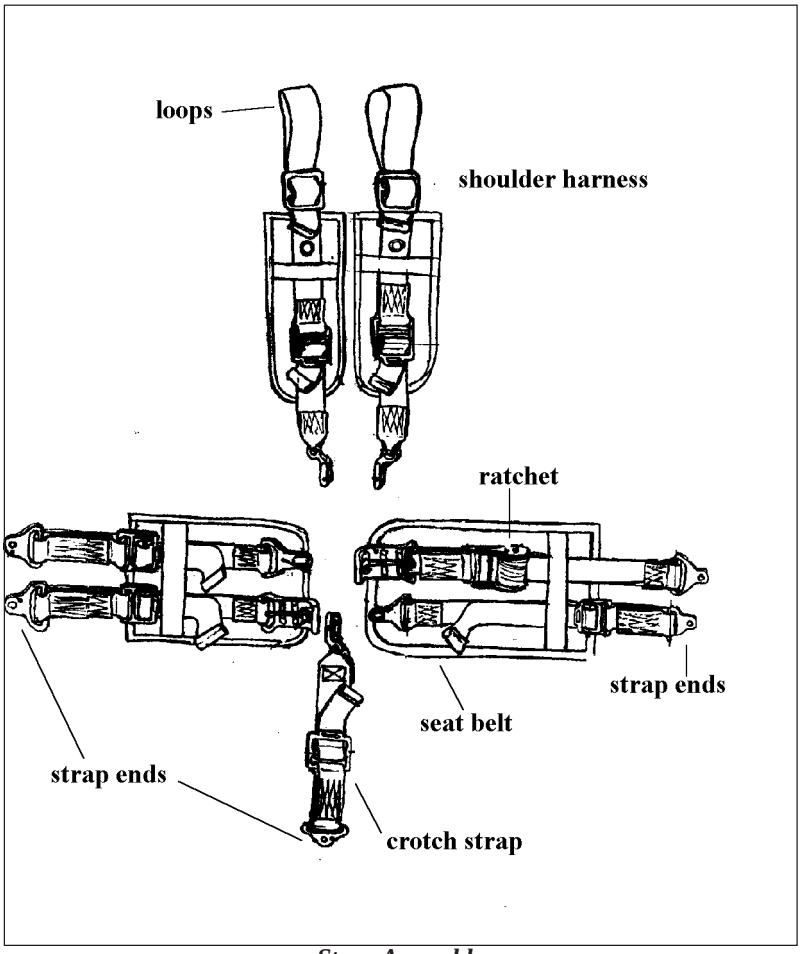
The seat is a carbon composite construction of which the back rest position and angle is mechanically adjustable on ground by quickpins. The steel tube structure of the seat is an integral part of the fuselage. The back rest is connected to two separate steel tubes. Seat and back rest are attached to the respective steel constructions by AN526-1032-R16 maschine screws.

25-10-03 Seat Belts

(Refer to Figure 1) The seat is equipped with a special aerobatic seat belt / shoulder harnesses from the manufacturer "Hooker custom Harness". Such an assembly of straps consists of a right anf left shoulder harness, two right and two left seat belts and a crotch strap. All belts are adjustable. The seat belts have a separate single point release for redundant safety during acrobatic maneuvers. To assure safe operation one release must be closed to the right and the other one to the left. Prior to acrobatic flight the seat belt should be tightened firmly with the ratchet.

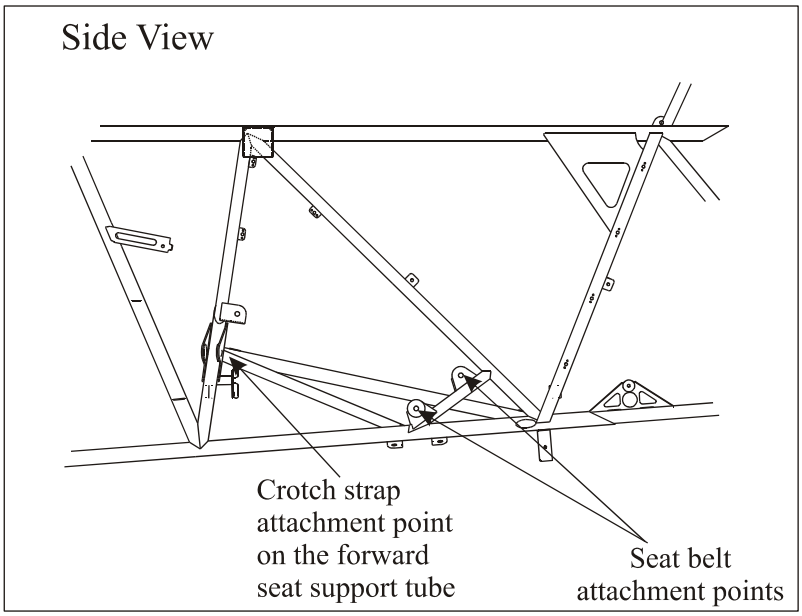
Installation

Follow the latest revision of the HOOKER HARNESS General Restraint System Installation Guidelines.



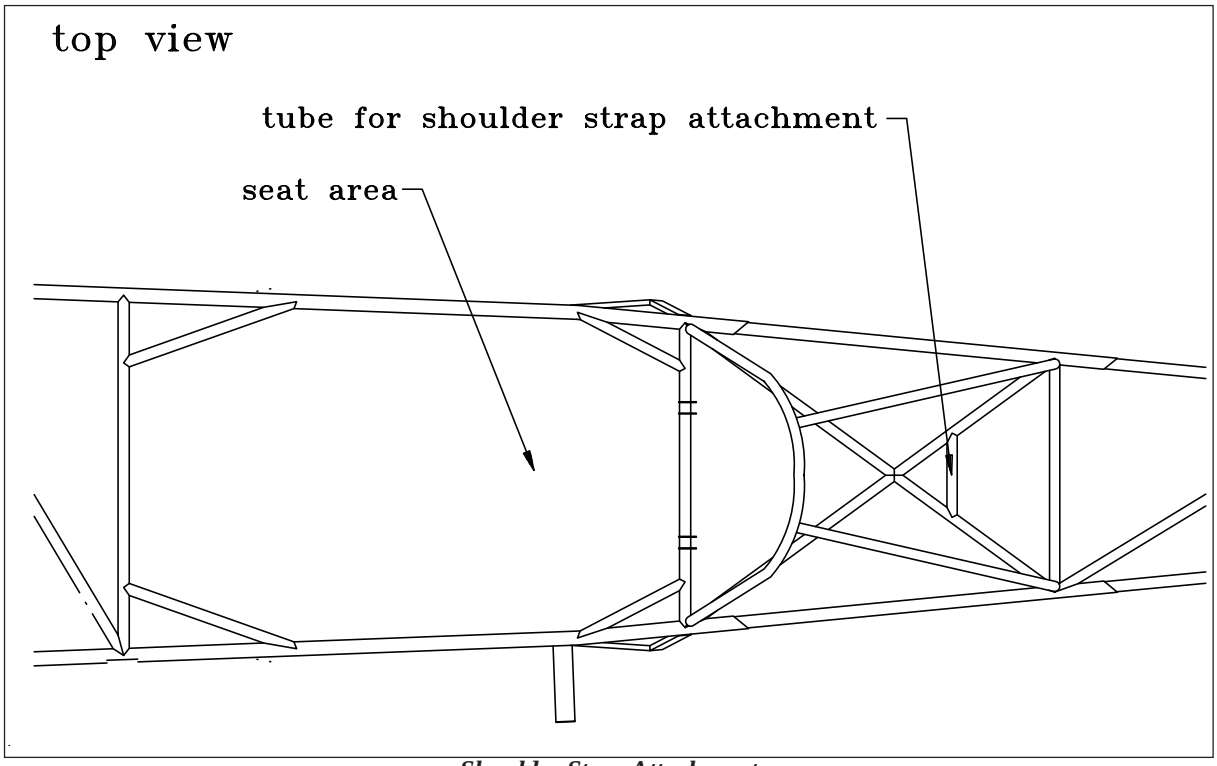
Strap Assembly
Figure 1

Each strap end is fitted with LN 9037-0820 bolts, LN9348-08 stop nuts and DIN 125 M8 washers to its own fitting at the steel frame (refer to Figure 2).



Seat Belt Attachment
Figure 2

The shoulder strap loops are attached to a horizontal steel tube as shown in Figure 3.



Shoulder Strap Attachment
Figure 3

25-10-04 Aircraft Document Bag

The aircraft document bag is mounted with three AN 526 C 1032 R8 bolts and DIN 9021 M5x20 washers on the right inside of the cockpit frame.

Chapter 27

Flight Controls

Table of Contents

27-00-00 GENERAL

(Refer to Figure 1) The EXTRA 300/SC is standard equipped with a conventional control stick and adjustable rudder pedals. The control surfaces are operated by a direct mechanical linkage. The control surface deflections are shown in Figure 2. A rubber plugged hole is installed in the bottom fuselage cover for rear torque tube bearing lubrication.

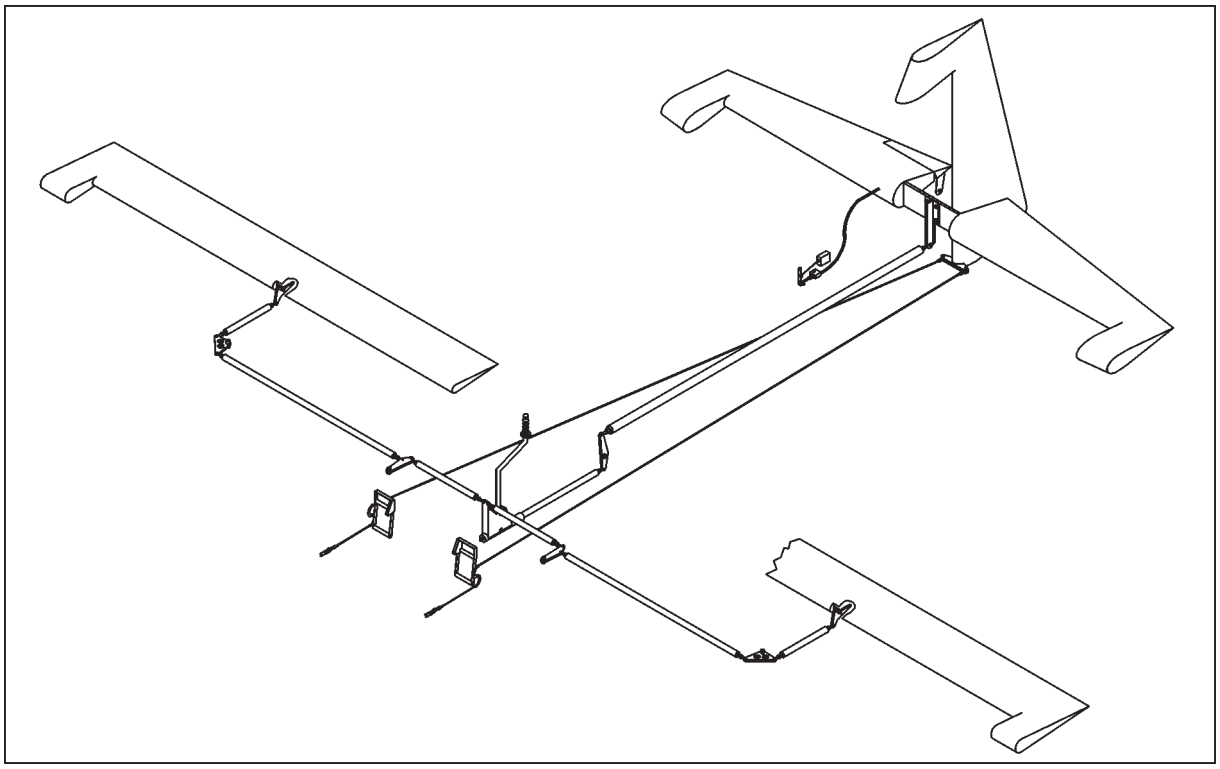


Figure 1 ***Controls***

Free Play in the Control System

With controls (stick and rudder pedals) locked, the free play measured at the control surfaces must not exceed the values listed:

** measured at the trailing edge and max. chord*

Aileron: ±1 mm*

Elevator: ±1 mm*

Trim tab: ±2 mm*

The rudder has a direct cable connection with retracting springs and is therefore always under tension.

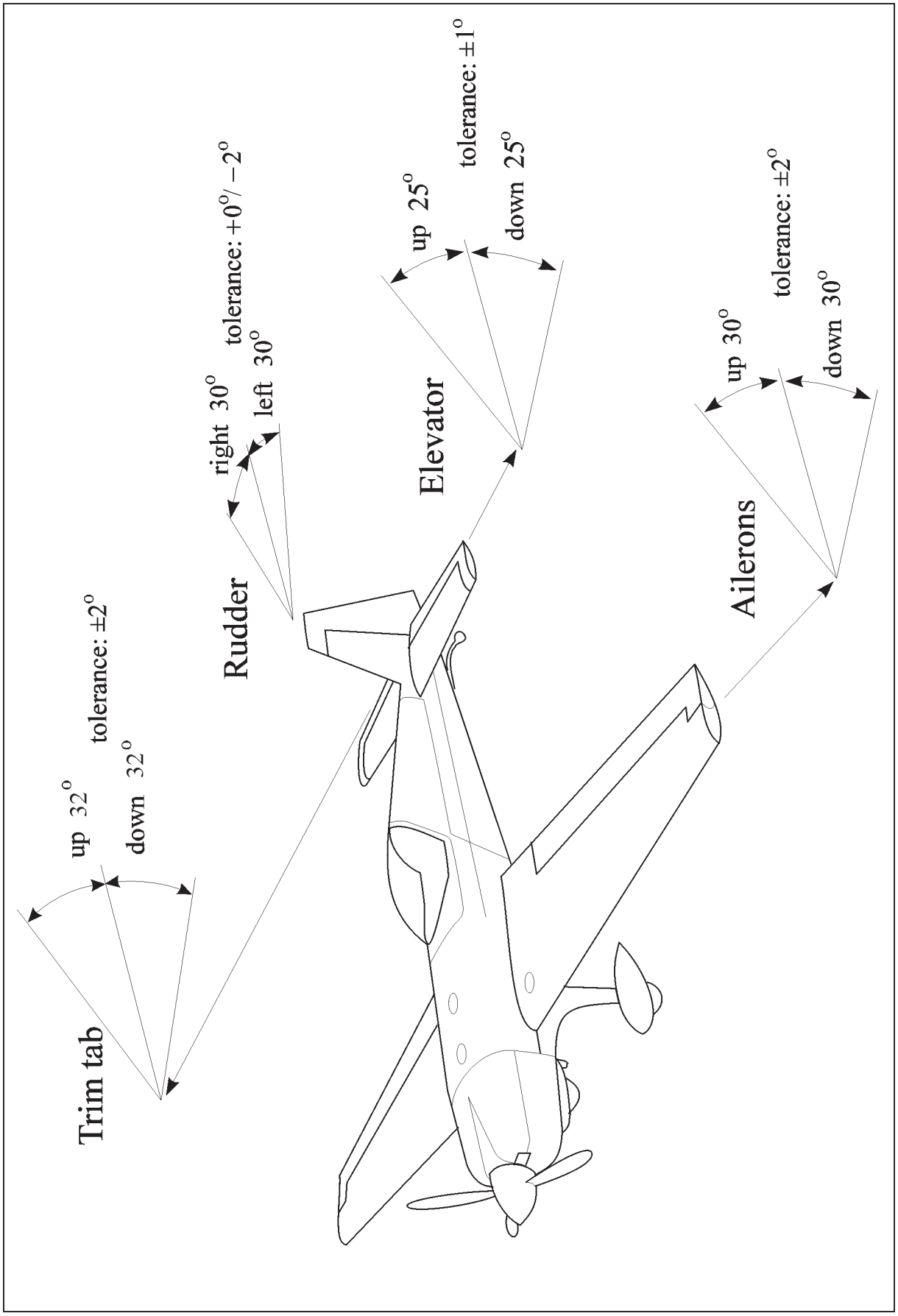


Figure 2 ***Control Surface Deflections***

Maintenance Practices

NOTE

When installing a bellcrank or control stick the spacer sleeve inside the bearing could be displaced as shown in Figure 3. Use a mandrel to adjust the spacer sleeve.

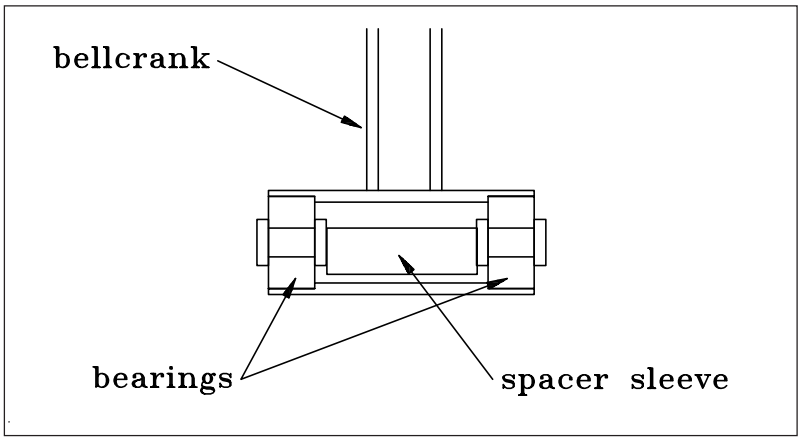


Figure 3 Spacer Sleeve Displaced

NOTE

When installing a control surface use mandrels as shown in the following Figure 4 to preset the control surface. Then press out each mandrel by pushing a bolt into the bearing.

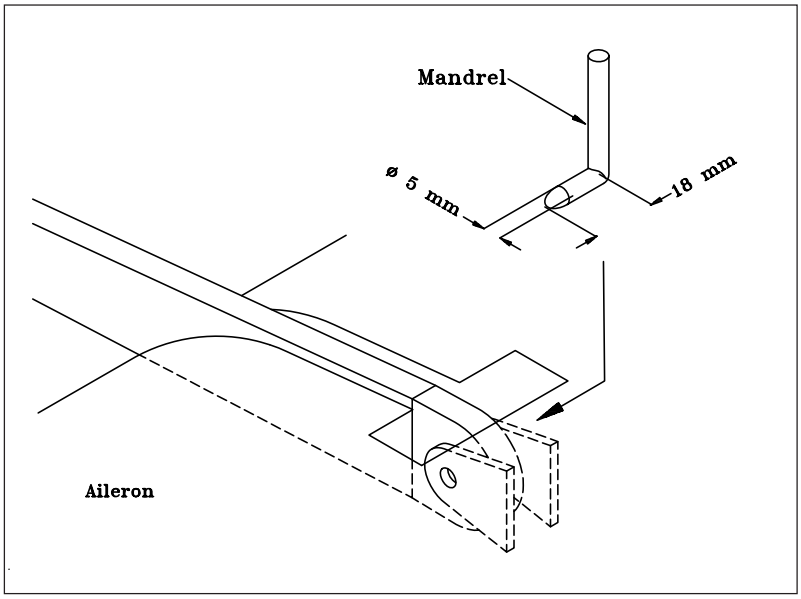


Figure 4 Control Surface Mounting Aid

27-00-01 Control Rods

Removal/Installation

Refer to Figure 8. All control rods are attached to the control levers in the same way with LN bolts, washers and self-locking nuts. The control rods inside the wing are interconnected by ground bonding leads fastened to the rod ends by additional nuts. So the rod ends have to be disassembled, when the ground bonding leads shall be disconnected. In this case also refer to the *Length Adjustment* Paragraph of this Chapter.

1 Remove the respective access panels.

NOTE

In case of removal of the control rod connected to the control stick also observe the instructions given in the Chapters 27-00-03.

2 Remove the M6 attachment bolts (1).

3 Remove the control rod.

4 Reverse procedure to install the control rod. Replace the selflocking nuts.

Lengths

The measurements given in this chapter are presettings refer to the distances between the centers of the rod end bearings (see Figure 5.

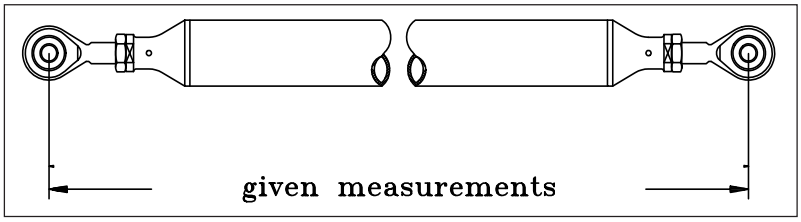


Figure 5 Control Rod Measurement

Refer to the following Figure 6 for identification of the control rods.

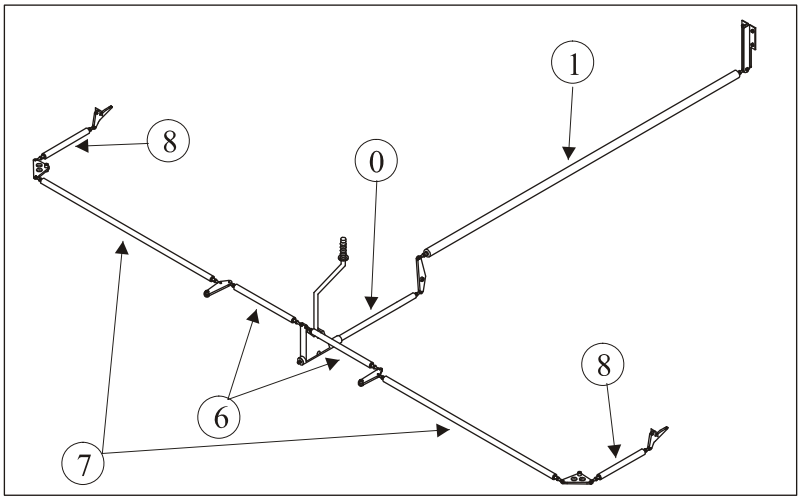


Figure 6 Control Rod Identification

Control Rod	Measurement	Rod end alignment
0	821 mm Fixed rod end. Do not adjust!	0°
1	2235 mm	0°
6	520 mm	90°
7	1231 mm	0°
8	405 mm	90°

Table 1 Control Rod Measurement & Rod End Alignment

Length Adjustment

IMPORTANT

Do not adjust control rod No 0 (See Figure 6). This control rod has a fixed length.

The standard measurements are given in Table 1.

1 Remove the respective access panels.

2 Disconnect one rod end from the respective bellcrank.

3 Loosen the check nut.

NOTE

It might be necessary to adjust both rod ends to get the correct length. In this case the free thread of both rod ends should have the same length.

IMPORTANT

Ensure that the rod ends of each control rod are exactly aligned to each other (see Table 1) after adjustment. This particularly applies for the control rod (1, Figure 6), which must allow the torque tube to rotate.

IMPORTANT

Observe that the rod ends joined to the rocker type bellcrank should be adjusted long enough not to obstruct the travel.

IMPORTANT

Ensure that the threaded rod is visible in the check hole (Figure 7, Sheet 1) in any case, if aluminium rods shall be adjusted.

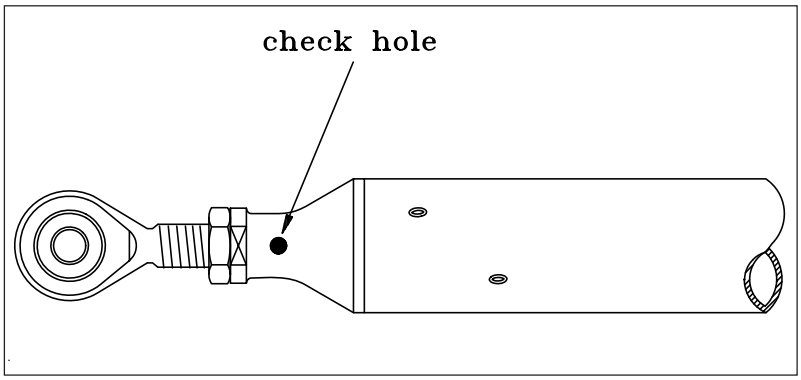


Figure 7, Sheet 1 Aluminium Control Rod Check Hole

IMPORTANT

Ensure that the value "A" (Figure 7, Sheet 2) does not exceed 43 mm in any case, if carbon rods shall be adjusted.

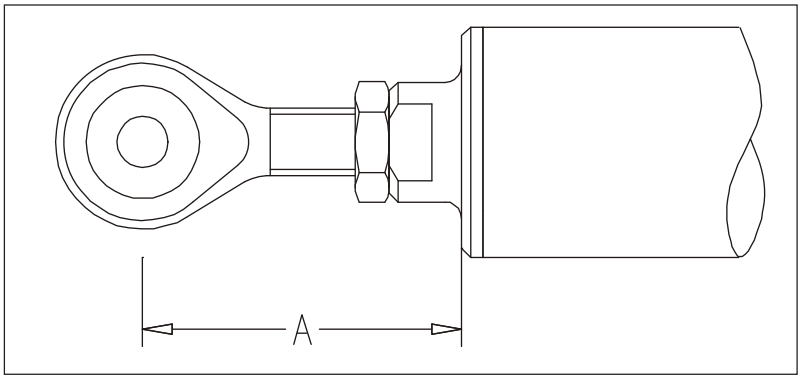


Figure 7, Sheet 2 Carbon Control Rod Maximum Adjustment

4 Turn the rod end in the desired direction to change the length.

5 Ensure that the rod end is in proper alignment with the respective control lever and tighten the check nut.

6 Reinstall the control rod per Chapter 27-00-01.

7 Ensure that the control rods don't jam when the control sticks are moved between the extreme positions.

27-00-02 Bellcranks

Removal/Installation

Refer to Figure 8.

1 Remove the respective access panels.

2 Remove the adjacent control rods per Chapter 27-00-01.

3 Remove the M5 attachment bolt (2).

4 Remove the bellcrank.

5 Reverse procedure to install the bellcrank using sufficient washers (min. 2) at the nut side of the bolt to cover the shank (except the rocker type bellcrank: use only one washer on each side). Replace the selflocking nuts. Observe the first Note of Chapter 27-00-00 and Figure 3. To ensure installation of the elevator rocker type bellcrank in correct direction this bellcrank is marked by an "F" which indicates the front side (refer to Detail A of Figure 8).

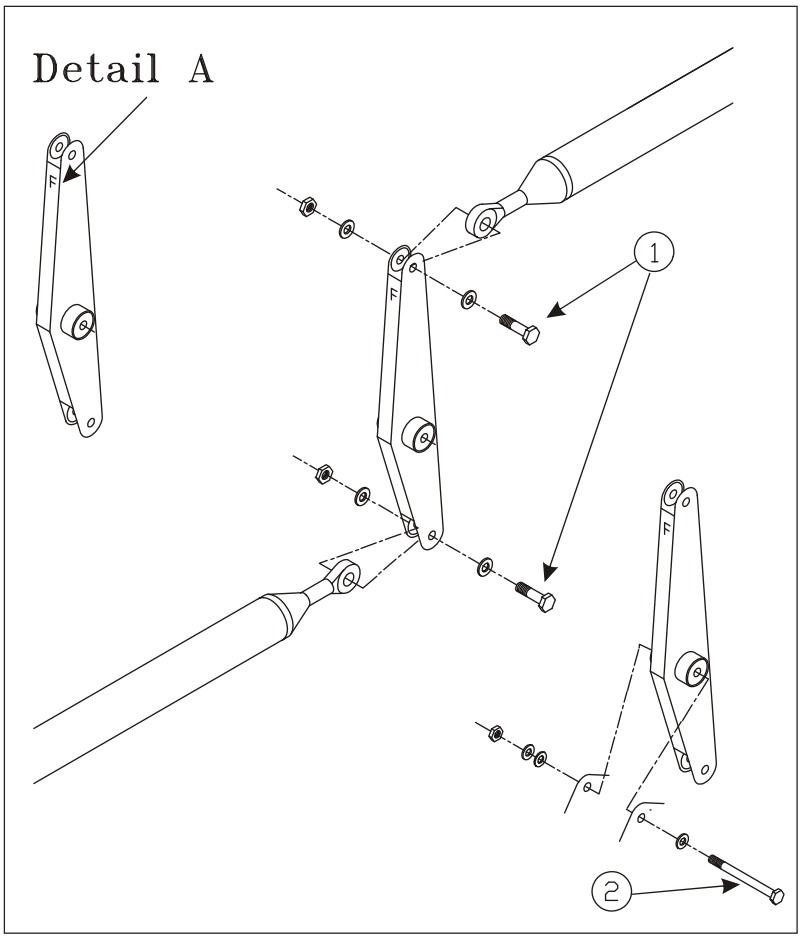


Figure 8 Control Rods and Bellcrank Removal/Installation

27-00-03 Control Stick

Removal/Installation

Refer to Figure 9.

1 Remove the leather protection cuff.

2 Disconnect the electrical wiring.

3 Remove the control stick attachment bolt (1).

4 Disconnect the control stick from the control rod per Chapter 27-00-01. Use the control stick to move the control rod attachment bolt to the mounting hole area (2).

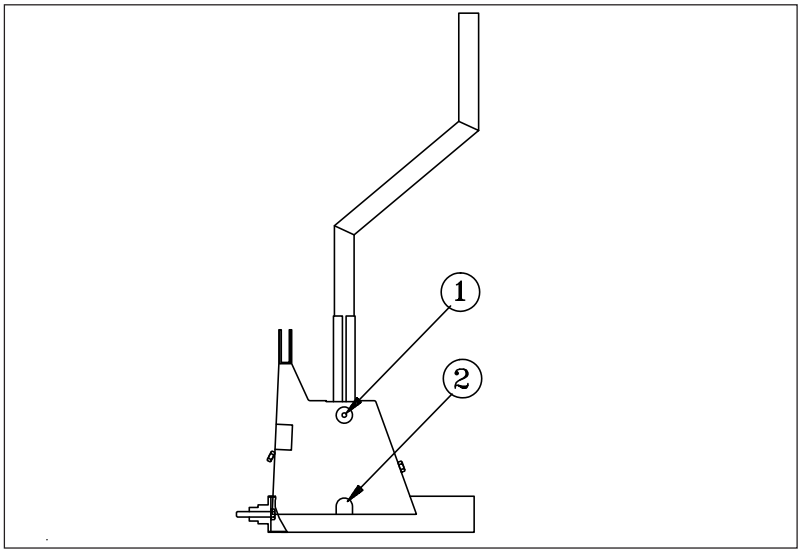


Figure 9 Control Stick Removal/Installation

5 Remove the control stick.

6 Reverse procedure to install the control stick. Replace the selflocking nuts. Observe the first Note of Chapter 27-00-00 and Figure 3.

7 Check for potential chafing of the wiring after installation.

27-00-04 Torque Tube

Removal/Installation

1 Remove the respective access panels.

2 Remove the control stick and the respective rod per Chapters 27-00-01 and 27-00-03.

3 Loosen the bolts of the front and rear bearing blocks.

4 Disassemble the bearing blocks and remove the torque tube.

5 Reverse procedure to install the torque tube. Ensure that the lubrication hole of the rear bearing block is on the bottom. Lubricate the rear bearing with Aeroshell grease 22C or equivalent (MIL-G-81322D).

27-10-00 AILERONS

Description and Operation

(Refer to Figure 10) The aileron (1) is direct mechanical linked to the control stick (3) by the aileron center linkage (7) with spade arm, push-pull rods (4), bellcranks (5-6) and the torque tube (2). The bell cranks have two sealed ball bearings. Each aileron is mounted at four points in spherical bearings. For lightning protection reason each hinge arm is grounded to the corresponding attachment bracket at the aileron by bonding leads. The rod end bearings of the push-pull rods located in the wing are also interconnected by bonding leads. The travel stops are located at the torque tube.

To reduce pilot's hand forces the ailerons are equipped with spades. The hinge line of the ailerons is positioned at 25% of the aileron chord. In addition a shielded horn balance of 55% wing chord is provided at the tip of the aileron with a span of 250 mm.

Two access panels are located at the bottom surface of each side of the wing.

Removal/Installation

1 Disconnect the actuator rod from the aileron linkage.

2 Loosen the hinge bolts and the ground bonding leads and remove the bolts.

3 Install in reverse sequence of removal. Observe the second Note of Chapter 27-00-00 and Figure 4.

Rigging

Before beginning any adjustments inspect control rods, levers and hinges for signs of wear or damage, check if the control rod lengths correspond with the measurements given in Chapter 27-00-01. If necessary replace parts and correct lengths.

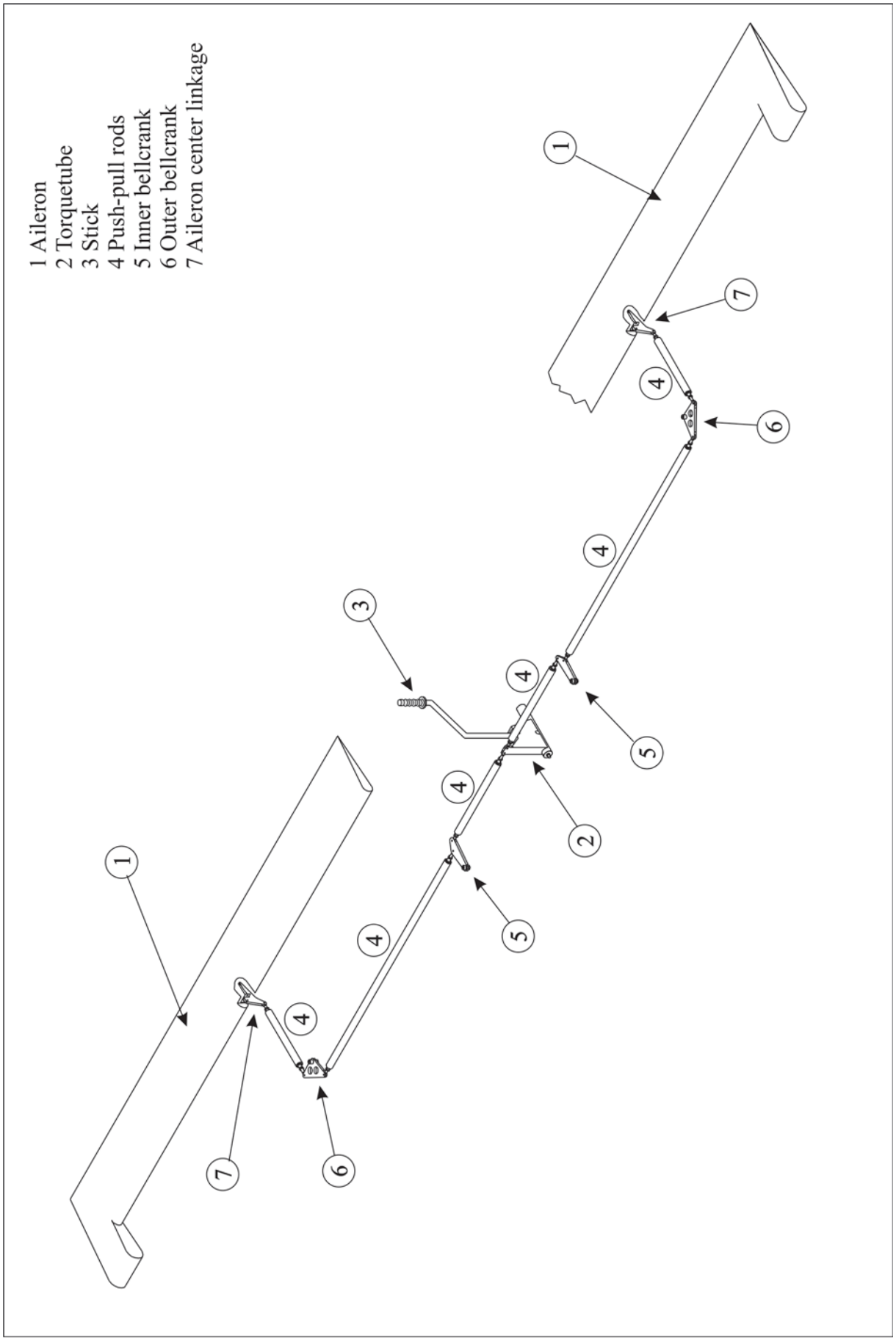


Figure 10 ***Aileron Control***

1 Secure the control stick in the neutral position (Figure 11).

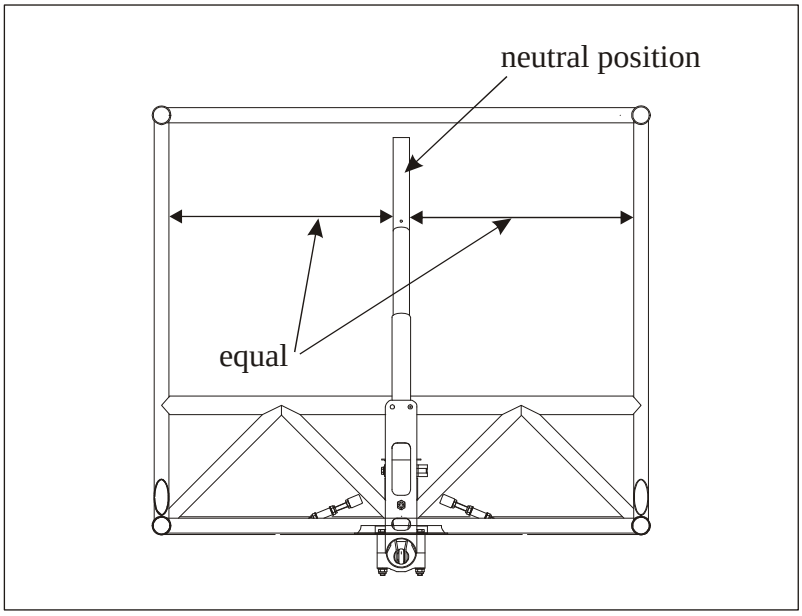


Figure 11 Neutral Position of Control Stick

2 Check if the control rods connecting the torque tube and the inner wing bellcranks have correct length (Refer to Chapter 27-00-01).

3 Adjust length if necessary per Chapter 27-00-01.

4 Check if the ailerons are in 0°-position (The trailing edge bottom of the aileron is in alignment with the trailing edge bottom of the wing as shown in Figure 12).

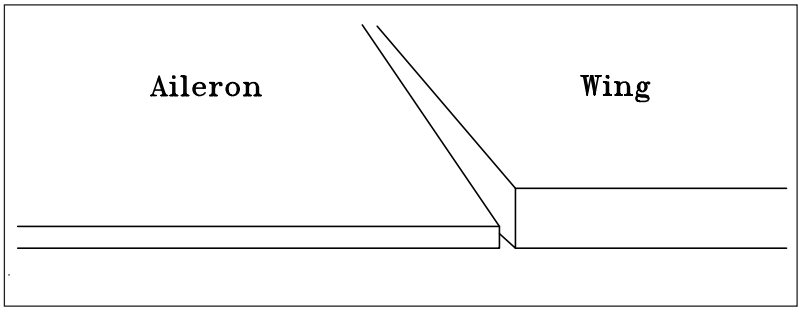


Figure 12 Trailing Edge Alignment

5 If necessary adjust the length of the control rods connecting the aileron center linkage to the outer wing bellcrank per Chapter 27-00-01.

6 Check if the left aileron travel is within the given tolerances (up/down 30°, ±2°). Use a conventional protractor.

7 Adjust the travel stops if necessary.

8 Follow step 6 for the right aileron. If the travel of the right aileron exceeds the given tolerances, contact the manufacturer.

9 Check if the movement of the control sticks is free over the whole travel range and check if the control stick travel is symmetrically to each side. If it is not contact the manufacturer.

27-10-01 Spades

Rigging

For roll trim the spade rigging angle of incidence has to be changed. Insert washer(s) between the spade and the mounting plate (refer to Figure 13). For example: When the aircraft rolls to the left, insert washer(s) at the front attachment bolt of the right spade.

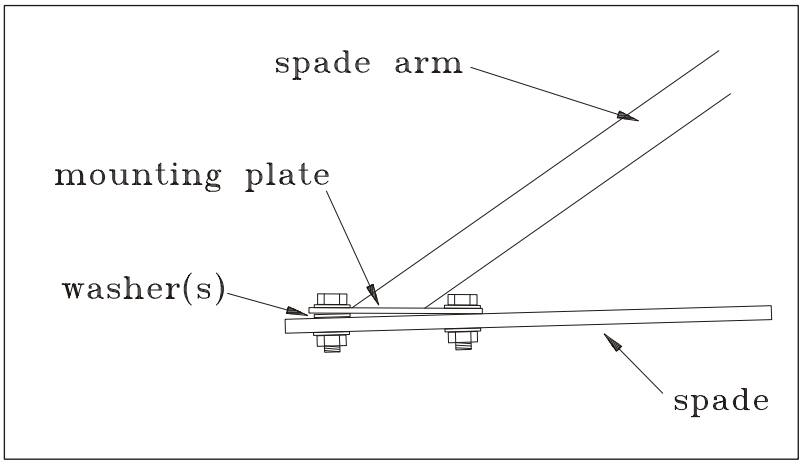


Figure 13 Spade Rigging

27-20-00 RUDDER CONTROL

Description and Operation

(Refer to Figure 14) The rudder pedals (1) are connected via a cable system (2) to the bottom hinge bellcrank (3). The cables are guided by fairleads. Pedal retracting springs keep the cables under tension when they are not operated. Adjustment is made by an electrical actuator. The rudder (4) is mounted at three points in spherical bearings pressed into a aluminium hinge resp. into aluminium hinge arms. For lightning protection reason each hinge (arm) is grounded to the corresponding attachment bracket at the rudder by bonding leads. A travel stop plate is located at the bottom hinge bracket. A second safety stop is located at the rudder pedal bearing having the only purpose of protecting the lower brake system fitting in case of rudder cable failure.

NOTICE

This second stop must not be reached under normal operation conditions. Missallignment or exessive elongation of the rudder cabels will result in misuse of this second stop and a subsequent overload of the rudder bearing. An subsequent inflight failure of the footrest could occur.

To prevent flutter the rudder is mass balanced. The mass balance weight of the rudder is installed in the rudder horn.

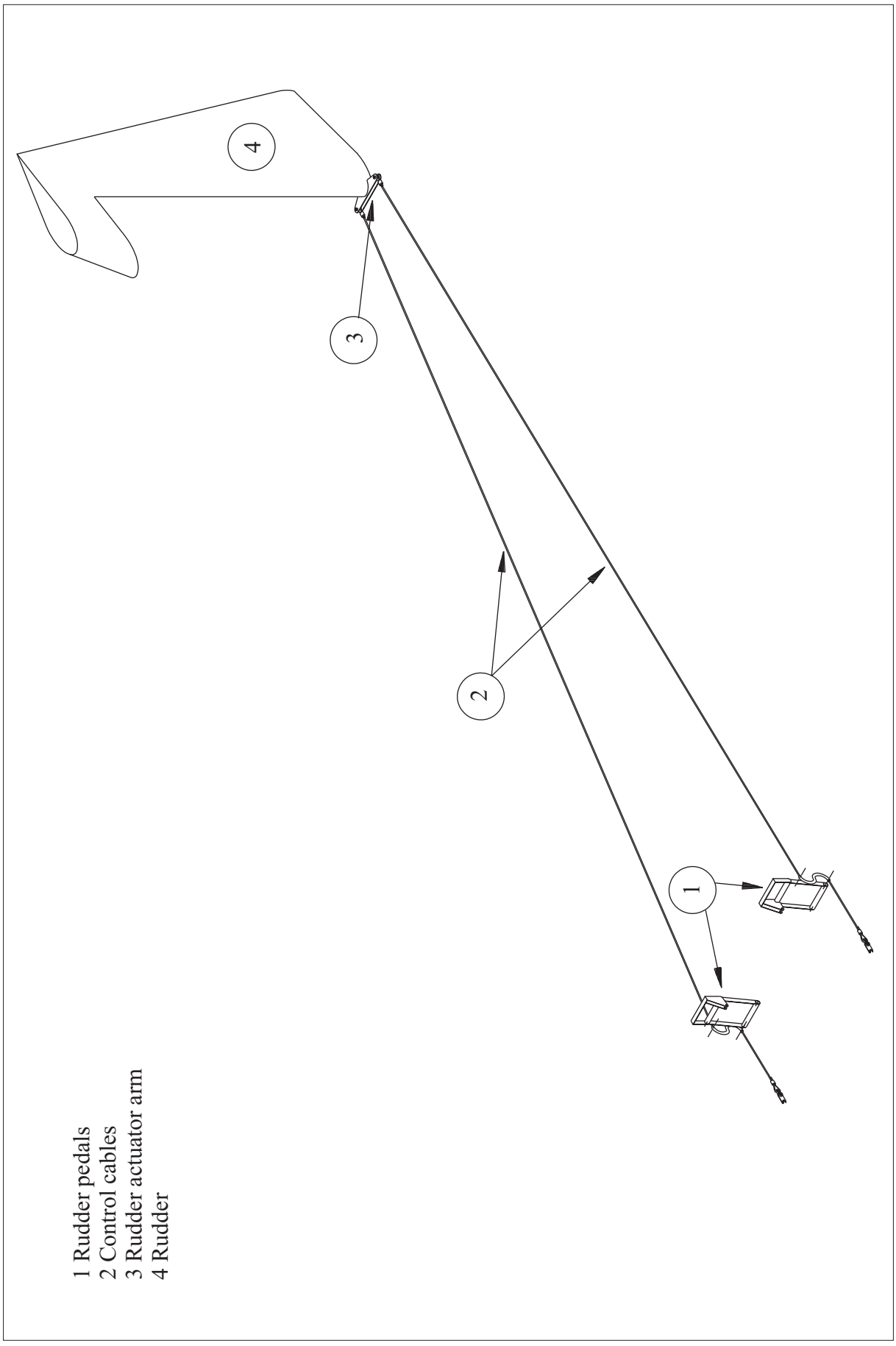


Figure 14 ***Rudder Control***

27-20-01 Rudder

IMPORTANT

Perform checks 10-11 of "Flight Controls" presented in Chapter 05-20-04 after each maintenance work affecting the rudder control cables.

Removal/Installation

1 Disconnect the rudder control cables from the bottom hinge bellcrank.

2 Loosen the hinge bolts and the ground bonding leads and remove the bolts.

3 Install in reverse sequence of removal. Observe the second Note of Chapter 27-00-00 and Figure 4.

Rigging

Inspect the control cables, the fairleads and the bottom hinge assembly (with the travel stop plate) for signs of wear or damage before beginning any adjustments. Replace parts if necessary.

1 Secure the rudder pedals following step 2 and 3 of Chapter 27-20-04 *Installation*.

2 Check if the rudder is in 0°-position. (Rudder horn leading edge in alignment with the leading edge of the vertical stabilizer.)

3 Replace the control cables and adjust the length per Chapter 27-20-04 if necessary.

4 Check if the rudder travel is within the given tolerances (left/right 30°, +0°/-2°).

5 If the rudder travel is out of limits, contact the manufacturer for advice.

27-20-02 Bottom Hinge Bracket

Removal/Installation

1 Remove the rudder per Chapter 27-20-01.

2 Loosen the attachment bolts.

3 Remove the bottom hinge bracket with the travel stop plate.

4 Install in reverse sequence of removal.

27-20-03 Bottom Hinge Bellcranks

Removal/Installation

1 Remove the rudder per Chapter 27-20-01.

2 Loosen the attachment bolts.

3 Remove the bottom hinge bellcranks.

4 Install in reverse sequence of removal.

27-20-04 Control Cable

General

The control cables installed have a diameter of 1/8 inch and are built in a 7 x 19 construction. Both galvanized and stainless steel control cables are used. The stainless steel version must not be lubricated.

Control cable tension is ensured by retracting springs connected to each pedal, keeping the pedals in most forward position.

The thimble-eye splices on each cable end fitting are swaged on. They are covered with a shrinking sleeve.

The cable sections at the S-shaped pedal adjustment cable guide and at the fuselage skin penetration are covered with a PTFE-hose. The fuselage skin penetration PTFE hose is held in place by means of a shrinking sleeve.

For detailed explanations concerning control cables refer to *AC 43.13-1B, chapter 7, section 8. Inspection and Repair of Control Cables and Turnbuckles.*

Inspection Procedure

Refer to the *Control Cable Replacement Criteria* Paragraph.

1 Visually inspect the structure and other components located next to fairleads for cracks and traces of lubrication splashes caused by control cable wires sticking out. Those evidences can indicate a damaged control cable.

2 Perform the following inspection item with the pedal adjusted first to the foremost and later to the rearmost position in order to get access to the control cable inside the S-shaped cable guide.

3 Visually inspect the PTFE-hoses in the areas of the fuselage skin penetration and of the S-shaped cable guide of the pedal adjustment for wear and other damage.

NOTE

Intact PTFE-hoses render a close inspection of the control cable inside the hose unnecessary.

4 Inspect shrinking sleeves fixing the fuselage skin penetration PTFE-hose for function and damage.

5 Inspect shrinking sleeves at the control cable end fittings for wear and other damage.

NOTE

Intact shrinking sleeves render a close inspection of the control cable inside the sleeve unnecessary.

6 Disconnect the control cable from the rudder to relieve cable tension. Refer to *Removal Paragraph.*

7 Move the rudder control cables during inspection to ensure that the entire cable run including areas of fairleads is visible respectively accessible.

CAUTION

Risk of injuries due to broken wires possible. Wear protective gloves.

8 Closely inspect control cables by passing a cloth over them to snag on broken wires.

9 Visually inspect each flight control cable exterior and interior along its entire length for evidence of broken wires, corrosion, fraying or other damage. Visual inspection may be via direct sight, mirror and flashlight or borescope. Bend and twist cable for proper inspection.

10 Inspect cable retracting springs connected to the pedals for correct installation, corrosion or damage.

11 Check swaged terminal reference marks for an indication of cable slippage within the fitting. Inspect the fitting assembly for distortion and/or broken strands at the terminal.

12 Reattach the control cable to the rudder as per *Installation* Paragraph.

13 Examine cable runs for incorrect routing, fraying, twisting, or wear at fairleads, antiabrasion strips, and guards.

14 Inspect fairleads for wear, breakage, alignment, cleanliness, and security. Examine cable routing at fairleads to ensure that deflection angles are no greater than 3° maximum.

15 Inspect cable systems for binding, full travel, and security of attaching hardware.

16 Visually check for proper routing along entire length of cable. Make sure that cables and attaching sectors are free and clear of airframe structure and other components.

17 Lubricate critical control cable areas with a light coat of grease or general purpose, low-temperature oil (galvanized cable only!).

Rudder Control Cable Replacement Criteria

EXTRA has defined the following replacement criteria when inspecting the rudder control cables:

- Any cable assembly that has one single broken wire must be replaced.
- Replace cable when worn areas on the individual wires in each strand appear 40% or more (as depicted in Figure 15).
- Replace cable when corrosion on the outer or interior strands has been detected.
- Replace cable when a PTFE-hose is damaged.
- Replace cable when a shrinking sleeve is damaged.

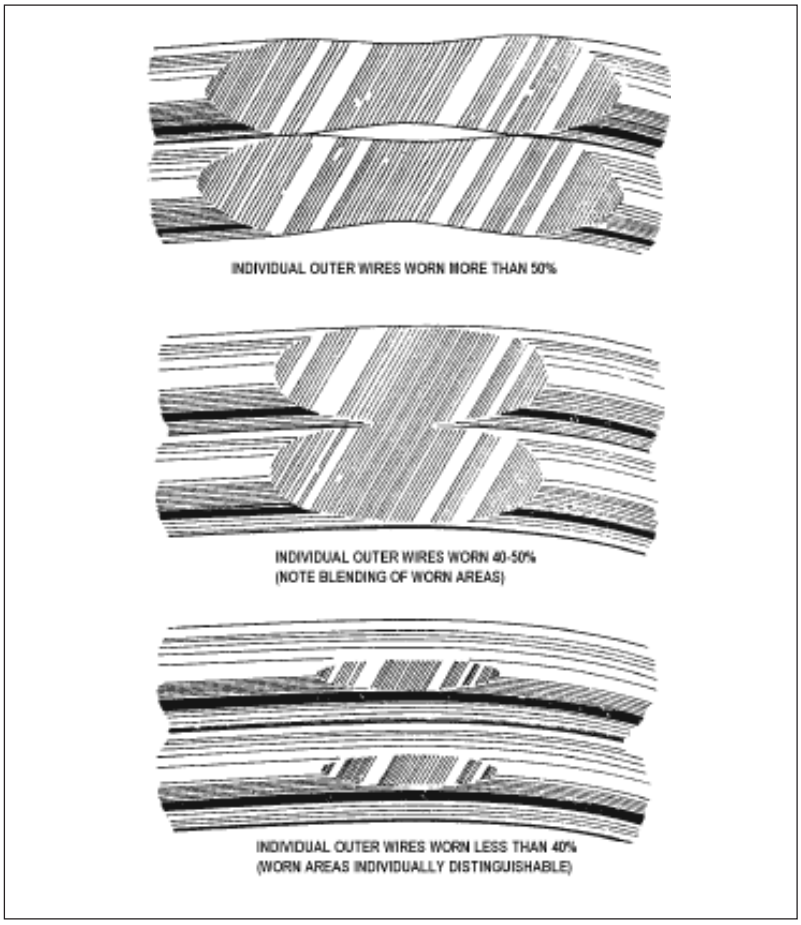


Figure 15 Cable Wear Patterns.

Removal

1 Remove the respective access panels.

2 Remove the front cable attachment bolts.

3 Remove the cable to rudder bellcrank attachment bolts.

4 Cut the control cable behind the front shrinking sleeve.

5 Remove the control cable by pulling it out to the back.

Installation

Refer to Figure 18.

Use only control cables manufactured by EXTRA Flugzeugproduktions- und Vertriebs GmbH. Those cables are prepared for simple installation.

1 Remove the respective access panels per Chapter 51.

2 Move the pedal adjustment in a position as shown in Figure 16.

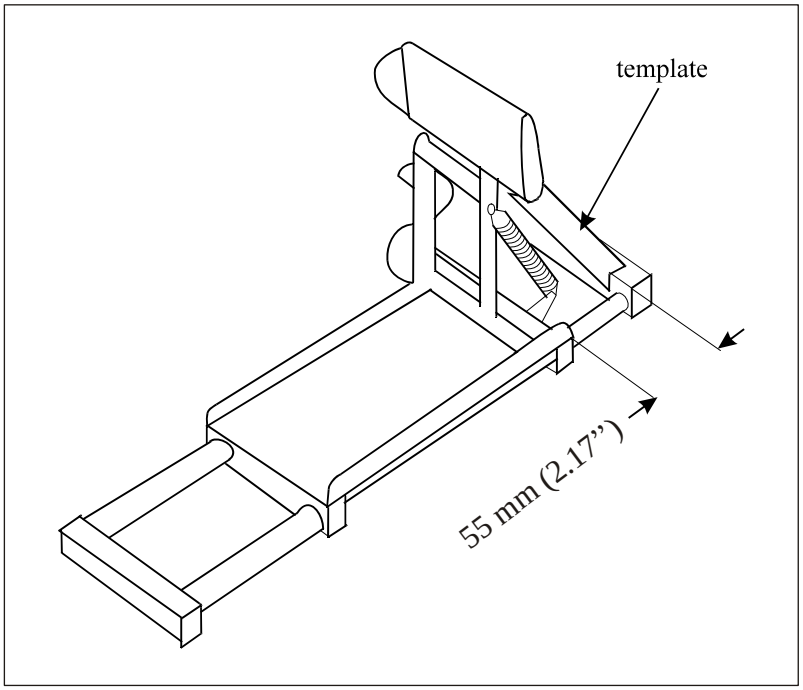


Figure 16 Pedal Adjustment Position

3 Fix pedals using templates as shown in Figure 17.

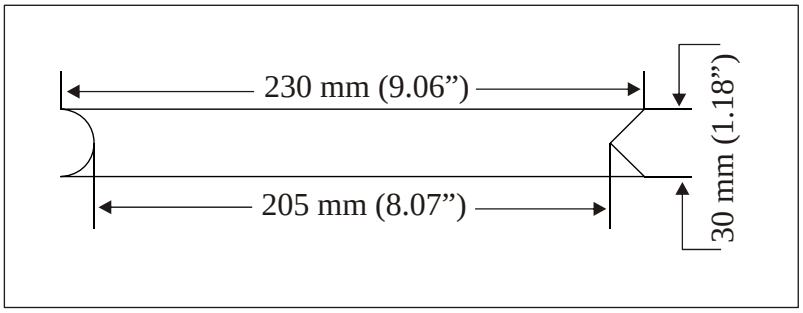


Figure 17 Pedal Fix Template

4 Secure the rudder in 0°-position.

5 Check that the 550 mm PTFE protective hose is placed on the pre-assembled control cable.

6 Mount the shackle of the pre-assembled control cable end to the front cable attachment point. Install bolt LN 9037-06028 (13, Figure 18), 4 x DIN 125-8.4 washers (7)(two on both sides of the thimble (10)), 2 x DIN 125-6.3 washers (6), the bushing EA-33102.4 (11), and the LN 9348-06 nut (8).

7 Thread the cable including the protective PTFE hose through "S"-shaped tube at the pedal, the fairleads and the hole in the fabric to the tail. Let the front end of the protective PTFE hose extend to 20 mm in front of the "S"-shaped tube.

8 Slip 80 mm Ø 1/4" heat shrinking sleeve (2) and 850 mm protective PTFE hose on the control cable end. The protective PTFE Hose shall extend 120 mm beyond the first fairlead inside the fuselage.

9 Pre-install the LN 9037-06030 bolt (5), the DIN 125-8,4 washers (7)(one on both sides of the thimble and one below the tailwheel steering attachment bracket), the DIN 125-6,3 washers (6), the bushing (11), the LN 9348-06 nut (8) and the thimble (10) to the bottom hinge bellcrank.

10 Slip a further 80 mm Ø 3/8" shrinking sleeve and the NICOPRESS (National Telephone Supply Co., Cleveland Ohio) 28-3-M sleeve on the cable end.

11 Move the cable around the thimble and tighten to a cable tension that is just sufficient to release the template at the rudder pedal.

IMPORTANT

Clamping has to be performed in accordance with the Service Bulletin 300-1-93 and the Instruction No. 32 of the National Telephone Supply Co., Cleveland Ohio.

12 Consider to let a distance of 1 mm between the thimble and the sleeve and clamp the sleeve.

13 Cut the free end of the cable 20 mm in front of the sleeve.

14 Move the PTFE protective hose back to the sleeve.

15 Move/slip the 80 mm Ø 3/8" shrinking sleeve to the NICOPRESS sleeve and heat up with a heat gun.

16 Move and center the other 80 mm Ø 1/4" shrinking sleeve to the front end of the PTFE protective hose and heat up with a heat gun.

17 Follow the steps 5 to 16 for the LH control cable.

18 Remove securing devices of rudder and rudder pedals.

19 Check free travel of rudder.

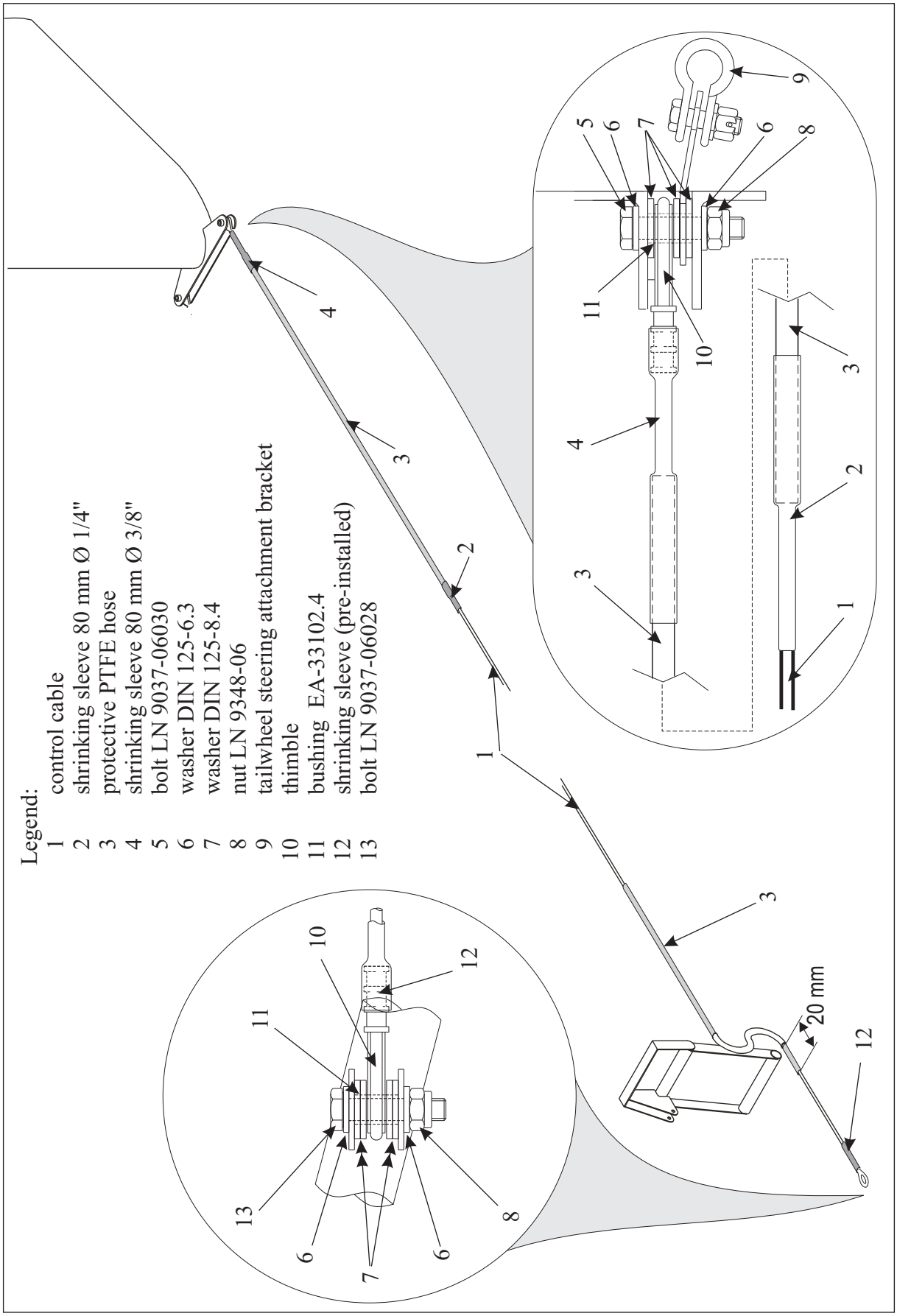


Figure 18 ***Control Cable Installation***

27-20-05 Fairleads

Removal/Installation

1 Remove the fairlead retaining clip.

2 Pull the fairlead halves out of the sleeve.

3 Reverse procedure to install the fairlead.

27-20-06 Rudder Pedals

Removal/Installation

1 Remove control cable as per Chapter 27-20-04.

2 Drain the brake system.

3 Disconnect the brake lines from the pedal.

4 Remove the four rudder pedal attachment bolts.

5 Remove the rudder pedal.

6 Install in reverse sequence of removal. Follow Chapter 27-20-04 for installation of control cables.

27-30-00 ELEVATOR AND TAB

Description and Operation

Refer to Figure 19. The control movements are transferred from the control stick (1) to the elevator (9) by push-pull rods (2), a rocker type bellcrank (3) and an actuator arm (4). The bell crank has a sealed ball bearing. The elevator is mounted at five points in spherical bearings pressed into aluminium hinge arms. For lightning protection reason each hinge arm is grounded to the corresponding attachment bracket at the elevator by bonding leads. The travel stops are located at the torque tube.

The mass balance weights (8) are mounted in an unshielded horn balance of 175 mm span.

An access panel is located at the right side of the rear fuselage.

The elevator trim control servo (5) is controlled by the trim switch on the instrument panel. There also a scale is installed showing the state of the trim system. Pitch trim is done by means of the trim tab (7) on the right elevator trailing edge operated by a bowden cable mechanism (6). The trim tab is mounted by two piano hinges.

The trim tab is not mass balanced.

27-30-01 Elevator

Removal/Installation

Before the removal of the elevator, the vertical stabilizer has to be disassembled.

1 Remove the respective access panels.

2 Remove the rudder per Chapter 27-20-01.

3 Remove the vertical stabilizer per Chapter 55-30-00.

4 Loosen the bowden cables from the trim tab. If a replacement is necessary order new cable.

5 Disconnect the elevator actuator arm from the push-pull rod.

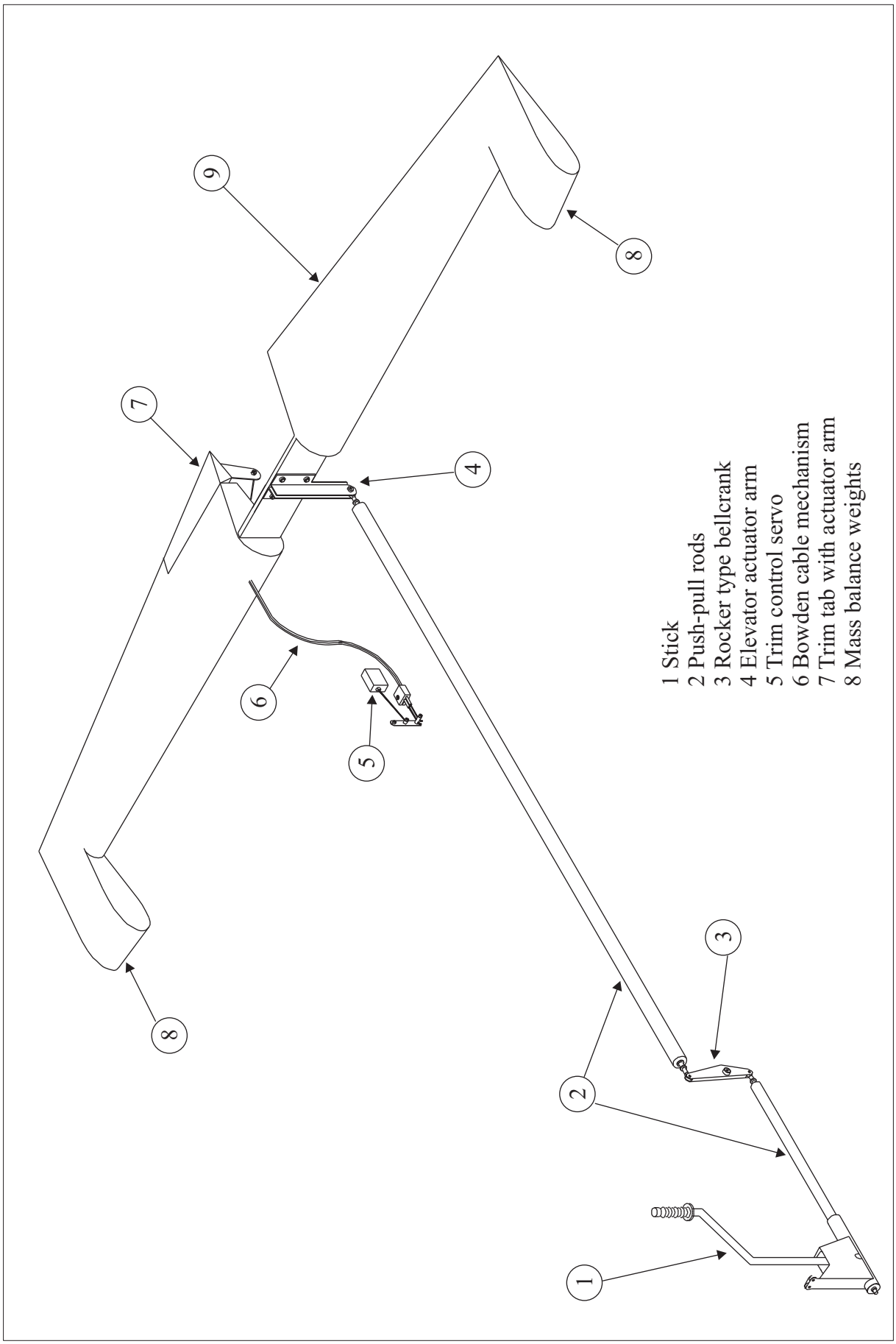


Figure 19 ***Elevator and Trim Tab Control***

6 Loosen the hinge bolts and the ground bonding leads and remove the bolts.

7 Install in reverse sequence of removal. Observe the second Note of Chapter 27-00-00 and Figure 4.

Rigging

1 Remove the respective access panels.

I M P O R T A N T

Before beginning any adjustments, inspect control rods, levers and hinges for signs of wear or damage and check if control rod lengths correspond with the measurements given in Chapter 27-00-01. Replace parts and correct lengths if necessary per Chapter 27-00-01.

2 Remove the control stick leather protection cuff.

3 Secure the control stick in the neutral position. (Control strick perpendicular to the upper longerons. Use a template like shown in Figure 20).

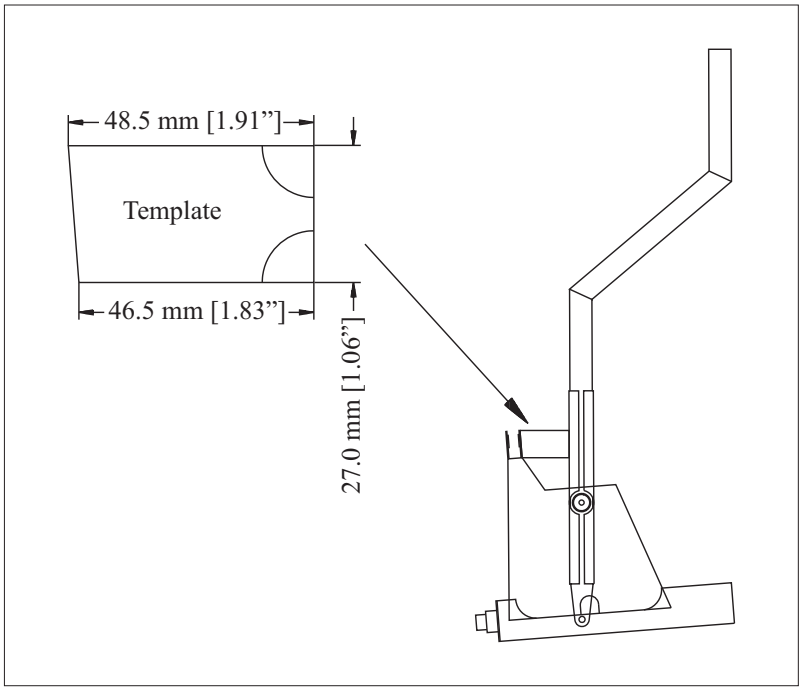


Figure 20 Neutral Position of the Control Stick

4 Check if the elevator is in 0°-position. (Align elevator horn to horizonatal stabilizer and fasten with adhesive tape.)

5 If necessary adjust the length of the middle tail control rod per Chapter 27-00-01.

6 Check if the elevator travel is within the given tolerances (up/down 25°, ±1°). Use a conventional protractor.

7 Adjust the travel stops if necessary.

8 Check if the control stick travel is symmetrically.

9 If it is not, contact the manufacturer.

27-30-02 Trim Tab

Removal/Installation

1 Loosen bowden cables. If a replacement is necessary order new cable.

2 Disconnect the safety cotter pins and remove the hinge pins.

3 Install in reverse sequence of removal.

Rigging

Refer to Figure 21.

1 Secure the control stick in normal position as per Figure 20.

2 Position trim to the neutral position using the trim switch and the LED-display on the instrument panel.

3 Check trim lever deviates 1° clockwise from the vertical.

4 Remove and adjust trim servo rod if necessary (default measurement is 198 mm). Reinstall with new cotter pins.

5 Check trim tab is in neutral position.

6 Adjust trim tab using the linkage bolt if necessary.

7 Bring the trim tab in extreme positions using the trim switch and check if trim tab travel is ±32° (tolerance ±2°). If it is not, check free travel of the trim levers, fuselage bellcrank and bowden cables.

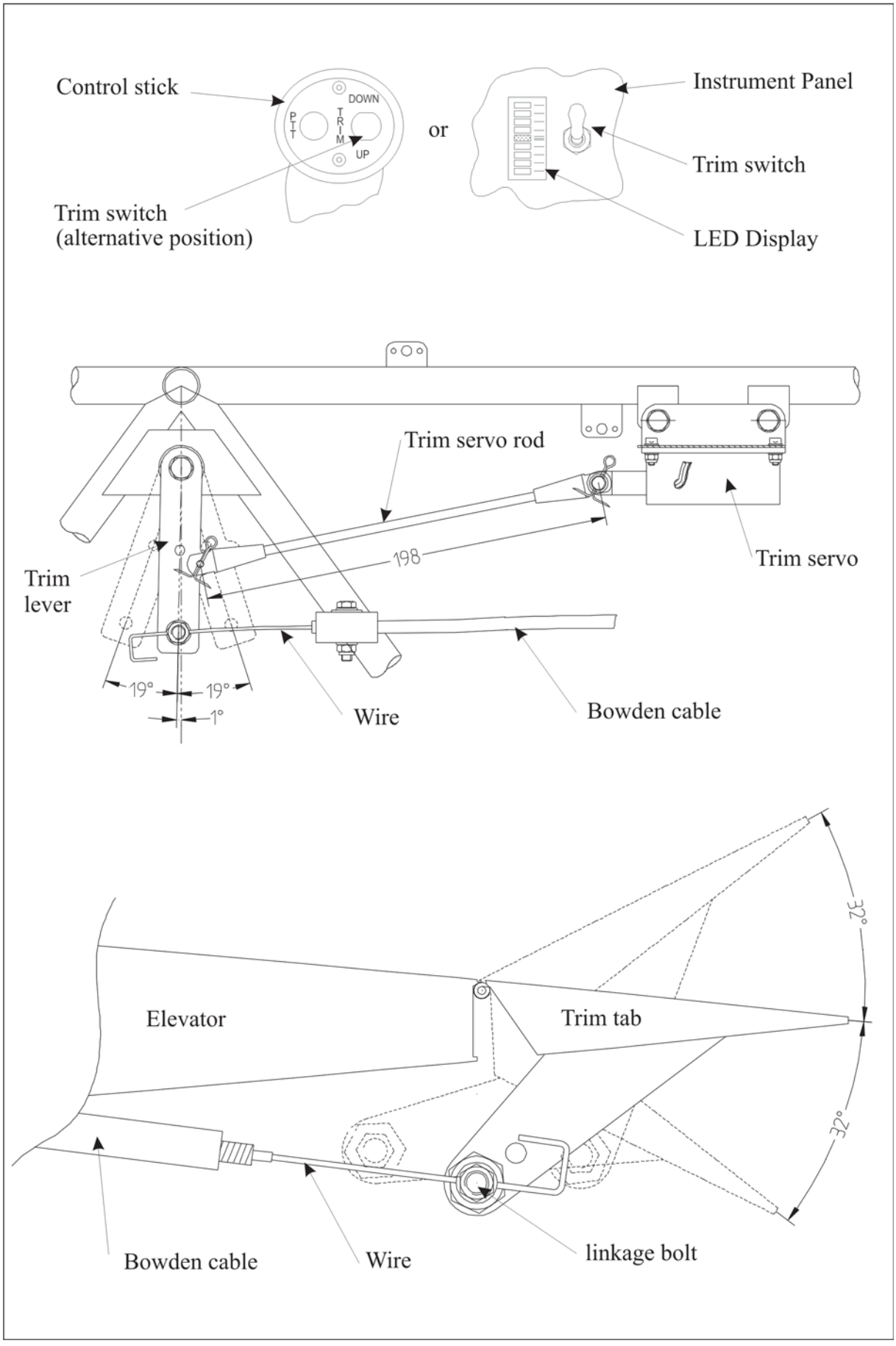


Figure 21 ***Trim Tab Rigging***

Chapter 28

Fuel

Table of Contents

28-00-00 GENERAL

Description and Operation

The fuel system (refer to Figure 1) consists of the front center tank (2), the rear center tank (4) an acro tank (6), two wing tanks (1&5), a fuel selector valve (3), a gascolator (9), an electric driven boost pump (7) and an engine driven rotary pump (8).

On the instrument panel one fuel quantity indicator for the center tank and one for the wing tanks, the switch for the boost pump and circuit breakers are installed (see Figure 14).

Fuel Tank Capacities

Front center tank:	54 l	(14.3 US Gal.)
Rerar center tank	41 l	(10.8 US Gal.)
Acro tank:	9 l	(2.4 US Gal.)
Wing tank LH:	60 l	(15.85 US Gal.)
Wing tank RH:	60 l	(15.85 US Gal.)
Total capacity	224 l	(29.2 US Gal.)
Unusable fuel:	3 l	(0.8 US Gal.)

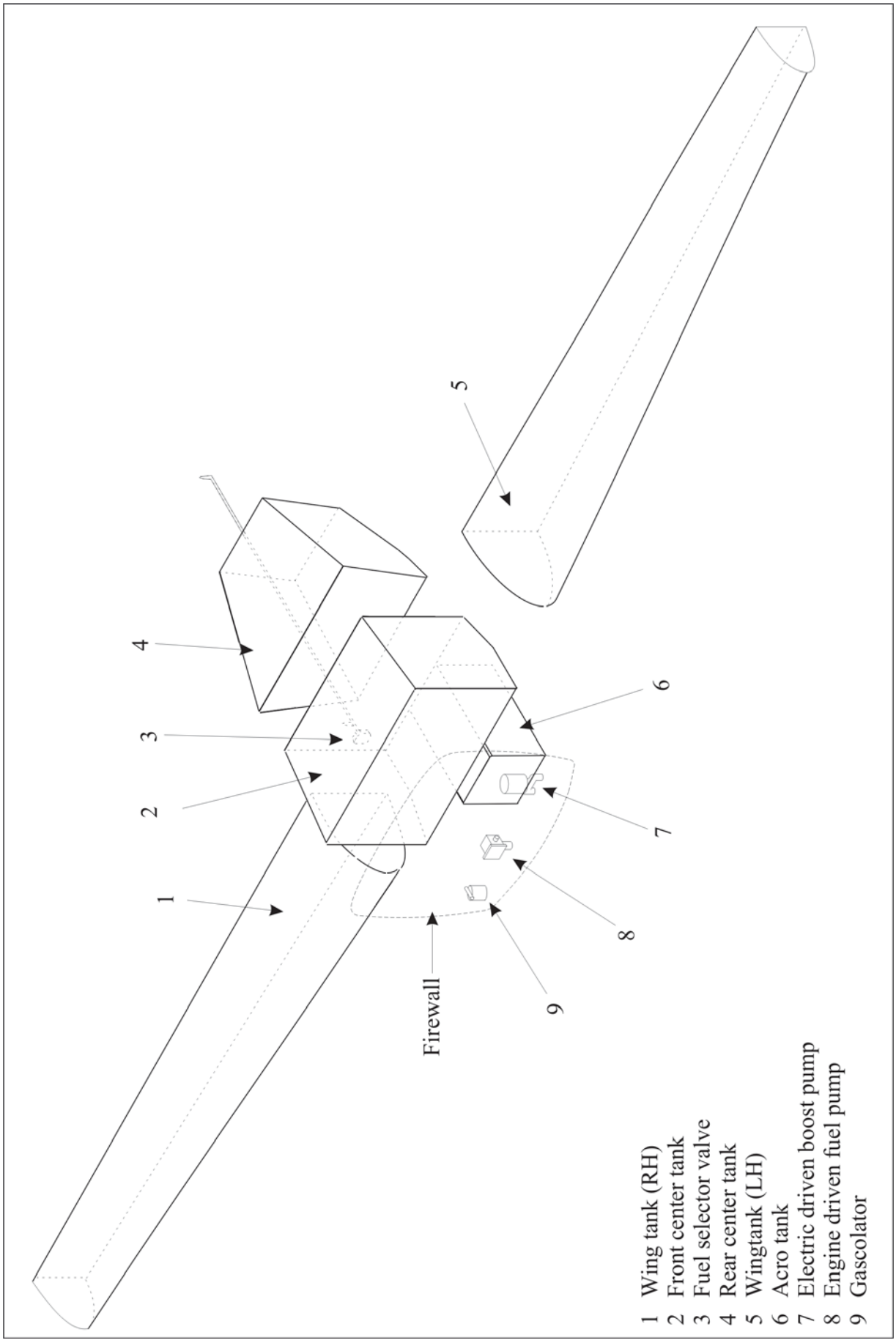


Figure 1 ***Fuel System***

Refueling/Defueling

Refer to Chapter 12 for detailed refueling/defueling procedures.

Reduction of Fuel Tank Vapor Hazards (General Precautions)

During all ventilation or maintenance procedures involving the fuel system, observe the following general precautions.

1 Defueling should be outdoors with the aircraft at least 100 feet from hangars or other aircraft.

2 No smoking should be allowed within 100 feet of the aircraft.

3 Suitable fire fighting equipment should be available. Foam or soda type extinguishing agents are recommended.

4 Ground the aircraft to prevent static electricity from causing sparks. If a ramp ground is available it should be connected to exhaust stack. If a ramp ground is not provided, a temporary ground can be obtained by driving a metal rod into the ground and attaching a ground wire between the rod and the aircraft exhaust stack.

5 Flame and spark producing equipment should not be operated within 100 feet of the aircraft.

6 The aircraft should have its battery removed.

7 Only personnel working on the aircraft should be allowed in the immediate area, and no other maintenance should be performed while the tanks are being worked on.

8 When a fuel tank is opened for repair, air ventilation (refer to Page 7) should be started immediately to reduce vapor concentrations.

9 When draining fuel, ensure that suitable containers are available and that drained fuel is stored safely. Do not allow fuel to drip to the ground and form pools.

10 If it is necessary to ventilate a tank when the aircraft is in hangar, ensure that vapors do not accumulate to explosive or toxic levels in the hangar.

WARNING

When fuel is being drained, there is little control over the release of fuel vapor. This vapor should be dissipated as quickly as possible. Compressed air or explosion-proof blowers may be used for the purpose.

Air Ventilation

1 Completely drain the fuel system per Chapter 12-10-02.

2 Remove inspection doors (refer to Chapter 28-11-03) and tank caps.

3 Use compressed air or an explosion-proof blower to blow air into the tank until tank interior is dry and free of vapor.

4 Continue ventilation whenever tank is open and being worked on.

WARNING

If flammable vapors from cleaning solvents are allowed in the tank increase air circulation to dissipate them.

28-10-00 STORAGE

Description and Operation

The EXTRA 300/SC is equipped with two independent fuel systems: The acro- and center tanks system and the wing tank system.

The acro tank (1, Figure 2) incorporating an inverted flight fuel supply system is mounted in the fuselage just behind the firewall. It is connected to the front (2) and rear (3) center tank by flexible hoses. The acro and center tanks are fastened to the fuselage by means of metal attachment belts (5). Fueling the center tanks is by means of two fuselage 2" diameter filler caps. For leak detection the acro and center tanks are furnished with a GRP tank shell. In case of leakage blue colored fuel is shining through. The acro and center tanks are grounded. The acro tank deaerates (6) into the rear center tank. Both center tanks deaerate by ventilation tubes (6) ending at the right side of the main landing gear spring.

The root section of each wing – in front of the main spars – forms an integral fuel tank of approximately 150 cm (59") length (4). Each wing tank has a 2" diameter filler cap for gravity fueling. Sealing lips are installed at the filler necks inside the wingtank. For sealing Scotch Clad 776 (see Chapter 51-30-04) has been applied to the inside of the wing tanks. For lightning protection reason the shell in the area of the wing tank has an outer layer of carbon fiber with incorporated aluminium thread (also refer to Chapter 57). The wing tanks are grounded. Each tank is provided with an alu ventilation tube (6) for adequate venting. The ventilation tubes are interconnected to a main tube (6), ending outside of the fuselage at the right side of the main landing gear spring.

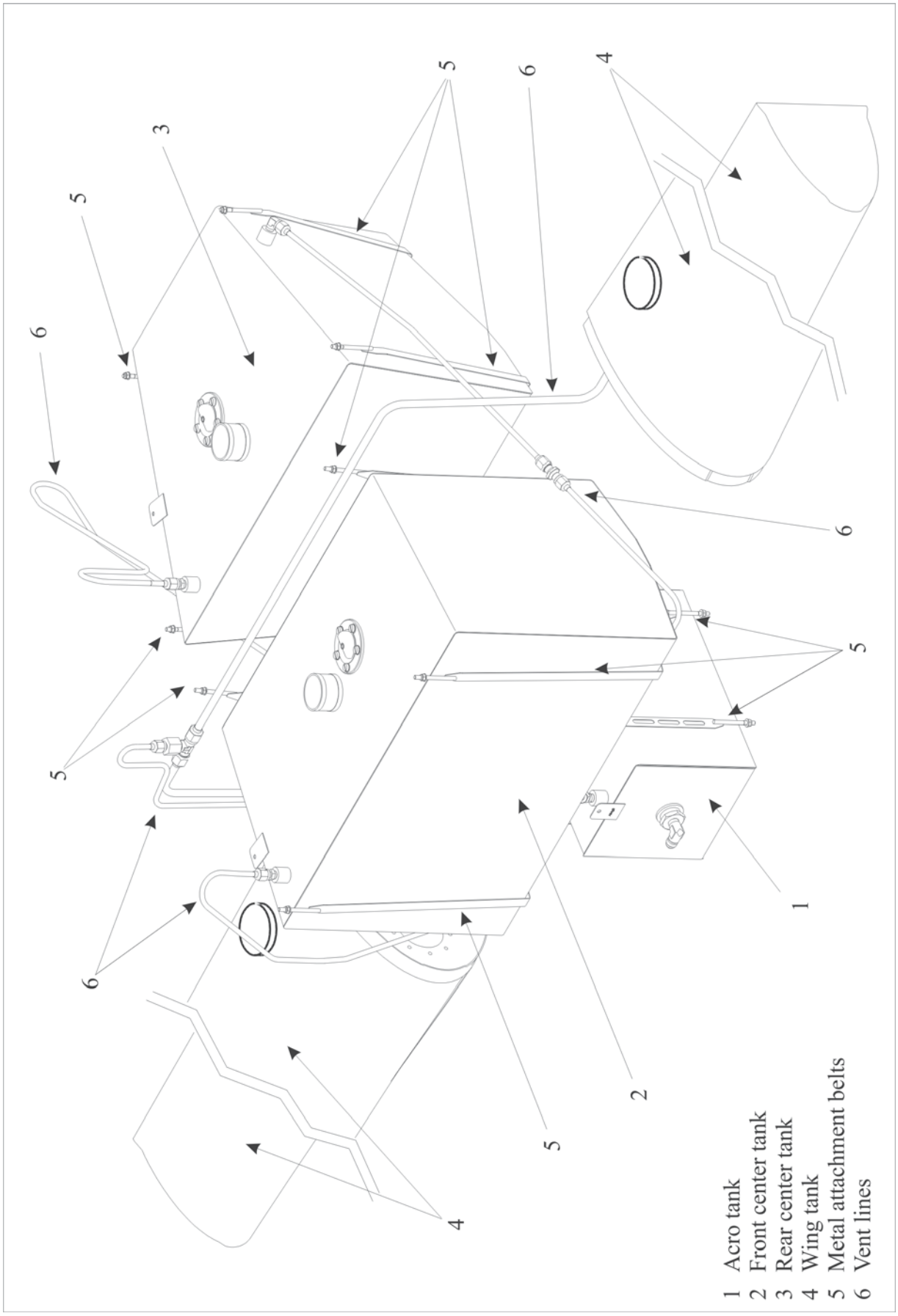


Figure 2 ***Storage***

28-10-01 Rear Center Tank

Removal/Installation

1 Remove the main and bottom fuselage cover and the cuffs as per Chapter 51.

2 Drain the fuel system per Chapter 12.

3 Remove smoke tank as per Chapter 96.

4 Disconnect the electrical bonding and the fuel quantity transducer wiring from the rear center tank.

5 Disconnect the fuel and vent lines from the rear center tank.

6 Remove the bottom hose fitting from the rear center tank.

NOTICE

Prevent the drain tube of the GRP tank shell from breaking when handling the center tank.

7 Remove the metal attachment belts with the rubber stripes.

8 Remove the rear center tank through the cockpit.

9 Install in reverse sequence of removal.

28-10-02 Front Center Tank

Removal/Installation

1 Remove the rear center tank as per Chapter 28-10-01.

2 Remove the wing as per Chapter 57.

3 Remove the battery as per Chapter 24.

4 Remove the acro tank as per Chapter 28-10-03

5 Disconnect the electrical bonding and the fuel quantity transducer wiring from the front center tank.

6 Disconnect the fuel and vent lines from the front center tank.

7 Remove the bottom hose fitting from the front center tank.

NOTICE

Prevent the drain tube of the GRP tank shell from breaking when handling the center tank.

8 Remove the metal attachment belts with the rubber stripes.

9 Remove the front center tank through the cockpit.

10 Install in reverse sequence of removal.

28-10-03 Acro Tank

Removal/Installation

1 Remove the main and bottom fuselage cover and the cuffs as per Chapter 51.

2 Drain the fuel system per Chapter 12.

3 Remove the wing as per Chapter 57.

4 Remove the smoke tank as per Chapter 96.

5 Disconnect the electrical bonding from the acro tank.

6 Disconnect the fuel and vent lines from the acro tank.

7 Remove the metal attachment belts with the rubber stripes.

8 Remove the acro tank through the cockpit.

9 Install in reverse sequence of removal.

28-10-04 Flop Tube (Acro Tank)

Removal/Installation

1 Drain the fuel system per Chapter 12-10-02.

2 Remove the acro tank per Chapter 28-10-03.

3 Disconnect the hose (5, Figure 3) and the elbow fitting (4).

4 Loosen the flop tube fitting (3) and take the flop tube assembly (2) out of the acro tank (1).

WARNING

Stripping solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

5 Clean the sealing surfaces mechanically and with Acetone.

NOTE

If the flop tube assembly has to be replaced install a complete new assembly.

6 Install in reverse sequence of removal after applying Loctite 577 to the flop tube fitting thread.

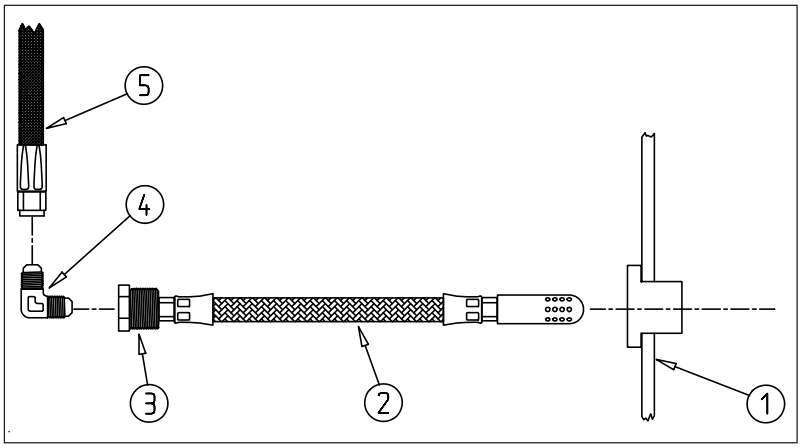


Figure 3 Flop Tube Removal/Installation

28-10-05 Filler Neck (Center Tanks)

Removal/Installation

1 Remove the main fuselage cover as per Chapter 51.

2 Completely drain the fuel system as per Chapter 12.

3 Loosen the lower hose clip.

4 Remove the filler neck.

5 Install in reverse sequence of removal.

28-10-10 Wing Tank

Re-Sealing Procedure

The first option to solve a fuel leakage problem is to re-seal the wing fuel tank compartment from the inside with Scotch Clad 776 (refer to Chapter 51-30-04). It is not necessary to remove existing Scotch Clad 776 prior to re-sealing. When using Scotch Clad 776, be sure to follow the manufacturer's precautions and directions for use for handling this material. Refer to the applicable technical and safety data sheets.

The procedure is prepared for the use of a spray gun (flow gun).

1 Drain both wing fuel tanks as per Chapter 12.

2 Remove the wing from the fuselage as per Chapter 57.

NOTICE

Damage to the wing possible.
Ensure wing and especially the trailing edge is held by two persons or supported otherwise when not in safe vertical position.
Use cushioned supports (3) if applicable.

3 Place the wing (2, Figure 4) on an appropriate support (1) allowing rotations as shown in Figure 5.

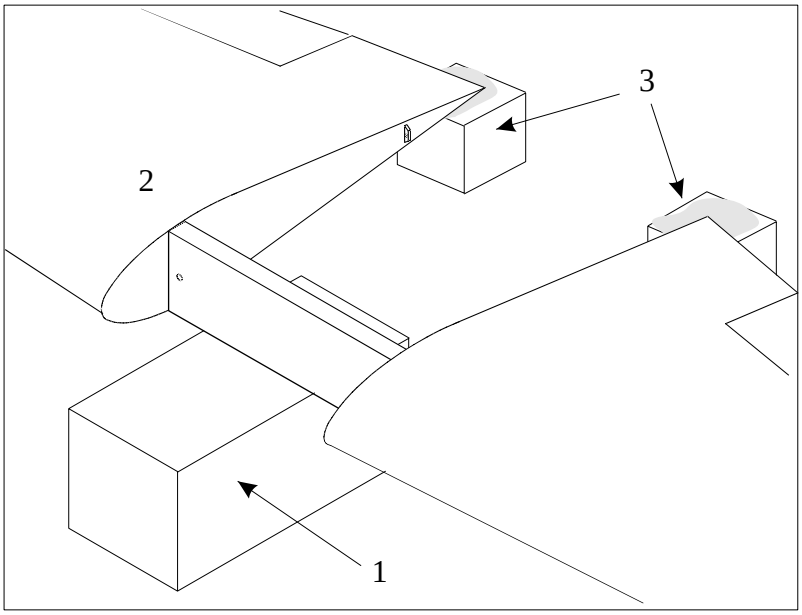


Figure 4 Wing Supports

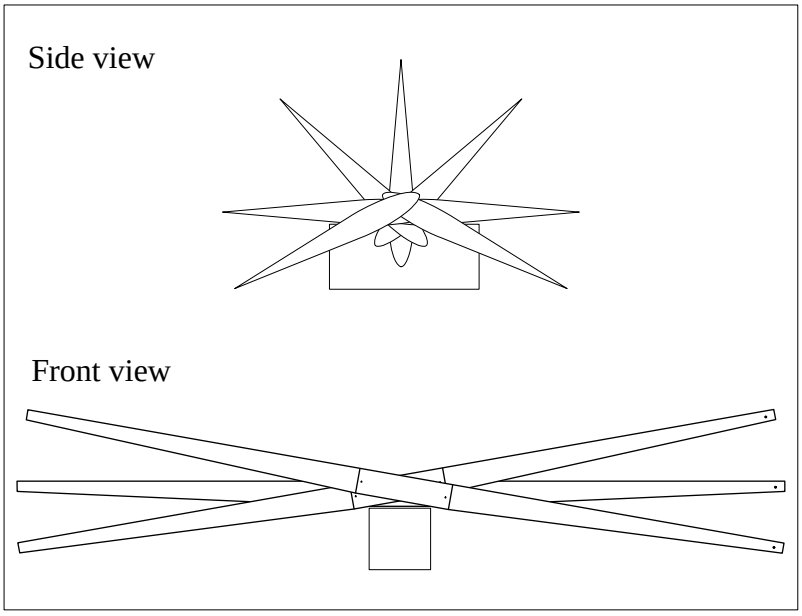


Figure 5 Wing Positions

For totally drying the wing tank to be sealed and to eliminate any fuel vapor:

4a Remove the fuel filler cap.

4b Remove the wing tank inspection door as per Chapter 28-10-11.

4c Leave the fuel tank compartment open for an appropriate time.

4d Discharge moderate dry shop-air through the wing tank compartment as applicable.

5 Cover fittings or tubes in the area of leak with caps or tape.

6 Place and secure the wing in a position in which the leak to be sealed is (as far as possible) at the bottom.

7 Cover fuel tank installations like filler neck sealing lip, tubes, strainers, fittings etc. if next to the affected area with caps or tape.

WARNING

Scotch Clad 776 is dangerous for eyes, skin and respiratory system.
Wear protection goggles, respiratory mask, and safety gloves.
Follow the instructions of Scotch Clad 776 safety data sheet.

8 Prepare an elongated spray gun for the use of Scotch Clad 776.

9 Apply a cohesive film of Scotch Clad 776 through the inspection hole of the tank root rib (Figure 6) by using the spray gun.

10 Rotate the complete wing around its pitch and/or roll axis step by step to ensure that the Scotch Clad 776 is dispersed all-over the leak area.

11 When applying multiple sealant coats allow a minimum of 20 minutes between coats.

12 Place and secure the wing again in the position in which the leak to be sealed is (as far as possible) at the bottom.

13 Let the sealant dry at elevated room temperature.
Under normal atmospheric conditions the sealant becomes tack free in about 40 minutes and is thoroughly dry in 24 to 48 hours. Drying of sealant might be supported by an air hose inserted into the fuel tank compartment to help provide air circulation for proper drying.

14 Uncover fuel tank installations if applicable.

15 Reinstall the wing tank inspection door as per Chapter 28-10-11.

16 Reinstall the fuel filler cap.

17 Perform a leak test to ensure that the shell is completely sealed.

28-10-11 Wing Tank Inspection Door

Removal/Installation

1 Drain the fuel system per Chapter 12-10-02.

2 Disconnect the ground bonding leads and if necessary (LH wing tank) the electrical wiring of the lever-type tank unit (3, Figure 4).

3 Remove the inspection door bolts.

4 Remove the inspection door flange (1).

5 Push the inspection door (2) into the tank, then turn and remove.

WARNING

Stripping solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

6 Clean the sealing surfaces mechanically and with Acetone.

7 Install in reverse sequence of removal after applying Scotch Clad 776 (see Chapter 51-30-04) to the sealing surfaces (inspection door and tank root rib).

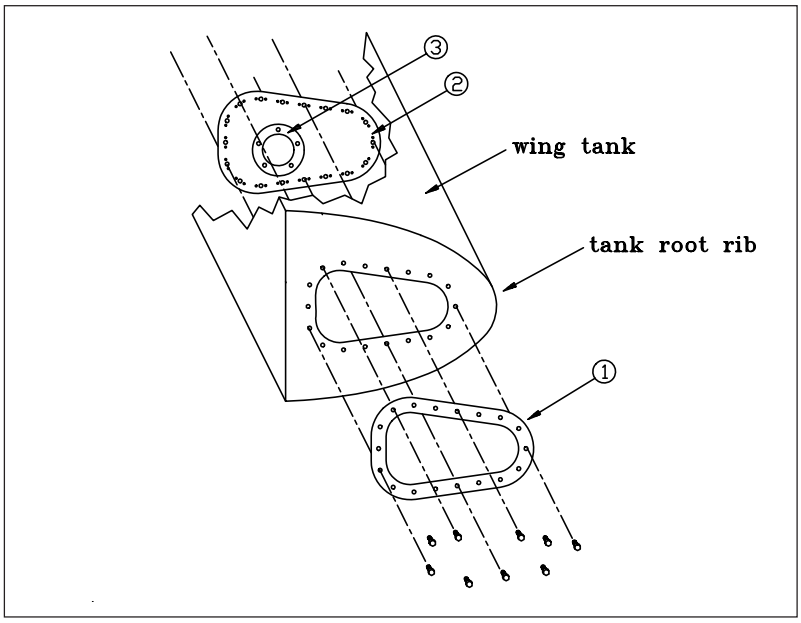


Figure 6 Inspection Door Removal/Installation

28-10-12 Wing Tank Outlets

Removal/Installation

1 Remove the inspection door (1, Figure 7) per Chapter 28-10-11.

2 Remove the union nuts (2) and the elbow tubes (3).

3 Remove AN 924 nut and washers and remove AN 832 fitting.

WARNING

Stripping solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

4 Clean sealing surfaces mechanically and with Acetone.

5 Install in reverse sequence of removal after applying Scotch Clad 776 (see Chapter 51-30-04) to the sealing surfaces (fitting to tank root rib). Ensure that the outlet end positions are in the upper- resp. undermost edge of the wing tank (see Figure 7 below).

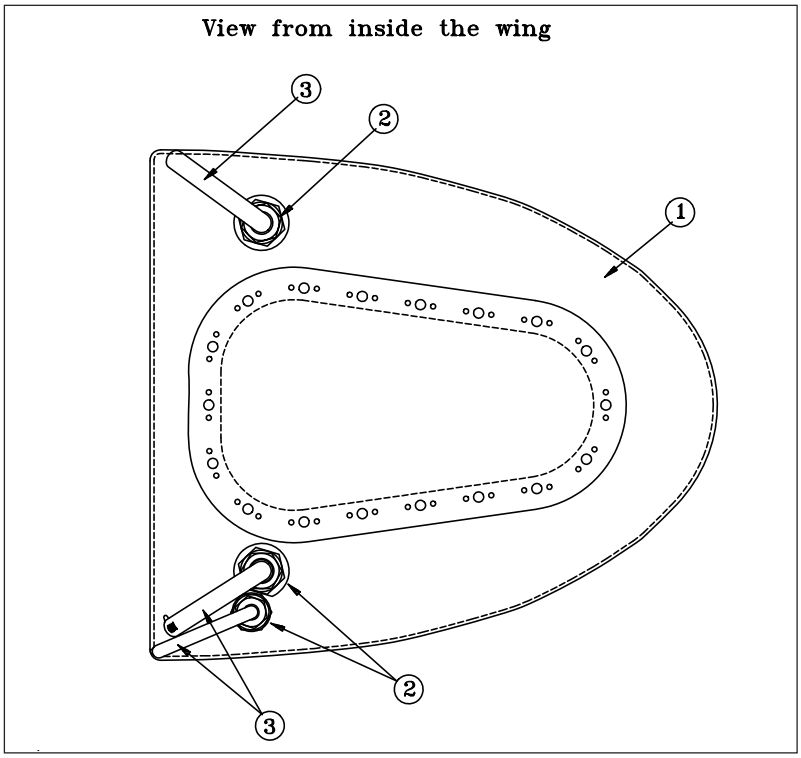


Figure 7 Wing Tank Outlets Removal/Installation

28-10-13 Filler Neck (Wing Tank)

Removal/Installation

1 Completely drain the fuel system as per Chapter 12.

2 Remove wing tank inspection door as per Chapter 28-10-11.

3 Unscrew filler neck lock ring (4, Figure 8) with sealing lip (5) using a tool as shown in Figure 8.

4 Remove filler neck (3) with filler cap (1) and O-ring (2).

WARNING

Stripping solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

5 Clean all sealing surfaces with Acetone.

6 Install in reverse sequence of removal after appScotch Clad 776 (see Chapter 51-30-04) to the sealing surfaces (wing/filler neck).

28-10-14 Filler Neck Sealing Lip

Replacement

1 Carefully drill out the body-bound rivets (7, Figure 8).

2 Install the new sealing lip driving in new washers (6) and body-bound rivets.

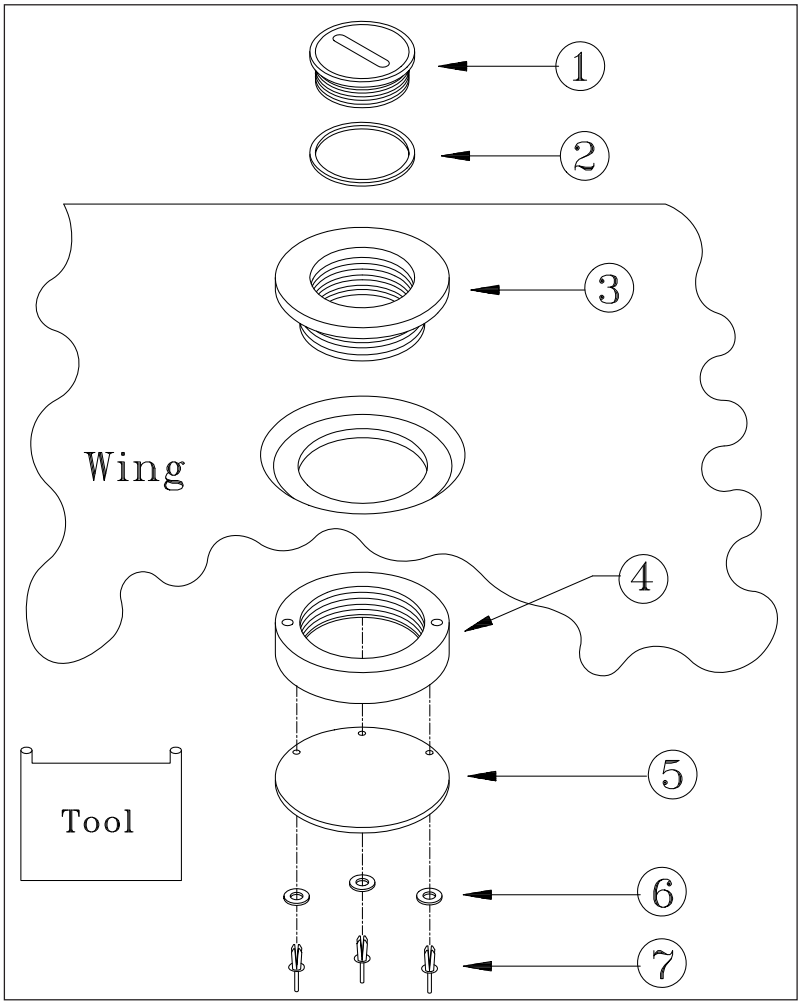


Figure 8 Filler Neck and Sealing Lip Removal/Installation

28-10-20 Ventilation Lines

Replacement

Ventilation lines are generally connected to the tanks and to each other by fittings.

General information concerning fittings you find in Chapter 20-10-08.

28-20-00 DISTRIBUTION

Description and Operation

(Refer to Figure 9) Flexible hoses and aluminium tubes (5 & 6) connect the particular components of the fuel system. The wing tanks of the EXTRA 300/SC are equipped with a separate drain line.

In addition to the engine driven fuel pump (3), an electrically driven fuel pump (2) having sufficient capacity to feed the engine at take-off power is fitted as a safety device against failure of the engine driven pump. The electrical pump switch is located on the instrument panel. A gascolator (4) is installed between the fuel selector valve (7) and the electrical fuel pump at the firewall (engine side). The fuel selector valve (7) is located behind the firewall on a separate support. A control rod connects the selector valve to the control handle. The handle has the positions "WING TANK", "ACRO & CENTER TANKS" and "OFF".

The fuel selector valve is marked by the letters "WT" (Wing Tank), "E" (Engine), and "CT" (Center Tanks) to ensure correct installation of fuel lines.

Drains are located at the gascolator and the left and right side of the bottom fuselage.

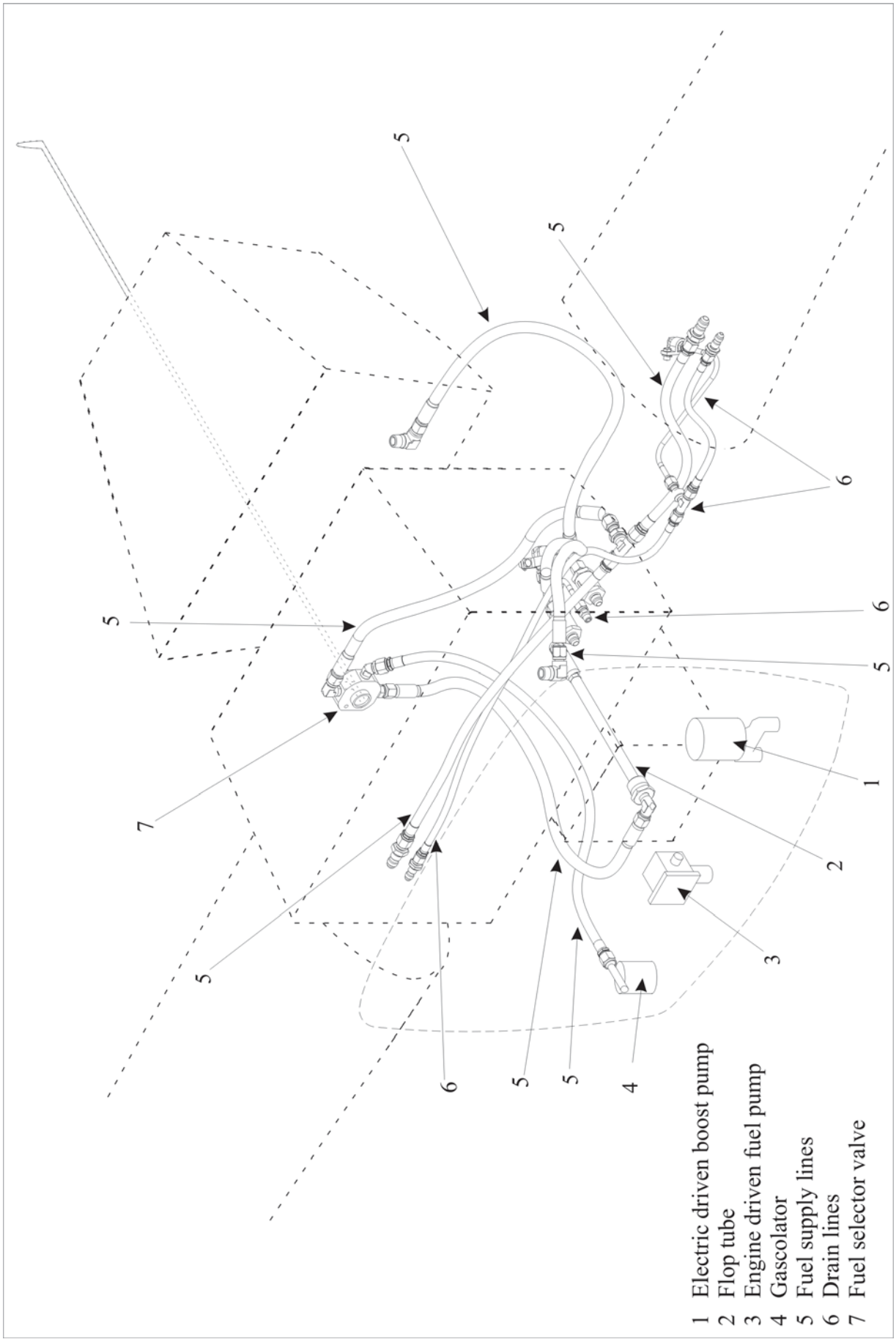


Figure 9 ***Distribution***

28-20-01 Fuel Selector Valve and Control Rod

Removal/Installation

(Refer to Figure 10)

1 Drain the fuel system per Chapter 12-10-02.

2 Disconnect the fuel lines on the selector valve.

3 Loosen the control rod attachment bolt (5).

4 Loosen the selector valve attachment bolts (2).

5 Remove the selector valve (1).

6 Remove the control handle attachment bolt (7).

7 Remove the washers (8) and spring (9) if installed, the control rod (6) and the control handle (10).

8 Install in reverse sequence of removal. Use LOCTITE when installing the attachment bolts of the new type selector valve.

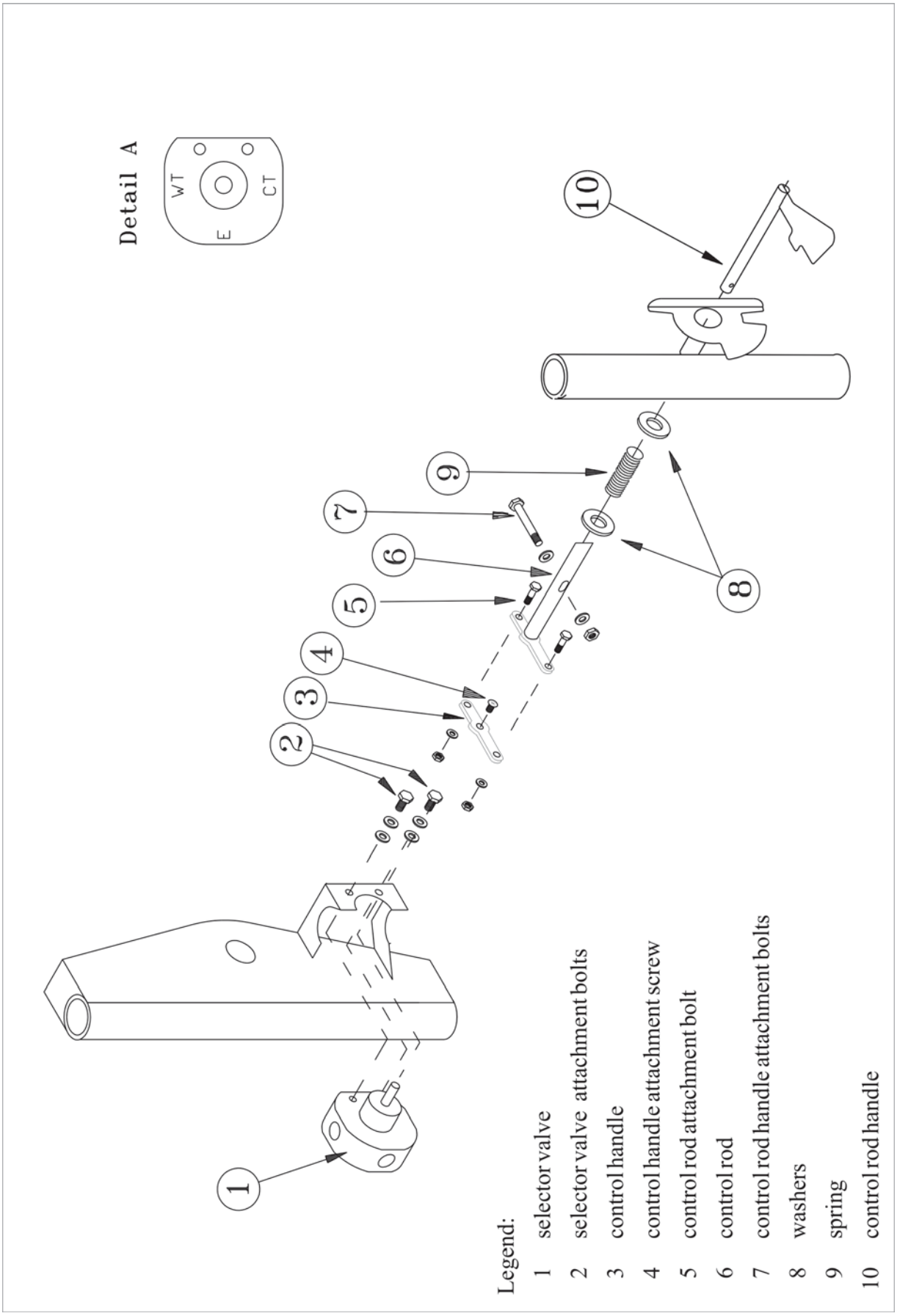


Figure 10 ***Fuel Selector Valve and Control Rod***

28-20-02 Gascolator

The gascolator (1, Figure 11) is positioned in the engine compartment, mounted with a bracket on the forward side of the firewall. It is installed in the fuel line between the fuel selector valve and the electric driven boost pump.

It is an all metal gascolator with screen, 2-1/2" diameter cadmium plated steel bowl with connection to a fuel drain line to the downward positioned quick fuel drain (3).

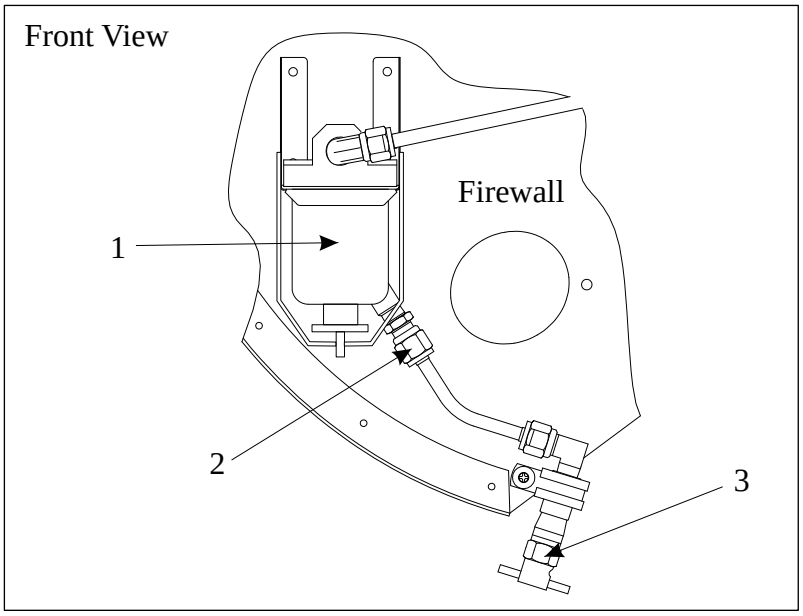


Figure 11 Gascolator and Drain

Inspection

1 Remove cowling.

2 Make sure that the aircraft is powered off (MASTER SWITCH in OFF position).

3 Confirm that the fuel selector valve is in the OFF position.

4 Place a suitable container under the gascolator drain. Operate the fuel drain to empty fuel in the gascolator bowl (3, Figure 11).

5 Disconnect the fuel drain tube connection from the gascolator bowl (1) by loosening the coupling nut (2).

6 Cut away and discard existing safety wire from the gascolator.

7 Loosen the bail nut (1, Figure 12), move the bail wire (2) to the side and remove the bowl (3).

8 Remove the gasket (4) and screen (5) from the strainer housing (6).

9 Clean and inspect the screen (5), gasket (4), bowl (3), strainer housing (6), bail wire (2) and bail nut (1). Replace any worn or damaged components.

10 Reinstall gasket (4) and screen (5).

11 Position the gascolator bowl (3) and bail wire (2). Tighten the bail nut (1) by hand, then continue tightening an additional one nut flat (i.e., 60 degrees) with a wrench. Do not over tighten.

12 Position the fuel drain line. Tighten the coupling nut of the fuel drain tube connection to the gascolator bowl.

13 Safety the gascolator bail nut (1) to bail wire (2) and bowl (3), bail wire (2) to the gascolator bracket with MS20995-C32 Safety Wire, using the “double twist” method, as described in FAA Advisory Circular AC 43.13-1B CHG 1, Chapter 7, Section 7, “SAFETYING”.

14 Place MASTER SWITCH to ON position.

15 Operate the fuel system and check for leaks.

16 Reinstall cowling.

CAUTION

Fire hazard due to spilled fuel after draining.

Pick up any amount of fuel before starting the engine.

Removal/Installation

1 Position the fuel selector to "OFF".

2 Drain the forward fuel system using the gascolator drain.

3 Disconnect the fuel lines on the gascolator.

4 Loosen the knurled nut (1, Figure 12).

5 Remove the mounting bracket (2).

6 Remove the fuel reservoir (3) and the sealing ring (4).

7 Remove the strainer (5) and the gascolator cover (6).

8 Install in reverse sequence of removal.

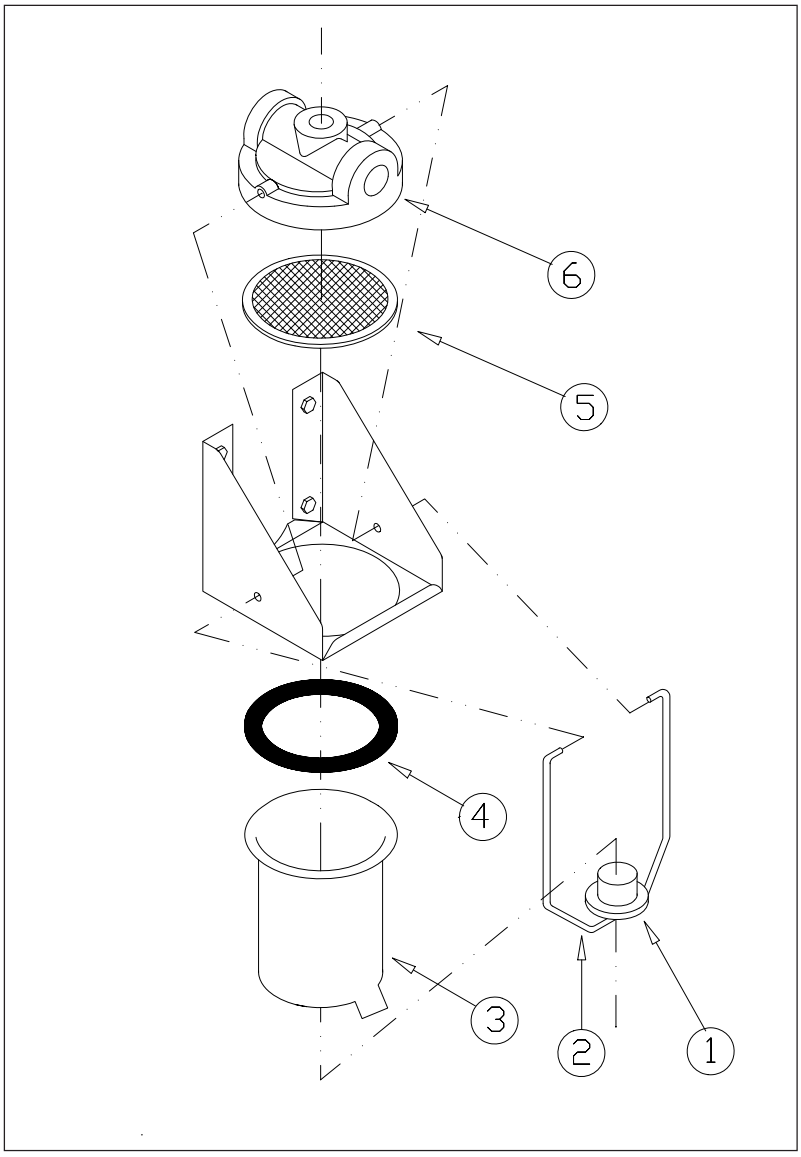


Figure 12 Gascolator Eploded View

28-20-03 Electric Driven Boost Pump

Removal/Installation

1 Position the fuel selector to "OFF".

2 Drain the forward fuel system using the gascolator drain.

3 Disconnect the plug and the fuel lines on the boost pump.

4 Loosen the clamping device screws (1, Figure 13).

5 Remove the boost pump (2).

6 Install in reverse sequence of removal.

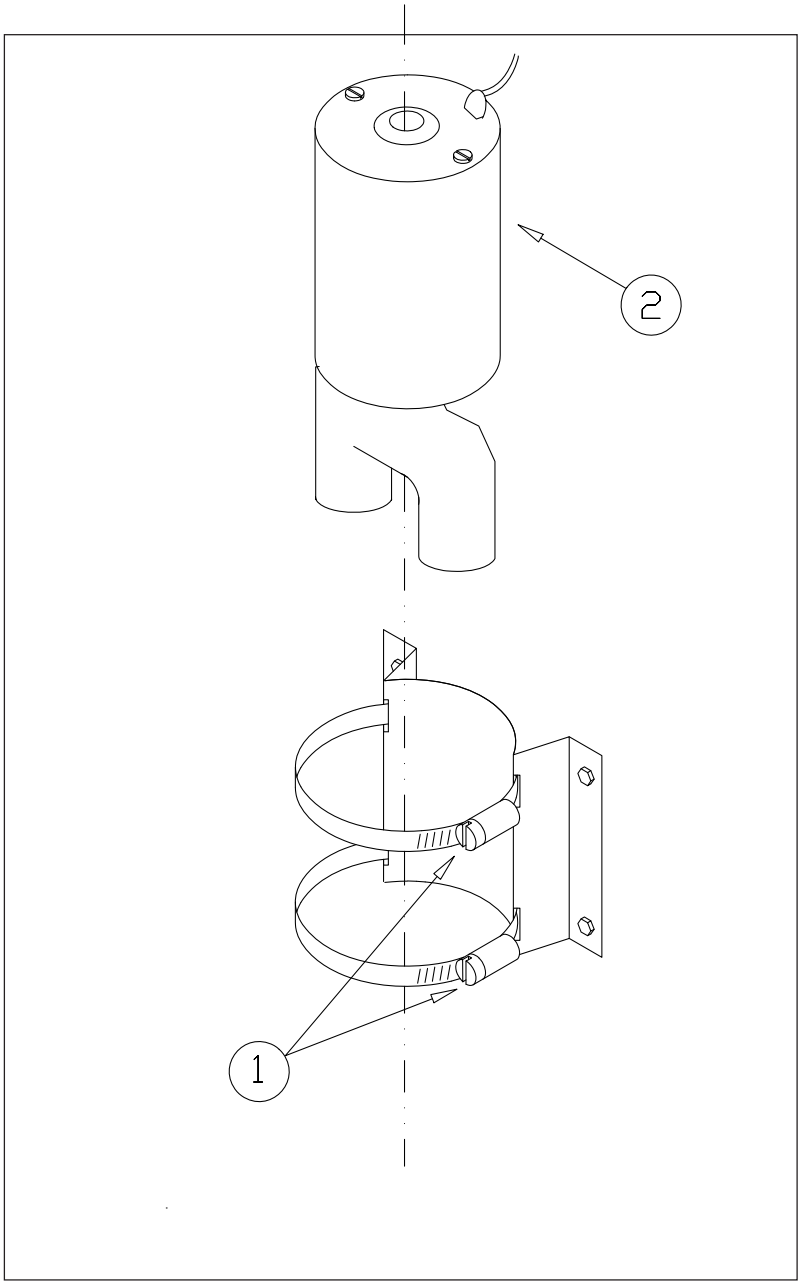


Figure 13 Boost Pump Removal/Installation

28-20-04 Fuel Lines

Replacement

Ventilation lines are generally connected to the system components and to each other by fittings.

General information concerning hoses and fittings you find in Chapter 20-10-07/08.

IMPORTANT

If replacement of fuel lines passing the firewall is necessary, renew the sealing of the rubber grommet grooves and gaps at the engine side of the firewall. Use firewall sealant as presented in Chapter 51-30-04.

28-40-00 INDICATING

Description and Operation

(Refer to Figure 14) For fuel contents indicating the center tanks are equipped with tubular tank units (1 & 2) and the left wing tank with a lever-type tank unit (4).

If the optional MVP-50P is installed the right wing tank is also equipped with a lever-type fuel quantity transducer (refer to Chapter 77-40).

They transmit the fuel levels to the respective fuel quantity indicators at the instrument panel (3). The fuel quantity indicators of the center tanks of the VDO system are adjustable. If the indication of the wing tanks is inaccurate the float wire of the lever type tank unit has to be adjusted (refer to Chapter 28-40-05).

From S/N SC023 and up Datcon Intellisensor capacitative fuel quantity sensors and matching indicators are installed. This Datcon system can also be retrofitted.

In combination with the MVP-50P capacitive tubular tank units from Centroid Products are installed in the center tanks.

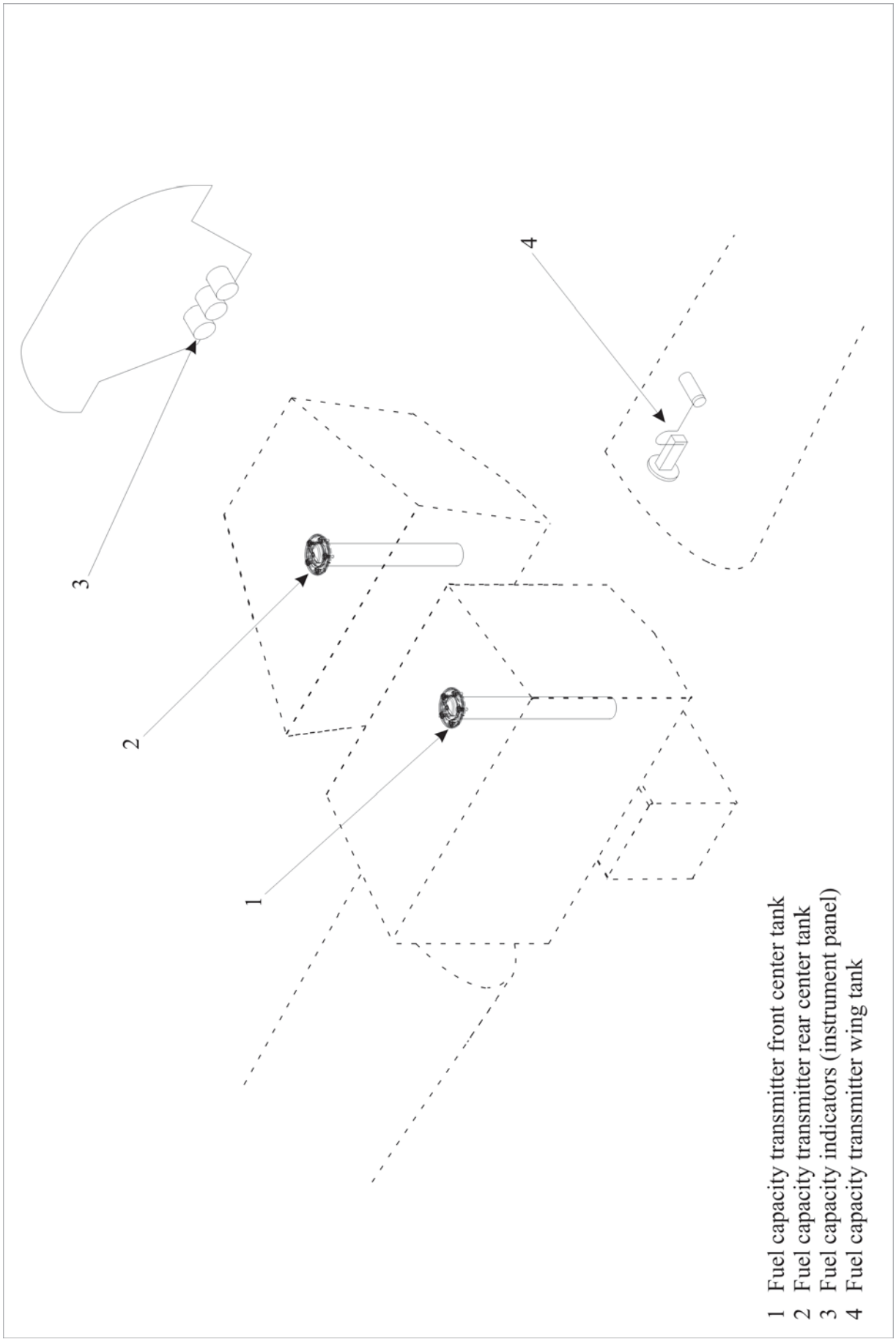
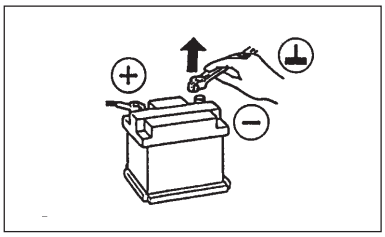


Figure 14 ***Indicating***

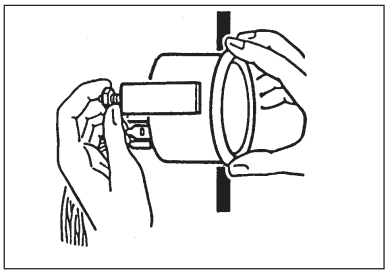
28-40-01 Fuel Quantity Indicator

Removal/Installation

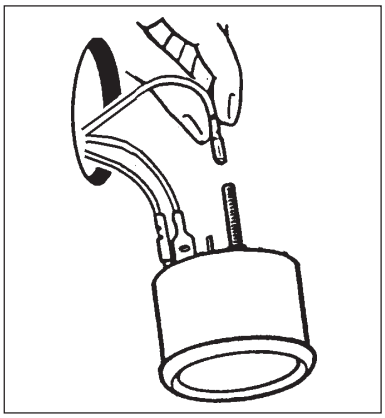
1 Disconnect battery.



2 Loosen the nuts, remove the mounting bracket and remove the fuel quantity indicator.



3 Disconnect the wiring (the lamp is not used).

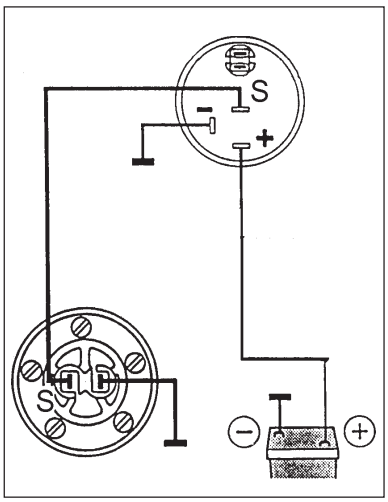


4 Install in reverse sequence of removal.

For VDO system:
Observe the adjacent wiring diagram ("S" = Signal).
For calibration refer to Section 28-40-02.

For Datcon system:
Refer to Figure 15.
No calibration necessary.

For Centroid Products system:
Refer to Figure 16.
No calibration necessary.



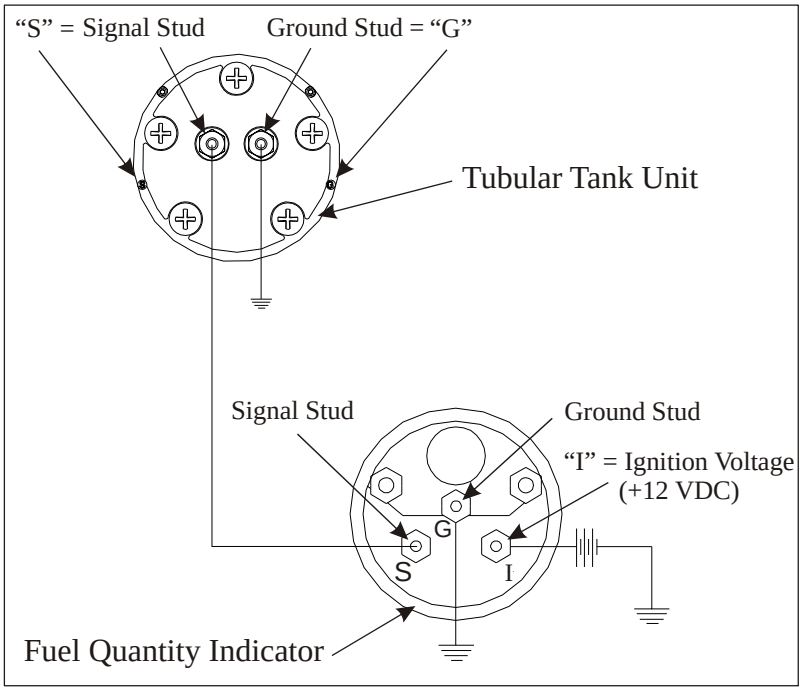


Figure 15 Wiring Diagram Datcon System

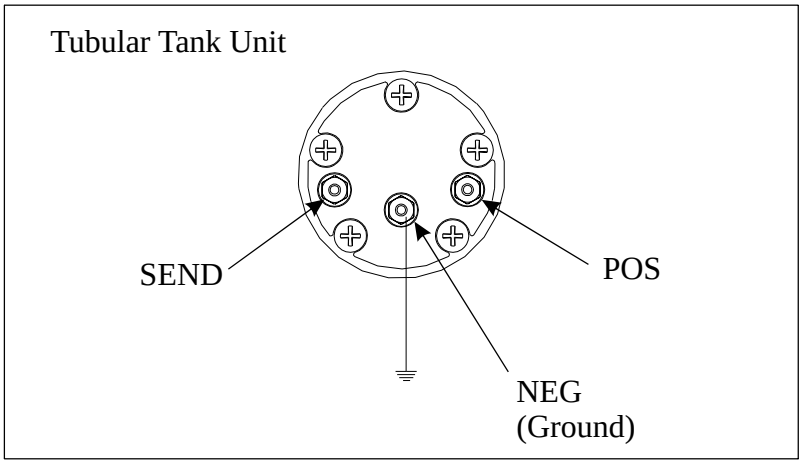


Figure 16 Wiring Diagram Centroid Products System

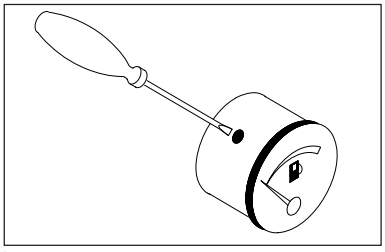
28-40-02 Fuel Quantity Indicator (Center Tanks)

Calibration (VDO system only)

1 Drain the fuel system (refer to Chapter 12-10-02).

2 Remove the fuel quantity indicator following step 2 of Chapter 28-40-01.

3 Bring indicator to „0“-position by turning the adjustment screw.



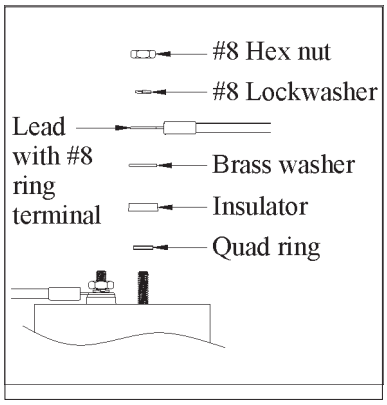
4 Reinstall the fuel quantity indicator.

28-40-03 Tubular Tank Unit (Center Tanks)

For VDO-System:
The ground wire is connected to one attachment bolt of the tubular tank unit .

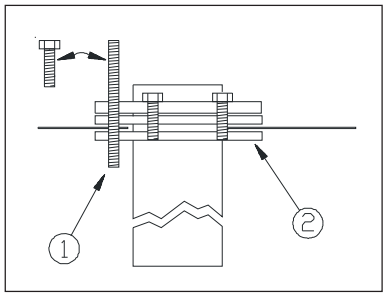
For Datcon-System:
The ground wire is connected to the ground stud (also refer to Figure 15)

For Centroid Products system:
The ground wire is connected to the NEG stud. Refer to Figure 16.



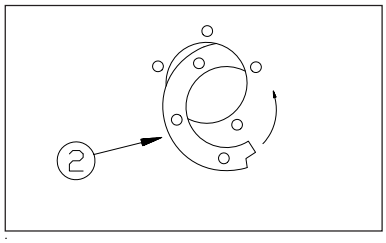
Removal/Installation

1 Drain the fuel system per Chapter 12-10-02.



2 Loosen one bolt and replace by a M5 threaded rod (1) for securing the slotted retainer ring (2).

3 Remove the other bolts and the ground wire.



4 Lift tubular tank unit and sealing ring over the threaded rod.

5 Remove the threaded rod and turn out the slotted retainer ring (2).

WARNING

Stripping solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

6 Clean sealing surfaces mechanically and with Acetone.

7 Install in reverse sequence of removal after applying Scotch Clad 776 (see Chapter 51-30-04) for sealing to both sides of the sealing ring.

For the Datcon system: Torque sealing screws to 9-12 in.lbs. (1-1.4 Nm). Do not over-torque.

8 Allow sealing compound to thoroughly dry for approximately 24 hours at room temperature.

9 Check fuel tanks for leakage at the sender flange and mounting bolts.

28-40-04 Lever-type Tank Unit (Wing Tank)

Removal/Installation

(refer to Figure 17 below)

1 Disconnect the electrical wiring.

2 Remove LH inspection door (refer to Chapter 28-10-11)

3 Remove tank unit bolts (1).

4 Remove the retainer ring (3) the tank unit (4) and the sealing ring (2).

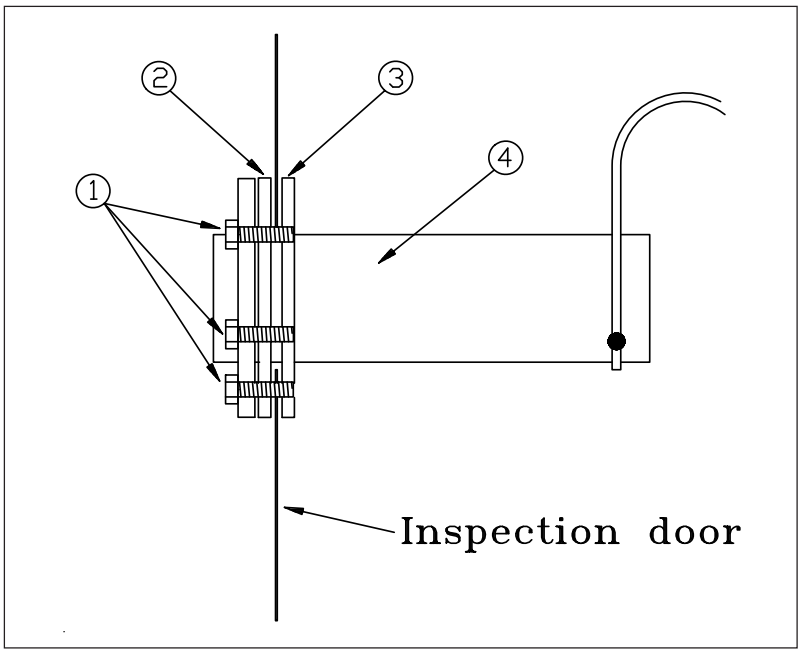


Figure 17 Lever-type Tank Unit (Wing Tank)

WARNING

Stripping solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

5 Clean sealing surfaces mechanically and with Acetone.

6 Install in reverse sequence of removal after applying Scotch Clad 776 (see Chapter 51-30-04) for sealing to both sides of the sealing ring and the grooves inside the tank.

7 Check proper shape and installation of float wire as per paragraph 28-40-05.

28-40-05 Float Wire

Adjustment

1 Remove the lever-type tank unit per Chapter 28-40-04.

NOTE

Figures 18 and 19 are mirror inverted also valid for the float wire in the RH wing tank if the optional MVP-50P is installed.

2 Remove the float wire and bend it in form like shown in the following Figure 18:

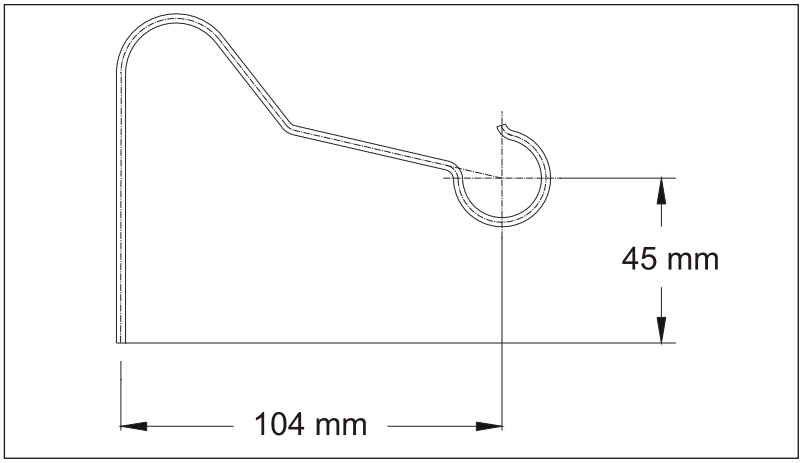


Figure 18 Float Wire Adjustment

3 Reinstall the float wire observing the distances shown in Figure 19, pay attention to a proper alignment and tighten well the attachment bolt.

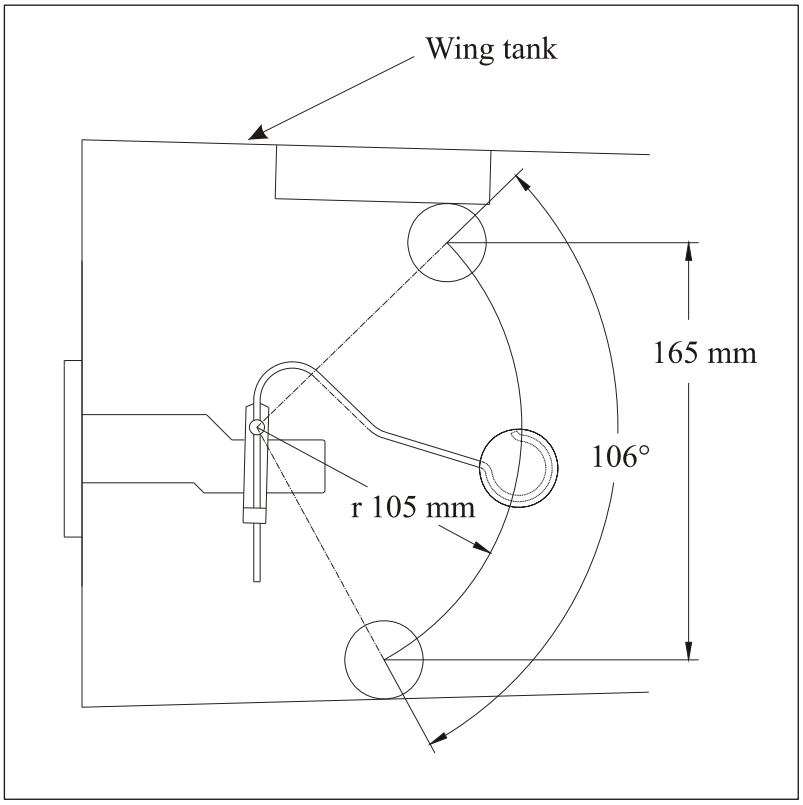


Figure 19 Float Wire Installation

4 Reinstall the lever-type tank unit per Chapter 28-40-04.

Chapter 31

Indication\Recording System

Table of Contents

31-10-00 INSTRUMENT PANEL

Description and Operation

The instrument panel consists of an aluminium sheet which is canted several times. It is fastened to the main fuselage cover and the steel frame with machine screws, bolts and special washers. The instrument panel top cover is part of the main fuslage cover, which itself is furnished with an instrument access panel as shown in Chapter 51-00-01.

Figures 1 and 2 in connection with the related charts on the next page show the equipment of the instrument panel. The chart may be modified by the minimum equipment requirements of individual certifiying authorities.

If the optional MVP-50P is installed, the lower part of the instrument panel is changed (refer to Chapter 77-40).

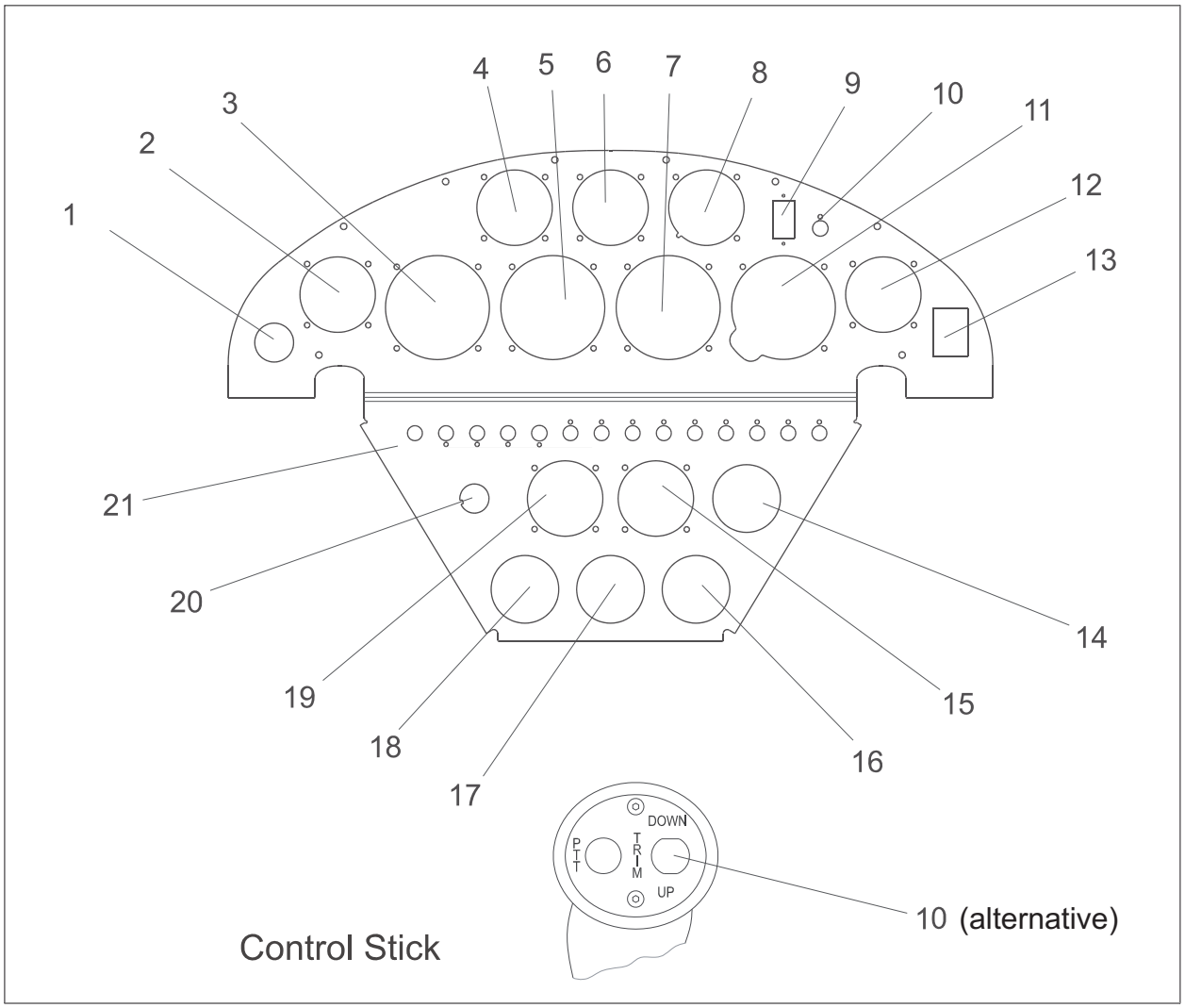


Figure 1 ***Instrument Panel***

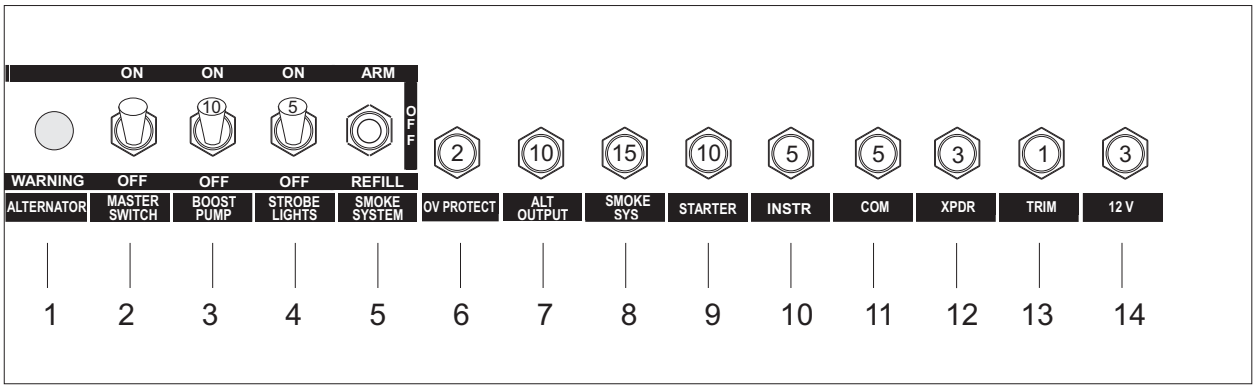


Figure 2 ***Switches, Light, and Circuit breakers***

Pos.	*Item Figure 1*
1	12 Volt power source jack
2	COM
3	Air speed indicator
4	Blank
5	Manifold pressure / fuel flow
6	Magn. direction indicator
7	RPM indicator
8	G-meter
9	Trim position indicator
10	Trim position switch
11	Altimeter
12	XPDR
13	ELT switch
14	Ammeter
15	Oil pressure / oil temperature
16	Fuel quantity Rear center tank
17	Fuel quantity Front center tank
18	Fuel quantity Wing tanks
19	EGT / CHT indicator
20	Magneto selector switch & starter
21	Switches, circuit breakers, light as listed below:

Pos.	*Item Figure2*
1	Alternator warning light incl. press-to-test feature
2	Master switch
3	Boost pump circuit breaker switch
4	Strobe lights circuit breaker switch
5	Smoke system switch
6	Overvoltage protection system cicuit breaker
7	Alternator output circuit breaker
8	Smoke system circuit breaker
9	Starter circuit breaker
10	Instruments circuit breaker
11	COM circuit breaker
12	XPDR circuit breaker
13	TRIM circuit breaker
14	12 V circuit breaker

N O T E

These lists may be modified by the minimum equipment requirements of individual certifying authorities!

Maintenance Practices

IMPORTANT

If replacement of the manifold, fuel, and oil pressure lines inside the engine department is necessary.

The instruments can be removed in either the way described in Chapter 34 (f.e. altimeter removal/installation), if the instruments are to be removed in firewall direction, or in Chapter 28 (fuel quantity indicator removal/installation) if the instruments are to be removed in cockpit direction. The removal/installation procedures of the switches and circuit breakersyou find in Chapter 24.

NOTE

In case of extensive maintenance work it is advisable to remove the main fuselage cover for better access to the instruments.

Removal/Installation

1 Unscrew the upper instrument panel attachment screws.

2 Remove the main fuselage cover.

3 Disconnect the battery.

4 Disconnect pressure and pitot/static lines, electrical wiring and ground bonding leads from the instruments and the switches.

5 Remove all circuit breaker attachment nuts on the cockpit side of the instrument panel.

6 Remove the mounting bracket attachment bolts and remove the mounting bracket.

7 Remove the instrument panel attachment screws and remove the instrument panel.

8 Fasten the the busbar with the circuit breakers to the upper fuselage tubing by adhesive tape if applicable.

9 Reverse procedure for installation.

Chapter 32

Landing gear

Table of Contents

32-10-00 LANDING GEAR

The EXTRA 300/SC is designed as a conventional tail wheel airplane, with an unretractable landing gear.

The landing gear consists of a 2 wheel main landing gear and a tail wheel.

The main wheels are attached to the fuselage by means of the landing gear U-spring. This spring is of integral glass-fibre design and incorporates wheel alignment, spring and dampening action.

IMPORTANT

New bolts are to be used when the wheel axles are replaced or refitted.

The tail wheel is steerable and features full swivel capability. The tail wheel steering is attached to the rudder bottom hinge bellcranks using the same bolts as the control cables.

The values for wheel rake and toe-in of main landing gear are given in Figure 1.

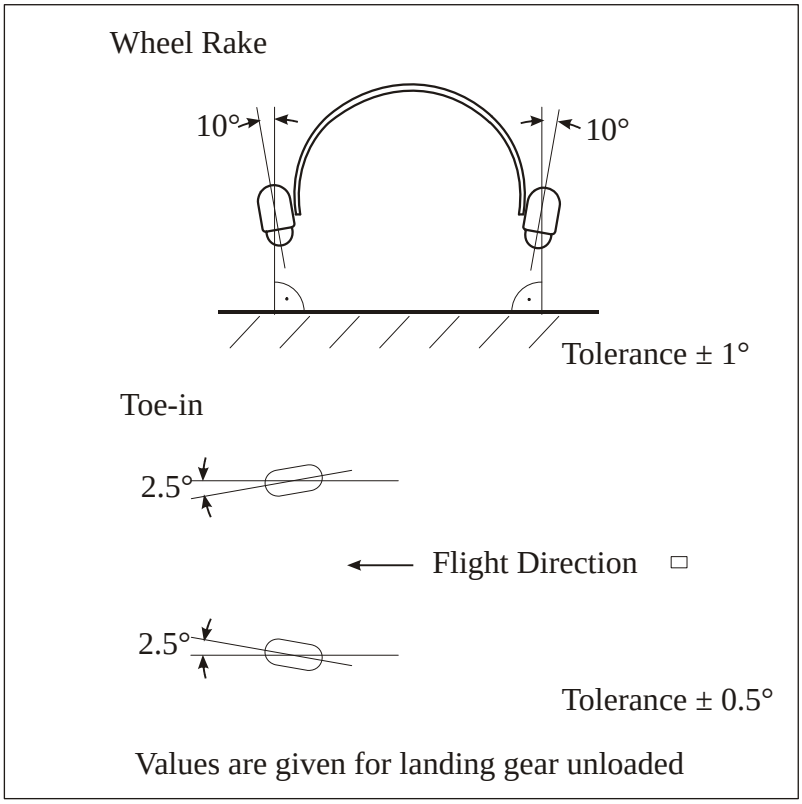


Figure 1 Wheel Rake and Toe-in

32-10-01 Main Landing Gear

Removal/Installation

Refer to Figure 2

1 Remove the engine cowling, the landing gear cuffs and fairings, and the bottom fuselage cover per Chapter 51.

2 Shore the aircraft as per Chapter 07-20-00

3 Drain brake system.

4 Unfasten the ventilation tubings and disconnect the brake lines from the brake assembly.

5 Remove the four landing gear attachment stop nuts (LN9348-8) (1) and the DIN 125 M8 washers.

6 Remove the bottom halves of the mounting clamps (2), the anti abrasion strips (3) and the landing gear (4).

7 Install in reverse sequence of removal using new stop nuts. For correct position of landing gear the mandrel, which is located at the bottom of the fuselage, is to put into the respective sleeve at the top of the landing gear spring. Replenish brake fluid per Chapter 12.

32-10-02 Top Half of the Mounting Clamp

Removal/Installation

Refer to Figure 2

1 Remove the main landing gear as per Chapter 32-10-01.

2 Remove the LN9348-10 stop nuts, the DIN125 M10 washers and the LN9037-10054 bolts (5).

3 Remove the top half of the mounting clamp (6).

4 Reverse procedure for installation. Apply AeroShell Grease 22C (MIL-PRF-81322F) to the bolt (5) shaft and to the underside of the bolt head and torque according to the special torque value given in Chapter 20.

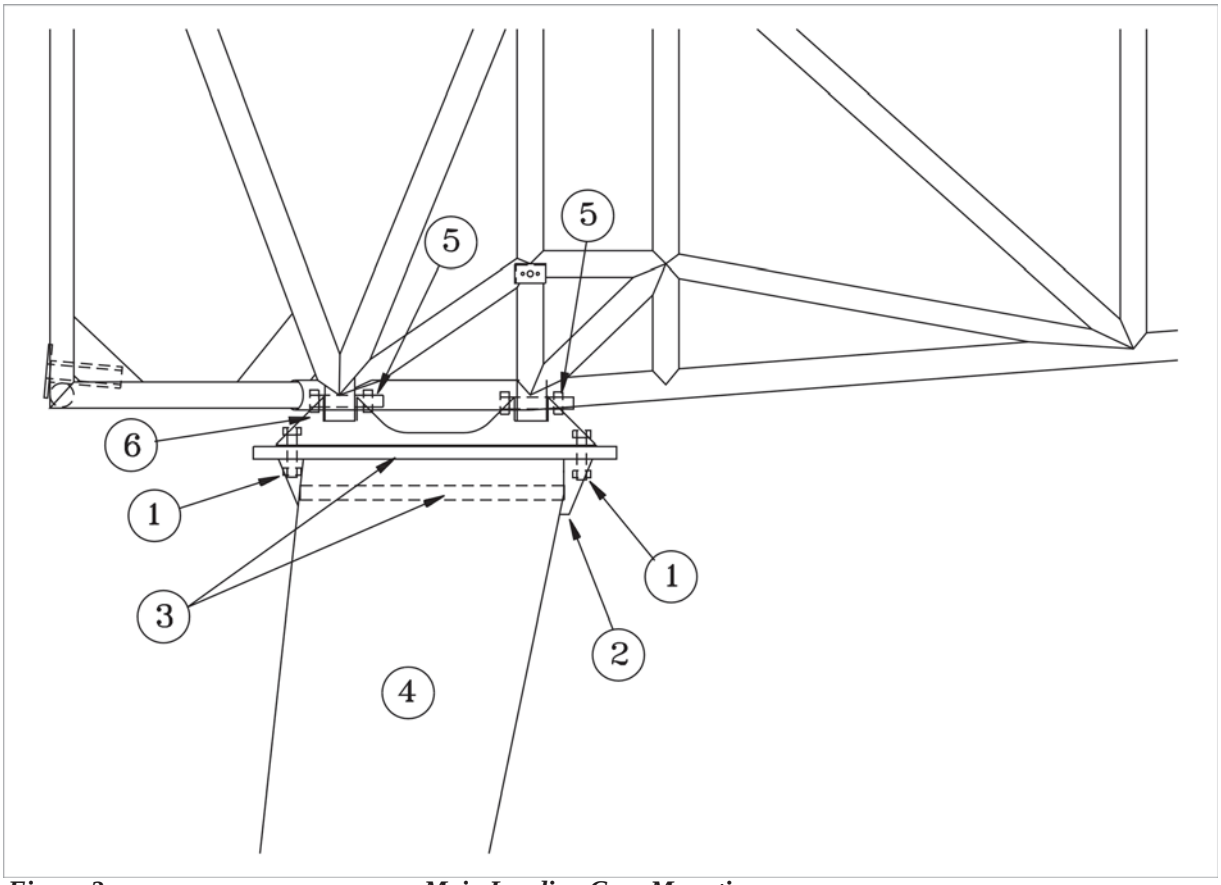


Figure 2 ***Main Landing Gear Mounting***

32-10-03 Wheel Axle

Removal/Installation

1 Remove wheel fairing as per chapter 32-40-02.

2 Remove wheel.

3 Remove the four wheel axle attachment bolts and remove the axle, the reinforcement plate and the wheel fairing holder plate.

4 Install in reverse sequence of removal. Use new nuts and bolts.

32-10-04 Tail spring

Removal/Installation

Refer to Figure 3.

1 Shore the tail as per Chapter 07-20-02.

2 Remove the tail cone access panel as per Chapter 51-00-01.

3 Remove the tail spring attachment bolts (1-3).

4 Remove the tail spring (4).

5 Reverse procedure for installation; consider to fasten the breather line using the MS21919-DG12 clamp (5).

32-10-05 Tail Wheel Fork Assembly

Disassembly/Assembly

1 Shore the tail as per Chapter 07-20-02.

2 Remove the elastic stop nut and the large washer.

3 Remove the locking pin, spring, and spare retaining pin.

4 Reverse procedure for assembly.

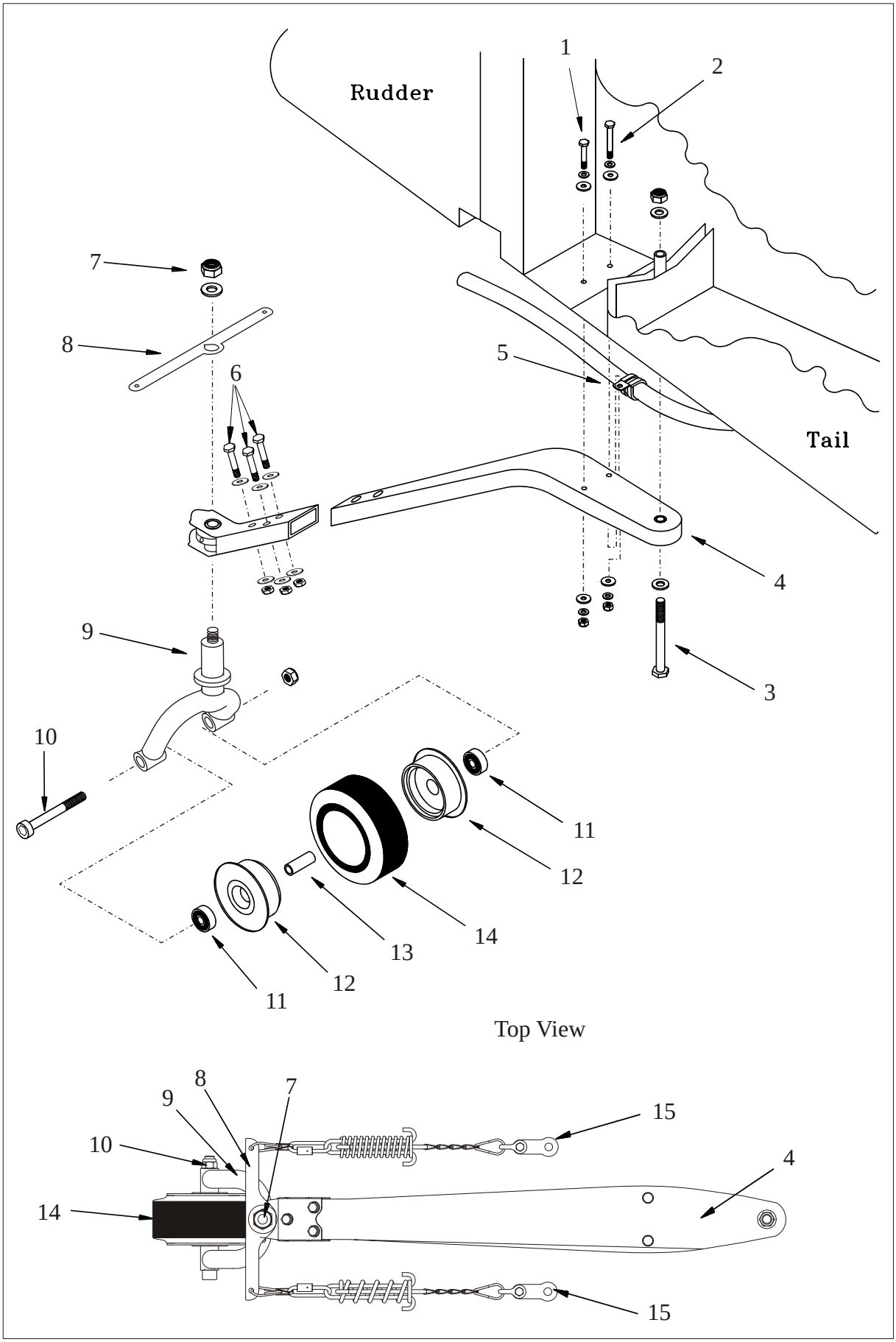


Figure 3 ***Tail Spring***

32-40-00 WHEELS AND BRAKES

General

This Chapter provides maintenance personnel with necessary procedures to accomplish both on-aircraft and off-aircraft maintenance of Cleveland design wheel and brake assemblies. Such maintenance shall include inspection, removal, servicing, refinishing, and installation of assemblies.

Description and Operation

The main wheels have standard brand 500x5 rims, six-ply rated 5.00-5-tyres with tubes, according to FAA Standard TSO-C62. Cleveland 40-151 type wheels with 30-164 type brake assemblies are used. The main wheels are covered with glas fibre designed fairings of which Figure 2 shows the layer sequence.

The tailwheel consists of a 5 inch tire and an aluminium rim.

The Cleveland design features an external brake in which the disc is external to the wheel with the brake caliper floating over the disc.

The brake system (refer to Figure 4) consists of a brake assembly located at the inner side of the wheel, a master cylinder (1) at each rudder pedal , and a brake fluid reservoir (2) mounted at the engine side of the firewall. The particular parts of the brake system are interconnected by brake lines consisting of aluminium tubes and flexible KNAPP hoses.

The tail wheel has no brake.

IMPORTANT

Test brakes after maintaining the brake system. Actuated brakes shall keep the aircraft standing with engine running at 1.800 rpm and maximum propeller angle of attack. With applied brakes and powersetting above 1800 rpm the wheels may slide on grass.

NOTE

For further information concerning main wheels and brakes refer to Cleveland Wheels and Brakes Component Maintenance Manual AWBCMM0001 and Technician's Service Guide AWBTSG0001.

32-40-01 Main Wheel

Removal

Refer to Figure 4.

1 Shore the aircraft as per Chapter 07-20-01.

2 Remove bolts (6) with washers (7), brake back plate (4) with lining, and insulator shim (5).

3 Remove cotter pin and axle nut (1).

4 Remove wheel (3) with spacer rings (2).

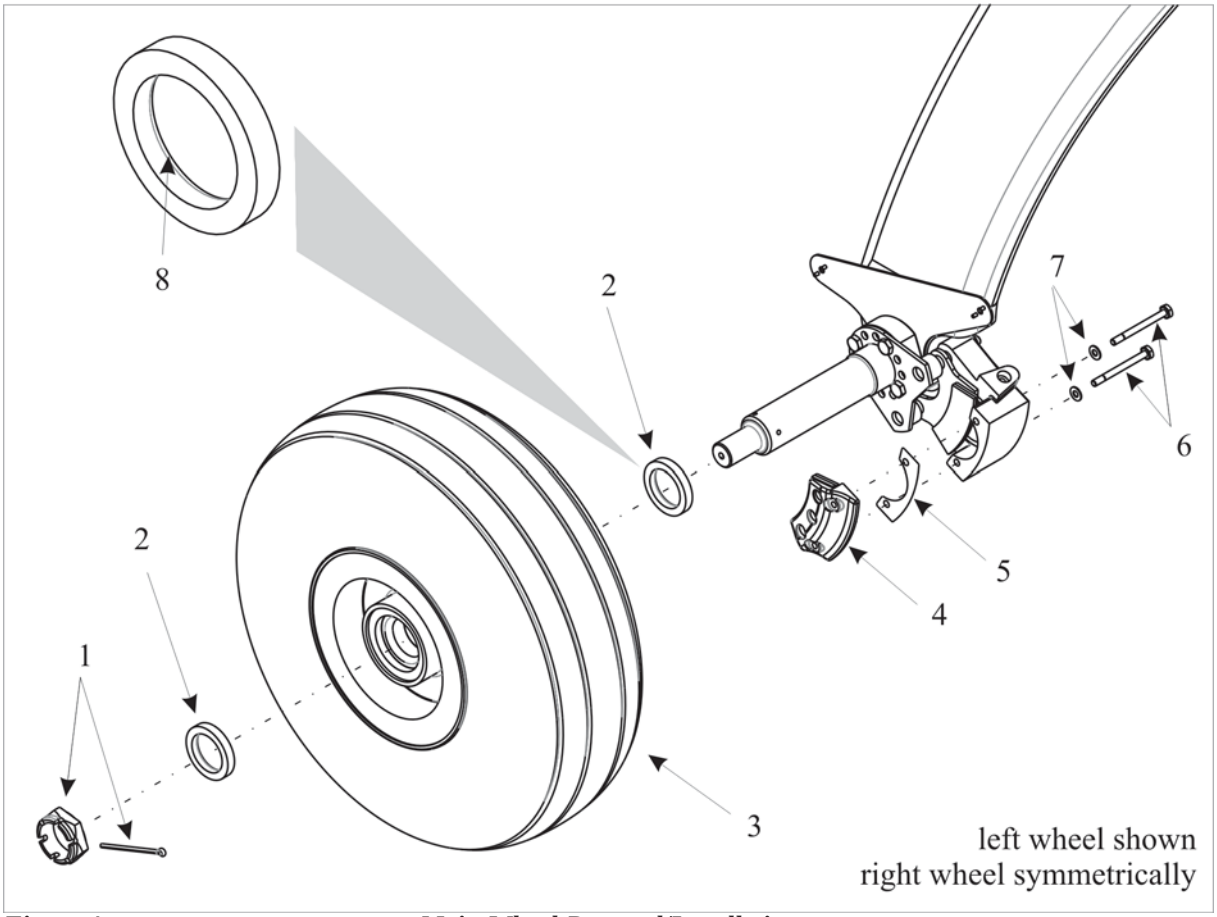


Figure 4 ***Main Wheel Removal/Installation***

Installation

Refer to Figure 4.

1 Install the inner spacer ring (2), place the rounded edge (8) inboard).

2 Install the wheel (3).

3 Install the outer spacer ring (2), place the rounded edge (8) inboard).

4 Install the axle nut with cotter pin (1).

5 Install brake back plate (4) with lining, insulator shim (5), and bolts (6) with washers (7). Secure bolts with safety wire.

32-40-02 Main Wheel Fairing

The main wheel fairings are made from carbon fiber. The layer sequence is shown on Figure 5.

Removal/Installation

The wheel fairings are screwed on.

32-40-03 Tail Wheel

Disassembly/Assembly

1 Shore the tail as per Chapter 07-20-02.

2 Remove the attachment bolt (10, Fighure 3), washers, and stop nut.

3 Remove the tailwheel.

4 Disassemble the bearings, the wheel halves, the spacer sleeve, and the solid ruber tire (11 thru 14, Figure 3).

5 Reverse procedure for assembly.

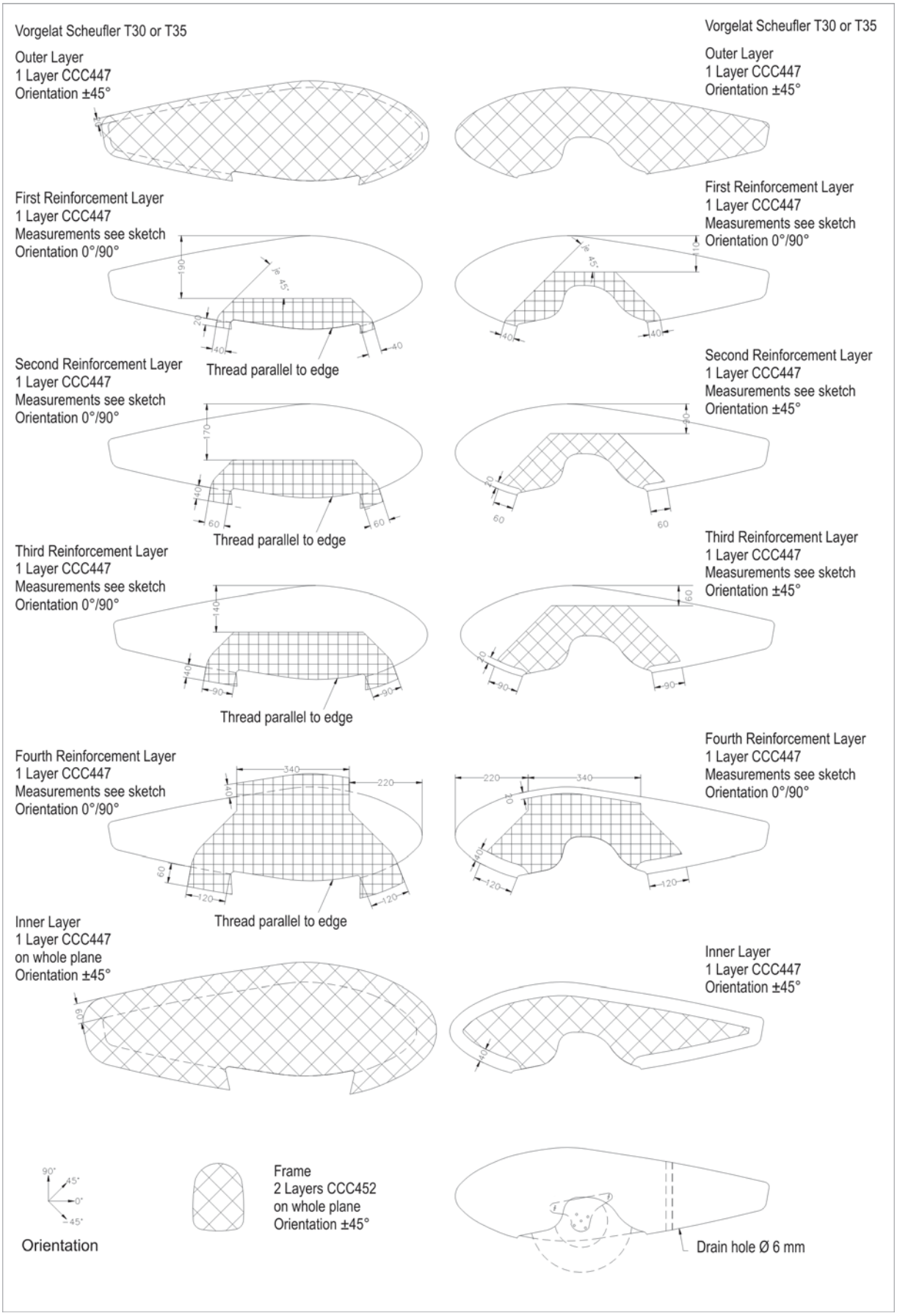


Figure 5 ***Layer Sequence Wheel Fairing***

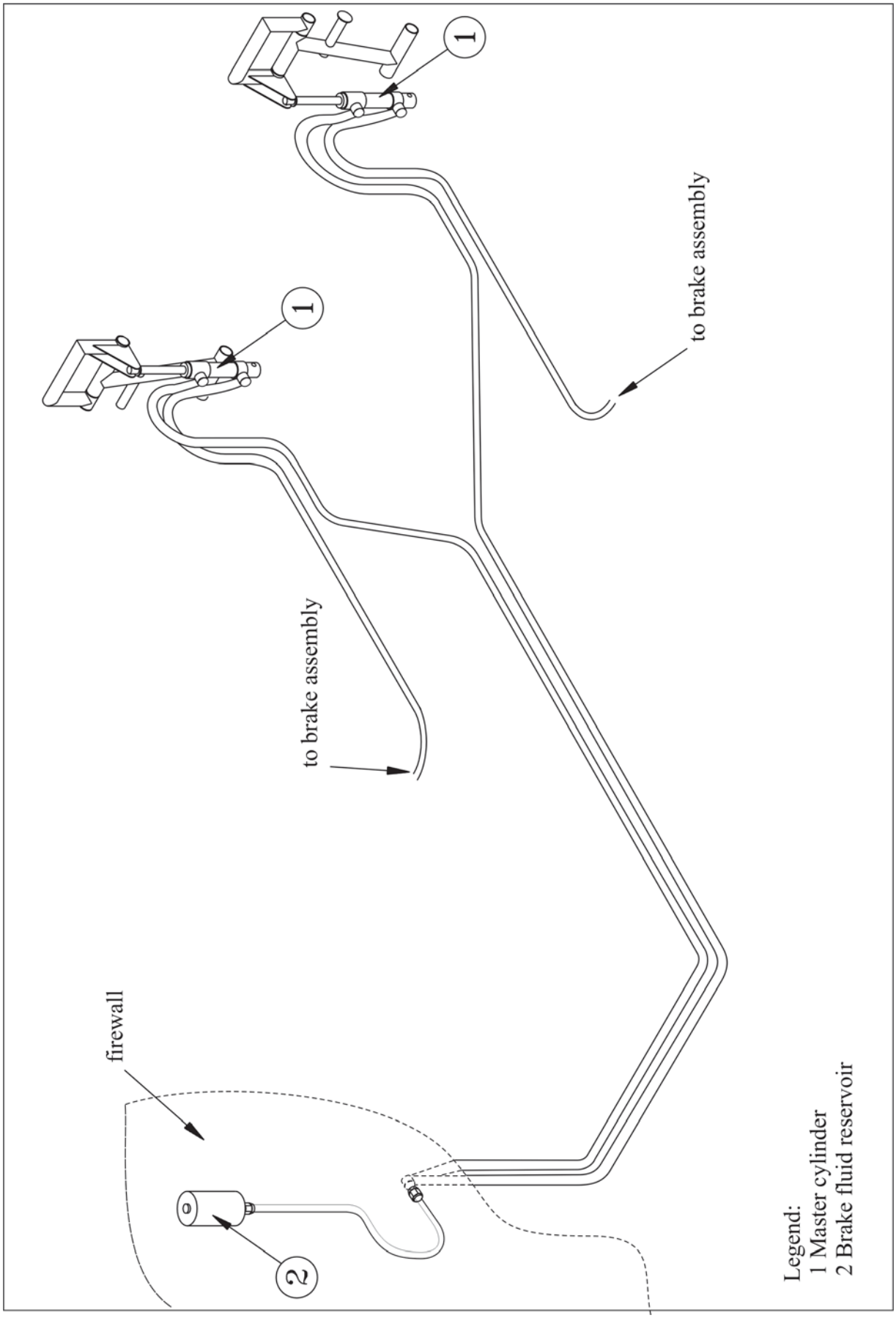


Figure 6 ***Brake System***

32-40-04 Master Cylinder

Removal/Installation

1 Drain the brake system.

2 Disconnect the brake lines.

3 Remove the attachment bolts.

4 Remove the master cylinder.

5 Install in reverse sequence of removal.

Chapter 33

Lights

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33-10-00 FLIGHT COMPARTMENT

Description and Operation

For monitoring the generator function a low voltage monitor is installed at the lower instrument panel. The indicator is dimmable and has a built-in bulb testing device („press to test“).

The electrical wiring is panel internal.

33-40-00 EXTERIOR

33-40-10 LED Strobe Light System

Refer to Figure 1. The LED strobe lights are installed on both wing tips.

The wiring is routed through an aluminium tube inside the wing and along the left resp. right upper longeron to the instrument panel.

The circuit breaker switch is located on the instrument panel (see Figure 2 of Chapter 31).

33-40-11 LED Strobe Light

Removal/Installation

Refer to Figure 1.

1 Power down the LED strobe lights.

2 Remove the wing tip cover attachment bolts (3).

3 Pull out the wing tip cover plate some centimeters.

4 Remove the LED strobe light attachment bolts (1).

5 Disconnect the electrical wiring.

6 Remove the LED strobe light.

7 Install in reverse sequence of removal after applying Silicon between the wing tip cover and the LED strobe light.

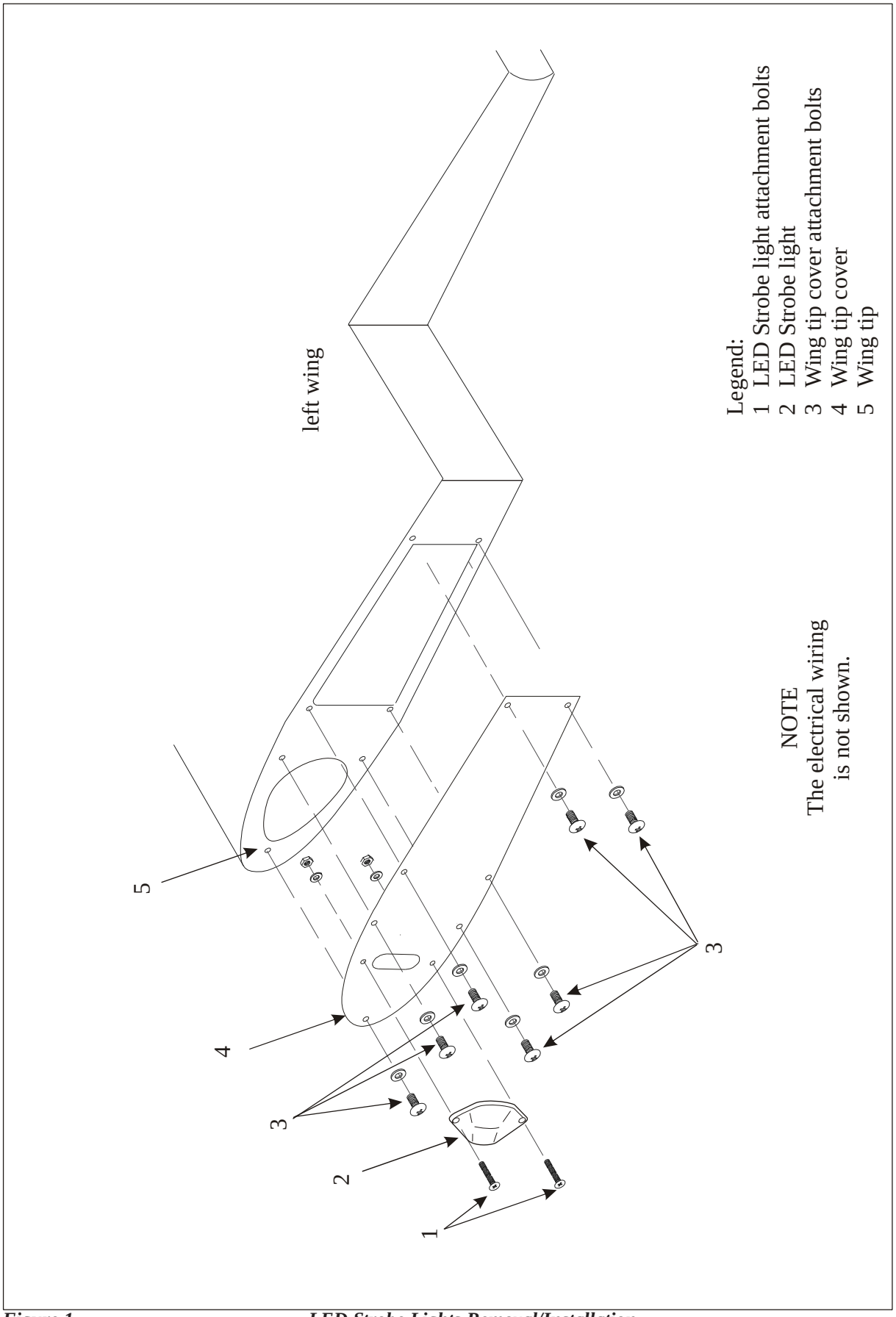

Figure 1 ***LED Strobe Lights Removal/Installation***

Chapter 34

Navigation

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34-00-00 GENERAL

The EXTRA 300/SC is equipped with an altimeter, an airspeed indicator and a magnetic compass. Optional a turn and bank indicator is obtainable. The colour markings in instruments follow US-FAR, part 23 recommendation.

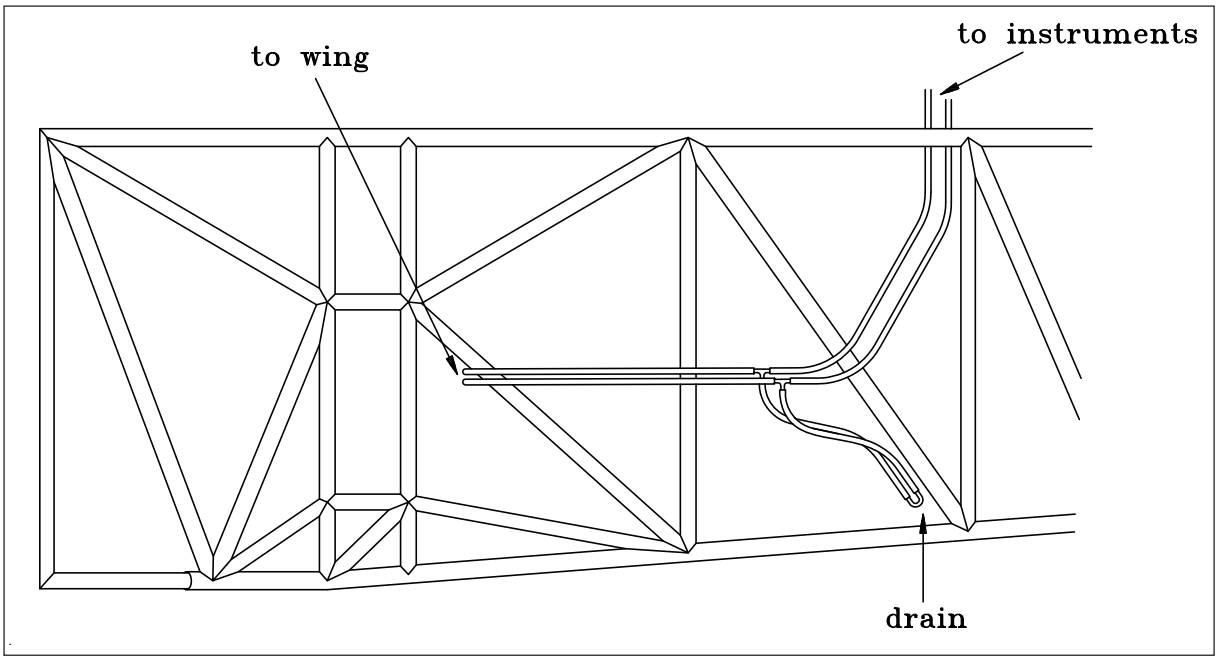
To get the pitot and static pressure a pitot/static head is installed at the LH wing leading edge.

34-10-00 FLIGHT ENVIRONMENT DATA

This Section describes that portion of the system which senses the environmental conditions and uses the data to influence navigation.

34-10-01 Pitot/Static System

The pitot/static tube is designed to pick up pitot pressure and static pressure. It is screwed through the L.H. outboard leading edge into an attachment block located at the rear web of the main spar. From there the pressures are transmitted by means of a vinyl tubing which is routed through an aluminium tube inside the wing to the left side of the fuselage and further to the instrument panel. The ends of each vinyl tube are marked with the letters "P" or "S" for pitot resp. static pressure line. The pitot/static system can be drained by means of an U-shaped drain which is located at the left side of the cockpit as shown in Figure 1.



Pitot/Static Drain
Figure 1

34-10-02 Altimeter

Description and Operation

The altimeter is designed to measure pressure changes of the atmosphere by means of an aneroid capsule, the pressure changes corresponding to changes in altitude. In this instrument the shaft of pinion drives via gearwheels the pointer shaft of the large pointer. Further gearwheels are used to move the small pointer. The altimeter has a scale marked in feet (ft.). Three pointers provide an indication of the altitude; each full turn of the large pointer reads 1,000 feet, each full turn of the middle pointer 10,000 feet. By turning the knob at the bottom left of the instrument, the barometric pressure reading is set in millibars.

Barometric range:	946 thru 1050 millibars
	28.1 thru 30 inHg
Reading range:	-1,000 thru 20,000 feet
Temperature range:	-55°C thru +70°C

Removal/Installation

1 Remove the vinyl tube.

2 Remove the attachment bolts and nuts.

3 Hand the altimeter under the instrument panel and remove.

4 Install in reverse sequence of removal.

5 Perform an operation test.

34-10-03 Airspeed Indicator

Description and Operation

The airspeed indicator shows the speed of the aircraft relative to the atmosphere. The pitot airspeed indicator measures the difference between pitot pressure and static pressure, the former being picked up by the pitot head at the pitot location of the air flow and applied to the airspeed indicator via tubing, the latter also being picked up by the pitot head. The sensing element of the airspeed indicator is an open diaphragm which senses internally the pitot pressure and externally the static pressure, the difference between the two increasing with increasing speed. This difference produces distortion of the diaphragm which is translated to the pointer via a system of levers an gearwheels.

The reading of the airspeed indicator is in knots.

Max. operation altitude: 12,000 m
Operating temperature range: -30°C thru +50°C

Removal/Installation

1 Remove the vinyl tubing.

2 Remove the attachment bolts and nuts.

3 Hand the airspeed indicator under the instrument panel and remove.

4 Install in reverse sequence of removal. Observe correct installation of vinyl tubing: "Stat. Druck" = static pressure, "Meßdruck" = Pitot pressure.

5 Perform an operation test.

34-10-04 Pressure Head

Removal/Installation

The pressure head consists of an inner steel tube, an outer aluminium tube and a top cap which are screwed.

1 Unscrew the top cap.

2 Unscrew the outer aluminium tube.

3 Unscrew the inner steel tube.

4 Install in reverse sequence of removal applying silicone in the gap between the outer aluminium tube and the hole of the wing leading edge.

34-10-05 Pitot Head Attachment Block

Removal/Installation

1 Remove the Pitot head per Chapter 34-15-01.

2 Remove the wing tip attachment plate with the lighting unit per Chapter 57-35-01.

3 Disconnect the vinyl tubing.

4 Remove the LN9348-05 stop nuts and the DIN125 M5 washers.

5 Disconnect the ground bonding leads.

6 Remove the attachment block.

7 Install in reverse sequence of removal. Use new stop nuts.

34-20-00 ATTITUDE AND DIRECTION

This Section describes that portion of the system which uses magnetic or inertia forces to sense and display the direction or attitude of the aircraft.

34-20-01 Magnetic Compass

Description and Operation

The magnetic compass shows the course of the aircraft in relation to magnetic north. Its measuring range is 360° in increments of 5°. Its case is filled with silicone oil to dampen the movements. The compass correction card is located next to the compass.

The magnetic compass must be inspected whenever the engine, magnetizable metals or parts of the electrical resp. ignition system has been replaced, changed or added, otherwise per Chapter 05.

Removal/Installation

1 Remove the compass attachment bolts and nuts.

2 Remove the magnetic compass.

3 Install in reverse sequence of removal.

4 Perform a compass compensation and replace the compass correction card.

34-20-02 Turn and Bank Indicator

Description and Operation

The turn and bank indicator indicates the turning rate of the aircraft about its vertical axis. This instrument comprises an electrically driven gyro, suspended in a gimbal system and whose spin axis is parallel to the lateral axis of the aircraft. The gimbal is connected to the bar pointer of the indicator by a lever system. This bar pointer also indicates the rate at which the aircraft is turning.

In addition, the front of the instrument houses a sphere located in a globe filled with a damping fluid. The change in this indication shows the pilot whether the aircraft is slipping.

Removal/Installation

1 Remove the indicator attachment bolts and nuts.

2 Disconnect the electrical wiring.

3 Hand the turn and bank indicator under the instrument panel and remove.

4 Install in reverse sequence of removal.

5 Perform an operation test.

34-50-00 DEPENDENT POSITION DETERMINING

34-50-01 Transponder

Description and Operation

Divers transponders can be installed in the EXTRA 300/SC. A Transponder is a radio transmitter and receiver that fulfills the role of the airborne beacon equipment according to the requirements of the Air Traffic Radar Beacon System (ATCRBS). It operates on radar frequencies, receiving ground radar interrogations at 1030 MHz and transmitting a coded response of pulses to ground-based radar on a frequency of 1090 MHz.

Rermoval/Installation

1 Remove transponder following the Removal/Installation Instructions of the respective manufacturer.

2 Install in reverse sequence of removal.

3 Perform an operation test.

Chapter 51

Standard Practices and Structures - General

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51-00-00 GENERAL

51-00-01 Access Panel Identification

For the EXTRA 300/SC all removable covers and fairings are defined as access panels (refer to Figure 1 and the adjacent chart). If maintenance or repair is not restricted to a small area it is advisable to remove all access panels before beginning work or checks.

N O T E

Access panels partly overlap. Remove the front panels first.

All panels are screwed.

Unscrew the upper instrument panel attachment screws and the filler neck screws before removal of the main fuselage cover.

For the removal/installation of the wing tip panels refer to Chapter 57.

Prior to unscrewing of the air inlet screen remove bottom half of the engine cowling not to lose the attachment stopnuts and washers.

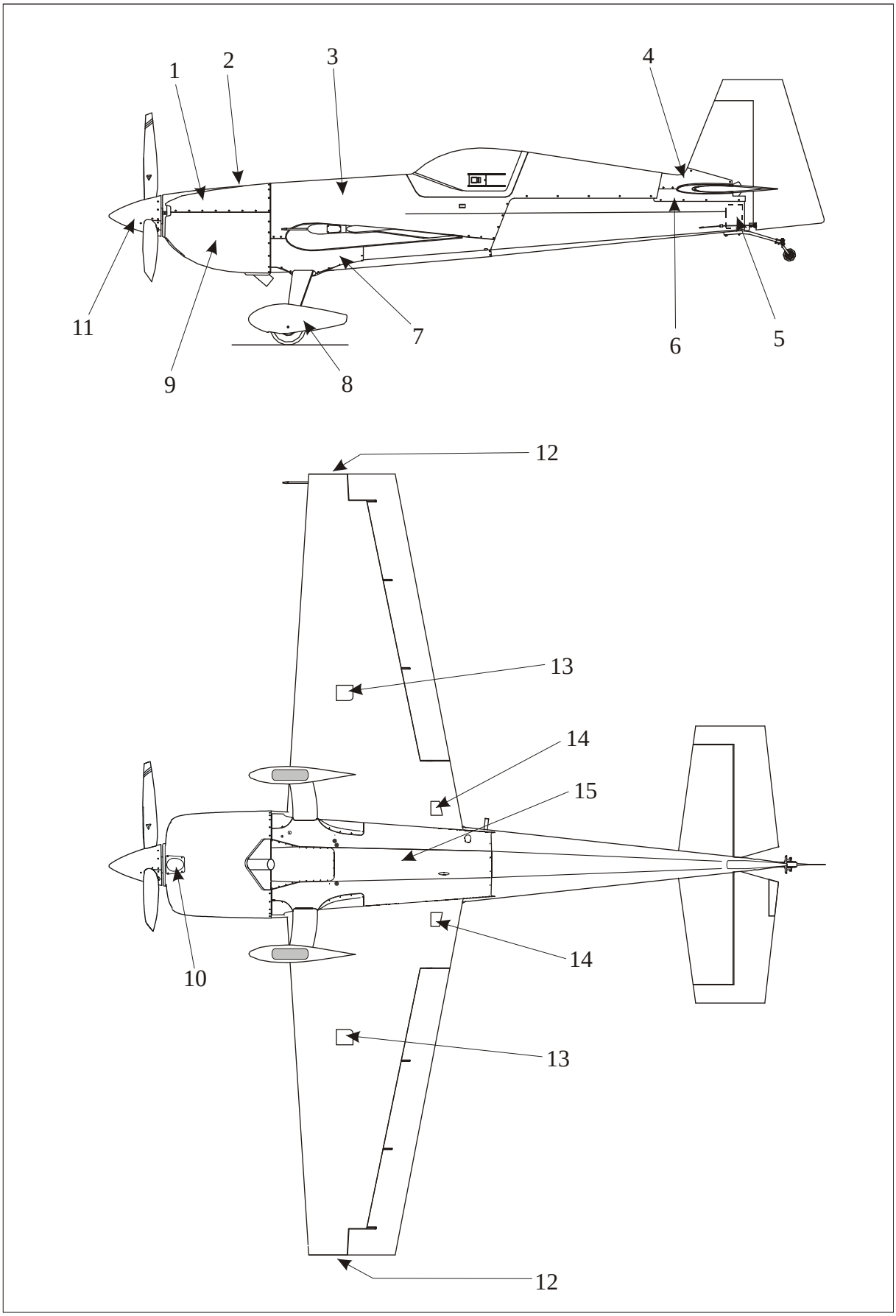


Figure 1 ***Access Panel Identification***

Position	Item
1	Top half of the engine cowling
2	Oil filler access door
3	Main fuselage cover
4	Tail fairing
5	Tail cone access panel (RH)
6	Tail side skin (LH/RH)
7	Cuff (LH/RH)
8	Wheel speed fairing (LH/RH)
9	Bottom half of the enginge cowling
10	Air inlet screen
11	Spinner
12	LH/RH wing tip panel
13	LH/RH outboard access panel
14	LH/RH inboard access panel
15	bottom fuselage cover

51-10-00 INVESTIGATION

51-10-01 Damage Classification

NOTE

All damage of composite parts must first be classified by qualified personnel. In case of doubt with regard to the classification of damage, if a clear definition of the extent of damage is not possible, or if a repair of damage inspite of the valid manufacturer documentation is doubtful, contact EXTRA-Flugzeugproduktions- und Vertriebs- GmbH.

NOTE

Only the Damages Classes 2, 3 and 4 may be repaired by qualified personnel. In case of Damage Class 1 it has to be contacted EXTRA-Flugzeugproduktions- und Vertriebs- GmbH.

According to the Luftfahrt-Bundesamt (Federal German Aviation Authority) four damage classes are defined:

Damage Class 1:

Large scale destruction requiring a partial reconstruction of the component or large scale repair. Each destruction over 300 mm diameter and each damage of a spar is a large scale destruction. EXTRA-Flugzeugproduktions- und Vertriebs-GmbH has to be contacted prior to repair.

Damage Class 2:

Damage to primary structures and to secondary structures to the following extent: Holes and fractures extending through a sandwich component and a scale under 300 mm diameter.

Damage Class 3:

Damage to primary structures and to secondary structures to the following extent: Small holes or fractures in the external covering layers, if not accompanied by damage to supporting layers or internal covering layers.

Damage Class 4:

Erosion, scratches or nicks not accompanied by fractures or breakages. Damage to fairings belong to this class.

51-10-02 Repair Criteria and Limits

IMPORTANT

All damage of composite parts must first be classified prior to repair. Refer to Chapter "51-10-01 Damage Classification".

IMPORTANT

Only the Damages Classes 2, 3 and 4 may be repaired by qualified personnel. In case of Damage Class 1 it has to be contacted EXTRA-Flugzeugproduktions- und Vertriebs- GmbH.

The decision whether to repair or replace a major unit of structure will be influenced by factors such as time and labor available, and by comparison of labor costs with the price of replacement assemblies. Past experience indicates that replacement, in many cases, is less costly than major repair. Certainly, when the aircraft must be restored to its airworthy condition within limited time, replacement is preferable.

51-30-00 MATERIALS

This Section describes metallic and non-metallic materials used in the repair of the EXTRA 300/SC and gives the sources of supply (manufacturers and supplier).

51-30-01 Composite Parts

IMPORTANT

Only approved materials have to be used for the repair of composite parts.

Epoxy-system

Manufacturer: HEXION
www.hexion.com

Resin: Rütapox L20
EPIKOTE Resin L 20

Hardener: Rütapox SL
EPIKURE Curing Agent 960

Glass fibre fabrics

Manufacturer: INTERGLAS, Interglas AG
Söflinger Straße 246, Postfach 3820,
D-89077 Ulm, Germany

Style	WLB-No.* LN 9169	US-style	weave patterns	weight g/m²
90070	8.4505.60	1610	plain	80
92110	8.4548.60	none	twill 2/2	163
92125	8.4551.60	none	twill 2/2	280
92140	8.4551.60	none	twill 2/2	390

*All glass fabric is made of alkali-free E glass with Volan-A finish or with finish I 550.

Carbon fibre fabrics

Manufacturer: CCC, C. Cramer GmbH & Co. KG
Postfach 209,
D-48619 Heek-Nienborg, Germany

Style CCC	WLB-No.* DIN 65147	US-style	weave patterns	weight g/m²
447	8.3507.80	none	plain	160
452	8.3520.80	none	twill 2/2	204
459	-	none	cross-twill	220
490	-	none	plain	120

*WLB: Werkstoff Leistungsblatt, according to German standard DIN-WL

Glass rovings:

Manufacturer: GEVETEX Textilglas-GmbH
Postfach 426,
D-5100 Aachen, Germany

Supplier: Lange & Ritter GmbH
Postfach 100321,
D-7016 Gerlingen, Germany

Type: Vetrotex EC14 - 2400-P185

Carbon rovings:

Manufacturer: Tenax Fibers GmbH & Co. KG
Kasinostr. 19-21
D-42103 Wuppertal

Supplier: Tenax Fibers GmbH & Co. KG
Kasinostr. 19-21
D-42103 Wuppertal

Type: TENAX J HTA 5131 1600tex f24000 t 0
(WLB: 8.3614.85)

Core material

a) PVC Foam:

Manufacturer: DIAB
Divincell International Gmbh
Max-von-Laue-Straße 7
D-30966 Hemmingen, Germany

Supplier: see above

Type: Divinycell HT 50

b) Honeycomb:

Manufacturer: EURO COMPOSITES S.A:
B.P.95, Zone Industrielle,
L-6401 Echternach / Luxembourg

Type: ECA-I-R 4.8-29-R

Filler material for resin:

Manufacturer: EBERHARD Chemie GmbH
Olpener Straße 405,
D-51109 Köln 91 (Merheim), Germany

Type: - Cotton flakes
- Microballoons BJO - 0930

Paint:

Manufacturer: GLASURIT GmbH
Max-Winkelmannstr. 80,
D-48165 Münster/Hiltrup, Germany

Supplier: WESSELS AG
Pagenstecherstraße 121,
D-49090 Osnabrück, Germany

Type:

285-100 Glassodur-Rapidfüller AC 85-0100

929-73	Glassodur-MS-Härter SC 29-0173
352-91	Glassodur-Einstellzusatz SV 41-0391
1006-202/3	Glassit Spritzfüller SP 60-7023
948-36	Glassit Härterpaste, rot SB 48-3360
21-	Glassodur-PUR-Acryl-Lack AD/AE 2
929-73	Glassodur-MS-Härter SC 29-0173
352-91	Glassodur-Einstellzusatz SV 41-0391

51-30-02 Metal Components

IMPORTANT

Only approved materials have to be used for the repair of metal components.

Steel tubing:

Manufacturer: MHP
BENTELER International AG
Residenzstr. 1,
D-33104 Paderborn, Germany

Supplier: CP autosport GmbH
Zeppelinring 1 - 6,
D-33142 Büren, Germany

Type: WLB 1.7734.4
18 mm x 1.0 mm, 20 mm x 1.0 mm,
22 mm x 1.0 mm, 22 mm x 1.5 mm,
25 mm x 1.5 mm

Steel sheet metal:

Manufacturer: BÖHLER Edelstahl GmbH
München, Germany

Supplier: BÖHLER Edelstahl GmbH
Hansa Allee 321,
D-40549 Düsseldorf, Germany

Type:	WLB 1.7734.4 1.0mm, 1.5mm, 2.0mm, 3.0mm

Paint:

Manufacturer:	GLASURIT GmbH Max-Winkelmannstr. 80, D-48165 Münster / Hiltrup, Germany
Supplier:	WESSELS AG Pagenstecherstraße 121, D-49090 Osnabrück, Germany
Type:	
801-1552	Glassofix Grundfüller-EP AC 01-1492
965-32/2	Glassofix Härter-EP SC 65-0322
21-	Glassodur-PUR-Acryl-Lack AD/AE 2
1929-73	Glassodur-MS-Härter SC 29-0173
352-91	Glassodur-Einstellzusatz SV 41-0391

51-30-03 Aluminium Components

Aluminium sheet metal:

Manufacturer:	Kaiser Aluminium & Chem. Corp. Spokane, Washington
Supplier:	Westdeutscher Metallhandel Postfach 104245 45141 Essen
Type:	WLB 3.1364. T3511 or 2024 T3 0.6mm; 0.8mm; 1.2mm

Control rod tubings:

Manufacturer:	Aluminium AG CH-5737 Menziken
Supplier:	Karstens & Knauer GmbH&Co D-28865 Lilienthal

Type:	WLB 3.1354. T3 ø 25x1mm

Paint:

Manufacturer:	GLASURIT GmbH Max-Winkelmannstr. 80, D-48165 Münster / Hiltrup, Germany
Supplier:	WESSELS AG Pagenstecherstraße 121, D-49090 Osnabrück, Germany
Type:	
Primer:	
283-150	Glassofix-Grundfüller AB83-1150
352-228	Glassofix-Zusatzlösung SC12-0228
Lacquer:	
21-	Glassodur-PUR-Acryl-Lack AD/AE 2
1929-73	Glassodur-MS-Härter SC 29-0173
352-91	Glassodur-Einstellzusatz SV 41-0391

Aluminium hardware metal (brackets, pedestals, castings, etc.):

Paint:

Manufacturer:	Parker & Anchem, Ambler, PA 19002
Supplier:	Aircraft Spruce
Chem. coating:	Alodine No. 1201 (MIL-C-5541)
Lacquer:	see above

51-30-04 Various Components

Fabric

Manufacturer: CECONITE
4343 Fort Drive
PO Box 3129
Riverside, CA 92519
800-362-3490
Email: info@ceconite.com

Supplier: SIEBERT LUFTFAHRTBEDARD GmbH
Rektoratsweg 40
D-48159 Münster
Germany
49-251-92459-3
www.siebert-luftfahrbedard.de

Type: CECONITE 102

Firewall Sealant

Observe Chapter 20-10-10 when working with firewall sealant.

Manufacturer: PRC-DeSoto International, Inc.
12780 San Fernando Road
Sylmar, CA 91342
www.ppgaerodpsce.com

Supplier: See www.ppgaerodpsce.com

Type: PR 812 (observe Chapter 20-10-10)
P/S 700

Manufacturer:	Chem Seal Products Manuf. By The Flamemaster Corporation 13576 Desmond Street, Pacoima, CA 91331-2315 www.the flamemaster.com
Supplier:	NSL Aerospace 33110 Old Hempstead Rd. Magnolia, TX 77355 www.nslaerospace.com
Type:	CS 1900
Manufacturer:	Cytec Engineered Materials Inc. D Aircraft Products, Inc 1191 N. Hawk Circle, Anaheim, CA 92807
Supplier:	NSL Aerospace 33110 Old Hempstead Rd. Magnolia, TX 77355 www.nslaerospace.com
Type:	Dapco 2200

Fuel Tank Sealant

Manufacturer:	3M Aerospace and Aircraft Maintenance Department 3M Center, Building 223-1N-14 St. Paul, MN 55144-1000 www.3M.com/aerospace
Supplier:	See www.3M.com/aerospace
Type:	Scotch-Weld EC-776 (Scotch Clad 776) Fuel Resistant Coating

Urethane Adhesives (for e. g. Canopy Glass)

Manufacturer:	3M™ Aerospace and Aircraft Maintenance Department 3M Center, Building 225-3S-06, St. Paul, MN 55144-1000, USA www.3M.com/aerospace
Supplier:	Wesco Aircraft Germany GmbH Buschhoehe 10, 28357 Bremen, Germany
Adhesive Sys.:	Scotch Weld® 3549 B/A
Ratio of comp.:	100 parts base / 109 parts accelerator (by weight), 100 / 100 (by volume)
Manufacturer:	Henkel AG & Co.KGaA Henkelstraße 67 40589 Düsseldorf, Germany
Supplier:	Sahlberg GmbH Friedrich-Schüle-Straße 20 85622 Feldkirchen/München, Germany
Adhesive Sys:	Loctite® UK 8160 / Loctite® UK 5400
Ratio of comp.:	5 parts base / 1 parts accelerator (by weight), 4.2 / 1 (by volume)

51-60-00 CONTROL SURFACE BALANCING

51-60-01 Weighing and Determination of Control Surface Moments

All weighing of control surfaces is performed with surface removed from aircraft. Weighing and determination of control surfaces moments is necessary after repairs or painting. Weigh the control surfaces including the mass balances in disassembled condition. The aileron weight includes the spade. Copy page 18, enter the values (W, m, r) there and check whether the surface weights or moments are within the given tolerances. If they are not, contact the manufacturer for advice.

For the determination of control surface moments use balancing mandrels as shown in the Figure 2 and follow the steps in the procedure described below:

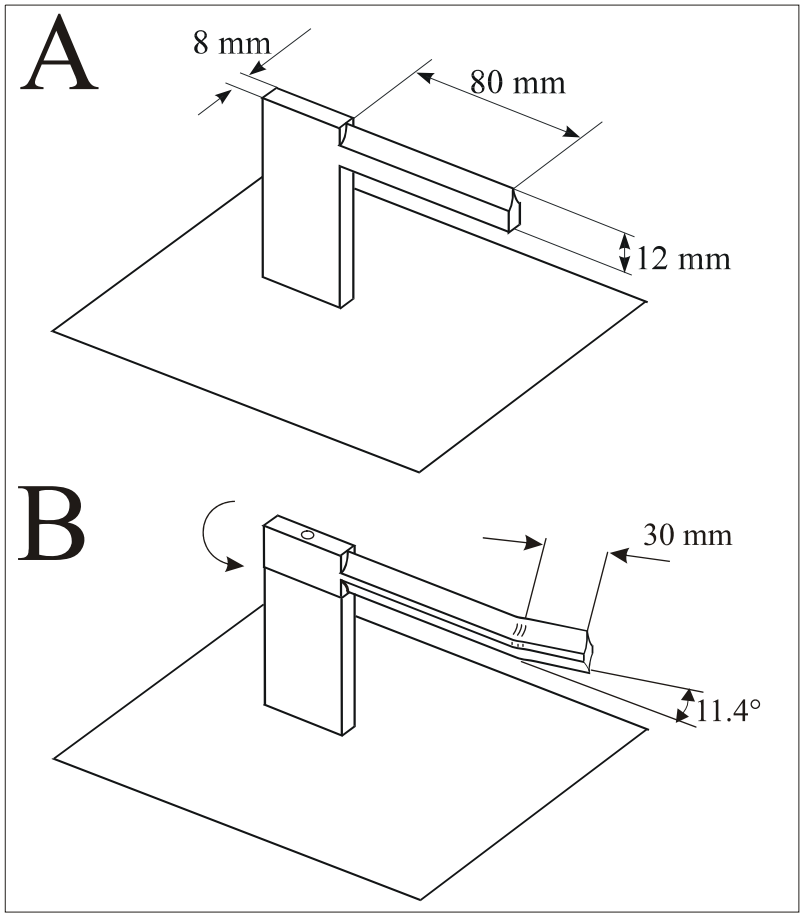


Figure 2 Balancing Mandrels

Balancing Mandrels

Prepare mandrels as shown on detail A in Figure 2 for balancing the rudder and the elevator.

Prepare mandrels shaped as shown on detail B for balancing the ailerons. Make the upper part of the mandrel rotatable for the use of either the Rh or LH aileron.

Procedure

1 Remove the control surface (refer to chapter 27).

2 Reinstall the bolts in two brackets.

3 Put the control surfaces on the balancing mandrels (use a wire for the trim tab). Refer to Figure 3.

4 Ensure weighing point and hinge cener axis are exactly on the same horizontal plane.

5 Weigh by means of a conventional spring balance (kg/g-indication) at the given weighing points and enter the weight (m) in Figure 4. If negativ values are to be expected place the spring balance in opposite direction (from the weighing point downwards).

6 Measure distance of hinge center line to weighing point (r) and enter the value in Figure 4.

7 Calculate the control surface moment (M) in Figure 4.

IMPORTANT

If values exceed the given tolerances in Figure 4 contact the manufacturer before beginning any changes of control surfaces.

8 Reinstall the control surfaces.

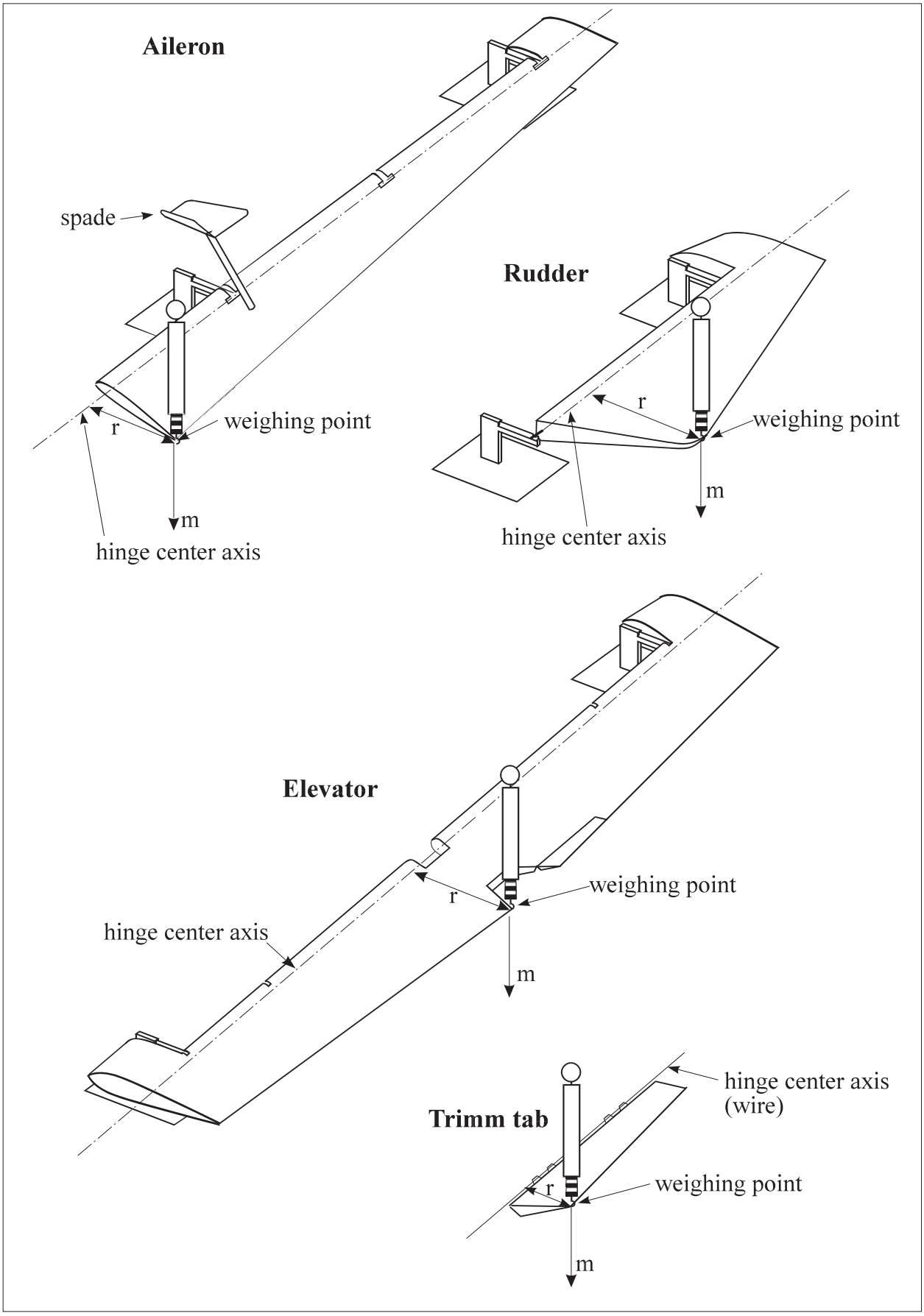


Figure 3 ***Determination of Control Surface Moments***

Permissible Weights and Moments

Aileron (one control surface)
incl. mass balance, without spades
Mass: 4.6 - 5.3 kg
Moment: 135 - 169 Ncm
incl. mass balance, with spades
Mass: 5.1 - 5.8 kg
Moment: 83 - 120 Ncm

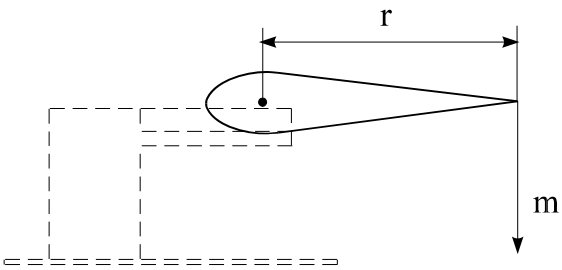
Elevator incl. trim tab
incl. mass balance
Mass: 7.5 - 8.6 kg
Moment: 150 - 190 Ncm

Trim Tab
no mass balance
Mass: 0.13 - 0.16 kg
Moment: 4.0 - 5.5 Ncm

Rudder
incl. mass balance
Mass: 5.0 - 5.6 kg
Moment: 390 - 450 Ncm

Weights

Aileron LH: (W) ..... kg
Aileron RH: (W) ..... kg
Rudder: (W) ..... kg
Elevator: (W) ..... kg
Trim Tab: (W) ..... kg



$$M\ (Ncm) = m\ (kg) \cdot g\ (m/s^2) \cdot r\ (cm)$$

Moments

Aileron LH: (m:) ..... kg · 9.81 m/s² · (r:) ..... cm = (M:) ..... Ncm
Aileron RH: (m:) ..... kg · 9.81 m/s² · (r:) ..... cm = (M:) ..... Ncm
Rudder: (m:) ..... kg · 9.81 m/s² · (r:) ..... cm = (M:) ..... Ncm
Elevator: (m:) ..... kg · 9.81 m/s² · (r:) ..... cm = (M:) ..... Ncm
Trim Tab: (m:) ..... kg · 9.81 m/s² · (r:) ..... cm = (M:) ..... Ncm

Figure 4 ***Control Surface Weights and Moments***

51-70-00 REPAIRS

51-70-01 Repair of Reinforced Glass and Carbon Fibre Components

IMPORTANT

Repair of composite parts has to be carried out only by qualified and authorized personnel.

If the aircraft is damaged, proceed as follows. First conduct a careful visual inspection of the surface and the damaged area. Frequently, the damage extends to futher components, sometimes a fracture will continue invisible beneath the surface.

Perform the repair work with utmost care. The external shell of the wing and empannage is stressed; a failure of this bonded structure can lead to an aircraft crash. In order to eliminate dangerous stress concentrations, avoid changes in cross-sectional areas.

IMPORTANT

The resin-hardener mixture ratio must be precisely maintained (+0.5%). Clean cups and tools must be used. The weight ratio of glass fabric to resin mixture should be approximately 50:50.

Immediately prior to applying the wet laminate, sand and vacuum clean the repair area, so that no dirt and dust is involved which could prevent a secure adhesion.

WARNING

Sanding carbon and glass fibre laminates gives off a fine dust that may cause skin and/or respiratory irritation unless suitable skin and respiration protection is used.

WARNING

Carbon-tetracloride or Acetone used for cleaning repair areas are flamable liquids and should be used with proper ventilation and safety equipment.

IMPORTANT

As with plywood grain, the direction of the various fibres (longitudinal or diagonal) is of great importance for the stability.

The number of layers required to restore the stability in the damaged area can be taken from the layer sequence/placement plan.(Refer to the respective Chapters)

It is necessary to know the number and direction of layers in the damaged area, in order to be able to replace them with the original number. In all cases, the thickness of the laminate has to be measured with a vernier calliper for the exact determination of the laminate thickness.

One technique to learn about the number of layers is to burn a small piece taken from the damaged area. The resin will burn off, leaving the glass and/or carbon fabric to be inspected for the number of layers and the type of fabric.

Creating a scarfed overlap takes time. Sand away as much of the old material, that the new fabric patches do not project beyond the contour.

In order to shorten the curing time, a heater can be used to increase the ambient temperature.

NOTICE

Too high temperature will cause large air bubbles in the laminate. Local overtemperature can be prevented by using a foil tent which leads the hot air stream.

The curing cycle must be maintained as stated. Use a thermometer to monitor the temperature.

IMPORTANT

After repair of control surfaces, check for proper balance (refer to chapter 27, Flight Controls).

It is recommended to prepare test specimens at the same time as the actual repair is accomplished. These can then be subject to a material test to establish the quality of the laminate in the repaired part. To make this determination valid, the specimens must be assembled with the same style of fabric and resin mixture. Subsequently the specimens must be subject to the curing pressure, temperature and time identical with those in the actual repair.

51-70-02 Repair of Sandwich Material

Two types of core materials are used for sandwich on the EXTRA 300/SC:

- PVC hard foam
- Honeycomb

both with glass or carbon fibre shells

The following section describes the repair of both types of sandwich. Different processing techniques for these materials, if necessary, are also described.

a) Minor surface damage

Around a visible crack, the laminate may be separated from the core material. Determine the extent of this area by coin tapping. Remove the separated laminate carefully using a sanding disk, sanding block or a sharp knife. Prepare a scarfed overlap of the laminate around the damaged area. Overlap lenght per fabric layer min. 20 mm;

IMPORTANT

Ratio (laminate thickness : overlay lenght) min. 1: 50 (refer to Figure 5).

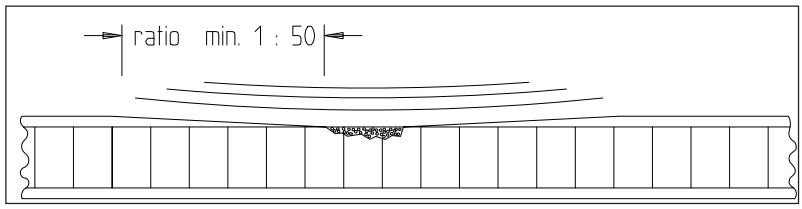


Figure 5 Minor surface damage

After preparing the scarfed overlap, clean the repair area thoroughly as follows:

- Remove the sanding dust with a pneumatic vacuum cleaner
- Clean the scarfed overlaps with carbon-tetrachloride or acetone in case of dirt or grease was introduced during the preparation.

Damaged core material has to refilled with a mixture of resin and microballoons (weight ratio 100:15). Apply resin mixture

to the repair area and lay on fabric in accordance to the layer sequence plans. Ensure to use correct style and direction of fabric.

IMPORTANT

Repair area must be clean of dirt, dust and grease!

Lay out the required number and size of fabric pieces on a piece of colored plastic foil and soak (wet) them with resin mixture, subsequently position them on the repair area.

IMPORTANT

Remove the plastic foil after each positioning process.

For a repair of honeycomb sandwich parts you have to observe the following: The repair area has to be cured under condition of vacuum bagging.

For vacuum bagging, proceed as follows:

- Apply peel nylon fabric on the last repair fabric layer
- Perforate a clean, thin plastic foil with a thick needle (max.spacing of holes: 20mm x 20mm) - mainly in the area of the honeycomb - and lay it on the repair area.
- Lay a jute cloth (weave) or equivalent bleeder cloth on this perforated plastic foil.
- Lay an air tight plastic foil upon the jute weave and seal their edges to the surrounding surface using an adhesive tape.
- Apply suction with a vacuum pump (pressure approx. 0.7 bar/ 10 psi)
- Apply the thermal curing cycle.(Refer to Figure 3)
- Following the curing cycle remove vacuum bagging material and peel nylon fabric.

After the pre-curing period at room temperature, the repaired area has to be cured according the temperature cycle as shown on Figure 6.

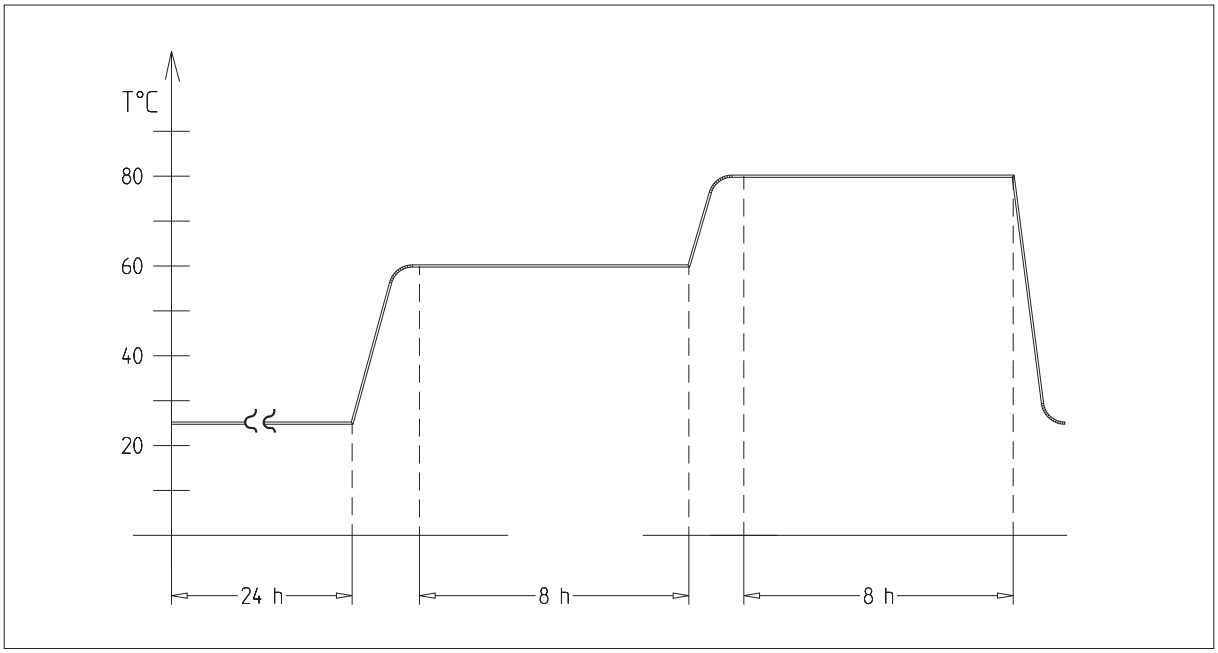


Figure 6 ***Curing Cycle Resin L20/SL***

After the curing process is completed, the repair area can be sand level to the surrounding area.

N O T I C E

Sand only the edge thickness of repair laminate (refer to Figure 7)**!**

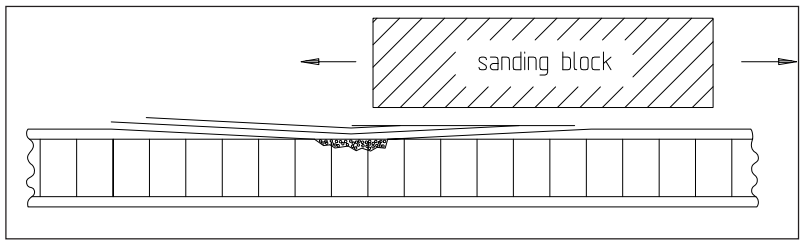


Figure 7 **Level Sanding of Surrounding Area**

N O T E

For painting of the repair area refer to Chapter 51-70-06.

b) Damage of complete sandwich

If the inner laminate is also damaged, first remove the upper laminate within the area, where no secure bond connection to the core material is suspected. Trim out the complete damaged portion of core material to a circular or elliptical shape.

The damaged area of the inner laminate has to be taken out as well. Make sure not to increase the disbond area by preparing the hole. Preferably use a hand held milling machine. In case of cutting with a saw, the pulsation stress may peel of the inner laminate (secondary damage). If the extent of the disbonded area on the inner laminate exceeds the prepared cut out, increase the cut out of material and upper laminate.

Prepare a scarfed overlap of laminate around the circular cut out. Overlap lenght of inner laminate should not be less than 20 mm.

IMPORTANT

Overlap lenght of the upper laminate should not be less than 1/50; (ratio: laminate thickness / overlap lenght).

Prepare a replacement block of core material (foam or honeycomb) with equivalent diameter and thickness. Cut it to fit snuggly in the trimmed hole. In case of foam core, coat one side with a mixture of resin and microballoons (ratio 100:15). Apply prelaminated fabric layers required for the inner laminate on this side of the core filler block. Ensure correct style and direction of fabric. After precuring the laminate at elevated room temperature (30°C), scarf the overlap and sand the upper overlapping core material down, up to the surrounding core material.

Subsequently clean the repair area thoroughly as follows:

- Remove the sanding dust with a pneumatic vacuum cleaner
- Clean the scarfed overlaps with carbon-tetrachloride or acetone in case of dirt or grease was introdued during the preparation.

WARNING

Carbon-tetracloride or Acetone used for cleaning repair areas are flamable liquids and should be used with proper ventilation and safety equipment.

IMPORTANT

Repair area must be free of dirt and grease.

Wet all surfaces of the backing plate and the scarfed area with resin mixture. Lay on prelaminated fabric layer in accordance to the layer sequence plan. Ensure correct style and direction of fabric.

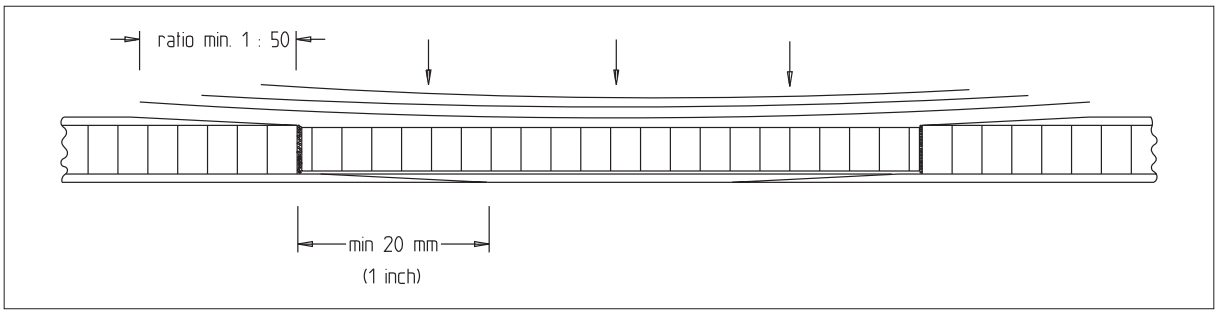


Figure 8 ***Damage of Complete Sandwich***

Lay out the required number and size of fabric pieces on a piece of plastic foil and wet them with resin mixture. Subsequently position them on the repair area.

IMPORTANT

Remove the plastic foil after each positioning process.

The repair area has to be cured under condition of vacuum bagging. Proceed as follows:

- Apply peel nylon fabric on the last repair fabric layer
- Perforate a clean, thin plastic foil with a thick needle (max. spacing of holes: 20mm x 20mm) - mainly in the area of the honeycomb - and lay it on the repair area.
- Lay a jute cloth or equivalent bleeder cloth on this perforated plastic foil
- Lay a second plastic foil uppon the jute weave and seal their edges to the surrounding surface using an adhesive tape.
- Apply suction with a vacuum pump (pressure approx. 0.7bar / 10psi)
- Apply the thermal curing cycle
- Following the curing cycle carefully remove vacuum bagging material and peel nylon fabric.

NOTE

After the pre-curing period at room temperature, the repaired area has to be cured according the temperature cycle as shown on Figure 6.

After the curing process is completed, the repair area can be sand level to the surrounding area.

IMPORTANT

Sand only the edge thickness of repair laminate!

For painting of the repair area proceed like mentioned in Chapter 51-70-06.

51-70-03 Repair of Laminates

a) Minor damage

Scarf the edges of the minor damage area with sandpaper. Minimum lenght of scarf per fabric layer approx. 20 mm; ratio **(laminate thickness : scarf lenght) approx. 1: 50.**

Following the scarf procedure, clean the repair area thoroughly:

- Remove the sanding dust with a pneumatic vacuum cleaner
- Clean the scarfed overlaps with carbon-tetrachloride or acetone in case of dirt or grease was introduced during the preparation.

NOTICE

Repair area must be free of dirt, dust and grease.

Wet the prepared scarfed areas with resin mixture. Lay on prelaminated fabric layer in accordance to the layer sequence plan. Ensure correct style and direction of fabric. Apply peel nylon fabric on the last repair fabric layer.

NOTE

Lay out the required number and size of fabric pieces on a piece of colored plastic foil and wet them with resin mixture. Subsequently position them on the repair area.

IMPORTANT

Remove the plastic foil after each positioning process.

After the curing process is completed, remove the peel nylon fabric. The repair area can be sand level with the surrounding area.

NOTICE

Sand only the edge thickness of repair laminate!

Refinish the surface according chapter 51-70-05 Painting.

If the extent of the damaged area exceed 10 cm (4 inches) a large damage repair is required.

Carefully trim out the damaged portion to a circular or oval shape.

Prelaminate a backing plate from two layers of glass fibre fabric and resin mixture, which must be approx. 20 mm larger than the damaged area. Apply peel nylon fabric as external layer. Sandwich the resin wetted layers between two sheets of plastic foil.

Work the excess resin out and allow the plate to cure at elevated room temperature for 8 hours on a flat surface or a plasticfoil-covered surface of the proper curvature near the damaged area, or the same location on a comparable undamaged part.

Following the curing cycle remove plastic foil and peel nylon fabric. Bond the backing plate to the inside using a mixture of resin and cotton flocks, and adapt to the contour. Cure the bonding at elevated room temperature for 8 hours.

Subsequently scarf the edges of the damaged portion with sandpaper. Minimum lenght of scarf per fabric layer approx. 20 mm;

IMPORTANT

Ratio (laminate thickness : scarf lenght) approx. 1: 50.

Following the scarf procedure, clean the repair area thoroughly:

- Remove the sanding dust with a pneumatic vacuum cleaner
- Clean the scarfed overlaps with carbon-tetrachloride or acetone in case of dirt or grease was introdued during the preparation of the overlap.

IMPORTANT

Repair area must be free of dirt, dust and grease.

Wet all surfaces of the backing plate and the scarfed area with resin mixture. Lay on prelaminated fabric layer in accordance to the layer sequence plan. Ensure correct style and direction of fabric.

NOTE

Lay out the required number and size of fabric pieces on a piece of colored plastic foil and wet them with resin mixture. Subsequently position them on the repair area.

IMPORTANT

Remove the plastic foil after each positioning process.

The repair area has to be cured under condition of vacuum bagging. Proceed as follows:

- Apply peel nylon fabric on the last repair fabric layer
- Perforate a clean, thin plastic foil with a thick needle (max. spacing of holes: 20mm x 20mm) - mainly in the area of the honeycomb - and lay it on the repair area.

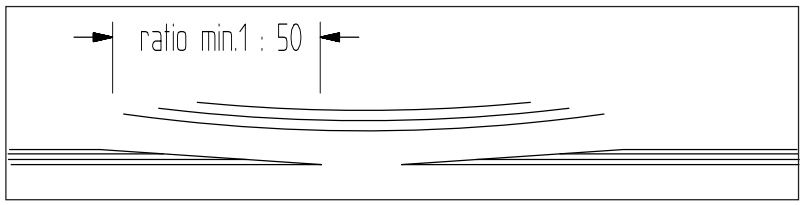


Figure 9 Repair of minor damage

b) Large damage

If the extent of the damaged area exceed 10 cm (4 inches) a large damage repair is required.

Carefully trimm out the damaged portion to a circular or oval shape.

Prelaminate a backing plate from two layers of glass fibre fabric and resin mixture, which must be approx. 20 mm larger than the damaged area. Apply peel nylon fabric as external layer. Sandwich the resin wetted layers between two sheets of plastic foil. Work the excess resin out and allow the plate to cure at elevated room temperature for 8 hours on a flat surface or a plasticfoil-covered surface of the proper curvature near the damaged area, or the same location on a comparable undamaged part.

Following the curing cycle remove plastic foil and peel nylon fabric. Bond the backing plate to the inside using a mixture of resin and cotton flocks, and adapt to the contour. Cure the bonding at elevated room temperature for 8 hours.

Subsequently scarf the edges of the damaged portion with sandpaper. Minimum lenght of scarf per fabric layer approx. 20 mm;

IMPORTANT

ratio (laminate thickness : scarf lenght) approx. 1: 50.

Following the scarf procedure, clean the repair area thoroughly:

- Remove the sanding dust with a pneumatic vacuum cleaner
- Clean the scarfed overlaps with carbon-tetrachloride or acetone in case of dirt or grease was introdued during the preparation of the overlap.

IMPORTANT

Repair area must be free of dirt, dust and grease.

Wet all surfaces of the backing plate and the scarfed area with resin mixture. Lay on prelaminated fabric layer in accordance to the layer sequence plan. Ensure correct style and direction of fabric.

NOTE

Lay out the required number and size of fabric pieces on a piece of colored plastic foil and wet them with resin mixture. Subsequently position them on the repair area.

IMPORTANT

Remove the plastic foil after each positioning process.

The repair area has to be cured under condition of vacuum bagging. Proceed as follows:

- Apply peel nylon fabric on the last repair fabric layer.

- Perforate a clean, thin plastic foil with a coarse needle (max. spacing of holes: 20mm x 20mm) - mainly in the area of the honeycomb - and lay it on to the repair area.
- Lay a jute cloth or equivalent bleeder cloth on this perforated plastic foil.
- Lay an air tight plastic foil upon the jute weave and seal their edges to the surrounding surface using an adhesive tape.
- Apply suction with a vacuum pump (pressure difference approx. 0.7bar / 10psi)
- Curing cycle
- Following the curing cycle carefully remove vacuum bagging material and peel nylon fabric.

After the pre-curing period at room temperature, the repaired area has to be cured according the temperature cycle as shown on Figure 3.

After the curing process is completed, the repair area can be sand level to the surrounding area.

NOTICE

Sand only the edge thickness of repair laminate!

Refinish the surface according chapter: 51-70-07 Painting.

51-70-04 Repair of Spars

The spars consists of carbon roving caps, glass or carbon fibre webs and PVC foam cores.

IMPORTANT

The spars are higly stessed; a failure of this bonded structure can result in loss of the aircraft! In all cases, the repair of a spar must be considered as a large-scale repair with a Damage Class 1 (Refer to Chapter 51-10-01 Damage Classification"). EXTRA-FLUGZEUG-PRODUKTIONS- UND VERTRIEBS- GmbH has to be contacted prior to repair!

51-70-05 Structural Repair of Steel Components

Restoration of a damaged fuselage to its original design strength, shape and alignment involves careful evaluation of the damage, followed by exacting workmenship in performing the repairs.

IMPORTANT

Should structural repairs practicable on the aircraft be necessary, refer to "Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair FAA AC 43.13-1B" and "Acceptable Methods, Techniques, and Practices – Aircraft Alterations FAA AC 43.13-2B".

IMPORTANT

Alterations or repair of the airplane must be accomplished by *licensed* personnel. Consult EXTRA-FLUGZEUGPRODUKTIONS- UND VERTRIEBS-GmbH in case of doubt about a repair not specifically mentioned there.

NOTE

If welding work must be performed, use only the TIG procedure (Tungsten Inert Gas). Use steal welding wire 1.7734.2 for welding additive.

51-70-06 Repair of Fabric

IMPORTANT

Alterations or repair of the airplane must be accomplished by *licensed* personnel. Consult EXTRA-FLUGZEUGPRODUKTIONS- UND VERTRIEBS-GmbH in case of doubt about a repair not specifically mentioned there.

IMPORTANT

Refer to FAA Advisory Circular 43.13-1B for fabric covered aircraft and the latest revision of the CECONITE PROCEDURE MANUAL 101 when repair of fabric is necessary.

51-70-07 Painting of Composite Parts

WARNING

Coating materials may cause sensitization by inhalation and skin contact. Hardeners and coating materials ready for use can have an irritant and sensitizing effect upon the skin and respiratory tracts and cause allergic reactions.

WARNING

Provide for a continuous supply of fresh air during and also after the application, do not inhale the vapours and wear a breathing mask during the spray application of these materials. Persons suffering from an allergy or being prone to diseases of the respiratory tracts must not get in contact with coating materials.
Refer to the manufacturer technical information sheet!!

After curing cycle the surface of repared area can be sanded with sandpaper (80 grade). Indentations are filled with white polyester filler. Subsequently achieve a surface as uniformly rough as possible using a finer dry sandpaper (150 or 320 grade). Prior to paint application, the surface of the repair area must be cleaned thoroughly of all sanding dust, separation compounds and other foreign materials. Subsequently apply Glassodur Rapid Filler with a spray gun.

N O T E

The Rapid Filler must be completely dry before the covering paint can be applied.

For the final sanding, use 400 grade wet sandpaper to achieve a smooth clean surface. Allow surface to dry. Paint application of Glassodur-Pur-Acryl-Lack AD/AE 21 two component acryl paint is performed with a spray gun.

Paint can be mixed with small quantities of reducer. After completion of the painting, polish the repair area.

51-70-08 Aluminium and Steel Components Refinishing

Complete procedure necessary to remove existing paint from aluminium and steel components and then to repaint them as described in the following paragraphs.

Degreasing

W A R N I N G

Cleaning solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

N O T I C E

Before stripping parts, remove all fittings, O-rings, nuts, bolts, washers, pistons, bearingcups, etc.

1 Clean all metal parts by immersing in a clean degreasing solution. An alkaline based solution is recommended for aluminium and magnesium parts.

2 Hardened dirt or grease may be removed with soft bristle brush, or by soaking in cleaning solution.

3 Where necessary clean bearing cones carefully in a separate container of clean solvent.

N O T I C E

Do not spin bearing cones with compressed air.

4 After cleaning, thoroughly dry all metal parts with filtered, dry compressed air.

5 It is recommended that all O-rings, backup rings, and wipers be replaced at each overhaul. However, if necessary, O-rings may be reused, but should be put back into position from which removed.

6 Wipe down O-rings, backup rings, wipers, or other rubber parts with a clean dry cloth. Lubricate with a suitable O-ring lubricant prior to installation.

Paint Removal

Disassemble components to the level required for repainting, then proceed as follows.

WARNING

Stripping solvents can be toxic and volatile. Use only in well ventilated areas. Avoid physical contact with solvent and do not inhale vapors. Keep solvent containers covered when not in use.

NOTICE

Before stripping parts, remove all fittings, O-rings, nuts, bolts, washers, pistons, bearingcups, etc. Parts must be totally immersed in solvent, to maximize cleaning.

1 Degrease part per degreasing paragraph.

2 Totally immerse part in paint removing solvent. Portions not totally covered by solvent will begin to corrode.

NOTE

Stripping agents are commercially available for removing topcoat and primer. Follow manufacturer's recommendations for use and disposal of stripping solutions.

3 Remove part from solvent and rinse thoroughly with water heated to 160° to 180°F (71° to 82° C). Flush solvent from all cavities and threaded holes where entrapment might occur

4 Thoroughly dry part with filtered, dry compressed air.

5 Where applicable refer to inspections procedures given in the respective chapters for specific parts to locate possible defects.

N O T E

Refinishing should be completed as soon as possible; unprotected parts will begin to corrode.

Repainting

Paint all surfaces exept those which are subjected to friction (bearing surfaces, anchor bolt bores, etc.). Proceed as follows:

1 Parts to be repainted should be cleaned and stripped per instruction in degreasing and paint removal paragraphs.

2 Aluminium parts should have a protective barrier between the topcoat and base metal. It is recommended they be treated with solutions listed in Chapter 51-30.

3 Apply solution liberally and evenly. Allows it to set from 1 to 5 minutes. The solution must completely wet the surface and overlap onto the adjoining anodize.

4 Remove excess coating by flushing with clean water.

5 Paints parts with one coat of wash primer. Allow to dry thoroughly.

6 Paint parts with one coat of lacquer listed in Chapter 51-30. Allow to dry thoroughly before reassembly.

51-70-09 Re-Bonding of Bushings

a) Re-bonding of loose bushings in empennage spars

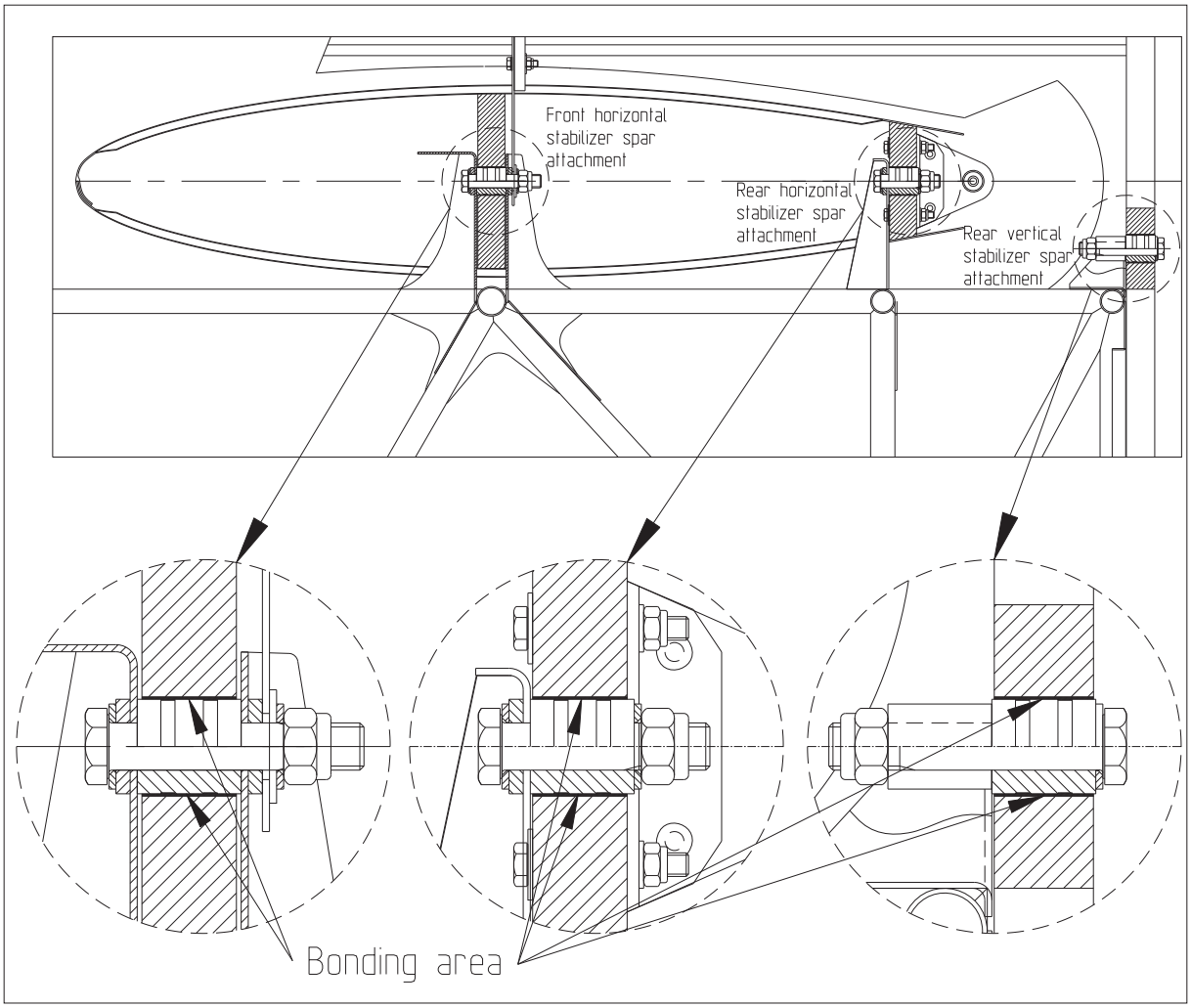


Figure 10 ***Empennage attachment bushings***

Re-bonding of main attachment bushings positioned in the web of the front and rear spar in the horizontal tail as well as in the main spar of the vertical stabilizer is only permissible if the hole in the related spar web is not elongated or has impermissible irregular wear which is evidence of bearing stress exceedance.

In case the bushing fits the hole in the spar web tightly, use epoxy-resin Epikote Resin L20 with Epikure Curing Agent 960 (ref. Chapter 51-30-01). If the gap between bushing and hole in the spar web exceeds 0.5mm (0.02") use a mixture of epoxy resin compound L20/960 and cotton flocks. The weight ratio should be 100 parts L20/960 with 7 up to 15 parts cotton flocks (so called "HB7" and "HB15").

For re-bonding of bushings the related stabilizer has to be removed from the fuselage first. To prevent misalignment, reinstallation is needed at the end of the re-bonding process of the bushings.

1 Remove stabilizer from the fuselage. Refer to the applicable Chapter of this Manual.

2 Carefully remove the loose bushing from the spar. If a tool is needed, handle with care to prevent damage of adjacent composite structure.

3 Visually check the hole in the spar web. In case an elongated hole, a crushed plywood insert or a fuzzy or delaminated surrounding fiber plies are identified, an oversized bushing might be needed. Contact Extra Flugzeugproduktions- und Vertriebs GmbH for advice and repair instructions.

4 Remove any residual resin debris existing on the outer bonding surface of the bushing. Protect the inner surface of bushing and sandblast or use 80-grit sandpaper to rough the outer surface which will be bonded later on (no remaining shiny areas are allowed). Existing grooves on the outer surface (if any) must be free of residual resin.

5 Solvent clean the bushing thoroughly with isopropyl alcohol, carbon-tetrachloride or acetone.

WARNING

Solvents used for cleaning re-bond areas are flammable liquids and should be used with proper ventilation and safety equipment.

6 Take 120-grit sandpaper and sand the surface area of the hole in the spar web where the bushing will be placed later on smooth. Any bulk material (deposits) within the hole must be removed.

NOTICE

Bonding area must be free of dirt, dust and grease.

7 Remove sanding dust with a pneumatic vacuum cleaner and solvent clean the surface area of the hole in the spar web with isopropyl alcohol, carbon-tetrachloride or acetone in case dirt or grease was introduced during the preparation.

8 Prepare a sufficient amount of epoxy resin compound L20/960. The weight ratio is: 100 parts L20 with 34 parts 960

(ref. Chapter 51-30-01). Record quantities of parts to be mixed, ambient air temperature and humidity.

9 Apply a sufficient amount of epoxy resin compound L20/960 to the surface area of the hole in the spar web. Remaining small cavities within the area should be filled with "HB20".

10 Apply a sufficient amount of epoxy resin compound L20/960 to the outer surface area of the bushing.

11 Insert the bushing to the hole. Protruding lenght of bushing out of the front and rear spar web should be equal. Slightly rotate the bushing clockwise or counterclockwise while it is inserted into the hole of the spar web. A continuous movement is required to minimize entrapped air. Avoid partly removing and reapplying, as this will cause air to become entrapped in the bonding gap.

12 Verify epoxy resin compound at entire bond line is continuous and free of gaps.

13 Remove excessive resin compound with cloth damped with isopropyl alcohol.

14 Apply mold-release agent to the related surfaces of the stabilizer mounting brackets of the fuselage and related mounting bolts.

15 Position the stabilizer to the fuselage mounting brackets by related mounting bolts. The related mounting bolts should be installed easily and hold the stabilizer in place for the following cure process (without nuts).

16 Do not apply any pressure on the stabilizer prior to complete cure cycle. Disturbing the stabilizer may create bonding voids.

17 Apply curing procedure (specified time and temperature): At elevated room temperature 25°C (77°F) for 10h followed by 60°C (140°F) for at least 15h (refer to 51-70-02).

18 Reinstall the stabilizer. Refer to the applicable Chapter of this Manual.

b) Re-bonding of loose main wing spar flange bushings

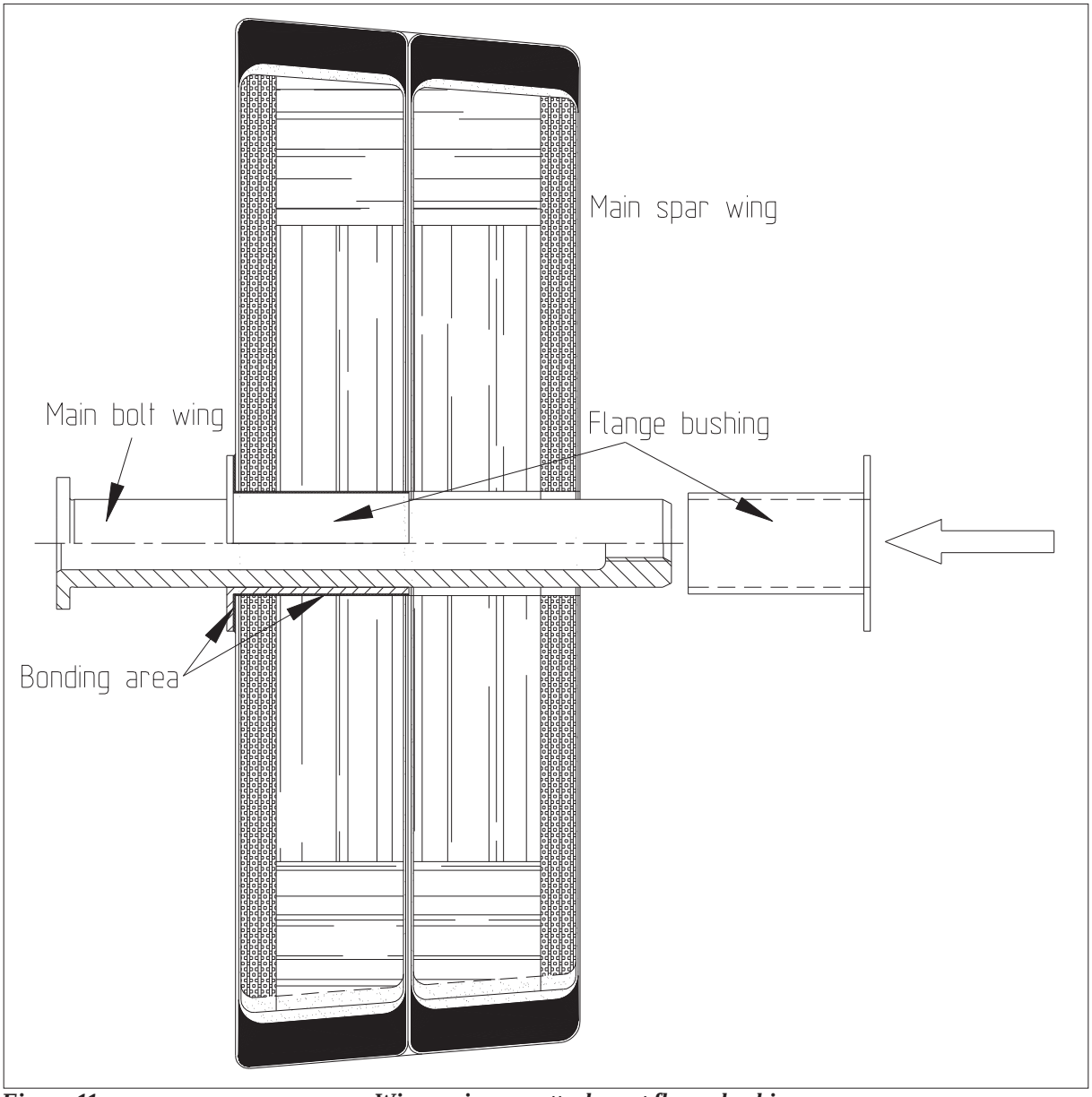


Figure 11 ***Wing main spar attachment flange bushings***

Main attachment bushings positioned in the web of the main wing spar exists of a front and a rear flange bushing. The front and rear flange bushing will be re-bonded one after another. There is a defined bond gap between the flange bushings and the hole in the main spar web.

Re-bonding of main attachment flange bushings positioned in the web of the main wing spar is only permissible if the hole in the related spar web is not elongated or has impermissible irregular wear which is evidence of bearing stress exceedance. In case an elongated hole, a crushed plywood insert or a fuzzy or delaminated surrounding fiber plies are

identified, oversized flange bushing are needed. Contact Extra Flugzeugproduktions- und Vertriebs GmbH for advice and repair instructions.

Use a mixture of epoxy-resign Epikote Resin L20 with Epikure Curing Agent 960 (for mixing ratio ref. Chapter 51-30-01) and cotton flocks. The weight ratio should be 100 parts L20/960 with 7 up to 15 parts cotton flocks (so called "HB7" and "HB15").

For re-bonding of flange bushings the wing has to be removed from the fuselage first.

1 Remove wing from the fuselage. Refer to the applicable Chapter of this Manual.

2 Carefully remove the front or rear loose flange bushing from the main spar at a time. If a tool is needed, handle with care to prevent damage of adjacent composite structure. The remaining flange bushing will be used to align the removed flange bushing during the re-bonding process.

3 Visually check the exposed surface area of the hole in the spar web for any damage.

4 Remove any residual resin debris existing on the bonding surface of the flange bushing. Protect the inner surface of bushing and sandblast or use 80-grit sandpaper to rough the outer surface which will be bonded later on (no remaining shiny areas are allowed).

5 Solvent clean the bushing thoroughly with isopropyl alcohol, carbon-tetrachloride or acetone.

WARNING

Solvents used for cleaning re-bond areas are flammable liquids and should be used with proper ventilation and safety equipment.

6 Take 80-grit sandpaper and sand the exposed surface area of the hole in the spar web where the bushing will be placed later on smooth. Any remaining material from the initial bond within the hole must be removed. Use 120-grit sandpaper to rough the ring surface area of the main spar web where the flange of the bushing will be bonded to later on.

NOTICE

Bonding area must be free of dirt, dust and grease.

7 Remove sanding dust with a pneumatic vacuum cleaner and solvent clean the surface area of the hole in the spar web with isopropyl alcohol, carbon-tetrachloride or acetone in case dirt or grease was introduced during the preparation.

8 Prepare a sufficient amount of epoxy resin compound L20/960. The weight ratio is: 100 parts L20 with 34 parts 960 (ref. Chapter 51-30-01). Record quantities of parts to be mixed, ambient air temperature and humidity.

9 Apply a sufficient amount of epoxy resin compound L20/960 to the exposed surface area of the hole and the ring surface area of the main spar web. Additionally apply "HB15" compound.

10 Apply a sufficient amount of epoxy resin compound L20/960 to the outer surface area of the flange bushing which will be bonded to the spar. Additionally apply "HB15" compound.

11 Apply mold-release agent to the surface of the related wing main bolt. Insert the bolt to the flange bushing which is still fixed in the main spar (opposite side) to provide a guidance for the flange bushing to be bonded to the spar.

12 Insert the flange bushing to the hole. Slide on the main bolt and slightly rotate the bushing clockwise or counterclockwise while it is moved into the hole of the spar web. A continuous movement is required to minimize entrapped air. Avoid partly removing and reapplying, as this will cause air to become entrapped in the bonding gap.

13 Verify epoxy resin compound at the edge of the flange bushing is continuous and free of gaps.

14 Remove excessive resin compound at the flange with cloth damped with isopropyl alcohol.

15 Do not apply any pressure on the flange bushing prior to complete curing cycle. Disturbing the flange bushing may create bonding voids.

16 Apply curing procedure (specified time and temperature): At elevated room temperature 25°C (77°F) for 10h.

17 Remove the main bolt from the flange bushing.

18 Proceed with final curing at 60°C (140°F) for at least 15h (refer to 51-70-02).

19 Repeat the procedure in case the flange bushing on the opposite side has to be re-bonded as well.

20 Reinstall the wing. Refer to the applicable Chapter of this Manual.

Chapter 53

Fuselage

Table of Contents

53-00-00 GENERAL

The fuselage structure consists of a TIG-welded steel tube construction integrating the wing and empennage connections as well as the seat (refer to Figure 1).

The particular areas of the fuselage are covered with different materials as shown in the following list (refer to Chapter 51-00-01 "Access Panel Identification"):

Main fuselage cover	carbon fibre laminate
Cowling top	carbon fibre laminate and honeycomb
Cowling bottom	carbon fibre laminate and honeycomb
Bottom fuselage cover	carbon fibre laminate and integrated aluminium sheet (front section)
Side cover	carbon fibre laminate and honeycomb
Tail fairing	carbon fibre laminate
Tail side skin	aluminium sheet

The one-piece canopy frame is built of carbon fibre laminate. The window portion is made of acrylic glass.

The optional window portion in the bottom fuselage cover is made of polycarbonate.

The layer sequences of the engine cowlings and the fuselage covers are shown in the Figures 2-6.

All composite parts, as protection against moisture and UV radiation, are coated with an unsaturated polyester gel-coat, an acrylic filler and finally with an acrylic paint.

For repair of composite parts, aluminium and steel components refer to Chapter 51. The repair of fabric has to be executed in accordance to the FAA AC 43.13-1A.

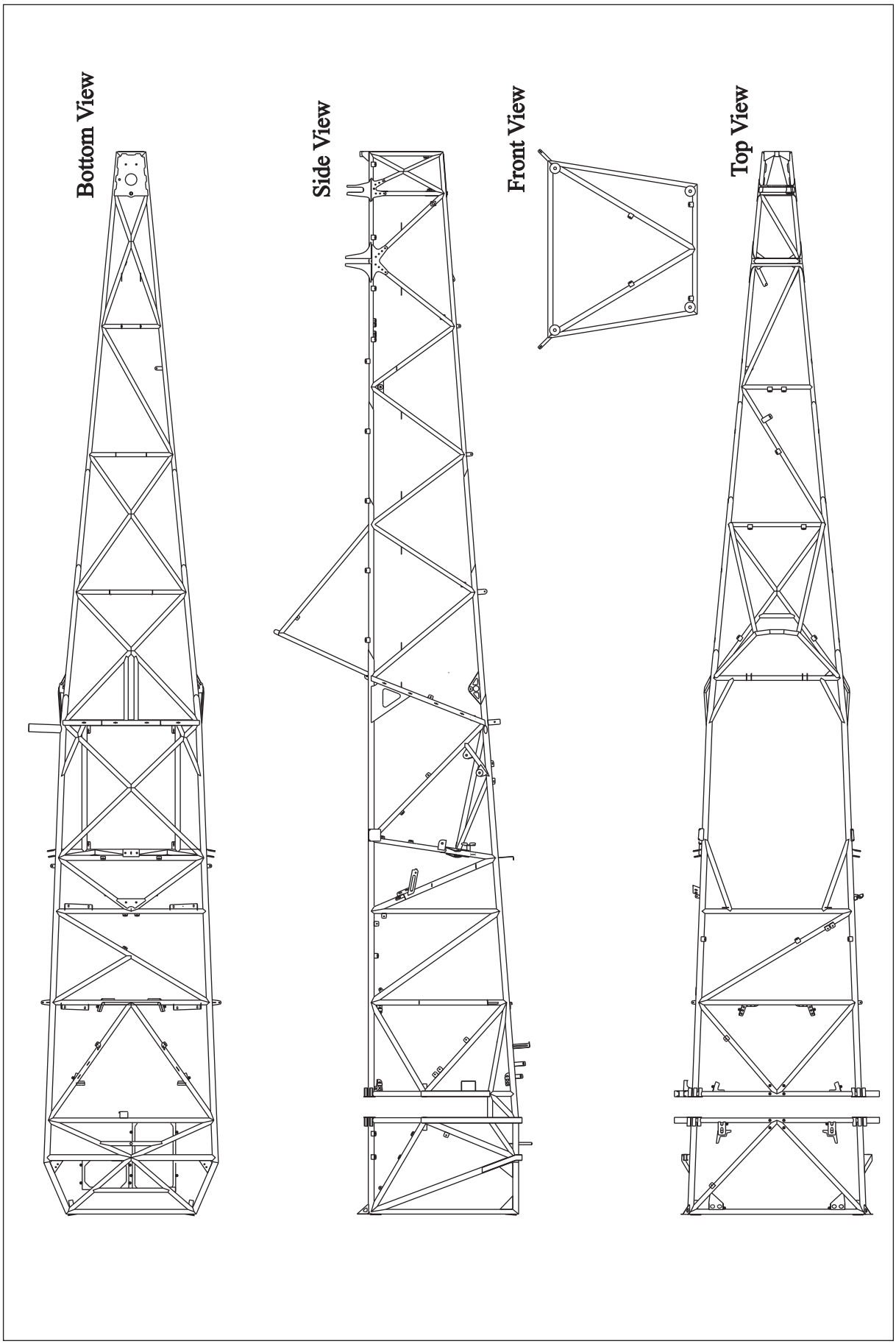


Figure 1 ***Fuselage Steel Tube Design***

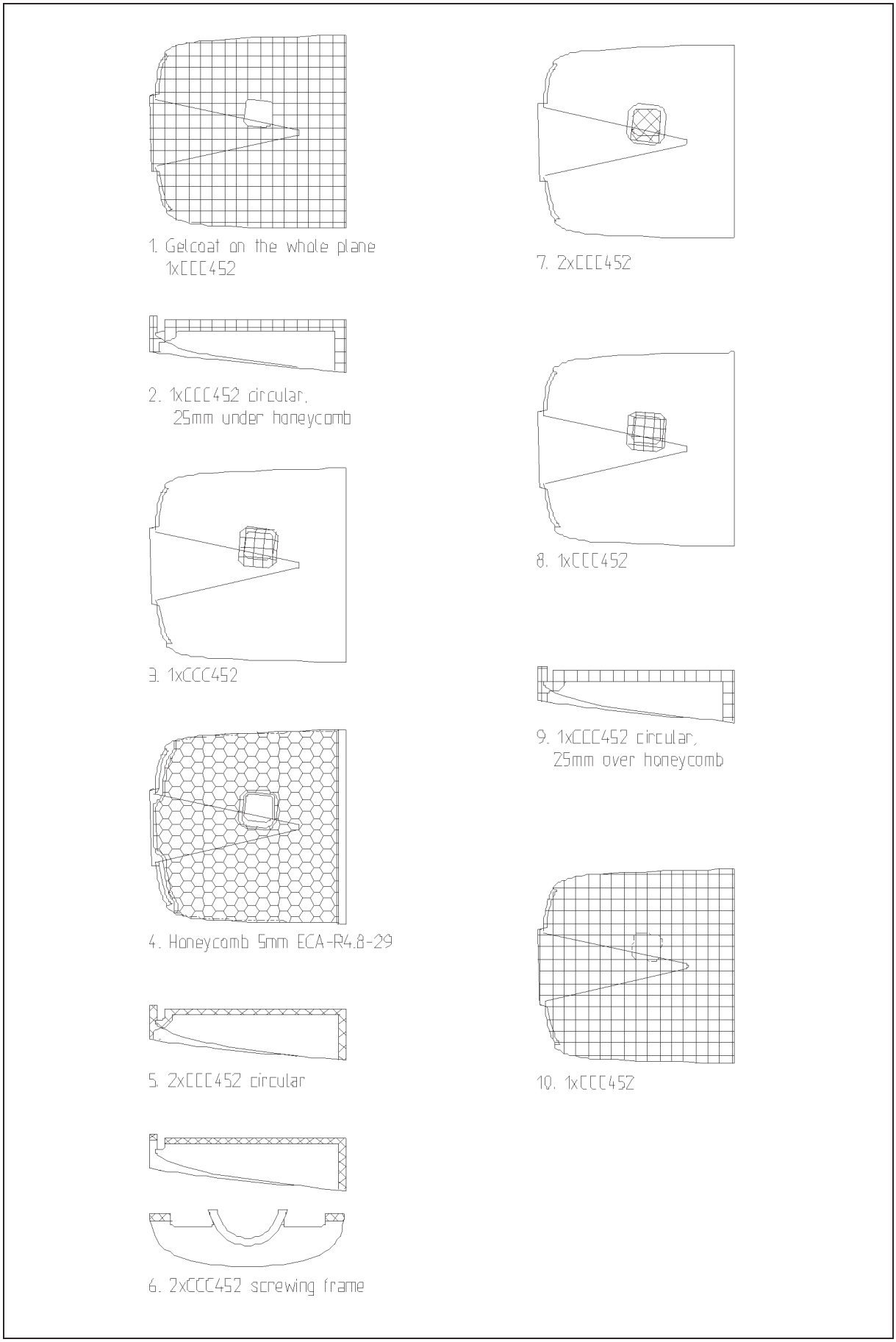


Figure 2 ***Layer Sequence Top Half of the Engine Cowling up to SN SC059***

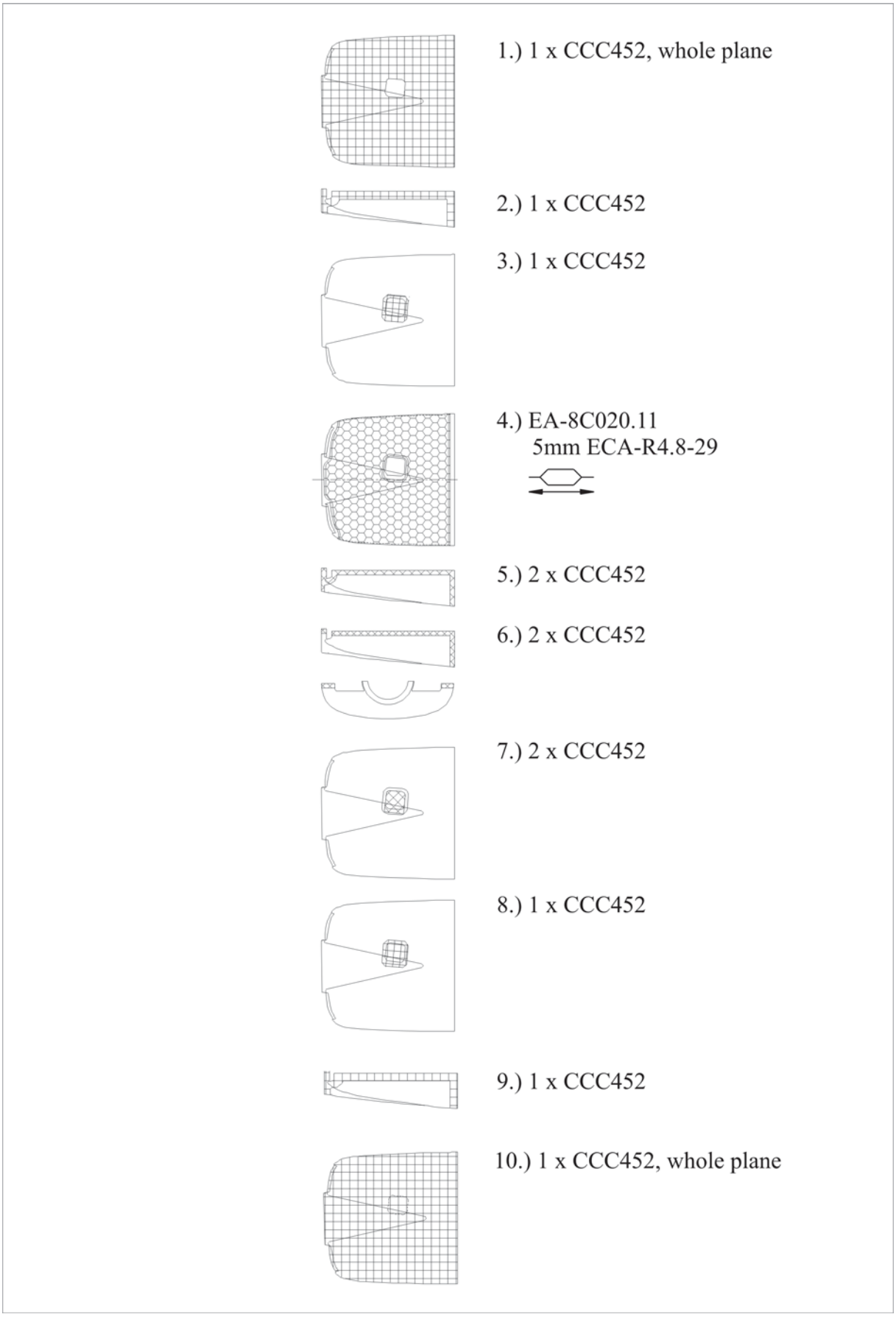


Figure 3 ***Layer Sequence Top Half of the Engine Cowling from SN SC060***

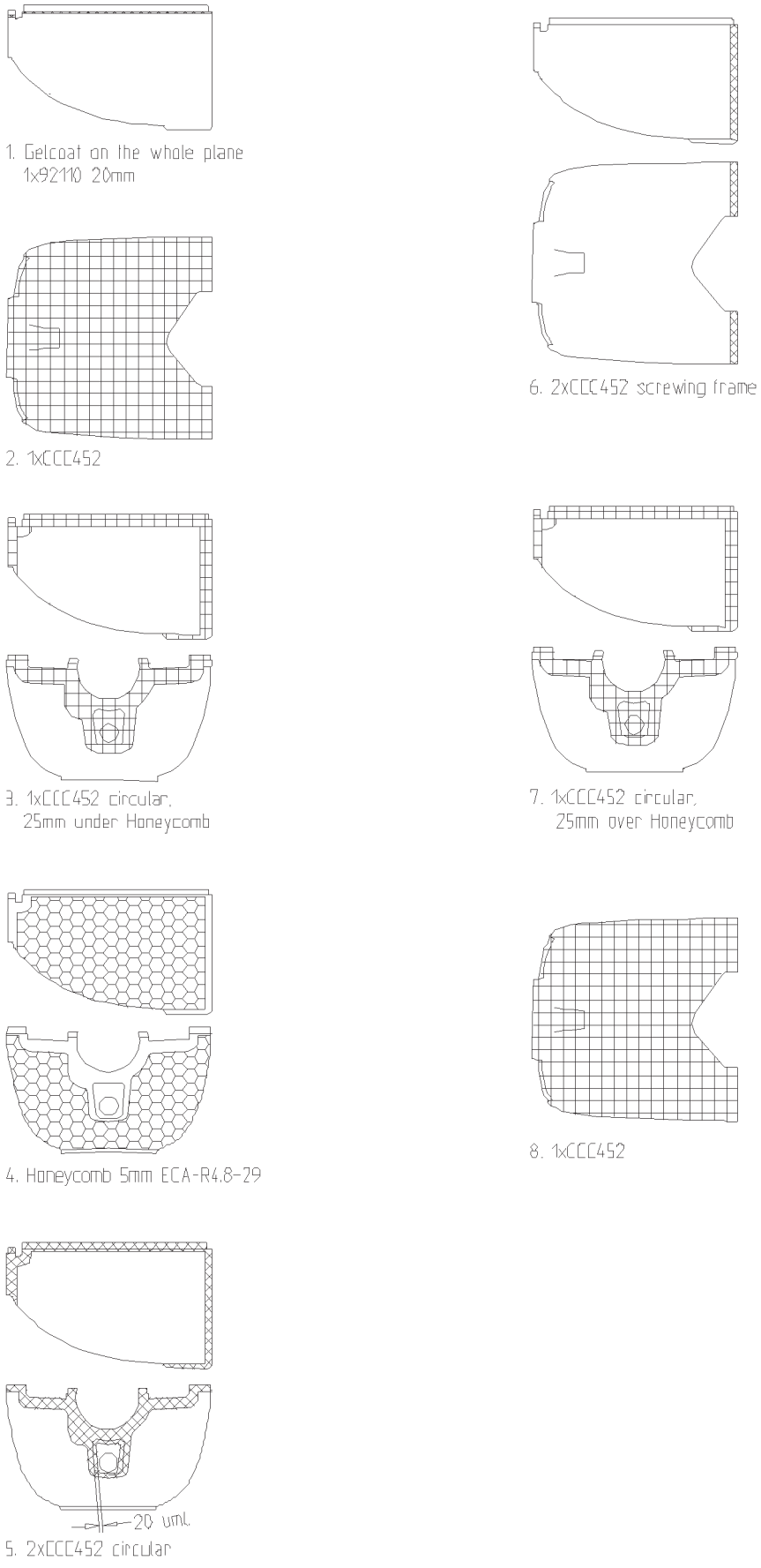
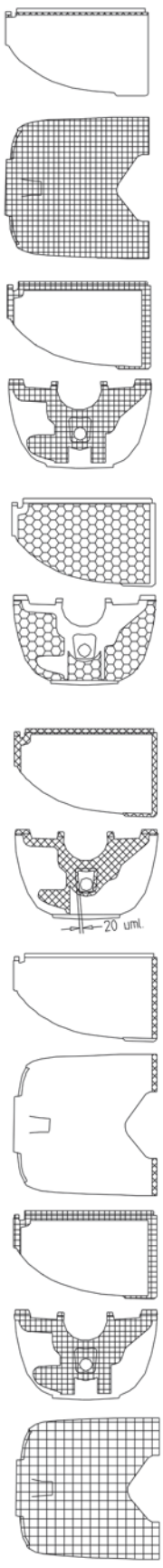


Figure 4 ***Layer Sequence Bottom Half of the Engine Cowling up to SN SC059***



1.) 1 x 92110

2.) 1 x CCC452, whole plane

3.) 1 x CCC452

4.) EA-83001.21
5mm ECA-R4.8-29

5.) 2 x CCC452

6.) 2 x CCC452

7.) 1 x CCC452

8.) 1 x CCC452, whole plane

Figure 5 ***Layer Sequence Bottom Half of the Engine Cowling from SN SC060***

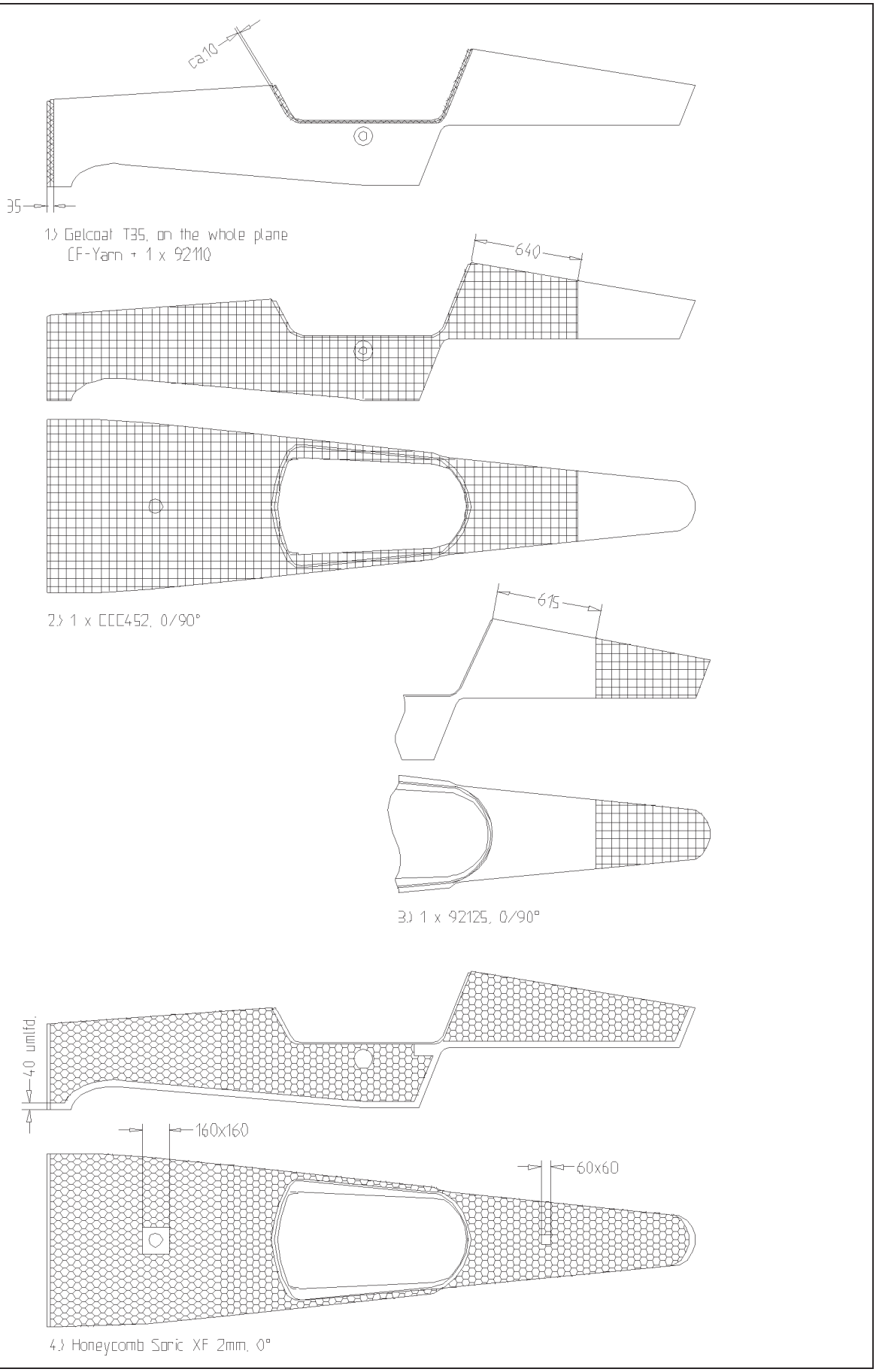


Figure 6, Sheet 1 ***Layer Sequence Main Fuselage Cover***

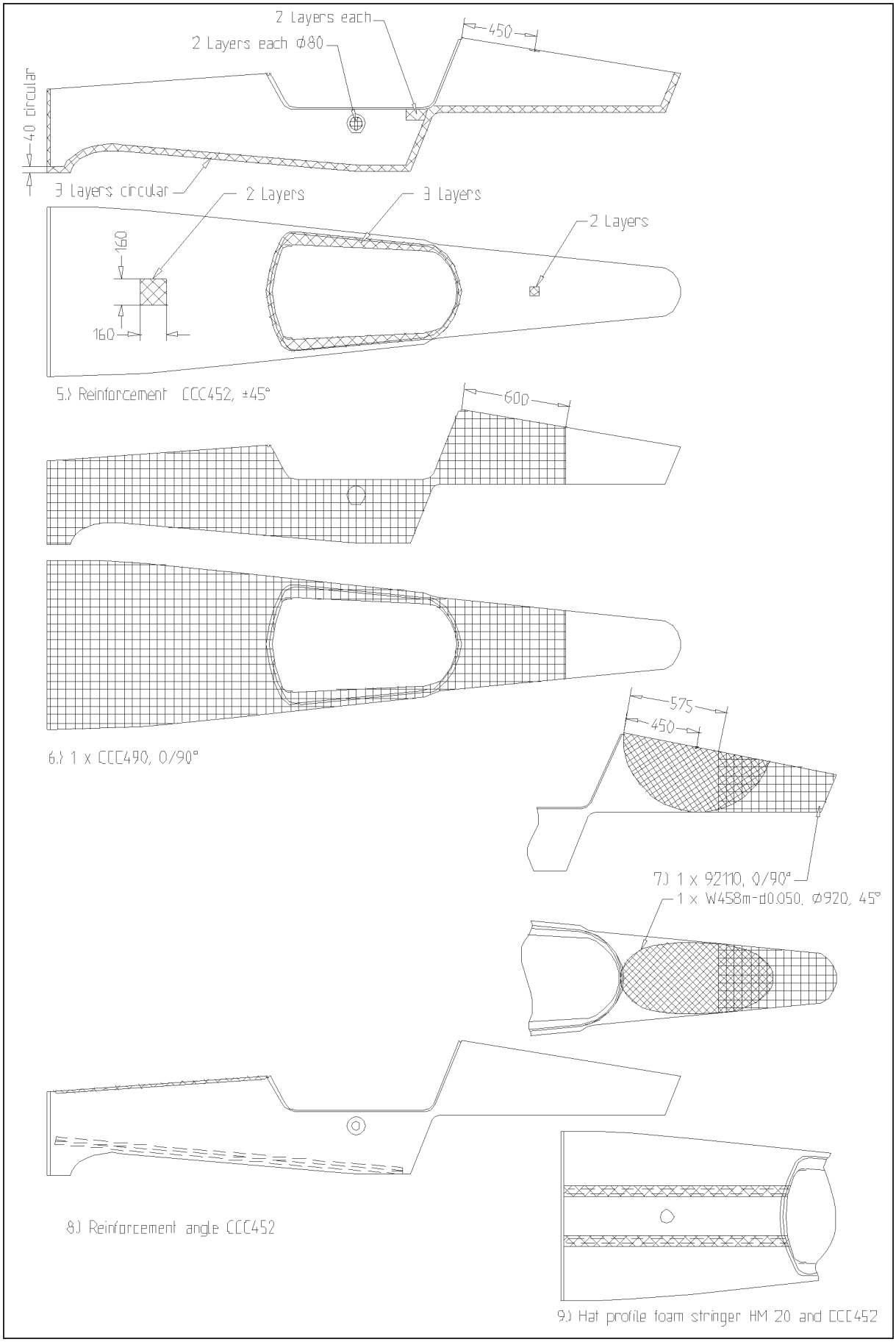


Figure 6, Sheet 2 ***Layer Sequence Main Fuselage Cover***

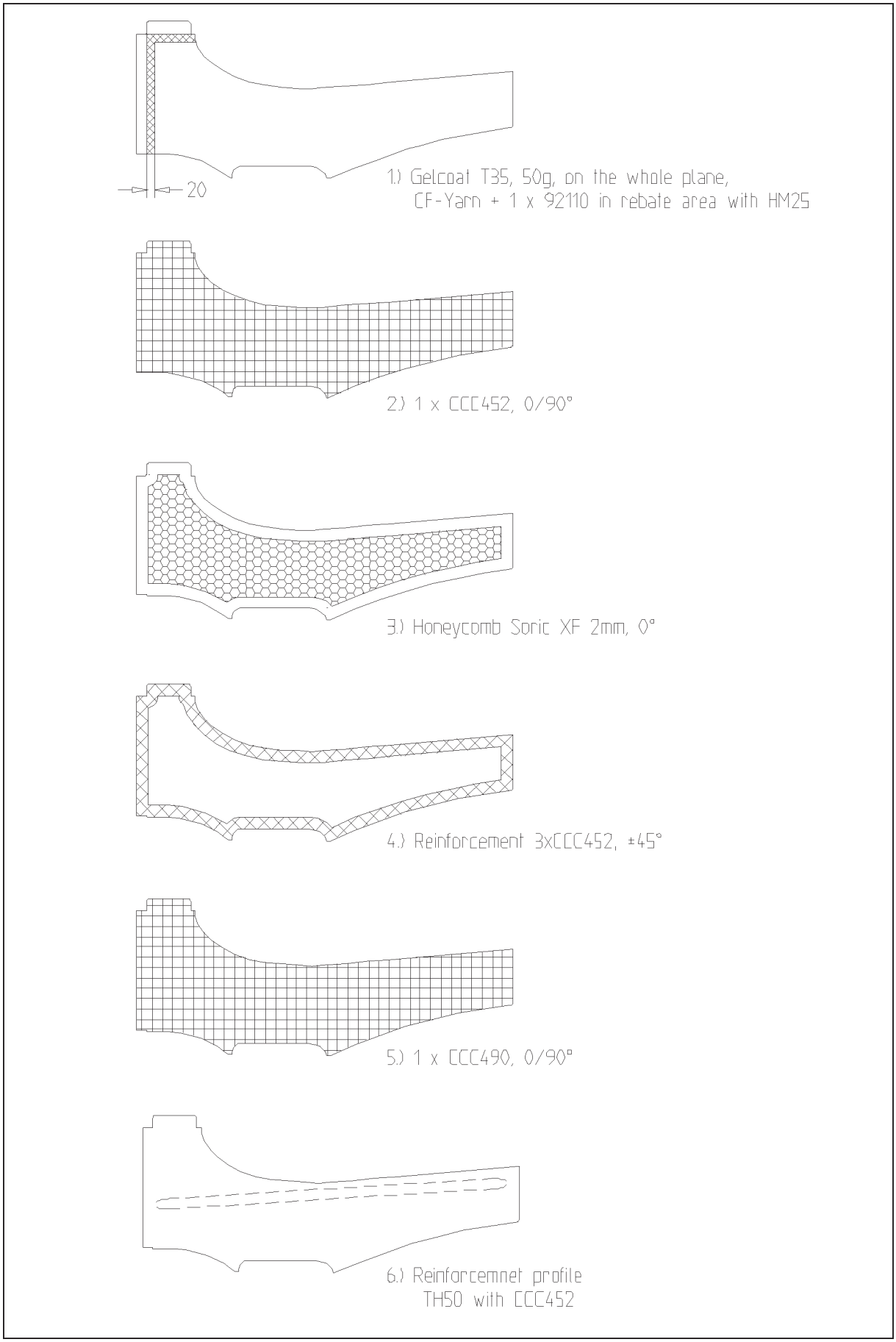
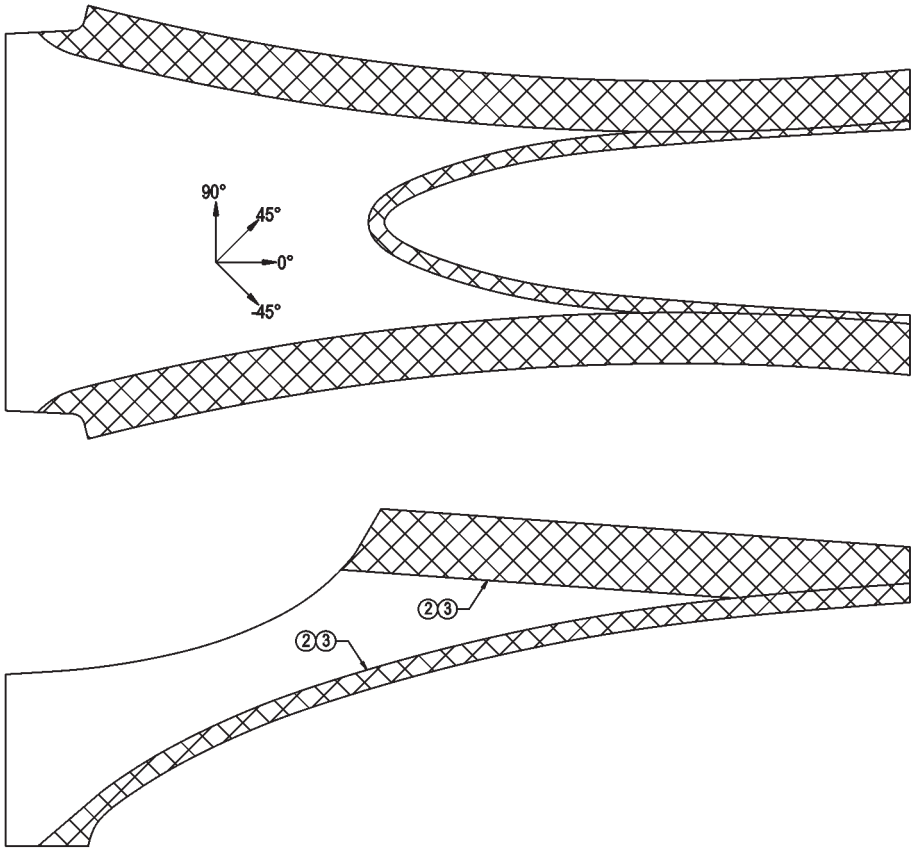


Figure 7 ***Layer Sequence Side Cover***



Layer Sequence:

0	Gelcoat Scheufler T35 or T30 white on the whole plane	
1	1 Layer Carbon fabric CCC 447 on the whole plane	0°/90°
2	1 Layer Carbon fabric CCC 447 50mm wide tape; see drawing	±45°
3	1 Layer Carbon fabric CCC 447 50mm wide tape; see drawing	±45°
4	1 Layer Carbon fabric CCC 447 on the whole plane	0°/90°

Figure 8 ***Layer Sequence Side Cover***

53-00-10 Canopy

Removal/Installation

1 Open canopy.

CAUTION **Support the canopy by hand before disconnecting the opening limiter strap.**

2 Remove the attachment bolt of the opening limiter strap.

3 Push canopy to front and remove.

4 Install in reverse sequence of removal.

53-00-11 Canopy Glass

Replacement

1 Remove canopy per Chapter 53-01-01.

2 Remove the old canopy glass.

3 Gently remove remaining glue with a chisel.

4 Sand down the bonding area on the canopy frame completely (sandpaper grit/P120). Check that there are no reflecting areas left.

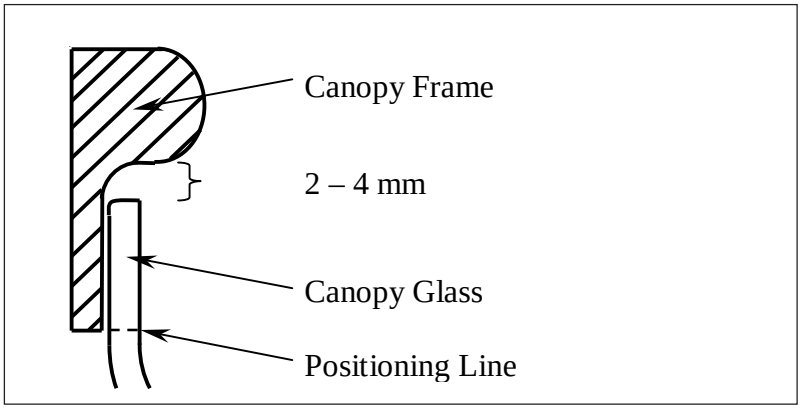


Figure 9 Typical cross section of canopy bonding area

5 Fit the new canopy glass in the canopy frame. Opening between canopy glass and canopy frame about 2-4 mm.

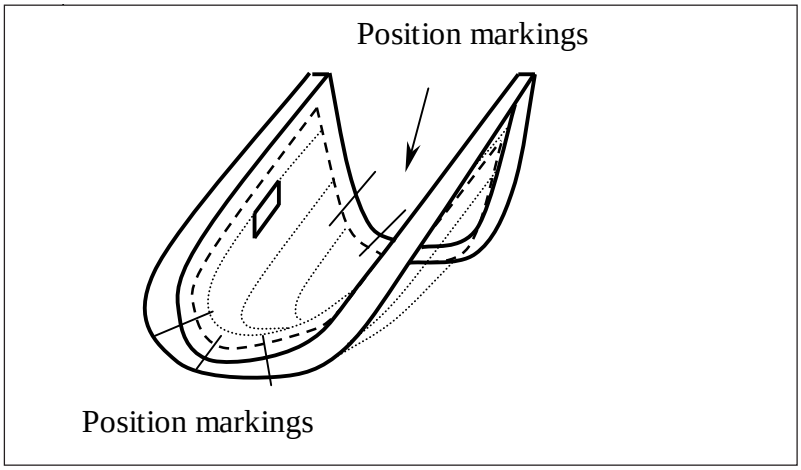


Figure 10 Canopy position markings

6 Secure the canopy glass in the frame. Draw a positioning line (see Figure 9) and position markings on the inside (see Figure 10).

7 Prepare canopy glass for bonding.

8 Remove a strip (width approx. 50mm) from the protective layer from the outside along the canopy glass bonding area.

9 Place fine tape (width 3mm) on the outside opposing the positioning line on the inside.

10 For protection purposes, place 3 layers of tape as depicted in Figure 11.

11 Sand down the canopy glass up to the fine tape line (use Scotch Brite Handpad Medium). Check that there are no reflecting areas left.

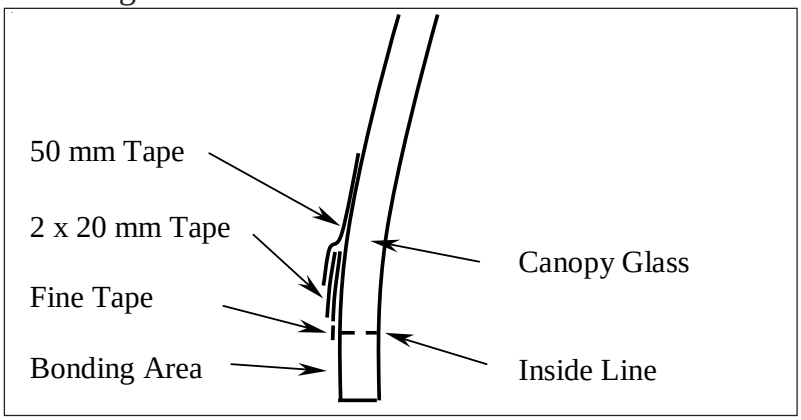


Figure 11 Canopy tape markings

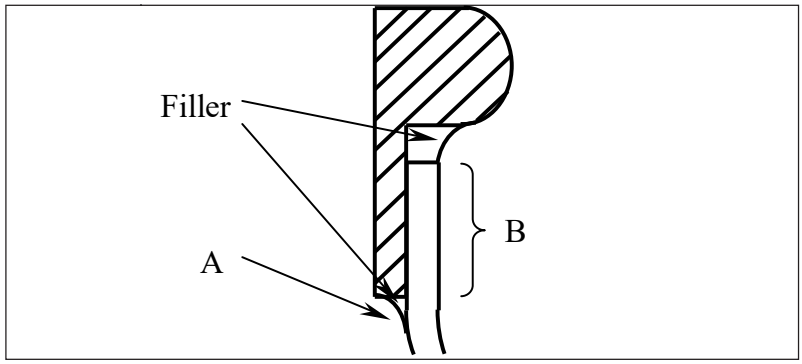


Figure 12 Canopy adhesive remainders

12 Remove the fine tape.

13 Prepare urethane adhesive (refer to Chapter 51-30-04 *Urethane Adhesives*):
Thoroughly mix approx. 300 g (approx. 10.6 oz.) adhesive (consider specified weight ratio and work life).
Mix approximately 15 seconds after a uniform color is obtained.

14 Put adhesive on the bonding area. For maximum bonding strength, apply product to both canopy glass and canopy frame.

15 Place canopy glass in canopy frame. Observe correct position using position markings.

16 Apply pressure on canopy glass using tightener to hold it in place.

17 Remove adhesive remainders with wooden spatula.

18 Curing time for fixed position (time to handling strength): min. 8h @ 24°C (75°F) or 15h @ 20°C (68°F)
(Time to reach full cure: 7 days @ 24°C (75°F))

19 The next day: Remove tightener and remove canopy from form.

20 Sand down (using Scotch Brite Handpad Fine) a small area around the outside edge between canopy frame and canopy glass (area A in Figure 12).

21 Apply primer (EP801-1552, curing time: 24h) before applying filler (Glasurit 839-53) and refinish the area.

NOTICE

Make sure, the filler does not get in contact with untreated canopy glass.

22 Sand down (using Scotch Brite Handpad Fine) the overlapping part between canopy glass and canopy frame on the inside (Area B in Figure 12).

23 Apply primer (Glasurit 934-0) and refinish the area (Nextel).

53-00-04 Bottom Fuselage Cover

Removal

1 Remove engine cowling as per Chapter 71, the landing gear cuffs and main fuselage cover in accordance with this chapter.

2 Pull the plug of the optional OAT sensor wiring, if applicable.

3 Disconnect the antenna wirings.

4 Remove bottom fuselage cover by removing the attachment screws.

Installation

IMPORTANT

The cockpit area must be thoroughly sealed and thus separated from the engine compartment. Gases or fluids could get into the cockpit area.

Critical areas to be observed are the following:
Position A and D of Figure 13, where different parts converge (firewall, aluminium profile, bottom fuselage cover and exhaust area covering sheet). Position B and C, where a bent corner ends in a bore hole.

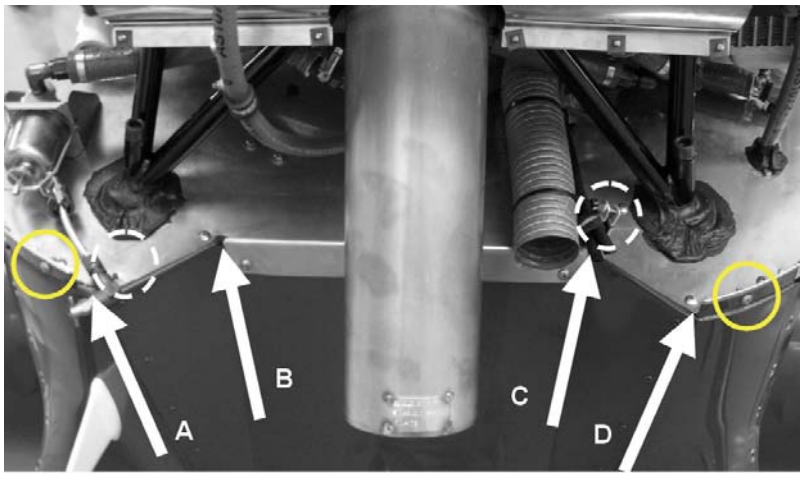


Figure 13 Forward View on Bottom Side Firewall

1 Position the bottom fuselage cover in its original position.

2 Plug the optional OAT sensor wiring, if applicable.

3 Connect the antenna wirings.

4 Install bottom fuselage cover attachment screws.

5 Install bottom cowling attachment screws (one on either side) without cowling present (see two outer circles in Figure 13).

6 Loosen clamp screws on gascolator drain and fuel pump vent lines for easy access (see inner dotted circles).

7 Prepare firewall sealant (refer to Chapter 51-30-04).

8 Clean areas (from inside and outside) with solvents at four positions pointed out by the arrows in Figure 13. Immediately thereafter, dry these areas with a new dry cloth.

9 At the gascolator drain (position A) seal the remaining gap between firewall and bottom fuselage cover from inside and outside with firewall sealant. Minimum sealant thickness approximately 1/8 inch (= 3 mm).

10 Repeat step 9 at positions B, C and D.

11 Observe applicable curing times.

12 Fasten clamp screws on gascolator drain and fuel pump vent lines.

13 Remove the two bottom cowling attachment screws.

14 Reinstall main fuselage cover, landing gear cuffs and engine cowling in accordance with this chapter.

Chapter 55

Stabilizers

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55-00-00 GENERAL

The EXTRA 300/SCE possesses a cruciform empennage with stabilizers and moveable control surfaces. The spars consist of PVC foam cores, CRP caps and webs. The shell is built by honeycomb sandwich with CRP laminates.

The control surfaces are mounted in spherical bearings and balanced aerodynamically with unshielded horns at the tip. To prevent flutter rudder and elevator are mass balanced. The balance weight is installed in the leading edge of the unshielded horn. The R/H elevator side incorporates a trim tab supported at two piano type hinges.

The layer sequences of the stabilizers, the elevator and the rudder are shown in Figures 1-3.

All composite parts, as protection against moisture and UV radiation, are coated with an unsaturated polyester gel-coat, an acrylic filler and finally with an acrylic paint.

For repair of composite parts refer to Chapter 51.

55-10-00 HORIZONTAL STABILIZER

Removal

Remove elevator and rudder per Chapters 27-20-00 and 27-30-01, remove the vertical stabilizer per Chapter 55-20-00 and then reverse procedure of installation.

Installation

1 Remove the main fuselage cover per Chapter 51-00-01.

N O T I C E

Make shure that the trim bowden cable will not be damaged when installing the horizontal stabilizer.

2 Slide the horizontal stabilizer with its front spar (1, Figure 1) into the attach brackets (4) on fuselage. The rear spar (2) is situated behind the rear attachment bracket (5). (Trim tab is on the right side.)

3 Slide in LN 9037-10054 front spar attachment bolts (8) with an additional DIN 125 M10 washer under bolt head from the front to the rear. These bolts are also used for the vertical stabilizer attachment. So do not apply stop nuts before the vertical stabilizer is fitted to the fuselage.

4 Slide in the rear spar attachment bolts (7) from front to rear. Use LN 9037-10050 bolts in connection with LN 9348-10 stop nuts and DIN 125 M10 washers. Torque nuts for fastening.

5 Fasten the ground bonding lead (3) by means of the DIN 933 M5x12 bolt (6), the DIN 125 M5 washers and the LN 9348-05 stop nuts.

6 Reinstall the main fuselage cover.

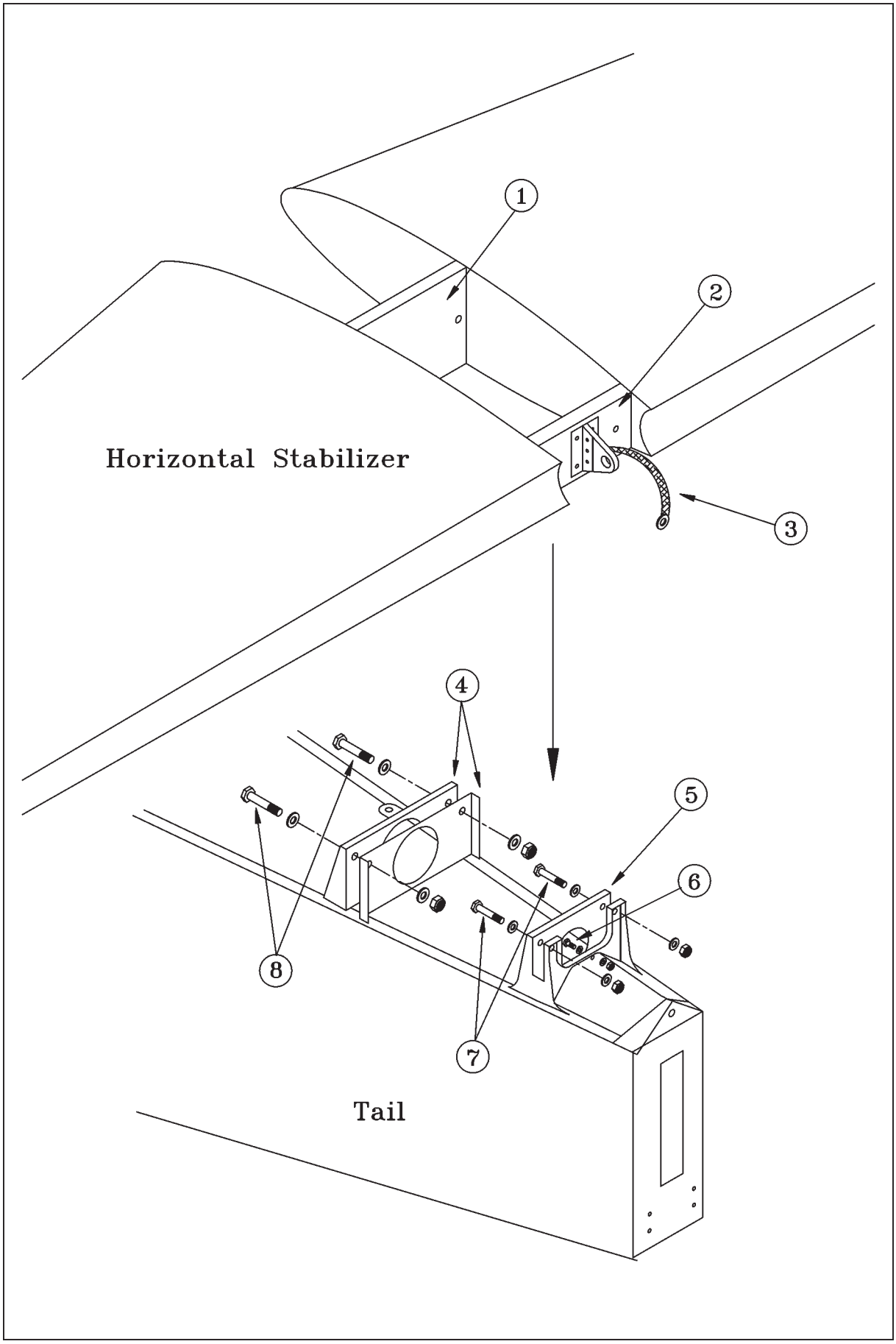


Figure 1 ***Horizontal Stabilizer Removal/Installation***

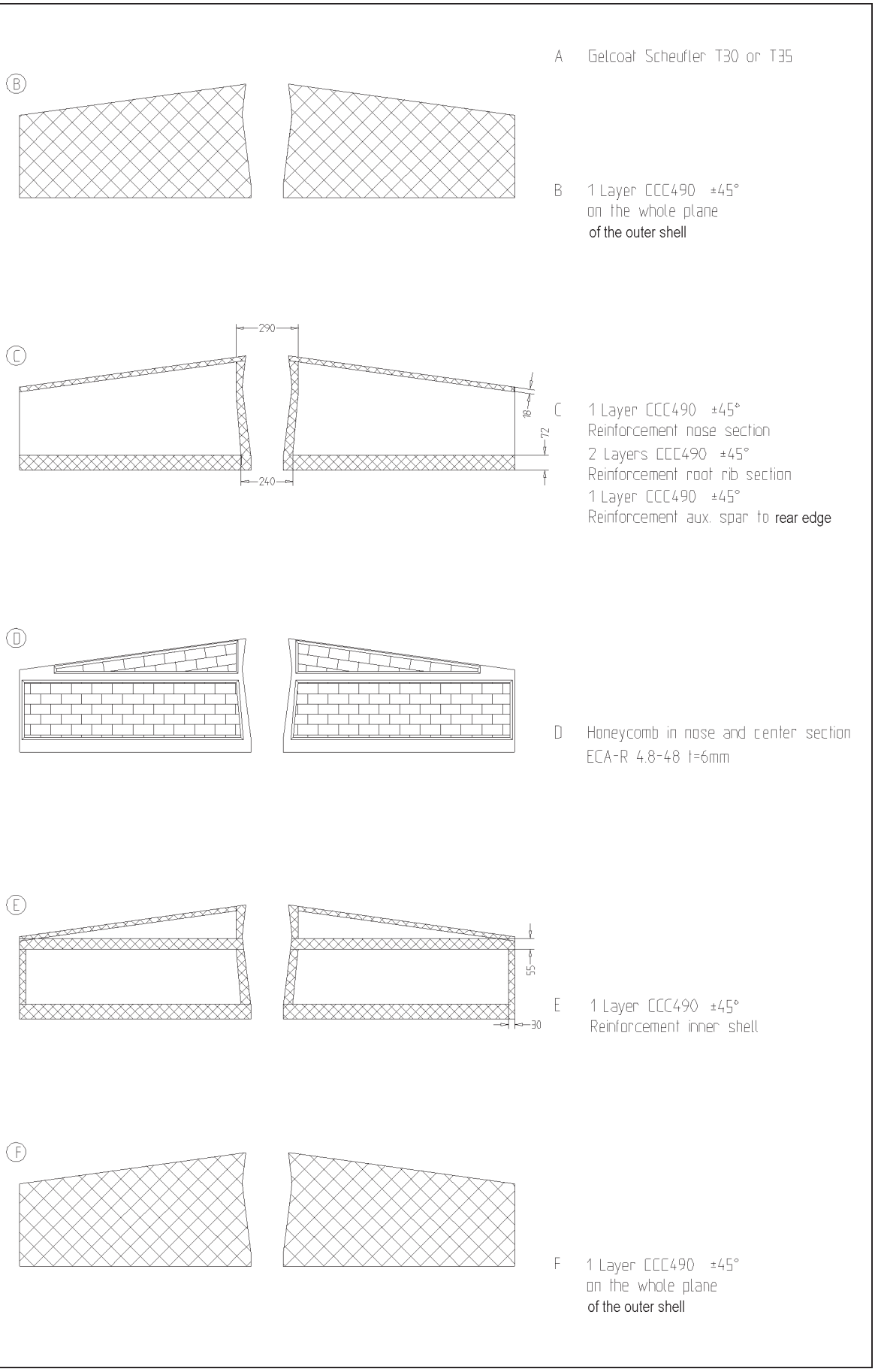


Figure 2, Sheet 1 ***Layer Sequence Horizontal Stabilizer (Bottom)***

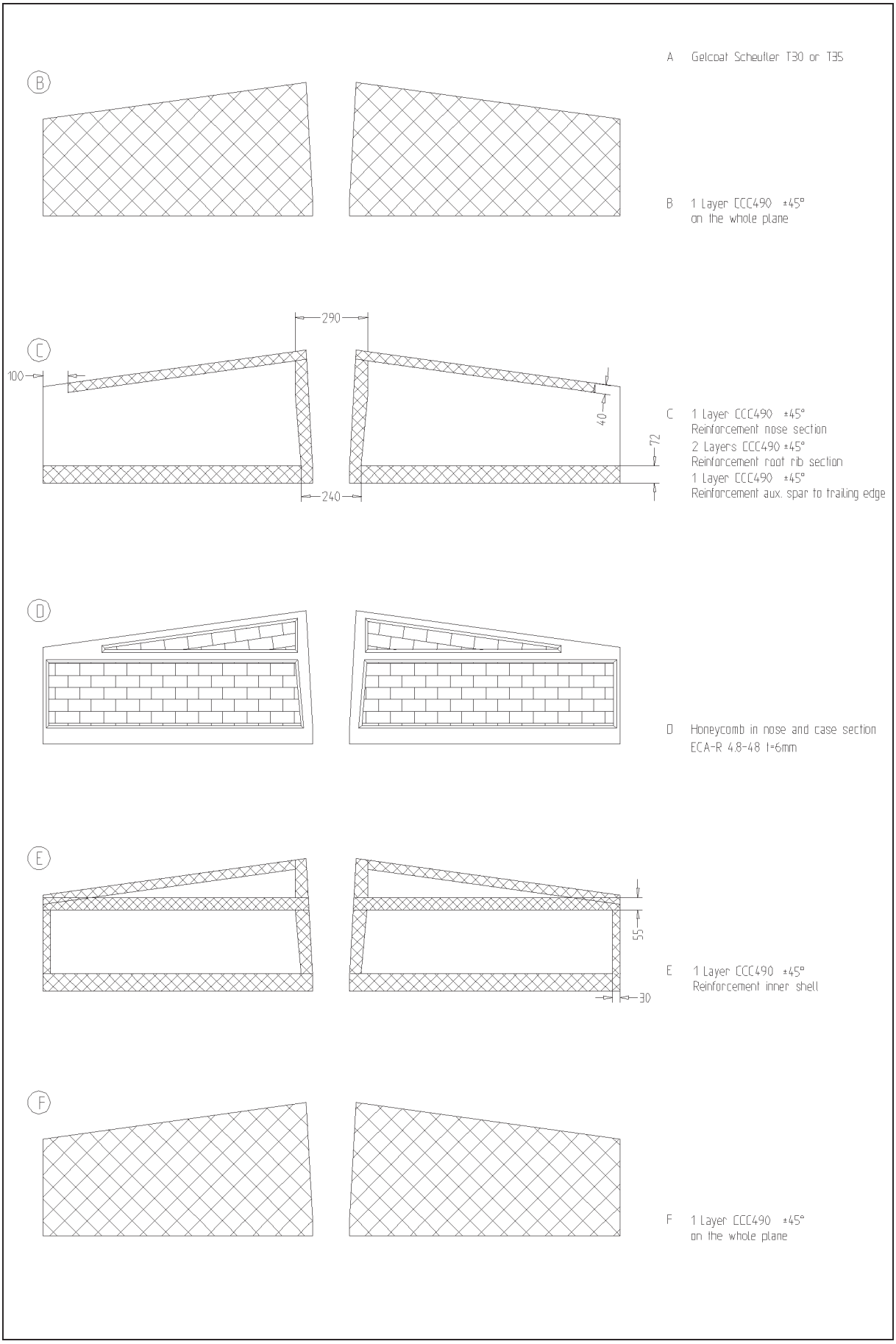


Figure 2, Sheet 2 ***Layer Sequence Horizontal Stabilizer (Top)***

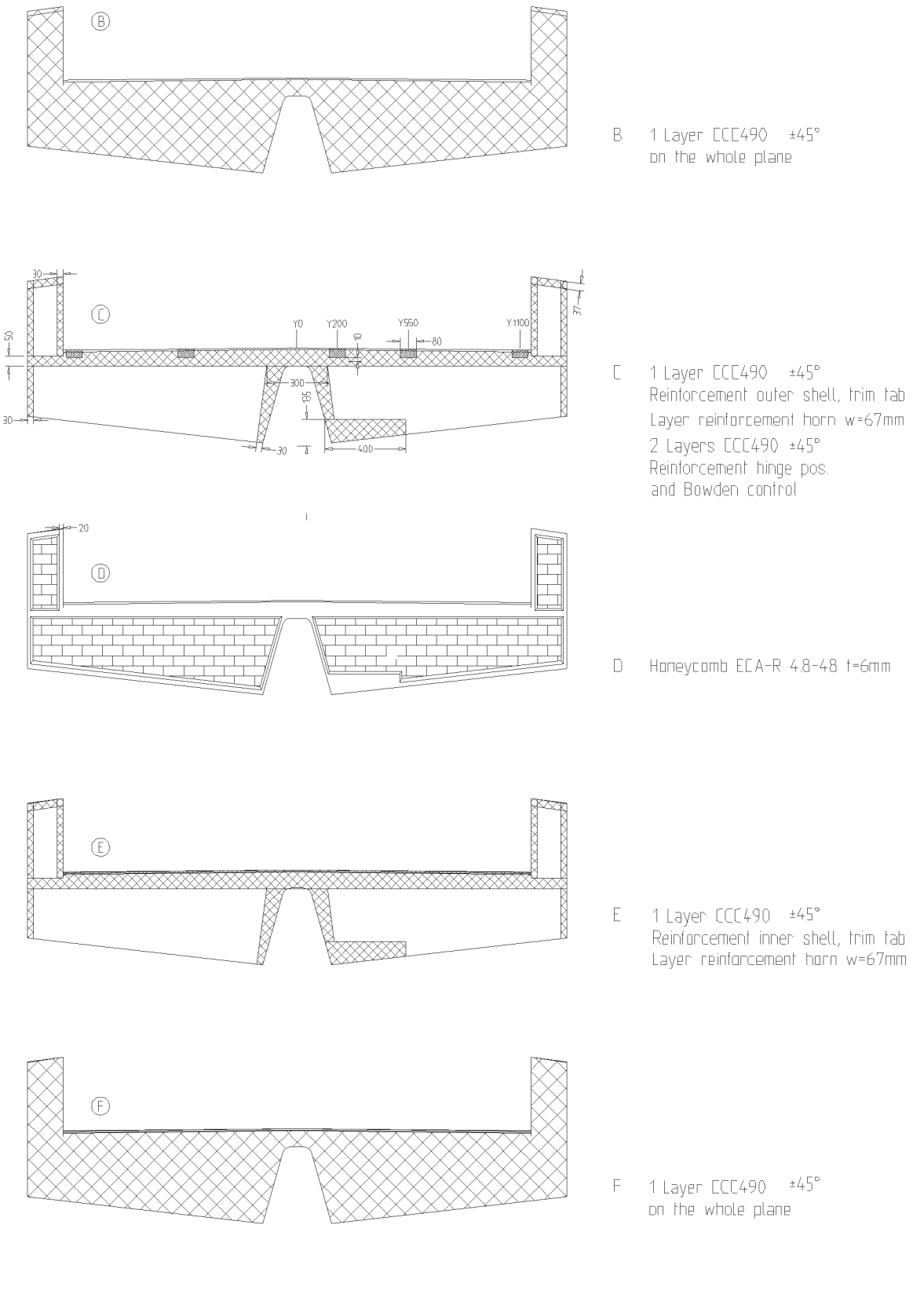


Figure 3, Sheet 1 ***Layer Sequence Elevator (Bottom)***

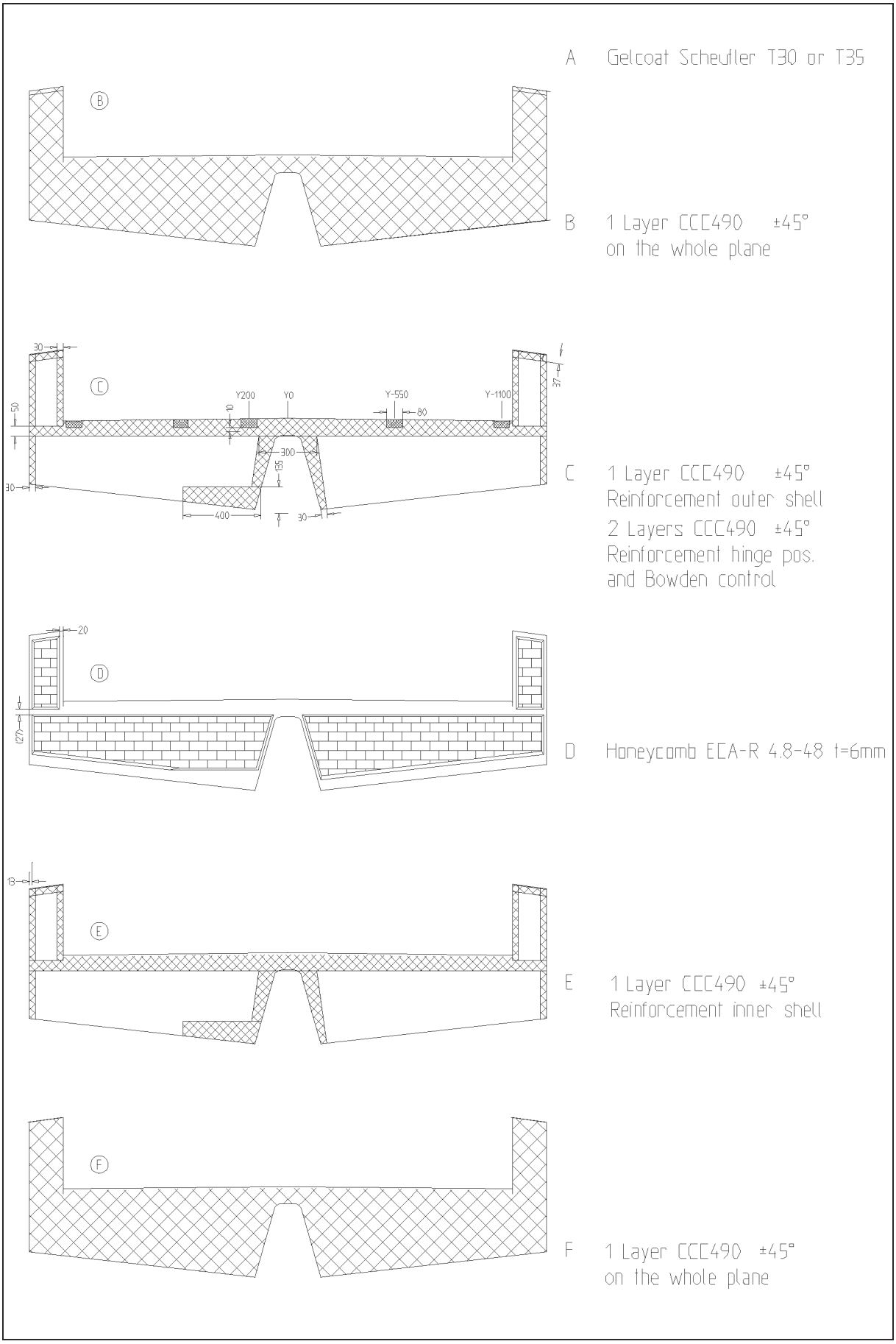


Figure 3, Sheet 2 ***Layer Sequence Elevator (Top)***

55-30-00 VERTICAL STABILIZER

Removal

1 Remove the main fuselage cover, the tail fairing and the tail cone access panel per Chapter 51-00-01.

2 Remove the rudder per Chapter 27-20-00.

3 Remove the bottom hinge bracket assembly per Chapter 27-20-01.

4 Remove the two LN 9348-10 stop nuts (2, Figure 4) and DIN 125 M10 washers of the front main bolts.

5 Remove the rear LN 9037-10054 main bolt (3) with the DIN 125 M10 washers and the LN 9348-10 stop nut.

NOTICE

Do not put the fin too far backward, the antenna could be damaged.

6 Put the fin backward and lift the fin over the antenna.

Installation

1 Put the vertical stabilizer leading edge over the antenna.

NOTICE

Do not put the fin to vertical stabilizer backward, the antenna could be damaged.

2 Slide the auxiliary spar attachment sheet (1, Figure 4) of the vertical stabilizer from the rear over the preinstalled horizontal stabilizer front spar bolts and install the DIN 125 M10 washers and LN 9348-10 stop nuts (2).

3 Insert the LN 9037-10054 bolt (3) to the main spar from rear to front. Use LN 9348-10 stop nuts and DIN 125 M10 washers.

4 Install the bottom hinge bracket to the tail per Chapter 27-20-01.

5 Reinstall the main fuslage cover, the tail fairings and the tail cone access panel per Chapter 51-00-01.

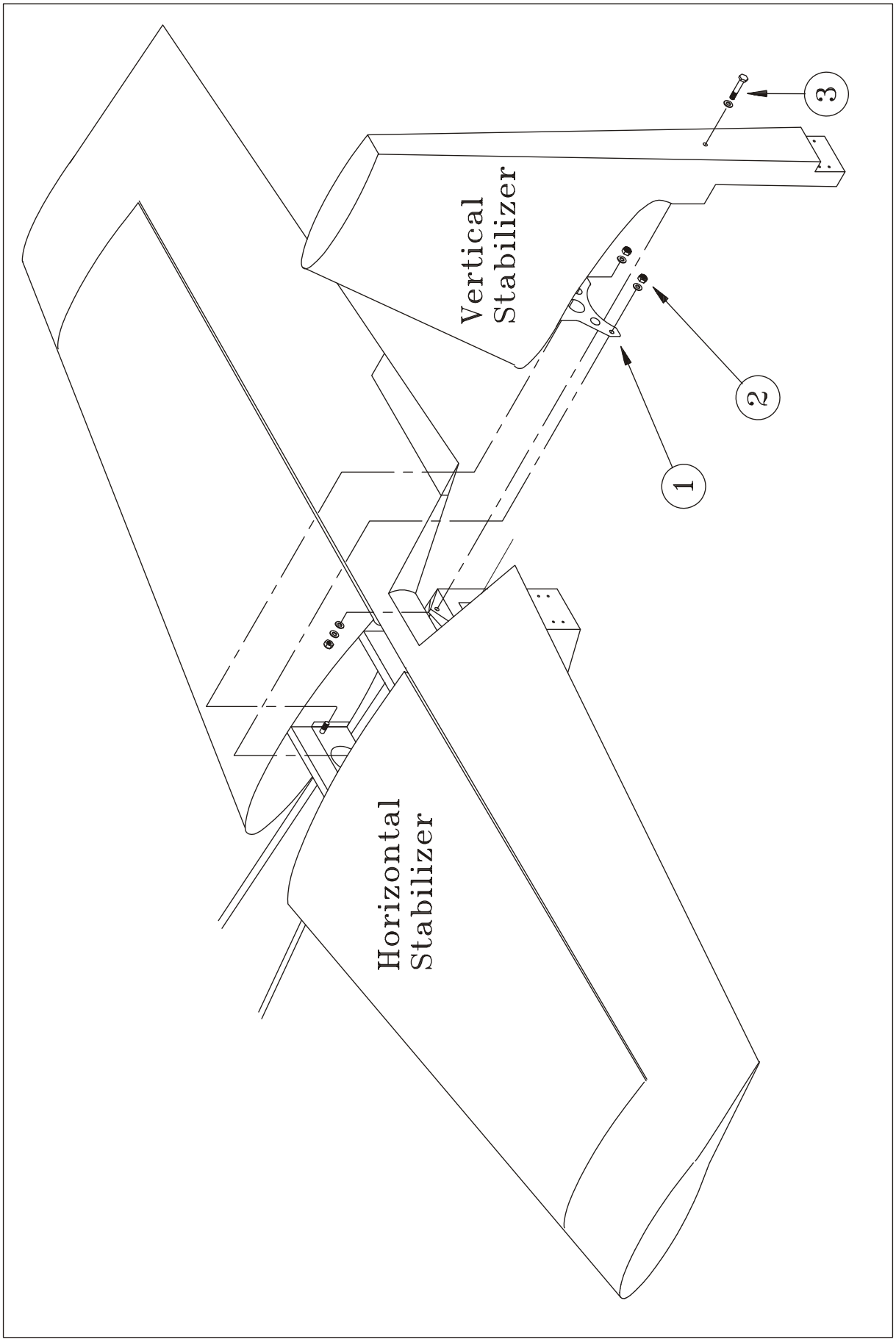


Figure 4 ***Vertical Stabilizer Removal/Installation***

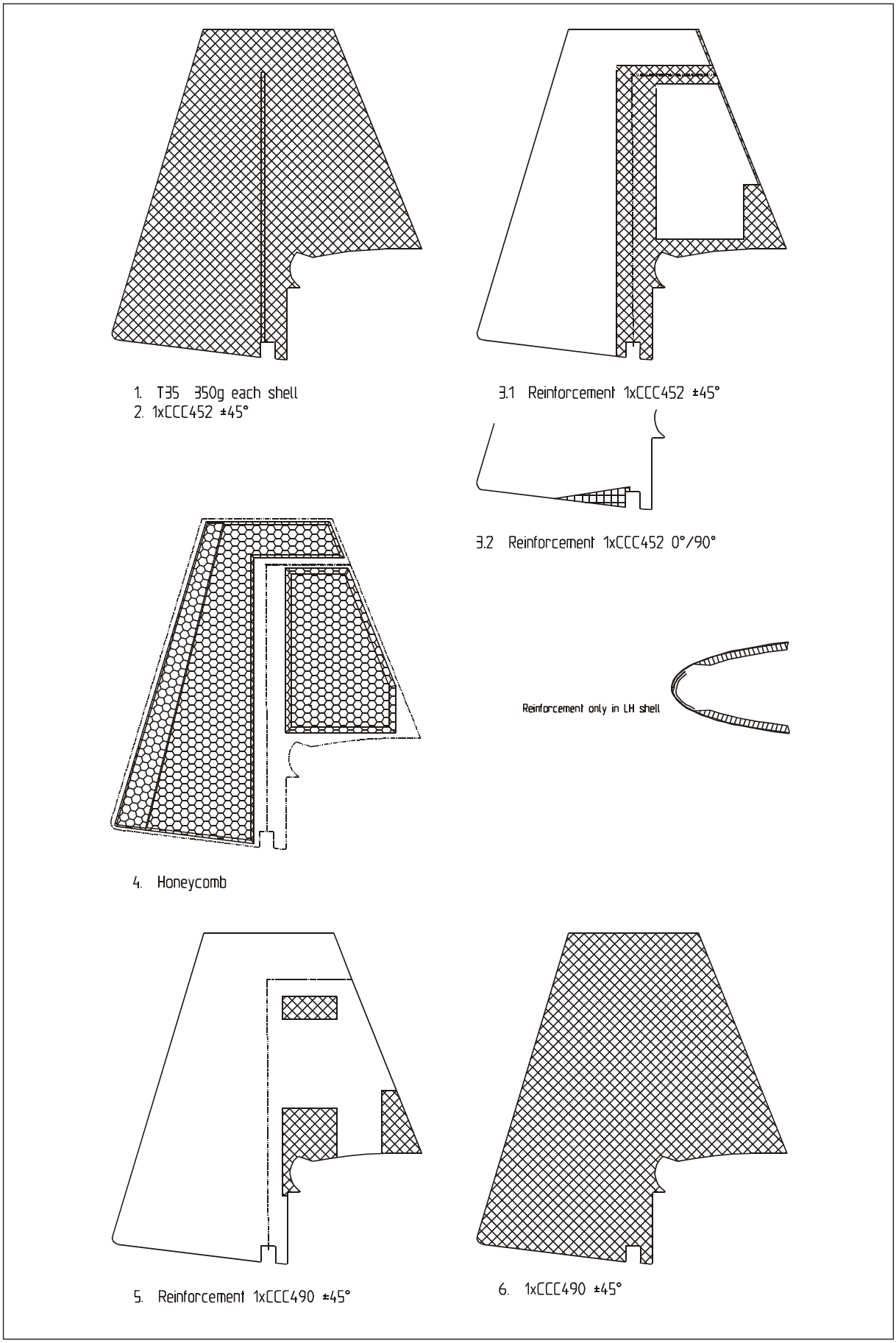
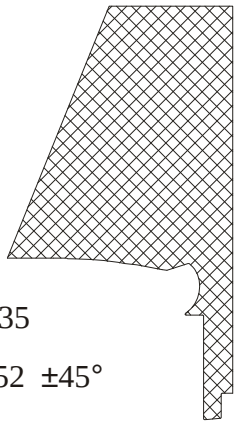


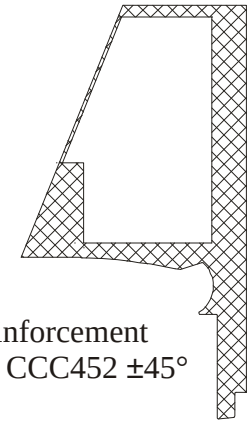
Figure 5, Sheet 1 ***Layer Sequence Vertical Tail (up tp SN SC024)***

RH shell shown, LH shell mirror-inverted

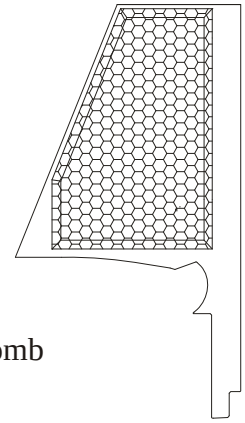


1 Vorgelat T35

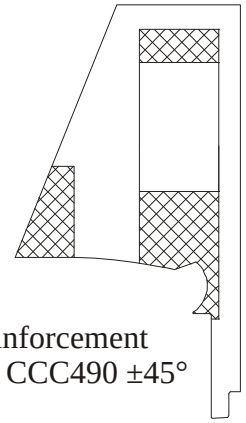
2 1 x CCC452 ±45°



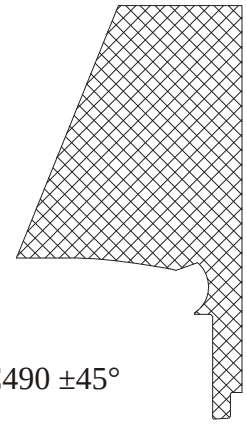
3. Reinforcement
1 x CCC452 ±45°



4 Honeycomb



5 Reinforcement
1 x CCC490 ±45°



6 1 x CCC490 ±45°

Figure 5, Sheet 2 ***Layer Sequence Vertical Stabilizer (from SN SC025)***

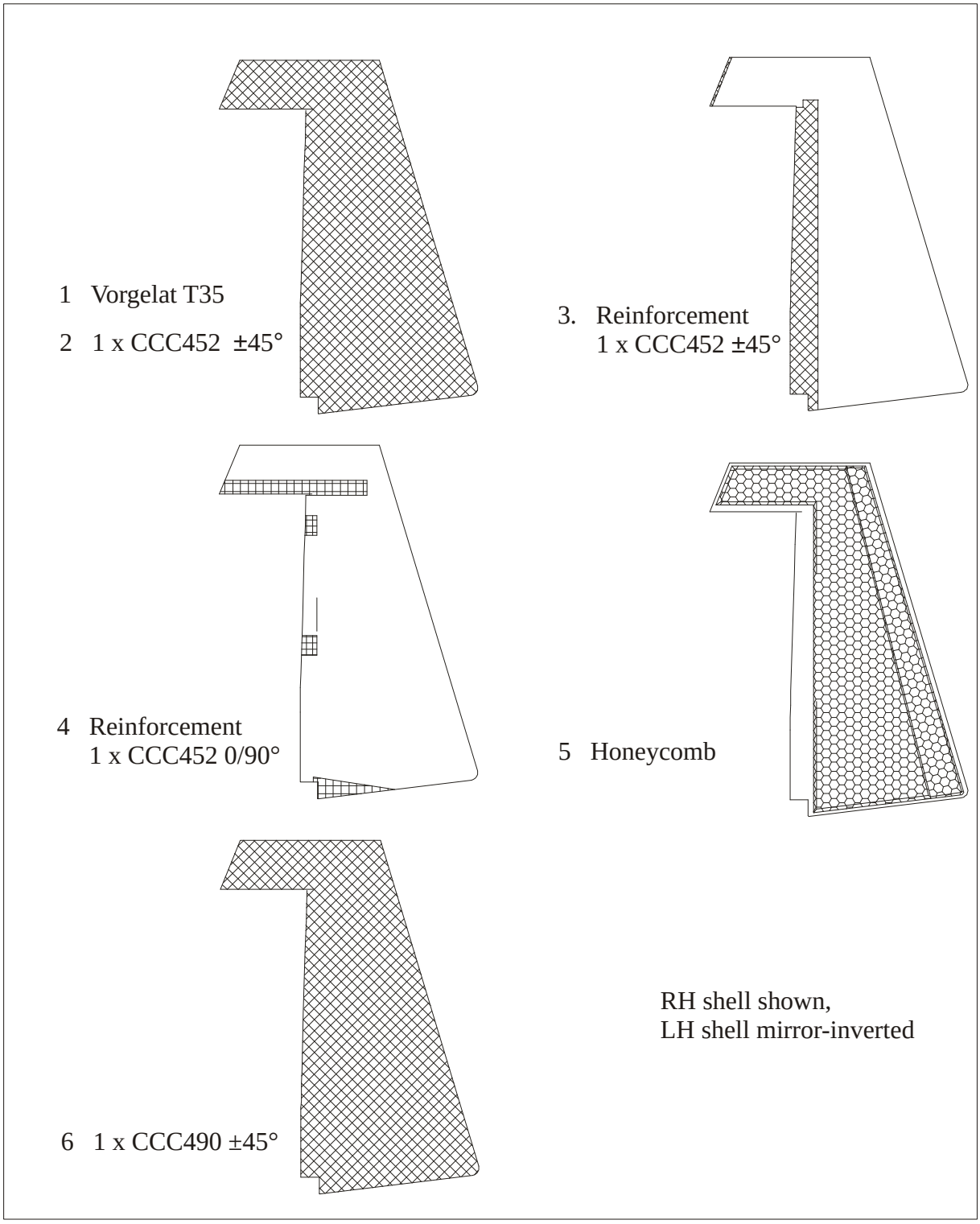


Figure 5, Sheet 3 ***Layer Sequence Rudder (from SN SC025)***

Chapter 57

Wings

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57-00-00 GENERAL

Description and Operation

The wing consists of a one-piece, dual chamber main spar with carbon fibre roving caps and carbon fibre webs. For the spar core PVC foam is used. The wing shells are a honeycomb sandwich construction with carbon fibre laminates. To prevent buckling of the shells, plywood ribs are used.

The layer sequence of the wing is shown in Figure 1.

All composite parts, as protection against moisture and UV radiation, are coated with an unsaturated polyester gel-coat, an acrylic filler and finally with an acrylic paint.

For repair of composite parts refer to Chapter 51.

Removal

1 Ensure wing is completely drained as per Chapter 12.

2 Reverse procedure of installation omitting step 12.

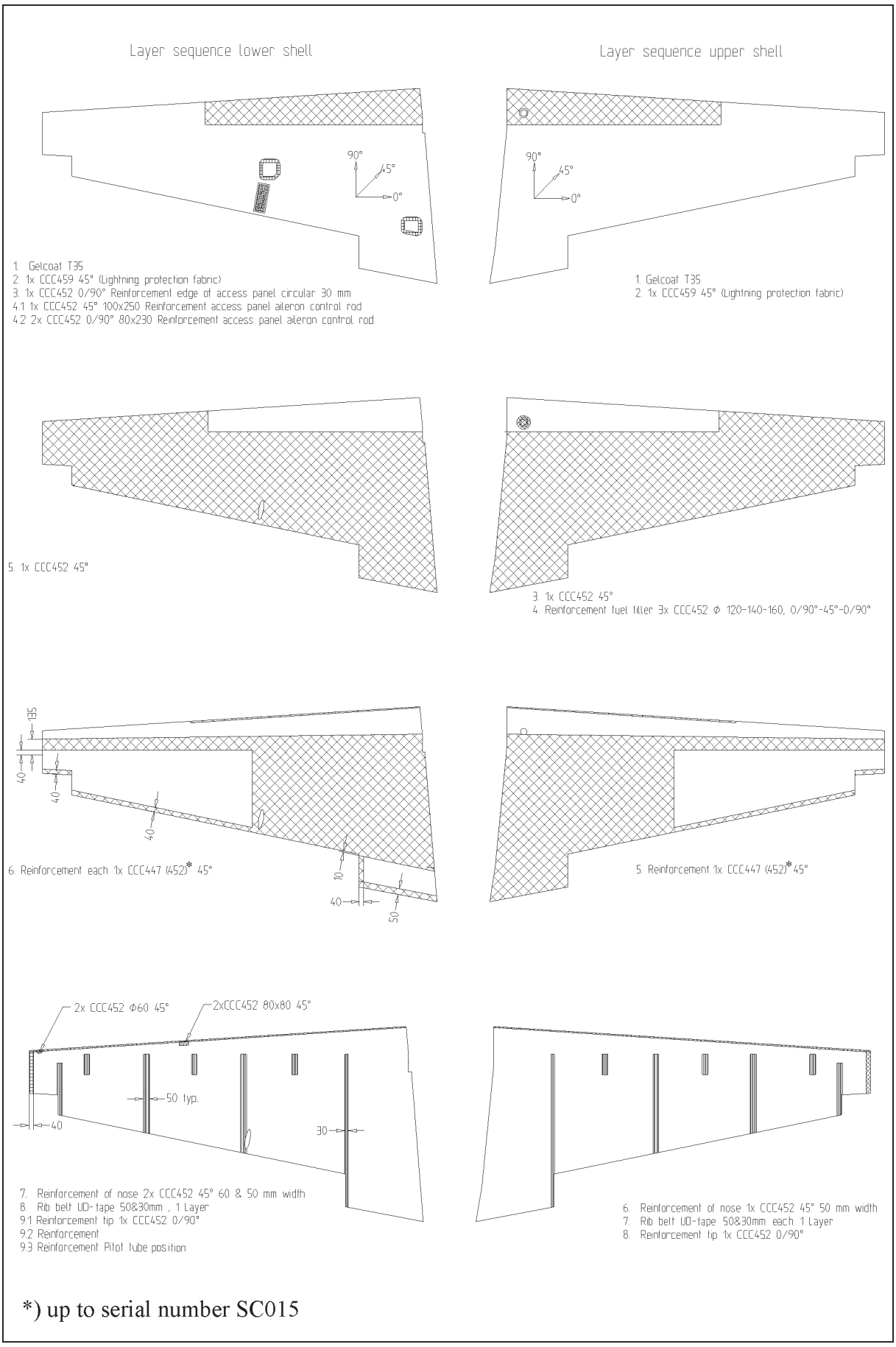
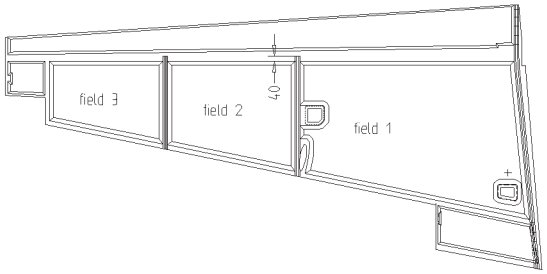
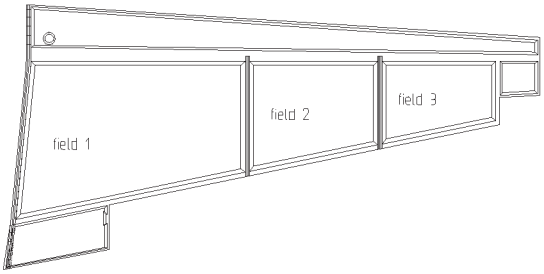


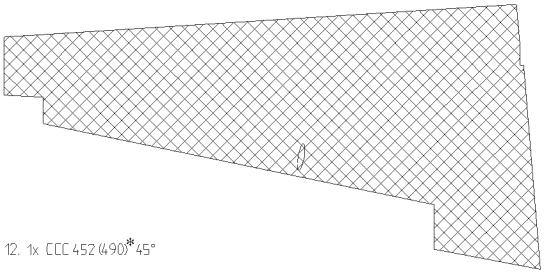
Figure 1, Sheet 1 ***Layer Sequence Wing***



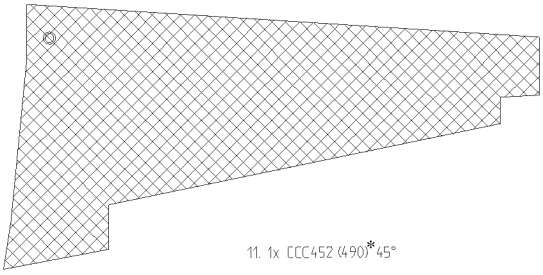
10. Honeycomb area 1 to 3 ECA-R 4.8-29, other areas ECA-R 4.8-48
11. Rib belt UD-tape 30mm



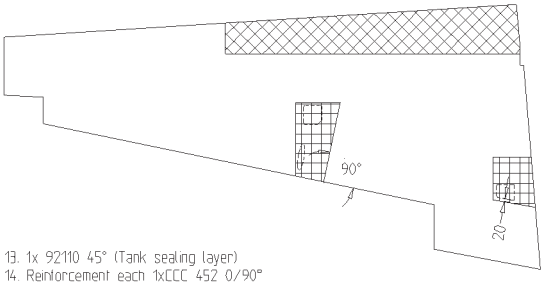
9. Honeycomb area 1 to 3 ECA-R 4.8-29, other areas ECA-R 4.8-48
10. Rib belt UD-tape 30mm



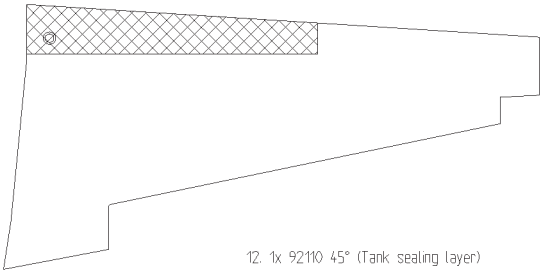
12. 1x CCC 452 (490)* 45°



11. 1x CCC452 (490)* 45°



13. 1x 92110 45° (Tank sealing layer)
14. Reinforcement each 1xCCC 452 0/90°
(areas of access panels)



12. 1x 92110 45° (Tank sealing layer)

*) up to serial number SC015

Figure 1, Sheet 2 ***Layer Sequence Wing***

Installation

1 Remove the canopy per Chapter 53, the engine cowlings and the main fuselage cover per Chapter 51.

2 Remove the right front canopy hinge.

3 Loosen the breather line clamps located at the engine side of the firewall and in the main spar area, push the front part of the breather line some centimeters to the front until it is disconnected from the connecting hose (10, Figure 3) and remove the breather line (5) by pulling it to the rear.

WARNING **Beware not to get jammed between wing and fuselage.**

NOTICE **Ensure that areas in which the wing shall be slided are clear of obstructions.**

NOTICE **Prevent cables and pitot/static lines for damage. Keep them at the rear of the main spar and outside of the upper longerons.**

NOTICE **Attend to the left front canopy hinge, when sliding down the wing. The wing could be damaged.**

4 Slide wing down into fuselage attachment brackets (3).

5 Install LN 9037-08042 auxiliary spar attach bolts (1) from front to rear. Use two DIN 125-M8 washers and LN 9348-08 nuts at each side for fastening.

IMPORTANT **If there is clearance between the main spar and the attachment brackets (1, Figure 2), use shims (3) like shown below which are to be slided in the front gaps (2).**

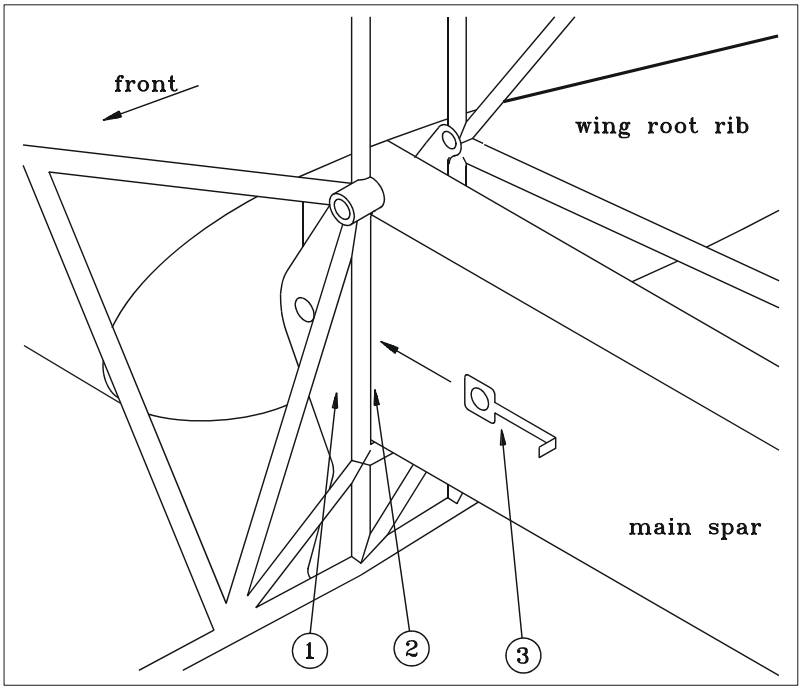


Figure 2 Shims Installation

6 Slide in shims if necessary and install the main spar tubular bolts (4, Figure 3) to the wing flange bushings (11) from front to rear.

7 Secure main spar tubular bolts with LN 9038-08020K (2) bolts or LN 9037-08020K (2), DIN912 M8 washers and special aluminum washers (30x11x4). Torque security bolts for fastening and subsequently safety wire.

8 Install upper longeron cutout bridges (7) using at each side 3x DIN912 M8 x 180, 3x DIN125 M8 washers and 3x LN9348-08 stop nuts at the top and 1x DIN912 M10 x 230 bolt, DIN125 M10 washer and LN9348-10 stop nut at the bottom (6). Check cutout bridges for RH and LH marking. Install the bolts from front (firewall) to rear (aircraft tail). Torque stop nuts for fastening.

9 Install shear bridge (8). Use two LN 9037-06066 and six LN 9037-06038 bolts (9) with DIN 125-M6 washers and LN 9348-06 stop nuts.

10 Reinstall the front canopy hinge.

11 Install short aileron push pull rods per Ch. 27-00-01.

12 Perform an aileron rigging per Chapter 27-10-00.

13 Connect fuel system (tubes and vent lines), pitot/static system, ground bonding leads and fuel indicator wires with

prefitted plugs per respective Chapters. Connect instrument wet lines (except when MVP-50P is installed).

14 Reinstall breather line, canopy, engine cowlings and main fuselage cover.

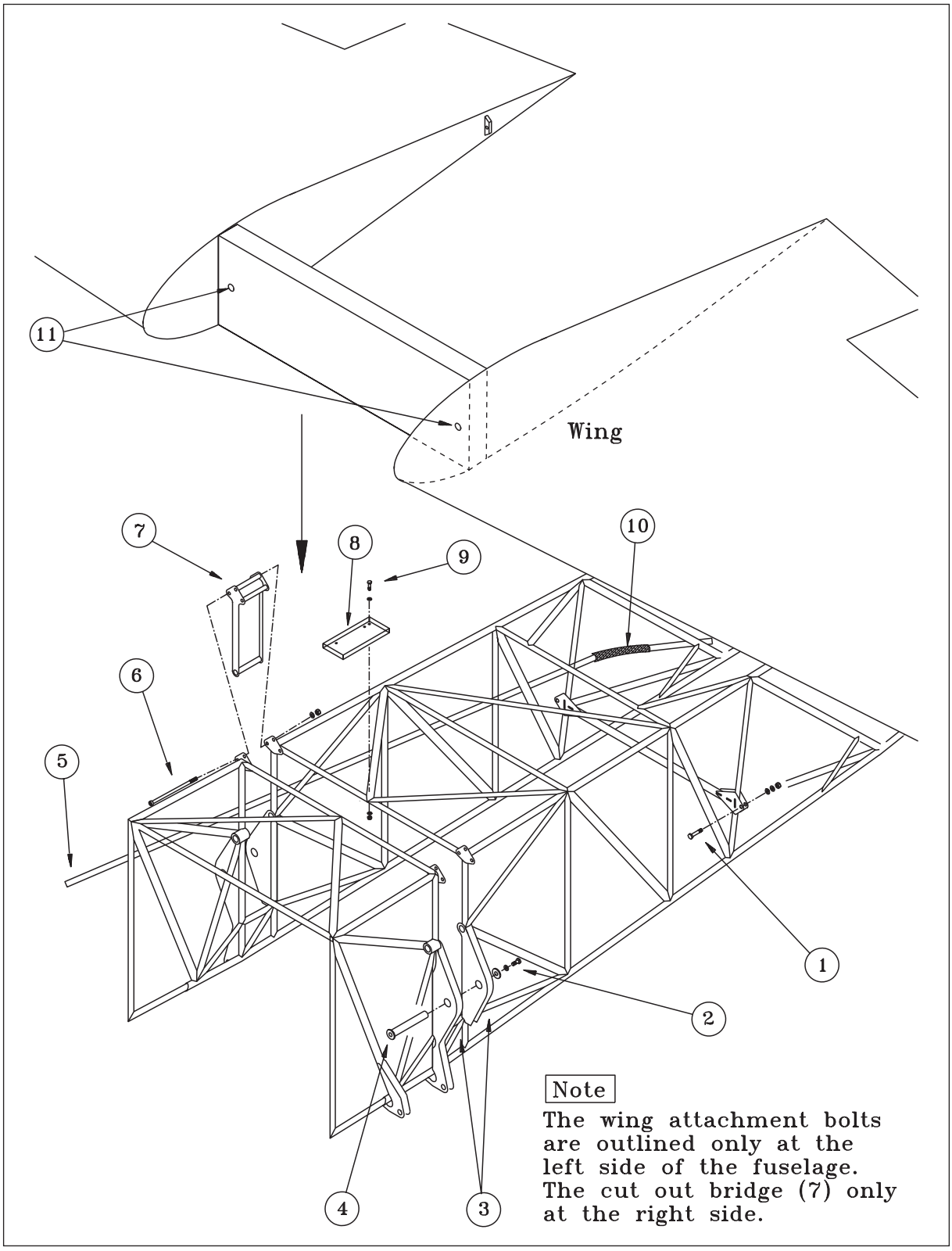


Figure 3 ***Wing Removal/Installation***

57-30-00 WING TIP

reserved

57-60-00 AILERONS

Description and Operation

The ailerons are constructed in the same manner as the wing but with single chamber spar. They are supported at four points in spherical bearings. In addition the aileron tip has a shielded horn balance. Furthermore the ailerons are equipped with spades to decrease pilots forces. To prevent flutter the ailerons are mass balanced in the overhanging leading edge as well as in the horn balance.

The layer sequence of the ailerons is shown in Figure 4.

All composite parts, as protection against moisture and UV radiation, are coated with an unsaturated polyester gel-coat, an acrylic filler and finally with an acrylic paint.

For repair of composite parts refer to Chapter 51.

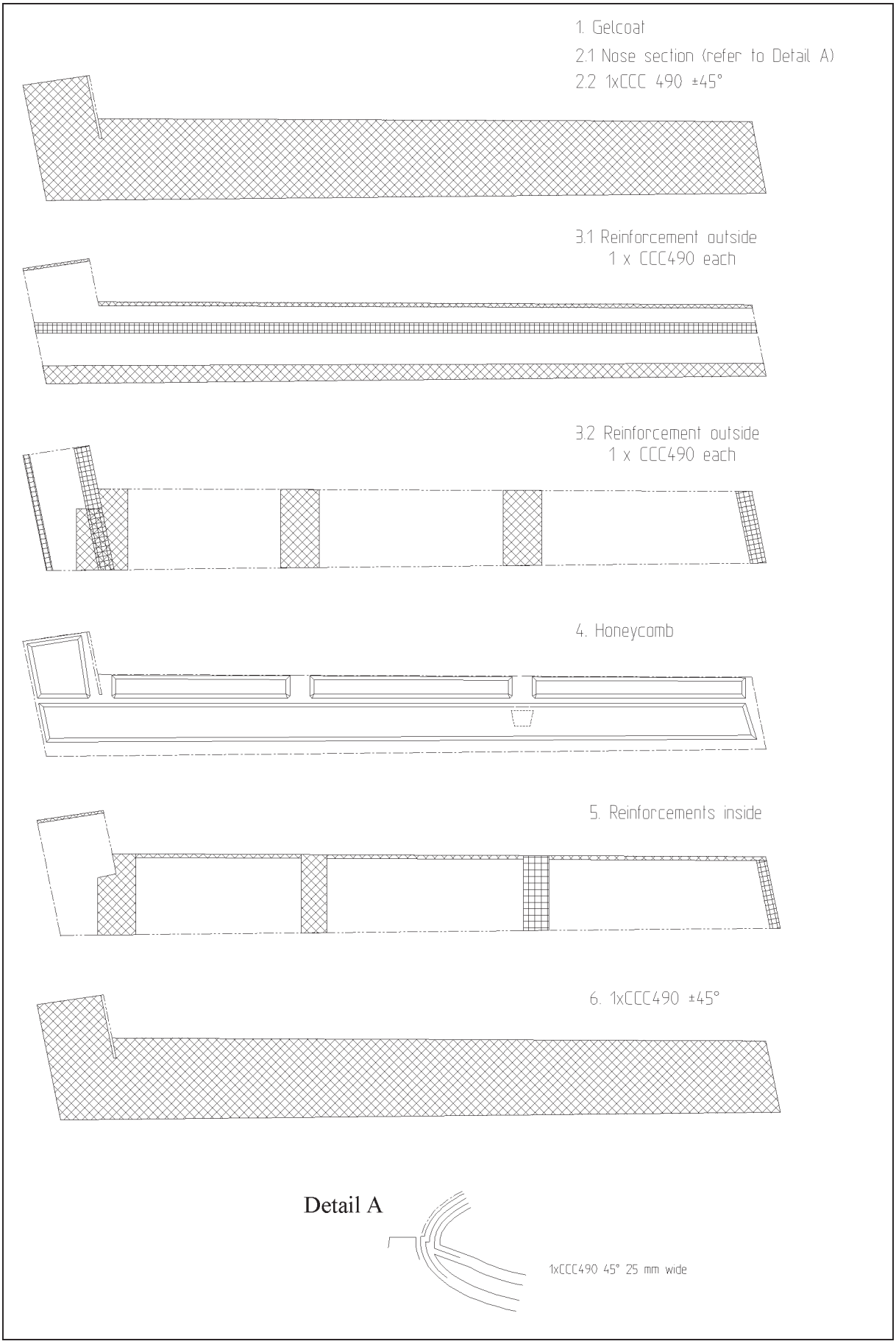


Figure 4, Sheet 1 ***Layer Sequence Ailerons***

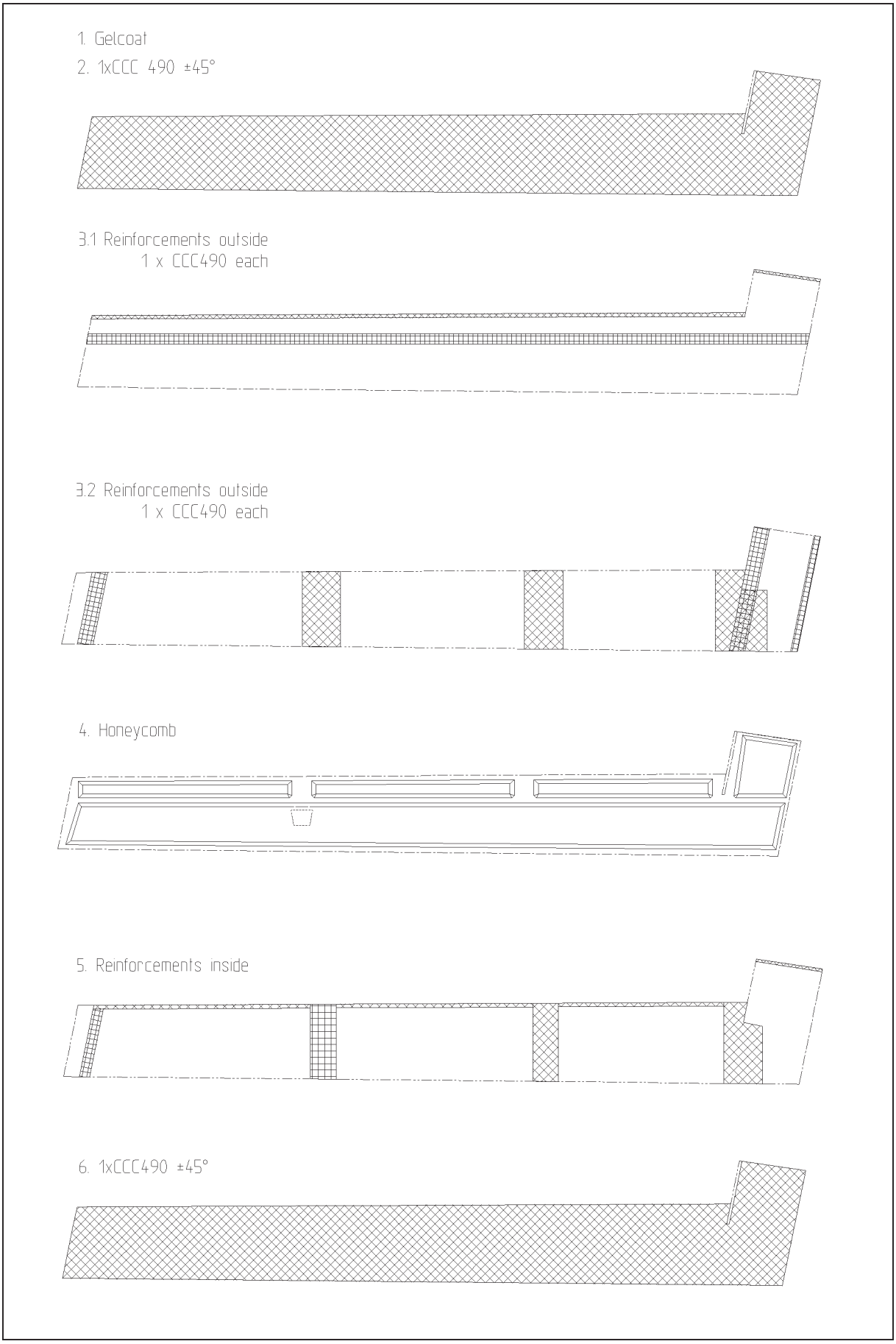


Figure 4, Sheet 2 ***Layer Sequence Ailerons***

Chapter 61

Propeller

Table of Contents

61-00-00 GENERAL

The EXTRA 300/SC is equipped with a MTV-9-B-C/C198-25 (3-blade) or optionally with a MTV-14-B-C/C190-130 (4-blade) constant speed propeller. Maintenance work or overhaul of the propeller requires consultation of the propeller manufacturer MT-Propeller.

Proper control, operation and maintenance of the propeller is described in the Operation- and Installation Overhaul Manual E-124 latest approved revision of MT Propeller (Germany); refer to "http://www.mt-propeller.com/en/entw/serv_op.htm".

61-10-00 PROPELLER

The variable pitch propeller consists of the following main groups:
- Hub with blade bearings and pitch change mechanism
- Blades
- Counterweights
- Spinner
- Propeller govenor

Natural composite blades, using high compressed wood in the root and lightweight wood in the remaining body, with fiber reinforced Epoxy cover and metal leading edge protection are used to minimize weight at the highest amount of safety against fatigue fractures due to vibrations.

N O T E

For more information about the propeller refer to MT-Propeller Operation- and Installation Manual E-124.

61-20-00 CONTROLLING

The propeller blade pitch change is conducted by a governor (refer to Figure 1). Once an engine rotational speed is selected it will be held constant independent of airspeed or power variations.

Mechanical stops for low pitch and high pich within the hub limit the pitch change level. In case the oil pressure of the govenor is lost, the blades automatically return to high pitch. The oil pressure is single acting.

The governor itself is actuated via a vernier control cable ending on the left side of the rear cockpit (blue control knob; 1, Figure 1 & 8, Figure 2). This cable is routed on the left side of the fuselage, penetrates the firewall, the rear engine baffles and is then routed to the governor. The cable is attached at its front end to the engine by a clamp block and in the cockpit area to the steel tube structure by self-clinching plastic tiedown straps. The RPM vernier control unit is mounted to a fuselage bracket. The firewall and engine baffle penetrations are covered with clamp sheets. The firewall penetration (2, Figure 1) is additionally sealed with firewall sealant.

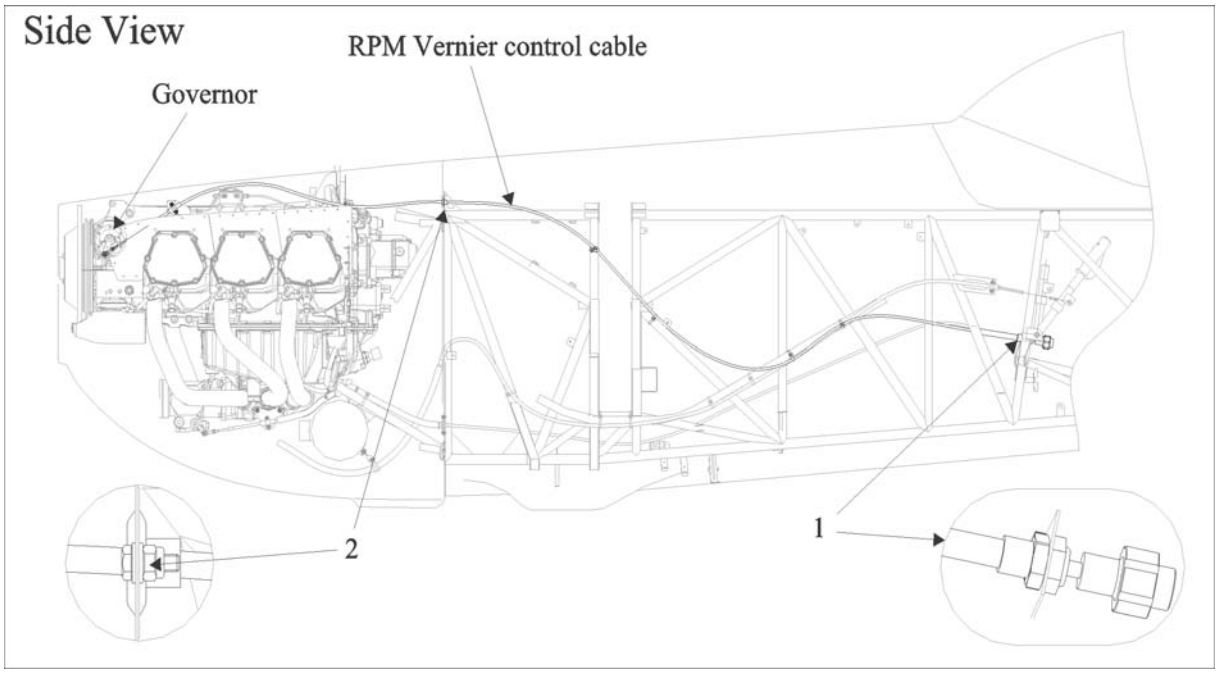


Figure 1 ***Controlling***

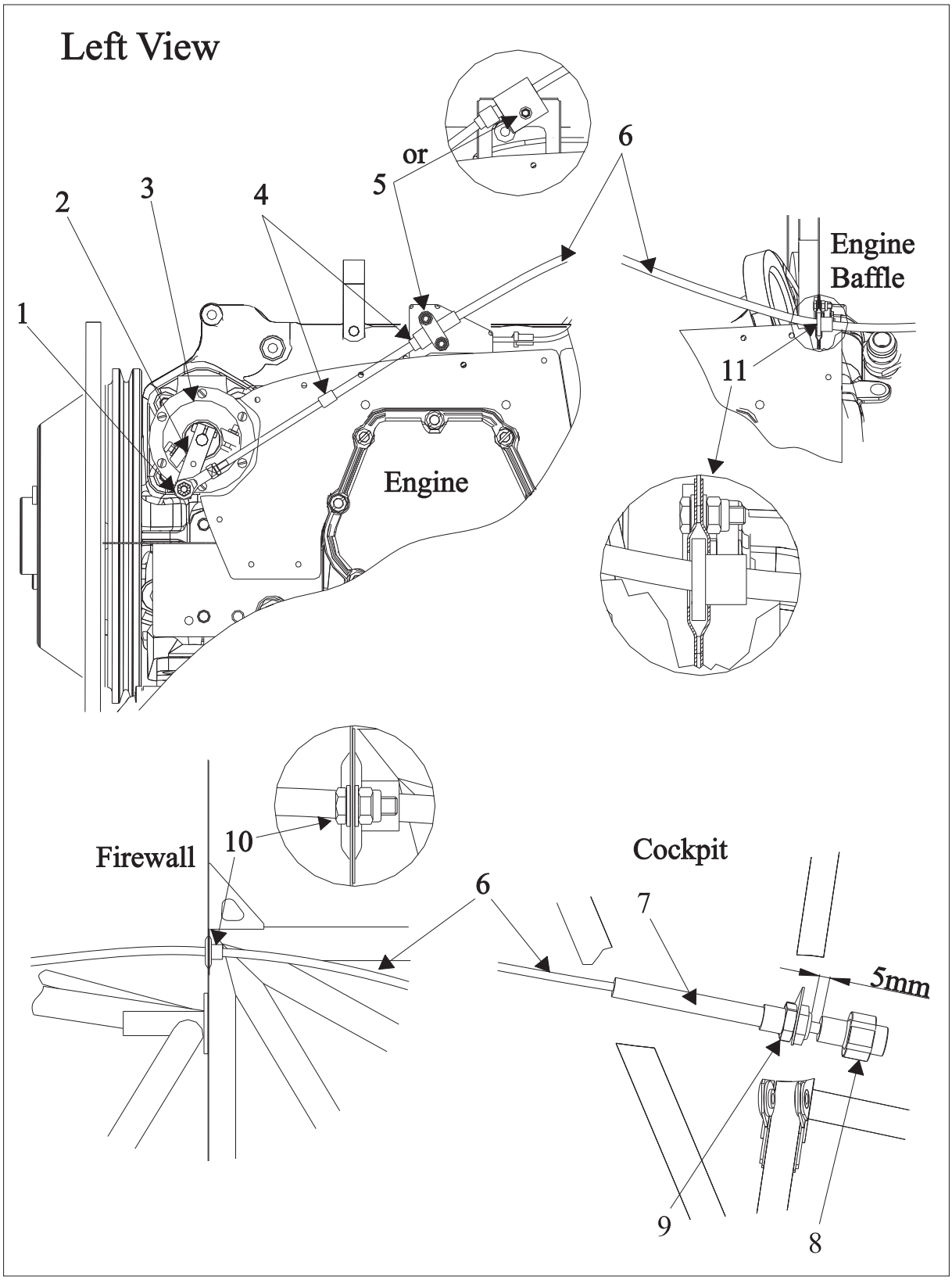


Figure 2 ***RPM Vernier Control Cable Installation***

61-20-01 Governor

One of the following governors is installed:

Woodward A-210988, preset for a max. 2700 rpm

MT-Propeller P-880-5, preset for a max. 2700 rpm

MT-Propeller P-880-41, preset for a max. 2600 rpm

Refer to the MT-Propeller Operation- and Installation Manual E-1048 for further information.

NOTE

The lever position of the governor actuator is preset. Do not change this position.

61-20-02 RPM Vernier Control Cable

Refer to chapter 20 for general information about handling of control cables.

Removal

1 Ensure master switch is off.

2 Remove engine upper cowling per Chapter 71.

3 Remove main and bottom fuselage cover per Chapter 53.

4 Remove cotter pin, castle nut, washers and bolt from the rod end (1, Figure 2) to governor control lever (2) attachment.

5 Loosen counter nut and remove the rod end (1) from the vernier control cable (6).

6 Remove rod end counter nut and vernier control cable protective swivel and wiper seal (4).

7 Remove clamp block (5) attachment bolt(s).

8 Remove clamp block from the vernier control cable (6).

9 Remove 2 bolts of the clamp sheet attachment positioned at the rear engine baffle break through (11). Disconnect both

clamp sheets and contained plastic guidance from the engine baffle.

10 Remove 2 bolts of the clamp sheet attachment positioned at the firewall break through (10). Disconnect clamp sheet and contained plastic guidance from the rear side of the firewall.

11 Mark vernier control cable routing and remove the self-clinching plastic tiedown straps in the cabin area.

12 Remove attachment nut (9) and washer of the vernier control unit (7).

13 To remove vernier control unit from its bracket, pull the unit slightly aft (about 15cm [0.5ft]) and then to the RH inside direction.

14 Pull complete vernier control cable (6) aft to remove from aircraft. Secure clamp sheets.

Installation

Install in reverse sequence of removal observing the following items:

1 Thread the respective clamp sheets and plastic guidance on the vernier control cable before penetrating the firewall and the rear engine baffle.

2 Install rod end to the vernier control cable terminal. Ensure thread of control cable terminal is visible in the inspection hole.

3 Renew the firewall sealing of the firewall break through at the engine side of the firewall as per Chapter 20.

4 Tighten the castle nut slightly. Ensure movability of governor control lever (2).

Rigging

1 Move vernier control knob (8, Figure 2) to the foremost position.

2 Check that the travel stop at the governor control lever is reached, and the over-travel of 5mm [3/16"] (tolerance +/-1

mm [1/32"]) is ensured at the rpm control knob (see figure 2).

3 Check full travel.

4 If necessary adjust rod end (1, figure 2) by the following steps:

a Remove cotter pin, castle nut, washers and bolt from the rod end (1) to governor control lever (2) attachment.

b Loosen the counter nut and adjust rod end (1) by turning. Ensure thread is visible in the inspection hole when fastening. Apply inspection lacquer on the counter nut.

c Reconnect the rod end (1) to the governor control lever (2).

Chapter 71

Power Plant

Table of Contents

71-10-00 COWLING

Description

The engine cowling is divided into two parts: The top half (1, Figure 1) and bottom half (2) made of GFRP or CFRP honeycomb sandwich.

The top half of the engine cowling features a hinged hatch (3) for access to the oil dip stick. This hatch is opened by two slotted head flush type Camloc® retainers.

Both cowling halves are attached to each other and the airframe by means of truss head screws (4) and special washers (5).

The interior surface of both cowling halves on CFRP cowlings up to SN SC034 and GFRP cowlings is coated with a fire protection paint which is sealed by varnish coating. Additional aluminized heat blankets are placed in the bottom cowling half.

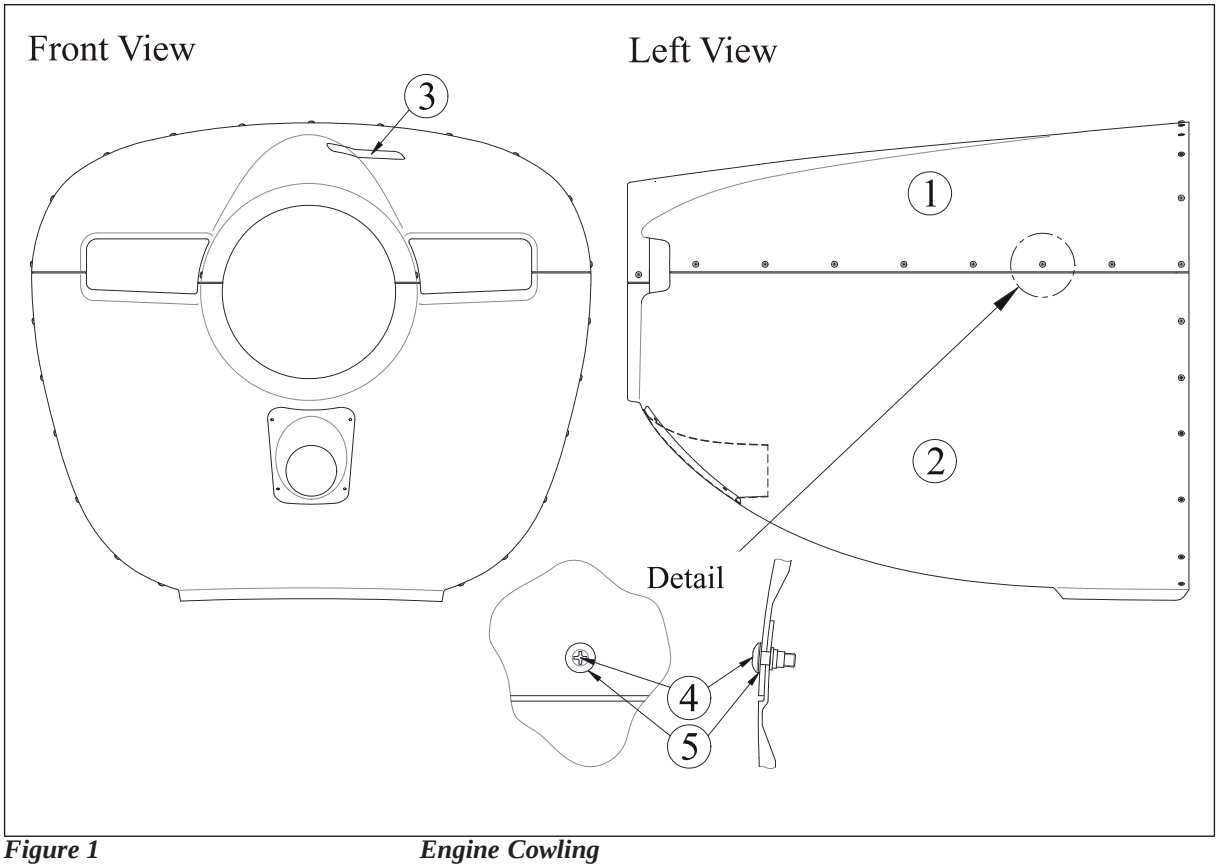


Figure 1 ***Engine Cowling***

Removal/Installation

NOTE

It is favorable to remove the cowling with two persons.

WARNING

Before rotating the propeller in the most convenient position for removal of the cowling, make sure that the ignition switch is in the "OFF" position.

1 Rotate the propeller in the most convenient position.

2 Remove the related truss head screws (4)&(5) of top cowling half (see figure 1).

3 Remove top half of the engine cowling.

4 Remove the remaining truss head screws (4)&(5) of the bottom cowling half (see figure 1).

5 Remove the bottom half of the cowling.

NOTICE

Pay attention to the rubber/silicon flaps of the air baffles. Make sure they are not pushed outwards when installing the top half of the engine cowling.

6 Install in reverse sequence of removal.

71-20-00 ENGINE MOUNT

Description

The engine is mounted on the airframe via the engine mount. The engine mount is constructed of welded steel tubes and is bolted to the firewall at 4 attachment points. The tubes of the engine mount structure are provided with an internal anti corrosion treatment. The engine mount itself carries the oil cooler and is used as a support for various hoses of the oil system as well as electrical wiring.

The engine is nested into the engine mount on a system of rubber shock mounts, each of which comprises two rubber elements and one tubular spacer (ref. Figure 2). The shock mounts reduce the transmission of engine vibrations to the airframe.

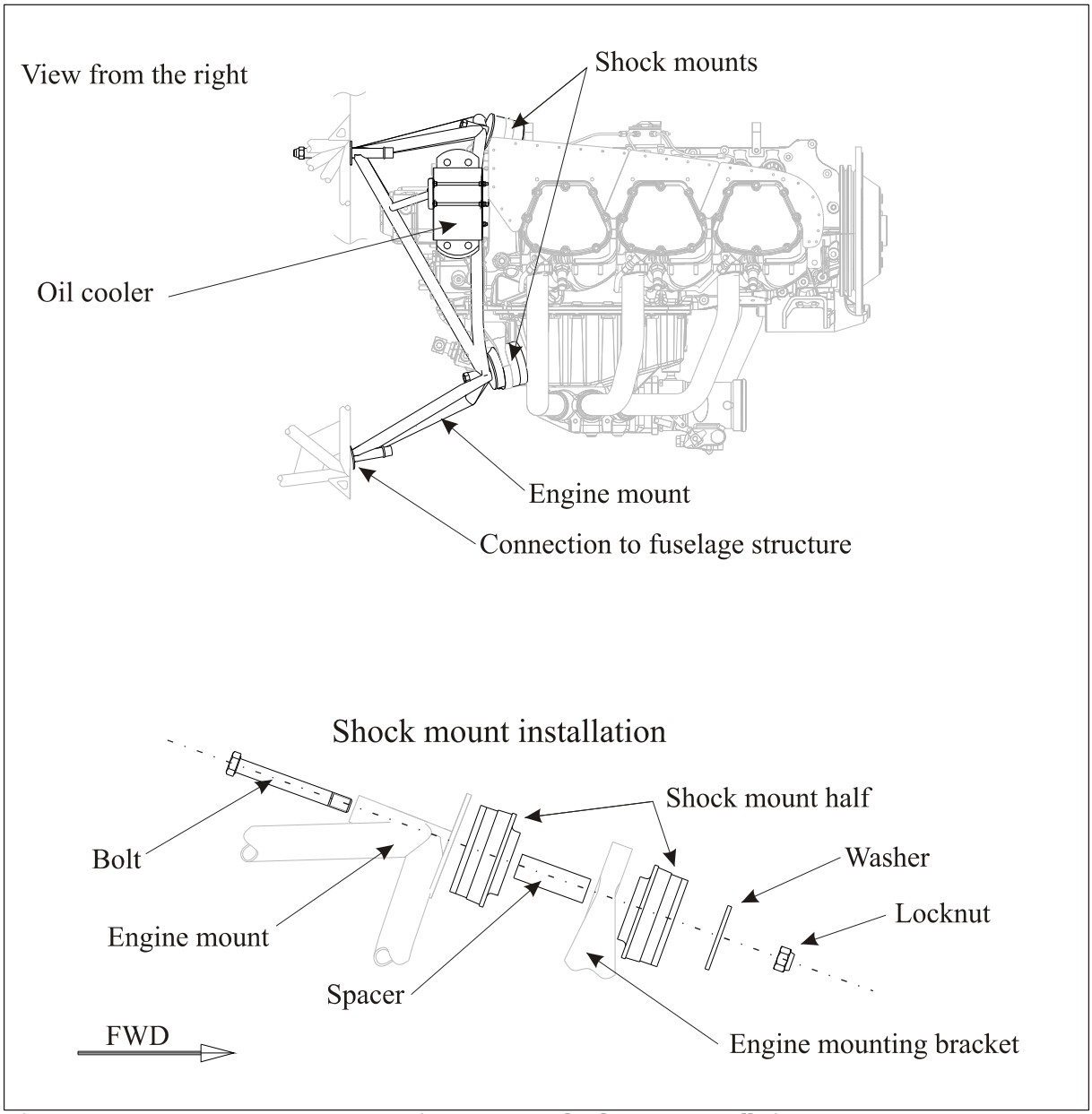


Figure 2 ***Engine Mount & Shock Mount Installation***

Removal

This paragraph describes the removal of the engine mount from the engine.

1 Disconnect oil cooler assembly from its supports at the engine mount by removing the connection bolts and nuts, remove baffles if necessary.

2 Unscrew locknuts of the mounting bolts (refer to Figure 2) at the shock mounts.

3 Separate engine including oil cooler from engine mount. If necessary, push bolts outwards for removal.

Installation

Install in reverse sequence of removal

Torque locknuts of connection bolts to engine shock mounts with 55 Nm (40.5 ft. lbs.).

71-20-01 Shock Mounts

Description

The shock mounts serve as dampers to reduce the transmission of vibrations induced by the engine to the airframe.

The shock mounts consist of bonded rubber material with a metal spacer at the center.

Each of the 4 shock mounts consists of two rubber halves and one tubular spacer (ref. Figure 2) fixed by a single bolt.

Removal

NOTICE

Replace the extracted shock mount *before* proceeding with the removal of the next.

1 Support engine at its designated lifting lugs (ref. Lycoming Maintenance Manual).

2 Unscrew locknut of the mounting bolt at *one* shock mount (ref. Figure 2).

3 Push bolt backwards to remove it.

4 Remove forward half of the shock mount.

5 Remove tubular spacer.

6 Extract aft half of the shock mount. If necessary, lower respectively lift the engine a little to get the needed clearance for removal of the aft shock mount half.

Installation

Install in reverse sequence of removal

Torque locknuts of connection bolts with 55 Nm (40.5 ft. lbs.).

71-60-00 AIR BAFFLES

Description

Refer to Figure 3. Air baffles are screwed to the engine to achieve optimum engine cooling. These baffles are multi section items designed for separate removal of each section.

They are manufactured of plated aluminium sheets. The interface to the engine cowling is sealed by rubber strips, which are riveted to the outer edge of the baffles. Furthermore the forward LH baffle has a circular cutout, serving as a cooling air inlet that is connected with the exhaust's heat exchanger air intake via an air ducting.

Single oil cooler system:

The aft RH baffle has a rectangular cutout to provide airflow to the oil cooler.

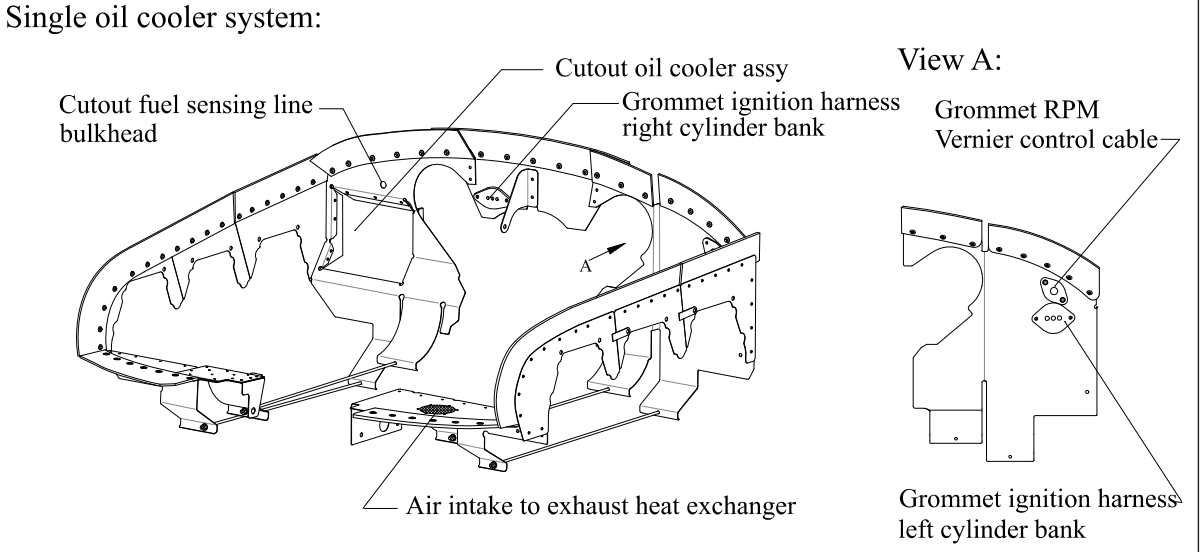


Figure 3 ***Air Baffles***

Removal

Refer to Figure 3.

1 Disconnect Bowden cable of RPM-control from engine (refer to Chapter 61).

2 Disconnect fuel pressure sensing line at bulkhead of aft RH baffle.

3 Disconnect ignition harness.

4 Disconnect air ducting to exhaust heat exchanger at air intake of forward LH baffle.

5 Unscrew grommets for ignition harness and RPM Bowden cable from their cutouts and pull out ignition harness and RPM Bowden cable.

6 Unscrew baffle plates.

Installation

Install in reverse sequence of removal.

N O T E

Minor cracks in the plating can be stopped by drilling a hole at the end of the crack. Serious damage requires replacement of the baffle concerned.

Chapter 72

Engine

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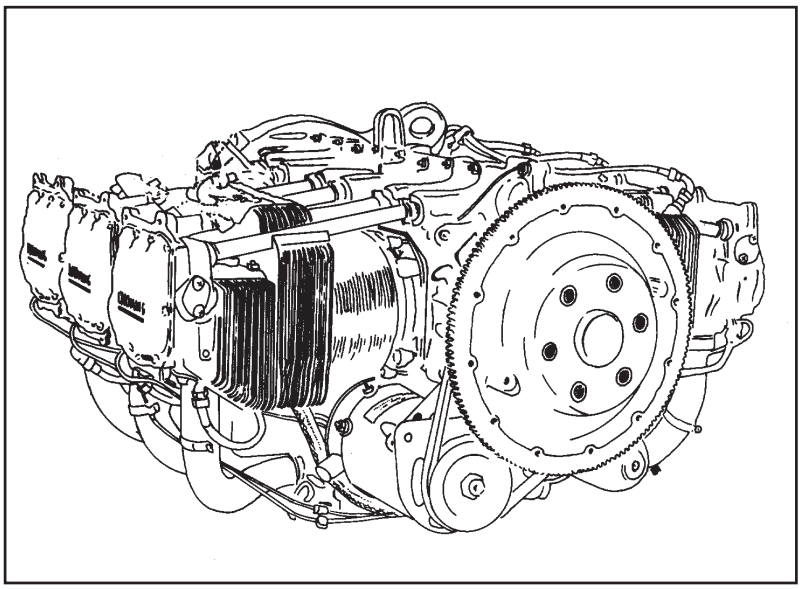
72-00-00 GENERAL

This chapter describes the engine installed in the EXTRA 300/SC aircraft, together with its fitted assemblies. Operation and maintenance work of the engine requires consultation of the applicable Lycoming Manual (refer to Chapter 01). Proper control, operation and troubleshooting of the engine is also decsribed there.

72-10-00 ENGINE

The engine installed is a TEXTRON Lycoming 6-cylinder direct drive, horizontally opposed, air cooled engine. Engine type AEIO-580-B1A, normal rated 2700 RPM, 315 HP. The following Figure 1 shows the Lycoming engine of the EXTRA 300/SC:



Lycoming engine
Figure 1

The induction system is equipped with a RSA 10 AD 1 PRECISION fuel injection system which is attitude independent.

The fuel is injected into the intake ports of each cylinder. The mixture control is proportional to the intake air flow. A manual mixture adjustment as an overriding system is provided. The power setting is done manually by means of a butterfly valve in the air induction tube.

The engine is air cooled. Baffles are provided to build up a pressure and force the air through the cylinder fins. The cooling air flow is dependent on engine speed and dynamic air pressure.

The engine is lubricated by means of an engine driven oil pump. The system uses an oil sump as reservoir. For acrobatic maneuvers, lubrication is assured via an inverted flight oil system (refer to CHRISTEN 801 Inverted Oil Sytem and Chapter 79).

Oil temperature is limited by installation of a single oil cooler.

Ignition is a magneto type with 2 independent systems.

The complete power plant is attached to the fuselage structure using 4 mounting points and rubber vibration absorbers.

IMPORTANT

If replacement of the engine control cables is necessary, renew the sealing of the bushing grooves and gaps at the engine side of the firewall. Use firewall sealant as presented in Chapter 51-30-04. Cover the control cables with AEROQUIP AE102-6 Fire sleeves inside the engine department.

Chapter 73

Engine Fuel and Control

Table of Contents

73-20-00 CONTROLLING

73-20-10 Throttle

Refer to Figure 1. The throttle is controlled by means of the throttle control lever located on the left side of the cockpit. The throttle control lever transfers its movements to the throttle by means of the throttle control cable. This cable is routed on the left side of the fuselage, penetrates the firewall and is then routed centrally below the exhaust muffler to the throttle. In the engine compartment this cable is covered with a fire sleeve. The cable is attached to the fuselage using clamp blocks at its ends, self-clinching plastic tiedown straps in the cockpit area, and a cushioned clamp at the exhaust muffler. Rod ends at both terminals of the control cable serve as a means for rigging. The fire wall penetration is sealed with firewall sealant as presented in Chapter 51-30-04 and covered with clamp sheets.

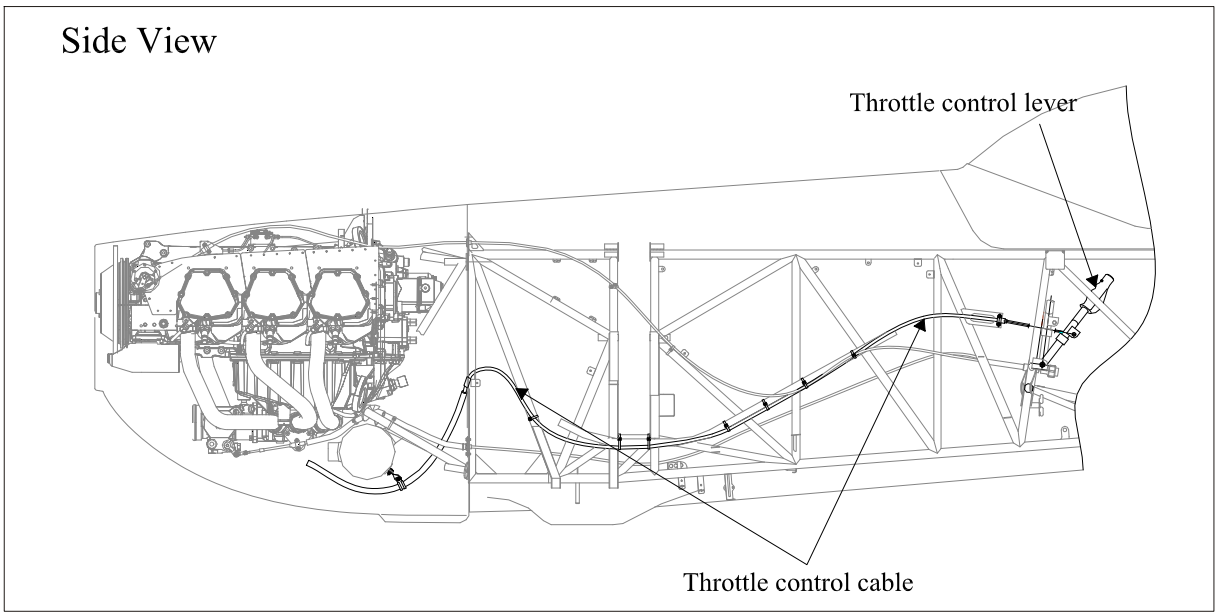


Figure 1 ***Throttle Control***

73-20-11 Throttle Control Cable

The throttle control cable is a push-pull type cable connecting the throttle control lever (4, Figure 3) with the throttle actuator (1, Figure 4).

Refer to Chapter 20 for general information about handling control cables.

Removal

Refer to Figure 4, Sheet 1 or 2 depending on exhaust system installed and Figure 3.

1 Ensure master switch is off.

2 Remove engine cowling per Chapter 71.

3 Remove main fuselage cover per Chapter 53.

4 Remove cotter pin, castle nut, washers and bolt from the rod end (2, Figure 4) to throttle actuator (1) attachment.

5 Loosen counter nut and remove the rod end from the throttle control cable.

6 Remove rod end counter nut and throttle control cable protective swivel and wiper seal.

7 Remove clamp block (3, Figure 4) attachment bolt(s).

8 Remove clamp block from the throttle control cable.

9 Remove the tiedown straps or the cushioned clamp (4, Figure 4) in the engine compartment.

10 Cut safety wires and remove fire sleeve from the throttle control cable.

11 Remove 4 bolts and firewall sealant of the clamp sheets (Figure 2) positioned at the firewall breakthrough.

12 Mark throttle control cable routing and positions of the cable ties and remove the cable ties in the cabin area.

13 Remove cotter pin, castle nut, washers and bolt and remove the rod end (3, Figure 3) from the throttle control lever (4).

14 Loosen counter nut and remove the rod end from the throttle control cable.

15 Remove rod end counter nut and throttle control cable protective swivel and wiper seal.

16 Remove clamp block (1, Figure 3) attachment bolt(s).

17 Remove clamp block from the throttle control cable.

18 Pull complete throttle control cable aft to remove from aircraft. Secure clamp sheets.

Installation

Refer to Figure 4, Sheet 1 or 2 depending on exhaust system installed and Figure 3.

1 Install throttle control cable according to the prior marked routing. Ensure distance between clamp sheet at the firewall and clamp block is 660 mm (refer to Figure 2) for standard Gomolzig exhaust systems or 620 mm for optional Sky Dynamics or Chabord exhaust systems.

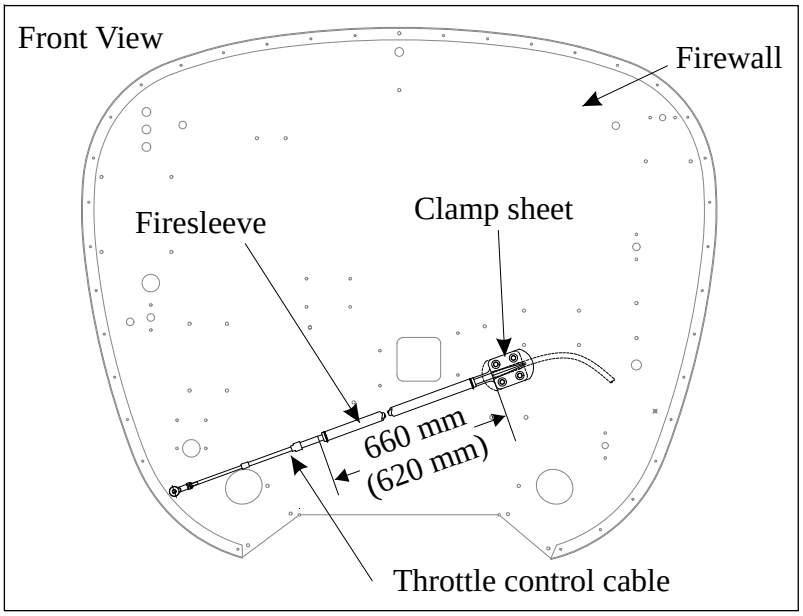


Figure 2 Firesleeve Length

2 Renew the sealing of the firewall breakthrough at the engine side of the firewall. Use firewall sealant as outlined in Chapter 51-30-04.

3 Let the sealant slightly cure before thightening the clamp sheet attachment bolts. This will strengthen the clamping.

4 Install clamp sheets.

5 Install cable ties in the cockpit area on positions as marked before.

6 Install fire sleeve to the throttle control cable and secure with safety wires at both ends (refer to Figure 2).

7 Install cushioned clamp (4, Figure 4) or cable ties.

8 Install the throttle control cable to the respective brackets by installing the clamp blocks (3, Figure 4) to the conduit fitting of the control cable.

9 Push throttle actuator (1, Figure 4) to full idle travel stop position.

10 Adjust control cable terminal to the distance "d" (refer to Figure 4) between protective wiper seal end and the beginning of the terminal thread depending on the configuration as outlined in the following table.

Configuration	**Distance "d"**
square clamp block and any exhaust type	12 mm (± 1mm)
slim clamp block and standard exhaust	14 mm (± 1mm)
slim clamp block and optional exhaust	8 mm (± 1mm)

N O T E

It is essential that the rod end is screwed onto the threaded terminal until the inspection hole of the rod end is completely filled with thread (minimum 8 turns).

11 Screw the rod end onto the threaded terminal to match the full idle travel stop throttle actuator position. Tighten the counternut.

12 Install rod end to throttle actuator with bolt, washers, castle nut and cotter pin (2, Figure 4). Tighten the castle nut slightly. Ensure movability of actuator.

Perform the following steps on the throttle control lever side of the throttle control cable, if there are no travel stops at the throttle control lever:

N O T E

It is essential that the rod end is screwed onto the threaded terminal until the inspection hole of the rod end is completely filled with thread (minimum 8 turns).

13 Screw the rod end onto the threaded terminal.

14 Tighten the counternut to prevent rod end from loosening.

15 Install the rod end to the throttle control lever with bolt, washers, castle nut and cotter pin (3, Figure 3). Tighten the castle nut slightly.

17 Ensure movability of throttle control lever.

18 Perform Throttle Control Lever Rigging (refer to Chapter 73-20-12.

Perform the following steps on the throttle control lever side of the control cable, if there are throttle control lever travel stops:

13 Place a 0.5 mm washer under the rear travel stop bolt (7, Figure 3) of the throttle control lever.

14 Tighten the rear travel stop bolt.

15 Hold a 1.5 mm shim between the rear travel stop (6, Figure 3) and the rear travel stop bolt (7, Figure 3) and place the throttle control lever to full idle travel stop position.

NOTE

It is essential that the rod end is screwed onto the threaded terminal until the inspection hole of the rod end is completely filled with thread (minimum 8 turns).

16 Screw the rod end onto the threaded terminal to match this throttle control lever position.

17 Tighten the counternut to prevent rod end from loosening.

18 Install the rod end to the throttle control lever with bolt, washers, castle nut and cotter pin (3, Figure 3). Tighten the castle nut slightly. Ensure movability of throttle control lever.

19 Push the throttle control lever forward. Check throttle actuator is at the WOT travel stop position.

20 Install washers at the front travel stop bolt (8, Figure 3) so that a gap of 1.5 mm results between front travel stop bolt and structure tube, when the throttle control lever is unloaded in WOT position.

21 Perform Throttle Control Lever Rigging.

73-20-12 Throttle Control Lever

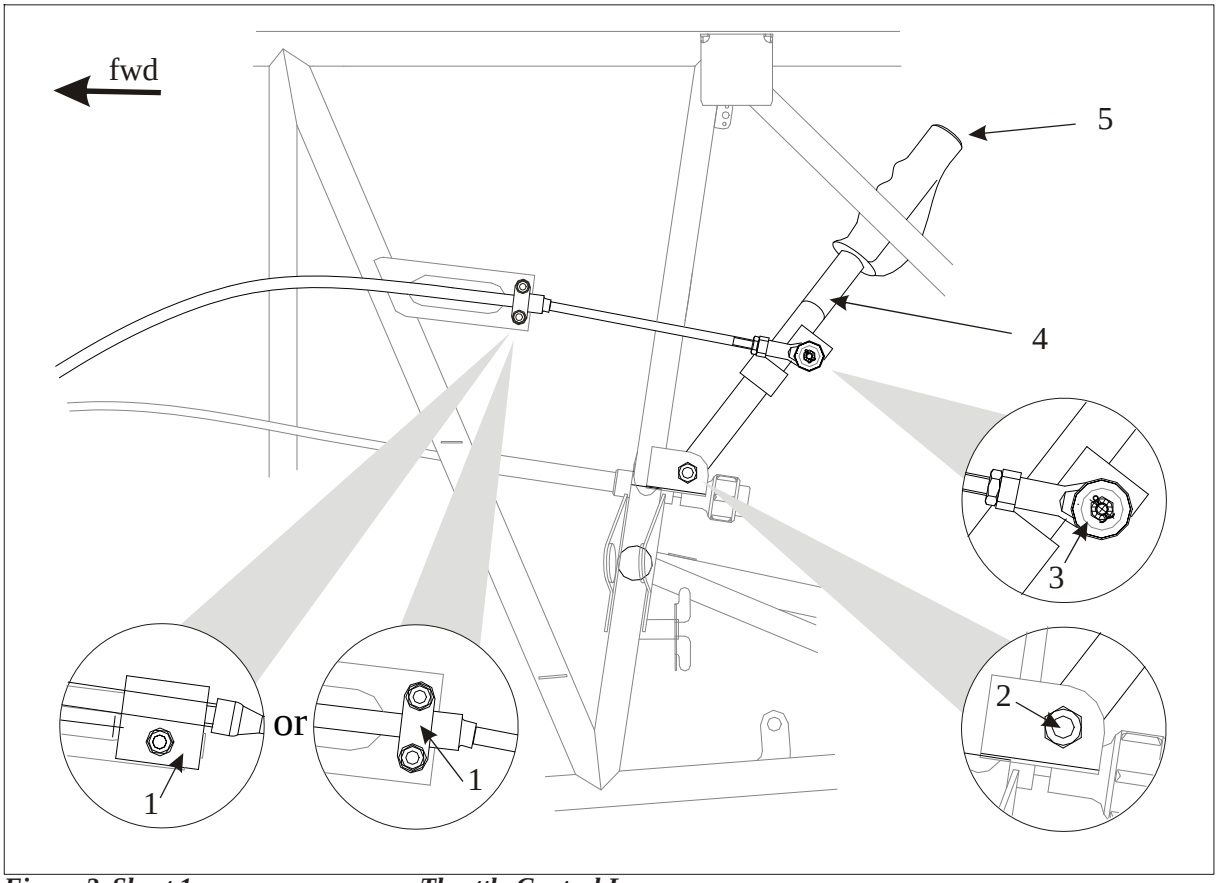


Figure 3, Sheet 1 ***Throttle Control Lever***

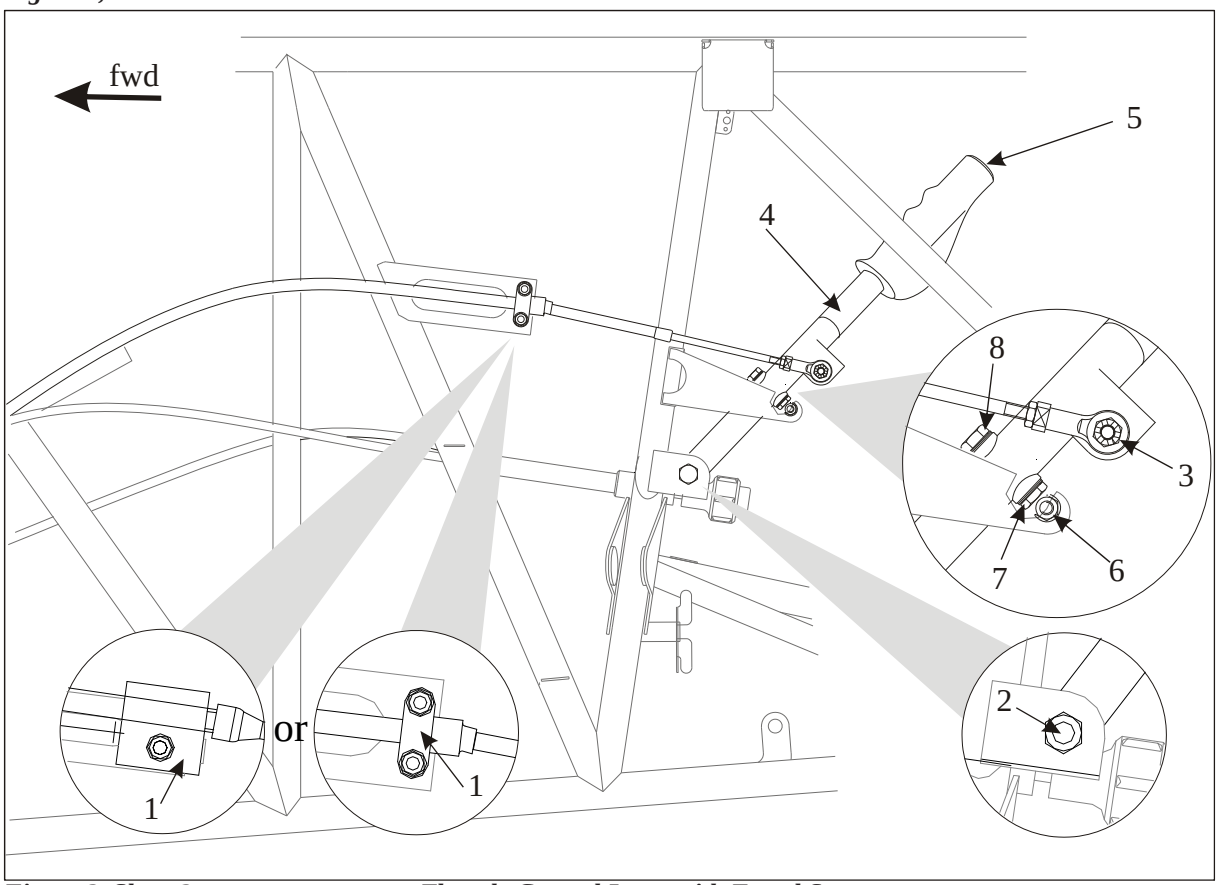


Figure 3, Sheet 2 ***Throttle Control Lever with Travel Stops***

Removal

1 Ensure master switch is off.

2 Remove engine cowling per Chapter 71.

3 Remove main fuselage cover per Chapter 53.

4 Remove cotter pin, castle nut, washers and bolt (3, Figure 3) from the throttle control lever (4).

5 Pull the smoke switch (5) out of the throttle lever handle and disconnect switch wiring.

6 Pull smoke switch wiring down from the throttle control lever.

7 Disconnect throttle control lever attachment by removing cotter pin, castle nut, washers and bolt (2). Remove throttle control lever.

Installation

Install in reverse sequence of removal observing the following items:

1 Thread the smoke switch (5, Figure 3) wiring through the throttle control lever (4) before before positioning it.

2 Tighten the throttle control lever castle nut (2) slightly. Ensure movability of control lever (4).

Rigging

Procedure with throttle control lever travel stops installed:

With the throttle control cable properly rigged, the throttle actuator should hit its travel stops at both extremes prior to the throttle control lever.

The spring-back is the small extra push that is needed for the throttle control lever to hit its mechanical stops.

Refer to Figure 4, Sheet 1 or 2 depending on the exhaust system installed and Figure 3, Sheet 2.

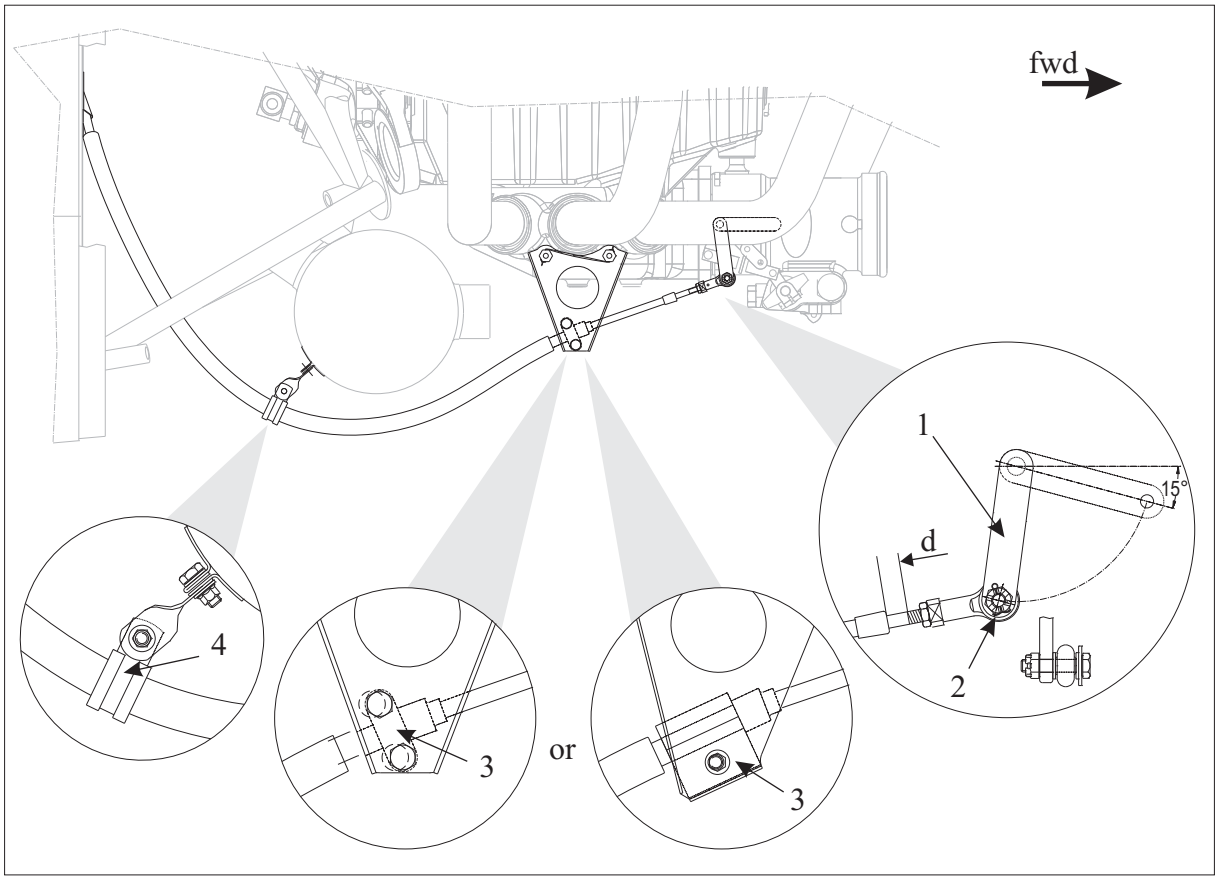


Figure 4, Sheet 1 ***Throttle Control Cable Rigging Standard Exhaust***

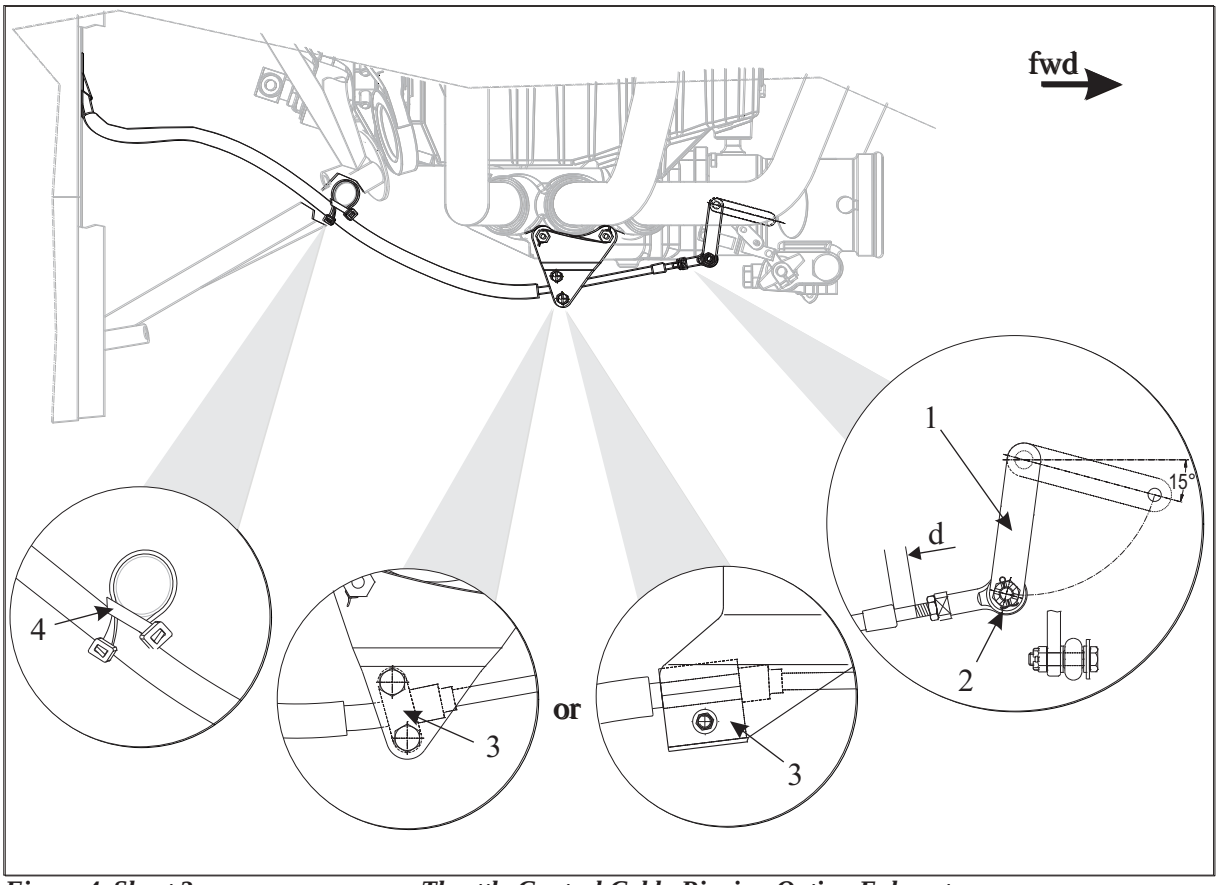


Figure 4, Sheet 2 ***Throttle Control Cable Rigging Option Exhaust***

1 Place throttle actuator to full idle travel stop position.

2 Check distance "d" (refer to Figure 4) between protektive wipper seal end and the beginning of the terminal thread depending on the configuration as outlined in the following table. Adjust rod end if value is out of limit.

Configuration	**Distance "d"**
square clamp block and any exhaust type	12 mm (± 1mm)
slim clamp block and any exhaust type	8 mm (± 1mm)

3 Check throttle control lever is 1.5 mm from rear travel stop.

4 If it is not, adjust rear travel stop bolt by removing or adding washer(s) and retightening.

5 Place throttle actuator to full WOT position.

6 Check throttle control lever is 1.5 mm from travel stop.

7 If it is not, adjust front travel stop bolt by removing or adding washer(s)and retightening.

Procedure without throttle control lever travel stops:

Refer to Figure 4, Sheet 1 or 2 depending on the exhaust system installed and Figure 3, Sheet 1.

1 Move the throttle control lever (4, figure 3) in full idle position (as shown in figure 3).

2 Check throttle actuator (1, figure 4) of the fuel injector servo reached travel stop for full idle position.

3 Check distance "d" (refer to Figure 4) between protektive wipper seal end and the beginning of the terminal thread depending on the configuration as outlined in the following table. Adjust rod end if value is out of limit.

Configuration	Distance "d"
square clamp block and any exhaust type	12 mm (± 1mm)
slim clamp block and any exhaust type	8 mm (± 1mm)

3 Move the throttle control lever (4, Figure 3) in full WOT position (as shown in Figure 3).

4 Check throttle actuator (1, Figure 4) of the fuel injector servo reached travel stop for full WOT position.

73-20-20 Mixture

Refer to Figure 5. The mixture of the fuel injector servo is controlled by means of the mixture control cable located on the right side of the cockpit (red control knob). This cable is routed from the right side to the left side of the fuselage, penetrates the firewall and is then routed to the mixture actuator. In the engine compartment this cable is covered with a fire sleeve. The cable is attached to the fuselage using a clamp block at its front end and self-clinching plastic tiedown straps in the cabin area. The mixture vernier control unit is mounted to a fuselage bracket. The fire wall penetration is sealed with firewall sealant outlined in Chapter 51-30-04 and covered with a clamp sheet.

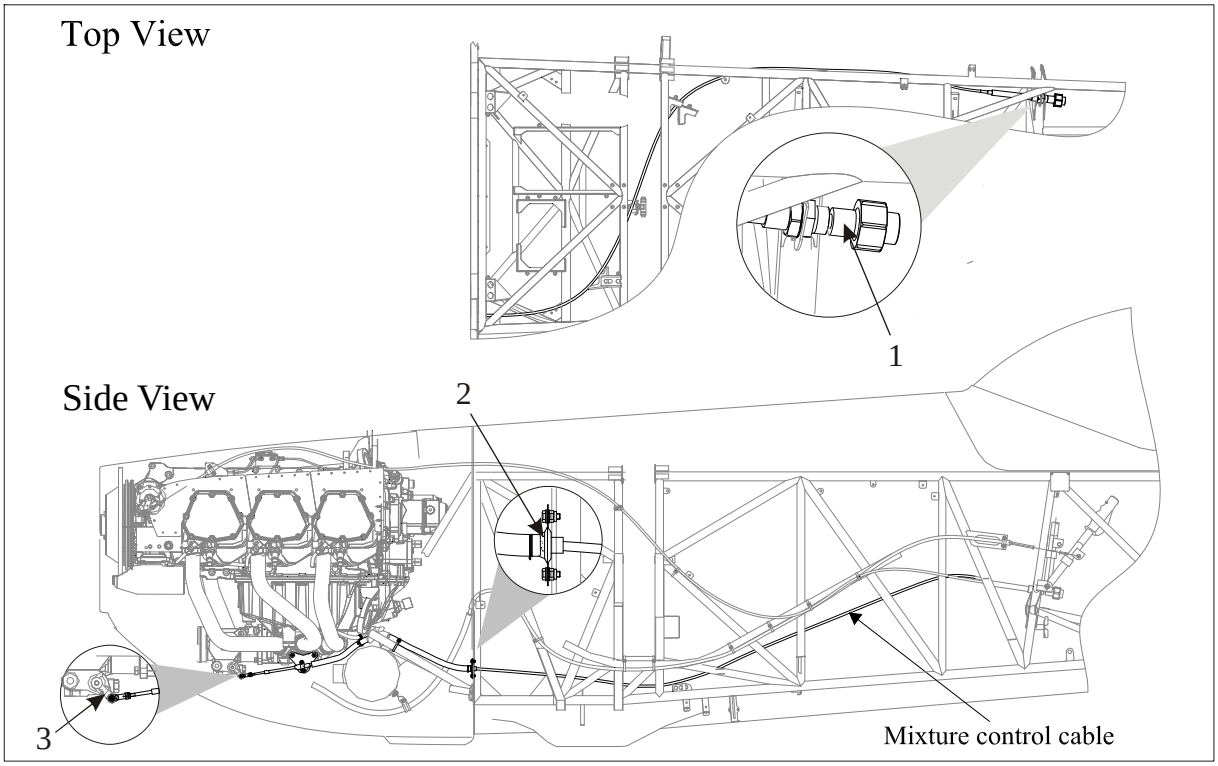


Figure 5 ***Mixture Control***

73-20-21 Mixture Control Cable

The mixture control cable is a Vernier type cable connecting the mixture control unit (1, Figure 5) with the mixture actuator (3).

Refer to Chapter 20 for general information about handling control cables.

Removal

1 Ensure master switch is off.

2 Remove engine cowling per Chapter 71.

3 Remove main and bottom fuselage cover per Chapter 53.

4 Mark positions of the firewall forward cable ties and remove these cable ties.

5 Remove cotter pin, castle nut, washers and bolt from the rod end (2, Figure 8) to mixer control lever attachment (3).

6 Loosen counter nut and remove the rod end (2) from the mixture control cable.

7 Remove rod end counter nut and mixture vernier control cable protective swivel and wiper seal.

8 Remove clamp block (1) attachment bolt.

9 Remove clamp block (1) from the vernier mixture control cable.

10 Cut safety wires and remove fire sleeve from vernier mixture control cable.

11 Remove 2 bolts of the clamp sheet attachment positioned at the firewall break through (2, Figure 5). Remove firewall sealing and disconnect clamp sheet and contained plastic guidance from the rear side of the firewall.

12 Mark mixture vernier control cable routing and positions of the cable ties and remove the cable ties in the cabin area.

13 Remove attachment nut and washer of the mixture control unit (1, Figure 5).

14 To remove mixture vernier control unit from its bracket, pull the unit slightly aft (about 15cm [0.5ft]) and then to the LH outside direction.

15 Pull complete mixture vernier control cable aft to remove from aircraft. Secure clamp sheet.

Installation

Refer to Figure 5.

1 Install the mixture control unit.

2 Move mixture control knob to the foremost position.

3 Thread the rear clamp sheet and plastic guidance for the firewall break through on the mixture control cable.

4 Install the mixture vernier control cable according to the previously marked routing. Ensure distance between firewall and clamp block is 555 mm (refer to Figure 6).

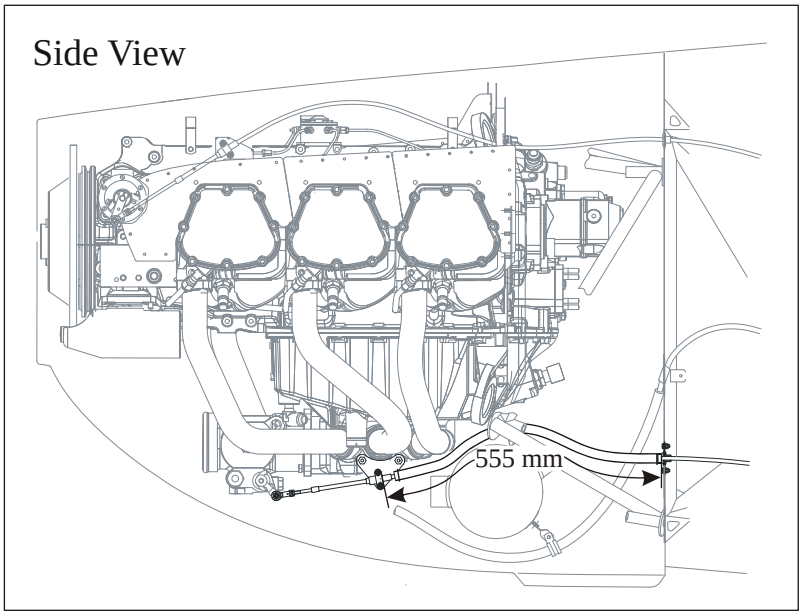


Figure 6 Clamp Sheet to Clamp Block Distance

5 Renew the sealing of the firewall breakthrough at the engine side of the firewall. Use firewall sealant as outlined in Chapter 51-30-04.

6 Let the sealant slightly cure before thightening the clamp sheet attachment bolts. This will strengthen the clamping.

7 Install the clamp sheet.

8 Install the cable ties in the cockpit area on positions as marked before.

9 Install the 540 mm firesleeve to the mixture vernier control cable and secure with safety wire at both ends.

10 Install the mixture vernier control cable to the respective bracket by installing the clamp block (1, Figure 8) to the conduit fitting of the control cable.

11 Push the mixture actuator (3, Figure 8) to the full forward position.

NOTE

It is essential that the rod end is screwed onto the threaded terminal until the inspection hole of the rod end is completely filled with thread (minimum 8 turns).

12 Screw the rod end onto the threaded terminal to match the full forward travel stop mixture actuator position. Tighten the counternut.

13 Install rod end to mixture actuator with bolt, washers, castle nut and cotter pin. Tighten the castle nut slightly. Ensure movability of actuator.

14 Install the firewall forward cable ties on positions as marked before.

15 Perform Mixture Vernier Control Cable Rigging.

Rigging

1 Move mixture control knob to the foremost position.

2 Check that the travel stop at the mixture actuator is reached, and the over-travel of 5 mm [3/16"] (tolerance +/-1 mm [1/32"]) is ensured at the mixture control knob (see distance "e" on Figure 7).

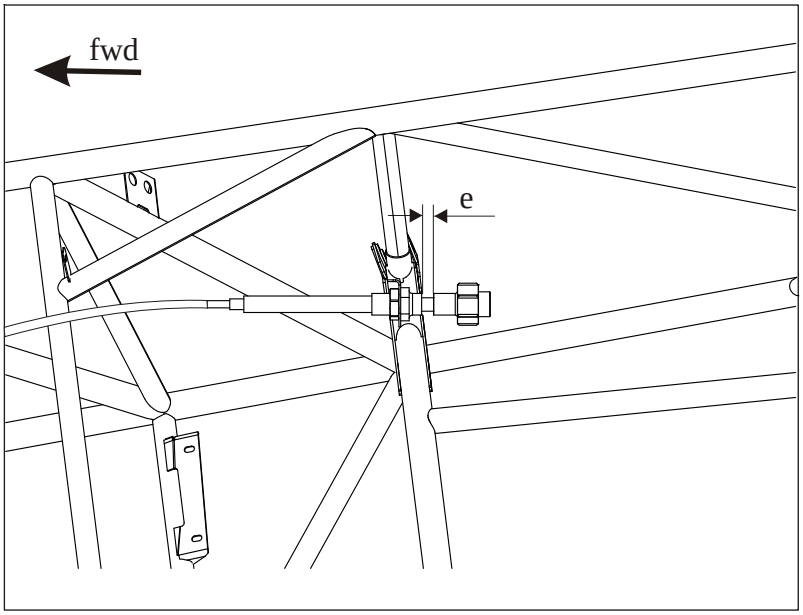


Figure 7 Over-travel at Mixture Control Unit

3 Check full travel.

4 If necessary adjust rod end (2, Figure 8) by the following steps:

a Remove cotter pin, castle nut, washers and bolt from the rod end (2) to mixture actuator (3) attachment.

b Loosen the counter nut and adjust rod end (2) by turning. Ensure thread is visible in the inspection hole when fastening. Apply inspection lacquer on the counter nut.

c Reconnect the rod end (2) to the mixture actuator (3).

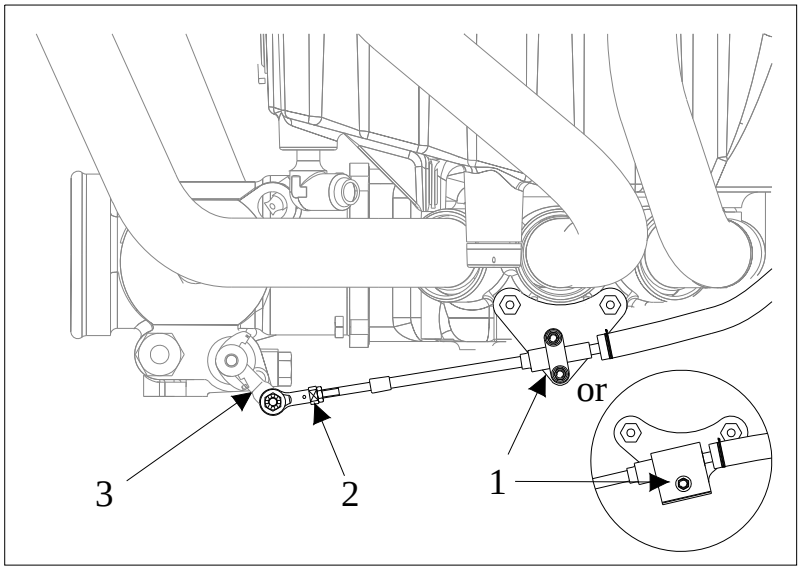


Figure 8 Mixture Control Cable Rigging

73-30-00 INDICATING

Fuel pressure is sensed on the EXTRA 300SC engine and is indicated to the pilot in command.

Trouble Shooting

Trouble	*Possible Cause*	*Remedy*
No fuel pressure indication	Gauge defective	Replace gauge
Fuel pressure low	Orifice in engine fuel pressure fitting defective	Clean fitting
	Sense line leakage	Replace sense line

73-30-10 Fuel Pressure

The fuel pressure gauge is located in the instrument panel. The instrument takes fuel pressure from the sense line (refer to Figure 9).

Because the fuel flow to the engine cylinders is restricted, there is a direct relation between fuel pressure and fuel flow. This relation is shown on the Lycoming curve N° 13011 "Fuel Flow vs. Nozzle Pressure". So the fuel pressure gauge indicates fuel pressure but on a scale which is converted to fuel flow values (generally the fuel flow value is more useful for the pilot). The red line however shows a pressure value.

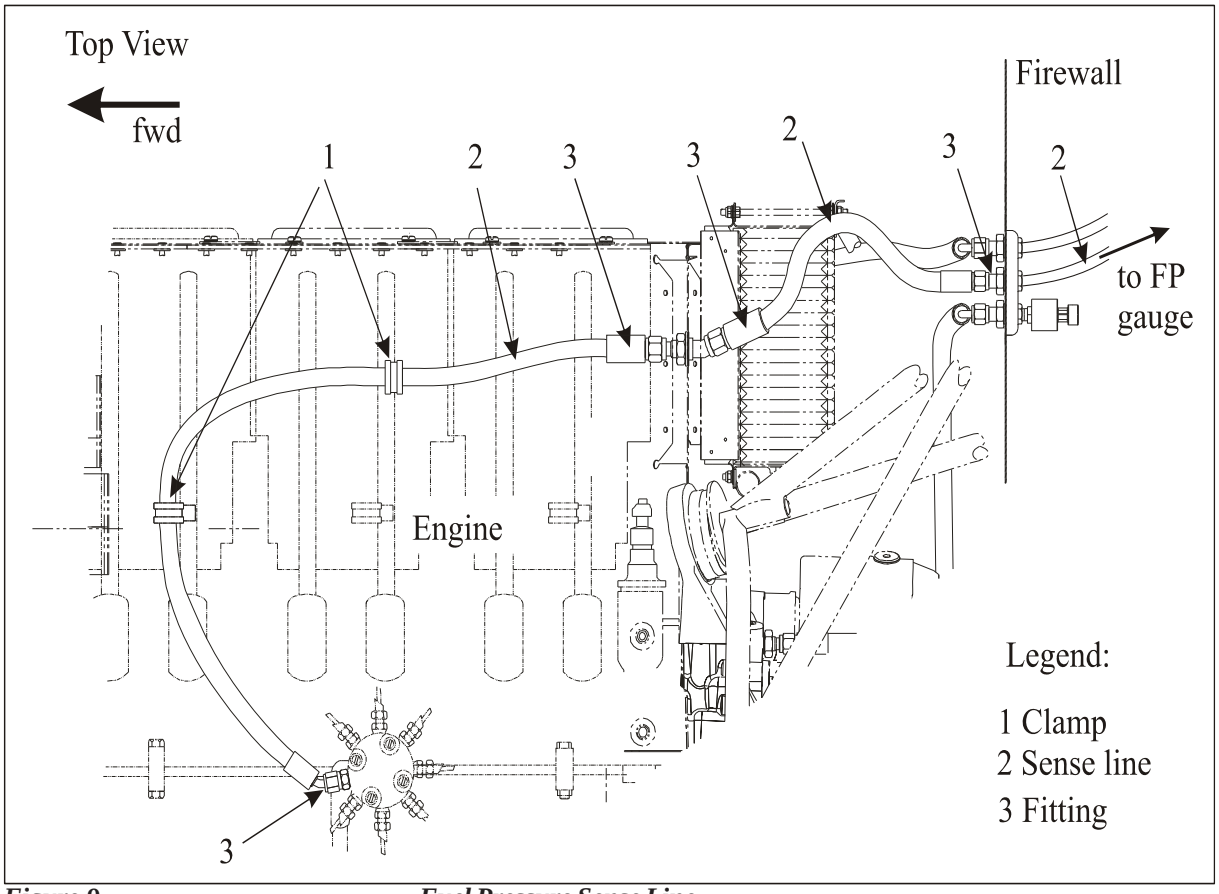


Figure 9 ***Fuel Pressure Sense Line***

73-30-11 Fuel Pressure Gauge

Removal/Installation

Refer to Chapter 31.

73-30-12 Sense Line

Removal/Installation

1 Remove cowling per Chapter 71.

2 Remove clamps.

NOTICE

Pick up spilling fluid, when disconnecting a sense line.

3 Disconnect the sense line from the fitting.

4 Remove the sense line.

5 Install in reverse sequence of removal. Torque sense line fittings with 15.3 – 16.9Nm (135-150lbs-inch) and apply inspection lacquer.

73-30-15 Fitting

Removal/Installation

1 Remove cowling per Chapter 71:

2 Disconnect the sense line as per Chapter 73-30-12.

3 Remove the fitting.

4 Install in reverse sequence of removal.

Chapter 77

Engine Indicating

Table of Contents

77-00-00 GENERAL

See Chapter 77-40 when MVP-50P is installed.

The following engine instruments are installed in the EXTRA 300SC:

1 tachometer

2 manifold pressure gauge

3 cylinder head temperature gauge

4 exhaust gas temperature gauge

Generally engine data is routed electrically from the engine sensors (refer to figure 1) to the instruments. However, the manifold pressure line is routed through the firewall and directly fitted to the instrument. The engine data are indicated to the pilot in command.

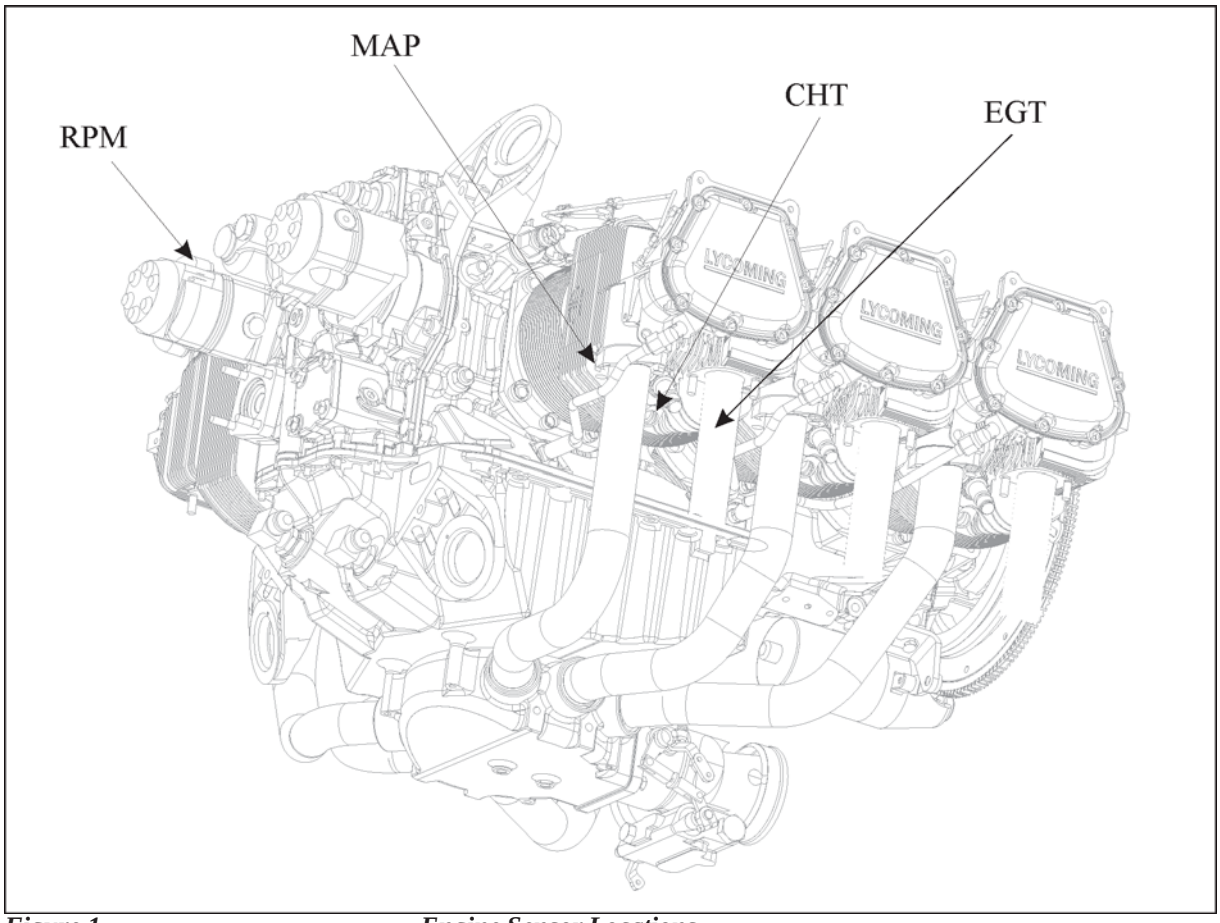


Figure 1 ***Engine Sensor Locations***

Trouble Shooting

Trouble	*Possible Cause*	*Remedy*
No engine speed indication	Tachometer defective	Replace tachometer
No MAP indication	Gauge defective	Replace gauge
No MAP variation with power setting	Sense line leakage	Replace sense line
No CHT indication	Sensor or cable defective	Replace sensor Repair cable defect
	CHT gauge defective	Replace gauge
No or incorrect EGT indication	Sensor defective Cable defective Gauge defective	Replace sensor with cable Replace cable with sensor Replace gauge

77-10-00 POWER

77-10-10 RPM

Engine speed data in the EXTRA 300SC is obtained from the ignition switch. The tachometer is located in the rear instrument panel and requires electrical supply bus voltage.

77-10-11 Tachometer

Removal/Installation

Refer to Chapter 31.

77-10-20 Manifold Pressure (MAP)

The manifold pressure sense line is connected to the air inlet of cylinder no. 5 (rear right-hand), refer to Figure 1. It is a wet line consisting of two parts divided by the firewall.

To protect the instrument from fuel vapor a sintered bronze filter is placed in the hose connection to the MAP gauge as outlined in Figure 2a.

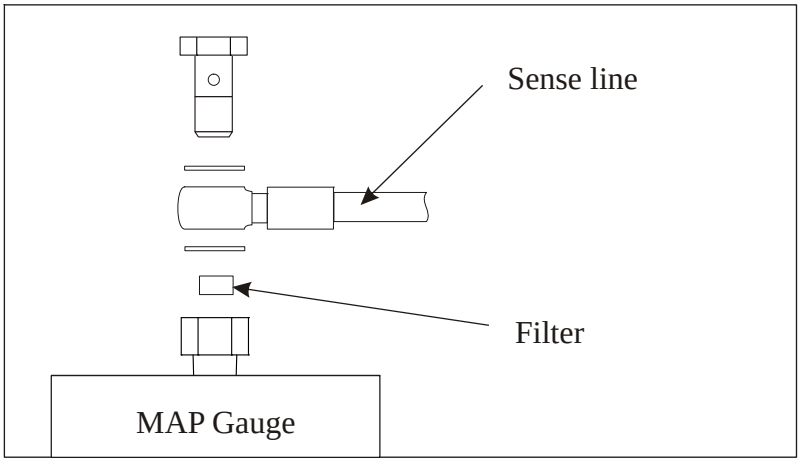


Figure 2a Sintered Bronze Filter Location (MAP gauge)

If the optional MVP-50 System is installed a sintered bronze filter (in an other shape) is placed in the MAP line bulkhead fitting located on the firewall as outlined in Figure 2b (also refer to Figure 5):

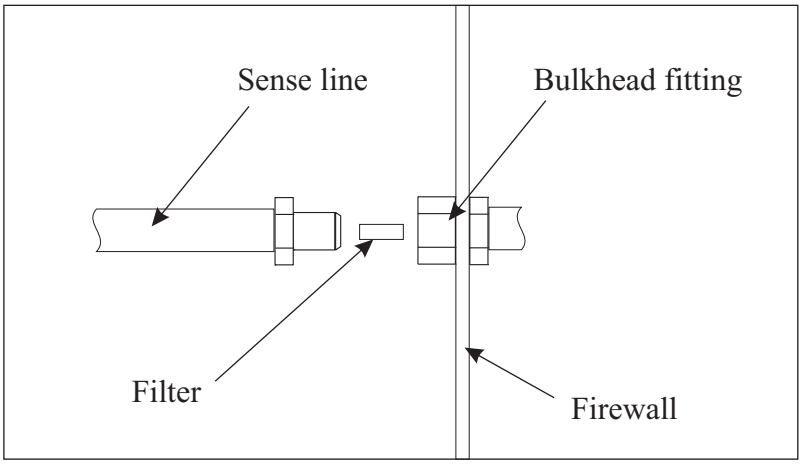


Figure 2b Sintered Bronze Filter Location (MVP-50)

77-10-21 Manifold Pressure Gauge

Removal/Installation

Refer to Chapter 31.

77-10-22 Sense Line Engine Compartment

Removal/Installation

1 Remove cowling per Chapter 71.

2 Remove clamps if applicable.

3 Disconnect the sense line from the fittings.

4 Remove the sense line.

5 Install in reverse sequence of removal. Torque sense line fittings with 15.3 to 16.9Nm (135 to 150 inch lbs.) and apply inspection lacquer.

77-10-23 Sense Line Cockpit

Removal/Installation

Refer to Chapter 20-10-07.

77-20-00 TEMPERATURE

77-20-10 Cylinder Head Temperature (CHT)

The cylinder head temperature gauge is located in the instrument panel. The sensor is located in the rear right-hand cylinder (No. 5).

77-20-11 Cylinder Head Temperature Gauge

Removal/Installation

Refer to Chapter 31.

77-20-12 CHT Sensor

The sensor is a bayonet type J thermocouple and is connected directly with the overbraided wiring. This wiring cannot be disconnected from the sensor and must not be shortened.

Removal/Installation

1 Remove cowling per Chapter 71.

2 Disconnect overbraided wires from the instrument.

3 Note correct wiring.

4 Remove sensor with mounting fitting and complete overbraided wires from engine.

5 Remove mounting fitting if reasonable.

6 Install in reverse sequence of removal. Make sure wires are connected correctly.

77-20-20 Exhaust Gas Temperature (EGT)

The exhaust gas temperature gauge is located in the instrument panel. The temperature sensor is located on the rear exhaust pipe on the right-hand side (refer to Figure 1). The sensor is mounted with a clamp. When leaning the engine using EGT gauge, follow the procedures of the engine manufacturer (Lycoming Service Instruction No. 1094).

77-20-21 Exhaust Gas Temperature Gauge

Removal/Installation

Refer to Chapter 31.

77-20-22 EGT Sensor

The sensor is a type K thermocouple and is connected directly with the overbraided wiring. This wiring cannot be disconnected from the sensor and must not be shortened.

Removal/Installation

1 Remove cowling per Chapter 71.

2 Disconnect overbraided wires from instrument.

3 Note correct wiring.

4 Remove the worm drive hose clamp from the exhaust pipe and remove sensor with complete overbraided wires.

5 Install in reverse sequence of removal. Make sure wires are connected correctly.

77-40-00 INTEGRATED ENGINE INSTRUMENT SYSTEMS

77-41-00 Electronics International MVP-50P

The EXTRA 300SC can be equipped with the MVP-50P Glass Panel Engine Monitor. The system as installed in the EXTRA 300SC consists of:

Item	Location
Main Engine Screen	Instrument panel
Electronic Data Converter	Mounting sheet
Resistive Level Fuel Module	Mounting sheet
Fuel Quantity Transducers*	Wing tank /Center tanks
Manifold Pressure Transducer	Mounting sheet
Oil Pressure Transducer	Firewall
Fuel Pressure Transducer	Firewall
Fuel Flow Transducer	Left side engine
OAT Probe	Bottom fuselage cover
Oil Temperature Sensor	Aft engine
EGT Probes	Exhaust pipes
CHT Probes	Cylinder heads
Related Wiring and Tubing	Cockpit/engine comp.

*) An additional fuel quantity transducer identical to the standard one is installed in the RH wing, when the MVP-50P is used.

Custom fuel quantity transducers are installed in the front and rear center tanks (refer to Chapter 28-40-03).

NOTE

Apart from the different probes and transducers used with the MVP-50P the engine installation including the wet lines is the same as described in the standard configuration description.

Troubleshooting

Refer to MVP-50P Installation Manual (see Chapter 1) for detailed troubleshooting information.

Passwords

The Level #1 password (for maintenance) is 00200.

For system configurations requiring the Level #2 Password, contact Extra Flugzeugproduktions- & Vertriebs-GmbH.

Features

Refer to the MVP-50P documentation of Electronics International Inc. (see Chapter 1) for detailed information about features.

The following features are not available in the configuration installed in the EXTRA 300SC:

- External dimmer potentiometer
- External warning and caution light
- Voice alarm
- System Screen
- Weight and Balance (not applicable, do not use!)
- Checklists 1 - 3 (not applicable, do not use!)
- Gear warning and TAS Setup Screen
- Pressure Altitude Calibration Screen
- Flaps, Trim and Special Function Calibration Screen
- Calibrating Airspeed
- Gear Position and Unsafe Indicators
- Gear Warning

Instrument Panel Layout

Generally an alternate panel is used to carry the MVP-50P as shown in Figure 3.

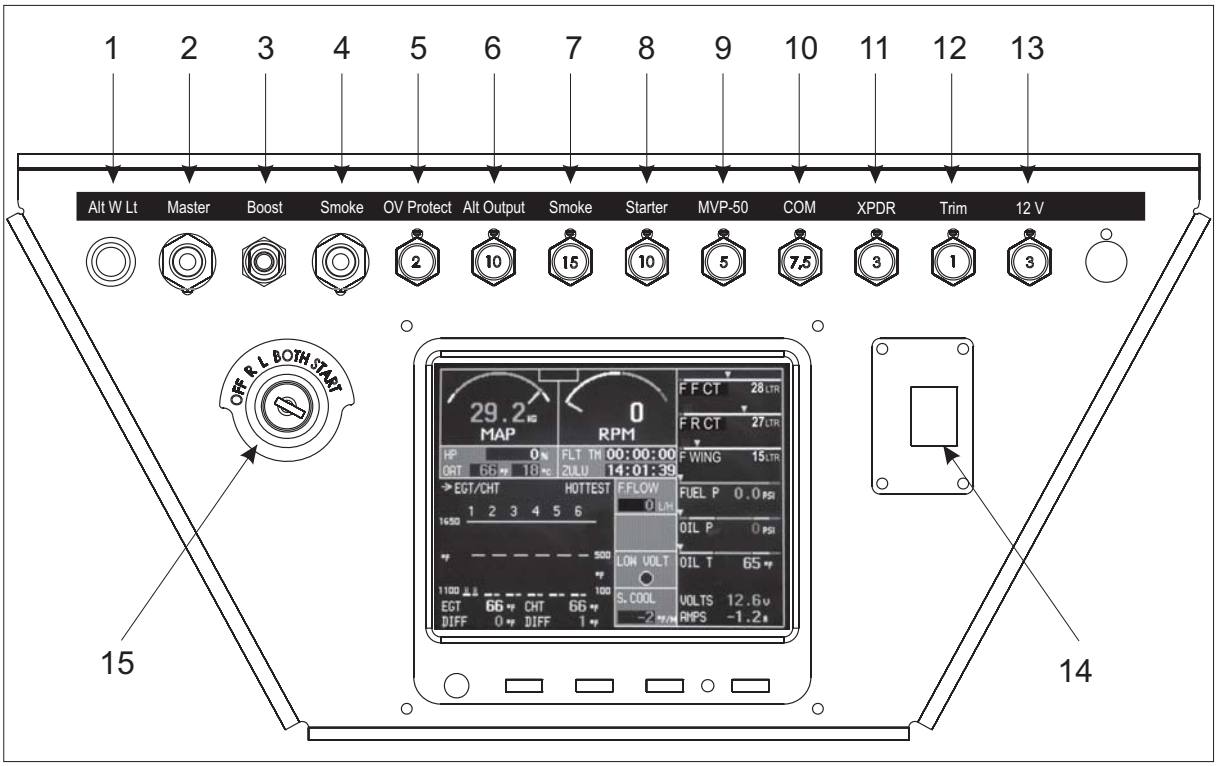


Figure 3 ***Alternate Panel Layout***

Pos.	Item
1	Alternator warning light incl. press-to-test feature
2	Master switch
3	Boost pump circuit breaker switch
4	Smoke switch, 3-way
5	Overvoltage protection circuit breaker
6	Alternator output circuit breaker
7	Smoke system circuit breaker
8	Starter circuit breaker
9	MVP-50 circuit breaker
10	COM circuit breaker
11	Transponder circuit breaker
12	Electrical trim system circuit breaker
13	12 V circuit breaker
14	ELT Switch
15	Starter switch

77-41-01 Main Engine Screen

The MVP-50P Main Engine Screen (see Figure 4) displays the primary engine and aircraft instruments. This screen is displayed on power-up and is the screen that should be monitored during flight.

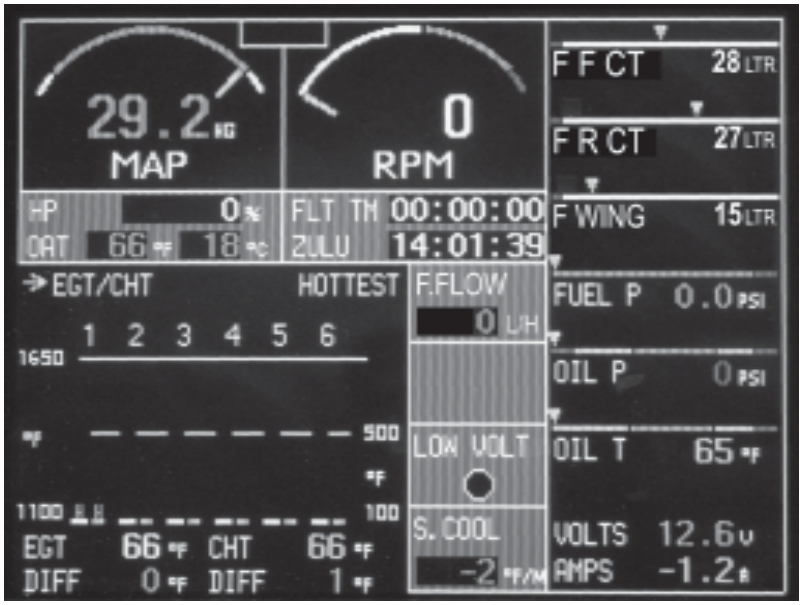


Figure 4 MVP-50P with Main Engine Screen

Buttons operate as follows:

Push-Select	Moves the cursor, selects functions and changes digits.
Exit	Exits out of a field or screen and returns the display to the Main Engine Screen.
Screens	Switches the display between screens as selected in the Screens Button Setup.
Menu	Displays a menu (if available) for the current screen.

Removal/Installation

Follow the procedure for typical instruments in Chapter 31.

77-41-02 Mounting Sheets

To carry the engine data converter (1, Figure 5) and two modules (9, 13) mounting sheets (12, 14) are installed on the right side of the fuselage just behind the firewall.

Removal/Installation

1 Remove main fuselage cover as per Chapter 53-00-03.

2 Remove the electronic data converter (1, Figure 5) and/or the respective module (9, 13) as per following sections.

3 Remove the attachment bolts and shock mounts (4) or the attachment bolts (10) and remove the mounting sheet.

4 Reverse procedure for installation.

77-41-03 Electronic Data Converter

Removal/Installation

1 Remove main fuselage cover as per Chapter 53-00-03.

2 Disconnect the electrical wiring (3) from the electronic data converter (1, Figure 5).

3 Remove the upper left shock mount and attachment bolt (4) and the attachment bolts (15) and remove the electronic data converter (1).

4 Reverse procedure for installation.

77-41-04 Module

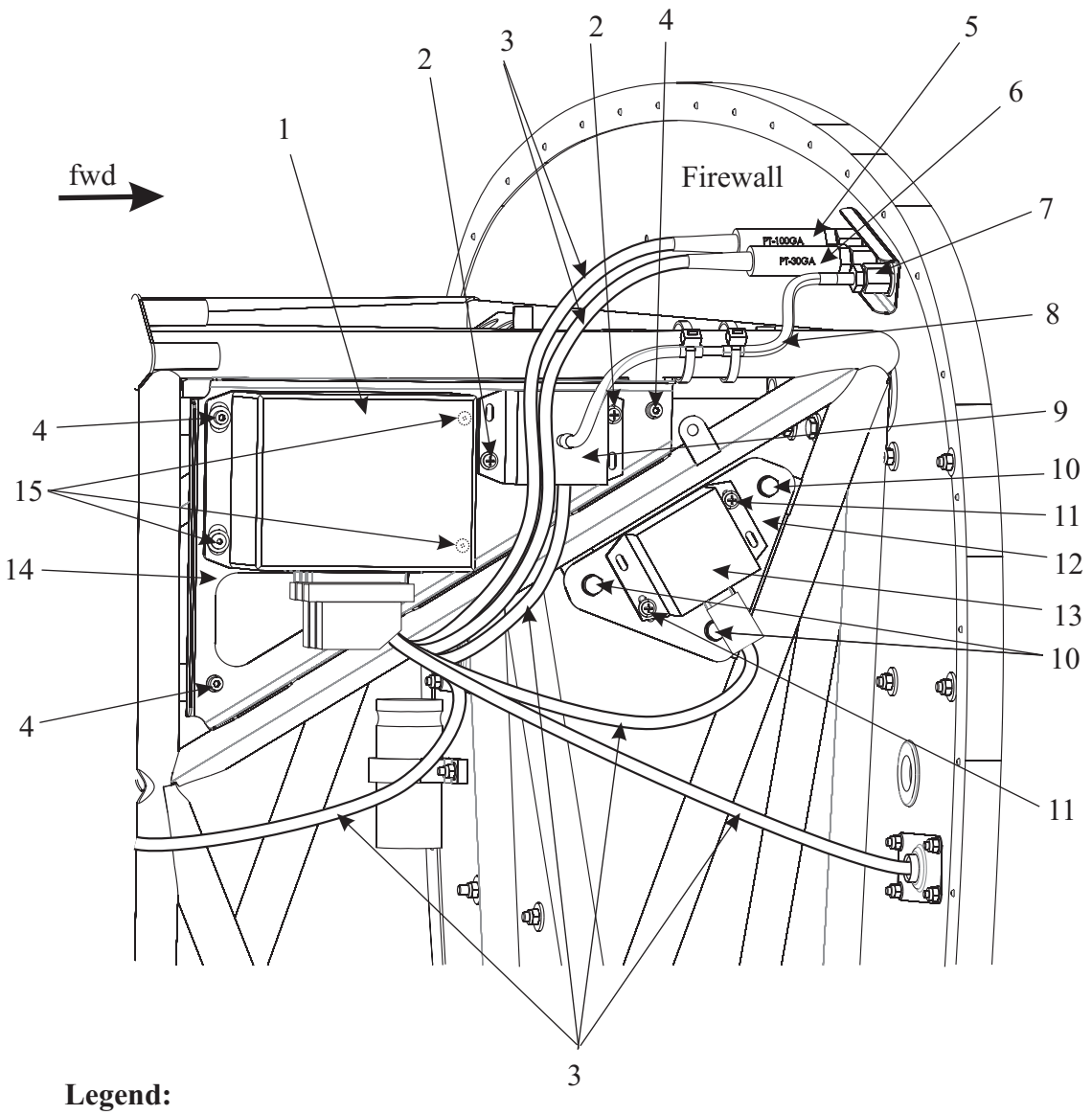
Removal/Installation

1 Remove main fuselage cover as per Chapter 53-00-03.

2 Disconnect the electrical wiring (3) and tubing (8) if applicable from respective module (9 or 13, Figure 5).

3 Remove the attachment bolts (2 or 11) and remove the module.

4 Reverse procedure for installation.



Legend:

1 engine data converter
2 attachment bolt
3 electrical wiring
4 shock mount and attachment bolt
5 oil pressure transducer
6 fuel pressure transducer
7 bulkhead fitting and filter
8 tubing
9 MAP transducer
10 attachment bolt
11 attachment bolt
12 mounting sheet
13 resistive fule level module
14 mounting sheet
15 attachment bolt

Figure 5 ***Mounting Sheets and MVP-50P Components***

77-41-05 Fuel Flow Transducer

Removal/Installation

CAUTION **Spilling fuel could inflame. Ensure exhaust is cool.**

1 BATTERY switch off.

2 Remove engine cowlings as per Chapter 71-10-00.

3 Remove the fire sleeve (6).

4 Disconnect the fuel hoses (3, Figure 6) from the transducer (4).

5 Disconnect the electrical wiring (1) from the transducer.

6 Remove the attachment bolts (2) and remove the transducer from the mounting sheet (5).

7 Reverse procedure for installation.

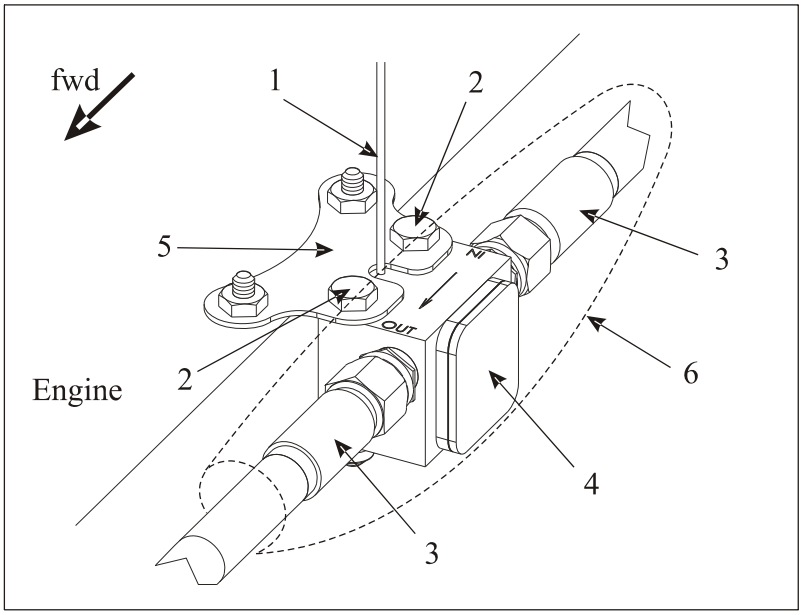


Figure 6 Fuel Flow Transduver

77-41-06 Probes and Transducers

The CHT probes are screwed to the respective ports on the engine (see Figure 7).

The EGT probes are attached to the exhaust pipes with clamps (see Figure 7).

The OT probe is screwed to the respective port on the aft engine side (see 79-30-20).

The oil (5, Figure 5) and fuel (6) pressure transducers are screwed to the respective fittings on the firewall.

Refer to Chapter 28 for fuel contents transmitters.

The tubing (8) of the MAP transducer (9) is routed from the module through a bulkead fitting (7) in the firewall to the engine (see also Figure 1).

The rpm signals are taken directly from the magnetos.

The OAT probe is fastened to the right side of the bottom fuselage cover (behind the center tank drain) by means of a nut. A plug allows easy disconnecting.

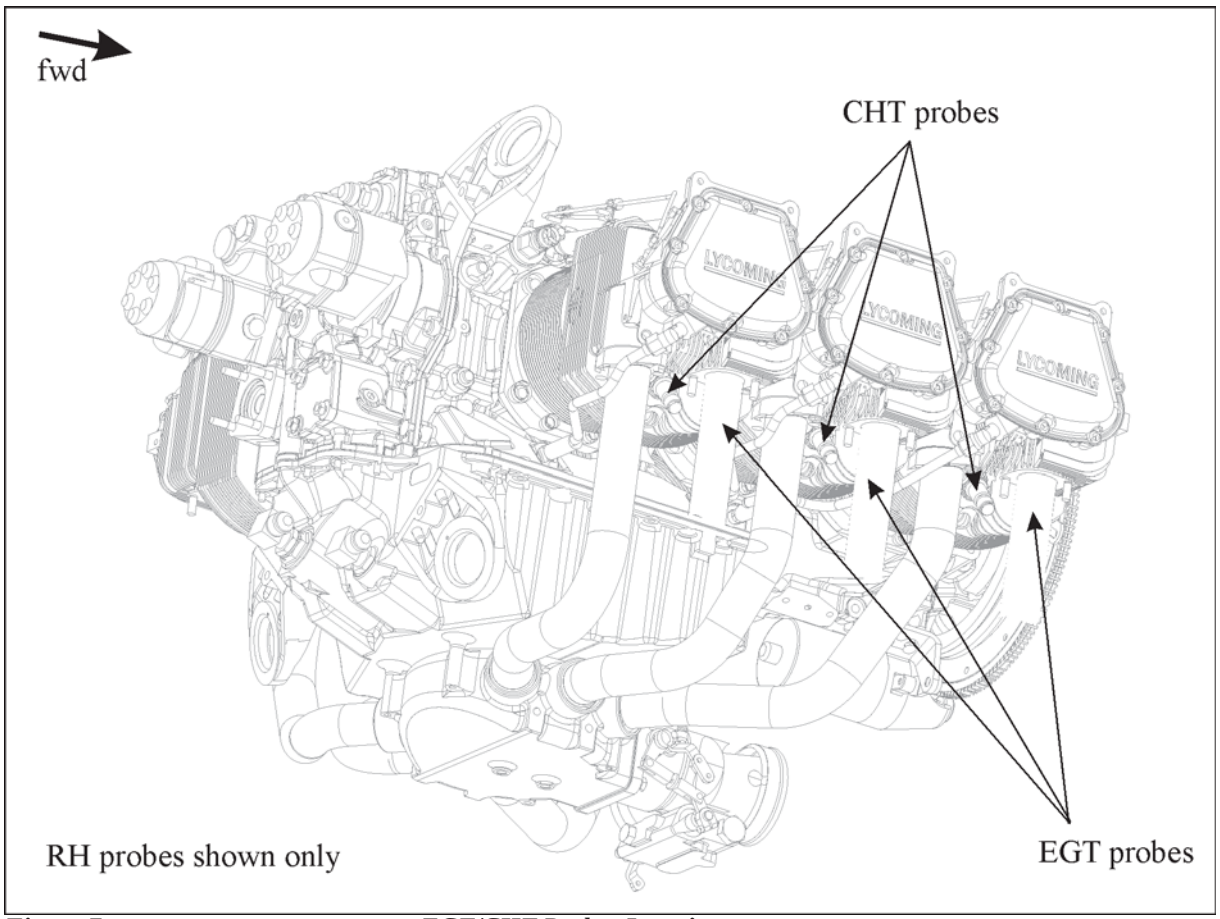


Figure 7 ***EGT/CHT Probes Location***

Chapter 78

Exhaust

Table of Contents

78-00-00 GENERAL

The EXTRA 300/SC features three alternative exhaust systems:

- Gomolzig 6 in 1
- Sky Dynamics 6 in 1
- Chabord 6 in 2

The EXTRA 300SC is generally equipped with a Gomolzig 6 in 1 exhaust system (refer to figure 1) with integrated silencer (muffler).

Alternatively, the EXTRA 300SC can be equipped with either a 6 in 1 Sky Dynamics exhaust system (see Figure 2) or a 6 in 2 Chabord exhaust system (see Figure 3). These systems are both light-weight and feature no muffler.

78-10-00 COLLECTOR/NOZZLE

78-10-10 Gomolzig 6 in 1

Description

Each engine cylinder has a separate exhaust pipe routed down merging in collector tubes with increasing diameter. The collector tubes are equipped with heat shields to protect the lower engine cowling against the heat. Several exhaust pipes feature slip joints to allow for thermal expansion.

The left and right collector tubes are merged further aft in the muffler under the engine. An end pipe protrudes from the muffler through the lower engine cowling for exhaust gas discharge to the atmosphere.

Operation

The exhaust pipes are of welded stainless steel. These pipes are routed from the cylinders down to the muffler under the engine. The muffler comprises an inner pipe, which is perforated, and an outer pipe to form a welded, sealed structure.

The muffler is cooled using a surrounding heat shroud, which is fed with fresh air from the forward LH baffle which is then discharged to the atmosphere.

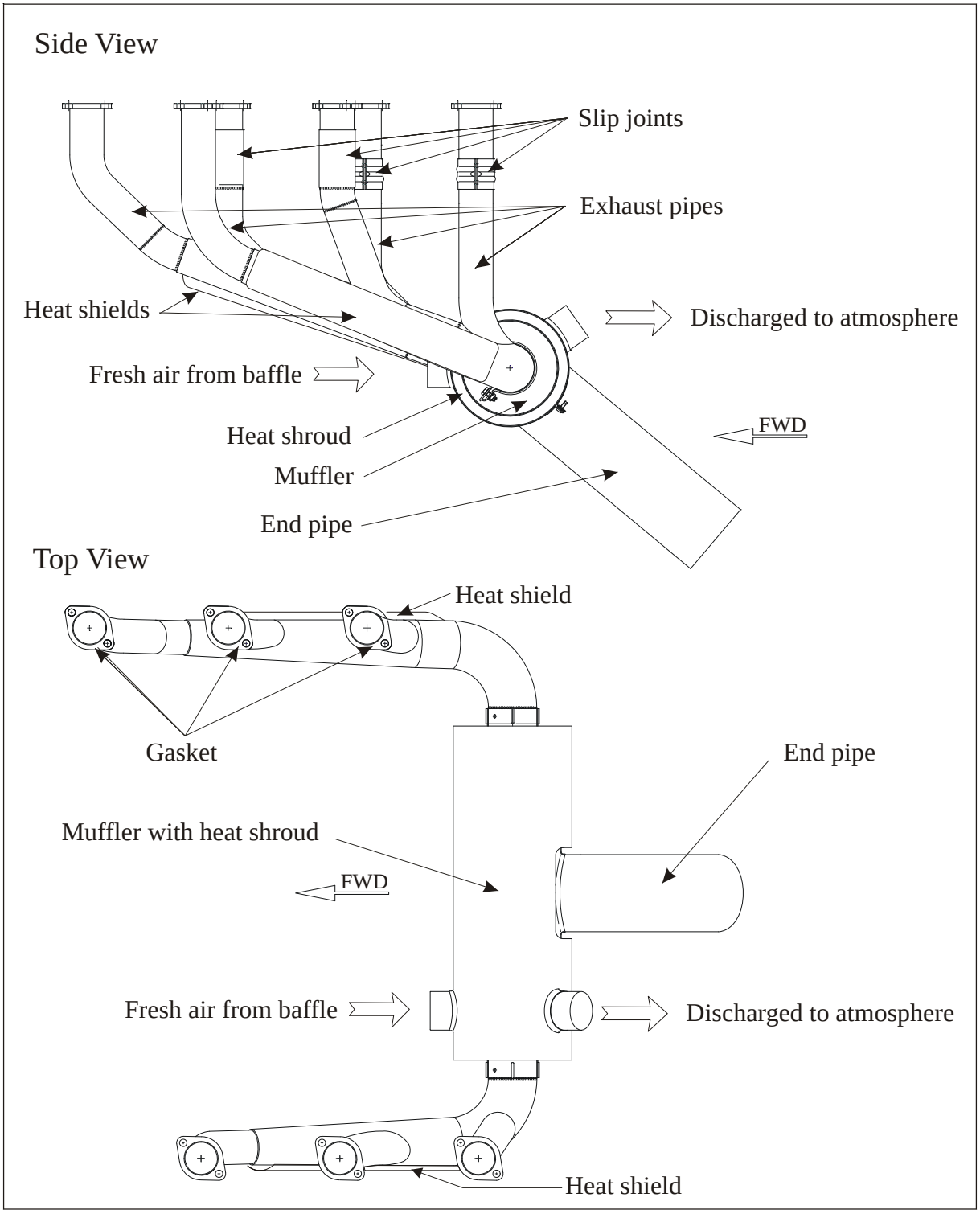


Figure 1 ***Exhaust System Gomolzig 6 in 1***

Trouble Shooting

Trouble	*Possible Cause*	*Remedy*
Engine to loud	Muffler defective	Replace muffler per Ch. 78-10-12.
Exhaust piping cracked	Muffler not secured	Reweld piping and tighten clamps on muffler
	Muffler too hot	Check fresh air ducting
Cylinder outside sooted	Gasket defective	Replace gasket per Ch. 78-10-13.
	Exhaust flange bent	Replace exhaust pipe per Ch. 78-10-11.
Cowling inside damaged	Heat shield defective	Replace heat shield per CH. 78-10-14.

N O T E

The use of new gaskets is recommended whenever replacing or reinstalling exhaust system components.

Removal

1 Remove upper and lower engine cowling per Ch. 71.

2 Remove EGT sensor on the right hand side rear cylinder (No.5).

3 Remove throttle control cable at the injector, at the attachment clamp block near the injector and at the cushioned clamp on the muffler.

4 Remove the cooling air ducting on both forward and rearward flanges on the muffler.

5 In case a smoke system is installed, remove the smoke oil hose from the smoke oil injector nozzle on the exhaust end pipe.

6 Loosen the nuts on the exhaust flanges and remove the exhaust system.

Installation

Install in reverse sequence of removal observing the following items:

1 Use new gaskets.

2 Use new toothed lock washers.

3 Apply copper paste to the studs at the engine exhaust flanges.

4 Hold the exhaust system in place and tighten the nuts (torque limit: minimal 4.5 Nm / 40 in.lb).

5 Be sure to correctly install the double ply flexible ducting on the flanges (inner ply could obstruct flow).

Inspection / Repair

This can be done without removing the system.

1 Loosen the screws that hold the heat shroud.

2 Inspect the muffler for cracks and corrosion.

3 Reweld minor cracks.

4 Replace parts that show major damage.

5 Reinstall the heat shroud.

78-10-11 Exhaust Pipe

Replacement

1 Remove exhaust system per chapter 78-10-10.

2 For cylinders 1-2 replace entire collector tube.

3 For cylinders 3-4 pull the exhaust pipe out of the slip joint and replace the exhaust pipe.

4 For cylinder 5-6 loosen the clamps on the slip joints and replace the exhaust pipe.

5 Drill 4.8 mm (3/16") hole for EGT sensor(s) at identical location.

6 Reinstall exhaust system in reverse sequence of removal.

78-10-12 Muffler

Replacement

1 Remove exhaust system per chapter 78-10-10.

2 Loosen the clamps on the muffler side flanges and remove the left and right collector tubes.

3 Replace muffler and reinstall in reverse sequence of removal.

78-10-13 Gasket

Replacement

1 Remove exhaust system per chapter 78-10-10.

2 Replace gaskets.

3 Reinstall exhaust system in reverse sequence of removal.

78-10-14 Heat Shield

Replacement

Refer to figure 4.

1 Remove cowling per chapter 71.

2 Remove heat shield worm drive hose clips.

3 Replace heat shield (pointing directly to cowling).

4 Reinstall in reverse sequence of removal.

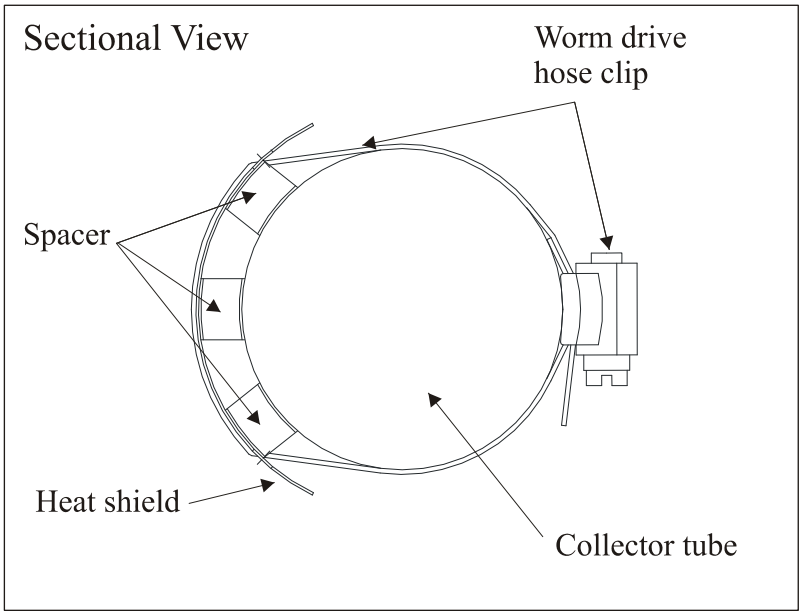


Figure 4 ***Heat Shield Replacement***

78-10-20 Sky Dynamics 6 in 1

Description

Each engine cylinder has a separate exhaust pipe routed down and merging in a single collector tube with increasing diameter. Several exhaust pipes feature slip joints to allow for thermal expansion.

An end pipe protrudes from the collector tube through the lower engine cowling for exhaust gas discharge to the atmosphere

Operation

The exhaust pipes are of welded stainless steel. These pipes are routed from the cylinders down to the single collector pipe under the engine.

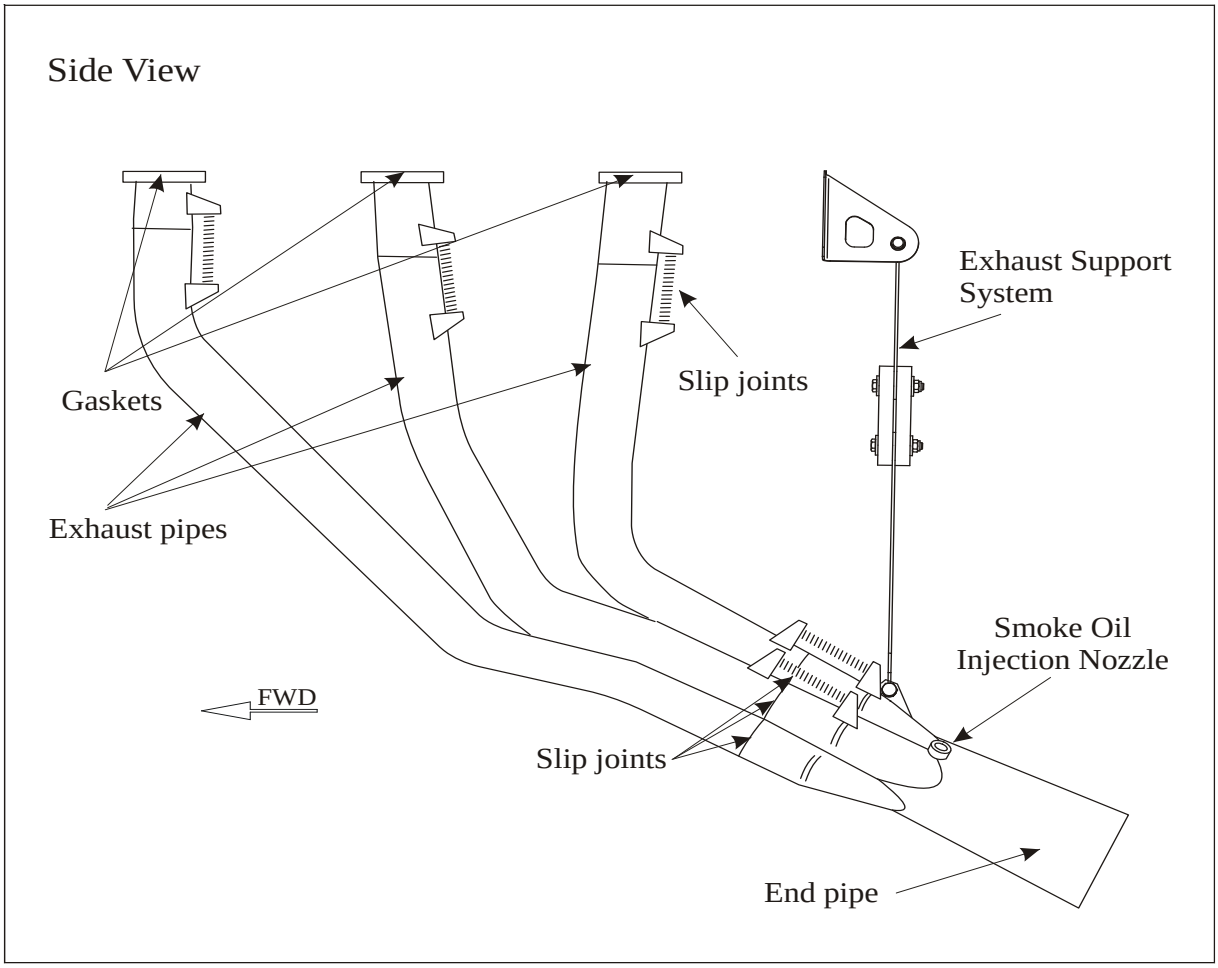


Figure 2 ***Alternative Exhaust System Sky Dynamics 6 in 1***

Trouble Shooting

Trouble	*Possible Cause*	*Remedy*
Cylinder outside sooted	Gasket defective	Replace gasket per Ch. 78-10-23.
	Exhaust flange bent	Replace exhaust pipe per Ch. 78-10-21.

N O T E

The use of new gaskets is recommended whenever replacing or reinstalling exhaust system components.

Removal

1 Remove upper and lower engine cowling per Ch. 71.

2 Remove EGT sensor on the right hand side rear cylinder (No.5).

3 Remove throttle control cable at the injector and at the attachment clamp block near the injector.

4 In case a smoke system is installed, remove the smoke oil hose from the smoke oil injector nozzle on the exhaust end pipe.

5 Loosen the connection to the exhaust support system.

6 Loosen the nuts on the exhaust flanges and remove the exhaust system.

Installation

Install in reverse sequence of removal observing the following items:

1 Use new gaskets.

2 Use new toothed lock washers.

3 Apply copper paste to the studs at the engine exhaust flanges.

4 Hold the exhaust system in place and tighten the nuts (torque limit: minimal 4.5 Nm / 40 in.lb).

Inspection / Repair

This can be done without removing the system.

1 Inspect the exhaust system for cracks and corrosion.

2 Reweld minor cracks.

3 Replace parts that show major damage.

78-10-21 Exhaust Pipe

Replacement

1 Remove exhaust system per chapter 78-10-20.

2 For cylinder 1-6 loosen the clamps on the slip joints and replace the exhaust pipe.

3 Drill 4.8 mm (3/16") hole for EGT sensor(s) at identical location.

4 Reinstall exhaust system in reverse sequence of removal.

78-10-23 Gasket

Replacement

1 Remove exhaust system per chapter 78-10-20.

2 Replace gaskets

3 Reinstall exhaust system in reverse sequence of removal

78-10-30 Chabord 6 in 2

Description

Each engine cylinder has a separate exhaust pipe routed down merging in the left or right collector tube with increasing diameter. Several exhaust pipes feature slip joints to allow for thermal expansion.

Two end pipes protrude through the lower engine cowling for exhaust gas discharge to the atmosphere.

Operation

The exhaust pipes are of welded Inconel 625. These pipes are routed from the cylinders down to the collector pipes under the engine.

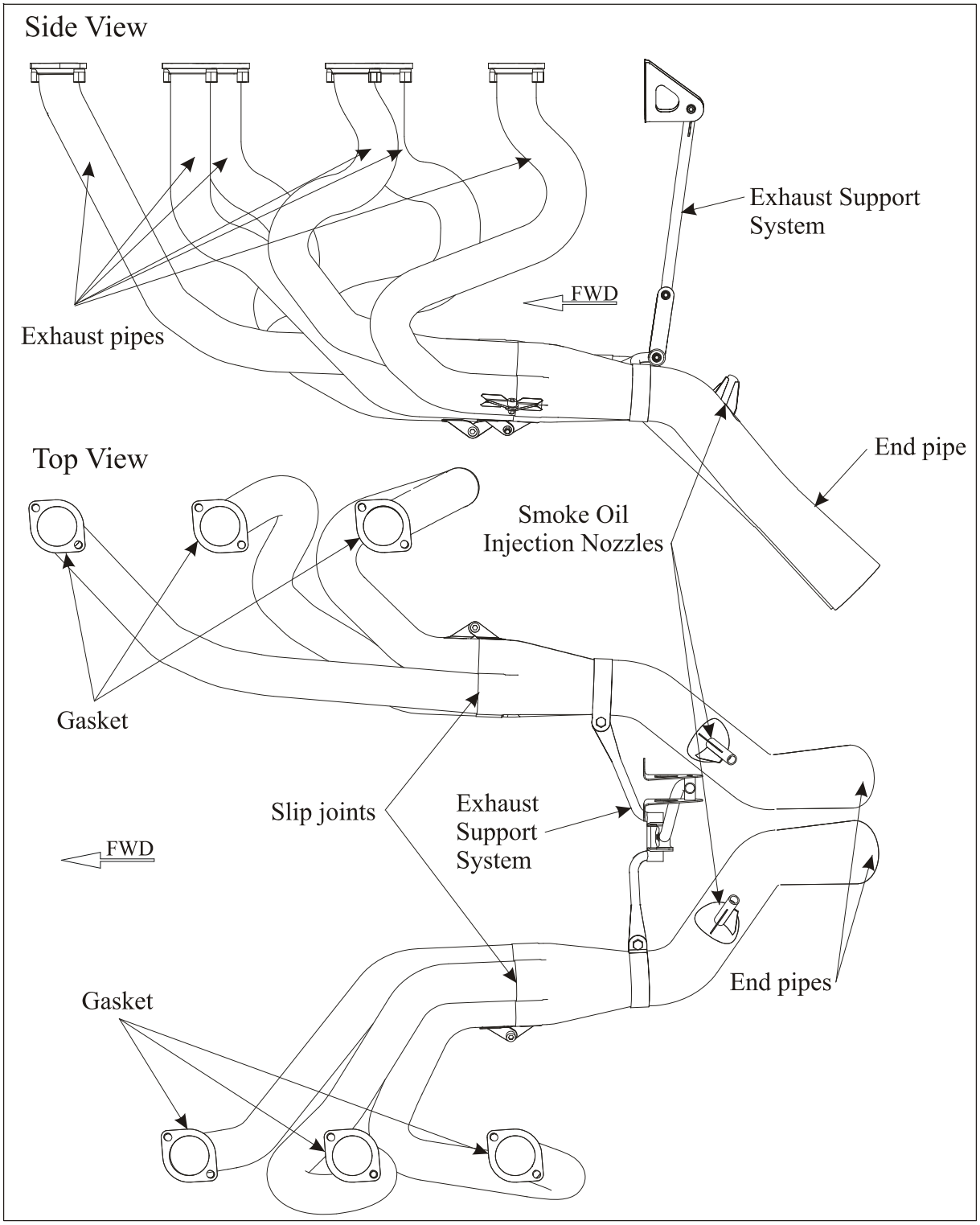


Figure 3 ***Alternative Exhaust System Chabord 6 in 2***

Trouble Shooting

Trouble	*Possible Cause*	*Remedy*
Cylinder outside sooted	Gasket defective	Replace gasket per Ch. 78-10-33.
	Exhaust flange bent	Replace exhaust pipe per Ch. 78-10-31.

NOTE

The use of new gaskets is recommended whenever replacing or reinstalling exhaust system components.

Removal

1 Remove upper and lower engine cowling per Ch. 71.

2 Remove EGT sensor on the right hand side rear cylinder (No.5).

3 Remove throttle control cable at the injector and at the attachment clamp block near the injector.

4 In case a smoke system is installed, remove the smoke oil hoses from the smoke oil injector nozzles on the exhaust end pipes.

5 Loosen the nuts on the exhaust support system.

6 Loosen the nuts on the exhaust flanges and remove the exhaust system.

Installation

Install in reverse sequence of removal observing the following items:

1 Use new gaskets.

2 Use new toothed lock washers.

3 Apply copper paste to the studs at the engine exhaust openings.

4 Hold the exhaust system in place and tighten the nuts on the exhaust flanges (torque limit: minimal 19 Nm / 168 in.lb).

5 Hold the exhaust system in place and tighten the nuts on the exhaust support system.(torque limit: minimal 5 Nm / 44 in.lb).

Inspection / Repair

This can be done without removing the system.

1 Inspect the exhaust system for cracks and corrosion.

NOTE

The exhaust material is Inconel 625. Use qualified personell and filler metal.

2 Reweld minor cracks.

3 Replace parts that show major damage.

78-10-31 Exhaust Pipe

Replacement

1 Remove exhaust system per chapter 78-10-30.

2 For cylinders 1-2 pull the exhaust pipe out of the slip joint and replace the exhaust pipe.

3 For cylinders 3-4-5-6 loosen the bolts on the slip joints and replace the exhaust pipe.

4 Drill 4.8 mm (3/16") hole for EGT sensor(s) at identical location.

5 Reinstall exhaust system in reverse sequence of removal.

78-10-33 Gasket

Replacement

1 Remove exhaust system per chapter 78-10-30.

2 Replace gaskets

3 Reinstall exhaust system in reverse sequence of removal

Chapter 79

Oil System

Table of Contents

79-00-00 GENERAL

The EXTRA 300/SC is equipped with a modification of a Christen Inverted Oil System (CHRISTEN 801 series). Maintenance work or overhaul of the this system requires consultation to the manufacturer. (Refer to Lycoming Operaton and Installation Manual, see Chapter 01).

Additionally the lubrication system of the EXTRA 300/SC has a single oil cooler which is connected to the engine by flexible tubing.

Description and Operation

The standard Christen 801 Inverted Oil System is a kit-form accessory for Lycoming aircraft engines which permits normal engine lubrication, with minimal oil loss, during aerobatic flight. When installed, it becomes a self-contained extension of the normal aircraft engine oil and breather systems. As the system control valves are gravity-operated, no connection to aircraft power sources is required (Refer to Figure 1 and 2).

The system works in all inverted and negative-g flight conditions and is particular suited to high-performance aircraft used for unlimited-class aerobatic competitions.

The need for modification of the standard Christen 801 Inverted Oil System results from installation requirements for different system components of the Lycoming engine.

Normal flight

During normal flight, the weighted ball valve at the top of the oil separator is open, allowing blow-by gases from the engine crankcase to be vented from the breather port to the top of the oil separator and out through the overboard breather line. The top ball valve of the oil valve is closed and the bottom ball valve is open, allowing oil to flow from the sump fitting to the oil pump and out to the engine lubrication points.

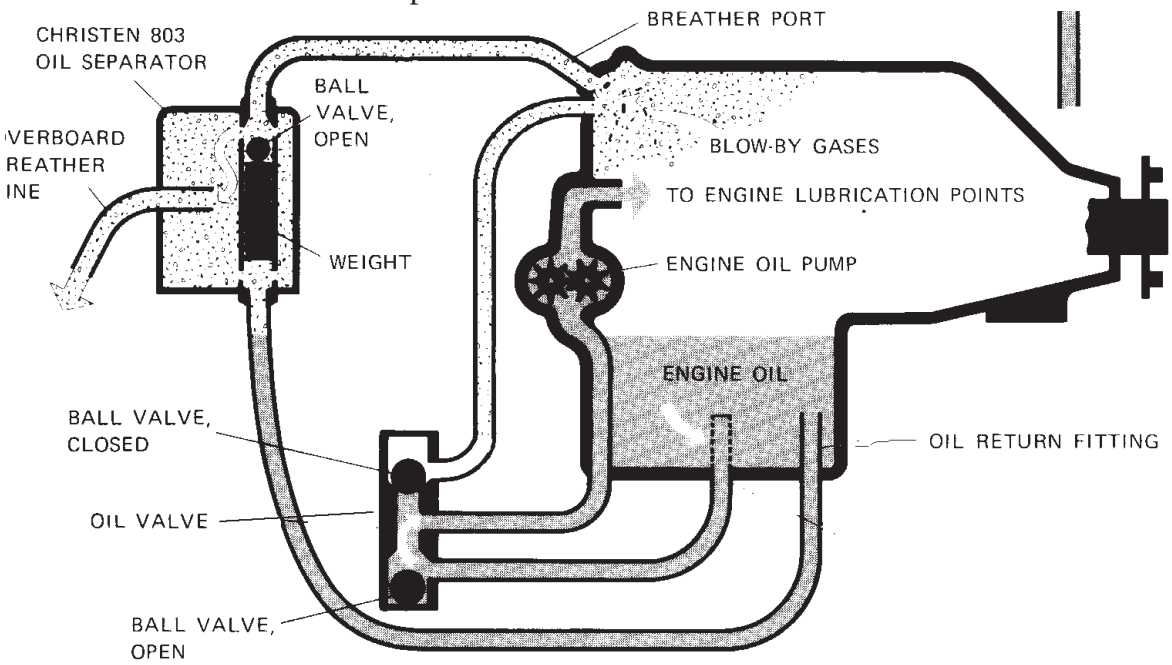


Figure 1 ***Inverted Oil System, Normal Flight***

Inverted flight

When the aircraft is inverted, engine oil falls to the top of the crankcase. the weighted ball valve in the oil seperator closes, preventing overboard loss of oil though the top of the oil separator. Blow-by gasses from the engine crankcase are vented from the sump to the bottom of the oil separator and out through the overboard breather line. The top ball valve of the oil valve is open, and the bottom valve is closed, allowing oil to flow out from the breather port to the oil valve, through the sump fitting and the sump screen, to the oil pump and out to the engine lubrication points.

Any oil in the lines which fails to return to the sump during the transition between normal and inverted flight drains into the oil separator. This oil then returns to the sump from the bottom of the oil separator during periods of normal flight.

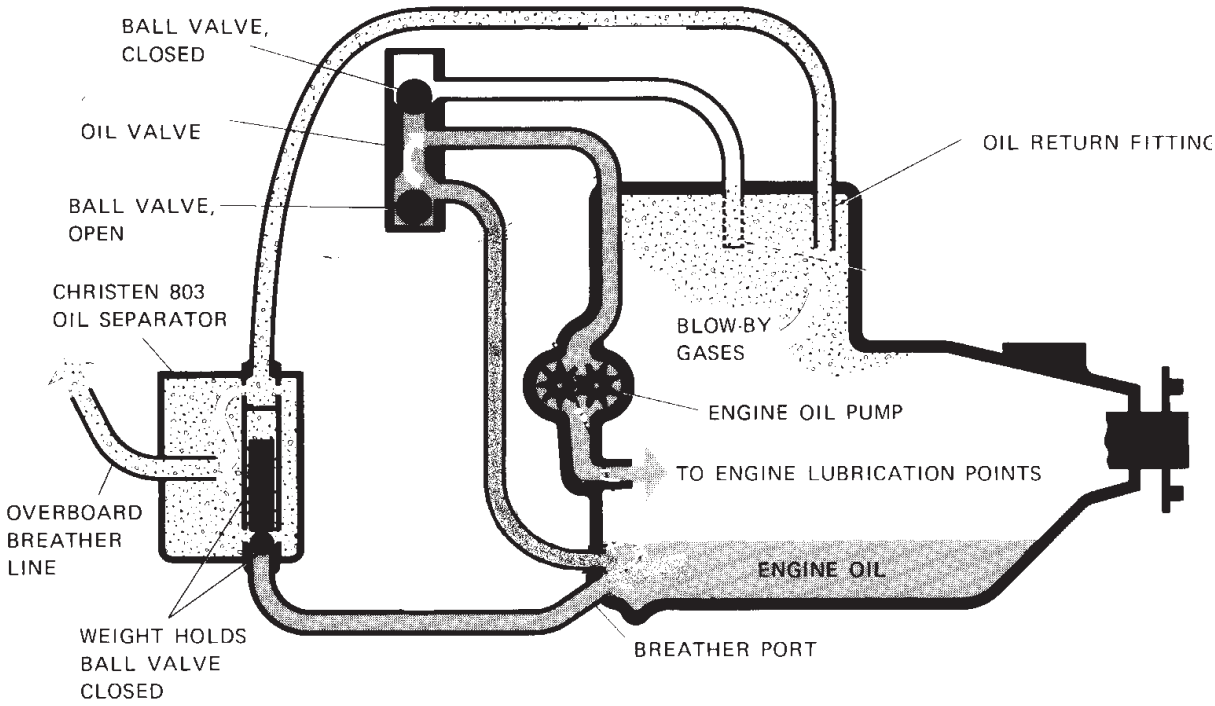


Figure 2 ***Inverted Oil System, Inverted Flight***

Maintenance Practices

The inverted oil system normally requires no maintenance. During major overhauls or when repairs require sump removal, inspect sump for excessive deposits of sludge, varnish, or foreign material. If sump is dirty, remove and thoroughly clean all hoses and components; then use compressed air blast for drying and cleanout before reassembly.

Cleaning

The inverted oil system must be flushed with a suitable petroleum solvent, such as varsol, every 300 (three hundred) hours of engine operation or when there is evidence of the loss of oil through the breather line after normal flight.

79-00-01 Valve Balls

Reseating

Marginal oil loss of valve may result from nicks in the valve seats which cause leakage when the valve should be closed. Such nicks can be caused by mishandling or by small chips of metal being caught between the ball and the seat as the valve operates during initial run-in of a new or overhauled engine. For more information of the valves refer to Lycoming Operaton and Installation Manual (see Chapter 01).

79-20-00 DISTRIBUTION

The hose and fitting installation is modified compared to the standard Christen Inverted Oil System. The connections of the Inverted Oil System still consist of AN (Army/Navy) Standard fittings.

The flexible hoses of the oil cooling system are connected by AN Standard fittings with equal size (8D), but different connection angle.

Maintenance Practices

Before making installations and repairs to the aircraft plumping, it is important to make accurate identification of plumping materials.

79-20-01 Oil Cooler

Description and Operation

The lubrication system of the EXTRA 300/SC has a single oil cooler which is mounted on the aft right hand side of the engine. It is connected to the engine by hoses.

During operation the hot lubricating oil leaving the engine is pumped by an engine-driven pump via a hose to the oil cooler. The oil is cooled in passing through the oil cooler and returned to the engine lubricating circuit through the return hose.

Optionally, the EXTRA 300/SC can be equipped with an additional, smaller oil cooler to increase the cooling capacity. It is installed on the front left side of the engine.

It is connected with hoses between the output port of the standard oil cooler and the oil return port of the engine accessory case.

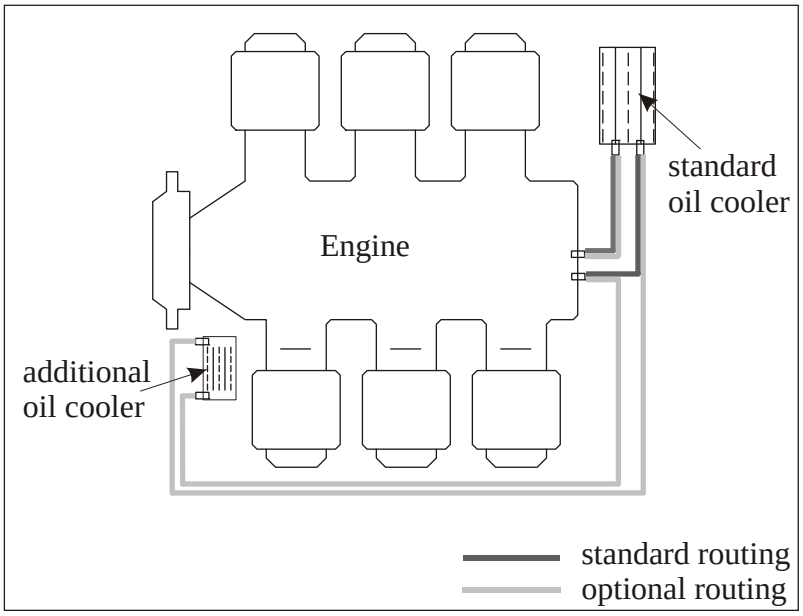


Figure 3 ***Oil Cooling System***

79-20-02 Fittings

General information concerning fittings used in the EXTRA 300/SC you find in Chapter 20-10-08.

79-20-03 Flexible Hoses

General information concerning flexible hoses you find in Chapter 20-10-07.

79-20-04 VAC2-6

On the vacuum pump drive of the Lycoming engine accessory housing assembly a VAC2-6 adapter (B & C Specialty Products Inc) is installed.

Modification of New Engines

When the engine shall be replaced, the following two engine types can be ordered from Lycoming:

ENPL-RT10568

ENPL-RT10427

In any case the modifications as outlined below must be performed for the use in an EXTRA 300SC.

Thereby observe the following:

- Use gasket B & C 707-304-1 provided with the VAC2-6
- Install gasket over the studs with "U" cutout towards the bottom.
- Be shure that the 90° fitting of the VAC2-6 is at the 7 o'clock position.
- Also refer to B & C Installation Instructions for VAC2.

When installing ENPL-RT10568

replace

Lycoming Adapter Assy., Vacuum pump 67536

by

B & C Inverted oil pick-up VAC 2-6 Assy

When installing ENPL-RT10427

replace

4 Lycoming short studs 25C-12 (1/4-20 x 1-1/2)

by

4 Lycoming long studs 25C-21 (1/4-20 x 2-5/8)

and replace

Lycoming Adapter, Breather with Oil pick-up LW-16878

by

B & C Inverted oil pick-up VAC2-6 Assy

additionally install:

1 Lycoming washer 71596

1 Lycoming drive spline 72974

79-30-00 INDICATING

Oil pressure and oil temperature are sensed on the EXTRA 300SC engine and are indicated to the pilot in command.

Trouble Shooting

Trouble	*Possible Cause*	*Remedy*
No oil pressure indication	Sensor defective	Replace sensor.
	Gauge defective	Replace gauge.
Oil pressure low	Engine oil pressure low	Check engine oil pressure with calibrated equipment.
	Orifice engine fitting blocked	Clean fitting.
	Sense line leakage	Replace sense line.
Oil temperature high	Sensor or cable defective	Replace sensor. Repair cable defect.
	Gauge defective	Replace gauge.
	Incorrect engine oil	Perform engine oil change.

79-30-10 Oil Pressure

The oil pressure gauge is located in the rear instrument panel. The gauge receives its data electrically from a pressure sensor located on the aft side of the firewall (refer to figure 4). The pressure sensor (1) is connected to a fitting (2) on the cold side of the firewall. A sense (wet) line (3) connects the bulkhead fitting to the VAC2-6 (4) at the engine.

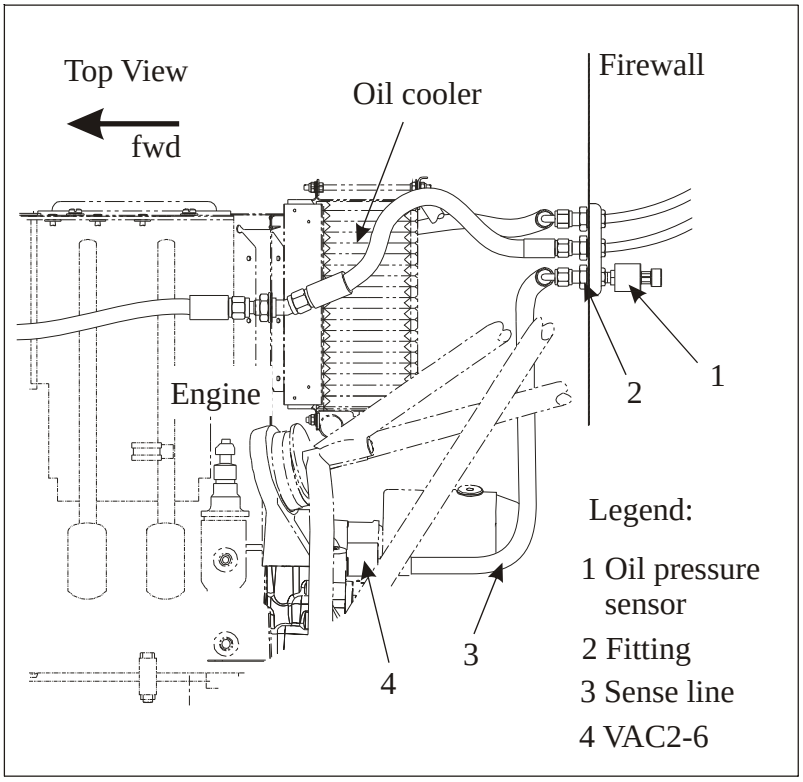


Figure 4 Oil Pressure Sensor & Wet Line

79-30-11 Oil Pressure Gauge

Oil pressure indication is combined with the oil temperature indication in a single unit.

Removal/Installation

Refer to chapter 31.

79-30-12 Oil Pressure Wet Line

Removal/Installation

1 Remove upper cowling per chapter 71

2 Disconnect the sense wet line at firewall bulkhead fitting and at engine fitting (refer to figure 4).

3 Install in reverse sequence of removal. Torque sense line fittings with 15.3 to 16.9Nm (135 to 150 in.lbs.) and apply inspection lacquer.

79-30-13 Engine Fitting

Removal/Installation

1 Remove upper cowling per Chapter 71.

2 Disconnect the sense wet line per Chapter 79-30-12.

3 Remove the engine fitting.

4 Install in reverse sequence of removal. Torque engine fitting with 15.3 to 16.9Nm (135 to 150 in.lbs.) and apply inspection lacquer.

79-30-20 Oil Temperature

The oil temperature gauge is located in the rear instrument panel. The gauge receives its data electrically from a sensor located on the engine in front of the oil filter screen (refer to figure 5).

79-30-21 Oil Temperature Gauge

Oil temperature indication is combined with the oil pressure indication in a single unit.

79-30-22 Oil Temperature Sensor

Removal/Installation

The sensor can be easily removed and installed without special equipment.

1 Remove upper cowling per Chapter 71.

2 Remove oil temperature sensor (refer to figure 5).

3 Install in reverse sequence of removal.

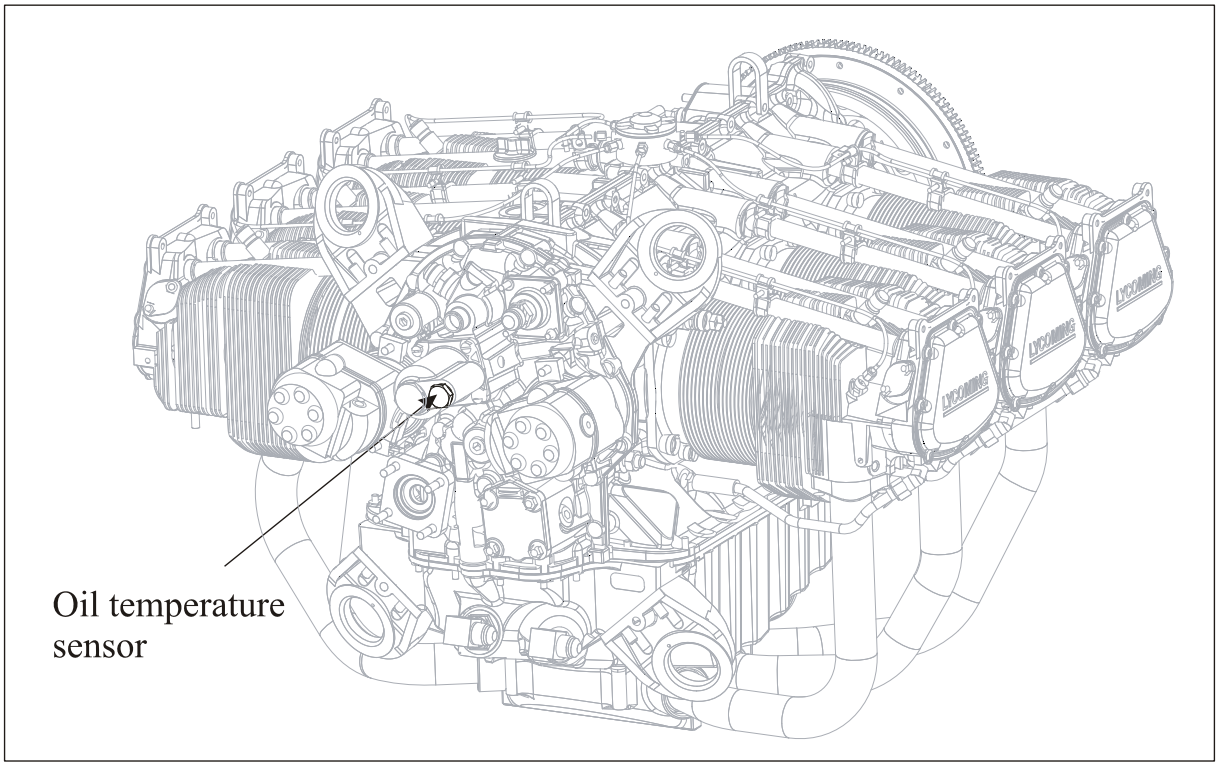


Figure 5 ***Oil Temperature Sensor Location***

Chapter 91

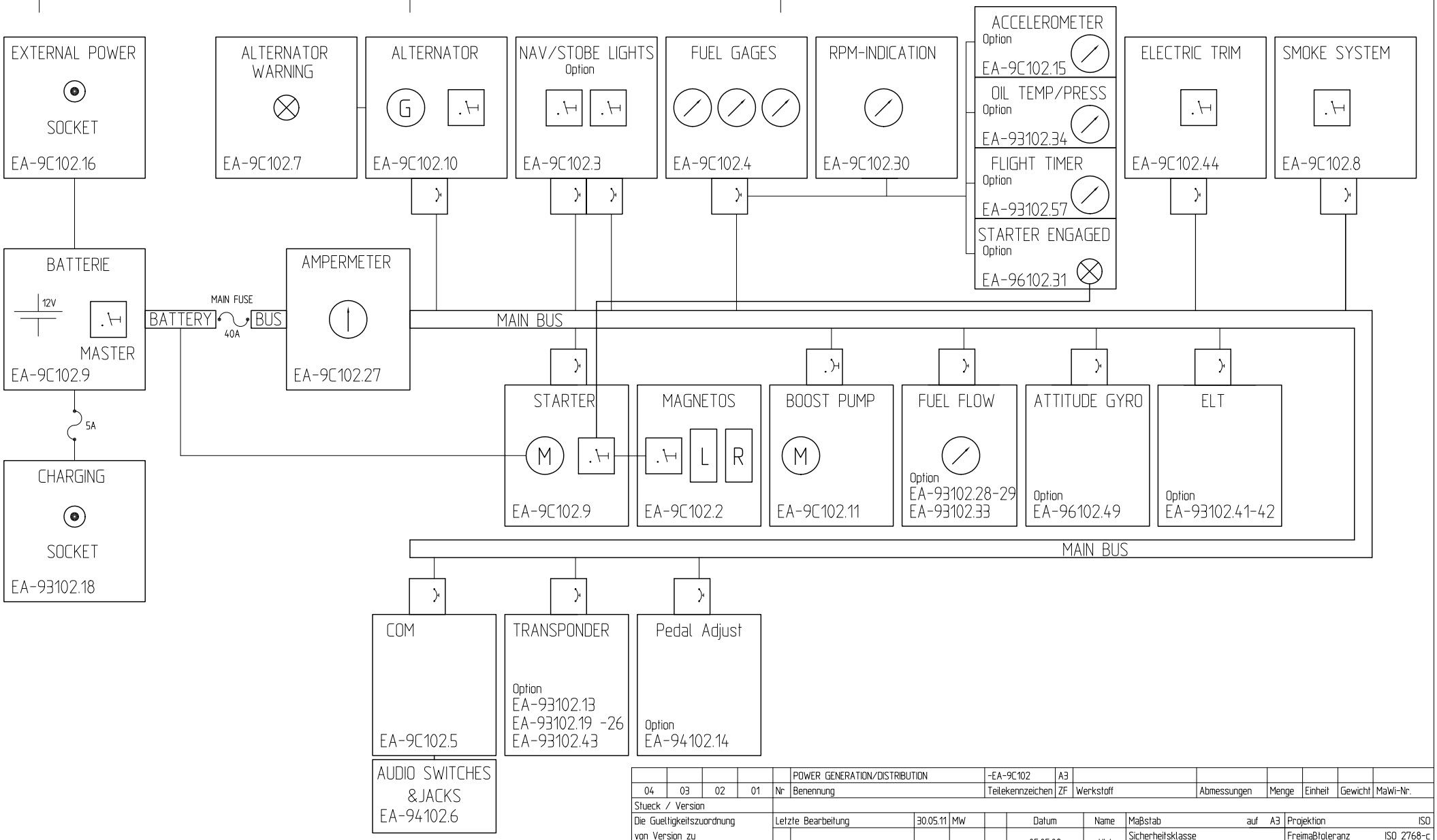
Charts

N O T E

Drawings and corresponding equipment are generally introduced with serial number SC001 or from the serial number given behind the drawing. Check the individual installation.

Table of Contents

EA-9C102.16	External Power (up to SN SC002)
EA-9C102.16C	External Power (from SN SC003)
EA-93102.18A	Batterie Charger System
EA-93102.20A	Transponder TRT800-H
EA-93102.22	Transponder BXP6401
EA-93102.26	Transponder ATC4401
EA-9C102.27	Ampere Indication (up to SN SC002)
EA-9C102.27A	Ampere Indication (SN SC003 thru SC019 and SC022)
EA-9C102.27B	Ampere Indication (from SN SC020 exc. SC022)
EA-93102.28	Fuel Flow EDM700
EA-93102.29	Fuel Flow EDM800
EA-9C102.30	RPM Indication (up to SN SC005)
EA-9C102.30B	RPM Indication (from SN SC006)
EA-96102.31A	Starter Engaged Light
EA-93102.33	Fuel Flow FS-450
EA-93102.34	Oil Press/Temp Indication
EA-9D102.34A	Oil Temp Press (up to SN SC059)
EA-9D102.34B	Oil Temp Press (from SN SC060)
EA-93102.41A	ELT Pointer 3000
EA-93102.42	ARTEX ME 406 ELT (up to SN SC027)
EA-9D102.42A	ARTEX ME 406 ELT (from SN SC028 thru SC059)
EA-9D102.42B	ARTEX ME 406 ELT (from SN SC060)
EA-93102.43	Transponder BXP-6401-x & Enc
EA-9C102.44A	Electric Trim System
EA-96102.49	RC Allen RCA2600
EA-96102.49A	RC Allen RCA2610
EA-96102.52 Sheet 1	Digital Indication MVP-50P
EA-96102.52 Sheet 2	Digital Indication MVP-50P
EA-9C102.56	12 VDC Outlet
EA-9C102.58	EGT & CHT Indication
EA-9D102.58A	EGT & CHT Indication
EA-93102.59	Flight Timer
EA-9C102.69	ELT KANNAD 406 AF
EA-9C102.78	AvMap EKP V Cradle
EA-9C102.79	TT-2X XPDR
EA-9C102.80	TY91 COM R/T



POWER GENERATION / DISTRIBUTION

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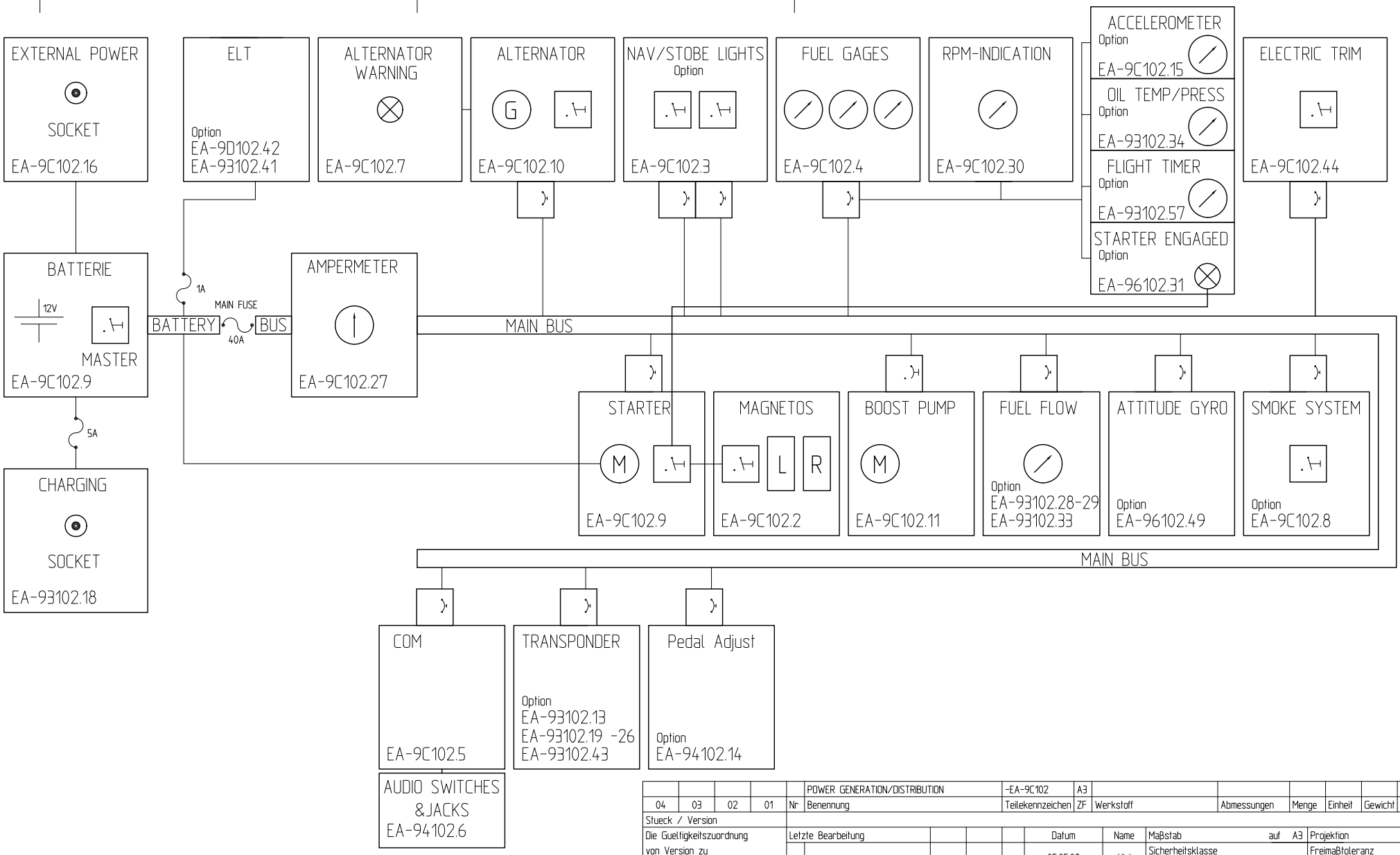
Stueck / Version																	
Die Gueltigkeitszuordnung				Letzte Bearbeitung			30.05.11	MW		Datum	Name	Maßstab	auf A3	Projektion		ISO	
von Version zu									gez.	05.05.08	HW	Sicherheitsklasse		Freimaßtoleranz		ISO 2768-c	
Flugzeugbaureihe												Oberfl.-Schutz		Oberflächengüte			
ist der Bauakte bzw.									gepr.			EXTRA 300/SC					
dem jeweiligen Fertigungsauftrag												POWER GEN/DISTRIBUTION					
zu entnehmen.									gepr.								
Zuordnung links/rechts wird mit												EA-9C102					
"/" in allen Feldern angegeben																	
04																	
03																	
02				B	ÄM-300-09-28		12.02.10	MW									
01	Basisflugzeug			A	ÄM-300-09-13		05.06.09	HW									
Ver.	Bezeichnung			Ausg.	Änderungsmitteilung Nr.		Datum	Name									

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Blatt 1 von 1

Zeichenfeld A3: 287mm x 410mm

EDV-Kennung EA3C0903



POWER GENERATION / DISTRIBUTION

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Stueck / Version																	
Die Gueltigkeitszuordnung				Letzte Bearbeitung					Datum	Name	Maßstab		auf A3	Projektion		ISO	
von Version zu								gez.	05.05.08	HW	Sicherheitsklasse			Freimaßtoleranz		ISO 2768-c	
Flugzeugbaureihe											Oberfl.-Schutz			Oberflächengüte			
ist der Bauakte bzw.								gepr.			EXTRA 300/SC						
dem jeweiligen Fertigungsauftrag											POWER GEN/DISTRIBUTION						
zu entnehmen.								gepr.			EA-9C102			C			
Zuordnung links/rechts wird mit														Blatt 1 von 1			
"/" in allen Feldern angegeben																	
04											EXTRA						
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02				B	ÄM-300-09-28		12.02.10	MW			46569 Hünxe, Germany						
01	Basisflugzeug			A	ÄM-300-09-13		05.06.09	HW			Zeichenfeld A3: 287mm x 410mm						
Ver.	Bezeichnung			Ausg.	Änderungsmitteilung Nr.		Datum	Name									

EDV-Kennung EA3C0903

EXTERNAL POWER

SOCKET

EA-9C102.16

ELT

Option
EA-9D102.42
EA-93102.41

ALTERNATOR WARNING

EA-9C102.7

ALTERNATOR

G

EA-9C102.10

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Option

EA-9C102.3

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EA-9C102.4

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EA-9C102.30

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Option
EA-9C102.15

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EA-93102.34

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ELECTRIC TRIM

EA-9C102.44

BATTERIE

12V

MASTER

EA-9C102.9

1A

MAIN FUSE

BATTERY

40A

BUS

AMPERMETER

EA-9C102.27

MAIN BUS

5A

CHARGING

SOCKET

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STARTER

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MAGNETOS

L

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BOOST PUMP

M

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FUEL FLOW

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EA-93102.33

ATTITUDE GYRO

Option
EA-96102.49

SMOKE SYSTEM

Option
EA-9C102.8

MAIN BUS

COM

EA-9C102.5

AUDIO SWITCHES
&JACKS
EA-94102.6

TRANSPONDER

Option
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EA-93102.19 -26
EA-93102.43

Pedal Adjust

Option
EA-94102.14

POWER GENERATION / DISTRIBUTION

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Stueck / Version															
Die Gueltigkeitszuordnung				Letzte Bearbeitung					Datum	Name	Maßstab	auf A3	Projektion		ISO
von Version zu								gez.	05.05.08	HW	Sicherheitsklasse		Freimaßtoleranz		ISO 2768-c
Flugzeugbaureihe											Oberfl.-Schutz		Oberflächengüte		
ist der Bauakte bzw.								gepr.			EXTRA 300/SC				
dem jeweiligen Fertigungsauftrag											POWER GEN/DISTRIBUTION				
zu entnehmen.								gepr.							
Zuordnung links/rechts wird mit															
"/" in allen Feldern angegeben															
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03				C	ÄM-300-11-26	05.09.11	MW								
02				B	ÄM-300-09-28	12.02.10	MW						Blatt 1 von 1		
01	Basisflugzeug			A	ÄM-300-09-13	05.06.09	HW								
Ver.	Bezeichnung			Ausg.	Änderungsmitteilung Nr.	Datum	Name				Zeichenfeld A3: 287mm x 410mm				

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46569 Hünxe, Germany

EDV-Kennung EA3C0903

EXTERNAL POWER

SOCKET

EA-9C102.16

ELT

Option
EA-9D102.42
EA-93102.41

ALTERNATOR WARNING

EA-9C102.7

ALTERNATOR

EA-9C102.10

STROBE LIGHTS

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EA-9C102.3

FUEL GAGES

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ACCELEROMETER

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EA-9C102.15

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EA-93102.34
EA-9D102.34

FLIGHT TIMER

Option

EA-93102.57

STARTER ENGAGED

Option

EA-96102.31

ELECTRIC TRIM

EA-9C102.44

BATTERIE

12V

MASTER

EA-9C102.9

1A

MAIN FUSE

BATTERY

40A

BUS

AMPERMETER

EA-9C102.27

MAIN BUS

5A

CHARGING

SOCKET

EA-93102.18

STARTER

M

EA-9C102.9

MAGNETOS

L

R

EA-9C102.2

BOOST PUMP

M

EA-9C102.11

FUEL FLOW

Option
EA-93102.28-29
EA-93102.33

ATTITUDE GYRO

Option
EA-96102.49

SMOKE SYSTEM

Option
EA-9C102.8

MAIN BUS

COM

EA-9C102.5

AUDIO SWITCHES &JACKS

EA-94102.6

TRANSPONDER

Option
EA-93102.13
EA-93102.19, -20
EA-93102.26,-43

Pedal Adjust

Option
EA-94102.14

POWER GENERATION / DISTRIBUTION

					POWER GENERATION/DISTRIBUTION			-EA-9C102	A3							
04	03	02	01	Nr	Benennung			Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.
Stueck / Version																
Die Gueltigkeitszuordnung				Letzte Bearbeitung					Datum	Name	Maßstab	auf A3		Projektion		ISO
von Version zu								gez.	05.05.08	HW	Sicherheitsklasse			Freimaßtoleranz		ISO 2768-c
Flugzeugbaureihe											Oberfl.-Schutz			Oberflächengüte		
ist der Bauakte bzw.								gepr.			EXTRA 300/SC					
dem jeweiligen Fertigungsauftrag											POWER GEN/DISTRIBUTION					
zu entnehmen.								gepr.								
Zuordnung links/rechts wird mit																
"/" in allen Feldern angegeben				E	ÄM-300-14-05	14.03.14	MW				EA-9C102		E			
04				D	ÄM-300-13-10	02.09.13	MW	EXTRA								
03				C	ÄM-300-11-26	05.09.11	MW									
02				B	ÄM-300-09-28	12.02.10	MW	Schwarze Heide 21					Blatt 1 von 1			
01	Basisflugzeug			A	ÄM-300-09-13	05.06.09	HW	46569 Hünxe, Germany			Zeichenfeld A3: 287mm x 410mm					
Ver.	Bezeichnung			Ausg.	Änderungsmitteilung Nr.	Datum	Name									

EDV-Kennung EA3C0903

EXTERNAL POWER

SOCKET

EA-9C102.16

ELT

Option
EA-9D102.42
EA-93102.41

ALTERNATOR WARNING

EA-9C102.7

ALTERNATOR

G

EA-9C102.10

STROBE LIGHTS
Option

EA-9C102.3

FUEL GAUGES

EA-9C102.4

RPM-INDICATION

EA-9C102.30

ACCELEROMETER
Option
EA-9C102.15

OIL TEMP/PRESS
EA-93102.34
EA-9D102.34

FLIGHT TIMER
Option
EA-93102.57

STARTER ENGAGED
Option
EA-96102.31

ENGINE INDI-CATION DISPLAY

Alternative
EA-9C102.52 (1)

BATTERY

12V

MASTER

EA-9C102.9

1A

MAIN FUSE

BATTERY — 40A — BUS

AMPEREMETER

EA-9C102.27

MAIN BUS

5A

CHARGING

SOCKET

EA-93102.18

STARTER

M

EA-9C102.9

MAGNETOS

L R

EA-9C102.2

BOOST PUMP

M

EA-9C102.11

FUEL FLOW

Option
EA-93102.28-29
EA-93102.33

ATTITUDE GYRO

Option
EA-96102.49

SMOKE SYSTEM

Option
EA-9C102.8

MAIN BUS

COM

EA-9C102.5
EA-9C102.80

AUDIO SWITCHES &JACKS
EA-94102.6

TRANSPONDER

Option
EA-93102.13
EA-93102.19, -20
EA-93102.26,-43
EA-9C102.79

PEDAL ADJUST

Option
EA-94102.14

ELECTRIC TRIM

Option
EA-9C102.44

12 VDC OUTLET

Option
EA-9C102.56

(1) Conventional engine instrument package, optionally replaced by alternative EA-9C102.52

POWER GENERATION / DISTRIBUTION

					POWER GENERATION/DISTRIBUTION		-EA-9C102	A3								
04	03	02	01	Nr	Benennung		Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.	
Stueck / Version																
Die Gueltigkeitszuordnung				Letzte Bearbeitung												
von Version zu																
Flugzeugbaureihe																
ist der Bauakte bzw.																
dem jeweiligen Fertigungsauftrag																
zu entnehmen.				G	ÄM-300-19-02 & -03	25.06.21	MW									
Zuordnung links/rechts wird mit				F	ÄM-300-15-04	27.07.16	MW									
"/" in allen Feldern angegeben				E	ÄM-300-14-05	14.03.14	MW									
04				D	ÄM-300-13-10	02.09.13	MW									
03				C	ÄM-300-11-26	05.09.11	MW									
02				B	ÄM-300-09-28	12.02.10	MW									
01	Basisflugzeug			A	ÄM-300-09-13	05.06.09	HW									
Ver.	Bezeichnung			Ausg.	Änderungsmitteilung Nr.	Datum	Name									

	Datum	Name	Maßstab auf A3 / Projektion ISO
gez.	05.05.08	HW	Sicherheitsklasse / Freimaßtoleranz ISO 2768-c
			Oberfl.-Schutz / Oberflächengüte
gepr.			
gepr.			

EXTRA

Schwarze Heide 21
46569 Hünxe, Germany

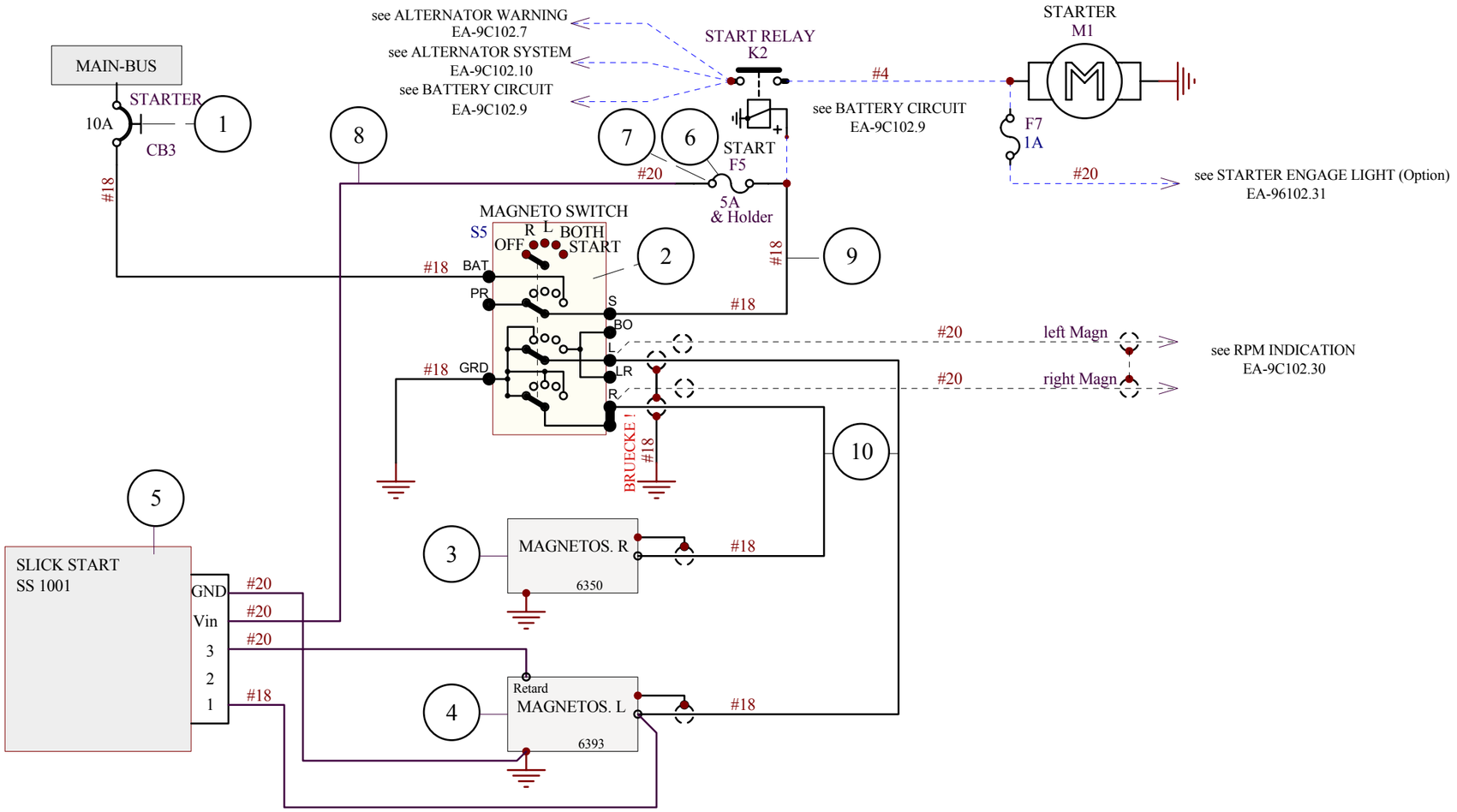
EXTRA 300/SC
POWER GEN/DISTRIBUTION

EA-9C102 | G

Blatt 1 von 1

Zeichenfeld A3: 287mm x 410mm

EDV-Kennung EA3C0903



			X	10	WIRE 1 x AWG 18 SHIELDED	MIL-C-27500-18TG1				.	mtr		02199
			X	9	WIRE AWG 18	MIL-W-22759/16-18				.	mtr		00776
			X	8	WIRE AWG 20	MIL-W-22759/16-20				.	mtr		.
			1	7	FUSEHOLDER	.							.
			1	6	FUSE 5A	.						.	.
			1	5	SLICK START	SS 1001				.	.		.
			1	4	MAGNETO LEFT	6393				.			
			1	3	MAGNETO RIGHT	6350							
			1	2	MAGNETO SWITCH	10-357200-1						.	00185
			1	1	CIRCUIT BREAKER 10A	7277-2-10						.	31505
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
.	.	.	.
.	.	.	.
.	.	.	.

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

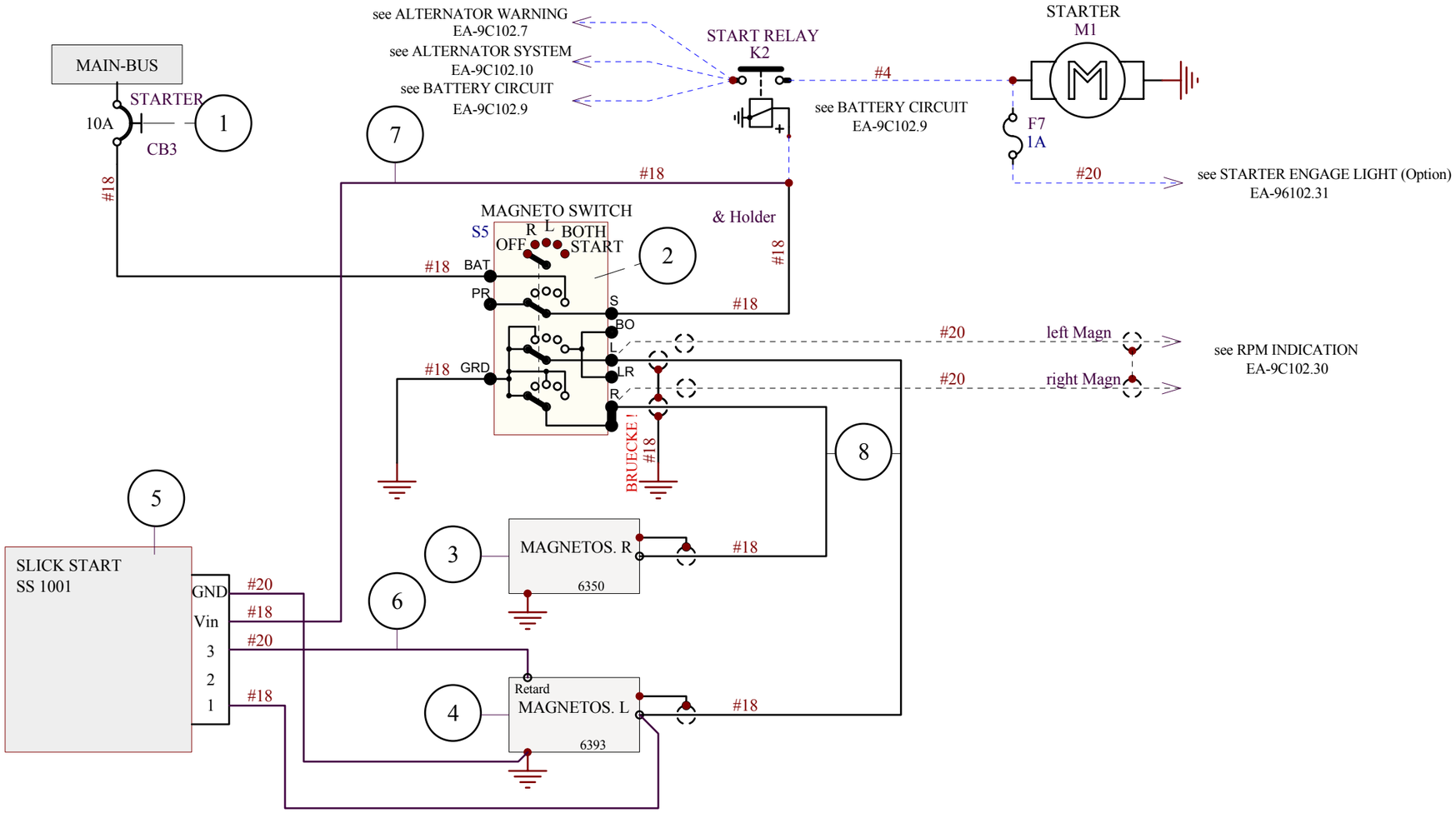
MAGNETO SYSTEM

EA-9C102.2

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0907**



			X	8	WIRE 1 x AWG 18 SHIELDED	MIL-C-27500-18TG				.	mtr		02199
			X	7	WIRE AWG 18	MIL-W-22759/16-18					mtr		00776
			X	6	WIRE AWG 20	MIL-W-22759/16-20					mtr	.	
			1	5	SLICK START	SS 1001				.	.		.
			1	4	MAGNETO LEFT	6393				.			
			1	3	MAGNETO RIGHT	6350							
			1	2	MAGNETO SWITCH	10-357200-1						.	00185
			1	1	CIRCUIT BREAKER 10A	7277-2-10						.	31505
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
.	.	.	.
.	.	.	.
A	ab SC006	11.07.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

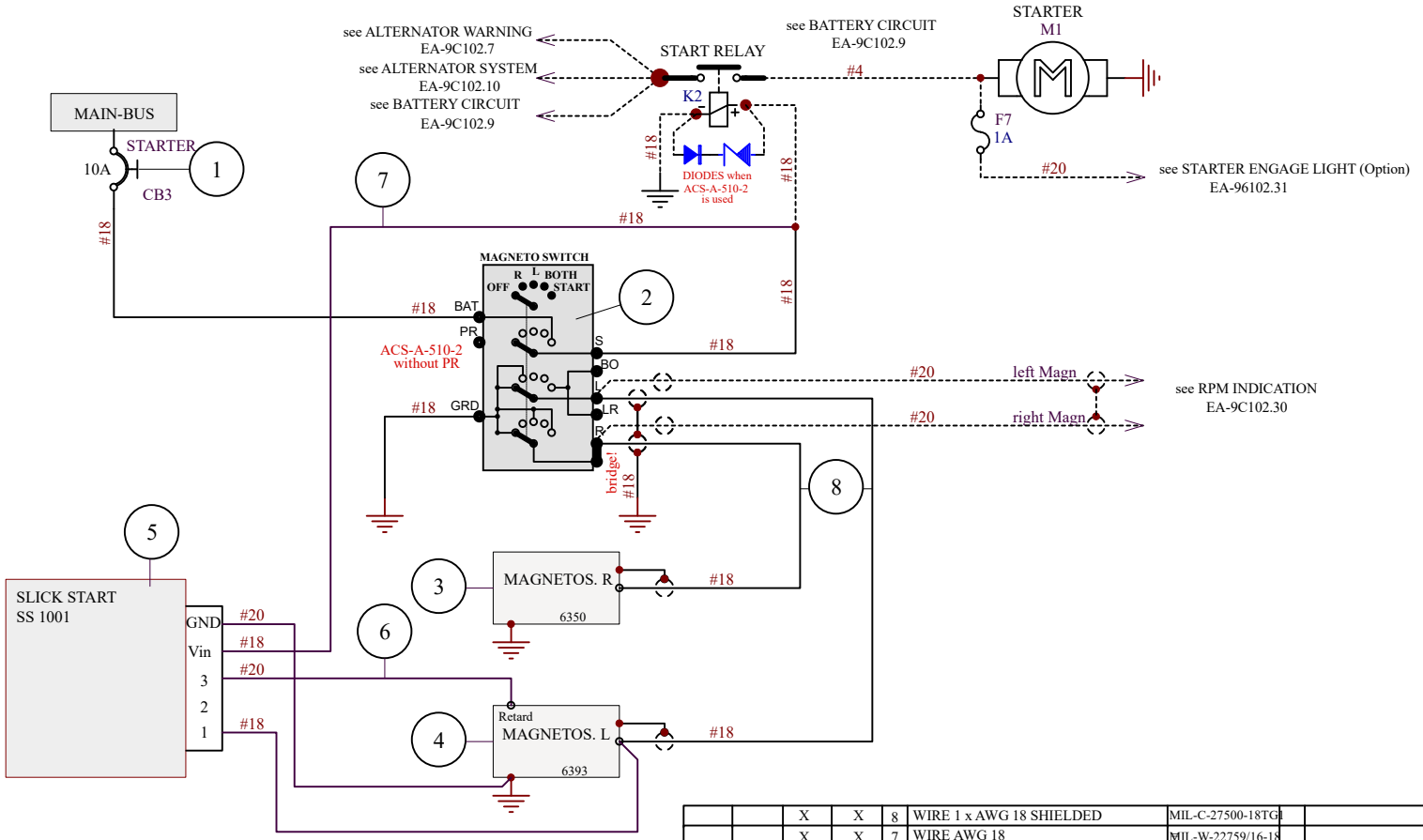
MAGNETO SYSTEM

EA-9C102.2

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0907**



		X	X	8	WIRE 1 x AWG 18 SHIELDED	MIL-C-27500-18TG				mtr			02199
		X	X	7	WIRE AWG 18	MIL-W-22759/16-18				mtr			00776
		X	X	6	WIRE AWG 20	MIL-W-22759/16-20				mtr			00775
		1	1	5	SLICK START	SS 1001							32598
		1	1	4	MAGNETO LEFT	6393							32860
		1	1	3	MAGNETO RIGHT	6350							02377
		1		2	MAGNETO SWITCH	A-510-2		Fa. ASC					35595
			1	2	MAGNETO SWITCH	10-357200-1							00185
		1	1	1	CIRCUIT BREAKER 10A	7277-2-10							31505
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	with MAG. SWITCH A-510-2
01	with MAG. SWITCH 10-357200-1

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
B	ÄM 300-21-05	26.07.21	HW
A	ab SC006	11.07.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

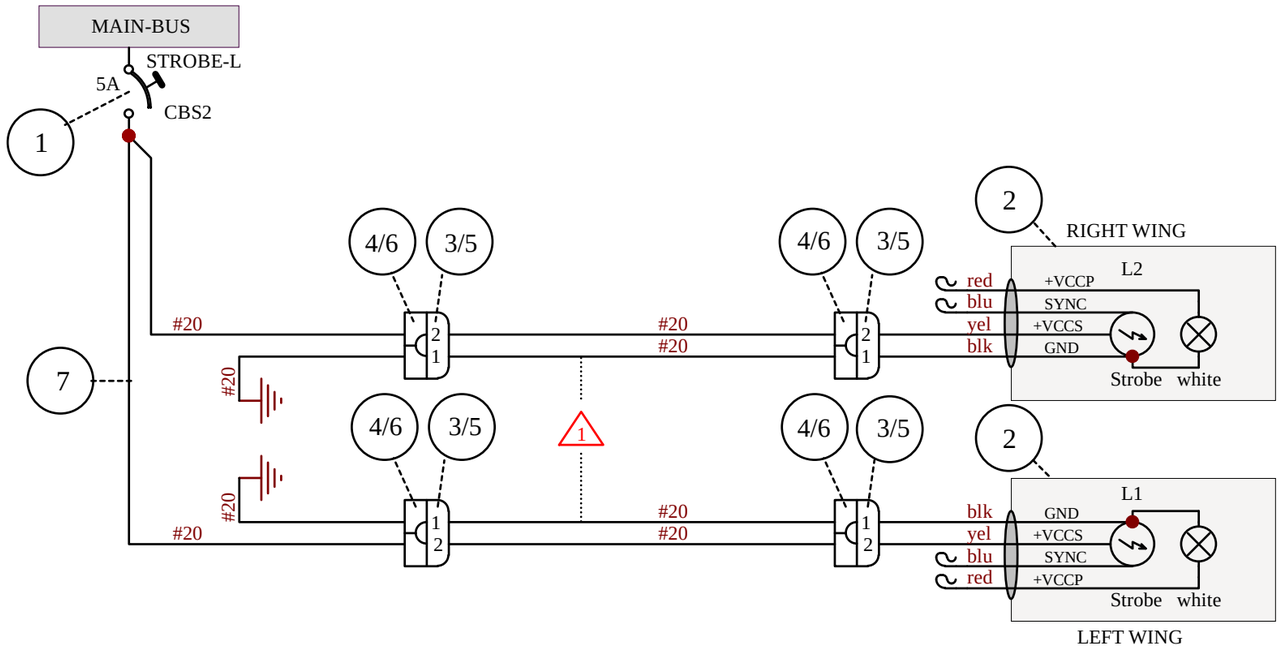
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
MAGNETO SYSTEM

EA-9C102.2	B
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0907b**



			X	7	WIRE AWG 20	MIL-W-22759/16-20				mtr		02199
			4	6	BUCHSEN GEHÄUSE 2 POLIG	180923-0	Fa. AMP					00099
			4	5	PIN GEHÄUSE 2 POLIG	180924-0	Fa. AMP					00103
			8	4	FLACHSTECKER BUCHSE 6,3mm	0042282-2	Fa. AMP					00093
			8	3	FLACHSTECKER PIN 6,3mm	42565-2	Fa. AMP					00097
			2	2	LAMP ASSY	AVE-POSW-54G	AVEO Engineering					34217
			1	1	CIRCUIT BREAKER SWITCH 5A	W31X2M1G-5						02700
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM-300-13-10	08.08.13	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

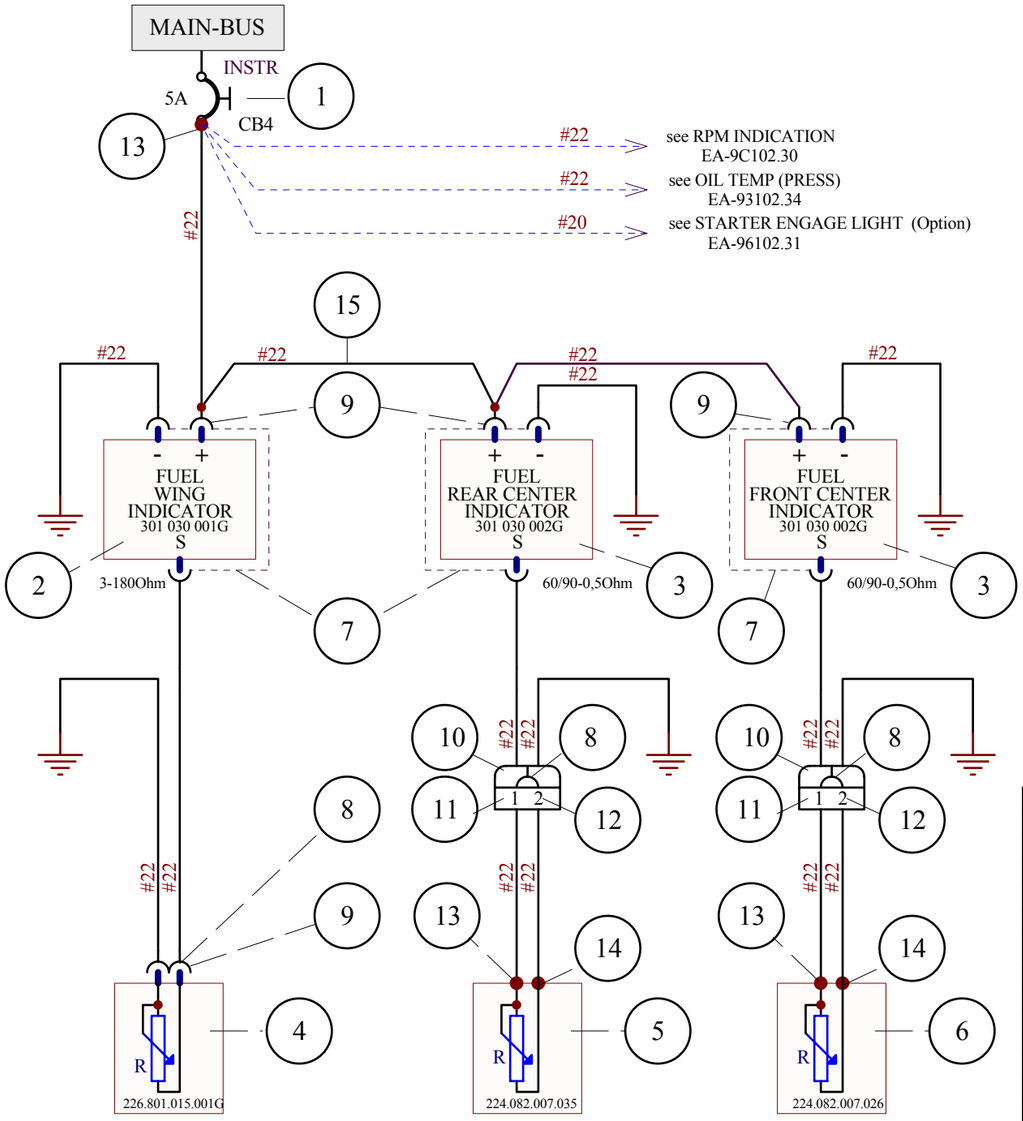
STROBE LIGHT SYSTEM

EA-9C102.3	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0910**

1 Refer to EA-1C109.5



1 Kabel #22 an Pos. 9 & 12 doppelt umgeschlagen quetschen

			X	15	KABEL AWG 22	MIL-W-22759/16-22				4	mtr		01694
			2	14	RINGÖSE ROT 5mm	130008							02198
			3	13	RINGÖSE ROT 4mm	031890							01417
			4	12	FLACHSTECKER PIN 6,3mm	1 42565-2							00097
			2	11	PIN GEHÄUSE 2 POLIG	180924-0							00103
			2	10	BUCHSEN GEHÄUSE 2 POLIG	180923-0							00099
			11	9	FLACHSTECKER BUCHSE 6,3mm	1 0042282-2							00093
			3	8	BUCHSEN GEHÄUSE 1 POLIG	925324-2							00098
			3	7	BUCHSEN GEHÄUSE 3 POLIG	X39-000-000-002							00386
			1	6	FRONT CENTER SENSOR	224.082.007.026							
			1	5	REAR CENTER SENSOR	224.082.007.035							
			1	4	WING FUEL SENSOR	226.801.015.001G							FM4006
			2	3	FUSELAGE FUEL INDICATOR	301 030 002G							00390
			1	2	WING FUEL INDICATOR	301 030 001G							200171
			1	1	CIRCUIT BREAKER 5A	7277-2-5							31506
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

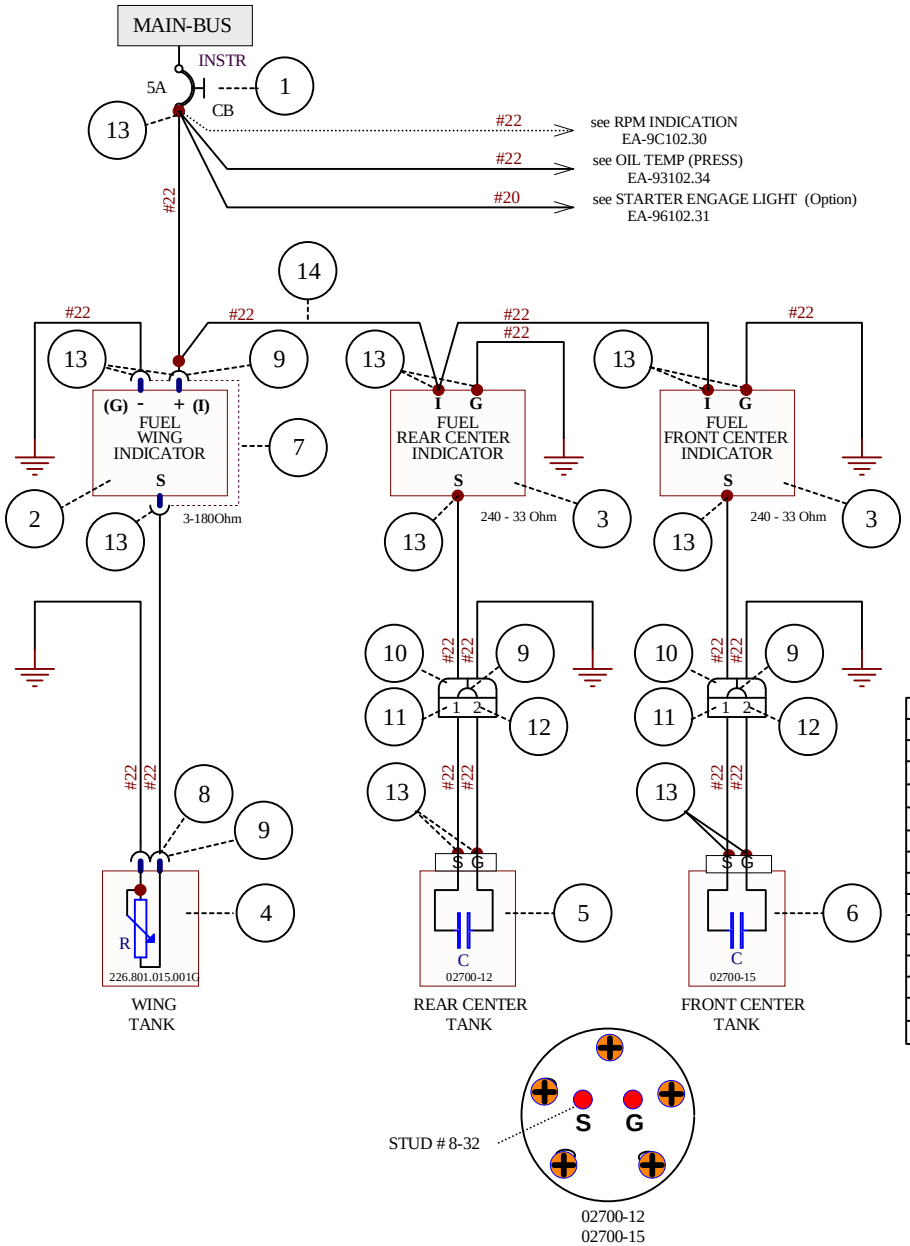
FUEL GAGES

EA-9C102.4

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0908**



OPTION 02 = FUEL WING INDICATOR Fa: VDO
OPTION 01 = FUEL WING INDICATOR FA. DATCON

1 Kabel #22 an Pos. 9 & 12 doppelt umgeschlagen quetschen

		X	X	14	KABEL AWG 22	MIL-W-22759/16-22				4	mtr		01694
		11	14	13	RINGÖSE ROT 4mm	031890							01417
		4	4	12	FLACHSTECKER PIN 6,3mm	42565-2	1						00097
		2	2	11	PIN GEHÄUSE 2 POLIG	180924-0							00103
		2	2	10	BUCHSEN GEHÄUSE 2 POLIG	180923-0							00099
		9	6	9	FLACHSTECKER BUCHSE 6,3mm	0042282-2	1						00093
		2	2	8	BUCHSEN GEHÄUSE 1 POLIG	925324-2							00098
		1		7	BUCHSEN GEHÄUSE 3 POLIG	X39-000-000-002							00386
		1	1	6	FRONT CENTER SENSOR	02700-15		Fa. DATCON					33410
		1	1	5	REAR CENTER SENSOR	02700-12		Fa. DATCON					33409
		1	1	4	WING FUEL SENSOR	226.801.015.001G							FM4006
		2	2	3	FUSELAGE FUEL INDICATOR	100176							33411
			1	2	WING FUEL INDICATOR DATCON	100726		Fa. DATCON					33412
		1		2	WING FUEL INDICATOR VDO	301 030 001G							200171
		1	1	1	CIRCUIT BREAKER 5A	7277-2-5							31506
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM-300-09-19	12.10.2010	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

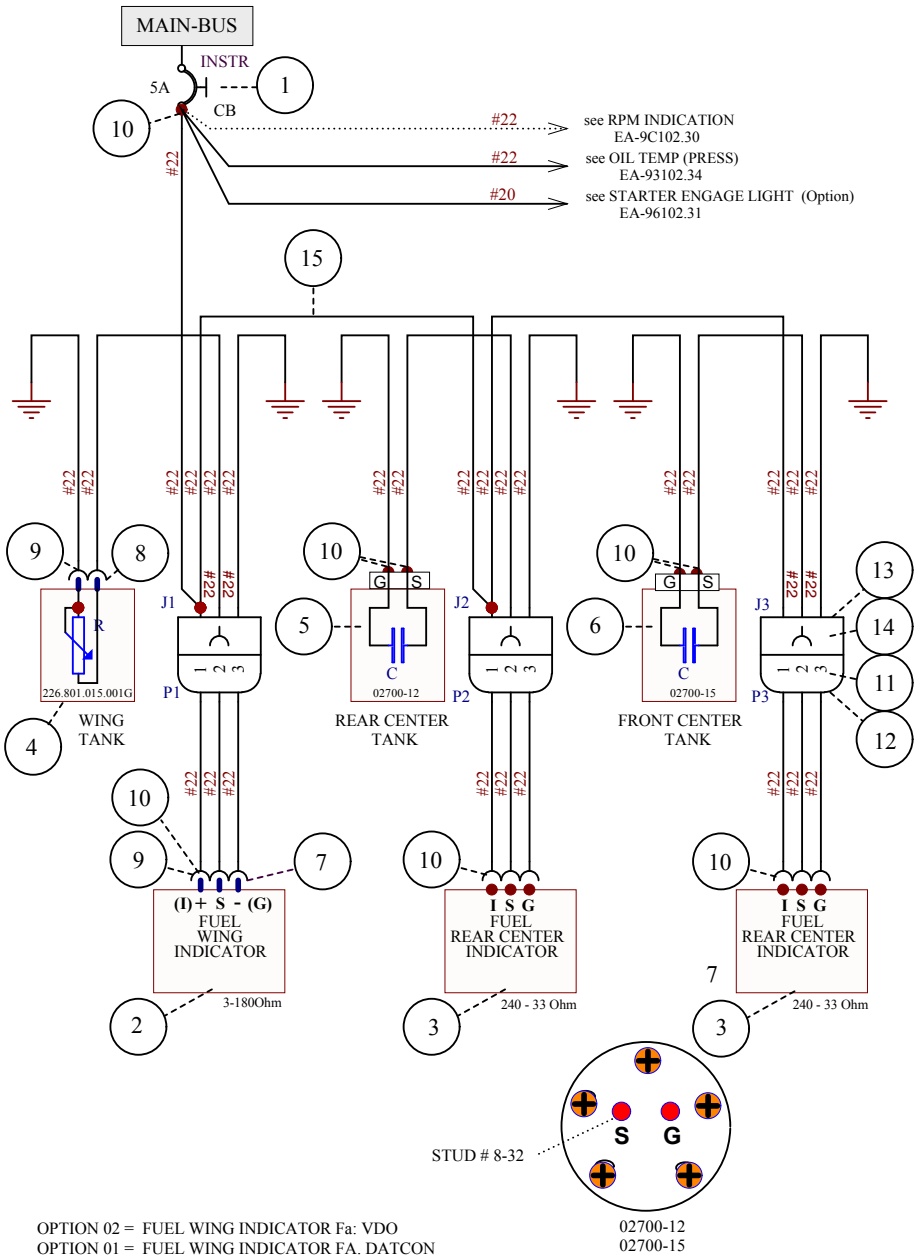
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
FUEL GAGES

EA-9C102.4	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0908**



1 Kabel #22 an Pos. 9 & 12 doppelt umgeschlagen quetschen

	X	X	15	KABEL AWG 22	MIL-W-22759/16-22				4	mtr		01694
	9	9	14	MATE-N-LOCK SOCKET	163557-2							FE4305
	3	3	13	MATE-N-LOCK HOUSING 3 SOCKET	1-0480303-0							FE4307
	3	3	12	MATE-N-LOCK HOUSING 3 PIN	1-0480305-0							FE4308
	9	9	11	MATE-N-LOCK PIN	163558-2							FE4306
	11	14	10	RINGÖSE ROT 4mm	031890							01417
	5	2	9	FLACHSTECKER BUCHSE 6,3mm	0042282-2	1						00093
	2	2	8	BUCHSEN GEHÄUSE 1 POLIG	925324-2							00098
	1		7	BUCHSEN GEHÄUSE 3 POLIG	X39-000-000-002							00386
	1	1	6	FRONT CENTER SENSOR	02700-15		Fa. DATCON					33410
	1	1	5	REAR CENTER SENSOR	02700-12		Fa. DATCON					33409
	1	1	4	WING FUEL SENSOR	226.801.015.001G							FM4006
	2	2	3	FUSELAGE FUEL INDICATOR	100176							33411
		1	2	WING FUEL INDICATOR DATCON	100726		Fa. DATCON					33412
	1		2	WING FUEL INDICATOR VDO	301 030 001G							200171
	1	1	1	CIRCUIT BREAKER 5A	7277-2-5							31506
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.	Änderung/Mod. Nr.	Datum	Name
B	ÄM-300-15-07	27.02.16	HW
A	ÄM-300-09-19	12.10.10	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

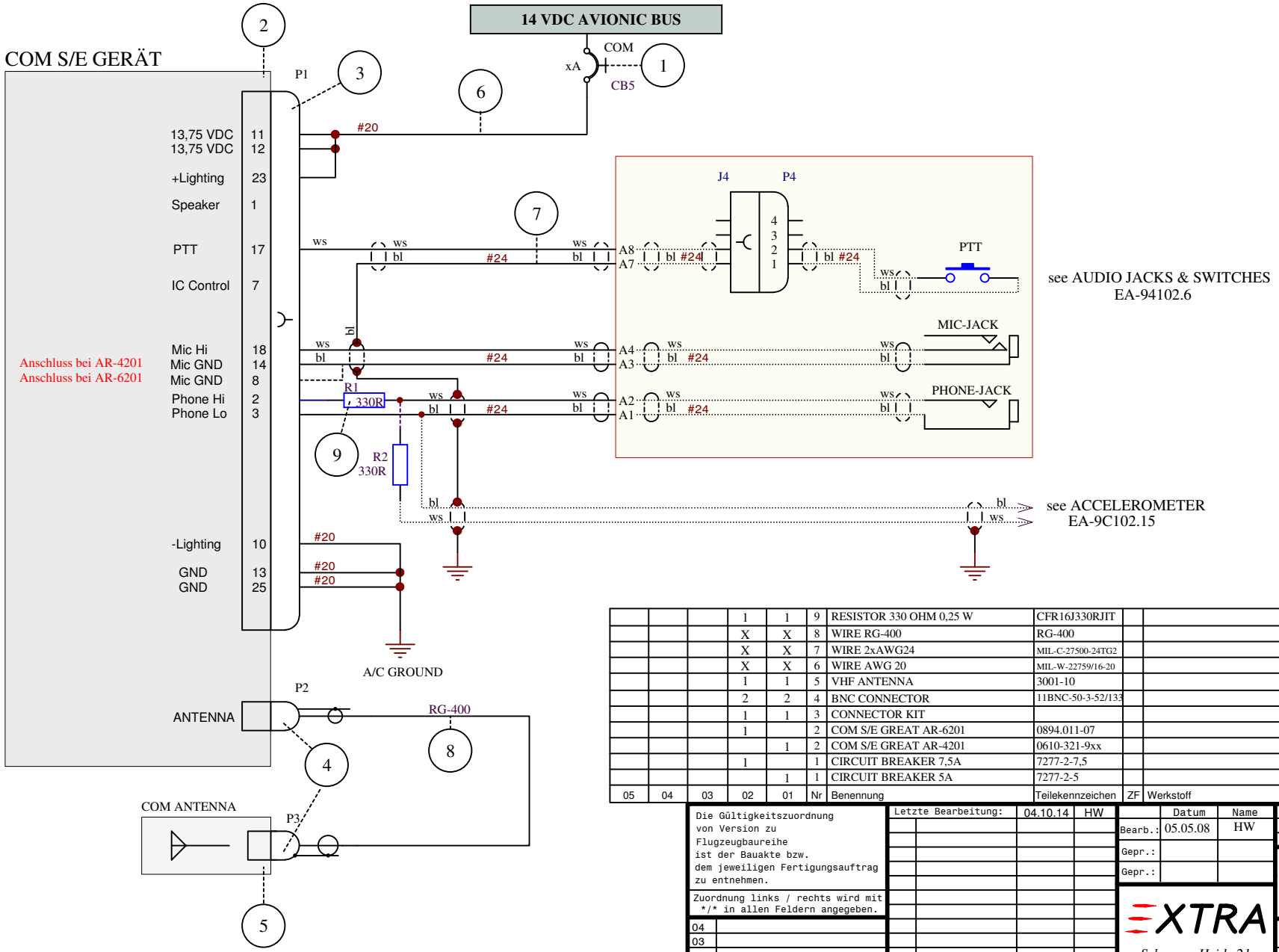
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
FUEL GAGES

EA-9C102.4	B
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: EA3C0908



			1	1	9	RESISTOR 330 OHM 0,25 W	CFR16J330RJIT								FE4286
			X	X	8	WIRE RG-400	RG-400						mtr		FE4111
			X	X	7	WIRE 2xAWG24	MIL-C-27500-24TG2						mtr		FE4006
			X	X	6	WIRE AWG 20	MIL-W-22759/16-20						mtr		00775
			1	1	5	VHF ANTENNA	3001-10								FE4254
			2	2	4	BNC CONNECTOR	11BNC-50-3-52/133								30705
			1	1	3	CONNECTOR KIT									in Pos. 2
			1		2	COM S/E GREAT AR-6201	0894.011-07								00652
				1	2	COM S/E GREAT AR-4201	0610-321-9xx								33041
			1		1	CIRCUIT BREAKER 7,5A	7277-2-7,5								32112
				1	1	CIRCUIT BREAKER 5A	7277-2-5								31506
05	04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.	

OPTION 02 = BECKER COM AR-6201
OPTION 01 = BECKER COM AR-4201

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Baukate bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung: 04.10.14 HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	AM-300-11-08	14.04.11	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

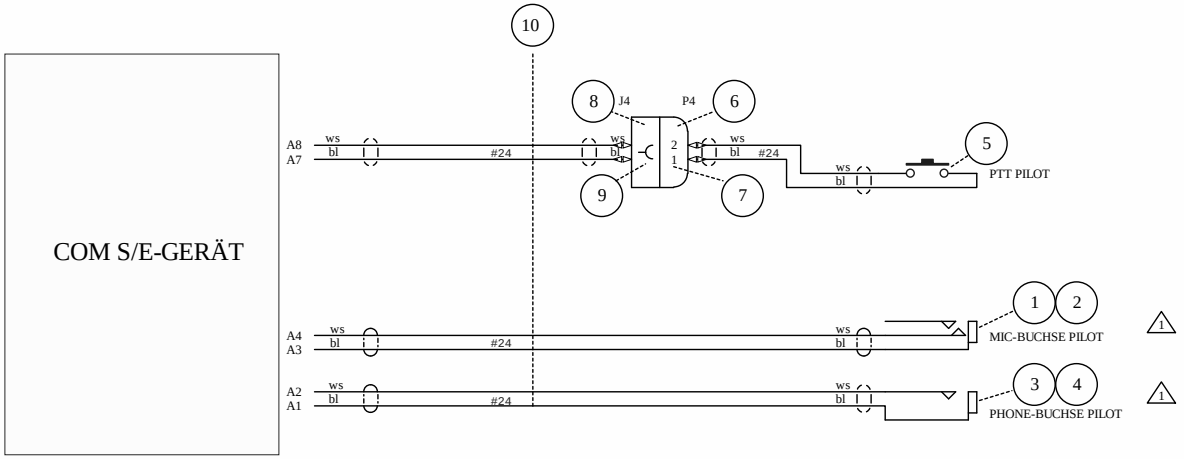
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
COM S/E GERÄT

EA-9C102.5	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0911a**



				X	10	WIRE 2xAWG24	MIL-C-27500-24TC2				=	mtr			FE4006
				2	9	BUCHSE	43030-0007				=				FE4079
				1	8	BUCHSENGEHÄUSE	43025-0200								FE4081
				2	7	PIN	43031-0007								FE4080
				1	6	PINGEHÄUSE	43020-0200								FE4082
				1	5	PUSH BUTTON	1174599								FE4301
				2	4	WASHER	04-00975								31382
				1	3	PHONE JACK	JJ-034								00195
				2	2	WASHER	04-00976								31381
				1	1	MIC JACK	JJ-033								00196
05	04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	15.02.06	HW
Gepr.:		
Gepr.:		

XTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
Sl.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/S
AUDIO SWITCHES & JACKS

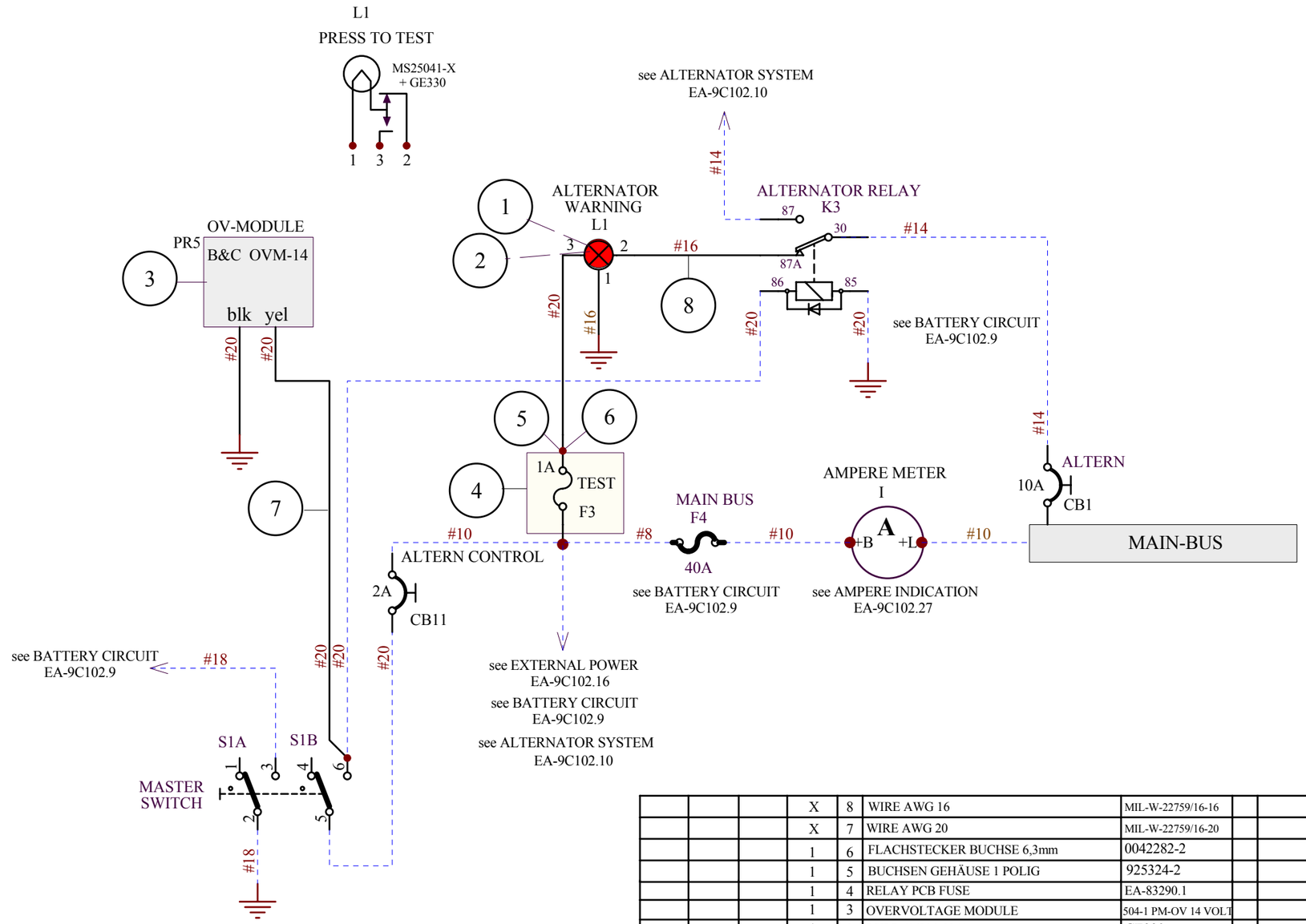
EA-94102.6

A3 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3S0915**

△1 Fuer alle Buchsen Isolationsscheiben benutzen



			X	8	WIRE AWG 16	MIL-W-22759/16-16				0,2	mtr		.
			X	7	WIRE AWG 20	MIL-W-22759/16-20				0,5	mtr		00775
			1	6	FLACHSTECKER BUCHSE 6,3mm	0042282-2							00093
			1	5	BUCHSEN GEHÄUSE 1 POLIG	925324-2							00098
			1	4	RELAY PCB FUSE	EA-83290.1							93243.02
			1	3	OVERVOLTAGE MODULE	504-1 PM-OV 14 VOLT							.
			1	2	BULB (14V 0,08A)	GE330							01569
			1	1	PRESS TO TEST INDICATOR (red)	MS25041-2						14	00140
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
.	.	.	.

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

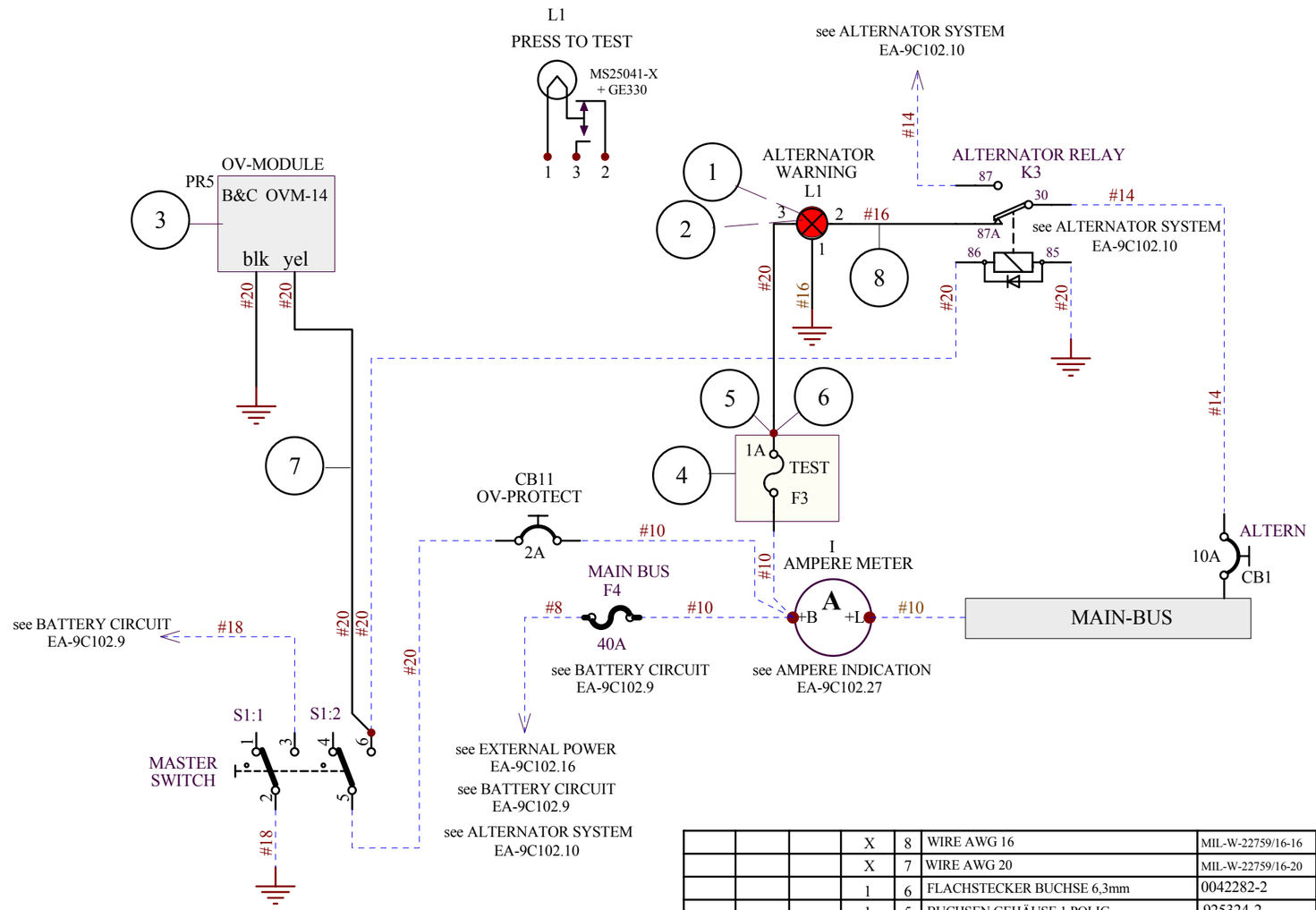
ALTERNATOR WARNING

EA-9C102.7

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0913**



			X	8	WIRE AWG 16	MIL-W-22759/16-16				0,2	mtr		.
			X	7	WIRE AWG 20	MIL-W-22759/16-20				0,5	mtr		00775
			1	6	FLACHSTECKER BUCHSE 6,3mm	0042282-2							00093
			1	5	BUCHSEN GEHÄUSE 1 POLIG	925324-2							00098
			1	4	RELAY PCB FUSE	EA-83290.1							93243.02
			1	3	OVERVOLTAGE MODULE	504-1 PM-OV 14 VOLT							.
			1	2	BULB (14V 0,08A)	GE330							01569
			1	1	PRESS TO TEST INDICATOR (red)	MS25041-2						14	00140
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

04				
03				
02				
01		A	ÄM-300-08-11	19.12.2008 HW
Ver.	Bezeichnung	Nr.:	Änderung/Mod. Nr.:	Datum Name

Letzte Bearbeitung: . . .

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EDV-Kennung: **EA3C0913a**

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

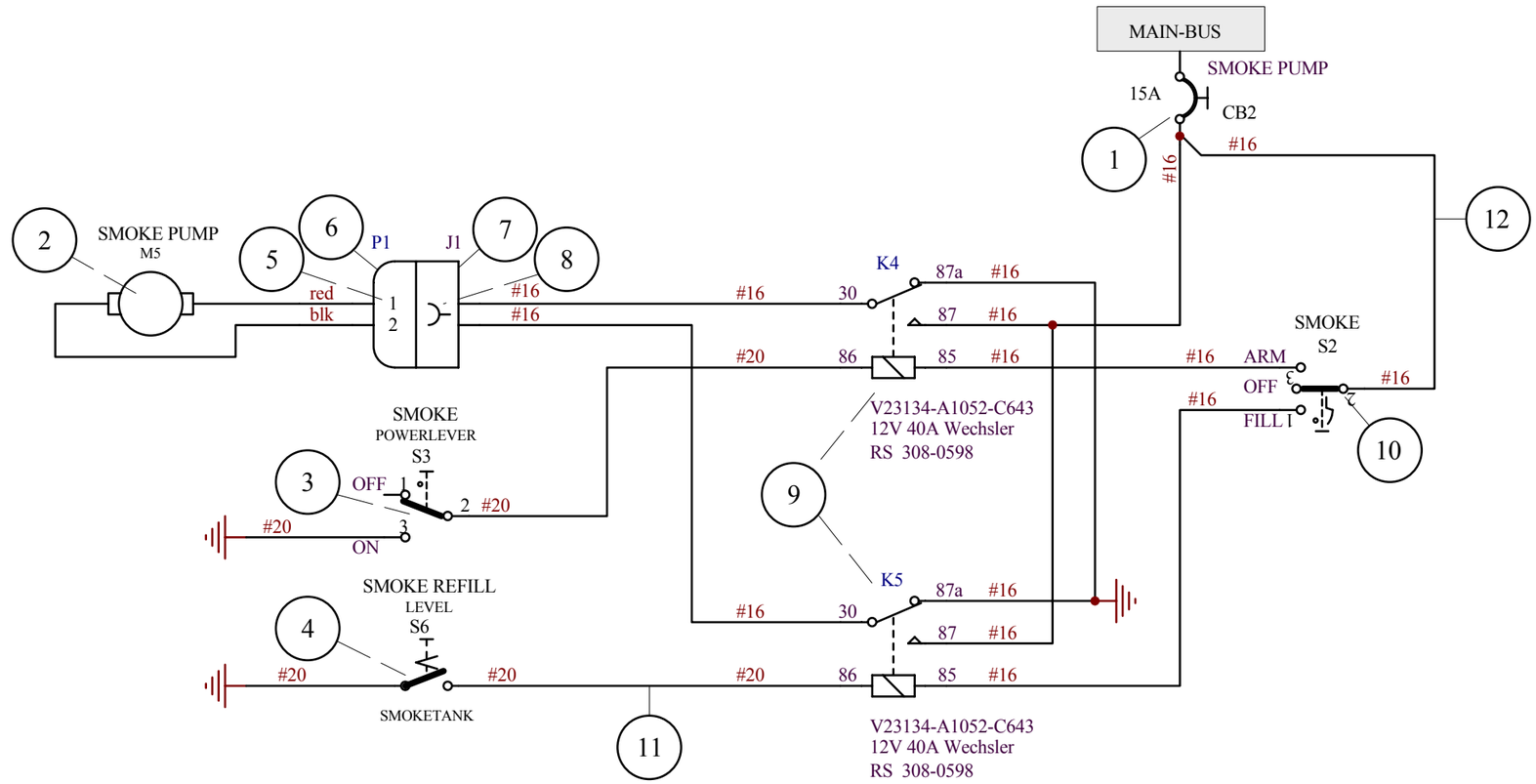
EA 300/SC

ALTERNATOR WARNING

EA-9C102.7

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.



			X	12	KABEL AWG 16	MIL-W-22759/16-16				3,2	mtr		
			X	11	KABEL AWG 20	MIL-W-22759/16-20				5,0	mtr		00775
			1	10	SCHALTER 1 POLIG ON-OFF-ON	07.1.1.15L							31615
			2	9	RELAY12V-40A-WECHSLER	V23134-A1052-C643							31614
			4	8	FLACHSTECKER BUCHSE 6,3mm	0042282-2							00093
			2	7	BUCHSEN GEHÄUSE 2 POLIG	180923-0							00099
			2	6	PIN GEHÄUSE 2 POLIG	180924-0							00103
			4	5	FLACHSTECKER PIN 6,3mm	42565-2							00097
			1	4	SCHWIMMERSCHALTER	331-017							00654
			1	3	WIPPENSCHALTER	700339							01432
			1	2	PUMPE SMOKE	UP3/OIL-12V							31634
			1	1	CIRCUIT BREAKER 15A	7277-2-15							00105
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

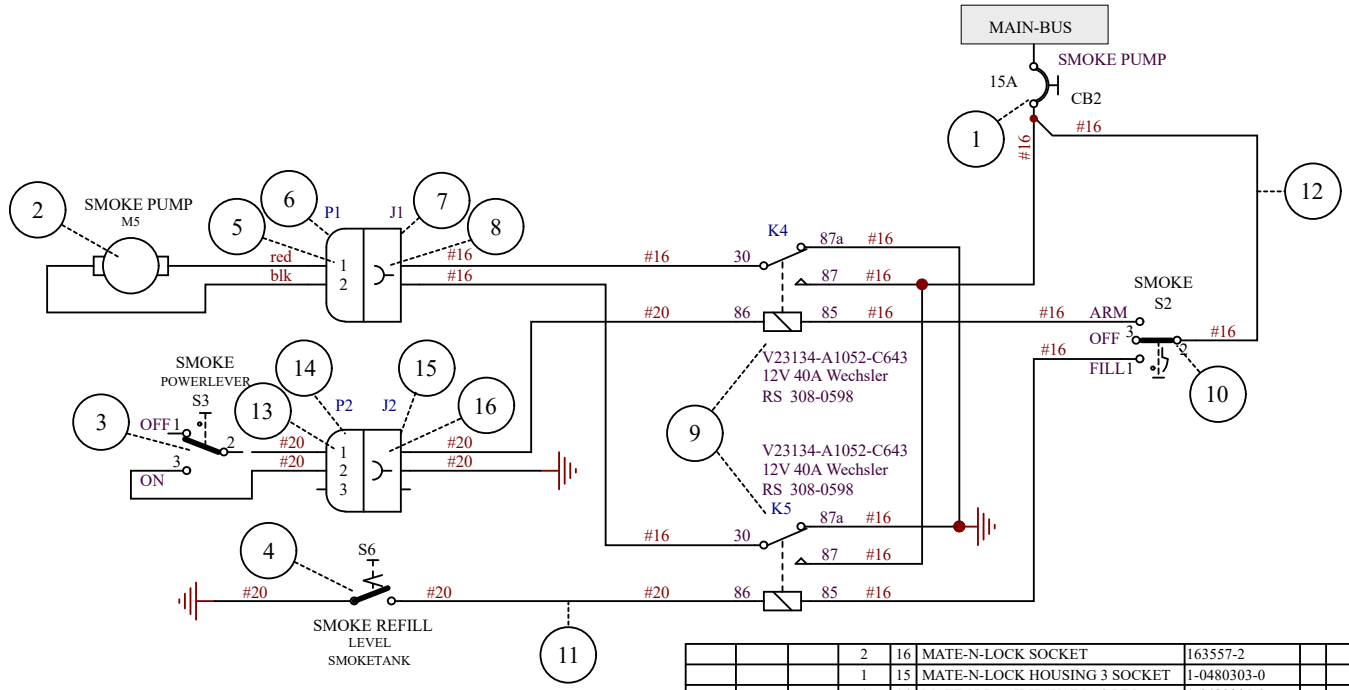
SMOKE SYSTEM

EA-9C102.8

A4 Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0905**



			2	16	MATE-N-LOCK SOCKET	163557-2							FE4305
			1	15	MATE-N-LOCK HOUSING 3 SOCKET	1-0480303-0							FE4307
			1	14	MATE-N-LOCK HOUSING 3 PIN	1-0480305-0							FE4308
			2	13	MATE-N-LOCK PIN	163558-2							FE4306
			X	12	KABEL AWG 16	MIL-W-22759/16-16				3,2	mtr		
			X	11	KABEL AWG 20	MIL-W-22759/16-20				5,0	mtr		00775
			1	10	SCHALTER 1 POLIG ON-OFF-ON	07.1.1.15L							31615
			2	9	RELAY12V-40A-WECHSLER	V23134-A1052-C643							31614
			4	8	FLACHSTECKER BUCHSE 6,3mm	0042282-2							00093
			2	7	BUCHSEN GEHÄUSE 2 POLIG	180923-0							00099
			2	6	PIN GEHÄUSE 2 POLIG	180924-0							00103
			4	5	FLACHSTECKER PIN 6,3mm	42565-2							00097
			1	4	SCHWIMMERSCHALTER	331-017							00654
			1	3	WIPPENSCHALTER	700339							01432
			1	2	PUMPE SMOKE	UP3/OIL-12V							31634
			1	1	CIRCUIT BREAKER 15A	7277-2-15							00105
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM-300-15-07	19.03.16	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

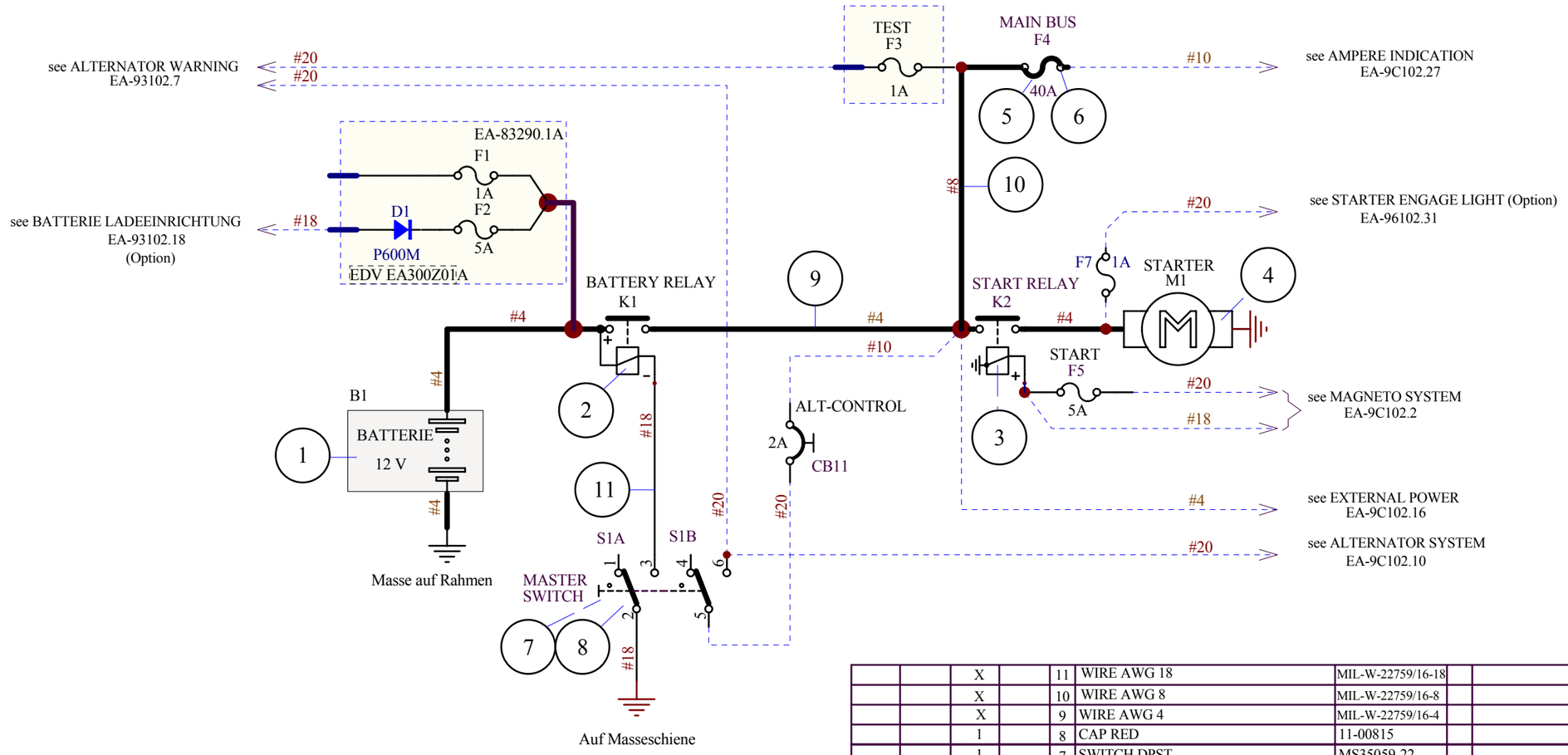
SMOKE SYSTEM

EA-9C102.8 | **A**

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0905a**



		X		11	WIRE AWG 18	MIL-W-22759/16-18				2,5	mtr		00776
		X		10	WIRE AWG 8	MIL-W-22759/16-8				0,4	mtr		FE00776
		X		9	WIRE AWG 4	MIL-W-22759/16-4				2,0	mtr		200005
		1		8	CAP RED	11-00815						.	31763
		1		7	SWITCH DPST	MS35059-22						.	01601
		1		6	FUSE 40A	02.00300							31664
		1		5	FUSEHOLDER	03.00360						.	31239
		1		4	STARTER	149-12LN				.			.
		1		3	POWER SOLENOID INT	22735				.			00114
		1		2	POWER SOLENOID CONT	111-226							00136
		1		1	BATTERY 12V	RG-25XC						.	03617
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

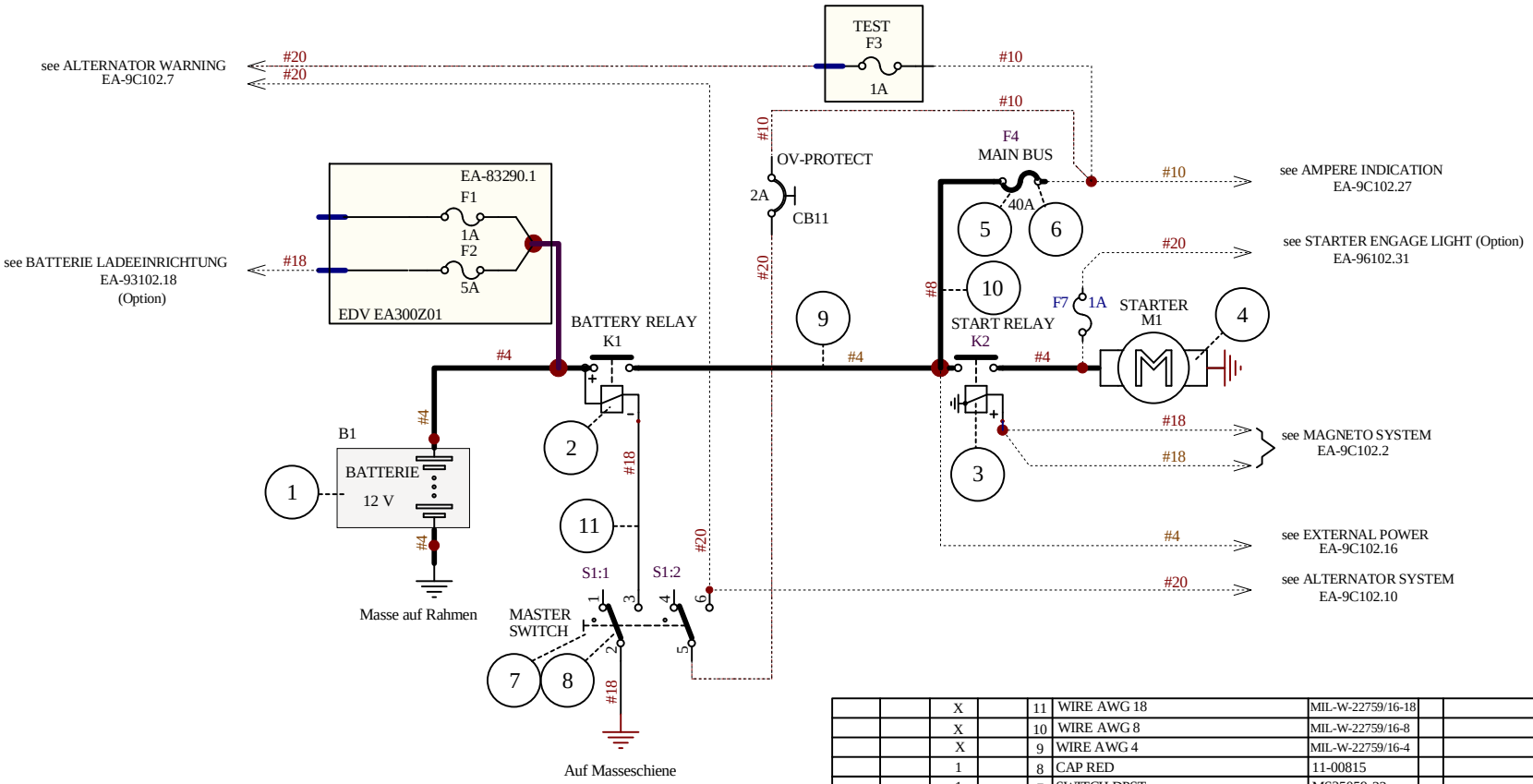
BATTERY CIRCUIT

EA-9C102.9

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0909**



				Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.
		X		11	WIRE AWG 18	MIL-W-22759/16-18				2,5	mtr		00776
		X		10	WIRE AWG 8	MIL-W-22759/16-8				0,4	mtr		FE00776
		X		9	WIRE AWG 4	MIL-W-22759/16-4				2,0	mtr		200005
		1		8	CAP RED	11-00815							31763
		1		7	SWITCH DPST	MS35059-22							01601
		1		6	FUSE 40A	02.00300							31664
		1		5	FUSEHOLDER	03.00360							31239
		1		4	STARTER	149-12LN							
		1		3	POWER SOLENOID INT	22735							00114
		1		2	POWER SOLENOID CONT	111-226							00136
		1		1	BATTERY 12V	RG-25XC							03617

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung: 05.08.10 HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name
B	ÄM-300-08-11	19.12.2008	HW
A	ab SC006	11.07.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

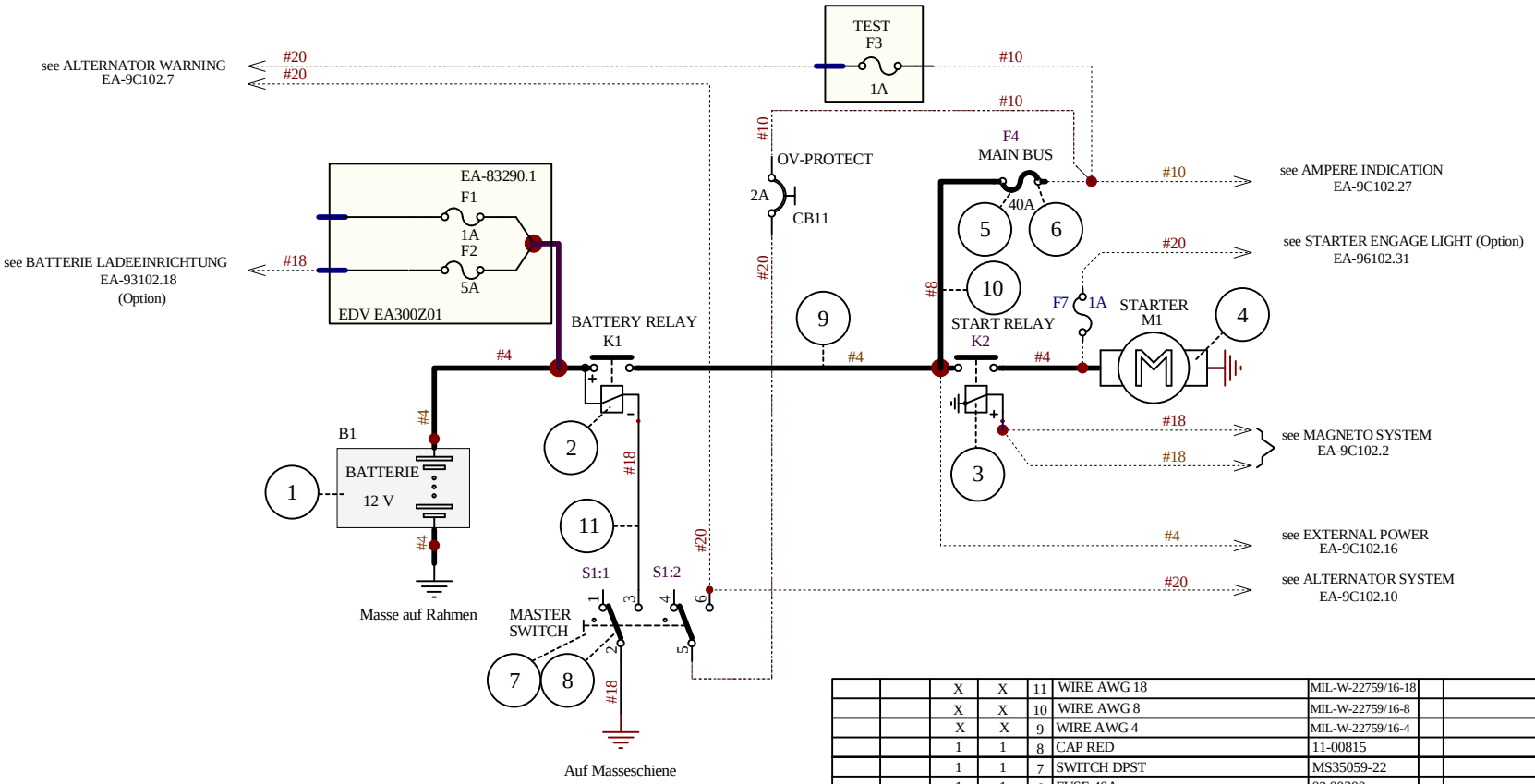
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
BATTERY CIRCUIT

EA-9C102.9	B
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0909b**



		X	X	11	WIRE AWG 18	MIL-W-22759/16-18				2,5	mtr		00776
		X	X	10	WIRE AWG 8	MIL-W-22759/16-8				0,4	mtr		FE00776
		X	X	9	WIRE AWG 4	MIL-W-22759/16-4				2,0	mtr		200005
		1	1	8	CAP RED	11-00815							31763
		1	1	7	SWITCH DPST	MS35059-22							01601
		1	1	6	FUSE 40A	02.00300							31664
		1	1	5	FUSEHOLDER	03.00360							31239
		1	1	4	STARTER	149-12LN							33865
		1	1	3	POWER SOLENOID INT	22735							00114
		1	1	2	POWER SOLENOID CONT	111-226							00136
		1		1	BATTERIE 12V 11Ah	RG-12LSA		Fa. CONCORDE					33697
			1	1	BATTERIE 12V 24Ah	RG-25XC		Fa. CONCORDE					03617
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

OPTION 02 = BATTERIE RG-12LSA
OPTION 01 = BATTERIE RG-25XC

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
C	ÄM-300-11-17	22.06.11	HW
B	ÄM-300-08-11	19.12.08	HW
A	ab SC006	11.07.08	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

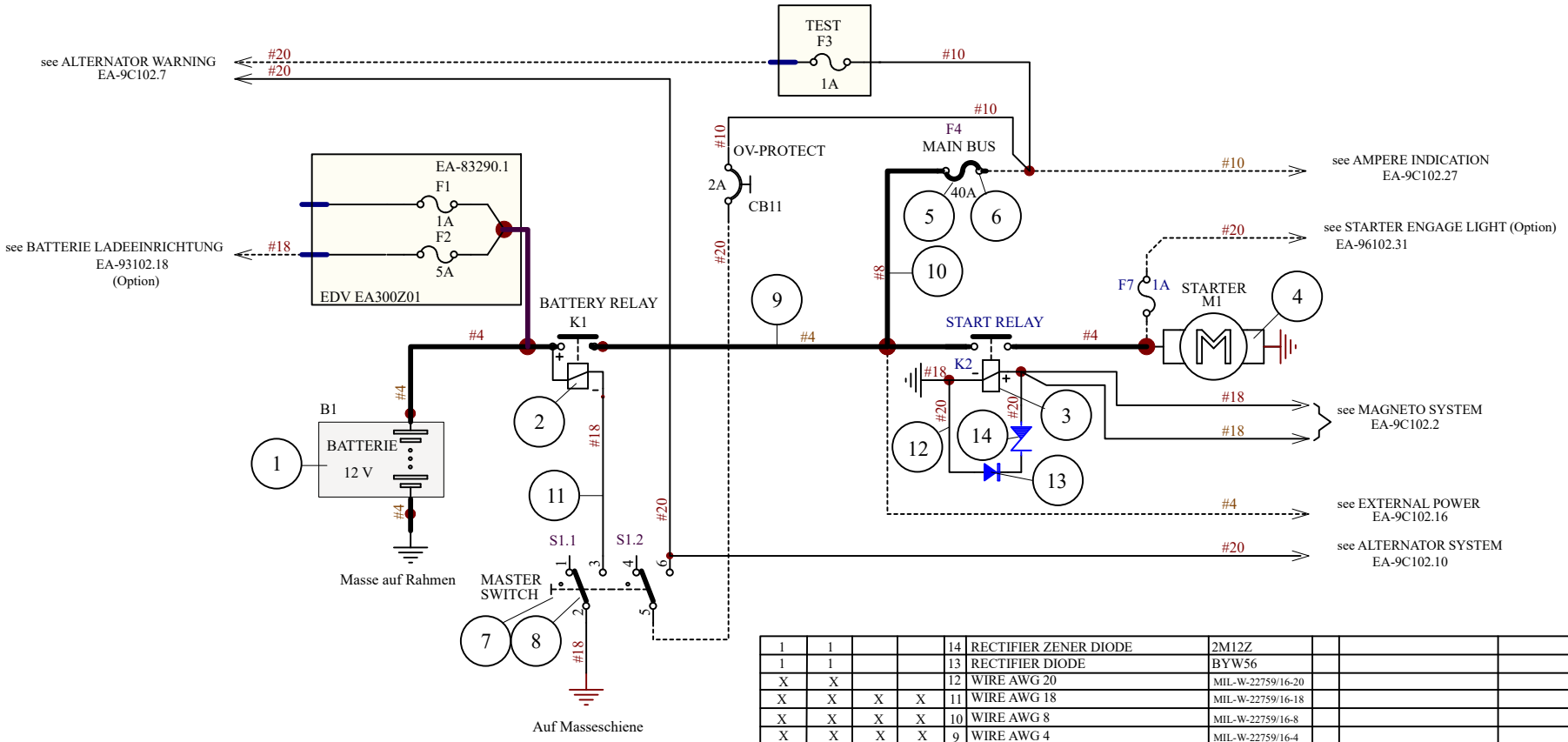
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
BATTERY CIRCUIT

EA-9C102.9	C
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0909c**



1	1			14	RECTIFIER ZENER DIODE	2M12Z							35842
1	1			13	RECTIFIER DIODE	BYW56							FE4292
X	X			12	WIRE AWG 20	MIL-W-22759/16-20					mtr		00775
X	X	X	X	11	WIRE AWG 18	MIL-W-22759/16-18				2,5	mtr		00776
X	X	X	X	10	WIRE AWG 8	MIL-W-22759/16-8				0,4	mtr		FE00776
X	X	X	X	9	WIRE AWG 4	MIL-W-22759/16-4				2,0	mtr		200005
1	1	1	1	8	CAP RED	11-00815							31763
1	1	1	1	7	SWITCH DPST	MS35059-22							01601
1	1	1	1	6	FUSE 40A	02.00300							31664
1	1	1	1	5	FUSEHOLDER	03.00360							31239
1	1	1	1	4	STARTER	149-12LN							33865
1	1	1	1	3	POWER SOLENOID INT	70-111-225-5							32978
1	1	1	1	2	POWER SOLENOID CONT	111-226							00136
1		1		1	BATTERIE 12V 11Ah	RG-12LSA		Fa. CONCORDE					33697
	1		1	1	BATTERIE 12V 24Ah	RG-25XC		Fa. CONCORDE					03617
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	by MAG. SWITCH A-510-2
03	by MAG. SWITCH A-510-2
02	by MAG. SWITCH 10-357200-1
01	by MAG. SWITCH 10-357200-1

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
E	ÄM 300-21-05	26.07.21	HW
D	ÄM-300-14-17	16.05.15	HW
C	ÄM-300-11-17	22.06.11	HW
B	ÄM-300-08-11	19.12.08	HW
A	ab SC006	11.07.08	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

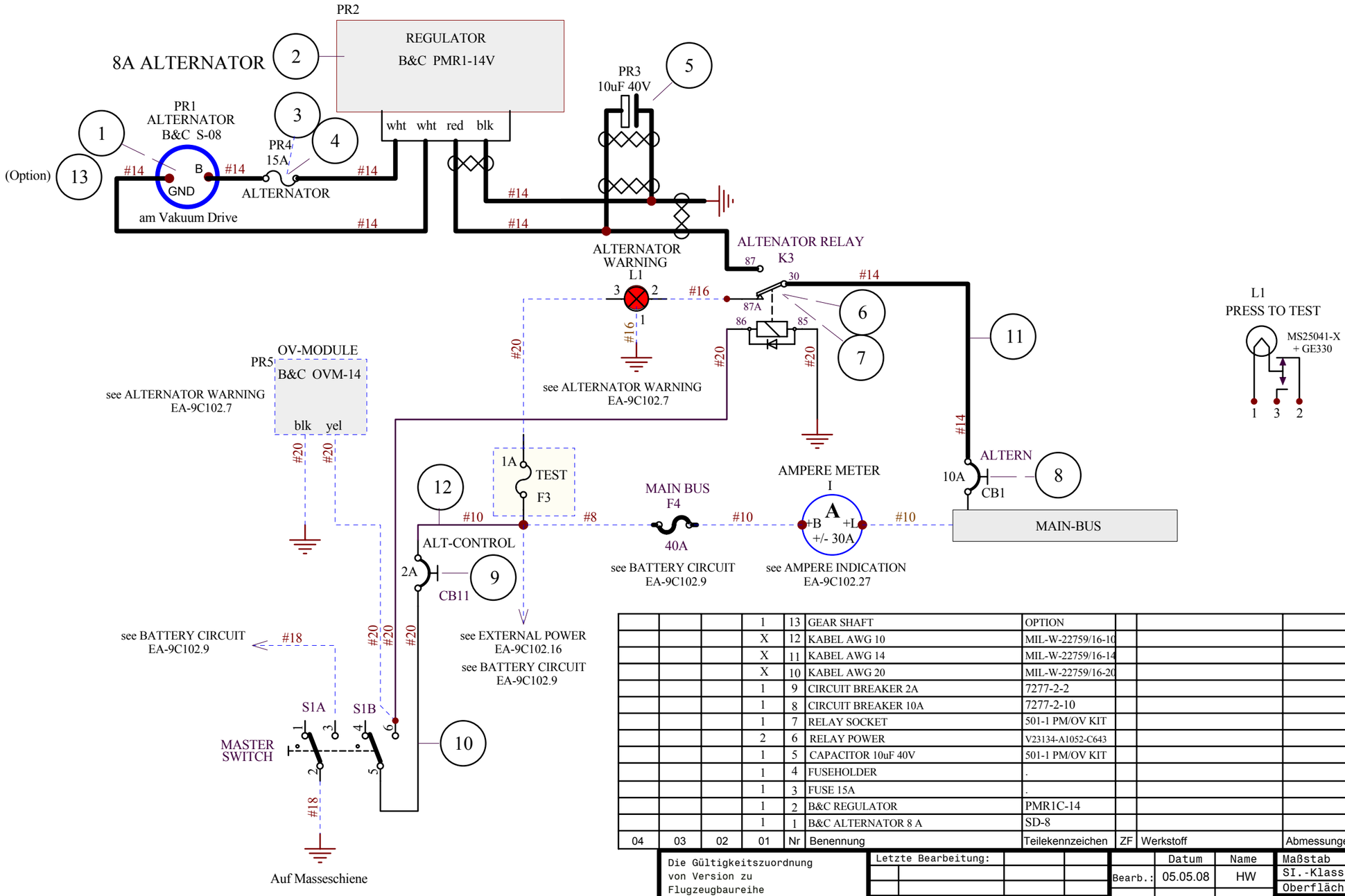
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
BATTERY CIRCUIT

EA-9C102.9	**E**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0909e**



			1	13	GEAR SHAFT	OPTION							.
			X	12	KABEL AWG 10	MIL-W-22759/16-10				0,5	mtr		.
			X	11	KABEL AWG 14	MIL-W-22759/16-14				3,2	mtr		.
			X	10	KABEL AWG 20	MIL-W-22759/16-20				5,0	mtr		00775
			1	9	CIRCUIT BREAKER 2A	7277-2-2							.
			1	8	CIRCUIT BREAKER 10A	7277-2-10							.
			1	7	RELAY SOCKET	501-1 PM/OV KIT							.
			2	6	RELAY POWER	V23134-A1052-C643							.
			1	5	CAPACITOR 10uF 40V	501-1 PM/OV KIT							.
			1	4	FUSEHOLDER	.							.
			1	3	FUSE 15A	.							.
			1	2	B&C REGULATOR	PMR1C-14							.
			1	1	B&C ALTERNATOR 8 A	SD-8							.
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
.	.	.	.

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

Maßstab auf | Projektion
SI.-Klasse | Freimaßtoleranz
Oberflächenschutz | Oberfläche

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

EA 300/SC

ALTERNATOR SYSTEM

EA-9C102.10

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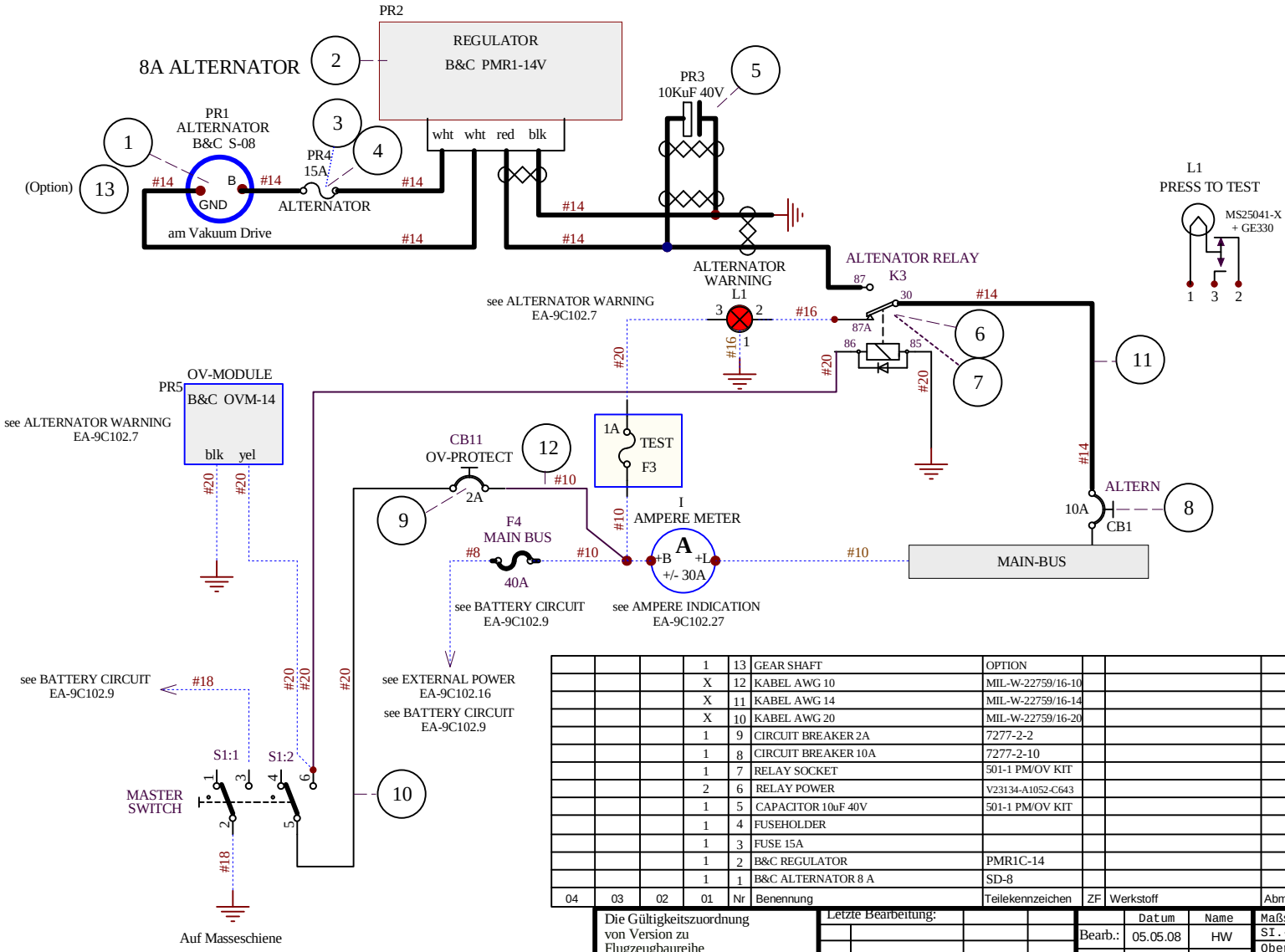
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0912**



			1	13	GEAR SHAFT	OPTION								
			X	12	KABEL AWG 10	MIL-W-22759/16-10				0,5	mtr			
			X	11	KABEL AWG 14	MIL-W-22759/16-14				3,2	mtr			
			X	10	KABEL AWG 20	MIL-W-22759/16-20				5,0	mtr			00775
			1	9	CIRCUIT BREAKER 2A	7277-2-2								
			1	8	CIRCUIT BREAKER 10A	7277-2-10								
			1	7	RELAY SOCKET	501-1 PM/OV KIT								
			2	6	RELAY POWER	V23134-A1052-C643								
			1	5	CAPACITOR 10uF 40V	501-1 PM/OV KIT								
			1	4	FUSEHOLDER									
			1	3	FUSE 15A									
			1	2	B&C REGULATOR	PMR1C-14								
			1	1	B&C ALTERNATOR 8 A	SD-8								
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM-300-08-11	19.12.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
ALTERNATOR SYSTEM

EA-9C102.10a

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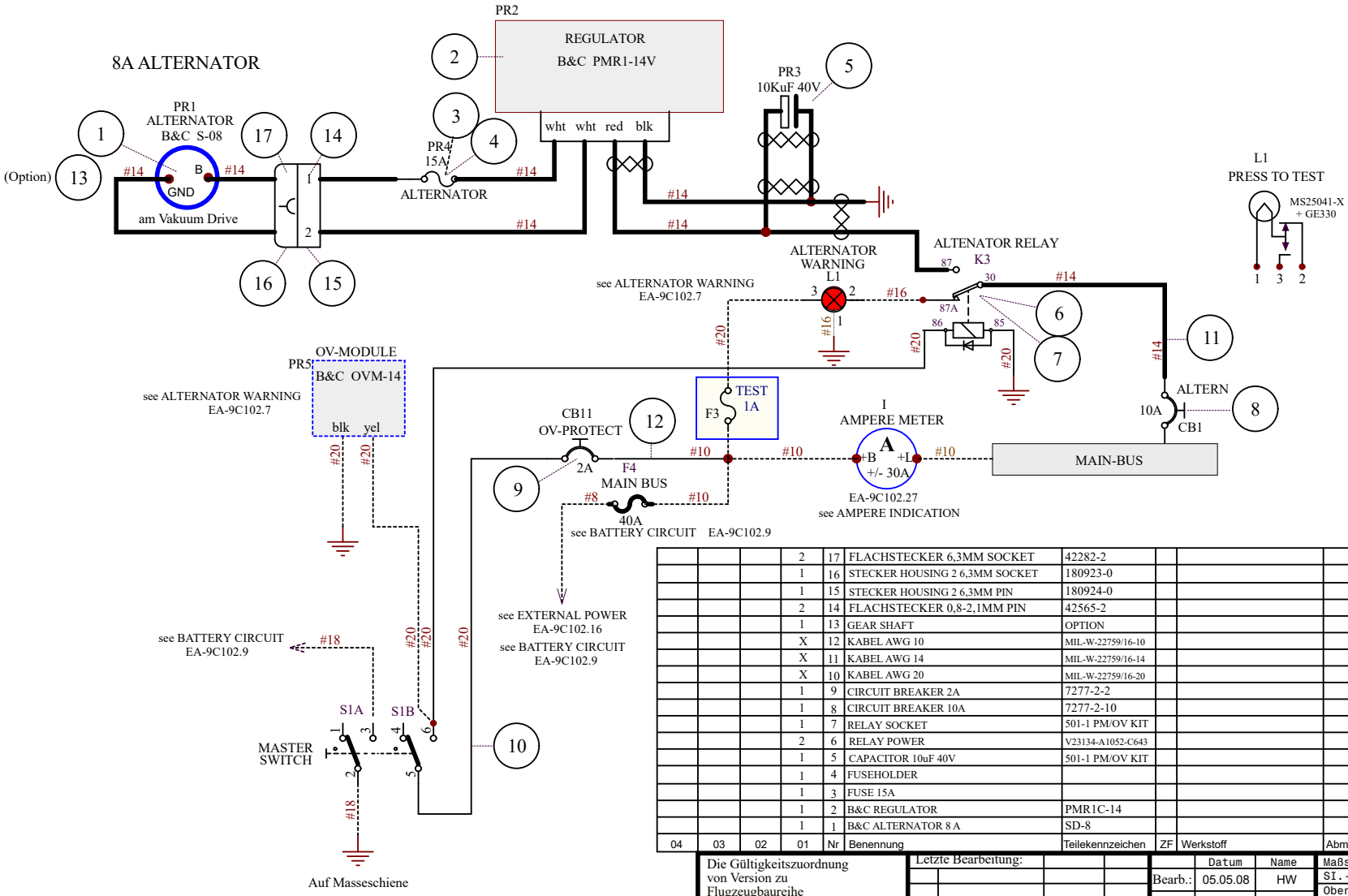
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0912a**



			2	17	FLACHSTECKER 6,3MM SOCKET	42282-2								00093
			1	16	STECKER HOUSING 2 6,3MM SOCKET	180923-0								00099
			1	15	STECKER HOUSING 2 6,3MM PIN	180924-0								00103
			2	14	FLACHSTECKER 0,8-2,1MM PIN	42565-2								00097
			1	13	GEAR SHAFT	OPTION								
			X	12	KABEL AWG 10	MIL-W-22759/16-10				0,5	mtr			
			X	11	KABEL AWG 14	MIL-W-22759/16-14				3,2	mtr			
			X	10	KABEL AWG 20	MIL-W-22759/16-20				5,0	mtr			00775
			1	9	CIRCUIT BREAKER 2A	7277-2-2								
			1	8	CIRCUIT BREAKER 10A	7277-2-10								
			1	7	RELAY SOCKET	501-1 PM/OV KIT								
			2	6	RELAY POWER	V23134-A1052-C643								
			1	5	CAPACITOR 10uF 40V	501-1 PM/OV KIT								
			1	4	FUSEHOLDER									
			1	3	FUSE 15A									
			1	2	B&C REGULATOR	PMR1C-14								
			1	1	B&C ALTERNATOR 8 A	SD-8								
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
B	ÄM-300-15-07	19.03.16	HW
A	ÄM-300-08-11	19.12.08	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

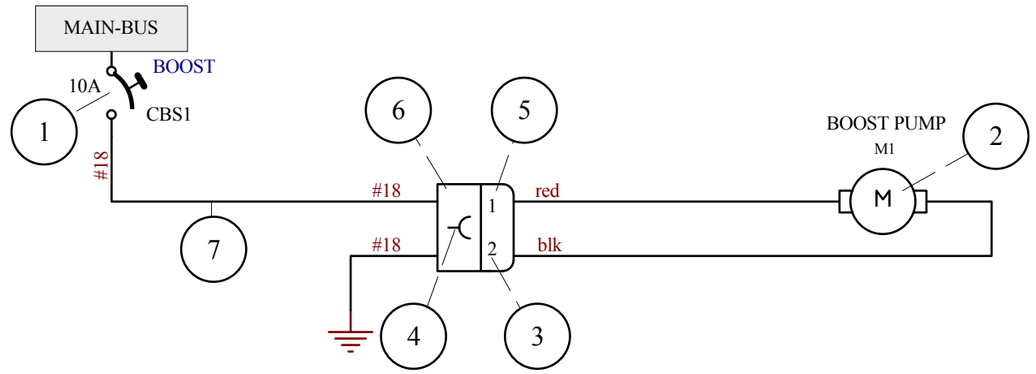
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
ALTERNATOR SYSTEM

EA-9C102.10	B
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: EA3C0912b



			X	7	WIRE AWG 18	MIL-W-22759/16-18				.	mtr		00776
			1	6	BUCHSEN GEHÄUSE 2 POLIG	180923-0				.			00099
			1	5	PIN GEHÄUSE 2 POLIG	180924-0							00103
			2	4	FLACHSTECKER BUCHSE 6,3mm	0042282-2				.			00093
			2	3	FLACHSTECKER PIN 6,3mm	42565-2							00097
			1	2	FUEL PUMP	8120.M				.			01207
			1	1	CIRCUIT BREAKER SWITCH 10A	W31X2M1G-10						.	02701
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
.	.	.	.

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA

Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

FUEL BOOST PUMP

EA-9C102.11

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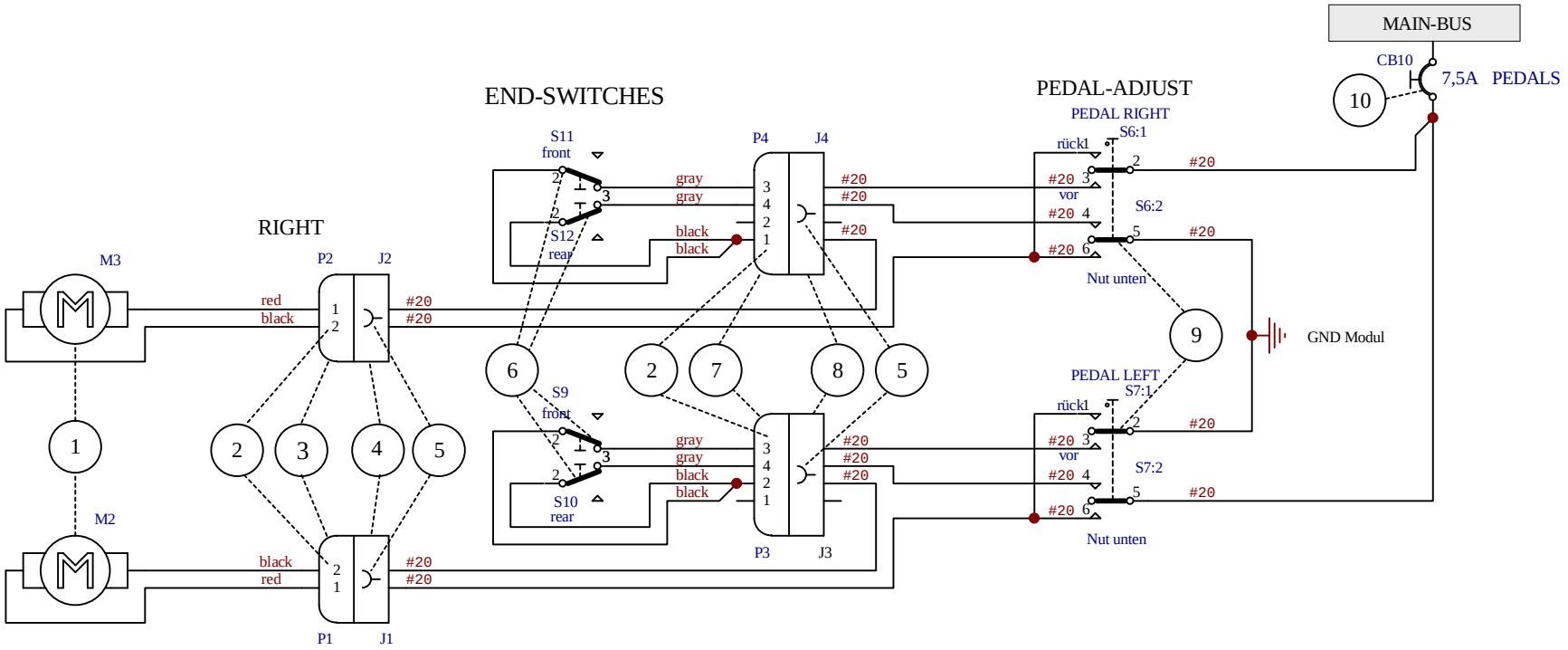
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0905**



		1		10	CIRCUIT BREAKER 7,5A	7277-2-7.5							32112
	1		1	10	CIRCUIT BREAKER 7,5A	W23X1A1G-7.5							32113
	2			9	SCHALTER 2 POLIG TAST-OFF-TAST	7205 (204-7685)							01983
		2		9	SCHALTER 2 POLIG TAST-OFF-TAST	07.2.1.17							30636
			2	9	SCHALTER 2 POLIG TAST-OFF-TAST	MS35059-27							31488
	2	2	2	8	BUCHSEN GEHÄUSE 4 POLIG	180900-0							01170
	2	2	2	7	PIN GEHÄUSE 4 POLIG	180900-1							01171
	4	4	4	6	MICROSCHALTER	V4NCSK2A7-0,5M		alternativ DC1C-C3LD (01738)					33626
	10	10	10	5	FLACHSTECKER BUCHSE 6,3mm	0042282-2							00093
	2	2	2	4	BUCHSEN GEHÄUSE 2 POLIG	180923-0							00099
	2	2	2	3	PIN GEHÄUSE 2 POLIG	180924-0							00103
	10	10	10	2	FLACHSTECKER PIN 6,3mm	42565-2							00097
	2	2	2	1	PEDALMOTOR	CARR 20X20X1							01996
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

OPTION 01 = STANDARDPANEL
OPTION 02 = KOHLEPANEL
OPTION 03 = STANDARDPANEL MIT ALTEM PEDALSCHALTER

Ab EA-300/L Werk Nr. 1209

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Letzte Bearbeitung:

Ver.	Bezeichnung	Nr.:	Änderung/Mod. Nr.:	Datum	Name
04		C	ÄM-300-11-03	25.02.11	HW
03		B	ÄM-300-06-28	17.10.06	HW
02		A	ÄM-300-05-33	29.11.05	HW
01			ÄM 300-05-18		

	Datum	Name
Bearb.:	19.06.92	NH
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

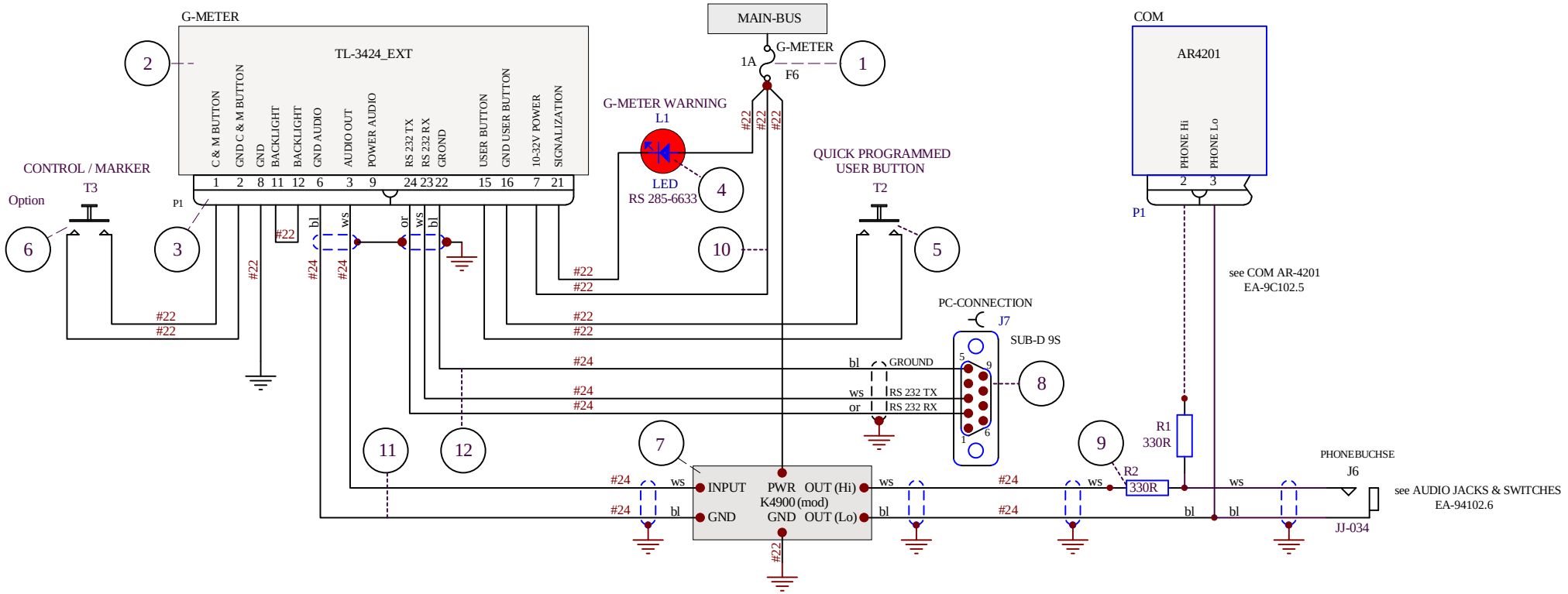
EA 300/S

PEDAL ADJUSTMENT SYSTEM

EA-94102.14	**C**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3S0920c**



			X	12	WIRE 3xAWG24	MIL-C-27500-24TG3								=
			X	11	WIRE 2xAWG24	MIL-C-27500-24TG2								FE4006
			1	10	WIRE AWG22	MIL-W-22759/16-22								01694
			1	9	CONNECTOR SUBD 9S	=								=
			1	8	RESISTOR 330R 0,25W	=								=
			1	7	AMPLIFIER	K4900 (mod)								=
			1	6	PUSH BUTTOM	=								=
			1	5	PUSH BUTTOM	=								=
			1	4	LED WARNING	RS 285-6633								=
			1	3	CONNECTOR SUBD 25S	=								=
			1	2	G-METER INDICATOR	TL-3424_EXT								=
			1	1	FUSE 1A	=								=
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
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Letzte Bearbeitung:	11.04.11	HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
ACCELEROMETER

EA-9C102.15

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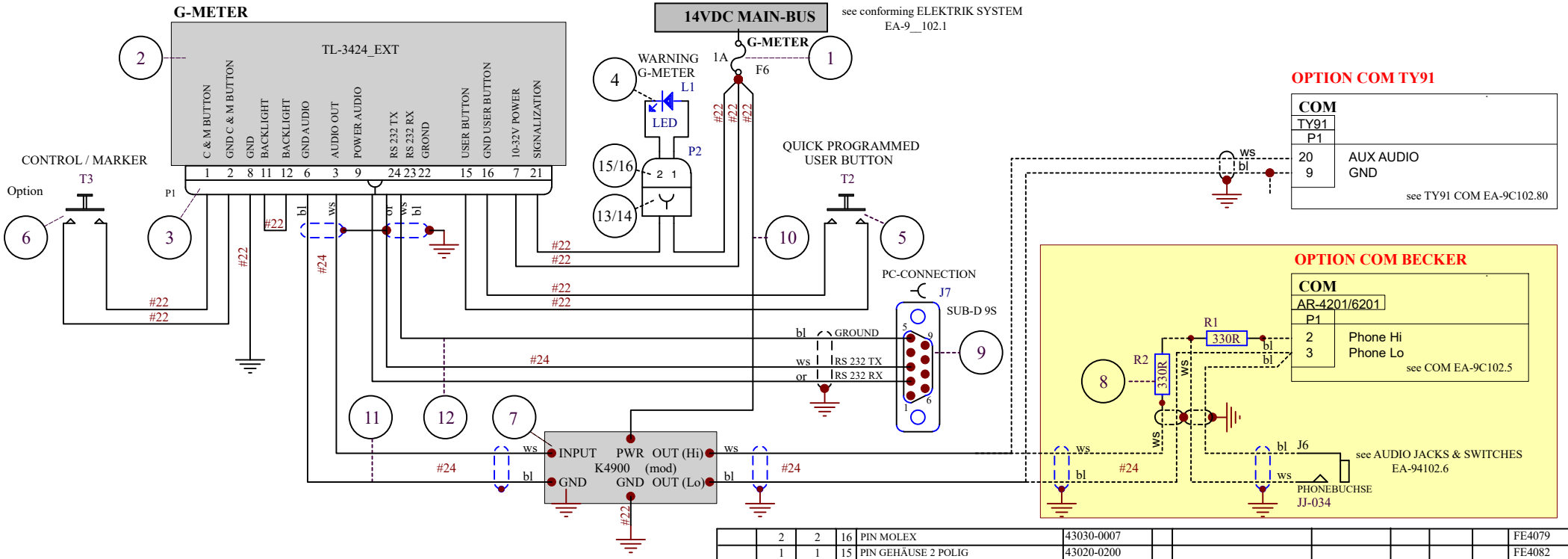
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0916**



	2	2	16	PIN MOLEX	43030-0007							FE4079
	1	1	15	PIN GEHÄUSE 2 POLIG	43020-0200							FE4082
	1	1	14	BUCHSEN GEHÄUSE 2 POLIG	43025-0200							FE4081
	2	2	13	BUCHSE Molex	43031-0007							FE4080
	X	X	12	WIRE 3xAWG24	MIL-C-27500-24TG3							
	X	X	11	WIRE 2xAWG24	MIL-C-27500-24TG2							FE4006
	1	1	10	WIRE AWG22	MIL-W-22759/16-22							01694
	1	1	9	CONNECTOR SUBD 9S								
		1	8	RESISTOR 330R 0,25W								
	1	1	7	AMPLIFIER	K4900 (mod)							
	1	1	6	PUSH BUTTOM								
	1	1	5	PUSH BUTTOM								
	1	1	4	LED WARNING	RS 285-6633							
	1	1	3	CONNECTOR SUBD 25S								
	1	1	2	G-METER INDICATOR	TL-3424_EXT							
	1	1	1	FUSE 1A								
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	COM TY91
01	COM BECKER

Letzte Bearbeitung:

Nr.	Änderung/Mod. Nr.	Datum	Name
B	ÄM-300-19-03	27.06.21	HW
A	AM-300-15-07	03.12.16	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

XTRA
Schwarze Heide 21
46569 Hünxe, Germany

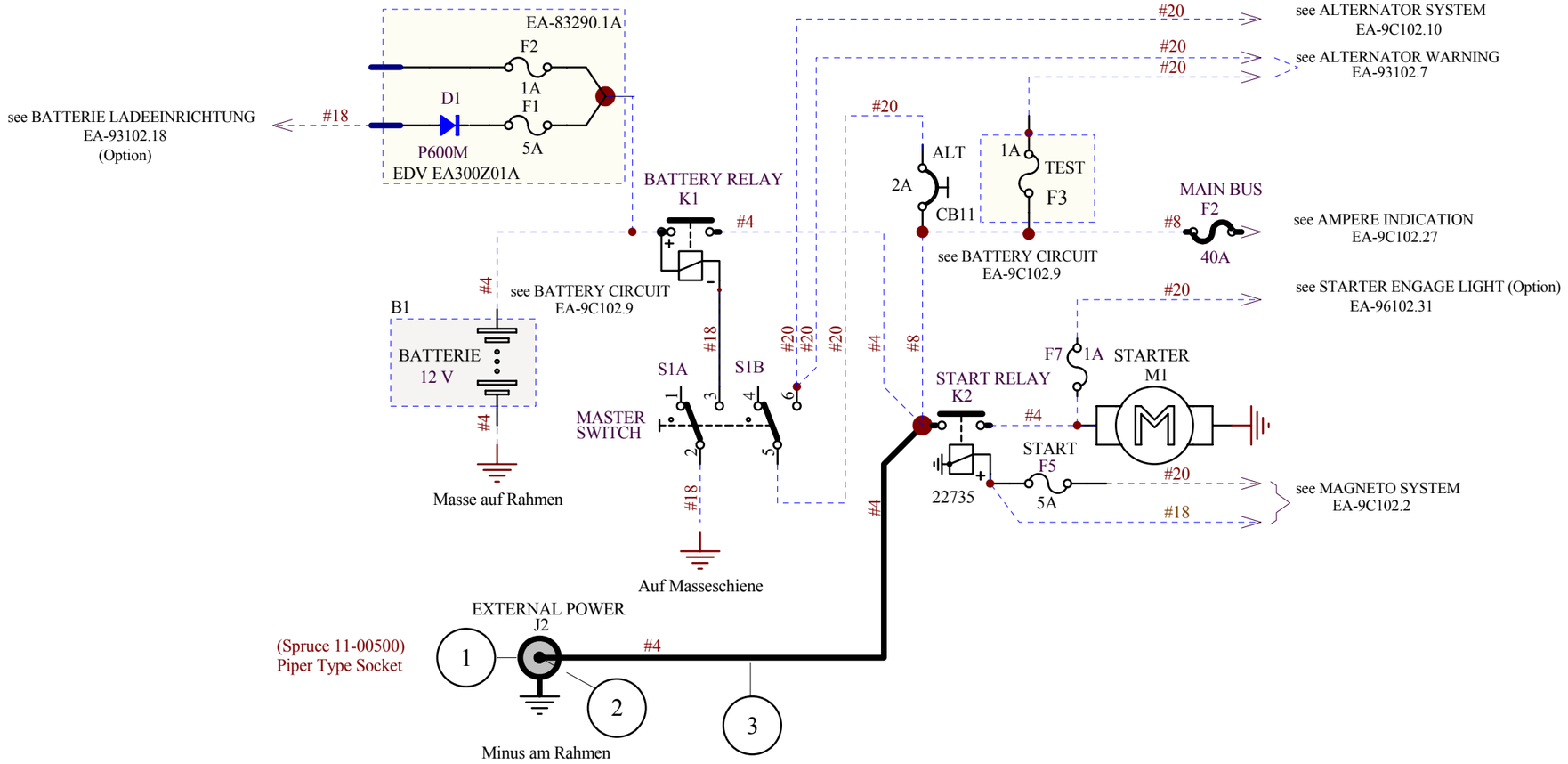
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC ACCELEROMETER

EA-9C102.15	B
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: EA3C0916B



			X	3	WIRE AWG 4	22759-16-4				2,57	mtr		200005
			1	2	PLASTI GRIP	130008				1	Stueck		02198
			1	1	CONNECTOR	11-00500				1	Stueck		01609
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
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Letzte Bearbeitung:

Nr.	Änderung/Mod. Nr.	Datum	Name

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

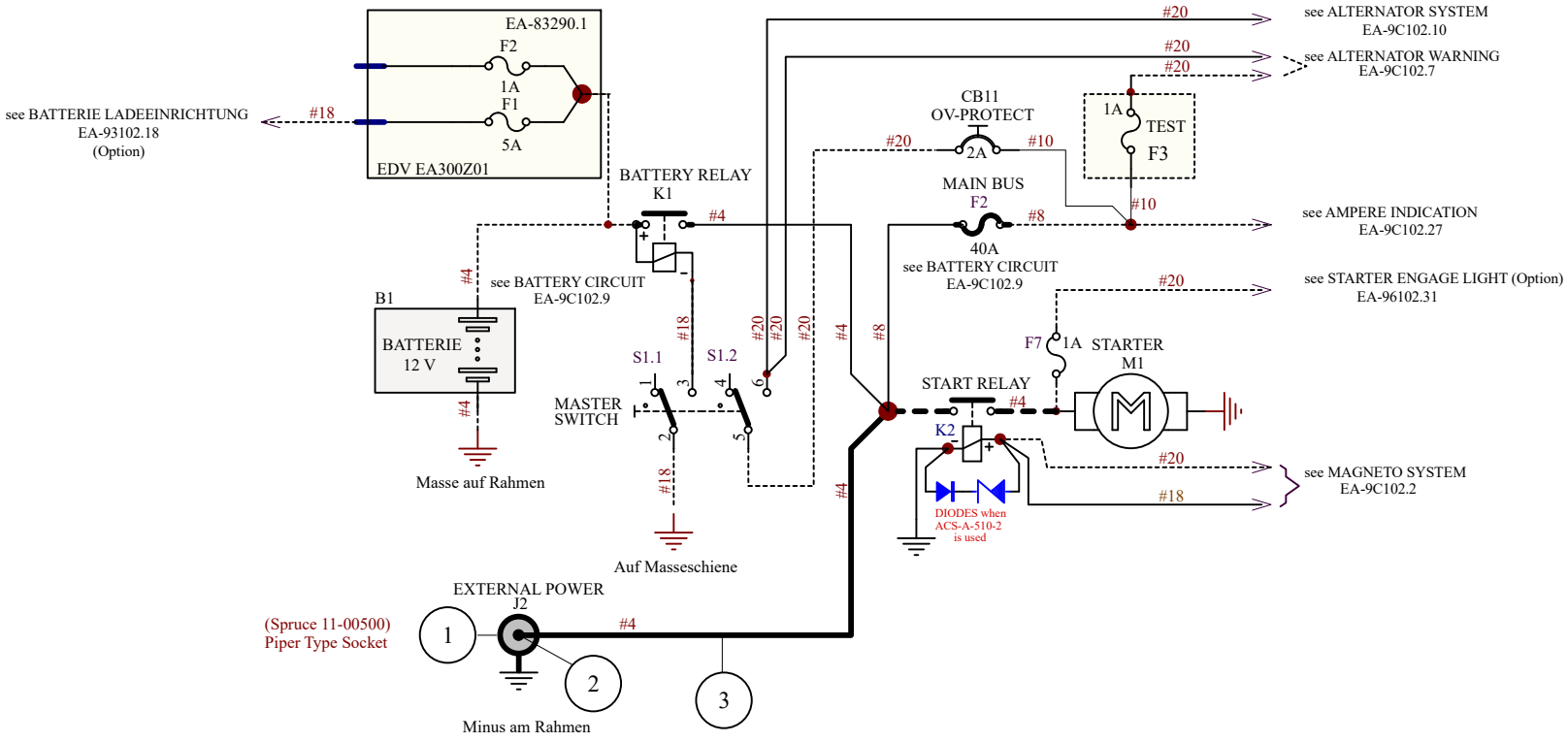
EXTERNAL POWER

EA-9C102.16

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0921**



			X	3	WIRE AWG 4	22759-16-4				2,57	mtr		200005
			1	2	PLASTI GRIP	130008				1	Stueck		02198
			1	1	CONNECTOR	11-00500				1	Stueck		01609
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Letzte Bearbeitung:

Ver.	Bezeichnung	Nr.:	Änderung/Mod. Nr.:	Datum	Name
04					
03		C	ÄM 300-21-05	26.07.21	HW
02		B	ÄM-300-08-11	19.12.2008	HW
01		A	ab SC006	11.07.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EDV-Kennung: **EA3C0921c**

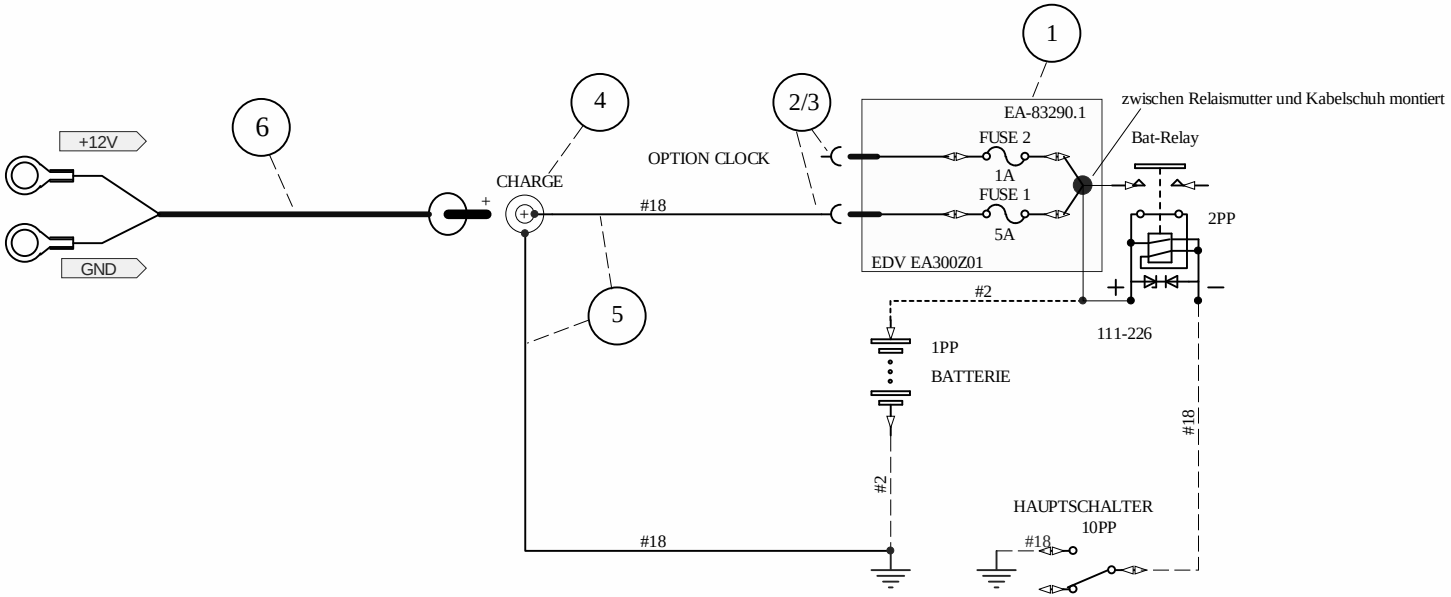
EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
EXTERNAL POWER

EA-9C102.16	**C**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.



			1	6	BATTERIE LADEKABEL								03543
			2	5	KABEL	AWG 18		MIL-C-27500-18TG1T14					02199
			1	4	STECKDOSE 12 VOLT	146 19 20							02636
			2	3	GEHÄUSE STECKHÜLSE 1 POL	925324-2							00098
			2	2	FLACHSTECKHÜLSE 6,3mm	0042282-2							00093
			1	1	RELAY PCB FUSE	EA-83290.1							93243.02
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	AM-300-05-10	13.07.05	HW

	Datum	Name
Bearb.:	06.07.00	Stöcker
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

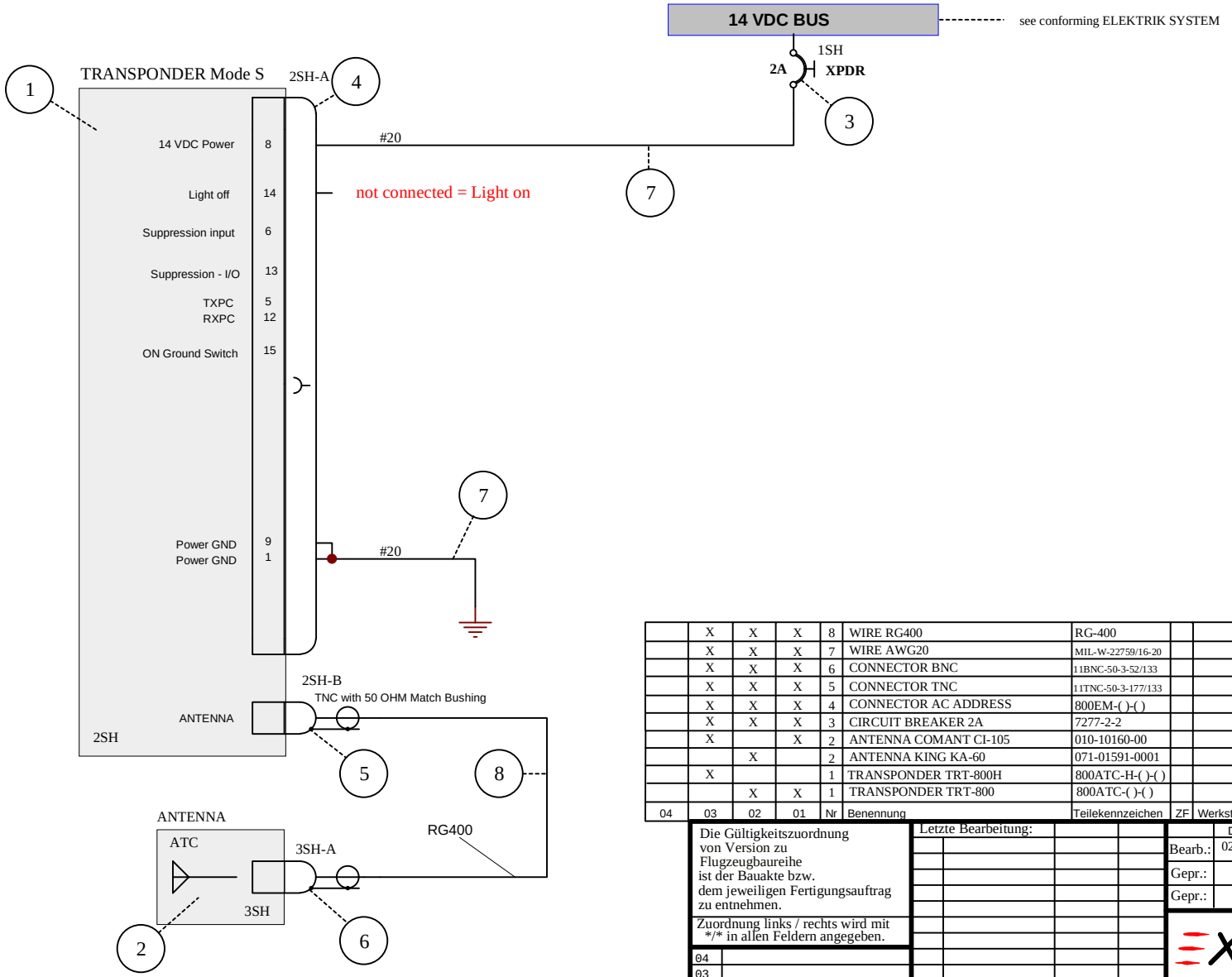
EA 300

BATTERIE LADEEINRICHTUNG

EA-93102.18	**A**
A4	Blatt1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300927a**



	X	X	X	8	WIRE RG400	RG-400				2,9	mtr		FE4111
	X	X	X	7	WIRE AWG20	MIL-W-22759/16-20				0,7	mtr		in Pos. 1
	X	X	X	6	CONNECTOR BNC	11BNC-50-3-52/133				1	Stueck		30705
	X	X	X	5	CONNECTOR TNC	11TNC-50-3-177/133				1	Stueck		FE4242
	X	X	X	4	CONNECTOR AC ADDRESS	800EM-( )-( )				1	Stueck		in Pos. 1
	X	X	X	3	CIRCUIT BREAKER 2A	7277-2-2				1	Stueck		31508
	X		X	2	ANTENNA COMANT CI-105	010-10160-00				1	Stueck		30336
		X		2	ANTENNA KING KA-60	071-01591-0001				1	Stueck		04108
	X			1	TRANSPONDER TRT-800H	800ATC-H-( )-( )				1	Stueck		32090
		X	X	1	TRANSPONDER TRT-800	800ATC-( )-( )				1	Stueck		31437
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

OPTION 03 = TRT-800H mit COMANT CI-105 ANTENNE (für EA 300/SC & EA 300/LC)
OPTION 02 = TRT-800 mit KING KA-60 ANTENNE
OPTION 01 = TRT-800 mit COMANT CI-105 ANTENNE

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Letzte Bearbeitung:

Ver.	Bezeichnung	Nr.:	Änderung/Mod. Nr.:	Datum	Name
04					
03					
02					
01		A	ÄM-300-14-05	24.03.14	HW

	Datum	Name
Bearb.:	02.11.05	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

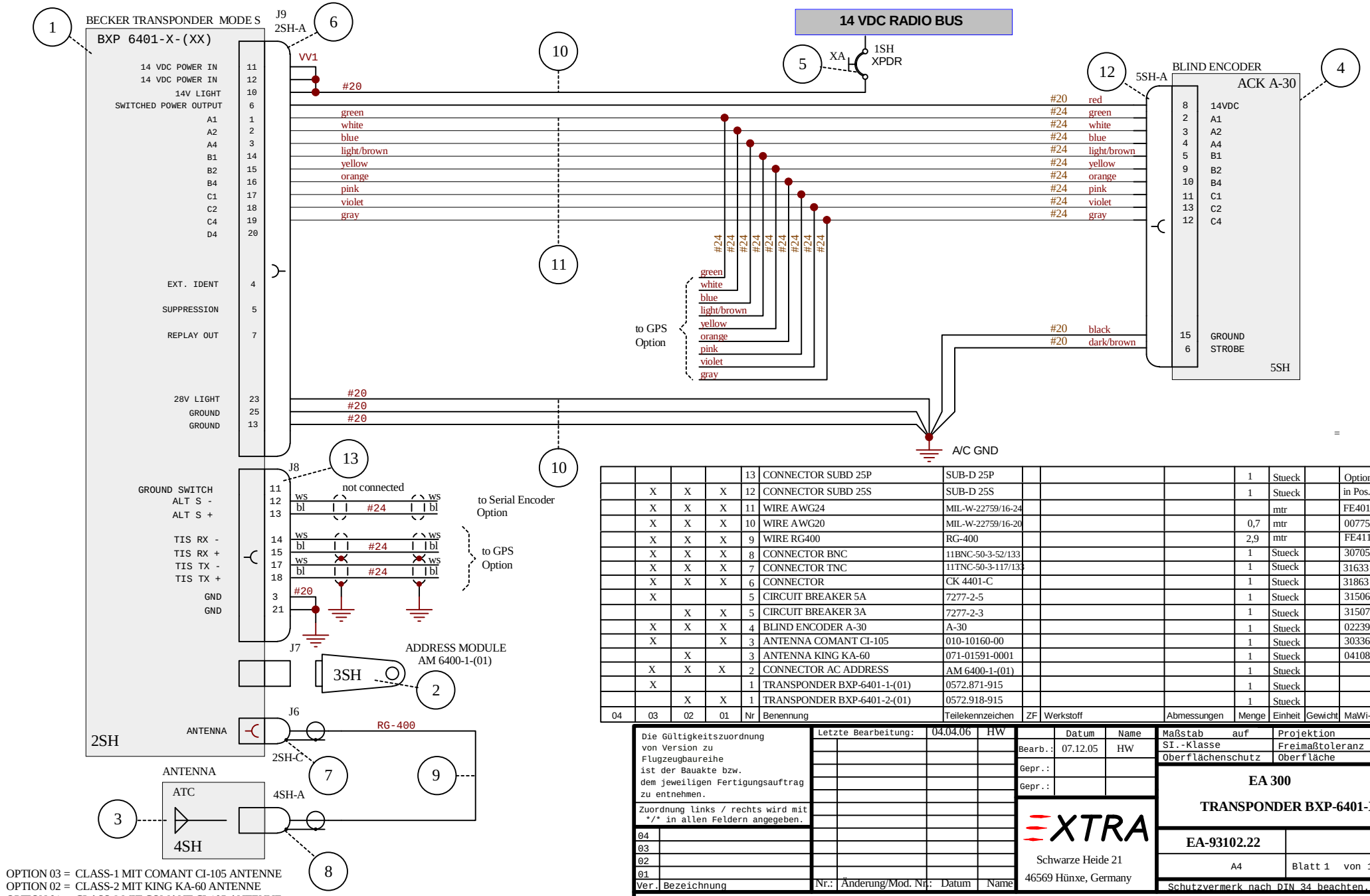
EA 300

TRANSPONDER TRT-800(H)

EA-93102.20	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300929a**



				Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.
				13	CONNECTOR SUBD 25P	SUB-D 25P				1	Stueck		Option
	X	X	X	12	CONNECTOR SUBD 25S	SUB-D 25S				1	Stueck		in Pos. 4
	X	X	X	11	WIRE AWG24	MIL-W-22759/16-24					mtr		FE4011
	X	X	X	10	WIRE AWG20	MIL-W-22759/16-20				0,7	mtr		00775
	X	X	X	9	WIRE RG400	RG-400				2,9	mtr		FE4111
	X	X	X	8	CONNECTOR BNC	11BNC-50-3-52/133				1	Stueck		30705
	X	X	X	7	CONNECTOR TNC	11TNC-50-3-117/133				1	Stueck		31633
	X	X	X	6	CONNECTOR	CK 4401-C				1	Stueck		31863
	X			5	CIRCUIT BREAKER 5A	7277-2-5				1	Stueck		31506
		X	X	5	CIRCUIT BREAKER 3A	7277-2-3				1	Stueck		31507
	X	X	X	4	BLIND ENCODER A-30	A-30				1	Stueck		02239
	X		X	3	ANTENNA COMANT CI-105	010-10160-00				1	Stueck		30336
		X		3	ANTENNA KING KA-60	071-01591-0001				1	Stueck		04108
	X	X	X	2	CONNECTOR AC ADDRESS	AM 6400-1-(01)				1	Stueck		
	X			1	TRANSPONDER BXP-6401-1-(01)	0572.871-915				1	Stueck		
		X	X	1	TRANSPONDER BXP-6401-2-(01)	0572.918-915				1	Stueck		

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:	04.04.06	HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	07.12.05	HW
Gepr.:		
Gepr.:		

XTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

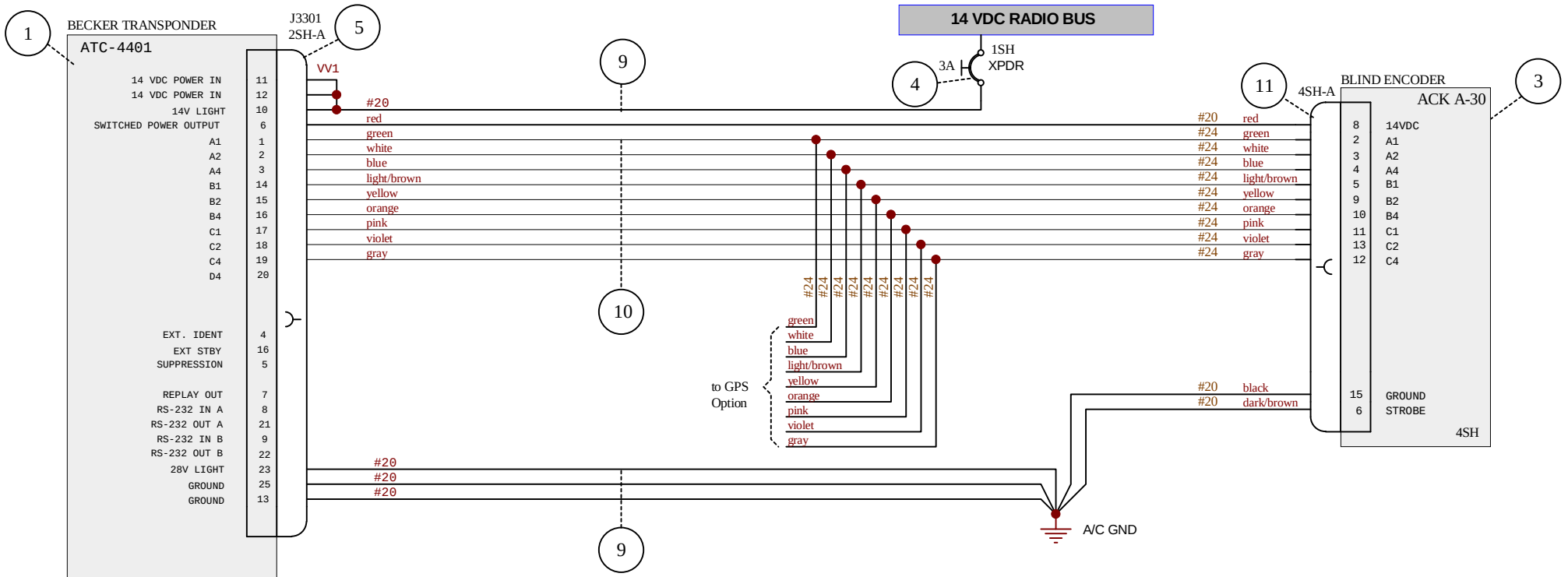
TRANSPONDER BXP-6401-X

EA-93102.22

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300931**



				Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.
		X	X	11	CONNECTOR					1	Stueck		in Pos 3
		X	X	10	WIRE AWG24	MIL-W-22759/16-24					mtr		FE4011
		X	X	9	WIRE AWG20	MIL-W-22759/16-20				0,7	mtr		00775
		X	X	8	WIRE RG400	RG-400				2,9	mtr		FE4111
		X	X	7	CONNECTOR BNC	11BNC-50-3-52/133				1	Stueck		30705
		X	X	6	CONNECTOR TNC	11TNC-50-3-117/133				1	Stueck		31633
		X	X	5	CONNECTOR SUBD 25S	CK 4401-C				1	Stueck		31863
		X	X	4	CIRCUIT BREAKER 3A	7277-2-3				1	Stueck		31508
		X	X	3	BLIND ENCODER A-30	A-30				1	Stueck		02239
			X	2	ANTENNA COMANT CI-105	010-10160-00				1	Stueck		30336
		X		2	ANTENNA KING KA-60	071-01591-0001				1	Stueck		04108
		X	X	1	TRANSPONDER ATC-4401-1	ATC-4401-1-175				1	Stueck		31002

OPTION 01 = MIT COMANT CI-105 ANTENNE
OPTION 02 = MIT KING KA-60 ANTENNE

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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01	

Nr.:	Änderung/Mod. Nr.:	Datum	Name
	Letzte Bearbeitung:	04.04.06	HW

	Datum	Name
Bearb.:	07.12.05	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

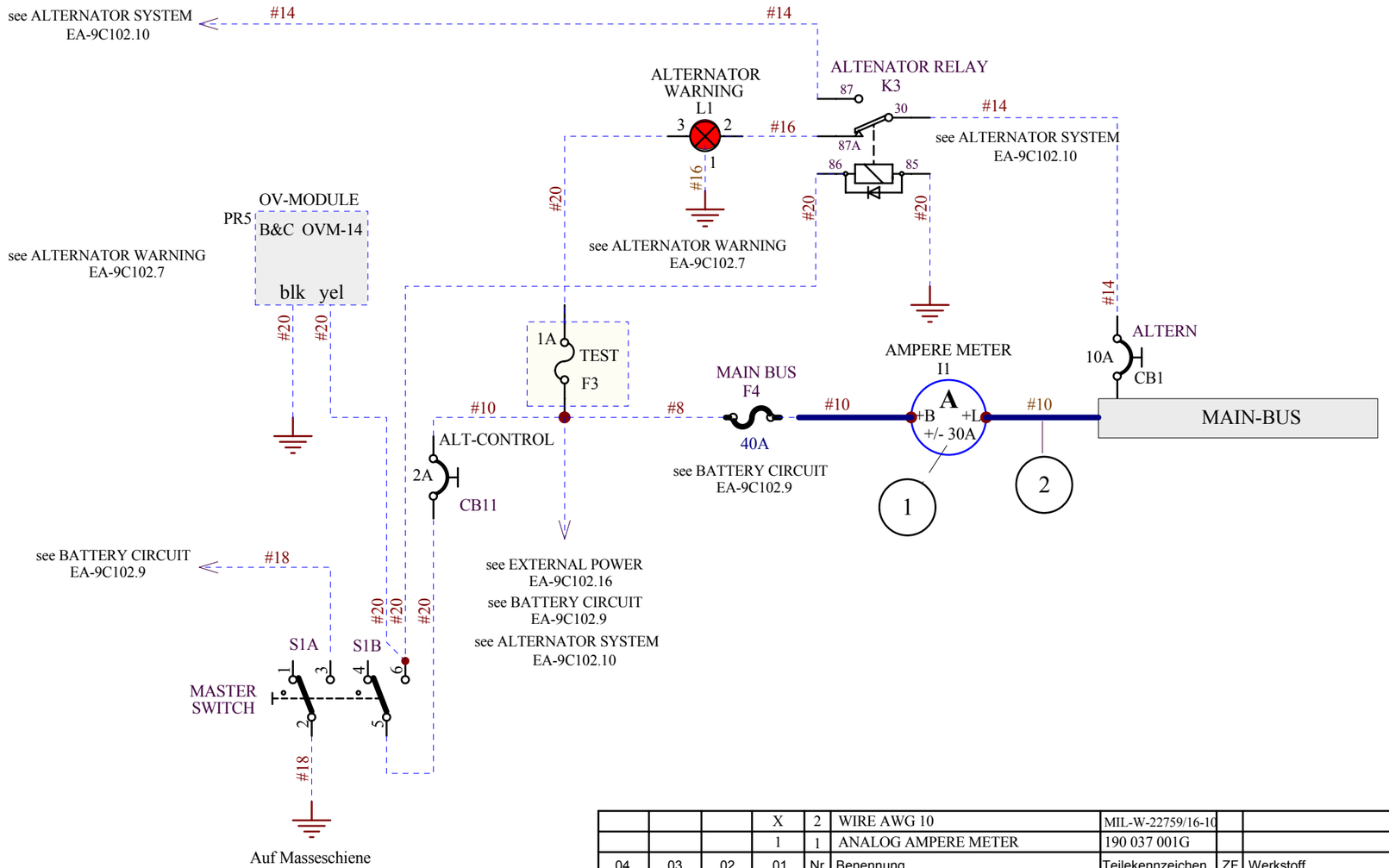
TRANSPONDER ATC-4401

EA-93102.26

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300935**



			X	2	WIRE AWG 10	MIL-W-22759/16-10				0,5	mtr		00775
			1	1	ANALOG AMPERE METER	190 037 001G							00393
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.	Änderung/Mod. Nr.	Datum	Name

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

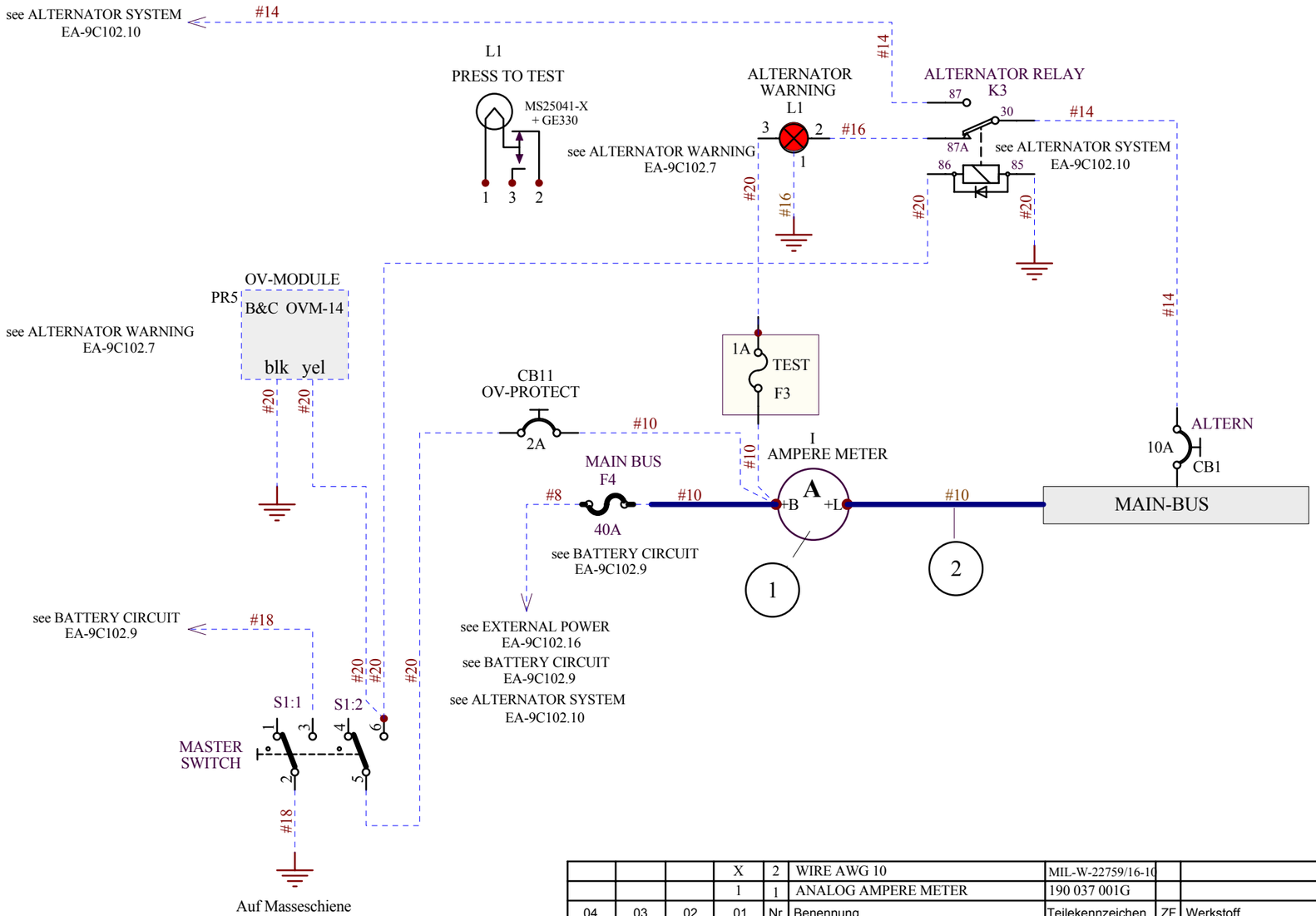
AMPERE INDICATION

EA-9C102.27

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0936**



			X	2	WIRE AWG 10	MIL-W-22759/16-10				0,5	mtr		00775
			1	1	ANALOG AMPERE METER	190 037 001G							00393
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM-300-08-11	19.12.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

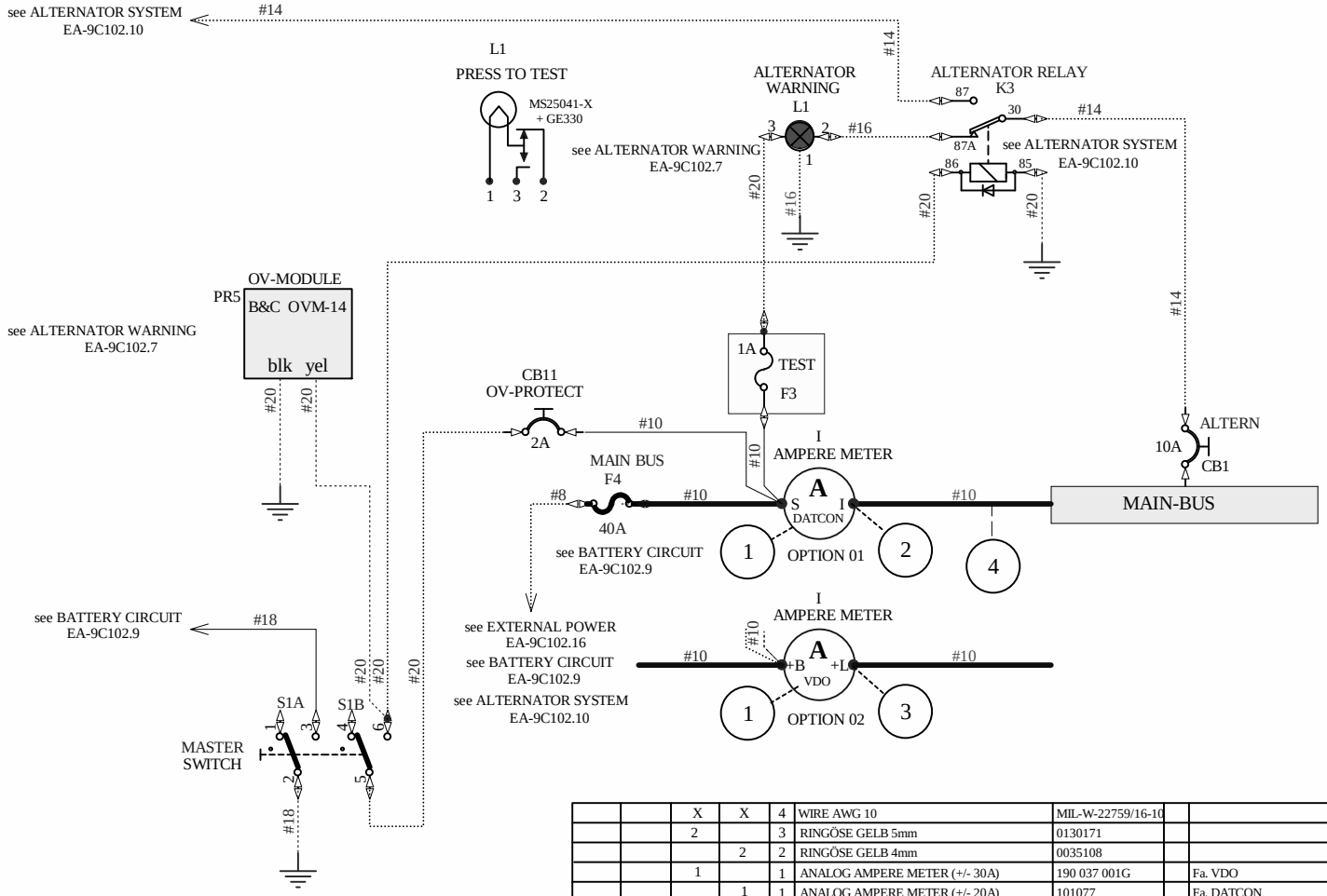
AMPERE INDICATION

EA-9C102.27

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0936a**



		X	X	4	WIRE AWG 10	MIL-W-22759/16-10				0,5	mtr		00775
		2		3	RINGÖSE GELB 5mm	0130171							01165
			2	2	RINGÖSE GELB 4mm	0035108							01164
		1		1	ANALOG AMPERE METER (+/- 30A)	190 037 001G		Fa. VDO					00393
			1	1	ANALOG AMPERE METER (+/- 20A)	101077		Fa. DATCON					33413
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
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Letzte Bearbeitung: = =

Nr.	Änderung/Mod. Nr.:	Datum	Name
B	ÄM-300-09-19	12.10.2010	HW
A	ÄM-300-08-11	19.12.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

Maßstab auf | Projektion
SI.-Klasse | Freimaßtoleranz
Oberflächenschutz | Oberfläche

EA 300/SC

AMPERE INDICATION

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

EA-9C102.27 | **B**

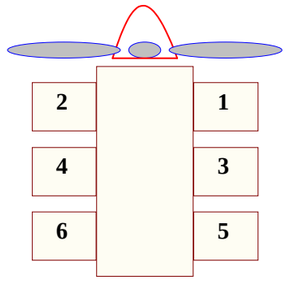
A4 | Blatt 1 von 1

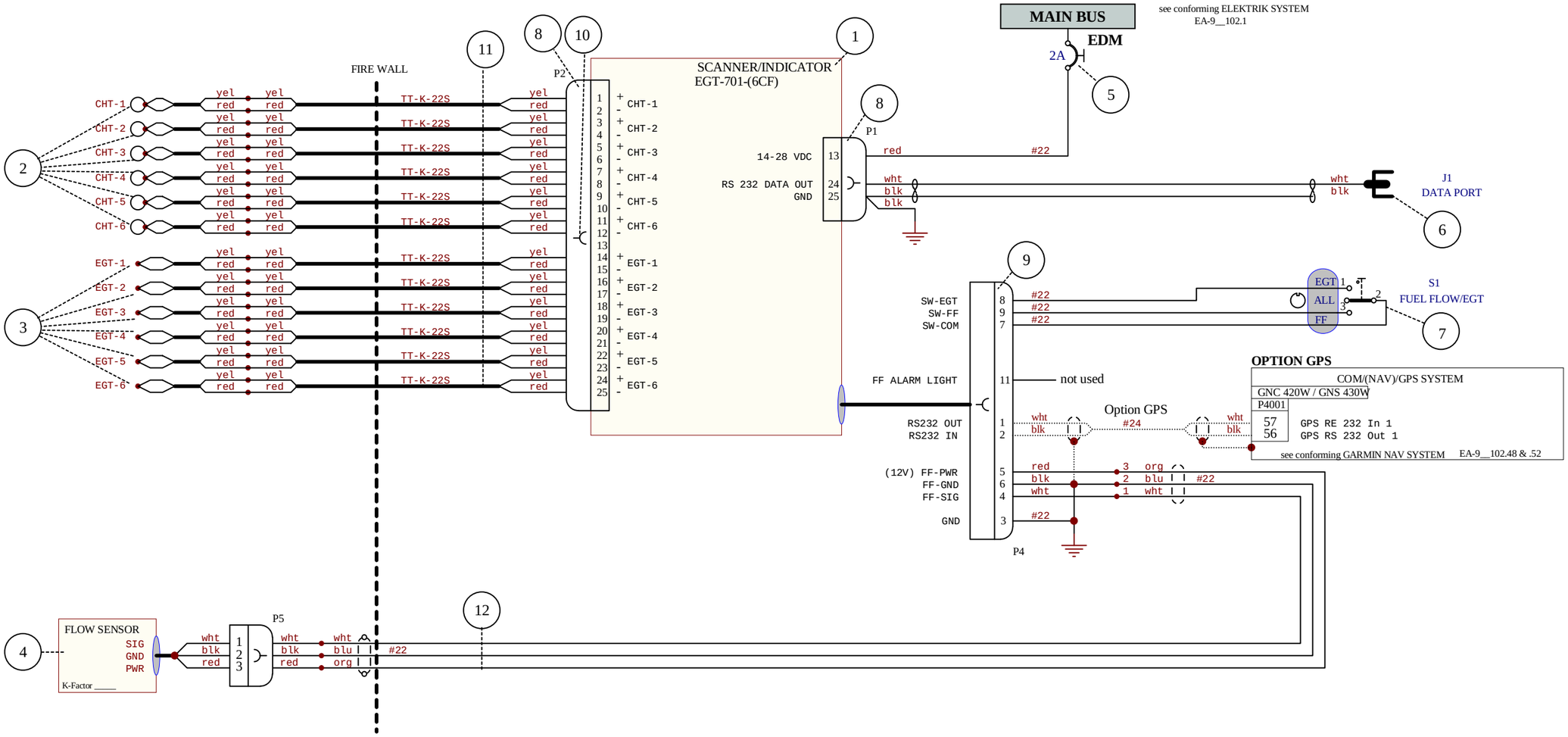
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0936b**

OPTION 02 = AMPERE METER FA. VDO

OPTION 01 = AMPERE METER FA. DATCON





			X	12	WIRE 3xAWG22	MIL-C-27500-22TG2			5	mtr		01694
			X	11	THERMOKABEL	TT-K-22S			45	mtr		
			24	10	PIN	665049						
			1	9	CONNECTOR SUBD 15P	205206-1						
			2	8	CONNECTOR SUBD 25S	205207-1						
			1	7	SWITCH	7103						
			1	6	DATA PORT							
			1	5	CIRCUIT BREAKER 2A	7277-2-2						31508
			1	4	FLOW SENSOR	201-B						
			6	3	EGT PROBE	M-111					57	
			6	2	CHT PROBE	M-113						
			1	1	SCANNER/INDICATOR	EGT-701-(6CF)					408	
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung: 26.04.11 HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	13.01.06	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

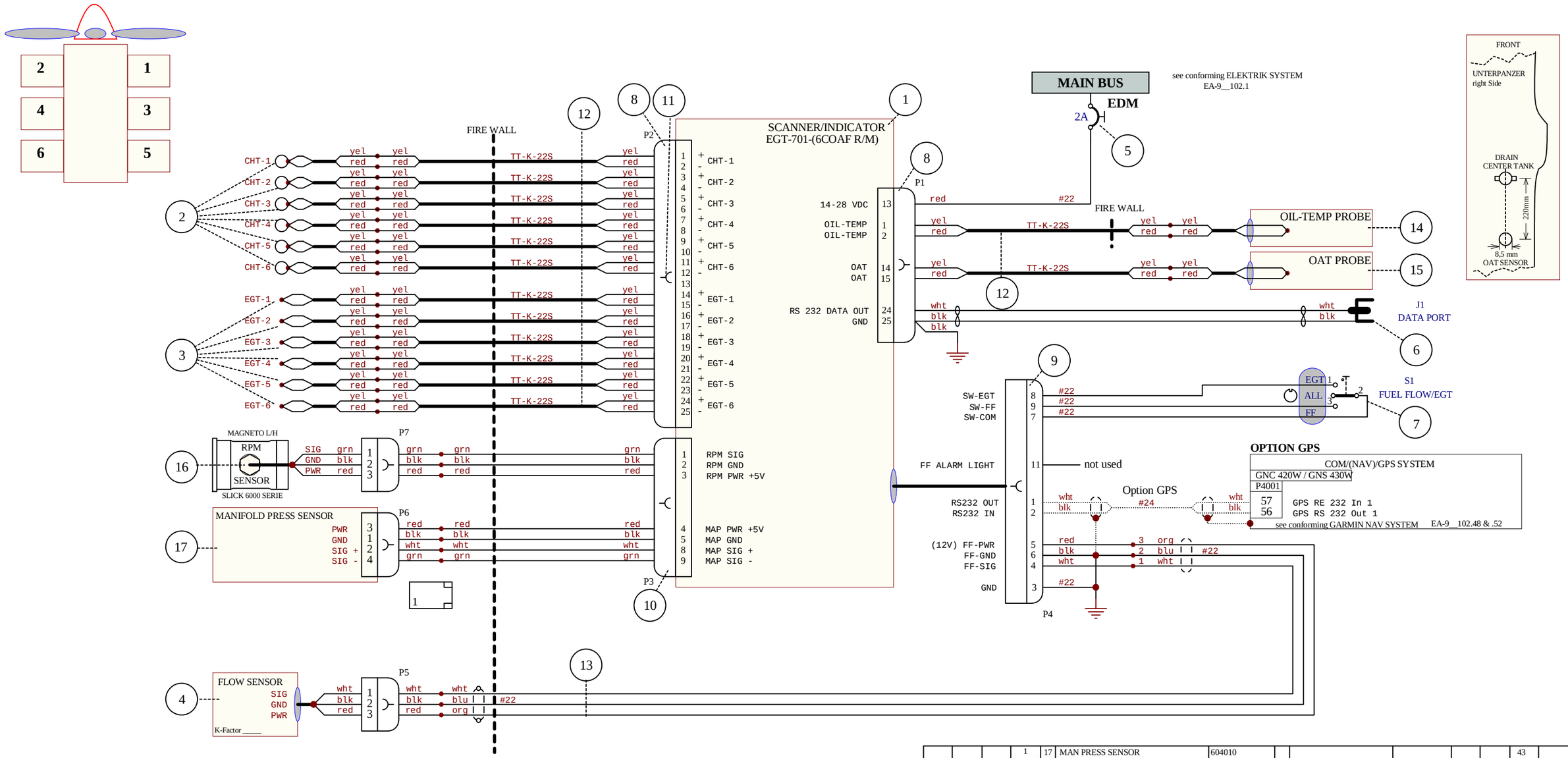
FUEL FLOW EDM-700

EA-93102.28

A4 Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300937**



			1	17	MAN PRESS SENSOR	604010						43	
			1	16	RPM SENSOR	420815-1						43	
			1	15	OAT PROBE	400510							
			1	14	OIL TEMP PROBE	400500-L							
			X	13	WIRE 3xAWG22	MIL-C-27500-22TG3				5	mtr		FE-4008
			X	12	THERMOKABEL	TT-K-22S				45	mtr		
			31	11	PIN	665049							
			1	10	CONNECTOR SUBD 9S	205203-1							
			1	9	CONNECTOR SUBD 15P	205206-1							
			2	8	CONNECTOR SUBD 25S	205207-1							
			1	7	SWITCH	7103							
			1	6	DATA PORT								
			1	5	CIRCUIT BREAKER 2A	7277-2-2							
			1	4	FLOW SENSOR	201-B							
			6	3	EGT PROBE	M-111						57	
			6	2	CHT PROBE	M-113							
			1	1	SCANNER/INDICATOR	EGT-701-(6COAF R/M)						408	
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
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Letzte Bearbeitung:	26.04.11	HW
Nr.:	Änderung/Mod. Nr.:	Datum / Name

	Datum	Name
Bearb.:	13.01.06	HW
Gepr.:		
Gepr.:		

XTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

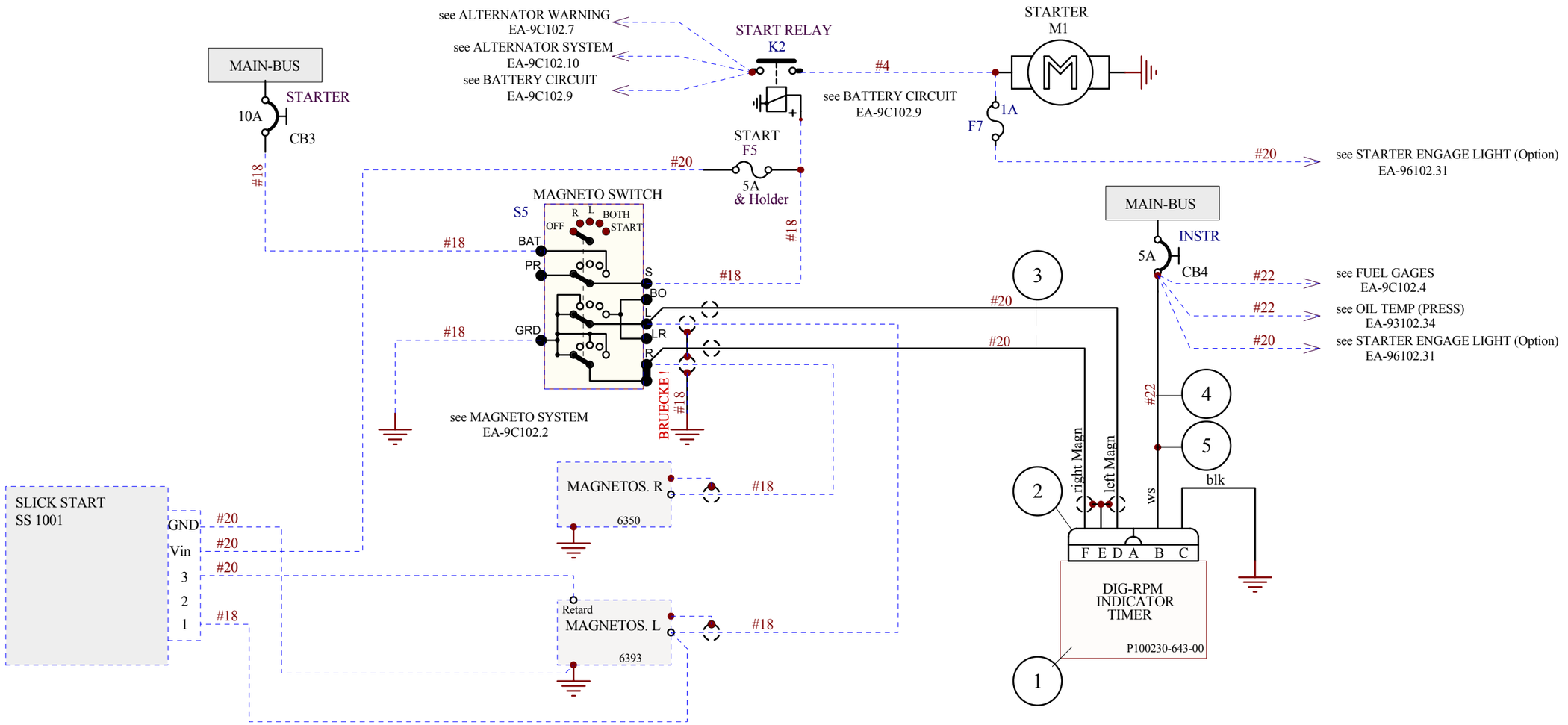
FUEL FLOW EDM-800

EA-93102.29

A4 Blatt von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300938**



			1	5	VERBINDER ROT	320559-0							01422
			X	4	KABEL AWG 20	MIL-W-22759/16-20				3	mtr		00775
			X	3	KABEL AWG 20 GESCHIRMT	MIL-W-27500-20TGT14				5	mtr		FE4002
			1	2	STECKER	MS-3106E14S-6S							02489
			1	1	DIGITAL RPM INDICATOR	P100-230-643-00							02489
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

EA 300/SC

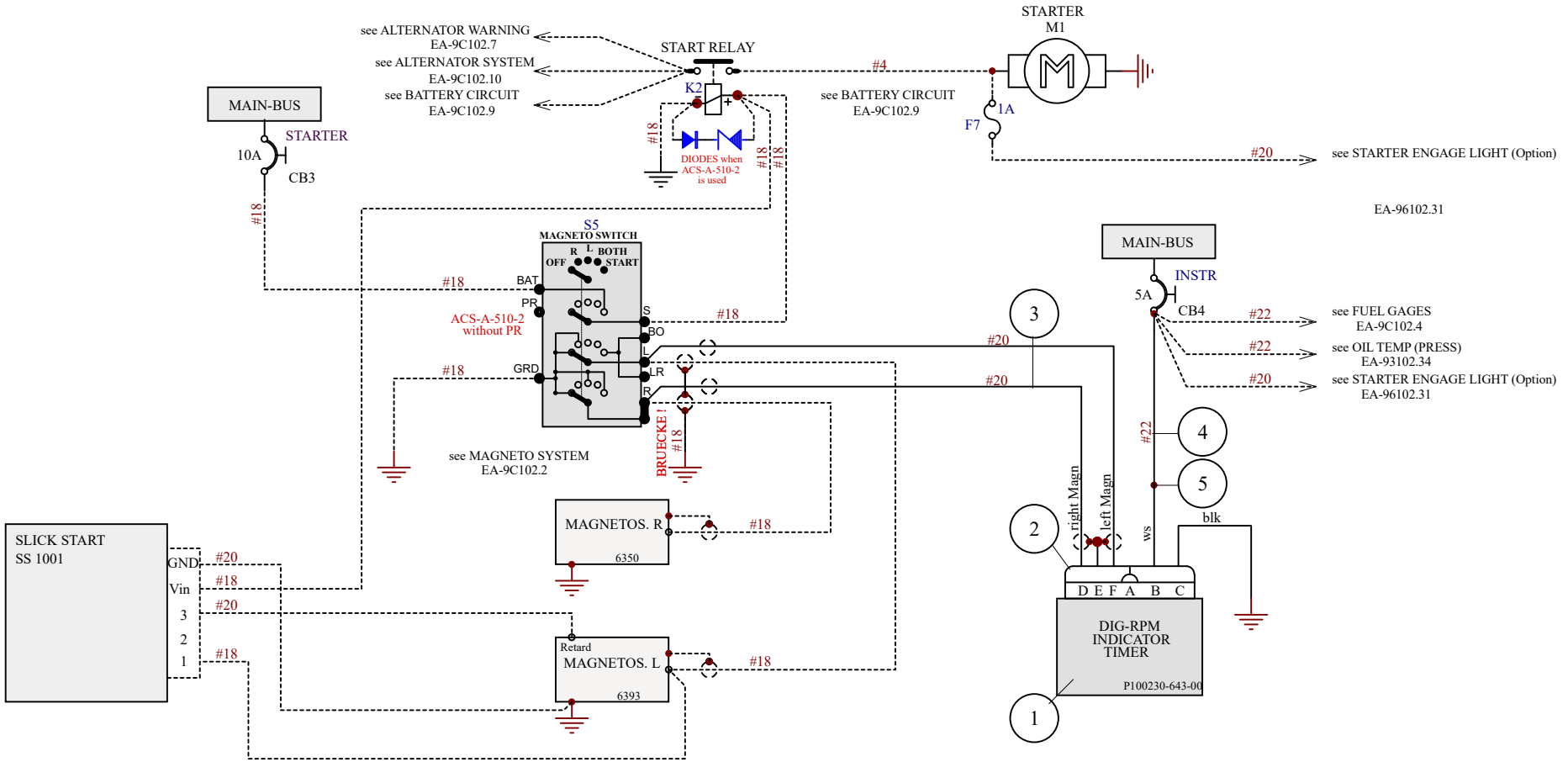
RPM INDICATION

EA-9C102.30

A4 Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0939**



			1	5	VERBINDER ROT	320559-0								01422
			X	4	KABEL AWG 20	MIL-W-22759/16-20				3	mtr			00775
			X	3	KABEL AWG 20 GESCHIRMT	MIL-W-27500-20TGT14				5	mtr			FE4002
			1	2	STECKER	MS-3106E14S-6S								02489
			1	1	DIGITAL RPM INDICATOR	P100-230-643-00								02489
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.	

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
B	ÄM 300-21-05	26.07.21	HW
A	ab SC006	11.07.2008	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

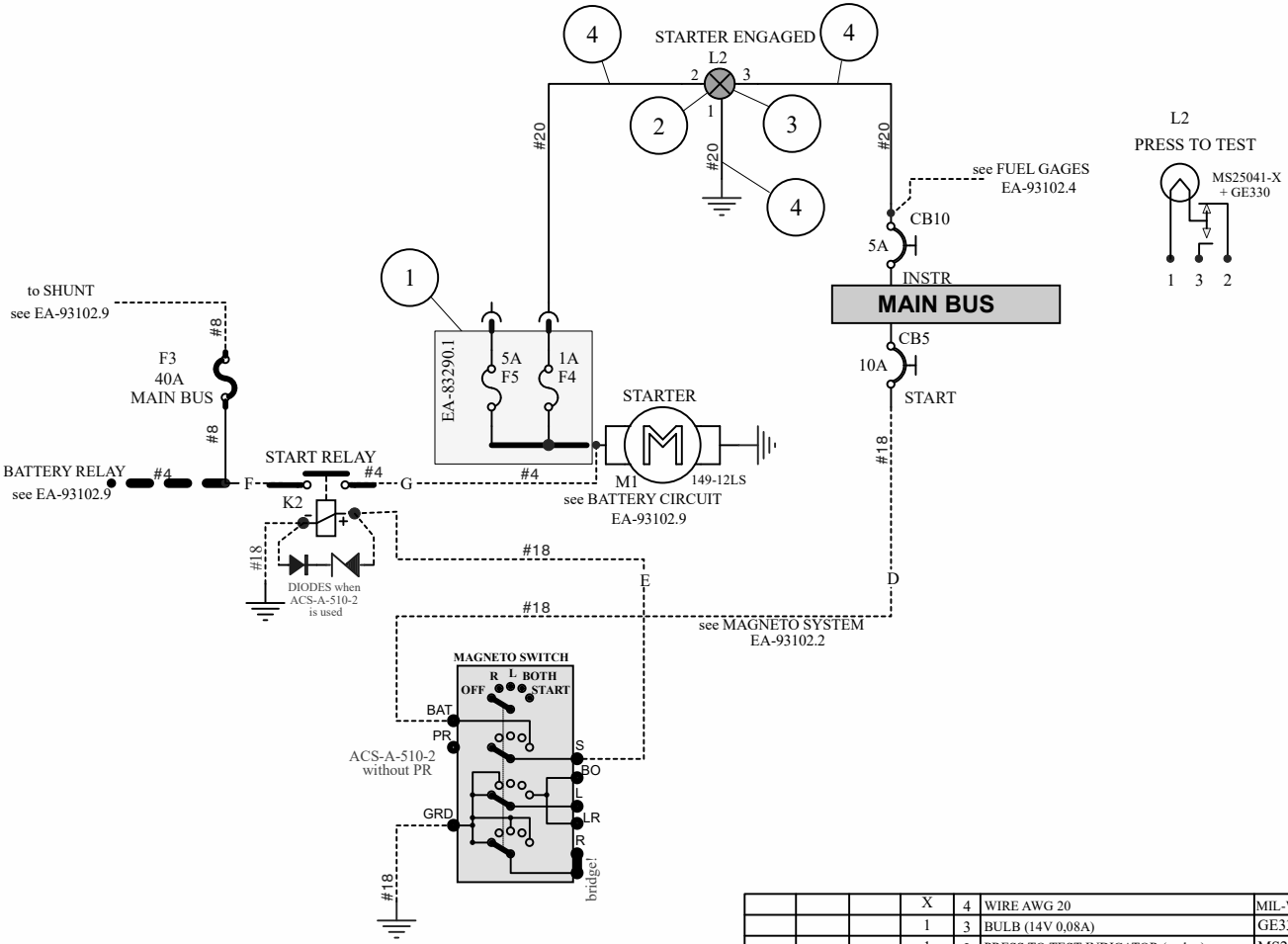
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
RPM INDICATION

EA-9C102.30	B
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: EA3C0939b



			X	4	WIRE AWG 20	MIL-W-22759/16-20				3,5	mtr		00775
			1	3	BULB (14V 0,08A)	GE330							01569
			1	2	PRESS TO TEST INDICATOR (amber)	MS25041-4						14	31732
			1	1	PCB FUSE 1A	83290.001-VB							83290.001VB
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	AM 300-21-05	26.07.21	HW

	Datum	Name
Bearb.:	30.01.06	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

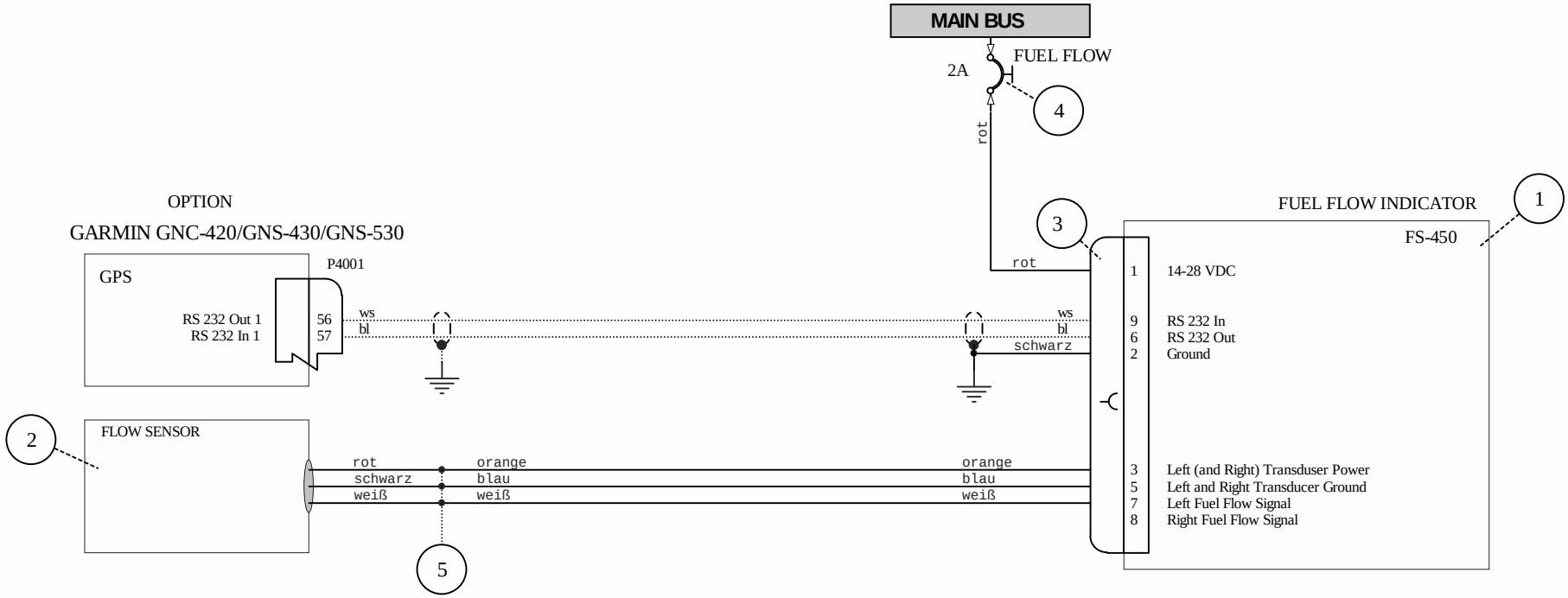
EA 300/L

STARTER ENGAGED LIGHT

EA-96102.31	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3L0940a**



			3	5	SPLICE	D 436-37								FE4086
			1	4	CIRCUIT BREAKER 2A	7277-2-2								31508
			1	3	CONNECTOR KIT									in Pos. 1
			1	2	FLOW SENSOR	201-B							0.085	
			1	1	FUEL FLOW INDICATOR FS-450	450000							0.114	30611
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.	

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
=		=	=

	Datum	Name
Bearb.:	31.01.06	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

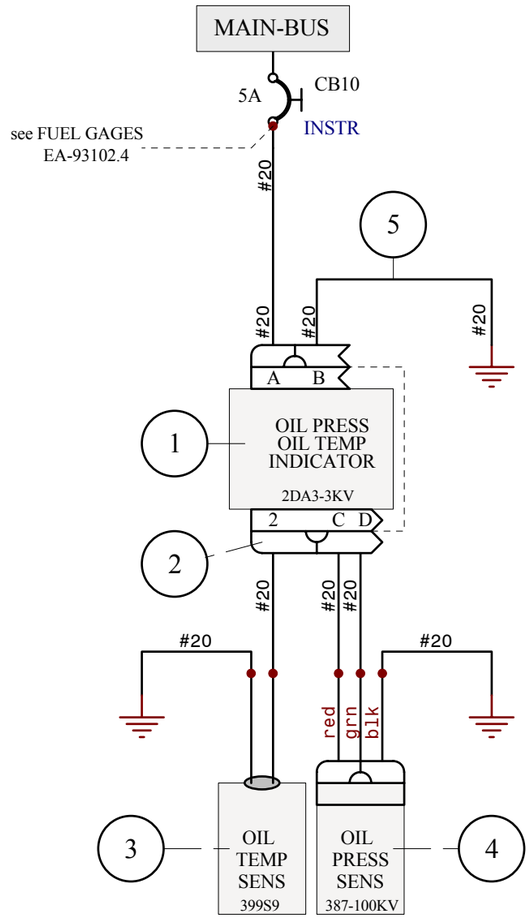
FUEL FLOW FS-450

EA-93102.33

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300942**



X	X	X	X	X	5	WIRE AWG 20	MIL-W-22759/16-20				.	mtr		00775
1	1	1	1	1	5	OIL PRESS SENSOR	387-100KV				.			in Pos. 1
1	1	1	1	1	3	OIL TEMP SENSOR	399S9							in Pos. 1
1	1	1	1	1	2	CONNECTOR	.						.	in Pos. 1
1					1	INDICATOR	61943						.	.
	1				1	INDICATOR	3DA3-3MM						.	.
		1			1	INDICATOR	3DA3-3KV						.	FI0006
			1		1	INDICATOR	2DA3-3MM						.	.
				1	1	INDICATOR	2DA3-3KV						.	FI3002
05	04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
.	.	.	.

	Datum	Name
Bearb.:	10.02.06	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

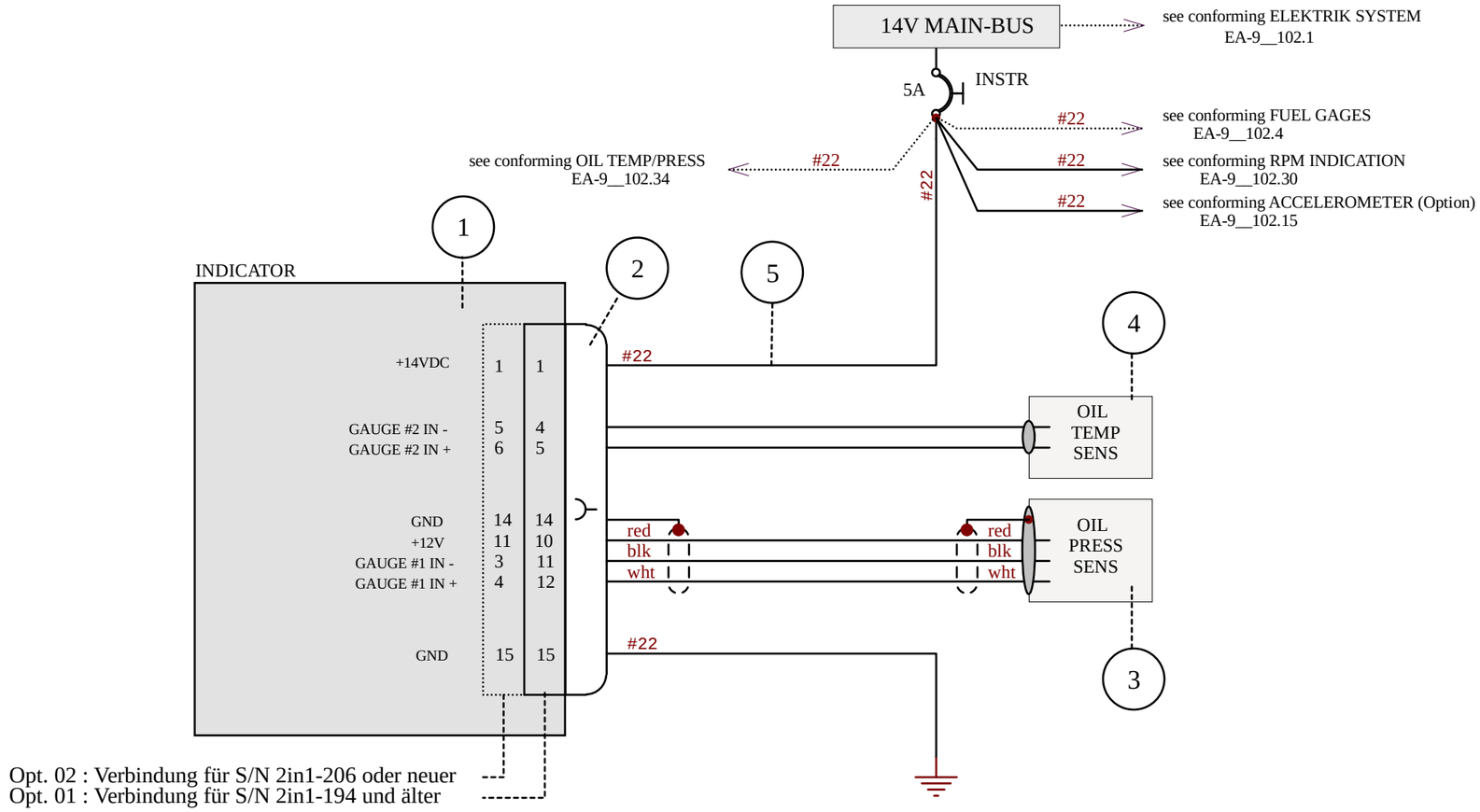
OIL TEMP (PRESS)

EA-93102.34

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung **EA300943**



Opt. 02 : Verbindung für S/N 2in1-206 oder neuer
Opt. 01 : Verbindung für S/N 2in1-194 und älter

Zwischen S/N 2in1-195 und S/N 2in1-205
ist die Verdrahtung zu prüfen

		X	5	WIRE AWG 20	MIL-W-22759/16-20					mtr		00775
		1	4	OIL TEMP SENSOR	1B3A							
		1	3	OIL PRESS SENSOR	N1EU150G/T1EU150G							
		1	2	CONNECTOR DSUB 15								in Pos. 1
		1	1	INDICATOR (2 1/4")	D2-OP130U-0T300U-00							
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM-300-13-07	29.07.13	HW

	Datum	Name
Bearb.:	27.04.10	HW
Gepr.:		
Gepr.:		

EDV-Kennung: **EA3D0943**

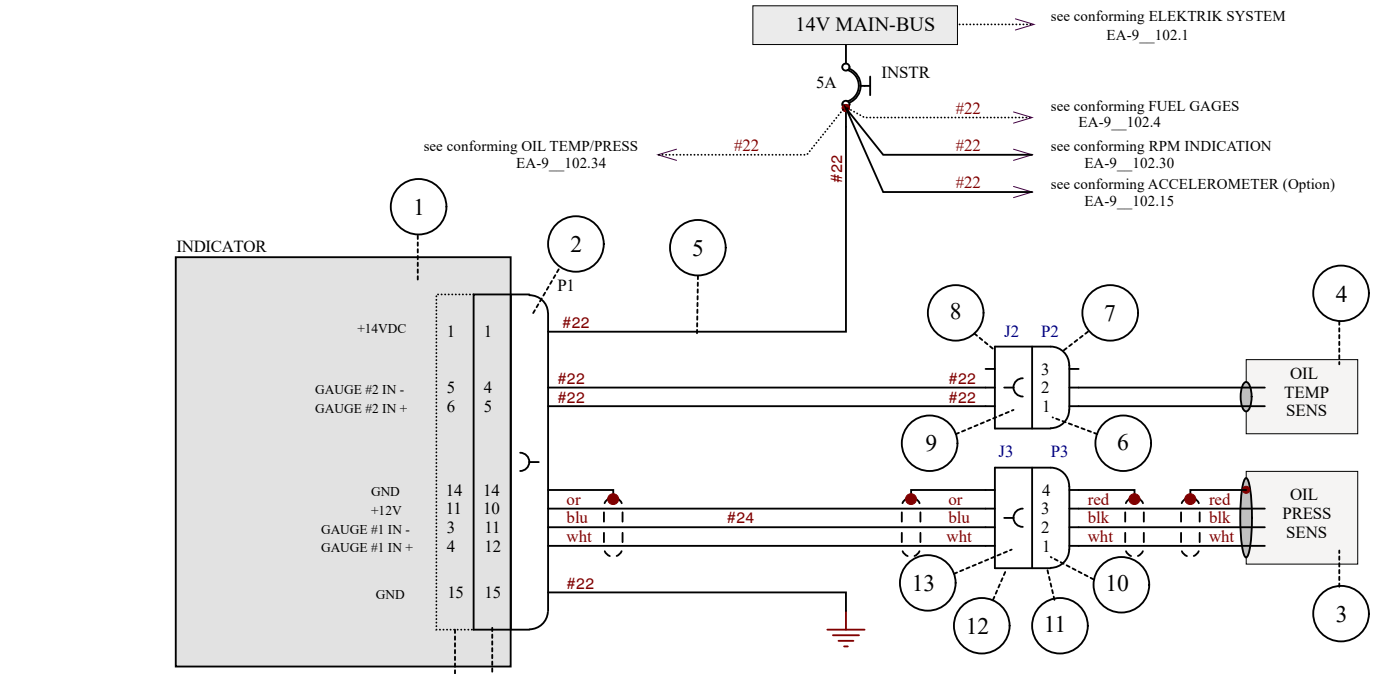
EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/LT
OIL TEMP (PRESS)

EA-9D102.34	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.



Opt. 02 : Verbindung für S/N 2in1-206 oder neuer
Opt. 01 : Verbindung für S/N 2in1-194 und älter

Zwischen S/N 2in1-195 und S/N 2in1-205 ist die Verdrahtung zu prüfen

		4	13	FLACHSTECKER 6,3MM SOCKET	42282-2								00093
		1	12	STECKER HOUSING 4 6,3MM SOCKET	180900-0								01170
		1	11	STECKER HOUSING 4 6,3MM PIN	180901-0								01171
		4	10	FLACHSTECKER 0,8-2,1MM PIN	42565-2								00097
		3	9	MATE-N-LOCK SOCKET	163557-2								FE4305
		1	8	MATE-N-LOCK HOUSING 3 SOCKET	1-0480303-0								FE4307
		1	7	MATE-N-LOCK HOUSING 3 PIN	1-0480305-0								FE4308
		3	6	MATE-N-LOCK PIN	163558-2								FE4306
		X	5	WIRE AWG 20	MIL-W-22759/16-20						mtr		00775
		1	4	OIL TEMP SENSOR	1B3A								34541
		1	3	OIL PRESS SENSOR	N1EU150G/T1EU150G								34542
		1	2	CONNECTOR DSUB 15									in Pos. 1
		1	1	INDICATOR (2 1/4")	D2-OP130U-0T300U-00								33428
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht		MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
B	ÄM-300-15-07	03.03.16	HW
A	ÄM-300-13-07	29.07.13	HW

	Datum	Name
Bearb.:	27.04.10	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

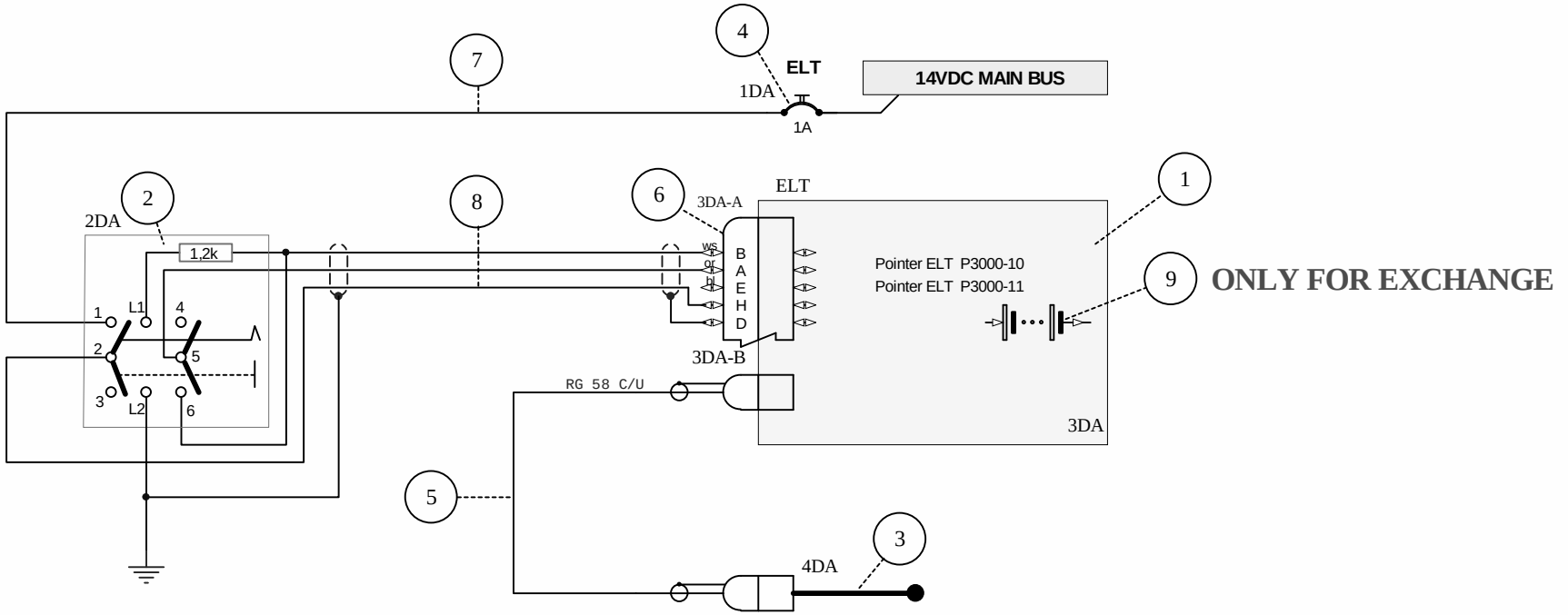
EA 300/LT

OIL TEMP (PRESS)

EA-9D102.34	**B**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3D0943**



1	1	1	1	9	EXCHANGE BATTERY	Pointer 2020				=			02045
X	X	X	X	8	WIRING 3xAWG22	MIL-C-27500-22TG3				=	mtr		FE4009
X	X	X	X	7	WIRING AWG 22	MIL-W-22759/16-22				=	mtr		01694
1	1	1	1	6	REMOTE CONNECTOR	Part of 2019-10 Kit				=			=
1	1	1	1	5	ANTENNA CABLE	Pointer 3002				=			=
1		1		4	CIRCUITBREAKER 1A	W23X1A1G-1							00130
	1		1	4	CIRCUITBREAKER 1A	7277-2-1							31526
1	1	1	1	3	ANTENNA	Pointer 3001-10							=
1	1	1	1	2	REMOTE SWITCH	Pointer 2019-10						=	=
1	1			1	TRANSMITTER ASSY	Pointer 3000-11						=	02154
		1	1	1	TRANSMITTER ASSY	Pointer 3000-10						=	50025
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	Pointer 3000-10	18.10.06	HW
	& -11 eingeführt		
	UA-300-1-94	=	=

	Datum	Name
Bearb.:	17.10.06	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

ELT POINTER 3000

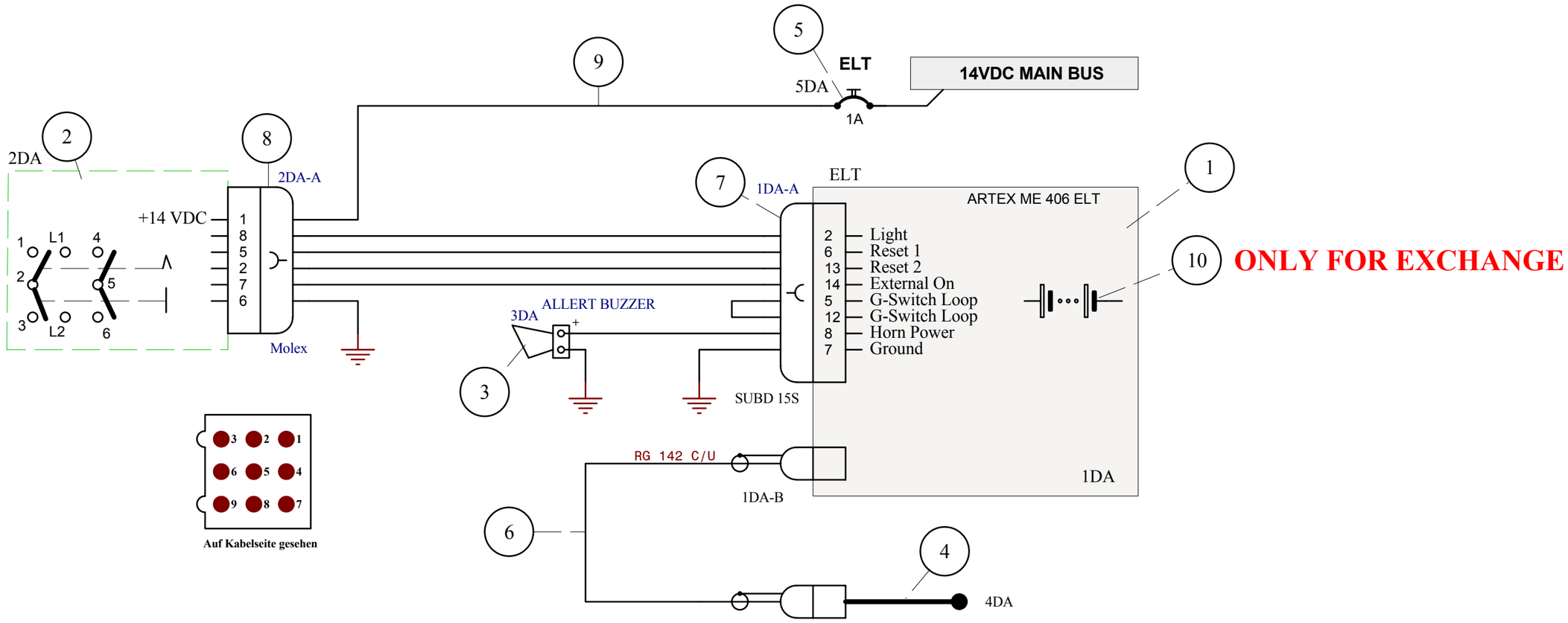
EA-93102.41

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300950a**

OPTION 04 = EA-300; EA-300/200; EA-300/S; EA-300/L (POTTER-BRUMFIELD CB & POINTER 3000-11)
OPTION 03 = EA-300; EA-300/200; EA-300/S; EA-300/L (KLIXON CB & POINTER 3000-11)
OPTION 02 = EA-300; EA-300/200; EA-300/S; EA-300/L (POTTER-BRUMFIELD CB & POINTER 3000-10)
OPTION 01 = EA-300; EA-300/200; EA-300/S; EA-300/L (KLIXON CB & POINTER 3000-10)



		1	1	10	EXCHANGE BATTERY	452-6504				.			
		X	X	9	WIRING AWG 22	MIL-W-22759/16-22				.	mtr		01694
		1	1	8	ELT CONNECTOR	150-1130				.			.
		1	1	7	REMOTE CONNECTOR	151-5009				.			.
		1	1	6	ANTENNA CABLE	611-6013-04				.		142g	.
		1		5	CIRCUITBREAKER 1A	W23X1A1G-1							00130
			1	5	CIRCUITBREAKER 1A	7277-2-1							31526
		1	1	4	ANTENNA	110-773						114g	.
		1	1	3	ALERT BUZZER	452-6505						9,5g	.
		1	1	2	REMOTE SWITCH	345-6196						46g	.
		1	1	1	TRANSMITTER ASSY	ME 406 ELT						936g	
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
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Letzte Bearbeitung:	25.04.09	HW
Nr.:	Änderung/Mod. Nr.:	Datum / Name
.	.	.

	Datum	Name
Bearb.:	26.10.06	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

ELT ARTEX ME 406

EA-93102.42

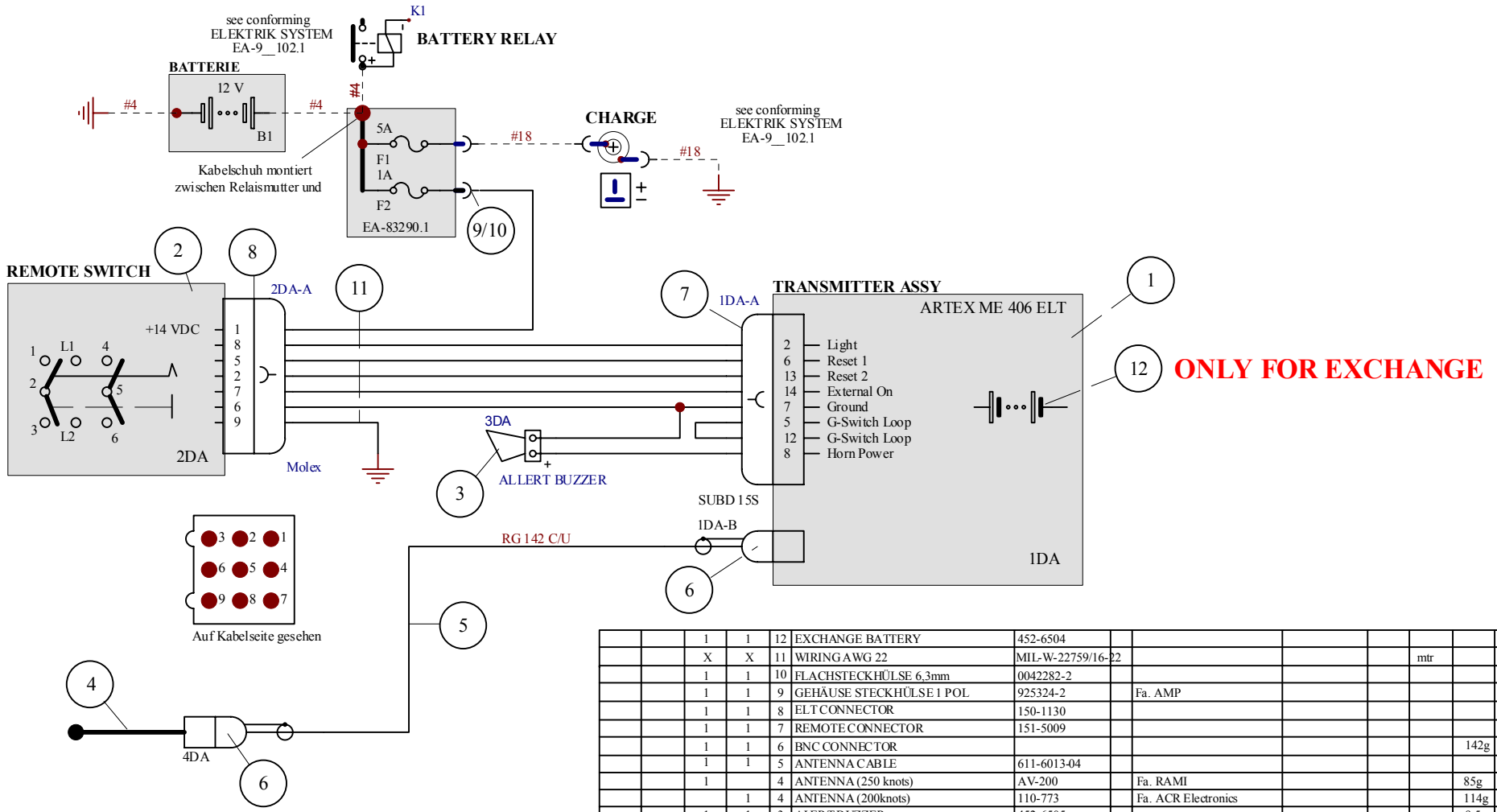
A4 Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300951**

OPTION 02 = EA-300; EA-300/200; EA-300/S; EA-300/L (POTTER-BRUMFIELD CB)
OPTION 01 = EA-300; EA-300/200; EA-300/S; EA-300/L (KLIXON CB)

KOPF RAHMEN



		1	1	12	EXCHANGE BATTERY	452-6504							
		X	X	11	WIRING AWG 22	MIL-W-22759/16-22					mtr		01694
		1	1	10	FLACHSTECKHÜLSE 6,3mm	0042282-2							00093
		1	1	9	GEHÄUSE STECKHÜLSE 1 POL	925324-2		Fa. AMP					00098
		1	1	8	ELT CONNECTOR	150-1130							
		1	1	7	REMOTE CONNECTOR	151-5009							
		1	1	6	BNC CONNECTOR							142g	
		1	1	5	ANTENNA CABLE	611-6013-04							
		1		4	ANTENNA (250 knots)	AV-200		Fa. RAMI				85g	33965
			1	4	ANTENNA (200knots)	110-773		Fa. ACR Electronics				114g	
		1	1	3	ALERT BUZZER	452-6505						9,5g	
		1	1	2	REMOTE SWITCH	345-6196						46g	
		1	1	1	TRANSMITTER ASSY	ME 406 ELT						936g	
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

OPTION 02 = mit Antenne RAMI AV-200 (250 knots)
OPTION 01 = mit Antenne ACR Electronics 110-773 (200 knots)

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
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03	
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01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod.	Nr.:	Datum	Name
A	ÄM 300-12-10		22.07.12	HW

	Datum	Name
Bearb.:	23.03.10	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

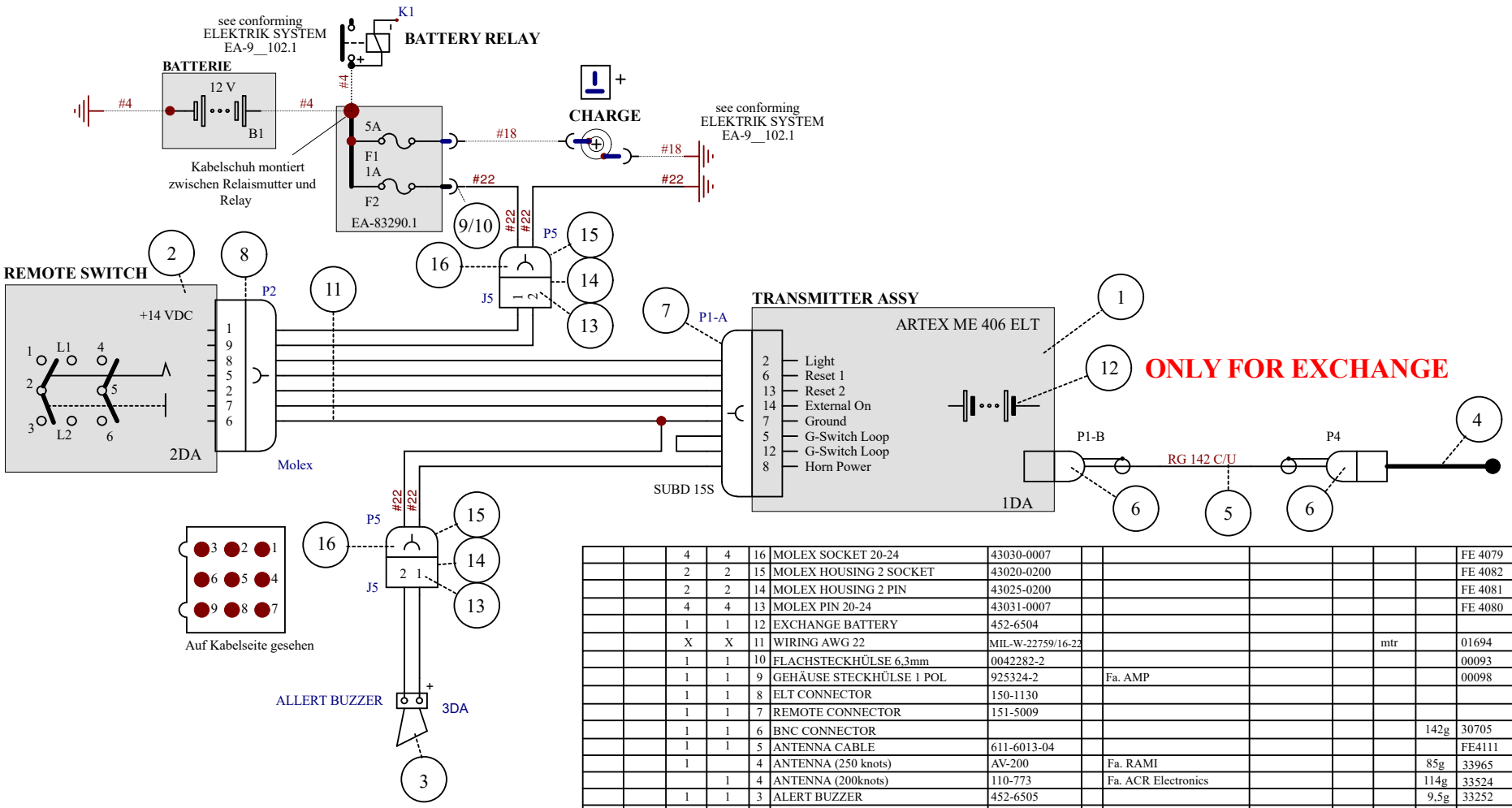
Maßstab auf	Projektion
Sl.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/LT
ELT ARTEX ME 406

EA-9D102.42	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3D0951a**



		4	4	16	MOLEX SOCKET 20-24	43030-0007							FE 4079
		2	2	15	MOLEX HOUSING 2 SOCKET	43020-0200							FE 4082
		2	2	14	MOLEX HOUSING 2 PIN	43025-0200							FE 4081
		4	4	13	MOLEX PIN 20-24	43031-0007							FE 4080
		1	1	12	EXCHANGE BATTERY	452-6504							
		X	X	11	WIRING AWG 22	MIL-W-22759/16-22					mtr		01694
		1	1	10	FLACHSTECKHÜLSE 6,3mm	0042282-2							00093
		1	1	9	GEHÄUSE STECKHÜLSE 1 POL	925324-2		Fa. AMP					00098
		1	1	8	ELT CONNECTOR	150-1130							
		1	1	7	REMOTE CONNECTOR	151-5009							
		1	1	6	BNC CONNECTOR							142g	30705
		1	1	5	ANTENNA CABLE	611-6013-04							FE4111
		1		4	ANTENNA (250 knots)	AV-200		Fa. RAMI				85g	33965
			1	4	ANTENNA (200knots)	110-773		Fa. ACR Electronics				114g	33524
		1	1	3	ALERT BUZZER	452-6505						9,5g	33252
		1	1	2	REMOTE SWITCH	345-6196						46g	33896
		1	1	1	TRANSMITTER ASSY	ME 406 ELT						936g	32173
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod.	Nr.:Datum	Name
B	ÄM-300-15-07	03.03.16	HW
A	ÄM 300-12-10	22.07.12	HW

	Datum	Name
Bearb.	23.03.10	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
Sl.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/LT

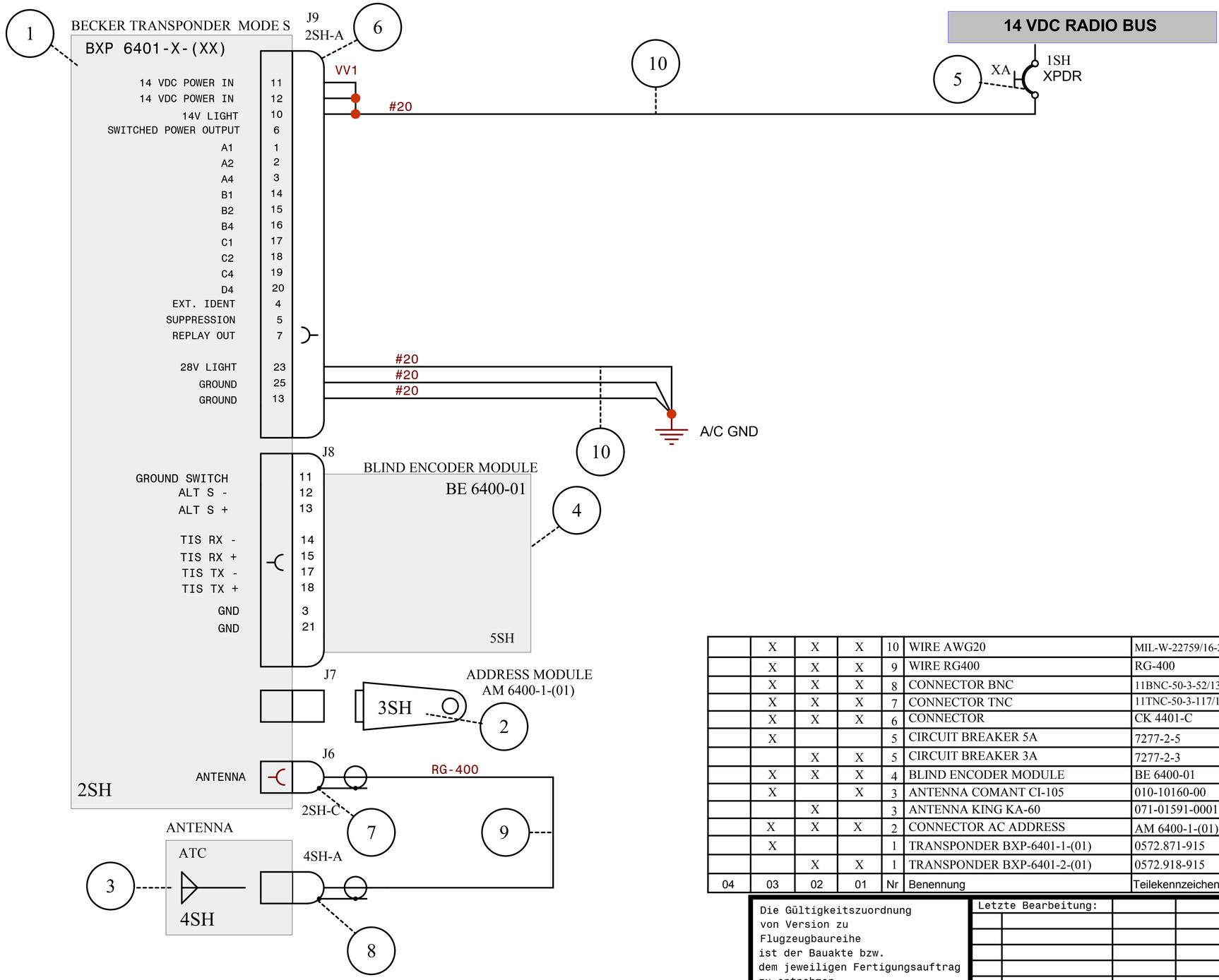
ELT ARTEX ME 406

EA-9D102.42	**B**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3D0951a**

OPTION 02 = mit Antenne RAMI AV-200 (250 knots)
OPTION 01 = mit Antenne ACR Electronics 110-773 (200 knots)



OPTION 03 = CLASS-1 MIT COMANT CI-105 ANTENNE
OPTION 02 = CLASS-2 MIT KING KA-60 ANTENNE
OPTION 01 = CLASS-2 MIT COMANT CI-105 ANTENNE

	X	X	X	10	WIRE AWG20	MIL-W-22759/16-20				0,7	mtr		00775
	X	X	X	9	WIRE RG400	RG-400				2,9	mtr		FE4111
	X	X	X	8	CONNECTOR BNC	11BNC-50-3-52/133				1	Stueck		30705
	X	X	X	7	CONNECTOR TNC	11TNC-50-3-117/133				1	Stueck		31633
	X	X	X	6	CONNECTOR	CK 4401-C				1	Stueck		31863
	X			5	CIRCUIT BREAKER 5A	7277-2-5				1	Stueck		31506
		X	X	5	CIRCUIT BREAKER 3A	7277-2-3				1	Stueck		31507
	X	X	X	4	BLIND ENCODER MODULE	BE 6400-01				1	Stueck		
	X		X	3	ANTENNA COMANT CI-105	010-10160-00				1	Stueck		30336
		X		3	ANTENNA KING KA-60	071-01591-0001				1	Stueck		04108
	X	X	X	2	CONNECTOR AC ADDRESS	AM 6400-1-(01)				1	Stueck		
	X			1	TRANSPONDER BXP-6401-1-(01)	0572.871-915				1	Stueck		
		X	X	1	TRANSPONDER BXP-6401-2-(01)	0572.918-915				1	Stueck		
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	24.10.06	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

TRANSPONDER BXP-6401-X & ENC

EA-93102.43

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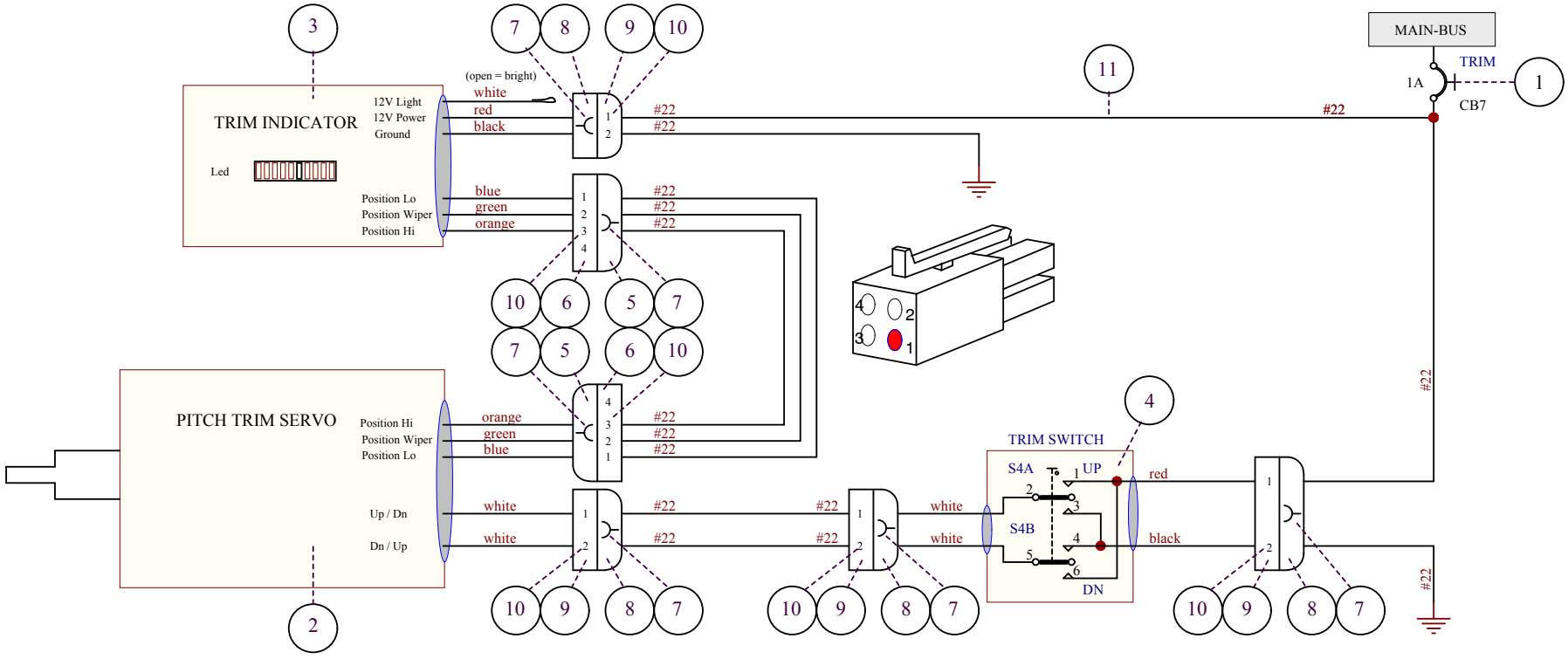
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300952**



		X	X	11	KABEL AWG 22	MIL-W-22759/16-22					mtr		01694
		14	14	10	PIN MOLEX	43030-0007	*						FE4079
		4	4	9	PIN GEHÄUSE 2 POLIG	43020-0200	*						FE4082
		4	4	8	BUCHSEN GEHÄUSE 2 POLIG	43025-0200	*						FE4081
		14	14	7	BUCHSE Molex	43031-0007	*						FE4080
		2	2	6	PIN GEHÄUSE 4 POLIG	43020-0400	*						FE4257
		2	2	5	BUCHSEN GEHÄUSE 4 POLIG	43025-0400	*						FE4256
		1		4	TRIM SWITCH	SL-2211C1B2							33274
			1	4	TRIM SWITCH	MS35059-27							31488
		1	1	3	TRIM INDICATOR	RP3-LED							(31668)
		1	1	2	PITCH TRIM SERVO	T3-12A							31668
		1	1	1	CIRCUIT BREAKER 1A	7277-2-1							31506
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

* NOTE
Alternative zu Pos.-Nr. 5 - 10
Crimpverbinder rot PN. D-436-36 (Raychem)
MaWi-Nr. FE4108

OPTION 02 = MIT TRIM SWITCH IM STICK
OPTION 01 = MIT TRIM SWITCH IM PANEL

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung: 17.11.16 HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM-300-09-23	30.11.09	HW

	Datum	Name
Bearb.:	05.05.08	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

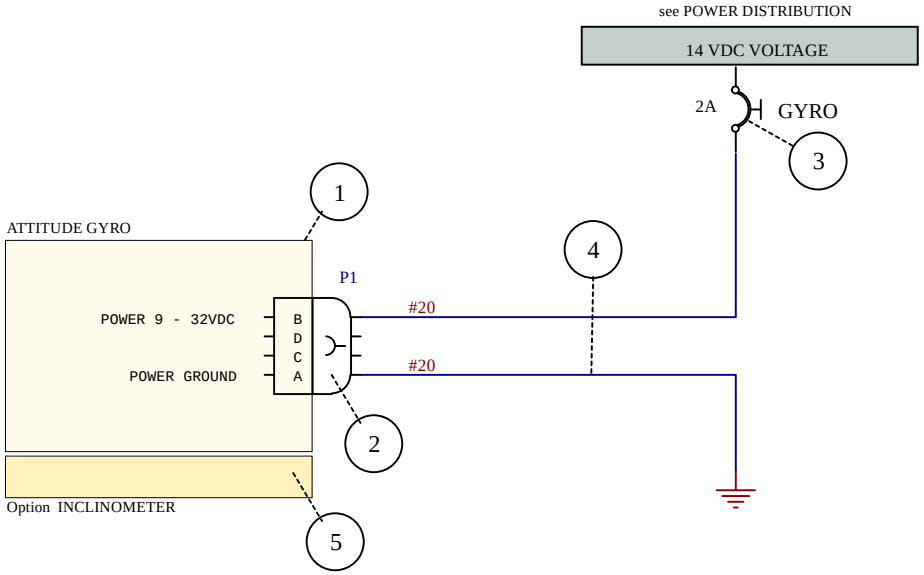
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
ELECTRIC TRIM SYSTEM

EA-9C102.44	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0952al2**



1		1		5	INCLINOMETER	RCA 444-0010-01				1	Stueck		33529
X	X	X	X	4	WIRE AWG20	MIL-W-22759/16-20				0,7	mtr		
X	X	X	X	3	CIRCUIT BREAKER 2A	7277-2-2				1	Stueck		31508
X	X	X	X	2	CONNECTOR	MS3116E-4S				1	Stueck		
1	1			1	ATTITUDE GYRO 3"	RCA 2600-3				1	Stueck	16oz	33217/33882
		1	1	1	ATTITUDE GYRO 2"	RCA 2600-2				1	Stueck	8.5oz	33027/33881
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:	07.11.13	HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	07.06.09	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/L

ATTITUDE GYRO

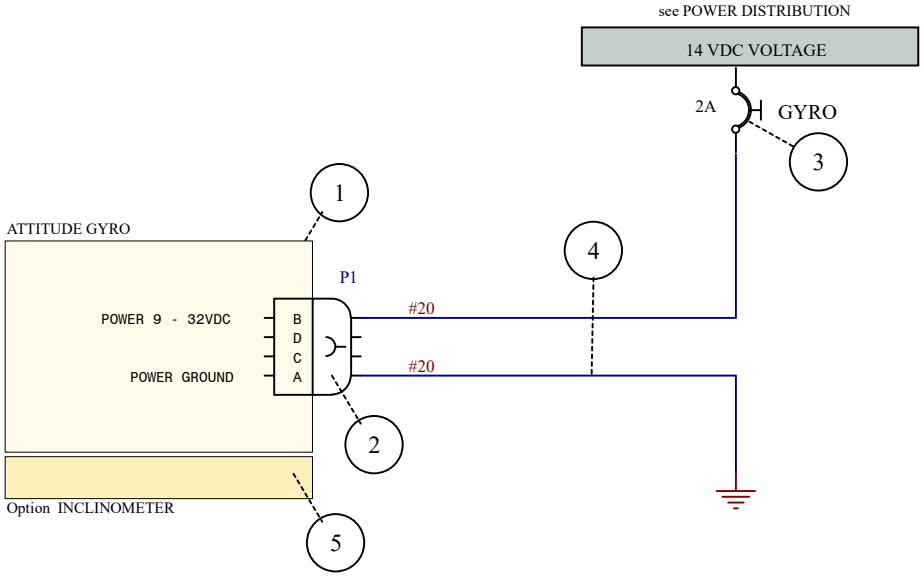
EA-96102.49

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3L0964**

OPTION 04 = 3 Inch VERSION with INCLOMETER
OPTION 03 = 3 Inch VERSION
OPTION 02 = 2 Inch VERSION with INCLOMETER
OPTION 01 = 2 Inch VERSION



*	*	*	*	5	INCLINOMETER	RCA 444-0010-01				1	Stueck		33529
X	X	X	X	4	WIRE AWG20	MIL-W-22759/16-20				0,7	mtr		00775
X	X	X	X	3	CIRCUIT BREAKER 2A	7277-2-2				1	Stueck		31508
X	X	X	X	2	CONNECTOR	MS3116E-4S				1	Stueck		in Pos. 1
1				1	ATTITUDE GYRO 3"	RCA 2610-3-G		102- 0403-01-03		1	Stueck	191g	34924
	1			1	ATTITUDE GYRO 2"	RCA 2610-2-G		102- 0402-01-03		1	Stueck	135g	34923
		1		1	ATTITUDE GYRO 3"	RCA 2610-3		102- 0403-01-01		1	Stueck	191g	34922
			1	1	ATTITUDE GYRO 2"	RCA 2610-2		102- 0402-01-01		1	Stueck	135g	34921
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

* POS 5 INCLINOMETER OPTIONAL
OPTION 04 = 3 Inch VERSION
OPTION 03 = 2 Inch VERSION
OPTION 02 = 3 Inch VERSION with pitch Sync feature
OPTION 01 = 2 Inch VERSION with pitch Sync feature

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

04	
03	
02	
01	
Ver.	Bezeichnung

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name
A	ÄM 300-18-03	28.11.18	HW

	Datum	Name
Bearb.:	07.06.09	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/L
ATTITUDE GYRO

EA-96102.49	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3L0964a**

ENGINE DATA CONVERTER

EDC-33P-6

CHT SENSORS
P-100
CHT-1
CHT-2
CHT-3
CHT-4
CHT-5
CHT-6

EGT SENSORS
P-110
EGT-1
EGT-2
EGT-3
EGT-4
EGT-5
EGT-6

OIL-TEMP PROBE
P-120
OAT PROBE
P-128
TC Connector Typ K
TT-K-22S

FIRE WALL
R1 VI-22
P2
Middle Connector

P2		
13	TEMP CH 9 (+In)	
14	TEMP CH10 (+In)	
32	TEMP CH10 (-In)	
15	TEMP CH11 (+In)	
33	TEMP CH11 (-In)	
16	TEMP CH12 (+In)	
34	TEMP CH12 (-In)	
17	TEMP CH13 (+In)	
35	TEMP CH13 (-In)	
18	TEMP CH14 (+In)	
36	TEMP CH14 (-In)	
19	TEMP CH15 (+In)	
37	TEMP CH15 (-In)	
28	GND	
2	TEMP CH 1 (+In)	FL CH 1 (Rin)
20	TEMP CH 1 (-In)	FL CH 2 (Rin)
3	TEMP CH 2 (+In)	FL CH 3 (+5V)
21	TEMP CH 2 (-In)	FL CH 4 (+5V)
4	TEMP CH 3 (+In)	FL CH 4 (Cin)
22	TEMP CH 3 (-In)	FL CH 4 (GND)
5	TEMP CH 4 (+In)	FL CH 3 (Cin)
23	TEMP CH 4 (-In)	FL CH 3 (GND)
6	TEMP CH 5 (+In)	FL CH 3 (Rin)
24	TEMP CH 5 (-In)	GND
7	TEMP CH 6 (+In)	FL CH 4 (Rin)
25	TEMP CH 6 (-In)	GND
29	GND	GND
10	TEMP COMP	
8	TEMP CH 7 (+In)	GND
26	TEMP CH 7 (-In)	+5V
11	GND	GND
1	GND	+5V
30	GND	GND
9	TEMP CH 8 (+In)	GND
27	TEMP CH 8 (-In)	+5V
31	TEMP CH 9 (-In)	TEMP CH16 (+In)
12	GND	TEMP CH17 (+In)
		GND
		FL CH 1 (+5V)
		FL CH 1 (Cin)
		FL CH 1 (GND)
		FL CH 2 (+5V)
		FL CH 2 (Cin)
		FL CH 2 (GND)
		GND
		RPM CH 2 (In)
		TEMP CH16 (-In)
		TEMP CH17 (-In)
		RPM 6-CYL (GND)
		RPM 6-CYL (Sel)
		GND
		RPM CH 1 (In)

P1

P1		
37	POWER	
35	VOLTS	
20	PRESS CH 1 (+5V)	+ AMP
21	PRESS CH 1 (GND)	- AMP
2	PRESS CH 1 (-In)	
3	PRESS CH 1 (+In)	
24	PRESS CH 3 (+5V)	PRESS CH 4 (+5V)
25	PRESS CH 3 (GND)	PRESS CH 4 (GND)
6	PRESS CH 3 (-In)	PRESS CH 4 (-In)
7	PRESS CH 3 (+In)	PRESS CH 4 (+In)
17	NC	PRESS CH 5 (+5V)
		PRESS CH 5 (GND)
		PRESS CH 5 (-In)
		PRESS CH 5 (+In)
		PRESS CH 6 (+5V)
		PRESS CH 6 (GND)
		PRESS CH 6 (-In)
		PRESS CH 6 (+In)
22	PRESS CH 2 (+5V)	GND
23	PRESS CH 2 (GND)	RS 422-B
4	PRESS CH 2 (-In)	RS 422+A
5	PRESS CH 2 (+In)	
		DO NOT USE
14	FUEL FLOW (Input)	
16	FUEL FLOW (GND)	GND INPUT
15	FUEL FLOW (+10V)	

Top Connector

MANIFOLD PRESS SENSOR
PT-30ABS
PWR
GND
SIG
SIG

OIL PRESS SENSOR
PT-100GA

FUEL PRESS SENSOR
PT-30GA

FLOW SENSOR
FT-60
K-Factor ____

P3

P3	
23	brown
4	
33	
15	
14	
16	
32	
34	
35	
36	
17	
37	
24	
7	
8	
9	
10	
11	
5	
6	
12	
13	
18	
21	
20	
22	
2	
1	
3	
19	
25	
30	
31	
27	
28	
29	
26	

Bottom Connector
P1

P1	
32	
33	#22
26	
27	
8	
9	
28	
29	
10	
11	
30	
31	
12	
13	
1	wht
36	wht/grn
18	
34	
19	black

MVP-50
MAIN-BUS
5A
see conforming ELEKTRIK SYSTEM EA-9__102.1 SH 1 100A
F4 1A F3 1A
PCB

RESISTIVE FUEL LEVEL MONITOR
RFLM 4-12V

red	+Vin
brown	CH 1
orange	CH 2
yellow	CH 3
green	CH 4
brown	FUEL TANK 1
orange	FUEL TANK 2
yellow	FUEL TANK 3
green	FUEL TANK 4

LEFT — WING — RIGHT
226 801 015 001G
REAR — CENTER — FRONT
cgfp-11.2-12v-0/5v-avgas-3t-5h
cgfp-12.4-12v-0/5v-avgas-3t-5h

FIRE WALL
MAGNETO R/H
P-LEAD
MAGNETO L/H
79K R2
79K R3
see conforming ELEKTRIK SYSTEM EA-9__102.1

ENGINE MONITOR
MVP-50P-EX-__

P1	
7	PORT 2 (RS232, Out)
8	PORT 2 (RS232, In)
9	GND (RS232-2)
1	POWER In
2	POWER In
3	TRANSMIT LOCKOUT (Input)
4	AUX DIGITAL In 2
5	AUX DIGITAL In 1
6	RS 232-2 GND
10	PORT 3 (RS232, Out)
11	PORT 3 (RS232, In)
12	EDC RS422-B In
13	EDC RS422+A In
16	MASTER WARNING Out
17	MASTER WARNING Out
18	AUX In 3
19	PORT 4 (RS232,In)
20	VOICE CNTRL Off
21	VOICE CNTRL +5V
22	VOICE CNTRL ACK
14	GND In
15	GND In
23	+ VOICE WARNING Out
24	- VOICE WARNING Out
25	BACK LIGHTCONTROL In

05.07.16

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

EDV-Kennung: EA3C0961_1_L1

Letzte Bearbeitung:	28.11.18	HW

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	14.07.16	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
DIGITAL INDICATION MVP-50P

EA-9C102.52_1

A3 | Blatt 1 von 2

Schutzvermerk nach DIN 34 beachten.

		1	1	36	FUSE PCB 4F	7E291.10							7E291.10
		1	1	35	SHUNT	S-50		Fa. ELECTRONICS INTERNATIONAL					FA3008
		1	1	34	GEHÄUSE 25 POLIG	165X16399X							33349
		40	40	33	SPLICE	FTS D436-37							FE 4086
		6	6	30	PIDG Ringkabelschuh A4-1	31890-0							01417
		1	1	29	FUEL SENSOR	cgfp-12.4-12v-0/5v-avgas-3t-5h							34679
		1	1	28	FUEL SENSOR	cgfp-11.2-12v-0/5v-avgas-3t-5h							34678
		2	2	27	FUEL SENSOR	226 801 015 001G							FM4006
		X	X	26	WIRE AWG 20 SHIELDED	MIL-C-27500-20TG1					mtr		
		X	X	25	WIRE AWG 22	MIL-W-22759/16-22					mtr		
		1	1	24	SUB-D CONNECTOR			supplied by EI (Kit)					
		1	1	23	RESISTIVE FUEL LEVEL MONITOR	RFLM 4-12V							33109
		2	2	22	RESISTOR 79K	79K							
		1	1	21	RESISTOR	VI-221							33115
		7	7	20	FLACHSTECKER BUCHSE 6,3mm	0042282-2							00093
		7	7	19	BUCHSEN GEHÄUSE 1 POLIG	925324-2							00098
		3	3	18	GEHÄUSE 37 POLIG	165X16409X							33350
		1	1	17	FLOW SENSOR	FT-60							33288
		1	1	16	FUEL PRESS SENSOR	PT-30GA							33285
		1	1	15	OIL PRESS SENSOR	PT-100GA							33286
		1	1	14	MANIFOLD PRESS SENSOR	PT-30ABS							33284
		1	1	13	TC CONNECTOR SOCKET TYP K	0220 0002		Fa. FARNELL					33548
		1	1	12	OAT PROBE	P-128							33290
		1	1	11	OIL-TEMP PROBE	P-120							33289
		X	X	10	THERMOKABEL	TT-K-22S		supplied by EI (Kit)			mtr		
		6	6	9	EGT SENSORS	P-110							33569
		6	6	8	CHT SENSORS	P-100							33568
		1	1	7	CONNECTOR			supplied by EI (Kit)					
			1	6	ENGINE MONITOR	MVP-50P-EX-05							34647
		1		6	ENGINE MONITOR	MVP-50P-EX-06							34648
		1	1	5	CONNECTOR			supplied by EI (Kit)					
		1	1	4	CONNECTOR			supplied by EI (Kit)					
		1	1	3	CONNECTOR			supplied by EI (Kit)					
		1	1	2	ENGINE DATA CONVERTER	EDC-33P-6							33283
		1	1	1	CIRCUIT BREAKER 5A	7277-2-5							31506
04	03	02	01	Nr	Benennung	Teilekennzeichen		Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	2700 RPM
01	2600 RPM

Letzte Bearbeitung:		28.11.18	HW
Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	22.07.16	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

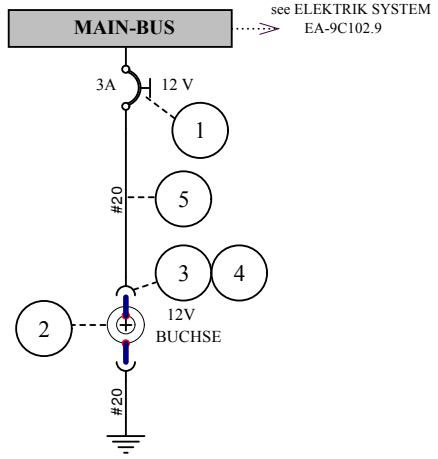
DIGITAL INDICATION MVP-50P

EA-9C102.52_2

A4 | Blatt 2 von 2

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0961_2_L1**



		X	5	WIRE AWG 20	MIL-W-22759/16-20					mtr		02199
		2	4	FLACHSTECKHÜLSE 6,3mm	0042282-2							00093
		2	3	GEHÄUSE STECKHÜLSE 1 POL	925324-2		Fa. AMP					00098
		1	2	BUCHSE	1218		Fa. SUTARS					31494
		1	1	CIRCUIT BREAKER 3A	7277-2-3							31507
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	27.06.16	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

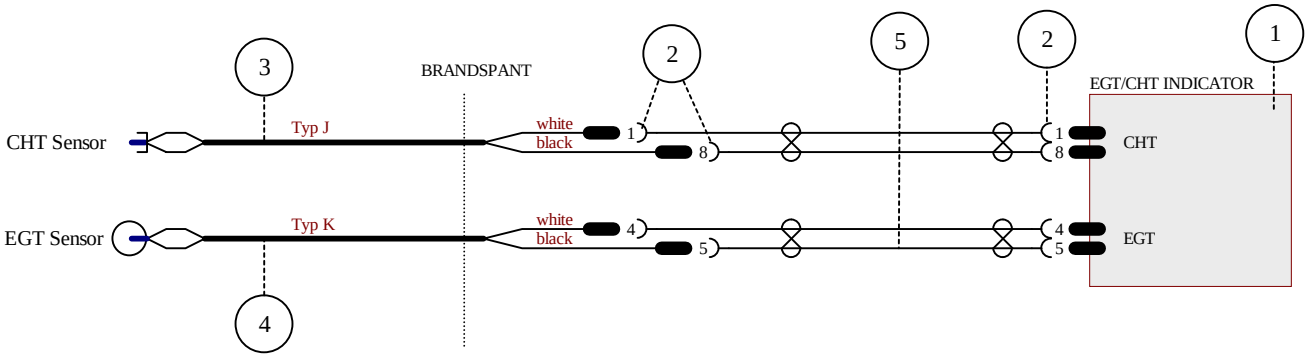
EA 300/SC
12VDC OUTLET

EA-9C102.56

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0917**



		X	5	WIRE AWG 22	MIL-W-22759/16-20					mtr		00775
		1	4	CHT TEMP SENSOR (J) 3/8-24 w/snap	712-7DK 3/8-24		Fa. WESTBERG					00835
		1	3	EGT TEMP SENSOR (K) 1 5/8 - 2 1/2	712-2DWK		Fa. WESTBERG					00132
		8	2	STECKHUELSE 2mm	160654-1		Fa. EURODIS					07041
		1	1	INDICATOR (2 1/4")	EF300/SC-2DA1		Fa. WESTBERG					32570
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	21.11.11	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

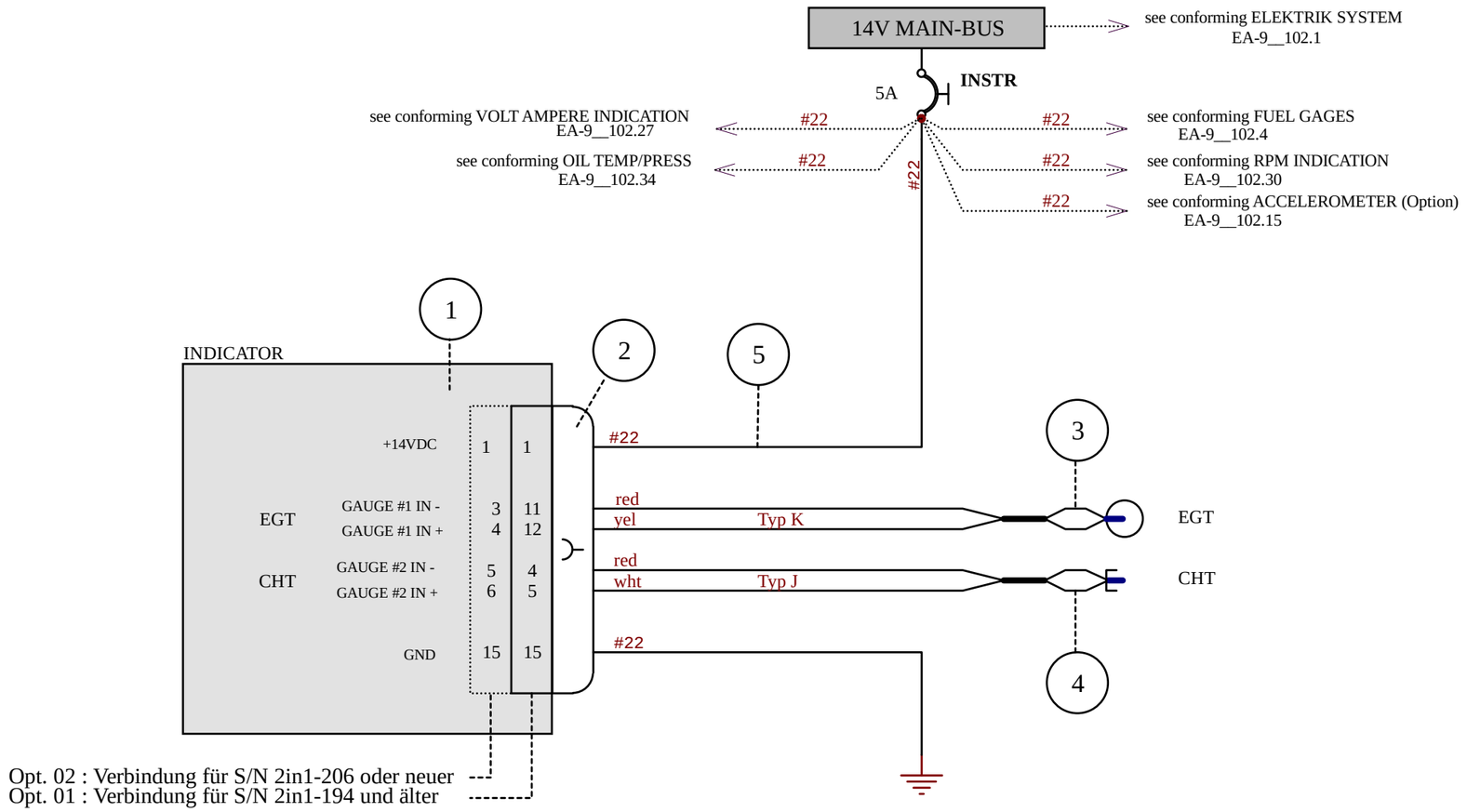
EGT & CHT INDICATION

EA-9C102.58

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0918**



		X	5	WIRE AWG 20	MIL-W-22759/16-20					mtr		00775
		1	4	CHT TEMP SENSOR (J) 3/8-24 w/snap	2B02		Fa. UMA					in Pos. 1
		1	3	EGT TEMP SENSOR (K) 1 5/8 - 2 1/2	2BU20 (2B20)		Fa. UMA					in Pos. 1
		1	2	CONNECTOR DSUB 15	KIT in Pos.1		Fa. UMA					in Pos. 1
		1	1	INDICATOR (2 1/4")	D2-ET1K7K-CT6000-00		Fa. UMA					33438
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
01	

Letzte Bearbeitung:				
Nr.:	Änderung/Mod. Nr.:		Datum	Name
A	ÄM-300-13-07		29.07.13	HW

	Datum	Name
Bearb.:	16.12.10	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

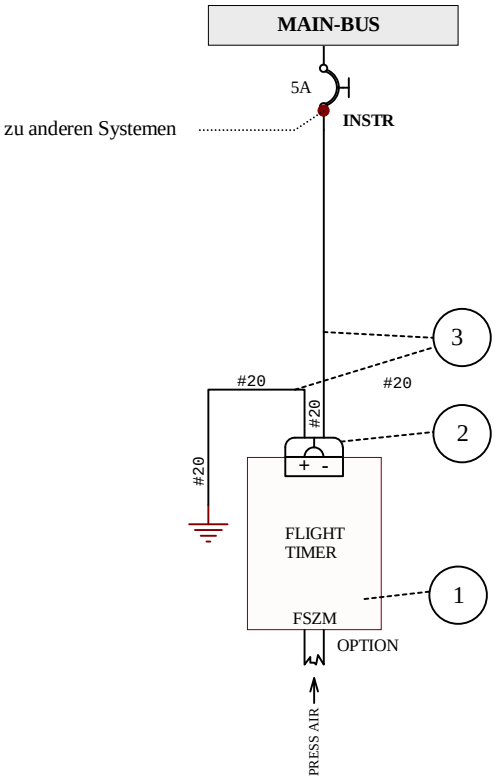
Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/LT
EGT & CHT INDICATION

EA-9D102.58	**A**
A4	Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3D0918**



			X	3	KABEL AWG 20	MIL-W-22759/16-20					mtr		00775
			1	2	STECKER	STECKER FÜR FSZM							30755
			1	1	FLIGHT TIMER FSZM	1510							01605
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	09.05.11	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300

FLIGHT TIMER

EA-93102.59

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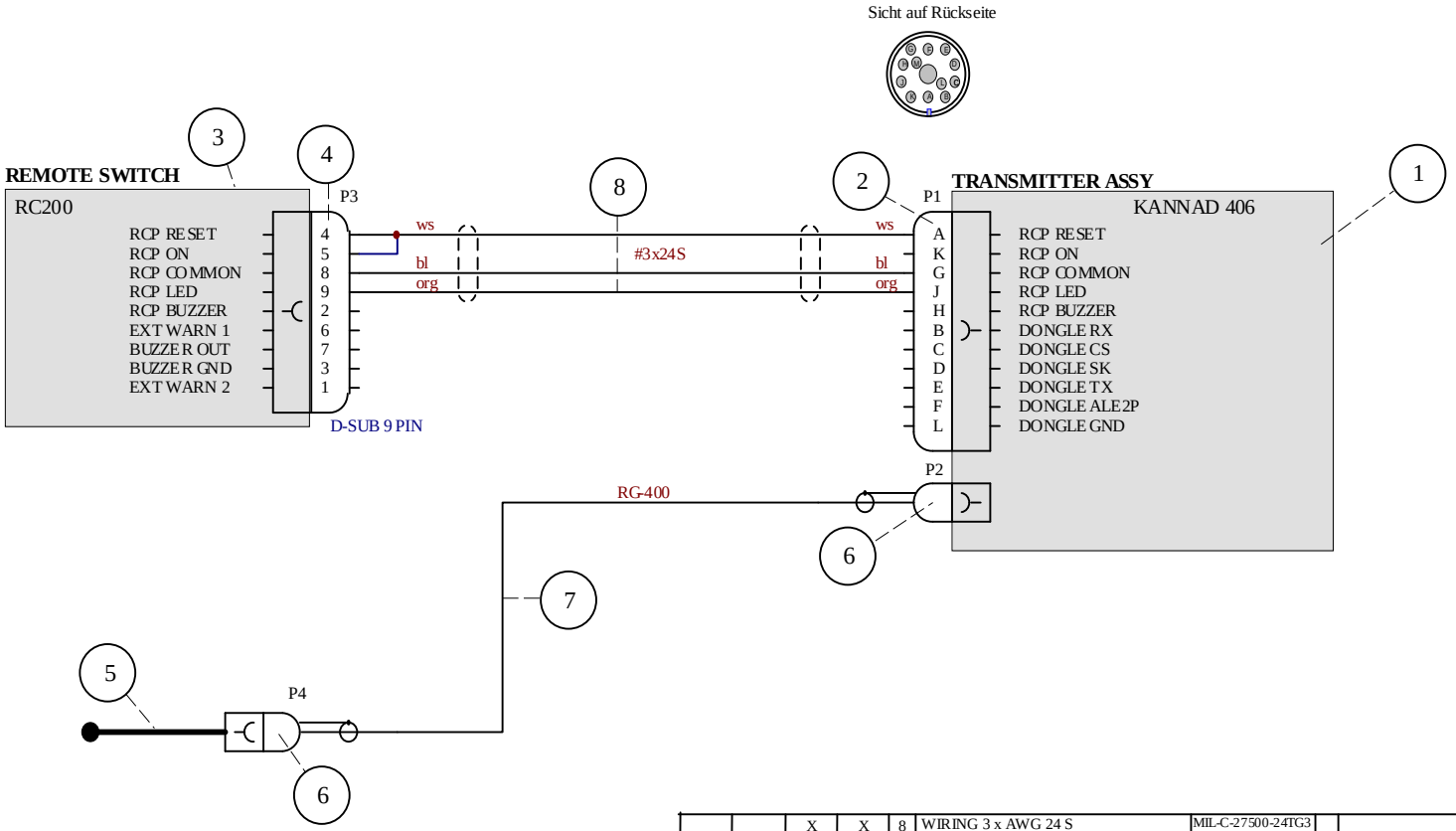
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA300927**



		X	X	8	WIRING 3 x AWG 24 S	MIL-C-27500-24TG3				3,5	mtr		FE4009
		X	X	7	ANTENNA CABLE	RG-400				1,6	mtr		FE4111
		2	2	6	BNC CONNECTOR	11BNC-50-3-52/133							30705
		1	1	5	ELT ANTENNA AV-200	0146150		Fa. RAMI					33965
		1	1	4	REMOTE CONNECTOR, D-SUB 9P	D-SUB 9 Pin		Fa. KANNAD AVIATION	in Pos. 1				
		1	1	3	REMOTE CONTROL, Kit RC200	S1820513-18		Fa. KANNAD AVIATION	in Pos. 1				
		1	1	2	ELT CONNECTOR, Din 12	S1820514-03		Fa. KANNAD AVIATION	in Pos. 1				
		1		1	ELT KANNAD 406 AF-INTEGRA	S1840501-02		Fa. KANNAD AVIATION					34422
			1	1	ELT KANNAD 406 AF-COMPACT	S1840501-01		Fa. KANNAD AVIATION					34210
04	03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

OPTION 02 = ELT KANNAD 406 AF-INTEGRA
OPTION 01 = ELT KANNAD 406 AF-COMPACT

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	04,10,14	HW
Gepr.:		
Gepr.:		

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Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
ELT KANNAD 406AF

EA-9C102.69

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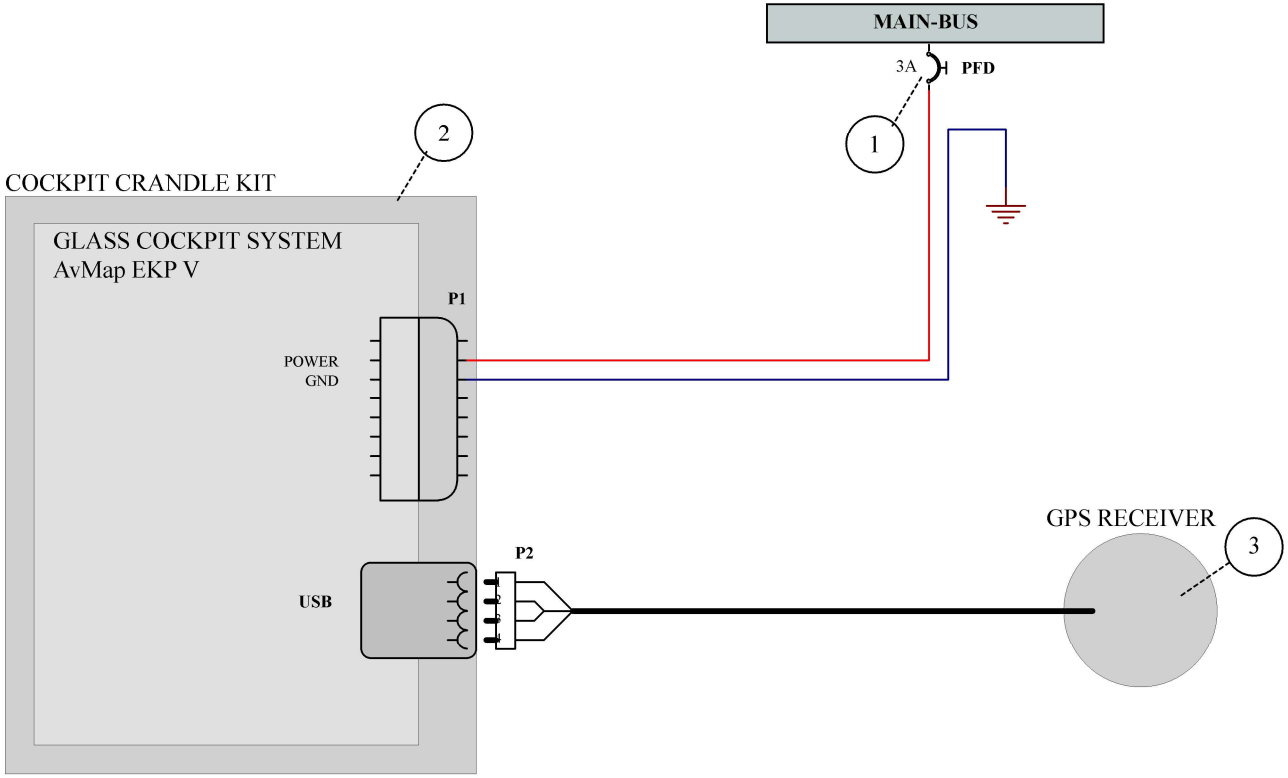
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0976**



		1	3	GPS RECEIVER	UX0-GUM00AM							34994
		1	2	COCKPIT CRANDLE KIT	UX0-DS300AM							34992
		1	1	CIRCUIT BREAKER 3A	7277-2-3							31507
03	02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Letzte Bearbeitung:

Ver.	Bezeichnung	Nr.:	Änderung/Mod. Nr.:	Datum	Name
04					
03					
02					
01					

	Datum	Name
Bearb.:	07.12.18	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC

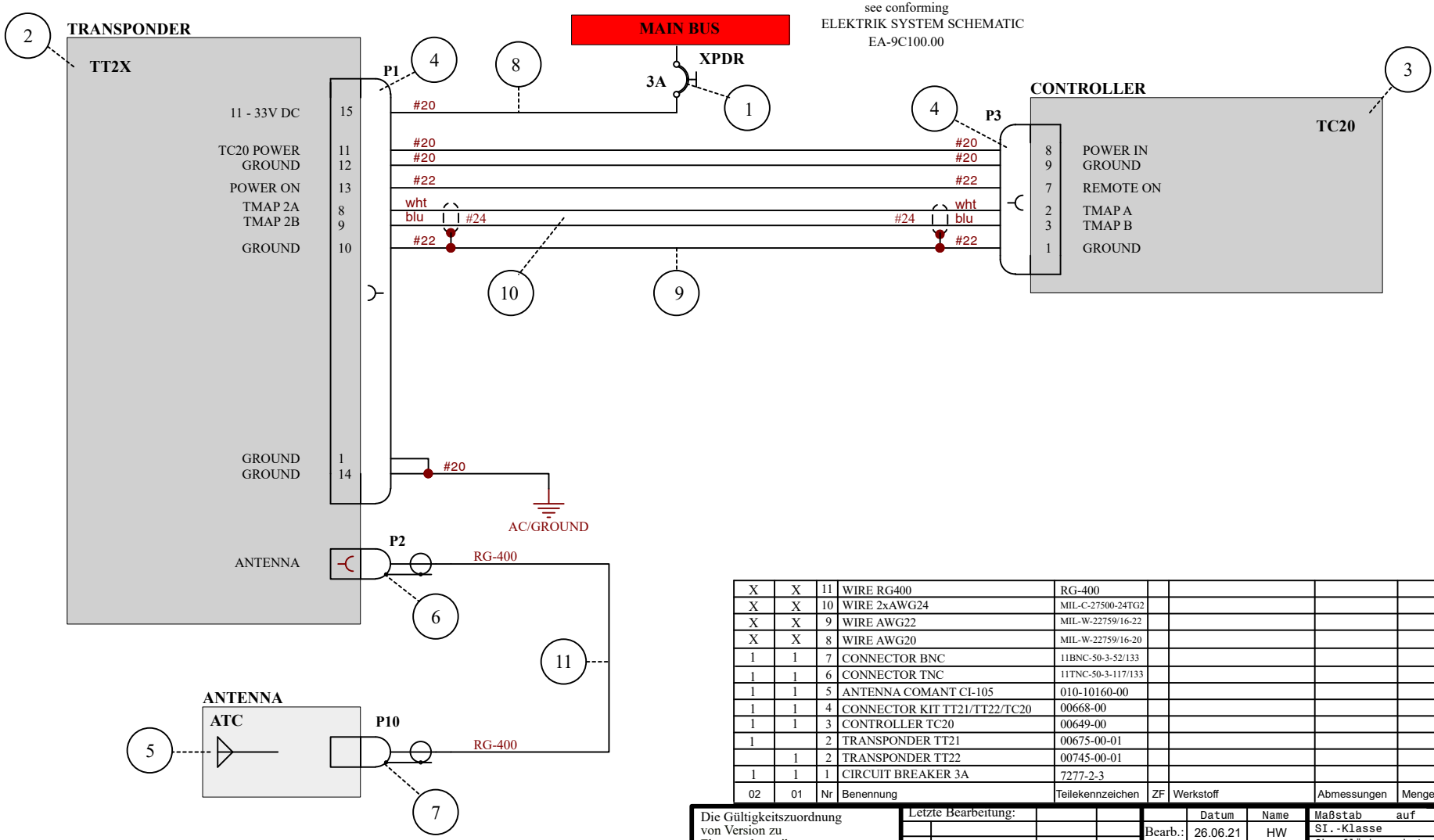
AvMap EKP V Cradle

EA-9C102.78

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0993**



X	X	11	WIRE RG400	RG-400					mtr		FE4111
X	X	10	WIRE 2xAWG24	MIL-C-27500-24TG2					mtr		FE4006
X	X	9	WIRE AWG22	MIL-W-22759/16-22					mtr		01694
X	X	8	WIRE AWG20	MIL-W-22759/16-20					mtr		00775
1	1	7	CONNECTOR BNC	11BNC-50-3-52/133							30705
1	1	6	CONNECTOR TNC	11TNC-50-3-117/133							31633
1	1	5	ANTENNA COMANT CI-105	010-10160-00							30336
1	1	4	CONNECTOR KIT TT21/TT22/TC20	00668-00							35258
1	1	3	CONTROLLER TC20	00649-00							35260
1		2	TRANSPONDER TT21	00675-00-01							35254
	1	2	TRANSPONDER TT22	00745-00-01							35257
1	1	1	CIRCUIT BREAKER 3A	7277-2-3							31507
02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff	Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
03	
02	TRANSPONDER TT21
01	TRANSPONDER TT22

Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	26.06.21	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
TT-2X XPDR

EA-9C102.79

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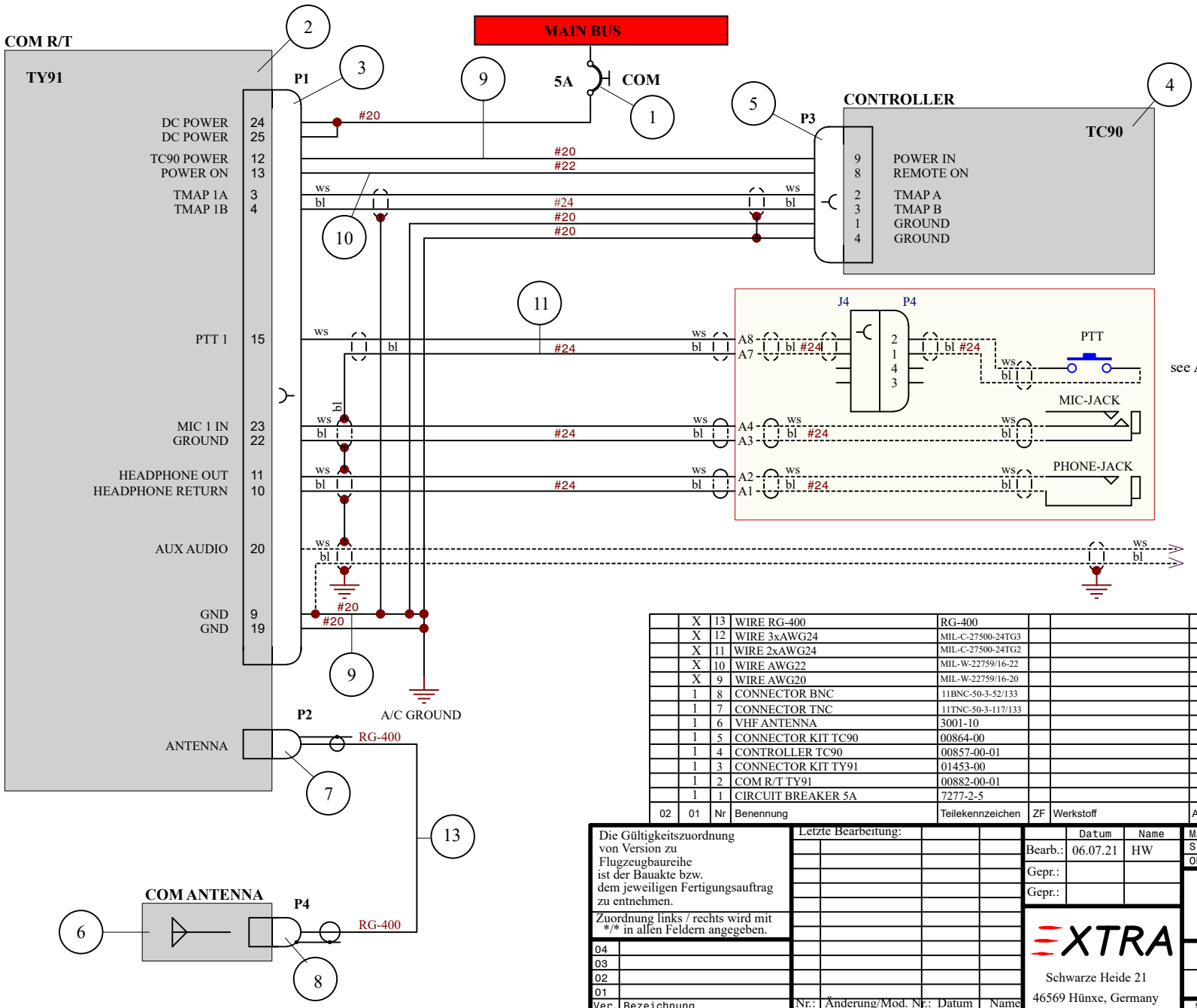
Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: EA3CXXX



	X	13	WIRE RG-400	RG-400					mtr		FE4111
	X	12	WIRE 3xAWG24	MIL-C-27500-24TG3					mtr		FE4009
	X	11	WIRE 2xAWG24	MIL-C-27500-24TG2					mtr		FE4006
	X	10	WIRE AWG22	MIL-W-22759/16-22					mtr		01694
	X	9	WIRE AWG20	MIL-W-22759/16-20					mtr		00775
	1	8	CONNECTOR BNC	11BNC-50-3-52/133							30705
	1	7	CONNECTOR TNC	11TNC-50-3-117/133							31633
	1	6	VHF ANTENNA	3001-10							FE4254
	1	5	CONNECTOR KIT TC90	00864-00							in 35021
	1	4	CONTROLLER TC90	00857-00-01							in 35021
	1	3	CONNECTOR KIT TY91	01453-00							in 35021
	1	2	COM R/T TY91	00882-00-01							in 35021
	1	1	CIRCUIT BREAKER 5A	7277-2-5							31506
02	01	Nr	Benennung	Teilekennzeichen	ZF	Werkstoff		Abmessungen	Menge	Einheit	Gewicht	MaWi-Nr.

Die Gültigkeitszuordnung von Version zu Flugzeugbaureihe ist der Bauakte bzw. dem jeweiligen Fertigungsauftrag zu entnehmen.

Zuordnung links / rechts wird mit */* in allen Feldern angegeben.

Ver.	Bezeichnung
04	
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02	
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Letzte Bearbeitung:

Nr.:	Änderung/Mod. Nr.:	Datum	Name

	Datum	Name
Bearb.:	06.07.21	HW
Gepr.:		
Gepr.:		

EXTRA
Schwarze Heide 21
46569 Hünxe, Germany

Maßstab auf	Projektion
SI.-Klasse	Freimaßtoleranz
Oberflächenschutz	Oberfläche

EA 300/SC
TY91 COM R/T

EA-9C102.80

A4 | Blatt 1 von 1

Schutzvermerk nach DIN 34 beachten.

EDV-Kennung: **EA3C0995**

Chapter 95

Special Equipment

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Chapter 96

Smoke

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96-00-00 GENERAL

Description

On pilot's demand the smoke system produces a trail of smoke by injection of smoke oil (straight paraffin oil) into the engine exhaust. The smoke oil is vaporised by the exhaust gas heat and is visible as dense smoke after leaving the exhaust.

The system is used with the following exhaust systems:

- Gomolzig 6-in-1
- Sky Dynamics 6-in-1
- Chabord 6-in-2

The system consists of (refer to Figures 1 through 2):

1 Floptube smoke oil tank

2 Ventilation line

3 Overpressure/check valve in smoke oil supply line to the nozzle

4 Refill/Injection pump

5 Two relais (changeover contact type) for pump control

6 Smoke switch (ON-OFF type) on the throttle lever

7 SMOKE SYS (three-position, pull-to-unlock) switch in the instrument panel

8 SMOKE SYS circuit breaker in the instrument panel

9 Float switch

10 Filter element in the refill line

11 Smoke tank drain

12 Quick connector in the belly fairing

13 Distribution block (Chabord 6-in-2 only)

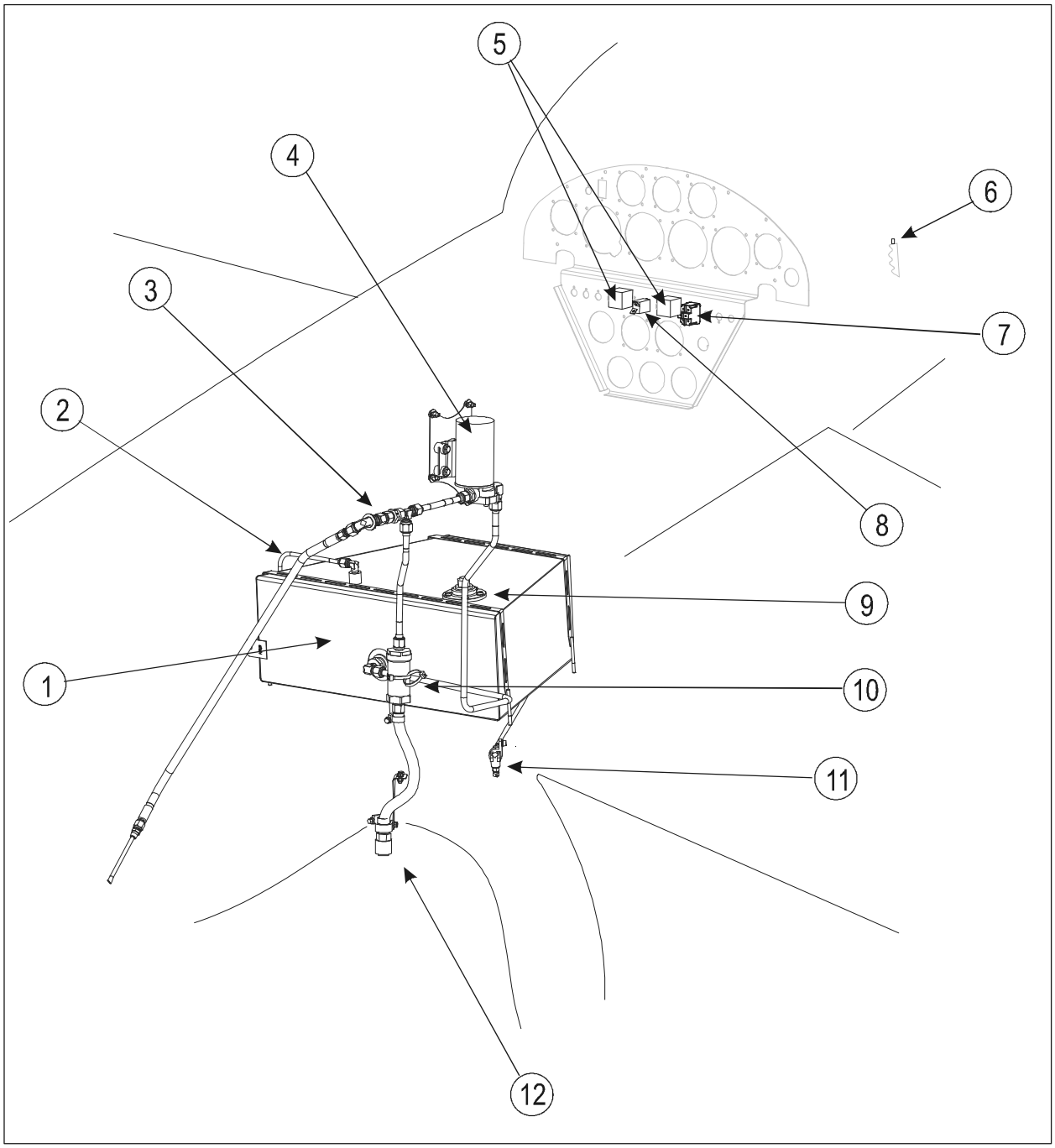

Figure 1 ***Smoke System (up to SC022)***

The smoke oil tank is filled by a pump (reversed polarity) through a quick connector located in the aircraft belly fairing. This line includes a filter to prevent dirt to enter the smoke system. A filled smoke oil tank is detected by a float switch in the tank that shuts off the pump.

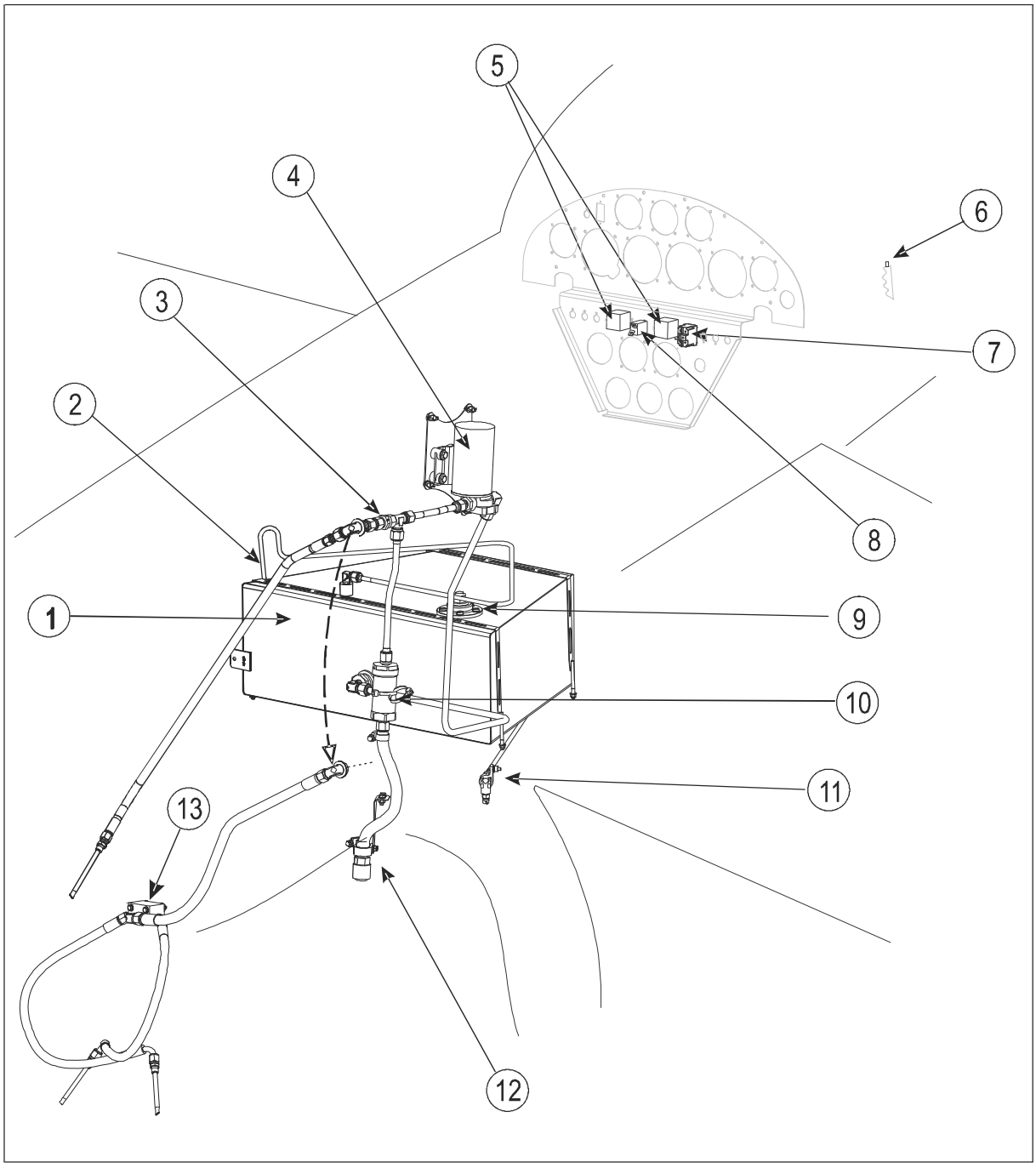

Figure 2 ***Smoke System (from SC023)***

The same pump (normal polarity) injects the smoke oil from the smoke oil tank through an overpressure/check valve and the injector nozzle into the hot exhaust gas to generate smoke.

For refilling the smoke oil tank the "SMOKE SYS" switch has to be switched to the "REFILL"-position (pull to unlock).

For smoke system activation the "SMOKE SYS" switch has to be switched to the "ARM" position. Then the smoke „ON-OFF“ toggle switch can be used to control the smoke pump.

96-00-01 Smoke Tank

Removal/Installation

1 Remove the main and bottom fuselage cover and cuffs as per Chapter 51.

2 Remove the instrument panel attachment screws and tilt forward the instrument panel (also refer to Chapter 31).

3 Remove the torque tube as per Chapter 27.

4 Remove one rudder pedal as per Chapter 27.

5 Drain smoke system.

6 Disconnect the electrical facilities from the smoke tank.

7 Disconnect the smoke oil lines from the smoke tank.

NOTICE

Prevent the drain tube of the GRP tank shell from breaking when handling the center tank.

8 Remove the metal attachment belts with the rubber strips.

9 Remove the smoke tank through the cockpit.

10 Install in reverse sequence of removal.