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Aircraft Maintenance Manual
Calidus | Rotax 915 iS | Rotax 916 iS

www.auto-gyro.com

Aircraft Maintenance Manual
for Gyroplane Calidus 915 iS / 916 iS

Content

Preface

This document contains proprietary information of AutoGyro GmbH, Germany which is provided in confidence and solely for the purpose of supporting aircraft certification and providing applicable information regarding the proper use, maintenance, inspection, repair, servicing and parts application of AutoGyro GmbH products and services, as directed therein. Neither this manual nor any information in it may be disclosed to others, or used for any other purpose, including but not limited to, design, create, develop, reproduce, manufacture or derive any design, part, product, material, process, modification, configuration change or repair, or to obtain airworthiness authorisation's approval to do so. With the possession and use of this manual the user accepts and agrees to bound by the foregoing terms.

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Introduction

This manual provides accepted and recommended maintenance procedures applicable for the Calidus gyroplane fitted with the Rotax 915 iS / 916 iS engine, designed and manufactured by AutoGyro GmbH, Hildesheim, Germany. The generic term “maintenance” comprises checks, inspections, replacement, repair and other tasks, which are defined in “01-11-00 Definitions and Standard Procedures”. The manual also provides a full description of the aircraft and its systems and troubleshooting (fault isolation) procedures. Where applicable, the manual refers to related manuals, such as the engine manufacturer’s documentation or Component Maintenance Manuals, for example battery, avionics, or optional equipment.

All task descriptions follow aerospace, industry and safety standards or special AutoGyro procedures. The procedures, methods, instructions and parameters specified in this manual must be adhered to by all means. It is not permitted to change procedures or to alter parameters provided herein. Proposed deviations from the procedures, methods and instructions contained in this manual should be directed to:

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The manual has been prepared in accordance with ATA Specification No. 100 being a common standard in aviation and for your convenience. The ATA100 numbering system is described under “Organization and Handling of the Manual”.

This manual will be revised as necessary to incorporate changes in design, parts, approved procedures, or parameters. Note that the manual is only valid if available in current version. The use of an out dated manual may render the aircraft in unsafe or even not airworthy condition. The revision service is described below.

Service Information Letters (SIL), Service Bulletins (SB) or Airworthiness Directives (AD) will also be covered by the revision service and incorporated in the maintenance manual.

Revision Service

This manual must always be maintained in current, up-to-date status. The latest version status is available at www.auto-gyro.com. Note that the manual is subdivided into 5 parts which will be revised individually. As an example, the revision index for the aircraft maintenance manual (AMM), Calidus 915 iS / 916 iS (CD_915iS / 916 iS), Part B could be ‘AMM-CD-915 iS/916 iS-B-2023-12’. Note that the date code is ‘yyyy-mm’ so files will sort chronologically.

For the purpose of current status this manual will not be published in paper format. A current personalized copy will be provided by AutoGyro GmbH for all certified and registered service partners on the basis of a subscription service. Registered users will be informed about new revisions. We recommend **not** to keep printouts or paper copies for reference.

Record of Revisions

The manufacturer will keep this manual current as an entire document. After each revision of a part the latest revision index (i.e. list of revision indices for each part) will be published on the AutoGyro website and/or by E-Mail to each subscription customer. The document part's revision index can be found in the footer on the left hand side of each page.

Section	Revision	Comment
Part A – Introduction and Declarations	2025-04	updated
Part B – Master Servicing Manual (Chapter 00 – 20)	2025-04	updated
Part C – System Description Section (Chapter 21 – 90)	2025-04	updated
Part D – Diagrams and Charts	2025-04	updated
Part E – Task descriptions	2025-04	updated

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Maintenance Concept and Eligibility

The maintenance concept of the Calidus gyroplane is structured into two qualification levels:

- Basic Operator Maintenance / Pilot Checks and Servicing
- Professional Maintenance – Inspection and general maintenance tasks, inspection of Critical Parts (CP)

The respective maintenance level for each maintenance task is shown under

'GENERAL, REFERENCES AND REQUIREMENTS'.

Maintenance tasks may be carried out solely by persons or organizations fulfilling the requirements for personal qualification, infrastructure and required equipment.

Warnings, Caution and Notes

This manual uses **WARNING**s, **CAUTION**s and **NOTE**s in bold italic letters to indicate especially critical and important instructions. The call-outs appear at the top of the Maintenance Job Card if of general nature or applicable for the complete task, or will directly precede the individual Work Step.

The meaning of each call-out is defined below:

WARNING: A warning means that the neglect of the appropriate procedure or condition could result in personal injury or fatal accidents.

CAUTION: A caution means that the neglect of the appropriate procedure or condition could result in damage to or destruction of equipment.

NOTE: A note stresses the attention for a special circumstance, which is essential to emphasize.

Organization and Handling of the Manual

This manual is structured according to ATA100 numbering system. The numbering system will be explained later in more detail.

On document level, the manual is subdivided into five parts, named A to E. The designation and content of each part is listed below:

- **Part A: Introduction and Declarations**

  This section. Explains the basic concept, handling of this manual, its structure according to the ATA100 numbering system, abbreviations and acronyms.

- **Part B:Master Servicing Manual (ATA Chapters 00 to 20)**

  General description of the aircraft, basic definitions and standard procedures, tools, spares, airworthiness limitations, time limits, inspections and checks.

  Briefly, part B describes 'what is to be done, and when'.

- **Part C: System Description Section (ATA Chapters 21 to 90)**

  Part C describes all aircraft systems, following the ATA100 numbering system.

- **Part D: Diagrams and Charts**

  Part D contains diagrams and charts, if necessary in special sizes or as fold-outs.

- **Part E: Maintenance Job Cards**

  Job Cards are collected in Part E. Note that the footer of Part E does not spell out to the part's designation, but just shows part and the job index of the referred maintenance task according to the ATA100 numbering system.

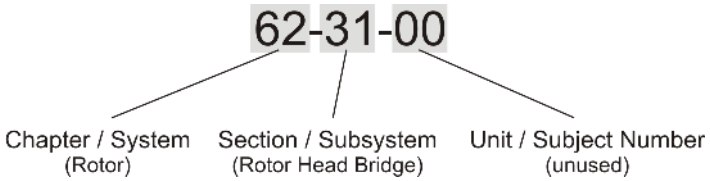
  Briefly, Part E describes 'how something has to be done'.

ATA100 Numbering System

ATA100 – Chapter Code

The Air Transport Association (ATA) Standard 100 numbering system is a widely accepted standard that provides a 6 digit numbering system to identify aircraft systems, subsystems and individual components in a structured, hierarchical approach.

The first or leftmost pair of digits defines the Chapter, respectively system. The next pair of digits refers to the subsystem. The third pair of digits specifies a unit. Only complex systems use unit numbers. In case of simple systems, all information is contained in the main chapter and there is no subsystem or unit breakdown.



The ATA100 numbering system and the corresponding system designations were adopted where ever possible and rational. In some cases the wording and nomenclature was adapted to match the design specifics of a gyroplane in best possible way. Due to its high degree of system integration, some systems cannot clearly be assigned to a single function. In this case the system or component was categorized by its main function. Example: the pneumatic trim cylinder also acts as brake in its secondary function.

Chapter 02 has been modified to contain "TOOLS, SPARES AND CONSUMABLE MATERIALS".

Nomenclature and Structure of Maintenance Tasks (Job Cards)

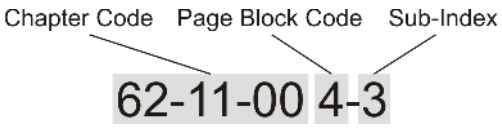
Part E of this manual describes maintenance tasks to be performed by a qualified person in order to check, inspect, replenish, adjust, replace, repair, clean, or to identify malfunctions. Each **Task** is outlined in detail in a **Job Card**.

Each **Job Card** (sometimes referred to as Task Card) consists of

- **Task Description** (header, descriptive text)
- a section referring to GENERAL, REFERENCES AND REQUIREMENTS
- a section listing SPECIAL TOOLS AND CONSUMABLE MATERIALS
- a section pointing out PRECAUTIONS AND SAFETY MEASURES
- a section called PROCEDURES, which lists all **Work Steps** to be performed subsequently
- a PARTS LIST listing part numbers and associated information, and
- explanatory ILLUSTRATIONS, such as explosion drawings or photographs

For ease of navigation each page in Part E shows a unique job index in the page footer consisting of 3 elements:

- **Chapter Code**
  (acc. to ATA100, see explanation below)
- **Page Block Code**
  (distinct index/number per type of maintenance action, see explanation below)
- **Sub-Index**



Page Block Code

The pages within a chapter are structured and numbered according to the page block numbering system as specified below:

Subject	Code
Introduction / Description and Operation	0
Fault Isolation / Trouble Shooting	1
Maintenance Procedures	2
Servicing	3
Removal / Installation / Disassembly / Assembly	4
Adjustment / Test	5
Inspection	6
Cleaning / Painting	7
Repair / Replacement / Retrofit / Modification	8
Storage	9

Effectivities

A job card may contain information relating to different versions of the referred aircraft. This may be stipulated by optional equipment installed, by different design states (Serial Number driven), or modification (MI, AD).

The keyword **EFFECTIVITY**, followed by a term describing its applicability, marks the start of instructions that apply exclusively to a specified version. Examples:

EFFECTIVITY: Variable Pitch Propeller

The following instructions must be performed and are applicable only if a Variable Pitch Propeller is installed

EFFECTIVITY: up to S/N 0123

The following instructions apply to serial numbers 0123 and before

EFFECTIVITY: S/N 0124 to S/N 0248

The following instructions refer only to serial numbers 0124 up to, and including, 0248

EFFECTIVITY: S/N 0124 and subsequent

The following instructions must be performed for serial numbers starting 0124 and subsequent

EFFECTIVITY: before MI 2011-99

Instructions refer to modification state before/without the referenced MI implemented

EFFECTIVITY: MI 2011-99 accomplished

Instructions apply only to those versions where the referenced MI has been accomplished

The end of the range of validity is marked by the term **EFFECTIVITY – END**

In case the effectivity solely comprises of the subsequent work step, or another effectivity statement is introduced, the term **EFFECTIVITY – END** will be omitted.

Instructions outside of **EFFECTIVITY** statements apply to the standard model, respectively to all versions.

Abbreviations and Acronyms

In this manual, a minimum number of abbreviations are used. Where possible the abbreviations and acronyms used correspond with regulations and common standards.

ACL	Anti-Collision Light
AD	Airworthiness Directive
AGL	Above Ground Level
AMM	Aircraft Maintenance Manual
ATA	Air Transport Association
ATC	Air Traffic Control
BCAR	British Civil Airworthiness Requirements
BUT	Bauvorschriften für Ultraleichte Tragschrauber – German design specification for microlight gyroplanes
CAS	Calibrated Airspeed – indicated speed corrected for installation errors
CHT	Cylinder Head Temperature
Ccw	Counter Clock Wise
CG	Centre of Gravity
CP	Critical Part
CRP	Carbon Reinforced Plastic
CSP	Constant Speed Propeller
CT	Coolant Temperature
DA	Density Altitude
DOM	Date of Manufacture
DULV	Deutscher UltraLeichtflugVerband e.V.
ELT	Emergency Locator Transmitter
Empty Wt	Empty Weight of the gyroplane including oil, cooling liquid and unusable fuel
FOD	Foreign Object Damage (Debris)
FPS	Feet Per Second
Ft	Foot
G / g	G-loading as a factor of gravity
Gal	Gallon
Gal/hr	Gallons Per Hour
GEN	Generator
GPS	Global Positioning System
GRP	Glass Reinforced Plastic
HP	Horsepower
Hrs	Hours
H/V	High-Velocity
IAS	Indicated Air Speed – airspeed values in this manual refer to indicated airspeed
ICAO	International Civil Aviation Organization
i.f.d.	in flight direction
In Hg	(Manifold) Pressure, corresponding to inch mercury
ISA	International Standard Atmosphere
JNP	Jahresnachprüfung (german: annual inspection, annual airworthiness review)
KIAS	Knots Indicated Airspeed
Kg	Kilogram
Km/h	Kilometer per Hour
Kt	Knot
kW	Kilowatt

LED	Light Emitting Diode
LH	left hand
LR	Limited reusability (Parts or components that can be used only once or a limited number of times, such as self-locking nuts, split pins...)
LOEP	List of Affected Pages
LTA	Lufttüchtigkeitsanweisung (AD, issued by the Airworthiness Authority)
Ltr	Litre
Ltr/hr	Litre per Hour
M	Meter
MAP	Manifold Absolute Pressure
Max	Maximum
MCP	Maximum Continuous Power
MPD	Mandatory Permit Directive (issued by UK CAA)
Min	Minimum
MLL	Manufacturer Life Limit
m/s	Meter per Second
mph	Miles per Hour
MTOM	Maximum Take-Off Mass
MTOW	Maximum Take-Off Weight
N/A	not applicable
NPI	non procurable item
OAT	Outside Air Temperature
PA	Pressure Altitude
PC	Procurement Code
PFD	Primary Flight Display
PIO	Pilot Induced Oscillation
PIT	procure item through
POH	Pilot's Operating Handbook
Qty.	Quantity
Rcv	receive
rec.	recommended
RH	right hand
RFM	Rotorcraft Flight Manual
RON	Research Octane Number
RPM	Revolutions Per Minute
SAC	Statement of Aircraft Conformity
SB	Service Bulletin
Sec	Second
SIL	Service Information Letter
SoC	Statement of Compliance
sqm	square metre
STP	Stückprüfung (C of A, i.e. conformity of airworthiness)
TADS	Type Approval Data Sheet (german: Geräte-Kennblatt)
TAS	True AirSpeed - calibrated airspeed corrected for air density
TBO	Time Between Overhaul
TCDS	Type Certificate Data Sheet
TCU	Turbo Control Unit
TOC	Table of Contents
TOP	Take-Off Power

V_A	Design manoeuvring speed
V_B	Design speed for maximum gust intensity
VFR	Visual Flight Rules
V_H	Maximum level-flight speed at maximum continuous power
V_{Hmin}	Minimum level-flight speed
V_{NE}	Never Exceed Speed – maximum speed that must never be exceeded
VOX	Voice Operated eXchange, means: voice activation (level)
VPP	Variable Pitch Propeller
VSI	Vertical Speed Indicator
V_X	Speed for best angle of climb
V_Y	Speed for best rate of climb and maximum endurance
W&B	Weight and Balance
Xmt	transmit
Yrs	year(s)

Service Bulletin (SB) and Airworthiness Directives (AD)

Where appropriate, Service Bulletins (SB), Service Information Letters (SIL) or Airworthiness Directives (AD) will be incorporated into the Maintenance Manual with the next revision.

Depending on the market, SB's may be issued by AutoGyro or by AutoGyro Certification Ltd (formally RotorSport UK Ltd).

AutoGyro Certification Ltd (formally RotorSport UK Ltd) is a sister company to AutoGyro GmbH, and responsible for the global approval of AutoGyro products.

In the UK and US Primary Category markets (and some others) the AutoGyro documentation is released via AutoGyro Certification Ltd (formally RotorSport UK Ltd).

Ensure that the correct documentation is used!

See AutoGyro website for details (auto-gyro.com)

Contents

CHAPTER 00 - INTRODUCTION / AIRCRAFT GENERAL

General

The Calidus 915 iS / 916 iS is a 'new generation' gyroplane with either a 4-bladed push propeller or a 3-bladed constant speed hydraulic propeller and a 2-blade aluminium main rotor system with swivelling rotor head and split mast with integrated rotor vibration damping. It features monocoque cabin with glazed canopy, stainless steel mast, engine support and keel tube. Cabin, cowlings, covers and stabilizer with rudder are made from glass fibre reinforced (GRP) plastic.

The tricycle gear with GRP (glass fibre reinforced plastic) suspension bow features a steerable nose gear.

Rotor flight control comprises conventional linkage and push-pull control cables.

Chapter 01 - General

01-11-00 Definitions, Terms und Standard Procedures

The following definitions, procedures and words with special meanings are used in this manual:

Adjust	To put in specified position or condition, usually using tools or devices Example: Adjust the clearance to 1 mm
Check (noun)	A set of check items to be performed. Example: pre-flight check
check (verb)	To make sure that the item is present and/or a given requirement is fulfilled. No tools are required. Example: Warning Lights - Check NONE
Critical Part (CP)	“Critical Parts” are those parts whose failure during ground or flight operation could have a disastrous effect on the gyroplane
Dent	Depression in a surface having area and depth with no sharp edges (see also ‘nick’)
Discard	Put away in order to exclude inadvertent or intentional re-use of the item. Comply with FOD procedures
dispose of	Discard item or substance while employing strict procedures, such as environmental or legal requirements
hand-tighten	Use the bare hand without any tools, gloves or extra efforts
inspect / examine	To look carefully at an item and compare with its standard or specification. Tools or devices may be needed. The condition may be explicitly specified (example: no corrosion). Generally, or if not otherwise stated, inspect/examine means: Make sure that the item • is complete • is correctly attached • has no loose parts • shows no signs of leaks • the surface protection is not damaged • is not cracked or damaged • is not worn Make sure that • all locking devices are installed correctly Make sure that items such as pipes, hoses and cables • look serviceable • do not rub against other items For log books and other technical records: • find pending faults • make sure they are up-to-date and correctly maintained
Inspection	Maintenance procedure to be performed as described in this manual. Example: 100 hrs / Annual Inspection

Maintenance	Any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of pre-flight inspection
Measure	To find out dimensions, capacity or quantity of something. Except for counting of smaller numbers, calibrated measurement devices are needed.
Monitor	To watch a parameter or item over a certain period of time in order to read an exact value, derive a trend or identify a change caused by an event. Example: monitor rotor speed indication, monitor RPM drop
Nick	A dent with sharp edges (see also 'dent)
re-torque	Refer to procedure 'torque-tighten'. In contrary to procedure 'torque check' attachment hardware may rotate during re-torqueing
Record (noun)	Technical name for a documentation that shows the accomplishment of maintenance tasks or other activities, usually stating the responsible person's name and date of compliance
record (verb)	To make an (official) entry in a maintenance record
remove securing Hardware	Cut open and remove split pins, lock wire, and such. Wear eye protection. Hold securing hardware with other hand to prevent particles from darting around. Collect all splinters and particles of securing hardware and discard.
Replace	To remove an unserviceable item and install a serviceable in the same location
Servicing	Simple tasks such as lubrication and cleaning, checking and adjusting of air tire pressure, replenishing of fluids
Set	To change (or verify) status of equipment to a given parameter, condition or mode. Example: set altimeter sub-scale to 1013 hPa
torque-check	Refer to procedure 'torque-tighten'. Check with the (minimum) torque value supplied. Attachment hardware must NOT turn! If rotation of attachment hardware was noticeable the torque check FAILED. Refer to procedure described in Job Card
torque-tighten	Use a calibrated tool with the correct range and handle properly and carefully. Set tool to minimum torque (if min. and max. torque values are provided). Use stretched fingers at the long end of the tool and counterhold directly at the pivot point. Click-Type: Stop upon the first clicking. If multiple clicking is heard or further rotation is suspected, open/unscrew and repeat. Replace attachment hardware if appropriate. In order to align attachment hardware (for example in case of a split pin) adjust tool to the maximum allowed torque and tighten carefully until hardware aligns. NO clicking must be heard! If clicking was heard, redo the complete procedure while trying different attachment hardware and/or in different installation position.
Verify	Check that a certain dimension or condition, or set of these, is in-line with given specifications. In order to do so, a special (measurement) procedure will be required and the reference to comply with will be specified.

If not otherwise stated the following standards are based on aeronautical regulations and recommendations (AC43.13-1B), industry and safety standards, and general practices, and shall be applicable throughout this manual. Examples are:

- Torqueing
- Securing (handling of locking wire and other securing hardware)
- Removal of securing hardware
- FOD (foreign object damage) protection
- Discard and disposal procedures
- Handling of hazardous material
- Workplace safety

Notes on “nyloc” (and metal locking such as BinX) nuts:

Ideally a nyloc nut should be used once only. It may be re-used if the thread is undamaged and when fitted to its mating fastener it must only turn with a torque greater than the “Prevailing Torque” listed (values factored from AC43.13-1B):

M6 0.8Nm, M8, 0.8Nm, M10 1.0Nm, 12 1.2N

01-12-00 Standard Bolt Torques

Standard torques are

- M4: 2-3 Nm
- M5: 5-6 Nm
- M6: 11 +/-1 Nm
- M8: 25 +/-3 Nm
- M10: 35 +/-4 Nm

Always assess the joint to be tightened and use engineering judgement – do not overtighten plastic or unsupported tube joints!

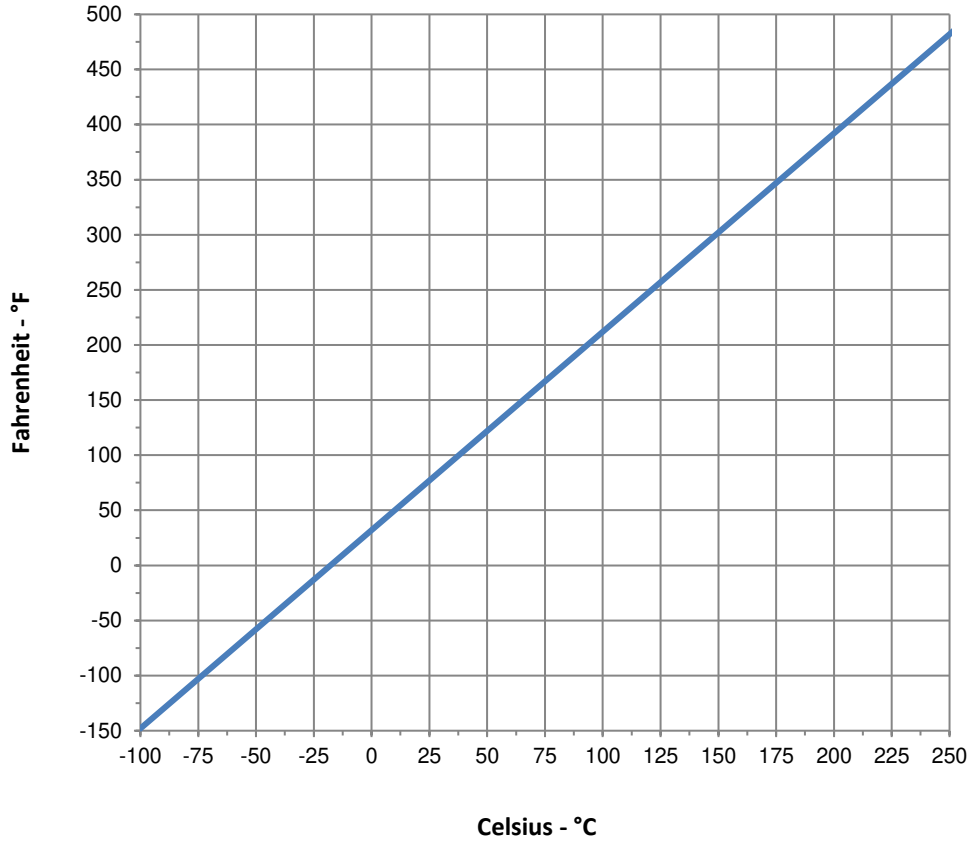
01-21-00 Standard Commercial Tools

Most maintenance tasks on the Calidus can be conducted using standard, commercially available metric tools. In addition, the following standard commercial tools are required:

- Inclinometer (digital) / Digital spirit level with angle gauge
- Spring balance / Dynamometer
- Tensiometer (to measure cable tension)
- 1m aluminium ruler
- Fuel hose clamp
- Torque wrench (in required torque ranges)
- Multimeter
- 3 m-tape measure
- Torch light
- Tyre pressure gauge / tyre filling device

01-91-00 Conversion Tables

LENGTH / DISTANCE				
Multiply	**by**	**to obtain / Multiply**	**by**	**to obtain**
m (metre)	3.28	ft (feet)	0.305	m
mm (millimetre)	0.039	in (inch)	25.4	mm
km (kilometre)	0.54	nm (nautical mile)	1.852	km
SPEED				
Multiply	**by**	**to obtain / Multiply**	**by**	**to obtain**
m/s (metre per second)	196.85	ft/min (feet per minute)	0.0051	m/s
km/h (kilometre per hour)	0.54	kts (knots)	1.852	km/h
km/h (kilometre per hour)	0.62	mph (miles per hour)	1.61	km/h
PRESSURE				
Multiply	**by**	**to obtain / Multiply**	**by**	**to obtain**
hPa (hectopascal)	1.0	mbar (millibar)	0.0001	bar
bar (Bar)	14.50	psi (lb per square inch)	0.0689	bar
bar (Bar)	0.0295	inHg (inch mercury)	33.864	bar
FORCE / WEIGHT				
Multiply	**by**	**to obtain / Multiply**	**by**	**to obtain**
N (Newton)	2.205	lbf (pound force)	0.4536	N
N (Newton)	0.1019	(respective force of 1 kg)	9.81	N
MASS (WEIGHT)				
Multiply	**by**	**to obtain / Multiply**	**by**	**to obtain**
kg (kilogram)	2.2046	lb (pound)	0.4536	kg
VOLUME				
Multiply	**by**	**to obtain / Multiply**	**by**	**to obtain**
l [or ltr] (Litre)	0.2642	US gal (US gallons)	3.7854	l/ltr
l [or ltr] (Litre)	1.057	US qts (US quarts)	0.946	l/ltr
l [or ltr] (Litre)	0.0164	in^3 (cubic inch)	0.946	l/ltr
TORQUE				
Multiply	**by**	**to obtain / Multiply**	**by**	**to obtain**
Nm (Newton metre)	0.738	lbf.ft. (pound-foot)	1.3558	Nm
Nm (Newton metre)	0.113	lbf.in. (pound-inch)	8.851	Nm
kgmm	0.0098	Nm	101.94	kgmm



Celsius-Fahrenheit Conversion Chart

CHAPTER 02 – TOOLS, SPARES AND CONSUMABLE MATERIALS

02-51-00 Consumable Materials

Consumable Material (CM) referenced throughout this Maintenance Manual is coded AG-XXX-NN where NN is a consecutive number and XXX represents the material code according to the classification listed below:

Class	Description	Class	Description
BAS	BONDING, ADHESIVES AND SEALANTS	LUB	LUBRICANTS
CCM	CHEMICAL CONVERSION MAT.	MSC	MISCELLANEOUS
CLA	CLEANING AGENTS	OIL	OILS
CPA	CORROSION PREVENTIVE AGENTS	PNT	PAINT AND LACQUERS
FUE	FUELS	PRM	PRIMER, PREPARATION FOR PAINTING
GRS	GREASES	PRS	(STORAGE) PRESERVATION
HYF	HYDRAULIC FLUIDS		

The following consumable materials are referenced in the Maintenance Manual:

CM-Item	Material / Description	AutoGyro Part Number
AG-BAS-01	Loctite 221 red	PN 30487
AG-BAS-02	Loctite 243 blue	PN 30483
AG-BAS-03	Loctite 542 red	PN 30488
AG-BAS-04	Loctite 638 green	PN 30485
AG-CPS-01	'Hohlraumspray'	PN 34197
AG-GRS-01	Silicon grease Lagermeister 2002	PN 30477
AG-LUB-01	Ballistol Oil Universal	PN 31816 (5L can) PN 31846 (2ml injection syringe) PN 31847 (5ml injection syringe)
AG-LUB-02	Anti-Seize Spray	PN 31590
AG-LUB-03	HHS 2000	PN 30476

CHAPTER 03 – MINIMUM EQUIPMENT REQUIREMENT

In accordance with the Pilot's Operating Handbook (POH) Section 2.11 the following equipment must be operative for flight

- Air speed indicator
- Altimeter
- Magnetic Compass
- Side Slip Indicator
- Rotor RPM indicator
- Outside Air Temperature Indicator (OAT)
- Engine instruments (oil pressure, oil temperature, RPM, CHT)
- Pre-rotator

Depending on the equipment state or relevant condition a limited or restricted operation may be granted to facilitate maintenance efforts and operability.

Equipment / System	Condition	Limitation/Restriction
Compass	Defective	Local flights within the traffic pattern and with ground reference.
Rotor RPM indicator	Defective	Flight to a maintenance facility.
Pre-rotator	Defective / No function R-RPM indicator working	Flight to a maintenance facility under the following conditions: • Experienced pilot as sole occupant • Concrete/asphalt runway with a minimum of 5 times the normal required take-off roll distance available • Second briefed person 'handpropping' the rotor while engine/propeller is off • Steady, laminar headwind
Pre-rotator	Malfunction, R-RPM > 120 R-RPM indicator working	Flight to a maintenance facility under the following conditions: • Experienced pilot • Concrete/asphalt runway with a minimum of 3 times the normal required take-off roll distance available • Steady, laminar headwind

CHAPTER 04 – MANUFACTURER LIFE LIMITATIONS (MLL)

For the safe operation over the specified lifecycle of the aircraft and liability reasons the following manufacturer limitations shall apply. In case the component has an operating hours and calendric time limit the first limit shall apply.

Note that at expiration of the specified manufacturer life limit (MLL) the component shall be replaced for your own safety, independent of its condition.

ATA	Equipment / System	MLL
62-00-00	Rotor System II (RSII) Standard	2500 hrs
	Rotor System II (RSII) TOPP 8.4m	2500 hrs
	Rotor System II (RSII) TOPP 8.6m	2500 hrs
62-31-00	Rotor main bearing	1500 hrs

Note that the Rotor main bearing is only supplied pre-assembled into the teeter tower. Trained partners with the correct tooling are permitted to change the bearing.

Status and lifetimes of components, liquids and fluids is listed in the Event and Configuration Log form. The initial Event and Configuration Log is delivered with the gyroplane by AutoGyro. An empty form is provided for download on the AutoGyro website.

Primary and Secondary structure determination:

A primary structural part is one for which the failure would be catastrophic and would prevent continued safe flight and landing.

All other structure can be considered as Secondary, thus failure of a Secondary structural part would not be immediately catastrophic and with due care continued safe flight and/or a safe precautionary landing could still be made.

Because of the simplicity of the aircraft structure some parts have a dual role – such as the composite body. As an example, the cell of the aircraft is primary structure, yet it carries attachment point for items not flight critical.
The primary structural elements are considered to be:

- Monocoque Structure / Airframe
- Connection assemblies joining the rotor head to the mast.
- The rotor assembly and rotor head
- The tail and rudder assembly
- The rudder and rotor control system
- The main undercarriage and nosegear
- Whilst other items may have an effect on flight safety, they are considered secondary to the above. The undercarriage is included, as whilst it does not contribute to safe flight, it is difficult to make a safe landing without it – inevitably an aircraft rollover would result, probably destroying the aircraft.

Critical parts

The following parts and assemblies have been denoted critical during the design review process, and special care must be taken with them during storage, handling and installation.

Item & Part Number	Reason/comment
Assemblies	
Rotor Head Upper Assembly	Correct assembly of pitch, roll, main bearing and teeter bolts/nuts and splits pins is essential for safe operation
Monocoque Structure	Must be inspected carefully for damage, cracks and delamination
Airframe	Must be inspected carefully for damage and cracks
Rotor Assy RSII TOPP 8.4 and 8.6m	Correct assembly of the rotor system is essential for safe operation. Life limited and serialised assembly
Rotor Head assembly	Comprising combination of Rotor Head upper and lower assemblies
Parts	
Teeter bolt	Must be correctly fitted, with no cracks or damage for safe operation
Teeter tower (assembly)	No cracks or damage permitted for safe operation, and free spinning bearing without any poor feel. Life limited and serialised assembly because it carries the bearing.
Main bearing nut	Must be properly tightened and correctly fitted with a split pin.
Rotor blade assembly	Damage or fracture of the rotor blade is not permitted
Mast box section	Must be inspected carefully for cracks or other fractures
Gimbal block	Must be free of cracks or fractures for safe operation
Main bearing bolt	Must be properly tightened and correctly fitted with a split pin.
Pitch and roll bolts	Must be correctly fitted, with no cracks or damage for safe operation

CHAPTER 05 – TIME LIMITS, INSPECTIONS AND CHECKS

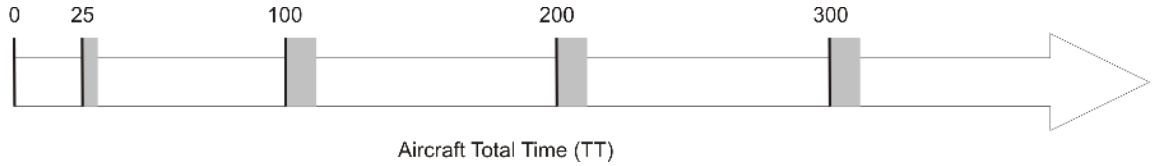
For safe operation and continued airworthiness over the specified lifecycle of the aircraft the following inspection schedule shall apply. Note that specified tolerances must NOT be accumulated!

Task	Interval	Recurrence	Tolerance
Daily / Pre-Flight Check	Before flight / daily	Each	N/A
Complementary / Servicing Tasks	5 hrs (rec.)	Each	N/A
25 hrs Inspection	25 hrs	Once	+/- 5 hrs
100 hrs / Annual Inspection	100 hrs / 1 yr	Each	+/- 10 hrs
Supplemental Inspection	1500 hrs / 5 yrs	Each	-

The 25 hrs inspection has to be performed once, within the specified tolerance.

The 100 hrs inspection has to be performed every 100 hours, within the specified tolerance, at latest within 12 months, counted from issue of the aircraft's Statement of Compliance (Stückprüfung) or Annual Inspection (JNP).

Note that tolerances do not accumulate! However, a preponed (earlier) inspection outside the tolerance will reduce the next inspection due cycle accordingly.



(Total time in hours, counted from engine start to engine shut-down, i.e. HOBBS meter)

05-10-00 Time Limits

In addition to time limits for inspection items and checks the following time limits for inspection or overhaul of respective components or replacement of liquids and fluids apply. Please refer also to the engine manufacturer's manual and time limits specified herein, as well as CHAPTER 04 - Airworthiness Limitations!

Components

ATA	Equipment / System	Time Limit
53-00-00	Monocoque structure / airframe (incl. keel tube support), keel tube	on condition

Liquids and Fluids

ATA	Equipment / System	Time Limit
75-00-00	Engine coolant (according to coolant manufacturer)	at latest 5 years
79-00-00	Engine oil (according to engine manufacturer)	at latest 100 hrs

Refer to CHAPTER 12 concerning replenishing/replacement procedures and types of liquids and fluids.

Status and lifetimes of components, liquids and fluids is listed in the Event and Configuration Log form. It is the obligation of the maintenance facility to keep this form current. An empty form is provided for download on the AutoGyro web site.

05-20-00 Scheduled Inspections and Checks

Daily / Pre-Flight Check

All daily or pre-flight check list items consist of visual checks and do not replace professional mechanical inspection and maintenance. The **Daily / Pre-Flight Checklist** for the standard Calidus 915 iS / 916 iS gyroplane is provided in the current Pilot's Operating Handbook.

Note that there is no 'post-flight' inspection mentioned. It is reasonable, however, to perform parts of the pre-flight inspection after the last flight of the day in order to take maintenance action in advance, if necessary.

Complementary / Servicing Tasks

The following tasks have to be performed in-between 100hrs inspections and may be performed on an operational level by the pilot or a trained person.

Task	Interval	Tolerance
Lubrication: Teeter hinge (see Chapter 12 – Servicing)	5 hrs (rec.)	N/A
Lubrication: Pre-rotator drive coupling sleeve	as req.	N/A
Cleaning/replacement: Engine air filter	as req.	N/A

25 hrs Inspection (one-time / non-recurrent)

The inspection items of the 25 hrs inspection are covered within the 100 hrs inspection protocol, which is available for download.

100 hrs / Annual Inspection

The maintenance protocol of the 100 hrs / Annual Inspection is available for download.

05-21-00 Temporary Scheduled Inspections and Checks

Temporary Scheduled Inspections and Checks may be introduced by SBs or AD's (if any). Notice of, and compliance with ADs is mandatory. If necessary, AutoGyro GmbH will point out the existence of such information and will provide detailed procedures to registered service partners and owners.

Important Note: Temporary scheduled inspections introduced by the engine/power plant manufacturer will not be covered by process. As a contribution to fleet safety, AutoGyro may point out the existence of such information, if possible.

05-30-00 Unscheduled Inspections

In case of the following events or occurrences, unscheduled inspections have to be performed.

Event / Occurrence / Unusual Condition	Action / Reference
Rotor vibration	see CHAPTER 18
Propeller vibration	see CHAPTER 18

If in doubt contact AutoGyro Technical support.

05-50-00 Conditional Inspections

Depending on the conditions the gyroplane is operated in or special operational incident the following conditional inspection may apply:

05-51-00 Inspections – Special Operational Conditions

Condition	Action / Reference
Operation in sand or dust	see below
AVGAS	engine manufacturer documentation
Winter operation	see below

Operations in sand or dust

- Refer to engine manufacturer documentation
- Inspect/change air filter regularly
- Reduce 100 hrs inspection interval to 50 hrs
- Apply propeller leading edge protection strip
- Operation with keel tube fin (recommended)

Winter operation

The cooling system for the cylinder heads of the engine is filled with a mixture of Ethylene Glycol anti-freeze and distilled water, which gives freezing protection down to -20°C. Using a hydrometer, check protection temperature of the coolant and add anti-freeze, if necessary. If temperatures are expected to fall below protection temperature, drain the coolant, and if required for service, refill with pure antifreeze (see 12-30-40 Servicing: Engine Coolant*).*

CAUTION

Pure antifreeze is not as good an engine coolant as a 50/50 mix with water. Take care that engine coolant limits are not exceeded. As soon as ambient temperatures permit, drain and refill with the normal coolant mix.

Because the oil and coolant system contain a thermostat, operation in winter does not require part-blocking of the radiators to maintain temperatures

05-55-00 Inspections – Special Operational Incident

Event / Occurrence / Unusual Condition	Action / Reference
Suspected hard landing	see below
Rotor contact with obstacle	see below
Propeller contact with obstacle or external impact	see below
Birdstrike	see below
Lightning strike	see below

Suspected hard landing

In case of a suspected hard landing perform the following checks:

- Inspect nose gear, attachment, fork, linkage and wheel bearing
- Inspect main gear axles and attachment
- Examine possible rotor / propeller strike → see 'Rotor / propeller contact with obstacle'
- CRITICAL: Inspect main gear suspension bow (body attachment and both axle attachments ok, no cracks)
- CRITICAL: Inspect monocoque fuselage / airframe and attachment points for possible deformation or cracks.
  Perform levelling procedure (see Job Card 08-20-00 2-1 in Part E of this manual)
- CRITICAL: Inspect engine mounting and propeller to frame clearance approx. 5 cm
- CRITICAL: Perform a rotor alignment check

Defective components must be replaced. In case one or more of the items marked 'CRITICAL' are found defective or out of tolerance, contact AutoGyro Technical support.

Rotor contact with obstacle

Rotor contact with obstacle include any rotor strike of the standing or turning rotor with an obstacle, including propeller and fuselage structures. In case of rotor contact with obstacle:

- Perform a rotor alignment check and adjust, if necessary
- Examine damage of aluminium rotor profile:
  → allowed damage: dent with max. depth of 1 mm
  → CRITICAL damage: nick(s)
- In case the turning rotor hit the stabilizer/rudder, a detailed inspection of the affected components must be performed.

In case CRITICAL damage is found, the rotor system must be replaced. Contact AutoGyro Technical Support.

Propeller contact with obstacle or external impact

Refer to engine manufacturer documentation. If there is no visible damage, then perform tap test on propeller blades to assess for invisible damage. Replace damaged parts.

Birdstrike

- Perform detailed inspection of all affected component
- If rotor blades are affected, proceed according to 'Rotor contact with obstacle'
- If propeller is affected, proceed according to 'Propeller contact with obstacle or external impact'

Lightning strike

A lightning is likely to have caused invisible damage to many components, especially the main rotor bearing. The aircraft must not be flown until satisfactory inspection has been undertaken and any rectification has been completed.

05-60-00 Ground Test Run

The maintenance protocol of the Ground Test Run is available for download.

05-70-00 Functional Test Flight

The maintenance protocol of the Functional Test Flight is available for download.

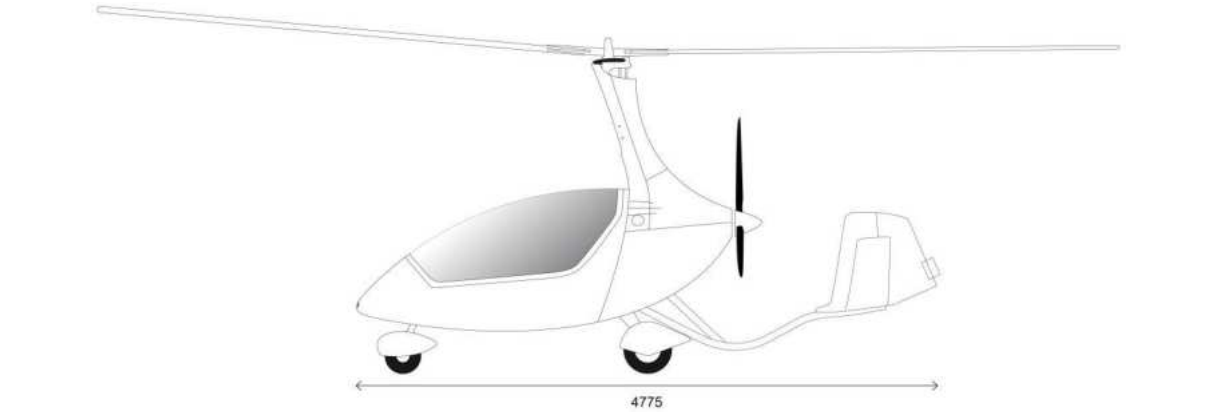
05-90-00 Maintenance Records and Aircraft Logs

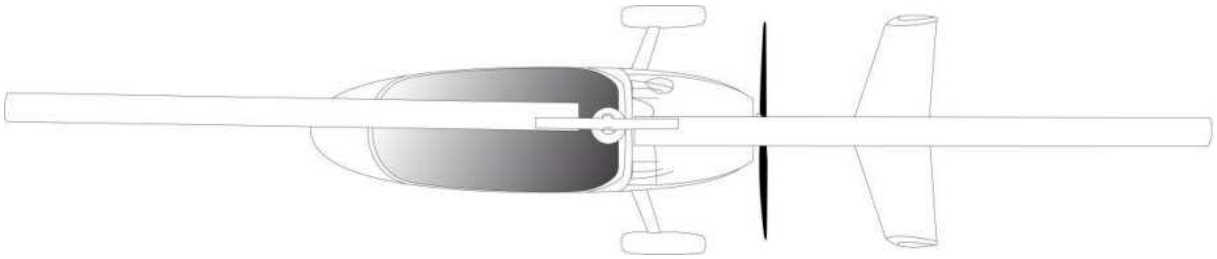
An illustrated 'Parts List' (AutoGyro Parts List) will be compiled individually and delivered with each gyroplane.

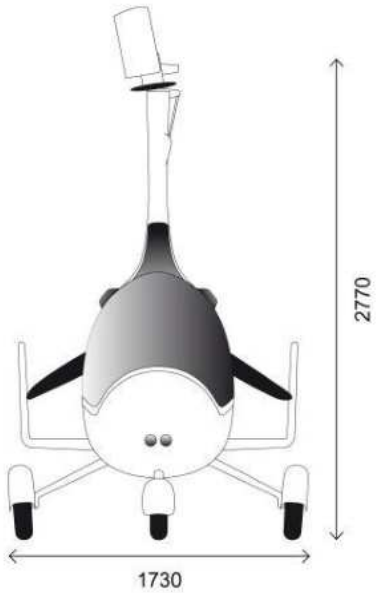
Forms are available for download.

A 'Life Limited Items Log' (LLI) is delivered with the aircraft by AutoGyro and shall be kept current by the maintenance facility. An empty form is available for download.

CHAPTER 06 – DIMENSIONS AND AREAS







Length	4.78 m
Width	1.73 m
Height	2.77 m
Rotor diameter	8.4 m (915iS) / 8.6m (916iS)
Rotor disc area	55.4 sqm
Propeller diameter	1.72 m

CHAPTER 07 – LIFTING / JACKING / SHORING

See Job Card 07-00-00 2-1 in Part E of this manual.

CHAPTER 08 – LEVELING AND WEIGHING

Weighing shall be performed in a draft-free hangar on level ground, with the aircraft defueled to minimum useable fuel.

Make sure each wheel of the gyroplane is located centred on the scales.

The weighing report is available for download.

CHAPTER 09 – TOWING AND TAXIING

Experience shows that aircraft may be exposed to much higher loads when operated on ground, than when in flight. Such loads caused by rumbling on rough terrain, or bouncing the aircraft over the hangar threshold may easily exceed the design load in peak.

Use caution when handling the gyroplane on ground. Care must be taken when pushing at the rudder or at the outer stabilizers. Avoid excessive swing of the rotor blades as repeated bending ultimately leads to fatigue or damage.

CHAPTER 10 – PARKING, STORAGE AND RETURN TO SERVICE

Parking up to 6 months

No special measures need to be taken.

NOTE Don´t let E10 remain in the fuel system for unnecessary long time or for long-term storage!

Parking more than 6 months

- Refer to engine manufacturer documentation
- Maintain battery charged
- Unload wheel gear
- Cover aircraft with a light plastic tarpaulin or cloth

Long-term Storage

Contact AutoGyro Technical Support

Return to Service

Perform a 100 hrs Inspection.

CHAPTER 11 – PLACARDS AND MARKINGS

To avoid duplication and error, placards are shown in the pilot operating handbook (POH or Rotorcraft Flight Manual).

Placards may be market specific by language and or units of measure. Check in the respective handbook.

CHAPTER 12 SERVICING

12-10-00 Cleaning

Care and regular cleaning of engine, propeller, rotor system and fuselage is the basic foundation for airworthiness and reliability. Therefore, the gyroplane should be cleaned after every last flight of the day or more often, if environmental conditions dictate.

In order to protect the gyroplane against dirt, dust, bird soil, and sunlight, the aircraft should be covered with a light plastic tarpaulin or cloth. Openings to the engine, service access ports and airspeed indicator should be closed after the flight (insects, birds etc.).

Contamination can be cleaned with clean water, possibly with mild cleaning additives. To clean the rotor it is best to soak contamination with a cloth or towel, wipe with soft or micro-fibre cloth, and rinse thoroughly with water.

12-20-00 Lubrication

Component	Application	Reference
Lubrication: Teeter hinge	5 hrs (recommended)	see below
Lubrication: Pre-rotator drive coupling sleeve	as required	see below

See CHAPTER 05 for respective time limits.

Lubrication: Teeter hinge

The teeter hinge consists of a steel bolt running in special Teflon coated bushings. In order to provide proper bearing action and to avoid wear and bearing play, which will cause rotor vibration in consequence, regular lubrication is essential. In order to do so, the best practise is to perform work steps 5 to 7 from Job Card 62-11-00 6-1 INSPECTION: ROTOR – TEETERING PARTS in Part E of this manual. Make sure to apply grease also on the outer (secondary) bearings inside the teeter tower.

Lubrication: Pre-rotator drive coupling sleeve

Apply a thin layer of lubricant AG-LUB-03 on coupling sleeve when in extended position in regular intervals, at latest when the sliding surface feels dry or after flight through rain. Mast cover must be removed!

12-30-10 Servicing: Engine Air Filter

The air intake filters need to be replaced or cleaned according to the manufacturer‘s recommendation. Depending on environmental conditions, such as dust, sand, or pollution the recommended rate of maintenance should be increased as required. Engine cowling must be removed!

12-30-20 Servicing: Tire Pressure

Main wheels	1.8 – 2.3 bar
Nose wheel	2.0 – 2.4 bar

NOTE: Green valve caps are used when the tire is filled with nitrogen.

12-30-30 Servicing: Battery

The aircraft is fitted with a maintenance-free gel electrolyte battery. Maintenance is therefore limited to outside soundness, correct attachment, and cleaning. Check integrity of the battery as leaking fluid contains corrosive sulphuric acid which would lead to extensive damage when contacting the framework and attachments.

Charge the battery only with a charging device which is suitable for gel electrolyte batteries.

CAUTION: The battery must never be deep discharged, as it will be damaged. If so, it might need to be replaced.

12-30-31 Servicing: ETX 900 Lithium LiFePO5 Earth X Battery

The Lithium battery is a maintenance free battery. EarthX lithium battery has over discharge protection via an internal Battery Management System (BMS) to disconnect the battery from the active load (your vehicle) to protect the cells from damage when it is 95-98% drained.
Inspection or testing is not needed for 24 months after purchase, and thereafter the following is recommended annually:

- Follow any inspection requirements for the battery type as documented by the battery manufacturer, found on the manufacturer website.
- Visually inspect the battery for signs of damage; plastic case is warped or swollen.
- Check the fault indicator mounted on the upper side of the battery, and/or located in the instrument panel LEDs, a solid or flashing warning indicates a variety of defects as below.
- Ensure the terminal screws are tight (properly torqued)

Charge the battery only with a charging device which is suitable for Lithium batteries.

12-30-40 Servicing: Engine Coolant

The cooling system for the cylinder heads of the engine is filled with a mixture of anti-freeze and water, which gives freezing protection down to -20°C. Check protection temperature of the coolant and add anti-freeze, if necessary.

Verify coolant level in the expansion tank, replenish as required. Minimum fluid level is stated (engraved) on the fuel dip stick. If no fluid is visible on the dipstick, a technical defect is most probable. Have engine inspected before next flight.

If temperatures are expected to fall below protection temperature, refer to 05-51-00 Winter Operation.

Note! The coolant system contains a complex pathway of hoses to each cylinder head. Take care to ensure the system is properly vented during refilling.
With the Rotax header tank cap removed (and only with a cold engine), adequate venting may be ensured by sharply squeezing the radiator hoses until no air bubbles exit through the tank.
Refit the cap after venting.

12-40-00 Servicing: Replenishing / Replacement of Fluids

Liquid / Fluid	Max. Filling Qty.	Type / Code
Engine coolant (50/50 distilled water and EthyleneGlycol antifreeze suitable for aluminium engines)	3.8 ltr	as documented
Engine coolant with cabin heating (depending on aircraft type / option) installed (50/50 distilled water and EthyleneGlycol antifreeze suitable for aluminium engines)	4.2 ltr	as documented
Engine Oil	3.4 ltr	as documented

See CHAPTER 05 for respective time limits.

CHAPTER 13-17 – UNASSIGNED / N/A

CHAPTER 18 – VIBRATION AND NOISE ANALYSIS

Vibration may be induced by the rotor system, the propeller or even the engine. Finding out the cause for vibration and its proper cure requires experience and special equipment. This is why vibration analysis and related maintenance can only be performed by specialized service partners, or AutoGyro GmbH, Germany directly.

The following tests or fault isolation procedures should be performed in order to exclude systematic errors in case of rotor vibration:

- rotor system cleanliness
- check/verify correct installation position of the shim washers relative to teeter block and teeter tower (one or two dot markings on block, shim washer and teeter tower must align)
- check for possible play in teeter bearing in axial or radial direction
- check rotor system alignment (see Job Card 62-11-00 5-1 in Part E of this manual)
- check for possible play in rotor bearing
- adjust (increase) rotor control friction (see Job Card 62-32-00 5-1 in Part E of this manual)

In case of unusual vibration, contact AutoGyro or an AutoGyro specialized service partner. If possible, try to describe the type of vibration as precise as possible as this will help to save time to reproduce and troubleshoot, or even allow a first remote assessment. The following table provides a basic classification.

Vibration appearance / sensation / parameter

- Lateral (left-right / back-forth) vibration with approximately 6 per second amplitude
- Vertical (up-down) vibration with approximately 12 per second amplitude
- Free-stick movement – carefully release control stick (if possible/safe) and describe path and displacement of control stick head
- Flight condition (weight, speed) with highest vibration level
- Rotor RPM
- Higher frequency vibration (around 50 Hz, like an electric razor), changing with RPM
- Higher frequency vibration, frequency and amplitude significantly changing with power setting, possibly irregular or erratic
- RPM or power setting with highest vibration levels

Noise is mainly created by the propeller. Engine and muffler play a secondary role in noise emission, as long as intact. Any deficiencies could be easily identified by a visual inspection or tap test. Repair or replace as necessary.

Propeller noise is emitted by the fast turning blade tips and usually increases exponentially with RPM and speed due to interaction of air disturbances with the blade tips.

As noise is a subjective perception, only measurement will provide reliable data. However, the following table provides elements and countermeasure to troubleshoot and cure in case of unusual noise emission.

Possible causes for noise / countermeasures

- Check propeller condition (cleanliness, erosion, damaged or splintered blade tips). Clean or repair propeller.
- Check propeller RPM during take-off (full throttle) or cruise. Adjust/reduce if required.
- Check/adjust propeller pitch. Check pitch setting of individual blades and adjust so that they are the same.
- Check leading edge of propeller and leading edge protection strip (if installed). A damaged leading edge protection strip (loose or sticking out end) may change noise signature significantly. Replace as necessary.
- Check air filter condition and installation condition.
- Check exhaust system for soundness

CHAPTER 19–20 – UNASSIGNED / N/A

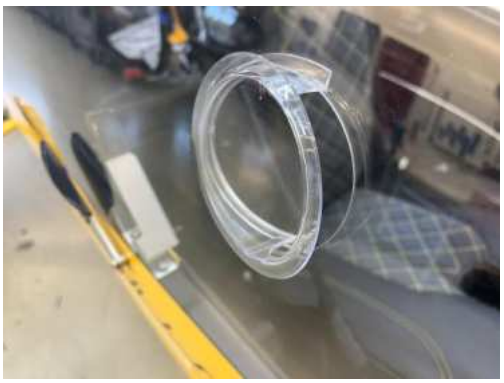
Contents

CHAPTER 21 - VENTILATION/ HEATING

21-00-00 Ventilation / Heating

Two open/closable and adjustable fresh air vents on the right hand side of the canopy and one sliding window with pivoting vent are provided for ventilation.

Fresh Air Vent 1



Fresh Air Vent 2

Sliding Window

Fresh Air Vent Centre Column

Another fresh air vent with pivoting and open/closable outlet is provided in centre column between bottom end of the flight control panel and forward flight control stick. This outlet supplies air from a ram air inlet which is located at the underside of the cockpit shell, in front of the nose wheel.

Cabin heating (if installed) is controlled by a knob labelled ‘Cab Heat’. In order to switch cabin heating on, the knob must be pulled. A Bowden cable will then open a butterfly valve right hand of the rear seat back rest and warm air from the engine compartment, respectively cooling air duct will escape. Air flow for the cabin heating system is provided by the ram air inlet located at the forward mast cover in top of the cabin, right behind the canopy.

Ram Air Inlet

CHAPTER 22 - UNASSIGNED/ N/A

CHAPTER 23 – COMMUNICATIONS

23-10-00 Speech Communication / Radio

The communication system consists of an integrated VHF radio system installed in the instrument panel. Different versions may be possible. Please refer to the manufacturer's specifications and manuals for reference. Wiring diagrams are provided in Part D of this manual. Different possible cockpit layouts are described in CHAPTER 31-10-00 INSTRUMENTS & CONTROL PANELS.

23-40-00 Interphone / Intercom

The standard intercom system features standard headset sockets (TRS / Tip Ring Sleeve) with additional XLR-3 socket for active headset power supply. Optionally, 6-pin LEMO plugs may be installed. Sockets are provided in each station, on the left hand side of the pilots respectively co-pilots seat. The intercom amplifier and VOX control is integrated in the respective radio.

In case of ATR 833, an audio in socket is provided in the instrument panel right beside the radio. Audio sources can be connected to the intercom system using a standard 3.5 mm audio jack.

See manufacturer's manual for additional information.

As the intercom function is an integral part of the radio system, please refer to CHAPTER 23-10-00 SPEECH COMMUNICATION / RADIO.

Standard plugs

LEMO plug

CHAPTER 24 - ELECTRICAL POWER

The 12V DC electrical system consists of two engine driven electrical generators, a battery, master switch, indicators, switches, electrical consumers, and cabling. With the ROTAX 915 iS / 916 iS engine an electrical power supply is vital for continued engine operation as this engine variant solely relies on electrically driven fuel pumps and engine ECU. GEN1 is used by the engine only, GEN2 is used to supply the aircraft ancillary systems.

An additional, externally mounted 40A generator (GEN3) is optionally fitted equipped for high electrical load operations.

Turning the master switch to the ON position closes the battery contact and energizes the gyroplane's electrical system. The orange LOW VOLT warning light will illuminate briefly as a functional check. A steady indication warns the pilot that the voltage of the system has dropped below a safe value. In this case a safety circuit (load shedding relay) will automatically disable the unnecessary systems (seat heating, 12V power receptacle, heating fan). It is not unusual for this led to be lit when first turning on the key switch, which will depend on the level of battery charge.

The GEN3 (where fitted) amber warning light is installed to indicate that the battery is not being charged by that generator.

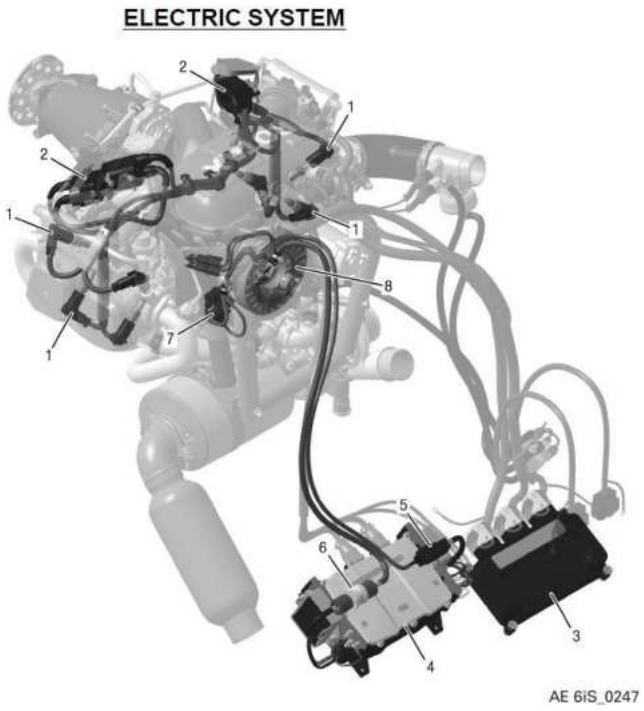


Figure 7.18: Overview

1 Spark plug connectors	2 Double ignition coil
3 Engine Control Unit (ECU)	4 FUSE BOX assy
5 Connector Generator A	6 Connector Generator B
7 Crankshaft Position Sensor (CPS 1/2)	8 Generator A and B

24-30-00 DC Generation and Battery

Direct current is provided by an engine-integrated AC generator with external rectifier-regulator (12V 20 A DC). The battery is located between mainframe/mast and engine. A dedicated charging receptacle is available at the right hand side of the mast air intake.

Battery

Charging receptacle in mast air intake

24-60-00 DC Electrical Load Distribution

The DC electrical load distribution system includes cockpit switches, control electronics (relays and logic components), fuses, electrical harnesses and cabling, and electrical consumers. Electrical schematics are provided in Part D - Diagrams and Charts of this manual.
The power consumption of individual equipment is listed in the following table:
GEN1 is not listed because it only supplies engine systems.

Equipment / System	**Power load**
Internal generator (Gen2)	(-) 420 W
External generator (Gen3)	(-) 600W
Pneumatic compressor	124 W (peak) / 103 W
Engine cooling fan	194 W (peak) / 97 W
Cabin heat blower fan	32 W
Heated seats	148W (peak)
Nav/Strobe lights (LED)	102 W (peak) / 34 W
Anti-collision lights (Option)	100W (peak) / 20W
Nose (taxi/landing) lights (LED)	10 W
Underbody landing light	113 W
Pitot tube heater	19W
Radio ATR833	7 W (rcv) / 35 W (xmt)
ATC Transponder TRT800H	max. 10 W
Aspen EFD1000 PFD (has an independent 30min battery reserve)	65 W
iPad (used as GPS)	35 W
Instrument lighting	25 W
Cabin light	1.5 W
Clock	1.4 W
12V Accessory socket	Max 67 W

1.1 Electrical circuit protection

Fuse description	Rating	Protects	Fuse type	Location
Main incoming supply to cockpit	30A ETFE 40A PVC	Main positive supply is fed to the starter solenoid from the battery. The supply continues then through the 30amp fuse to the cabin.	Bolt in strip type, MTA S.p.A. “Midival” range	Engine bay fuse box, above left fuel tank, on rear face of enclosure or engine bearer.
Compressor	10A	Fuse only supplies the pneumatic compressor	Automotive	Inst. Panel
Primary Fuel pump	5A	Fuel pump	Automotive	Inst. Panel
Secondary fuel pump	5A	Fuel pump	Automotive	Inst. Panel
ECU	5A	Engine control unit	Automotive	Inst. Panel

GEN 1	5A	Primary Fuel pump relay, where fitted	Automotive	Inst. Panel
GEN 2	5A	Generator operation, where fitted	Automotive	Inst. Panel
Cockpit	5A	All electrical gauges (rotor and engine rpm, oil pressure, water and oil temps, fuel gauge) and warning lamps	Automotive	Inst. panel
Avionics	10A	Radio, Transponder and GPS units	Automotive	Inst. panel
Landing lights	15A	Strobes, landing lights, Nav lights and aux socket. NOTE! Aux socket may be fitted with additional 5amp in line fuse.	Automotive	Inst. panel
Start	5A	Starter relay and SMD module	Automotive	Inst. panel
Constant speed propeller (where fitted)	25A	Main supply prop constant speed propeller	Automotive	Inst. panel
Fan	5A	Thermostat control of fan via relay	Automotive	Inst. panel
Fan	10A (15A permissible)	Power supply to fan via relay	Automotive	Inst. panel
Vent	5A	Cabin heater fan	Automotive	Inst. panel
Trim	5A	Supplies power to the stick controls for operating the pneumatic solenoid valves and the compressor relay	Automotive	Inst. panel
Rotax regulators	25A ETFE 30A PVC	Charging circuit from regulator to battery/aircraft supply	Automotive 25A fuse, located between the 30A	Engine bay

			fuse and the cockpit supply	
Starter	100A ETFE cable 125A PVC cable	Primary supply from battery to starter-solenoid /starter and from starter solenoid to main fuse	Midivale 80Amp fuse, published time at 80A, asymptotic, 13secs at 150A. Fuse mounted after the solenoid.	Engine bay
External battery charge point (where fitted)	15A	Cable from short circuit when fitting or removing the cowls	Automotive glass fuse	Near battery
Flymap L (where fitted)	5A	GPS only	Automotive glass fuse	Power supply lead to GPS unit behind instr. panel
Garmin GPSmap (where fitted)	1.5A	GPS only	Automotive glass fuse	Power supply lead to GPS unit behind instr. panel
Avmap EKP IV (where fitted)	2A	GPS only	Automotive glass fuse	Power supply lead to GPS unit behind instr. panel

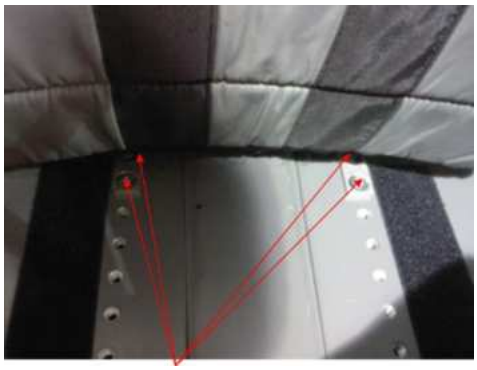
Reference to ETFE or PVC cable refers to the cable insulation material used in the wiring harness. Certified markets require the use of ETFE cable (generally Primary category USA and Permit Category UK).
Note that the external charging point permits charging via a Ctek charger.

CHAPTER 25 - EQUIPMENT / FURNISHINGS

25-10-00 Flight Compartment

The seats consist of seating surfaces and rear seat backrest which are an integral part of the monocoque structure. The front seat backrest is adjustable, see below. Seats and backrests are upholstered with removable cushions. The cushions consist of a foam core covered with an easily cleanable, water-repellent fabric. The base cushion is optionally available with a Dynafoam filling. Dynafoam is used to give increased occupant protection.

The forward backrest hinges are positioned by 4 countersunk Allen bolts on two seating rails. To suit to different leg lengths the backrest hinges can be adjusted by removing the Allen bolts and refitting in a different position on the rails.



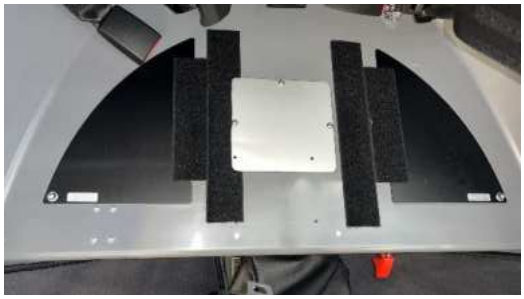
Hinge attachment screws

Take care to tighten securely, and to ensure both hinges are the same number of holes from the rearmost position.

In addition the backrest can be adjusted by modifying the lengths of the two adjustment straps. When adjusting make sure that full travel of the aft control stick is not restricted, if installed. The aft seat has no adjustment. An adjustable four point harness is fitted for each seat. Make sure that the aft seat belt is buckled and tight when flying with the aft seat unoccupied. Below each seat, two stowage compartments with a maximum capacity of 2.5 kg each are provided which can be accessed by lockable flaps.

Storage compartment front

Storage compartment front



Storage compartment rear

25-60-00 Emergency

An emergency hammer is located in the forward cabin station, reachable from both seats. The emergency hammer is placed in a separate bracket, screwed on the cabin floor and can be picked up in an emergency situation by simply grabbing and pulling.

Emergency hammer

Depending on the customer's configuration, an ELT may be installed below the aft seat. The ELT can be accessed through the service cover below the seat cushion. ELT control panel with mode indicator will be installed in the cockpit panel or centre column. If installed, please refer to the manufacturer's documentation for maintenance, time limits and testing. Be aware that the built-in battery has a limited lifetime and needs to be replaced as specified. Replacement date should be placarded in the vicinity of the device or control panel.

CHAPTER 26 - FIRE PROTECTION

Depending on customer's or market configuration the gyroplane may be equipped with a Fire indicator light to alert the pilot that a certain temperature in the engine compartment has been exceeded (the engine is on fire). The fire indication circuit consists of a cable routed inside the engine compartment. The cable has two integrated wires separated by an insulation layer. At a defined temperature the insulation layer will melt and the embedded wires close contact.

Engine fire (circuit short-closed, low resistance) will be indicated by a flashing/blinking Fire indicator light in the Warning and Caution Panel. During normal operation (circuit closed, 'normal' resistance) the Fire indicator light will be off. A malfunction of the system (circuit open) is indicated by a constantly lit Fire indication. At power-on the system will perform a lamp test consisting of a series of three flashes.
When installing or repairing the fire indication cable make sure not to over-torque the attachment hardware as this might lead to uncontrolled contact of the embedded +-s, which might lead to a false Fire indication.

Indicator Light	System Status
OFF	Normal Operation (normal resistance / R ~ 1 kΩ)
FLASHING	Fire, abnormal temperature (circuit short-closed / R → 0 Ω)
ON	System Malfunction (circuit open / R →∞ Ω)

CHAPTER 27 - FLIGHT CONTROLS

27-00-00 Flight Controls

See CHAPTER 67 – ROTOR FLIGHT CONTROL.

Note: Stabilizers are described in CHAPTER 55 - STABILIZERS.

27-20-00 Flight Controls – Rudder

The Rudder (Fin) is connected to the foot pedals with steel cables which are routed horizontally along the main frame. The flight instructor pedals (if installed) are interconnected by steel cables. The nose wheel steering is directly linked to pedal/rudder control input by control rods.

The tension of the steel cables that connect the pilot's pedals with the rudder can be adjusted by turnbuckles. Adjust in a way that there is no free play or slack, but do not over tense as this will lead to increased friction of the cables running through the curved keel tube.

In case the tension of the steel cables is suddenly low, check nose wheel control bracket.

The rudder fin is described in CHAPTER 55-40-00 RUDDER

CHAPTER 28 – FUEL

28-10-00 Storage

The fuel system consists of two tanks permanently connected with a large bore crossover tube allowing them to be considered as one large tank, with a single filler port, fuel and ventilation lines, fuel level indicator, tank water drain point and gascolator. The filler port is located at the left hand side of the gyroplane. In order to open the filler cap, lift, then turn the flap, and pull out. Reverse to close cap. A lockable cap is available.

The main tank is installed behind the aft seat in the left hand side and has a capacity of 39 or 50 litres. Fuel level is indicated by a transparent sight line with markings and also by a fuel quantity indicator in the cockpit.

An additional tank with a capacity of 39 or 50 litres is fitted on the right hand side. In this case a crossover line connects both to ensure equal level. In order to top-off tanks it is recommended to fill-up slowly and to allow flow levels to balance-out as the cross-over flow rate is limited.

Both tanks are ventilated by a ventilation line above the tanks, downwards to the lower engine cowl. Fuel hoses are made of fabric-reinforced rubber.

A low fuel sensor is installed. The LOW FUEL warning light is triggered as soon as 5 litres or less of useable fuel remain in the tank.

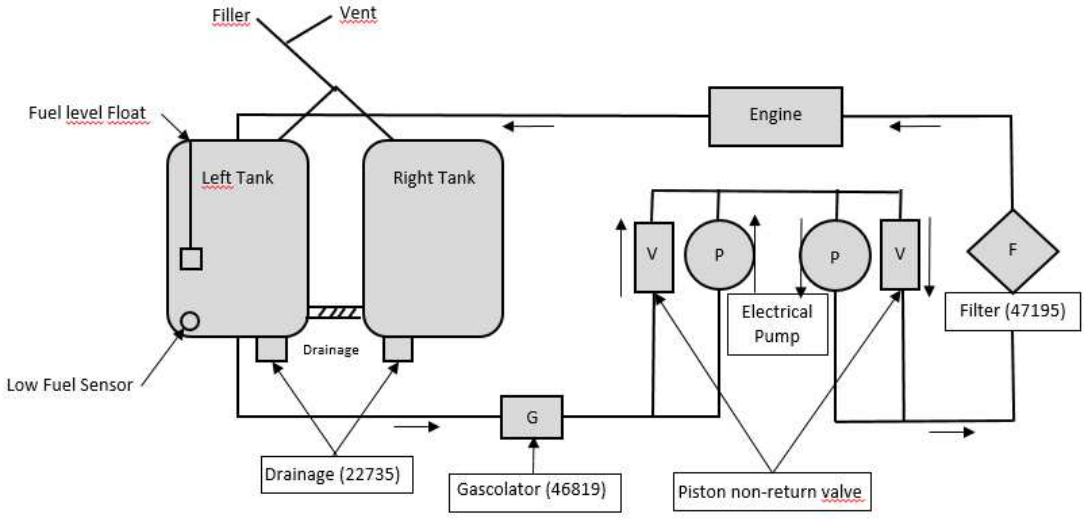
The gascolator drains through the body on the right side, near the suspension bow, allowing easy access for drainage. Always close properly after inspection!

Drain Port

28-20-00 Distribution

The fuel distribution system comprises fuel hoses, made of fabric-reinforced rubber, PTFE hose with stainless steel braid, a shut-off valve, a filter and two pumps.

Fuel system ROTAX 915 iS / 916 iS:



The safeguarded lever of the shut-off valve is located between the pilot and passenger seat below the intercom panel. The actual valve is located in the vicinity of the fuel tanks and is articulated by a torsion bar.

Fuel Shut off valve open

Fuel Shut off valve closed

28-40-00 Indicating

Fuel level can be confirmed on ground by a transparent viewing panel with markings at the left hand side of the lower engine cowling, and also by a fuel quantity indicator in the cockpit. Note that fuel level indication primarily represents the filling level of the left hand/main tank. In normal operation (i.e. sufficient time to balance-out) the filling level of the additional tank will be identical.

As an option, low fuel sensors may be installed. The LOW FUEL warning light is triggered as soon as 5 litres or less of useable fuel remain in the tank.

CHAPTER 29-30 - UNASSIGNED / N/A

CHAPTER 31 – INDICATING SYSTEM

Note: The hour meter / HOBBS meter is described in CHAPTER 77 – ENGINE INDICATING.

31-10-00 Instruments & Control Panels

Different instrument panel layouts are available. The basic instrumentation arrangements include:

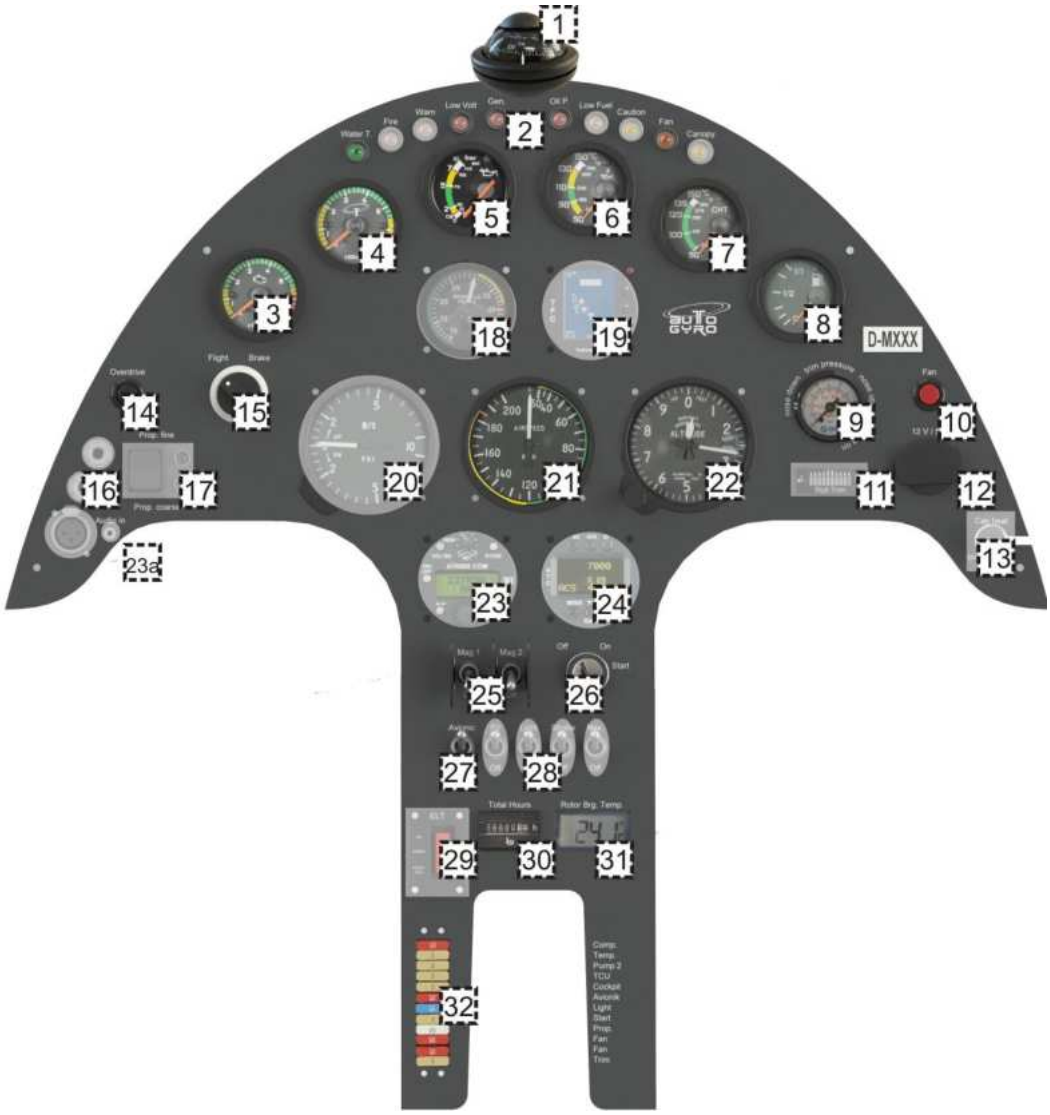
- Standard Layout / Moving Map Portrait
- USA Primary Category and Section T approved display, day VFR
- USA Primary Category and Section T approved display, day and night VFR
- Glass Cockpit - Single Display
- Glass Cockpit - Dual Display

The standard layout includes all instruments necessary for flight but also installation provisions for additional conventional instrumentation.
The panel layouts Moving Map Landscape or Portrait include all relevant instruments arranged in a way to accept most off-the-shelf moving map navigation devices in the respective format. For detailed user information and instructions concerning the different moving map systems please refer to the manufacturer's documentation.

The Glass Cockpit layout is tailored to the integrated flight and navigation suite of the Garmin G3X. In addition to navigational and moving map functions, the system provides primary flight data and relevant engine/vehicle monitoring. It is of utmost importance to read and understand the operator's manual and to become familiar with the system before operation. In case of a system failure, an altimeter, air speed indicator and compass are provided as back-up instrumentation.

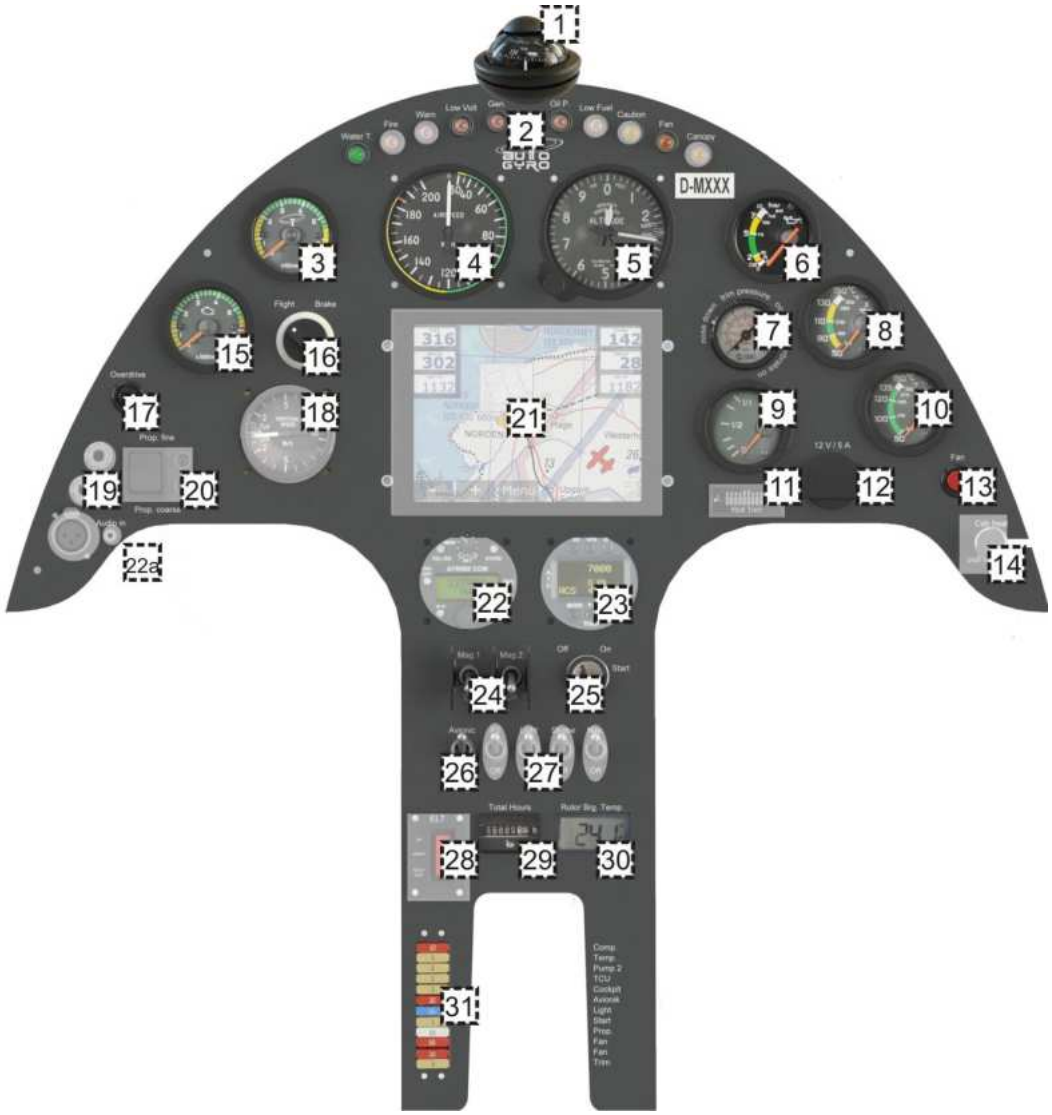
Depending on the chosen instrumentation and optional equipment, the depicted panels on the following pages may vary. Note that the standard or back-up compass is mounted above the instrument panel to distance it from the effects of electrical interference.

Panel Layout - Standard



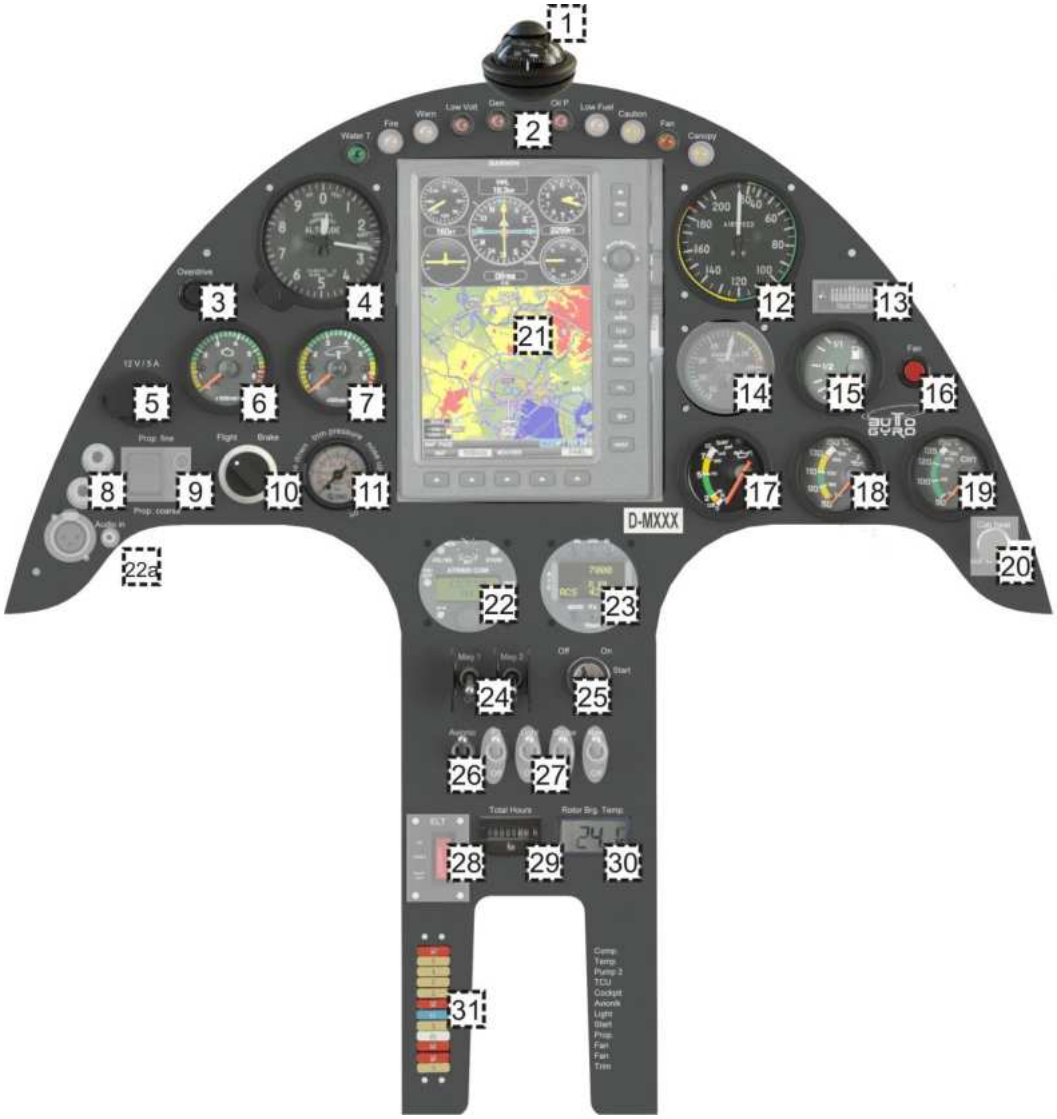
1 – Magnetic compass
2 – Warning lights
3 – Engine RPM
4 – Rotor RPM
5 – Oil pressure
6 – Oil temperature
7 – Cylinder head temperature
8 – Fuel level indicator
9 – Trim/brake pressure gauge
10 – Cooling fan manual activation
11 – Lateral trim indicator (if installed)
12 – 12V power receptacle (if installed)
13 – Cabin heat control (if installed)
14 – Overdrive push button
15 – Pneumatic mode selector
16 – Intercom/headphone sockets
17 – VPP control and end position detection IVO propeller (if installed)
18 – Manifold pressure gauge (if inst.)
19 – Collision Avoidance System (if inst.)
20 – Vertical speed indicator (if installed)
21 – Air speed indicator
22 – Altimeter
23 – Radio (if installed)
23a – Audio in (if installed)
24 – ATC transponder (if installed)
25 – MAG switches
26 – Master/starter switch
27 – Avionics master switch
28 – Switches (2nd fuel pump and options)
29 – ELT control (if installed)
30 – Hour meter
31 – Rotor bearing temperature indication
32 – Fuses

Panel Layout – Moving Map Landscape



1 – Magnetic compass
2 – Warning lights
3 – Rotor RPM
4 – Air speed indicator
5 – Altimeter
6 – Oil pressure
7 – Trim/brake pressure gauge
8 – Oil temperature
9 – Fuel level indicator
10 – Cylinder head temperature
11 – Lateral trim indicator (if installed)
12 – 12V power receptacle (if installed)
13 – Cooling fan manual activation
14 – Cabin heat control (if installed)
15 – Engine RPM
16 – Pneumatic mode selector
17 – Overdrive push button
18 – VSI 2 ¼" (47mm) (if installed)
19 – Intercom/headphone sockets
20 – VPP control and end position detection IVO propeller (if installed)
21 – Installation provisions for MMS
22 – Radio (if installed)
22a – Audio in (if installed)
23 – ATC transponder (if installed)
24 – MAG switches
25 – Master/starter switch
26 – Avionics master switch
27 – Switches (2nd fuel pump and options)
28 – ELT control (if installed)
29 – Hour meter
30 – Rotor bearing temperature indication
31 – Fuses

Panel Layout – Moving Map Portrait (Garmin 695)



1 – Magnetic compass
2 – Warning lights
3 – Overdrive push button
4 – Altimeter
5 – 12V power receptacle (if installed)
6 – Engine RPM
7 – Rotor RPM
8 – Intercom/headphone sockets
9 – VPP control and end position detection IVO propeller (if installed)
10 – Pneumatic mode selector
11 – Trim/brake pressure gauge
12 – Air speed indicator
13 – Lateral trim indicator (if installed)
14 – Manifold pressure gauge (if inst.)
15 – Fuel level indicator
16 – Cooling fan manual activation
17 – Oil pressure
18 – Oil temperature
19 – Cylinder head temperature
20 – Cabin heat control (if installed)
21 – MMS
22 – Radio (if installed)
22a – Audio in (if installed)
23 – ATC transponder (if installed)
24 – MAG switches
25 – Master/starter switch
26 – Avionics master switch
27 – Switches (2nd fuel pump and options)
28 – ELT control (if installed)
29 – Hour meter
30 – Rotor bearing temperature indication
31 – Fuses

31-60-00 Integrated Display Systems

The Glass Cockpit layout is tailored to the integrated flight and navigation suite DYNON AVIONICS SkyView. In addition to navigational and moving map functions, the system provides primary flight data and engine/vehicle monitoring. It is of utmost importance to read and understand the Operators manual and to become familiar with the system before operation. In case of a system failure, a 2 ¼" (47mm) altimeter, air speed indicator and rotor speed indicator are provided as backup instrumentation.

Panel Layout – Glass Cockpit (DYNON AVIONICS SkyView)

1 – Magnetic compass
2 – Warning lights
3 – Lateral trim indicator (if installed)
4 – DYNON Integrated Display
4a – Integrated display warning light
5 – Back-up air speed indicator
6 – Overdrive push button
7 – Intercom/headphone sockets
8 – VPP control and end position detection IVO propeller (if installed)
9 – Pneumatic mode selector
10 – Back-up altimeter
11 – Cooling fan manual activation
12 – Trim/brake pressure gauge
13 – 12V power receptacle (if installed)
14 – Cabin heat control (if installed)
15 – Radio (if installed)
15a – Audio in (if installed)
16 – ATC transponder (if installed)
17 – MAG switches
18 – Master/starter switch
19 – Avionics master switch
20 – Switches (2nd fuel pump and options)
21 – ELT control (if installed)
22 – Hour meter
23 – Rotor bearing temperature indication
24 – Fuses

CHAPTER 32 - LANDING GEAR

The Calidus has a conventional tricycle gear with GRP (glass fibre reinforced plastic) suspension bow and a steerable nose gear.

32-10-00 Main Gear

The main gear consists of a GRP suspension bow which is bolted to the underside of the fuselage. The spar is designed to absorb even higher than normal landing loads in case of a hard landing or crash.

32-10-00 Nose Gear

The nose gear consists of a steerable nose wheel in a fork made of stainless steel (CrMo4) tubing with rubber damper. Nose wheel steering is realized by a direct linkage to pedal/rudder control input using control rods.

32-40-00 Wheels and Brakes

Both main wheels feature hydraulic disc brakes. The hydraulic wheel brake is actuated by pulling the brake lever. A locking pawl mechanism allows setting for use as parking brake. In order to release the parking brake pull the brake lever a little further to let the spring-loaded locking pawl disengage, and then release wheel brake.

Do not try to disengage the locking pawl by pressing the small release lever without pulling the brake lever at the same time. Releasing the pawl using the small release lever only will lead to premature deterioration of the teeth. If the teeth are worn the function of the parking brake will be compromised!

The throttle and brake quadrant also supports the brake fluid reservoir with screw cap and fluid level minimum and maximum markings, as well as the primary brake cylinder.

For correct tire pressure see CHAPTER 12-30-20 SERVICING: TIRE PRESSURE.

Throttle and brake quadrant

1 – Throttle lever
2 – Brake lever with locking pawl
3 – Brake fluid reservoir
4 – Primary brake cylinder

CHAPTER 33 – LIGHTS

33-40-00 Exterior

All Calidus aircraft are approved for Day-VFR operation. Those equipped with the necessary additional equipment are approved for Day-VFR and Night-VFR.

Electrical schematics / wiring diagrams are provided in Part D - Diagrams and Charts of this manual.

Power consumption figures are listed in CHAPTER 24-60-00 DC ELECTRICAL LOAD DISTRIBUTION.

Depending on customer's configuration the gyroplane can be equipped with optional

- Landing lights (two forward facing LED lamps)
- Navigation /position lights (Autogyro manufactured for day use, Certified AVEO units for day and night VFR use). These may be body mounted (day only) or tail mounted (day and night VFR)
- Strobe lights embodied in the navigation/position lights.
- Underbody high-intensity LED landing light
- Instrument panel and cockpit lighting

Certified Nav and strobe unit, body mounted.

View of uncertified AutoGyro navigation and strobe lamp, for day use only.

Alternative navigation and strobes mounting either side of the tail fins. This improves conspicuity and reduces cabin flash.

View of forward facing lamp with optional underbody landing light

CHAPTER 34 – NAVIGATION

34-10-00 Flight Environment Data

The Calidus features a Pitot-Static System to measure accurate air data. Total pressure is picked up by a pitot type tube located in the nose section of the fuselage. The tube is connected to the integrated cockpit instruments by a plastic line. The static pressure is measured across two ports, one on either side of the fuselage.

Outside air temperature (OAT) is measured by a thermocouple located at the fuselage belly behind the nose wheel.

34-20-00 Attitude and Direction

As part of minimum equipment, a magnetic compass is installed in the forward area of the canopy in pilot's sight. As an option, a vertical compass may be installed in the instrument panel.

34-70-00 ATC Transponder

An ATC Transponder may be installed as an option. Possible installation positions in the instrument panel are described in CHAPTER 31 – INDICATING SYSTEM. Please refer to the manufacturer's documentation for reference.

Option fit is a Funkwerk TRT800H Mode S transponder. The antenna protrudes under the body. Read the User Manual for operational instructions, and take care that the Mode S hexadecimal code and aircraft recognition data is correct!

Alternate approved transponders:

- TRIG TT22 Mode S Transponder and TN70 GPS module (provides ADSB out)
- Garmin GTX 35 or 45R (fitted with a G3x installation)

Other Garmin or Trig radio and transponder devices as required to suit individual markets.

CHAPTER 35 - UNASSIGNED / N/A

CHAPTER 36 – PNEUMATIC

Aircraft trim, rotor brake and activation of the pre-rotator is controlled by a pneumatic system, consisting of an electrically driven air compressor with filter/dryer, a pressure gauge in the cockpit, a pressure compensation vessel, solenoid valves, air lines, pneumatic actuators, and the respective cockpit controls.

The pneumatic system controls the following function:

- rotor brake ON, i.e. rotor disc flat / flight control stick forward position (brake mode)
- adjustable longitudinal trim, i.e. rotor disc/stick pulled aft (flight mode)
- engagement of the pre-rotator, i.e. activation of the coupling and upper engagement (only in flight mode or in brake mode with overdrive/override button)

The aforementioned functions are described in more detail in the dedicated chapters.

A schematic drawing of the pneumatic system is provided in Part D - Diagrams and Charts of this manual.

36-11-00 Generation/ Compressor

The electrically driven compressor and filter/dryer is located below the rear seat and is accessible through a service cover. The wiring diagram is provided in Part D - Diagrams and Charts of this manual.

Compressor Service Cover

Compressor

Dryer

36-21-00 Distribution

Air distribution comprises of hoses, valves (solenoids), (cockpit) controls and switches, (pressure) sensors, filter/dryer and a pressure compensation vessel. The main pneumatic switching logic is combined in the pneumatic master box which is installed below the rear seat and accessible through a service cover. See Part D - Diagrams and Charts of this manual for schematics.

Note that the pneumatics actuators (cylinders) are not described in this ATA Chapter, but assigned to their mechanical main function.

Example: the brake/trim cylinder is described in CHAPTER 67-05-00 PITCH TRIM SYSTEM / ROTOR BRAKE.

CHAPTER 37-50 – UNASSIGNED / N/A

CHAPTER 51 - STANDARD PRACTICES – STRUCTURES

51-00-00 Standard Practices – Structures

Structural repair of composite structures or the welded steel frame is limited to AutoGyro GmbH or its specialized service partners.

CHAPTER 52 - DOORS, COVERS AND COWLINGS

52-10-00 Passenger / Crew

The gyroplane is embarked and disembarked from the right hand side while the canopy is held open by a restraint strap. The large, glazed canopy of the Calidus provides ingress, egress and emergency exit. The canopy is hinged at the left hand side using two hinges with bolts and self-locking nut. The canopy locking mechanism is located on the right hand side of the cockpit and can be opened from the outside as well as from the inside while the locking lever can be reached from both cockpit stations.

In order to provide a positive locking and avoid unintended opening in flight, a minimum force to open the locking lever is required. Please refer to the dedicated maintenance checklist item, respectively Job Card in Part D of this Manual.

Note that canopy windows are described in CHAPTER 56-15-00 WINDOWS.

52-20-00 Emergency Exit

The canopy also serves as emergency exit. Please also see CHAPTER 25-60-00 EMERGENCY concerning installation position and use of the emergency hammer.

52-40-00 Service Covers and Cowlings

In order to provide convenient access to engine, related components and other systems, service covers, cowlings and fairings must be removed. Location and procedures for removal/installation of service covers, cowlings and fairings are described in dedicated job cards in Part D of this manual.

52-70-00 Door Warning

A ‘Canopy Open’ warning may be installed as an option. In this case, a warning light indicates that canopy is not properly locked and pre-rotation is inhibited by a safety circuit.

CHAPTER 53 - FUSELAGE

The load carrying structure of the gyroplane consists of a composite monocoque occupant enclosure, bolted to an inert-gas welded stainless steel tube framework including tower and aft extension. The composite structure and main frame carries all loads induced by the crew stations, engine, rotor, undercarriage, stabilizer, and serves as installation platform for additional equipment.

Attachment points for the engine installation are provided by a steel tube ring mount at the rear of the mast, which also supports the rotor at its top end.

The aft extension of the main frame (keel tube) is made of stainless steel tubing and carries the stabilizer. A plastic protection pad is bolted to the steel tubing to protect the steel tube from abrasion in case of a tail slide (nose too high) during take-off, landing or wheel balance.

The protection pad must be inspected regularly and replaced as necessary in order to protect the steel tubing. In case the steel tubing is abraded, contact AutoGyro Technical Support for assessment

CHAPTER 54 - UNASSIGNED / N/A

CHAPTER 55 – STABILIZERS

The stabilizer structure with rudder is made of GRP (or in certain cases CRP) and is bolted to the keel tube (aft extension) of the main frame. Presence and function of the stabilizer plays a vital part in flight stability and safety. Inspect carefully all attachment points and the integrity of the composite component.

In order to assess the integrity of the stabilizer, carefully pull the fin tips in lateral direction (left/right) with a maximum of 150 N. A 'linear' resistance must be felt. In case mechanical noises are heard/felt, contact AutoGyro Technical Support.

55-40-00 Rudder

The rudder is made of GRP and is hinged to the central fin of stabilizer. An aluminium trim tab is provided to eliminate constant pedal input during cruise flight and to provide a pre-defined rudder setting in case of a control failure. The trim tab should be adjusted to allow pedal-off cruise flight. Adjust according to the following table:

Pedal input (for straight and level flight, slip indicator/ball centred)	**Corrective action** (seen from behind, i.e. in flight direction)
Constant right pedal required	Bend trim tab to the left
Constant left pedal required	Bend trim tab to the right

Avoid unnecessary bending as the tab may break at its perforation. A misadjusted or broken tab may change flight characteristics significantly and in case of a rudder control failure, the gyroplane may render difficult to control. Replace trim tab if it feels soft or fissures at the perforated part are visible.

CHAPTER 56 – WINDOWS

56-10-00 Flight Compartment / Canopy

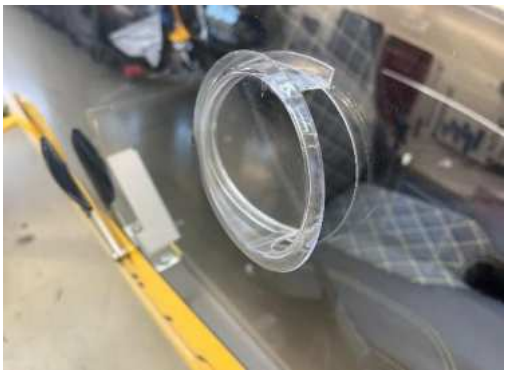
Outside visibility and environmental protection for pilot and occupant is provided by one large, undivided glazed canopy. The canopy consists of a GRP canopy frame with integrated seal and one large formed Plexiglas window. As an option, the top centre area of the canopy is painted as sun/heat protection.

The canopy can be opened and represents the only possibility for ingress and egress. The ‘door’ function of the canopy is described in CHAPTER 52 - DOORS, COVERS AND COWLINGS.

56-15-00 Canopy Windows

The canopy features two open/closable and adjustable and fresh air vents on the right hand side of the canopy and one sliding window with pivoting vent are provided for ventilation.

Fresh Air Vent 1



Fresh Air Vent 2

Sliding Window

CHAPTER 57-60 - UNASSIGNED/ N/A

CHAPTER 61 – PROPELLER

In standard configuration a 3-bladed, fixed pitch propeller with GRP propeller blades is installed. Depending on customer configuration a spinner may be installed! As an option, a variable pitch propeller is available.

Adjustment of the fixed pitch propeller is described in a dedicated Job Card in Part E of this manual. The mechanical end stops of the variable pitch propeller are pre-adjusted by AutoGyro. In case, re-adjustment should be necessary on the variable pitch propeller, please refer to the manufacturer's documentation.

In certain cases, damaged propeller blades can be repaired. Concerning repair limits and allowable damage contact AutoGyro Technical Support. Provide a precise description of the damage, dimensions and preferably photos of the affected area.

61-10-00 Propeller assembly

The propeller assembly comprises propeller blades, hub and related attachment hardware.

61-20-00 Controlling

In case of a variable pitch propeller (VPP) refer to the manufacturer's documentation.

CHAPTER 62 – ROTOR

The two-bladed, semi-rigid, teetering rotor system comprises high-strength aluminium extruded rotor blades, a hub bar, and a common teeter hinge assembly.

Due to their working principle, every two-bladed teetering rotor system induces a certain amount of vibration, depending on flight condition (speed) and disc loading. AutoGyro optimizes each rotor system at a medium disc loading and speed before delivery. However, if the rotor system shall be tuned to a different flight condition or reveals undue vibration, contact AutoGyro Technical Support or a specialized service partner.

IMPORTANT NOTE: Rotor Systems are Manufacturer Life Limited (MLL)!

Some guidelines to Vibration and Noise Analysis and classification schemes are provided in CHAPTER 18 in Part B of this manual.

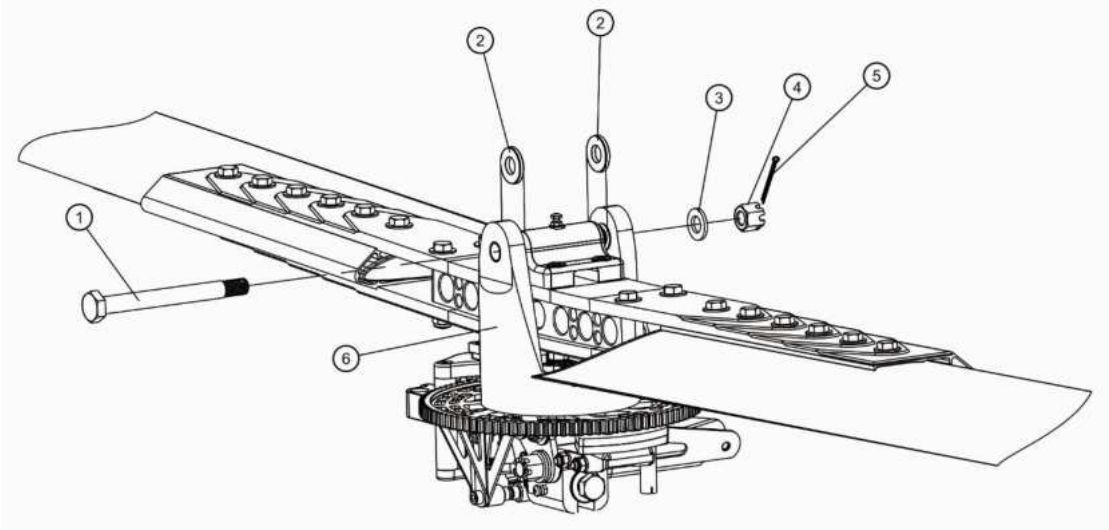
62-11-00 Rotor – Teetering Parts

The teetering parts of the rotor system consist of teeter bolt, teeter block, rotor hub (bar), and rotor blades.

The rotor blades feature an aerodynamic profile especially suitable for rotorcraft which, in combination with its relative centre of gravity, provides aerodynamic stability by eliminating negative blade pitching moments and flutter tendency. The hollow blade profile is sealed at both ends by plastic blade caps.

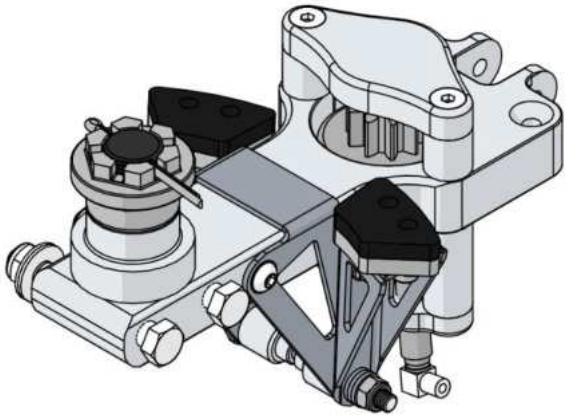
The aluminium rotor hub bar is pre-coned to the natural coning angle of the blades and connects the blades firmly to each side using 6 fitting bolts and a clamping profile. In order to compensate for asymmetric air flow in forward flight the blades are free to teeter. The hinge assembly consists of teeter tower, teeter bolt and teeter block.

The teeter bolt runs in a long Teflon coated bushing in the teeter block (main bearing action), as well as two shorter bushings in the teeter tower (emergency bearing action). The main bearing action is supported by special grease which is applied through a grease nipple on top of the teeter block. Servicing is described in CHAPTER 05 in Part B of this manual.



62-31-00 Rotor Head Bridge, Bearing and Teeter Tower

The rotor head bridge is made of welded stainless steel. Rotor bearing (Manufacturer Life Limited!) and teeter tower represent one integrated component.



Rotorhead III, Rotorhead Bridge

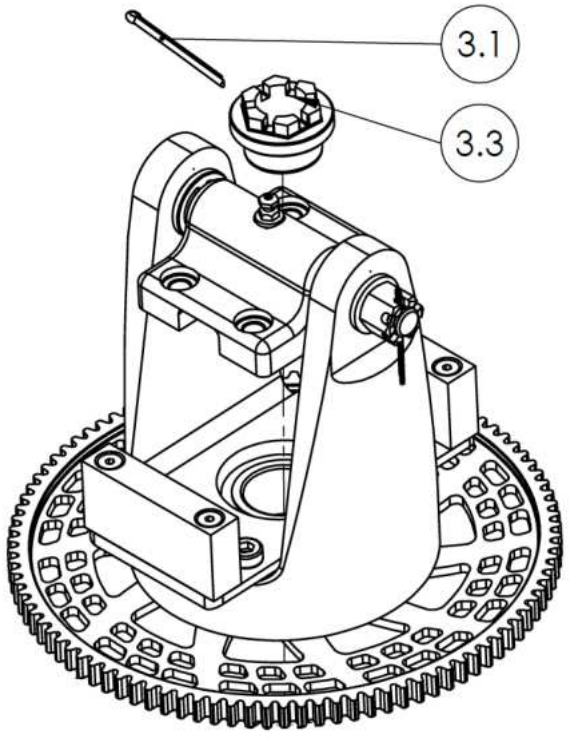


Figure 1 – Rotorhead III, Teeter Tower

62-32-00 Rotor Gimbal Head

Tilting action or rotor flight control of the rotor is facilitated by the rotor gimbal head. The gimbal head is sometimes also referred to as ‘hang point’ and represents a cardan hinge.

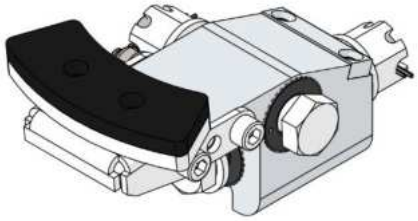


Figure 1 – Rotorhead III, Gimbal Head

62-41-00 Rotor RPM Monitoring

Rotor RPM monitoring is realized by an inductive pick-up which is installed with a gap of 3-4 mm at the sprocket wheel. The sensor counts the holes in the sprocket disc. Rotor RPM is indicated in the cockpit in an analogue-type instrument which also houses the control electronic. The system requires power supply.

62-51-00 Rotor Vibration Isolation

A certain level of vibration is inherent to any 2-bladed rotor system. In order to reduce vibration levels to a minimum, a vibration decoupling element in the rotor mast isolates rotor vibration from the fuselage. Vibration isolation is realized by two rubber mounting bushings which connect the split mast.

CHAPTER 63 - ROTOR DRIVE

63-11-00 Pre-rotator

The pre-rotator is used to quickly bring the rotor up to safe RPM for take-off run by the press of a button. Pre-rotation is activated by a push-button on the flight control stick. Because of a safety circuit, activation of the pre-rotator is only possible with the pneumatic mode selector in FLIGHT position and the control stick fully forward. This prevents inadvertent activation of the pre-rotator during flight or in BRAKE mode.

The pre-rotator is activated as long as the respective push-button on the control stick head is depressed, provided the following pre-conditions are met:

- pneumatic mode selector set to FLIGHT
- control stick in full forward position
- trim pressure less than 3 bar
- “Canopy” light OFF (if installed)

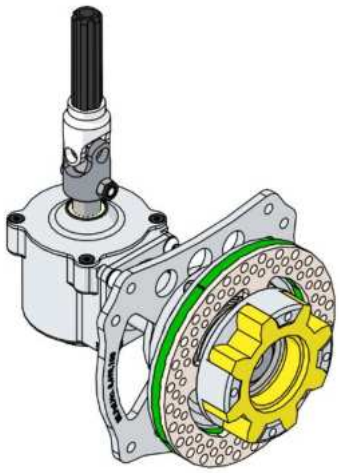
In this case, the pneumatic coupling is activated and engine torque is transmitted through a 90° gearbox and drive to the pinion which is engaged by another small pneumatic actuator into the geared ring / sprocket wheel of the rotor head. The drive pinion is sliding on a helical gear to provide automatic lock-out in case of rotor RPM overrun. In order to allow necessary changes in length the vertical pre-rotator drive shaft features a sliding sleeve coupling.

The pre-rotator can be activated in BRAKE position to park the rotor blades fore-aft for taxi. To do so, the pre-rotator push-button and the overdrive/override switch in the cockpit panel have to be pressed simultaneously. Prolonged activation of the pre-rotator with rotor brake engaged should be avoided.

63-11-10 Pre-rotator Lower Engagement

Pre-rotator lower engagement consists of the pneumatically activated coupling.

For pneumatic control of the coupling refer to CHAPTER 36 - PNEUMATIC.



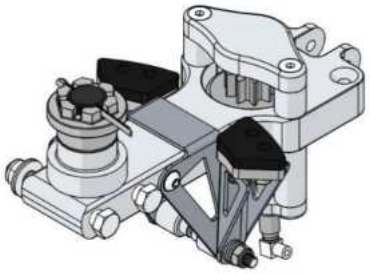
Pneumatic Coupling with 90 degree gearbox

63-11-20 Pre-rotator Drive

Power flow is realized through a 90-degree gearbox and drive shafts. The 90-degree gearbox is mounted directly to the disc coupling. The pre-rotator drive shaft features a cardan joint right after the 90-degree gearbox and a sliding shaft coupling in the upper area to allow changes in length due to the tilt of the rotor head.

63-11-30 Pre-rotator Upper Engagement

The pre-rotator upper engagement comprises a drive pinion with bearing, which is engaged by a small pneumatic actuator into the geared ring / sprocket wheel of the rotor head. The drive pinion is sliding on a helical gear to provide automatic lock-out in case of rotor RPM overrun.



Pre-Rotator upper Engagement

Pre-Rotator Drive

63-51-00 Rotor Brake System

The rotor brake system consists of a brake pad mounted to a bracket which is hinged to the rotor head bridge. With the pneumatic mode selector in BRAKE position the operation of the pneumatic trim actuator is reversed so that increased pressure causes the actuator to push the rotor head up (or level) and presses a brake pad against the rotor head disc. In order to increase brake pressure, move the 4-way trim switch to aft. Note that this action will also push the control stick forward. At full brake pressure the control stick will be maintained in its full forward position. Due to its main function the pneumatic brake/trim actuator/cylinder itself is allocated to CHAPTER 67-05-00 PITCH TRIM.

CHAPTER 64-66 - UNASSIGNED / N/A

CHAPTER 67 - ROTOR FLIGHT CONTROL

Rotor flight control comprises of control stick, a control tube running horizontally along the bottom of the fuselage, and push-pull control cables which are routed vertically along the mast and connected to the rotor head bridge.

Pitch and roll of the gyroplane is controlled by tilting the complete rotor head by means of the control stick. Control input is transferred via torsion tube and linkage running below the seats to the base link and from there to the rotor head via push-pull control cables.

The control stick head is ergonomically shaped to fit the pilot's right hand and features control buttons for radio transmission (1), a four-way trim function (2), and activation of the pre-rotator (3).

Control stick head

1 – Radio transmission
2 – Trim switch
3 – Pre-rotator

67-05-00 Pitch Trim System / Rotor Brake

The Pitch Trim System comprises of a 4-way beep trim switch (2) / "Chinese Hat" at the flight control stick and the pitch trim / brake pneumatic actuator. Pneumatic control is allocated to and described in CHAPTER 36 - PNEUMATIC. Components related to the rotor brake are shown in CHAPTER 63-51-00 ROTOR BRAKE SYSTEM.

Trimming is effected by varying trim pressure in the pneumatic trim actuator which is installed in parallel with the rotor head tilt for pitch control. Aft or nose-up trimming activates the electrical compressor and increases trim pressure, causing the actuator to contract, and tilting the rotor disc aft. Forward trimming opens the pressure relief valve to reduce trim pressure and allows the rotor disc to flatten, due to the spindle head offset and the gyroplane's weight. The actual trim condition is indicated on the trim/brake pressure gauge in the centre panel of the cockpit.

67-06-00 Roll Trim System

Lateral/roll trim is available as an option and works accordingly, using a lateral pneumatic trim cylinder installed in addition. With this option installed, lateral trim condition is indicated by a LED bar on the instrument panel.

CHAPTER 68-70 - UNASSIGNED / N/A

CHAPTER 71 - POWER PLANT

Power plant comprises aircraft provisions, installations and systems related to the core engine. The engine itself is allocated to CHAPTER 72 – 74 ENGINE RELATED.

71-10-00 Engine Cowling

Concerning engine cowlings see CHAPTER 52 - DOORS, COVERS AND COWLINGS.

71-20-00 Engine Mounts

Attachment points for the engine installation are provided by a steel tube ring mount at the rear of the mast. To provide vibration isolation, the engine is connected to the ring frame by 4 rubber mounting bushings. The engine mounting bushings have to be inspected regularly and have to be replaced, if torn or porous. Defective rubber bushings can also cause undue engine/propeller vibration.

IMPORTANT NOTE: Engine mounting bushings are recommended to be changed at a minimum of every 5 years or when there is notable sag!

Engine Mount

Rubber Mounting Bushings

71-30-00 Engine Firewalls

An engine fire wall, installed at the rear end of the monocoque fuselage, isolates the engine compartment from the cabin. The engine fire wall also includes heat/fire shields at the fuel tanks.

71-50-00 Engine Electrical Harness

The engine electrical harness includes wiring, cables and cockpit switches for starting, energizing and grounding of the dual magnetic ignition circuits (including instructor killing switches, if installed), and engine indication. A wiring diagram is provided in Part D of this manual. Also refer to the engine manufacturer's documentation.

71-60-00 Engine Air Intakes

A central engine air intake for cooling and aspiration is provided as ram air inlet in the lower area forward mast cover, just above the cabin. The engine aspirates air from the engine compartment through an air filter.





71-70-00 Engine Drains

Oil tank breathing is provided by a rubber hose that exits through the lower portion of the lower engine cowling to the outside.

CHAPTER 72 - 74 - ENGINE RELATED

For the (core) engine refer to the engine manufacturer's documentation in its latest revision.

Concerning fuel system (Filter, Pumps, Shut-off valve) see CHAPTER 28 - FUEL.

Engine cowlings are described in CHAPTER 52 - DOORS, COVERS AND COWLINGS. For removal and installation see the dedicated Job Card in Part E of this manual.

CHAPTER 75 - AIR / ENGINE COOLING

Engine cooling is provided by ram air cooled cylinders and liquid cooled cylinder heads. Sufficient cooling air flow is provided by a ram air duct in the lower portion of the forward mast cover. The water cooling system comprises of engine driven pump, radiator with thermo-activated electrical blower fan, expansion tank with radiator cap, overflow bottle, and hoses.

A single, large area radiator is mounted above the engine so that cooling air from the ram air duct passes through the cooler, is directed around the engine's cylinders, and finally escapes through an opening at the lower rear end of the engine cowling. Force cooling is ensured by an electrically driven ducted fan controlled by a thermo switch. A push-button in the cockpit allows manual activation temporarily which is typically used to avoid possible heat build-up after shut-down.

For the relevant checking and replenishing procedures, refer to engine manufacturer's manual.

Oil cooling is described in CHAPTER 79 – OIL SYSTEM.

CHAPTER 76 – ENGINE CONTROLS

Engine control consists of engine power lever / throttle with choke and related cockpit switches for engine shut-down and test.

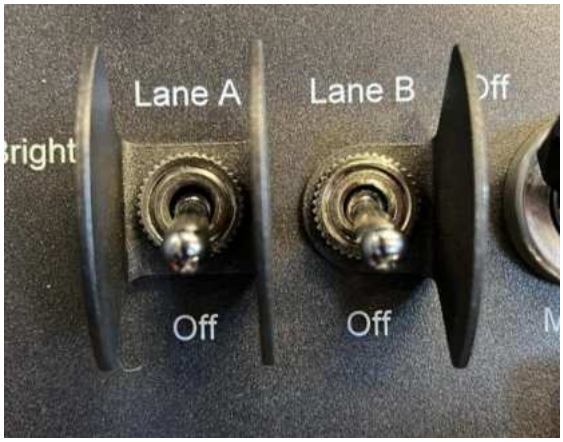
76-10-00 Power Control

Engine power / throttle is controlled by a control column installed in the left hand side of the pilot's station. The unit combines a choke control as an offset (shorter) lever as well as a lever for activation of the wheel brake. A second power lever with brake lever may be installed in the instructor / passenger seat.

Throttle control (1) is conventional with IDLE in aft (or pulled) and full throttle in most forward position. The throttle lever is linked with cable controls to the intake butterfly valve. A mechanical spring applies tension to the control cable and brings the engine to full throttle in case of a cable break. The throttle lever has a pre-set friction brake which holds the throttle in the selected position

76-20-00 Engine Shutdown / Emergency

For normal and emergency shutdown, a pair of LANE switches (LANE 1 + LANE 2) is installed in the cockpit centre panel. These switches are also used for testing the individual ignition circuits.



LANE switches in cockpit panel

CHAPTER 77 - ENGINE INDICATING

All relevant engine parameters are displayed in the cockpit, using analogue-type instruments in standard version. In case of integrated cockpit systems (option), engine data may be displayed in the integrated instrumentation system (glass cockpit). An hour meter (Hobbs Meter) is installed in the cockpit to count engine operating time with an accuracy of two decimals (1/100 hrs). Although the 'engine operating time' is also used for total aircraft hours counting, the hour meter is allocated to this chapter as the main function.

Hour meter

CAN-Bus note

The engine parameters (Coolant temp, coolant led, oil temp, oil pressure and engine rpm) are provided via the Rotax CAN-Bus system to the gauges, via a digital to analogue Converter. On start up the gauges initially go to full scale deflection, the normal Road gauge manufacturer's process.

The AutoGyro Converter then self-checks by displaying the red line indication, dropping to the green line indication.

The Converter compares the information provided by the two CAN-Bus inputs.

If one input fails the unit will display the information from the other CAN-Bus.

If both fail the indication is zero, but the gauge internal warning light illuminates.

If the information provided shows a significant discrepancy the gauge will go to FSD and the internal warning lamp will illuminate.

In the event of both, CAN-Bus input failure, or Converter failure, no information will be displayed on the gauges.

In this situation provided the Lane A or B lamps are unlit, the engine will run normally.

77-10-00 Power

With a piston engine with fixed pitch propeller, engine power indication solely consists of an engine RPM indicator. In case a variable pitch propeller is installed, a manifold absolute pressure (MAP) indicator is provided in addition. See CHAPTER 31 for different cockpit layouts.

77-20-00 Temperature

For temperature indication, an engine coolant temperature (CT) gauge is provided. Due to the engine cooling principle (air cooled cylinders with water cooled cylinder heads) the CT represents cylinder head coolant temperature.

Oil temperature indication is described in CHAPTER 79 – OIL SYSTEM.

77-40-00 Integrated Engine Instrument Systems

Integrated display systems (glass cockpit) are described in CHAPTER 31-60-00 INTEGRATED DISPLAY SYSTEMS.

CHAPTER 78 – EXHAUST

78-00-00 Exhaust

The basic exhaust system including manifold and turbo charger with waste gate is part of the core engine. Refer to the engine manufacturer's documentation. The configuration meets the noise test requirements of Germany. An aftermuffler is fitted.

Aftermuffler

CHAPTER 79 - Oil SYSTEM

The dry sump forced lubrication comprises oil pump, separate oil tank with dip stick, oil cooler, hoses, as well as oil temperature and oil pressure indication.

79-11-00 Storage / Oil tank

The oil reservoir with dipstick is accessed through a cover on the right hand side of the fuselage. The cover is held by 3 cam lock fasteners which can be locked or unlocked by a quarter turn. The oil tank is made of stainless steel with oil filler cap. The cap can be unscrewed / tightened by a quarter rotation in order to check the oil level using a dip stick or for replenishing of engine oil.

Oil storage

Cap and dipstick

Level min. and max.

Note: The type of lubrication system requires a special procedure for accurate oil level checking and to prevent overfilling. Refer to the engine manufacturer documentation for detail and procedures.

79-20-00 Distribution and Cooling

Oil distribution and cooling is provided by a separate oil cooler, which is connected to the oil circuit by oil hoses and a thermostat assembly.

79-21-00 Oil Hoses and Lines

Oil hoses are made of PTFE hoses, protected by braided stainless steel.

79-22-00 Oil Cooler

An oil cooler is fitted to the lower aft end of the fuselage / enclosure, below the central section of the main gear suspension bow. Oil flow through the cooler is regulated by a thermostat assembly which opens the cooler circuit at approximately 90 °C.

Do not attempt to block the oil cooler to increase the oil temperature, as this could cause overheating on a hot day. The oil reaches at least 90 °C before the oil can transit through the cooler.

79-30-00 Indicating

Oil temperature is measured in the oil feed line at the thermostat, between the oil cooler and the engine. The oil in this pipe is drawn from the oil sump, where the hot oil from the engine is delivered and mixes. When the gauge indicates 50 °C then the engine oil leaving the engine will exceed that value.

When the oil temperature reaches 90 °C the thermostat will open, allowing the oil to pass through the oil cooler matrix. Having been cooled, the oil then passes the same sensor, which will now indicate a lower temperature than 90 °C – subject to the incoming oil temp and OAT.

Indicators of Oil Pressure (Oil-P) and Oil Temperature (Oil-T) are provided in the cockpit as analogue-type instruments in standard version. See CHAPTER 31 – INDICATING SYSTEM for different cockpit layouts.

Contents

Engine bay top left

Engine bay bottom center

Rotor

Copilot consol

Cockpit

front

if Lane switches not installed, then install two bridges.

9 /23.3:B white

6 /26.2:B

8 /25.3:B

7 /11.4:B

B2 5

Lane_A_Switch_1 /14.5:B

Lane_A_Switch_2 /14.4:B

Lane_B_Switch_1 /14.5:C

Lane_B_Switch_2 /14.4:C

Lumbar_Support_Copilot_(VK) /14.2:C

Lumbar_Support_Copilot_(HK) /14.2:C

Lumbar_Support_Copilot_(MK) /14.2:B

Seat_Heater_Copilot_12V /14.4:B

Seat_Heater_Copilot_GND /14.4:B

3 /2.2:B

1 /9.1:A /16.1:A /17.1:A /20.5:H violet

2 /2.2:C /9.1:C /16.1:C /17.1:C brown

0 /9 /16.9:D /17.9:D

4 /9 /16 /17

10 /7.4:B grey

11 /12.2:A yellow

12

13

14 /8.8:C

15

EPT_1

Key switch T30 / 8.6:E

2.4:A / OAT_Sensor 1

2.4:B / OAT_Sensor 2

5.4:B / Underbody Landing lights 12V

5.4:C / Taxi lights 12V

5.4:B / Underbody Landing lights GND

5.4:C / Taxi lights GND

Backup_GND_2

Backup_GND_1 8.11D

Backup sup 8.6:E

Main 8.2:D

HIC A

HIC B

Main_Relais_Power / 8.3:E

Generator_Power / 8.5:E

=> twisted

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Co-Sign 2:

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Pro.Nr.		
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Sheet:	1 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

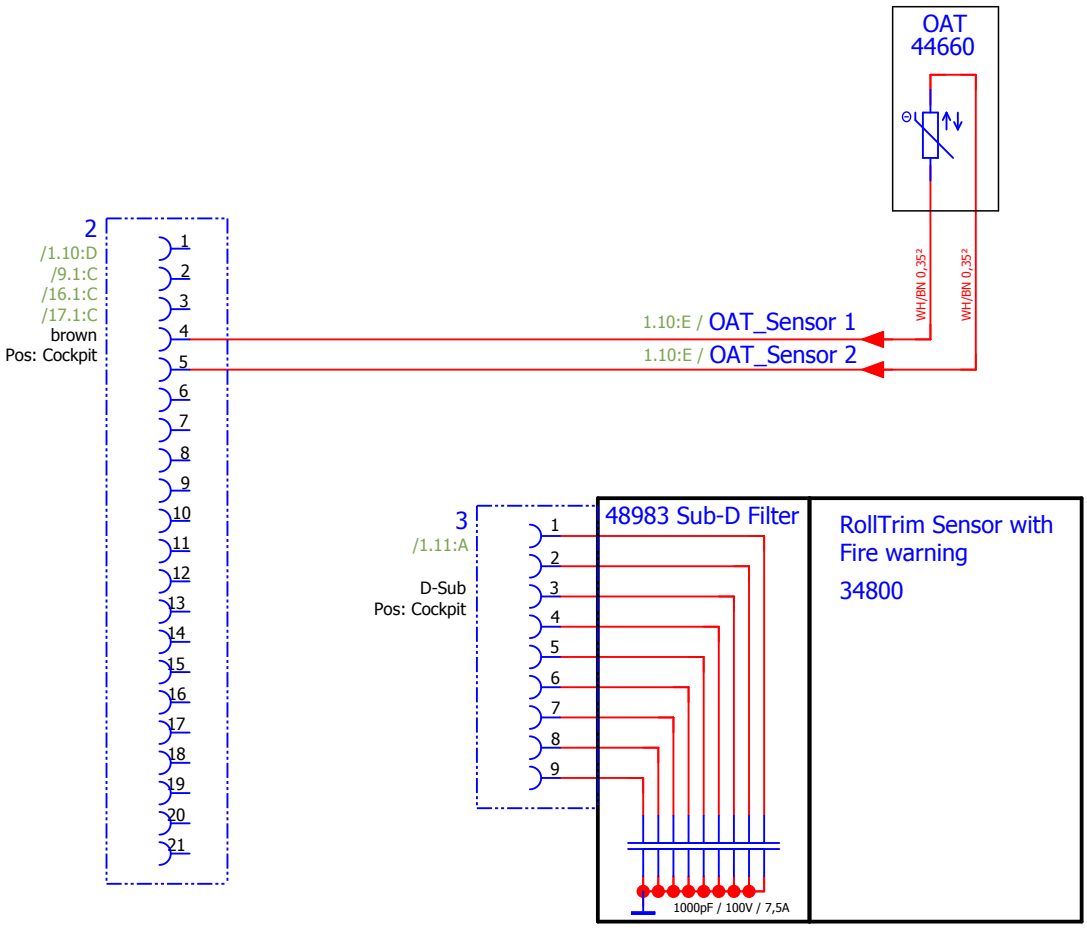
Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY
A001		Added Underbody Lights	18.11.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Main wiring 915 916 / Hauptkabelbaum 915 916

49349

Revision A001



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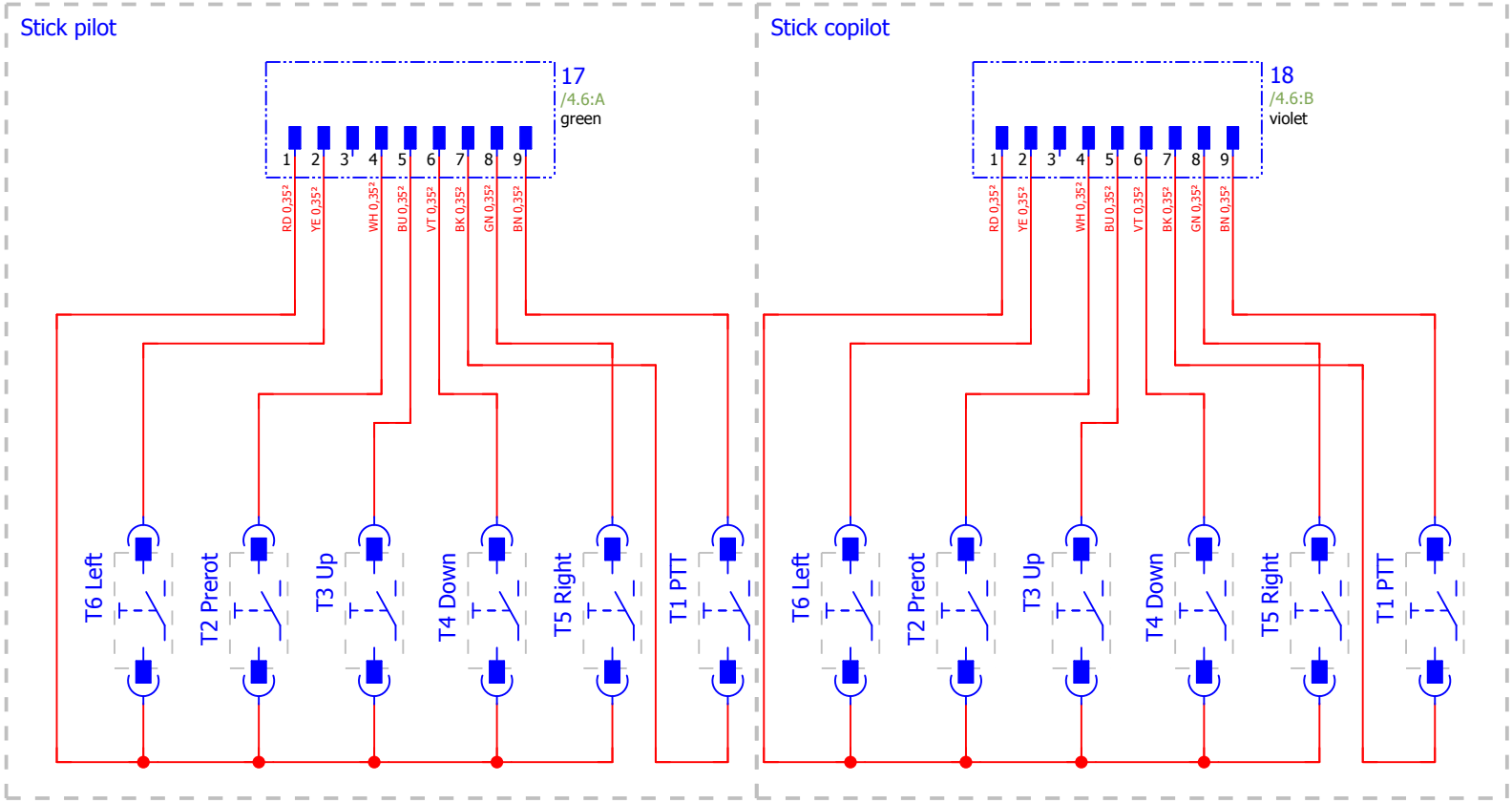
Unrivalled Sport Gyroplanes

Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY
A001		Added Plugs and artikel numbers	18.11.2024	HARRY
A002		Added Sub-D Filter	12.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Sonstige komponeten

Revision
A002



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Unrivalled Sport Gyroplanes

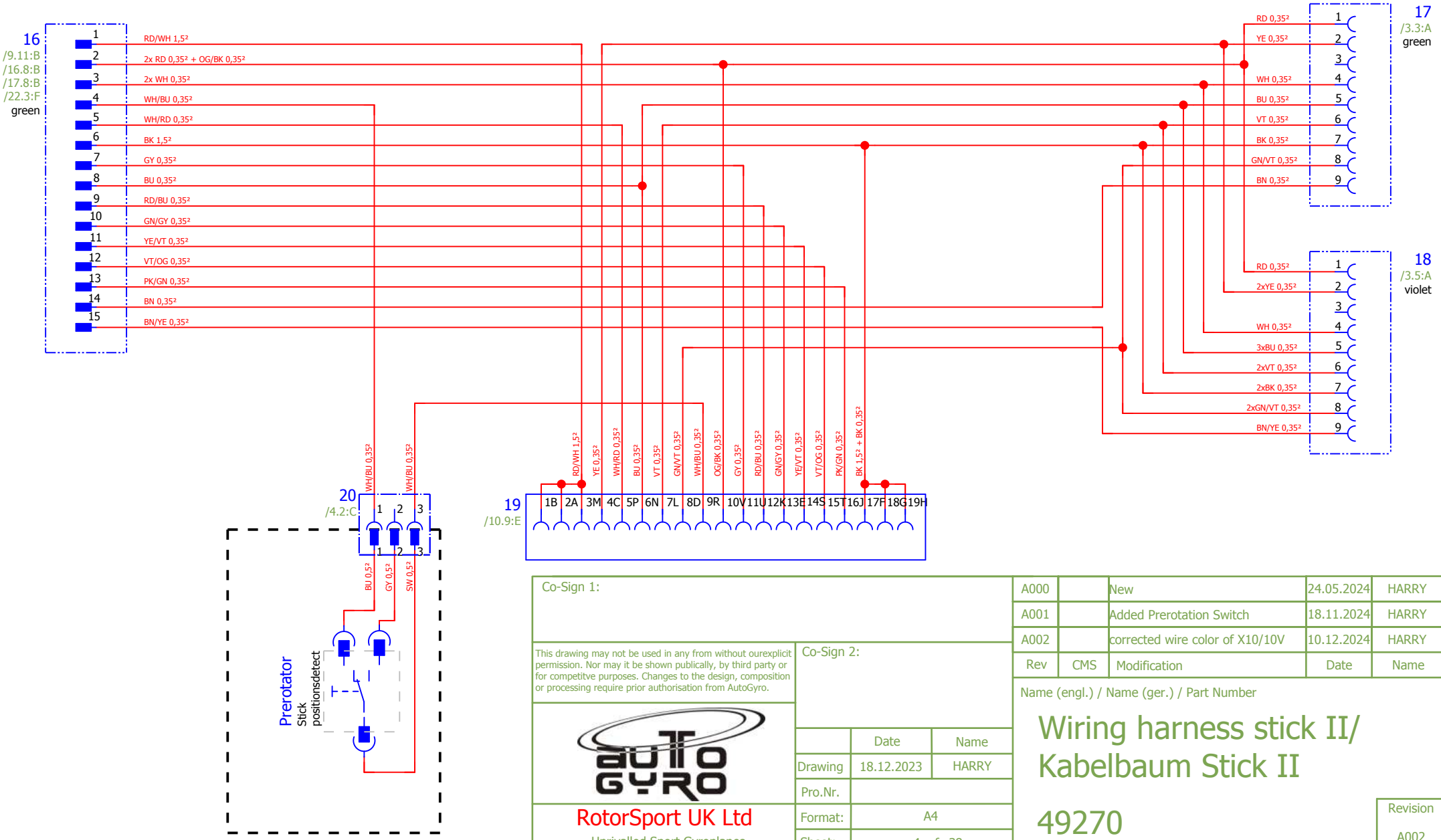
Rev	CMS	Modification	Date	Name
A001		No Changes	24.05.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Control sticks / Steuerknüppel

31817/31818/32233

Revision A001



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RotorSport UK Ltd
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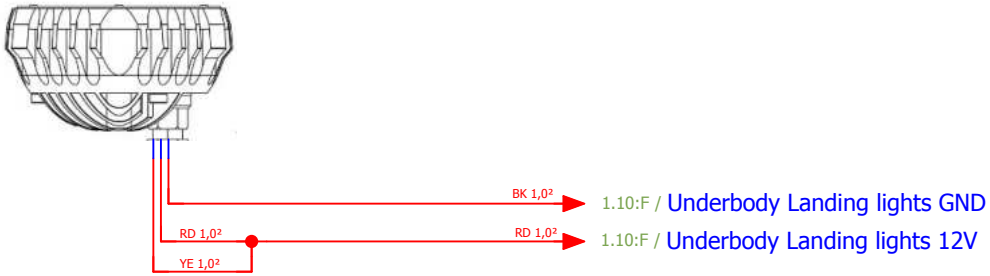
Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY
A001		Added Prerotation Switch	18.11.2024	HARRY
A002		corrected wire color of X10/10V	10.12.2024	HARRY

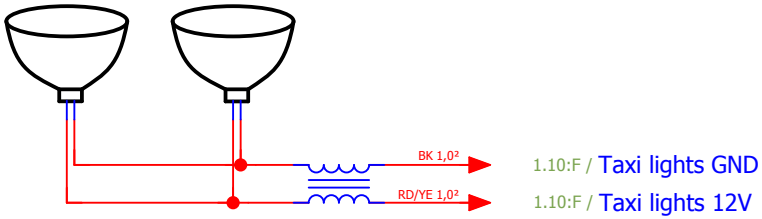
Name (engl.) / Name (ger.) / Part Number

Wiring harness stick II/ Kabelbaum Stick II

49270

Revision A002





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RotorSport UK Ltd
Unrivalled Sport Gyroplanes

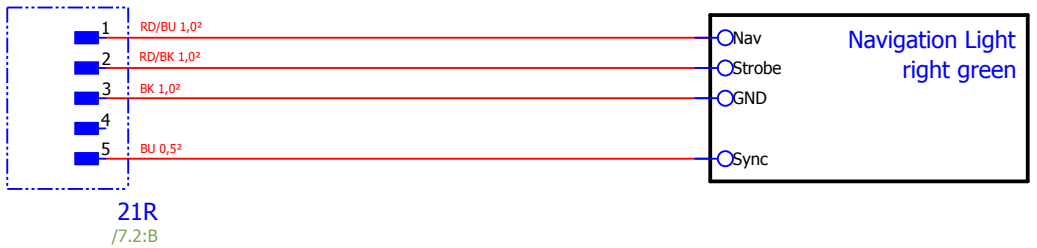
Rev	CMS	Modification	Date	Name
A002		No Changes	24.05.2024	HARRY
A003		Added Aveo Atlas	18.11.2024	HARRY

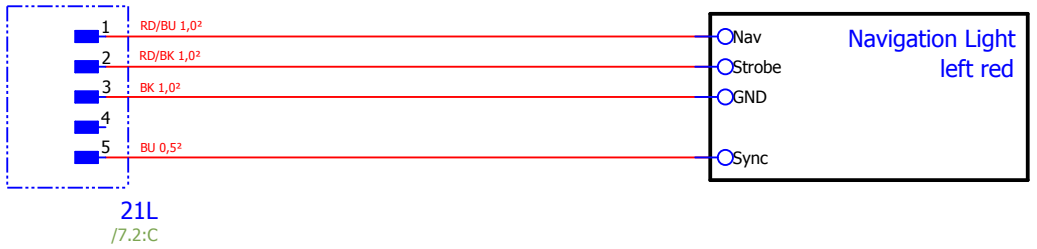
Name (engl.) / Name (ger.) / Part Number

Landing / Taxi lights

31424 / 43854

Revision
A003





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Unrivalled Sport Gyroplanes

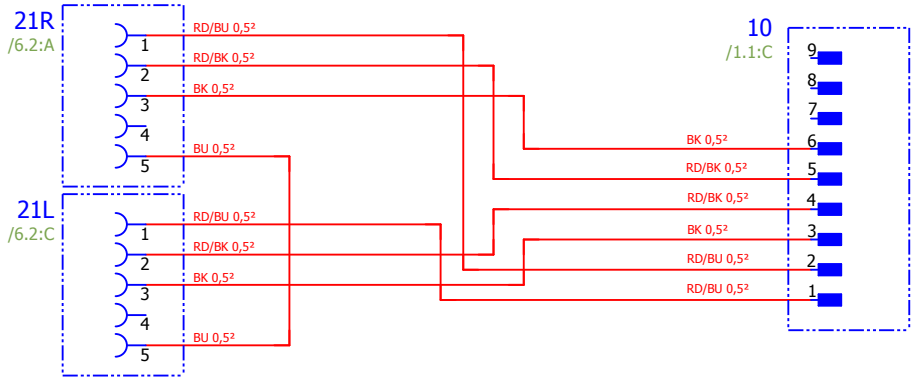
Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

NAV / Strobe

44652

Revision A000



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Unrivalled Sport Gyroplanes

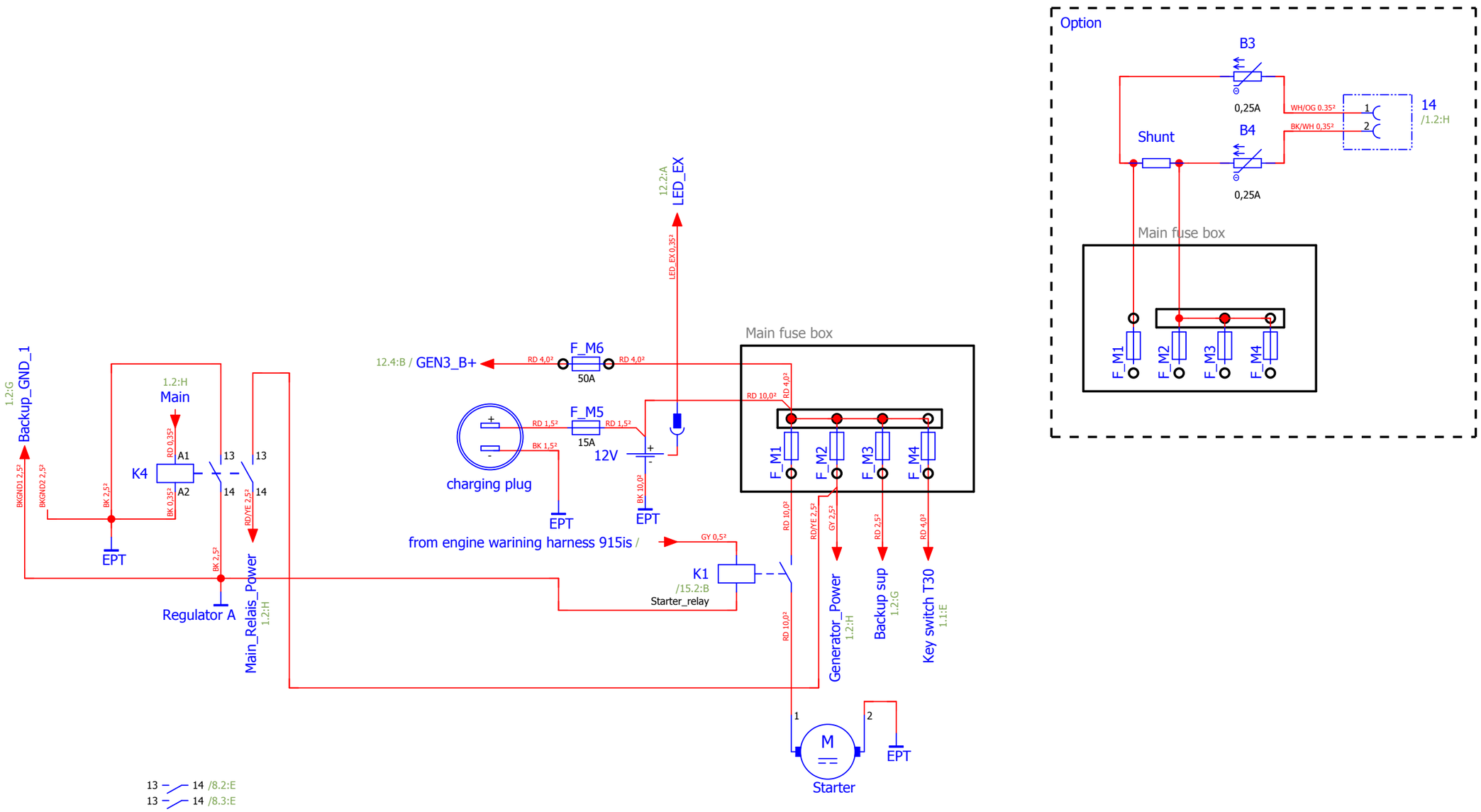
Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Wiring harness Nav/Strobe tail ETFE

49306

Revision A000



F_M1	125A	Starter
F_M2	30A	Rotax Generator
F_M3	30A	Rotax Backup
F_M4	50A	Key switch T30
F_M5	15A	Charging plug
F_M6	50A	Generator 2 B+

Rev	CMS	Modification	Date	Name
A002		Added Shunt	18.11.2024	HARRY
A003		corrected shunt installation	10.12.2024	HARRY
A004		Removed Plug 11	10.12.2024	HARRY

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Sheet:	8 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

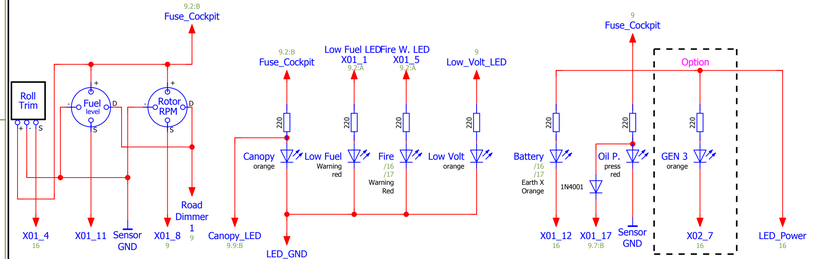
Name (engl.) / Name (ger.) / Part Number

Main fuse attachment kit / Hauptsicherungshaltesatz

49604

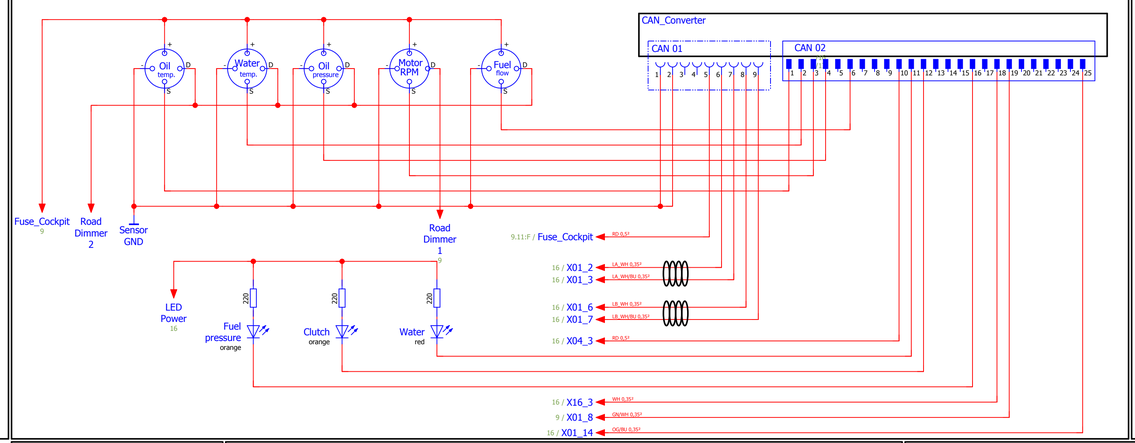
Revision A004

Gyro Indications

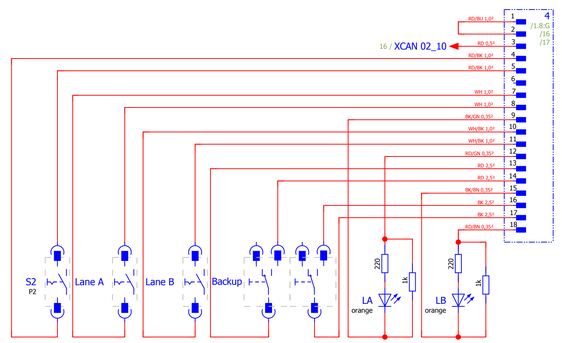


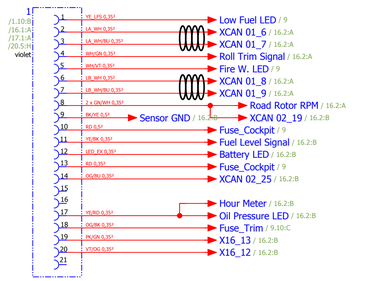
If no cockpit light installed, then
LED_GND connect to EPC
LED_Power connect to Fuse_Cockpit

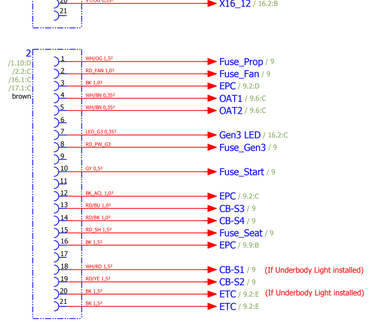
CAN-Converter installation



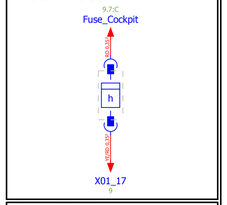
915 / 916 engine parts



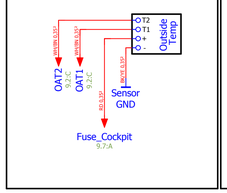




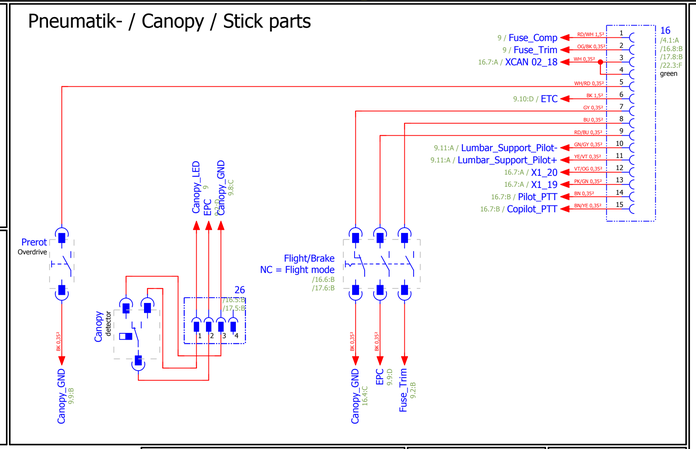
Hour Meter



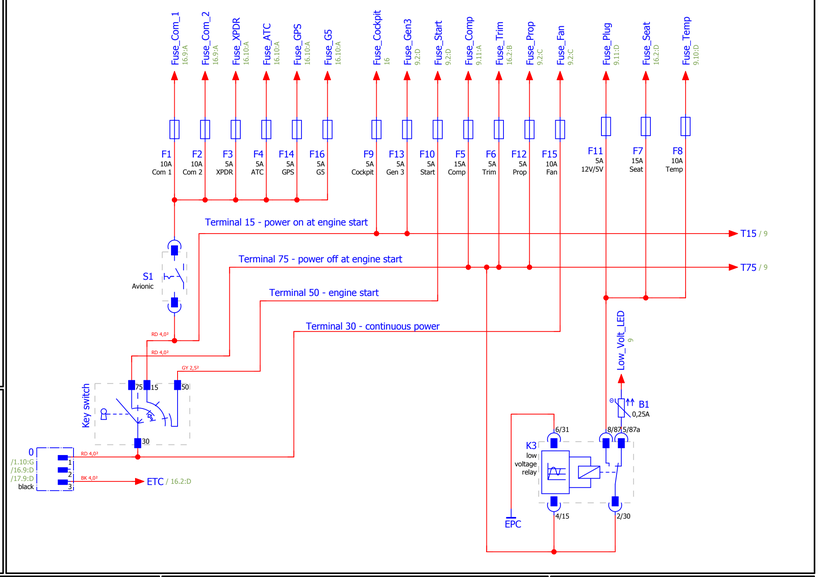
Outside Temp



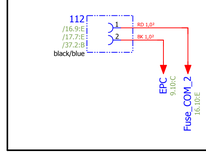
Pneumatik- / Canopy / Stick parts



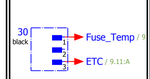
Power Managment

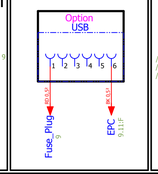


Power supply COM2



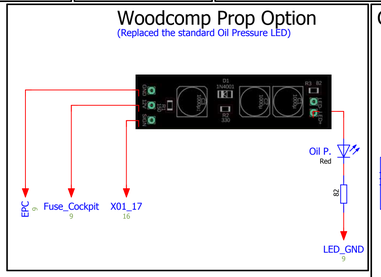
Heating System



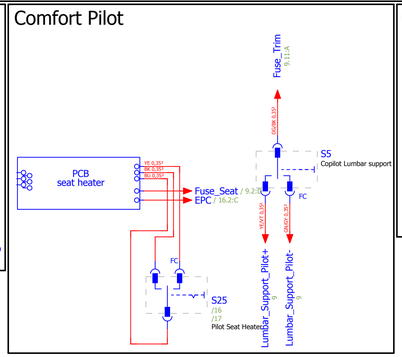


Woodcomp Prop Option

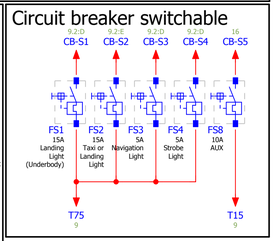
(Replaced the standard Oil Pressure LED)



Comfort Pilot



Circuit breaker switchable



ETC: Earth Point Cockpit

Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY
A001		Added power supply COM2	10.12.2024	HARRY
A002		Changed switch symbol	10.12.2024	HARRY

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

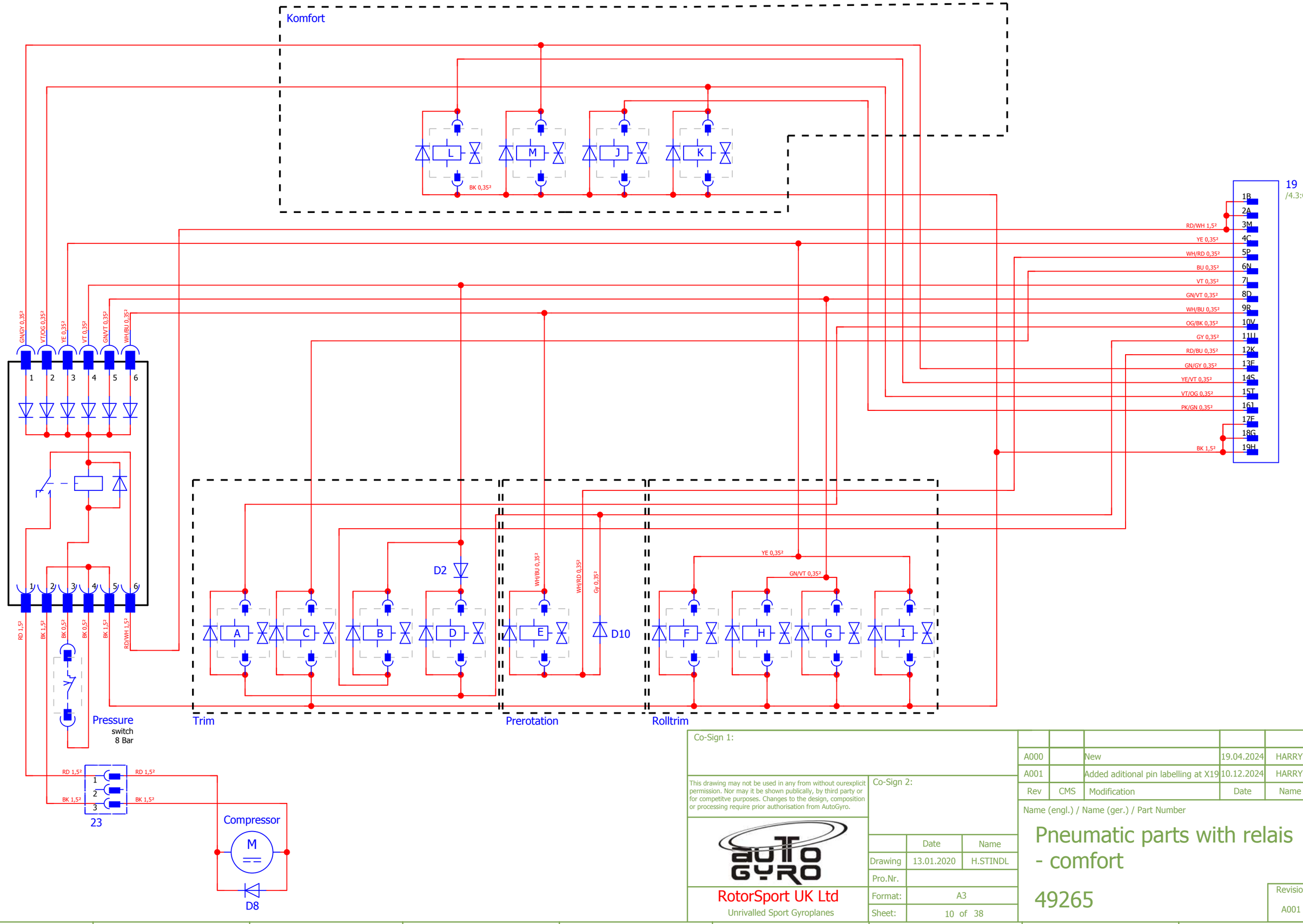
	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A2	
Sheet:	9 of 38	

Name (engl.) / Name (ger.) / Part Number

Cockpit Standard 915/916

49005

Revision A002



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A3	
Sheet:	10 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

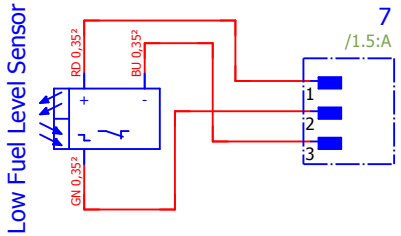
Rev	CMS	Modification	Date	Name
A000		New	19.04.2024	HARRY
A001		Added aditional pin labelling at X19	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Pneumatic parts with relais - comfort

49265

Revision A001



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A4	
Sheet:	11 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

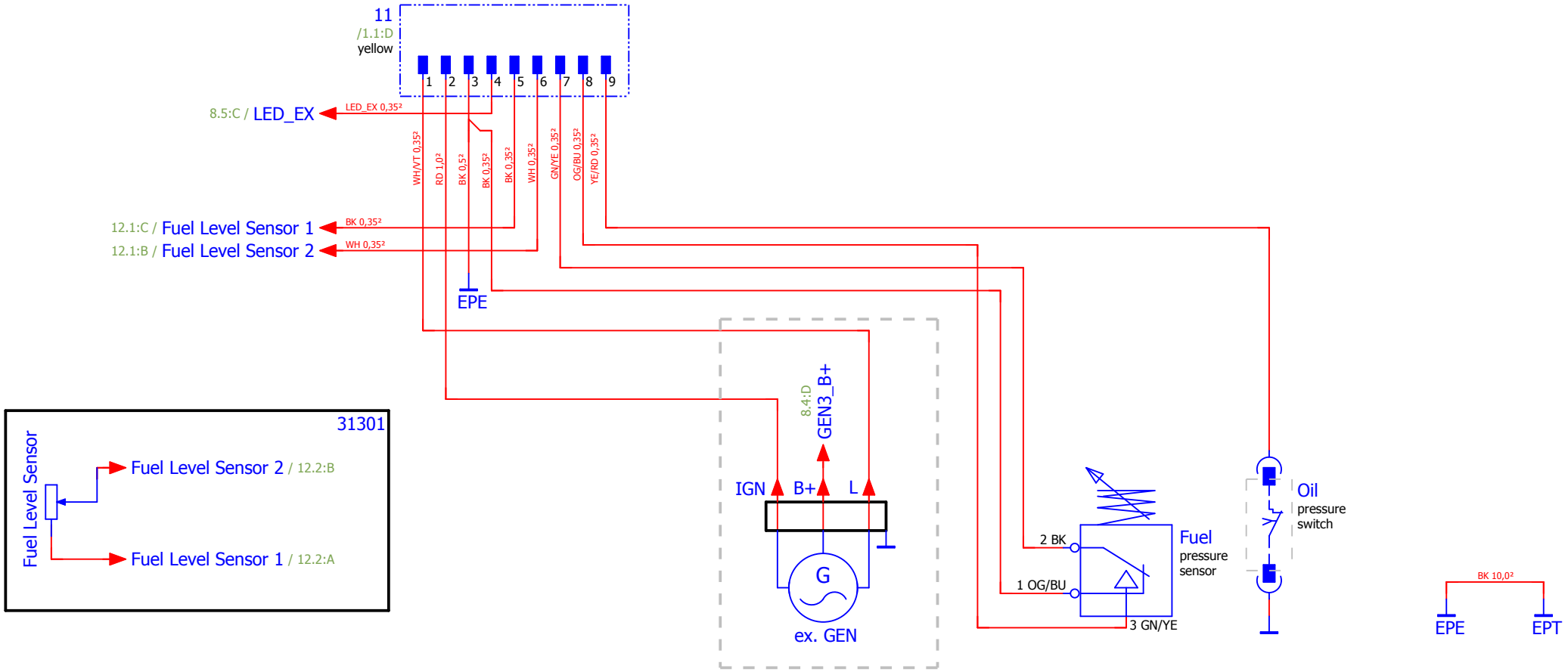
Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Low fuel sensor / Benzin Warnsensor

31681

Revision A000



EPT - Earth Point Traverse
EPE - Earth Point Engine

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A4	
Sheet:	12 of 38	

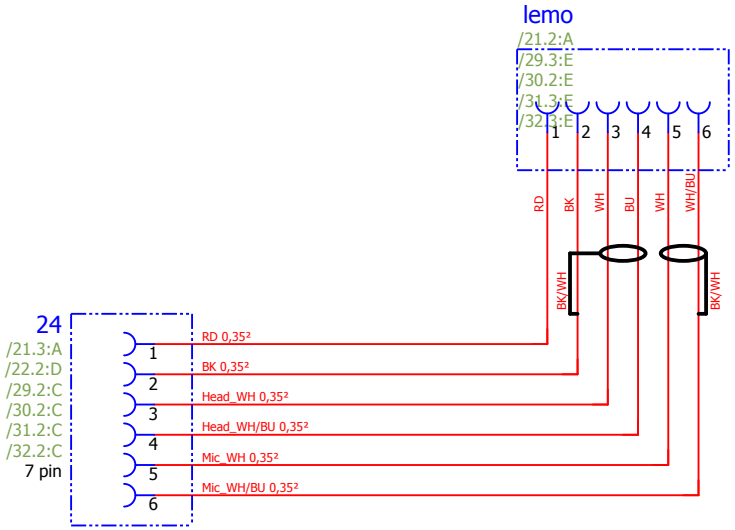
Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY
A001		Added external wirtings	10.12.2024	HARRY
A002		Added pin labelling at fuel pressur sensor	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Engine bay wiring
Motorraumkabelbaum

49398

Revision
A002



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	05.02.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	13 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

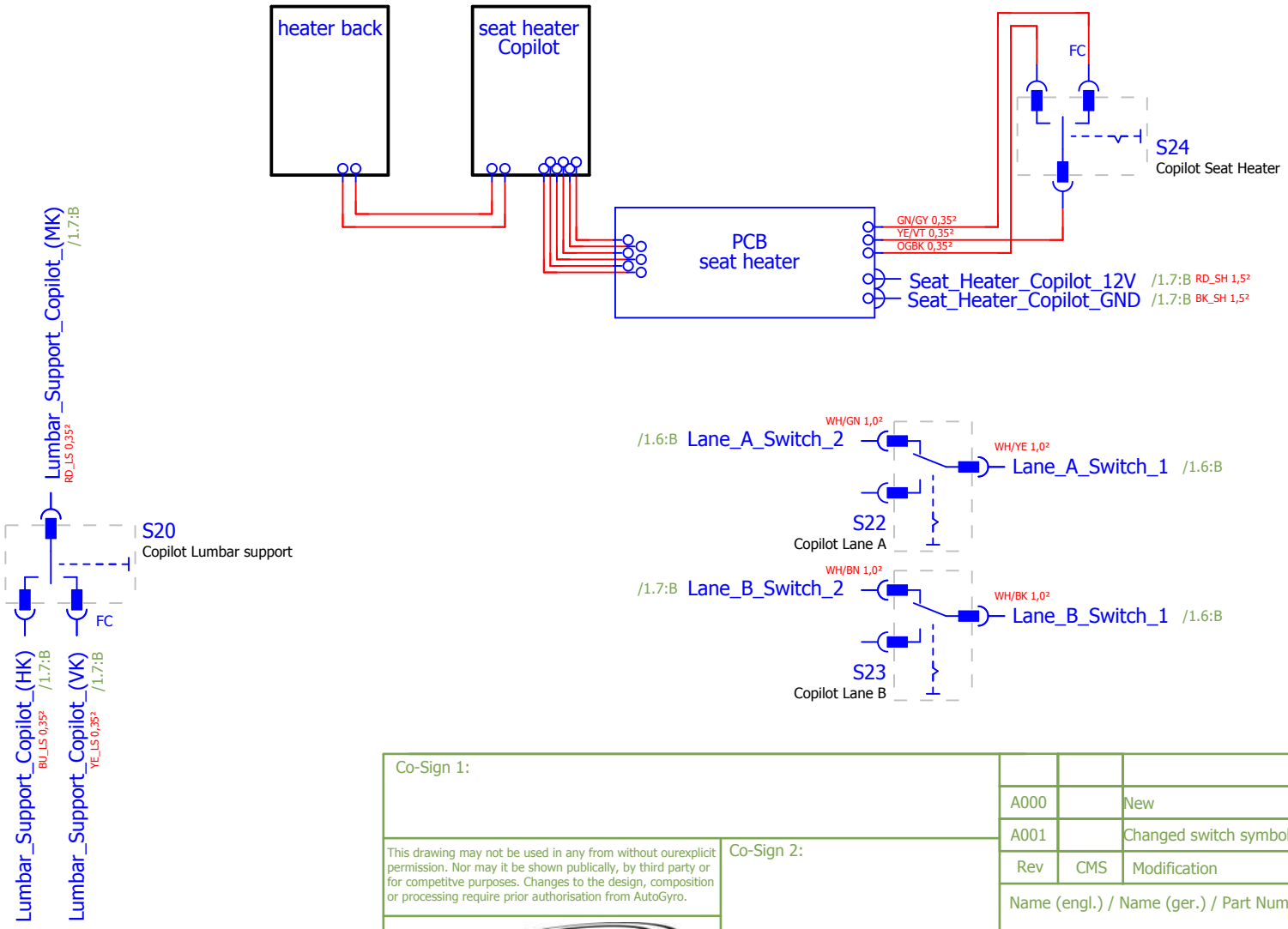
Rev	CMS	Modification	Date	Name
A000		New	16.02.2024	HARRY
A000		No CHanges	24.05.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Copilot Lemo build-in socket

49399

Revision A000



FC - Front contact

Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A4	
Sheet:	14 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

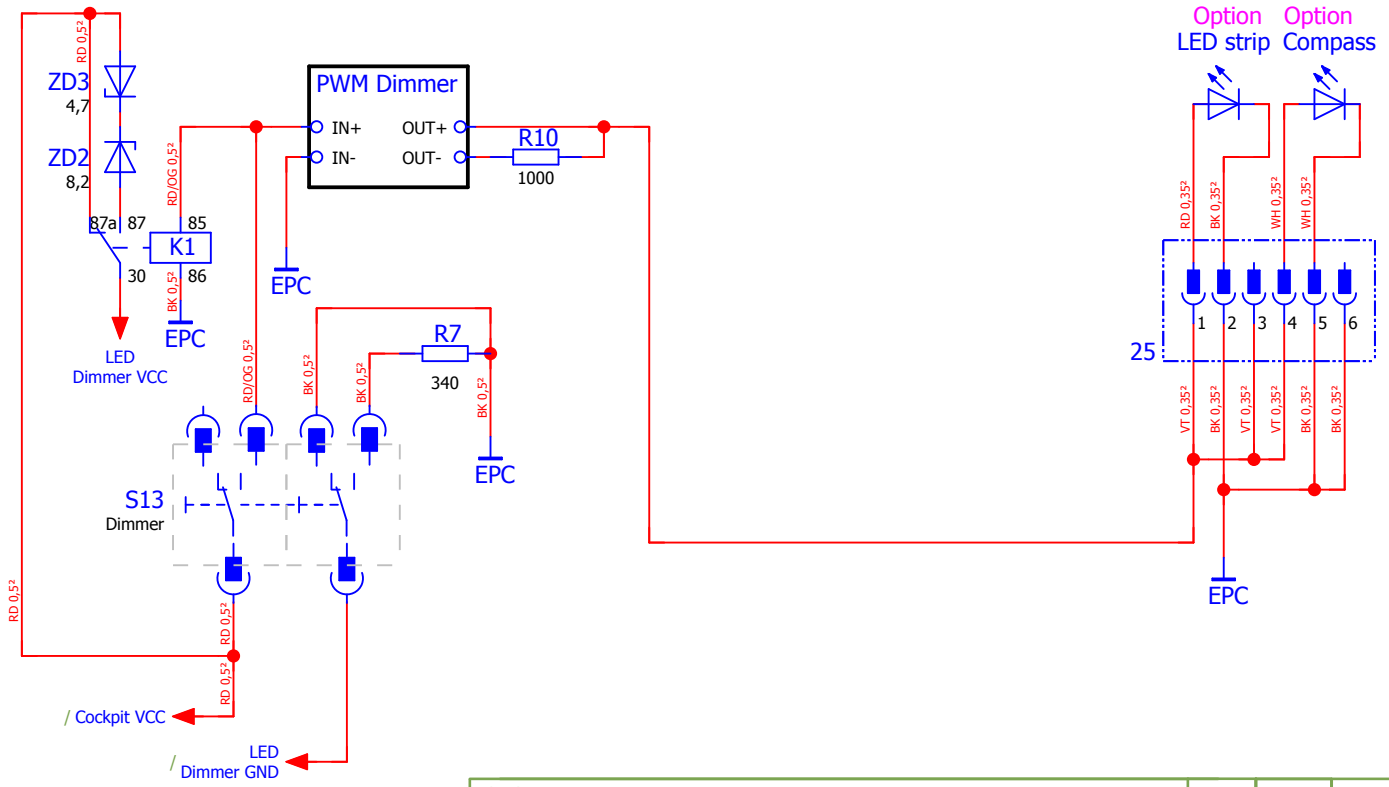
Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY
A001		Changed switch symbol	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Copilot control console / Steuerkonsole

49382 & 49287

Revision A001



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	05.02.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	15 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

Rev	CMS	Modification	Date	Name
A000		New	24.05.2024	HARRY
A001		Added LED strip	18.11.2024	HARRY
A002		Added labeling	12.12.2024	HARRY

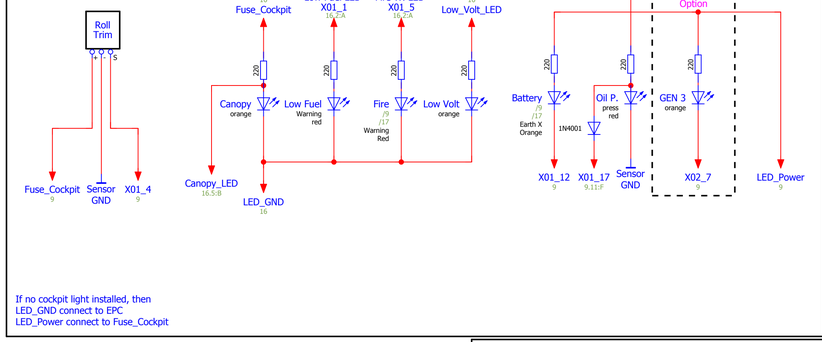
Name (engl.) / Name (ger.) / Part Number

Cockpit light green
Cockpitbeleuchtung grün

49281

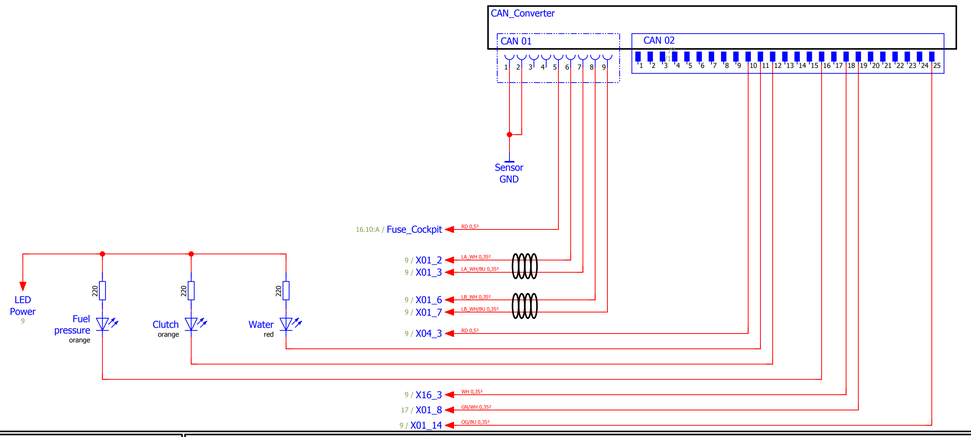
Revision
A002

Gyro Indications

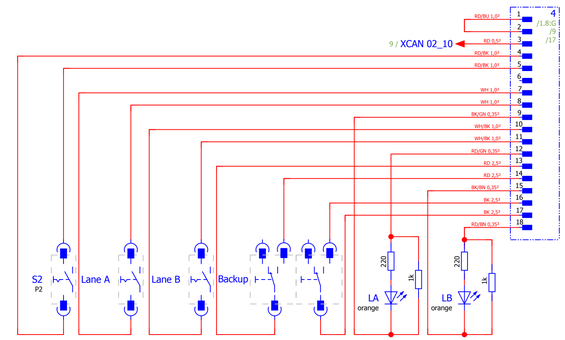


If no cockpit light installed, then
LED_GND connect to EPC
LED_Power connect to Fuse_Cockpit

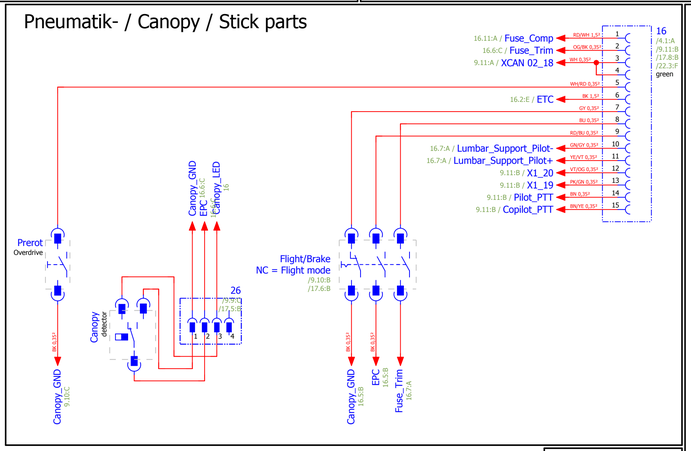
CAN-Converter installation

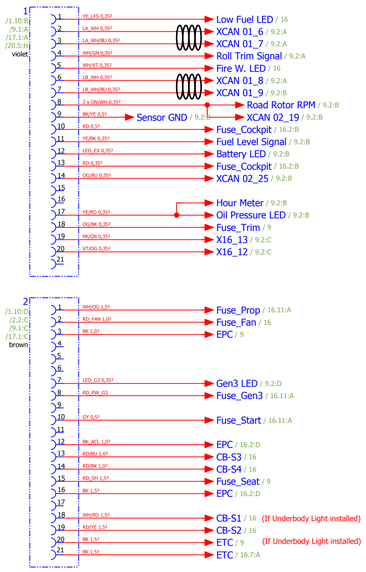


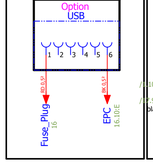
915 / 916 engine parts



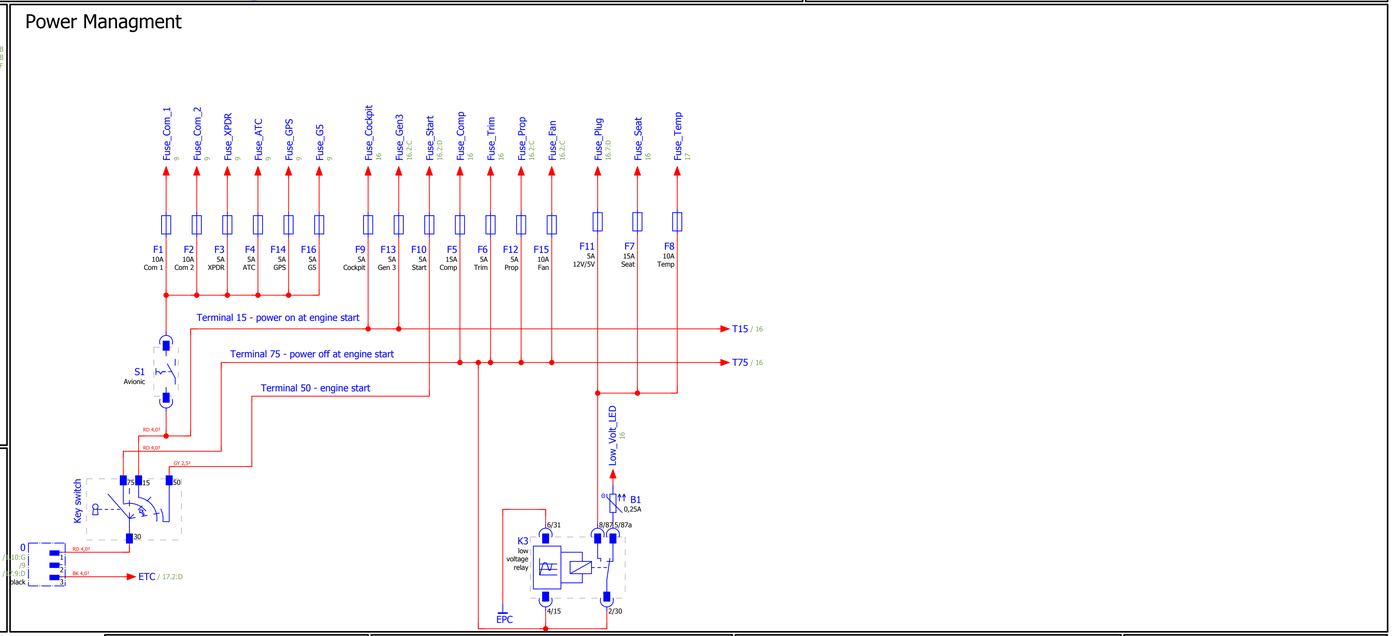
Pneumatik- / Canopy / Stick parts



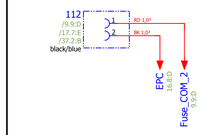




Power Managment

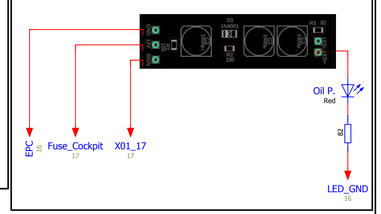


Power supply COM2

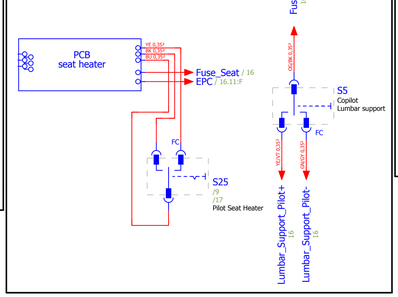


Woodcomp Prop Option

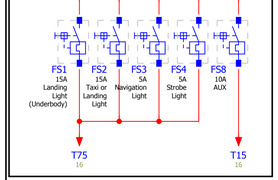
(Replaced the standard Oil Pressure LED)



Comfort Pilot



Circuit breaker switchable



ETC: Earth Point Cockpit

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A2	
Sheet:	16 of 38	

Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY
A001		Added power supply COM2	10.12.2024	HARRY
A002		Added LED_Ground and changed Canopy_LED	12.12.2024	HARRY

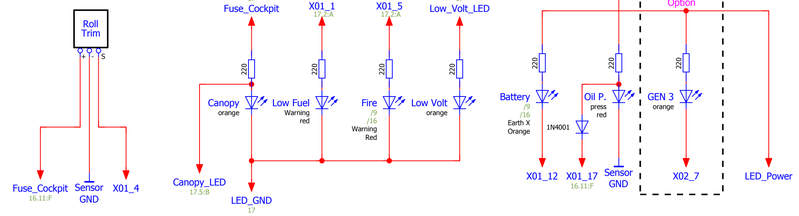
Name (engl.) / Name (ger.) / Part Number

Cockpit EFIS 915iS/916iS

48991

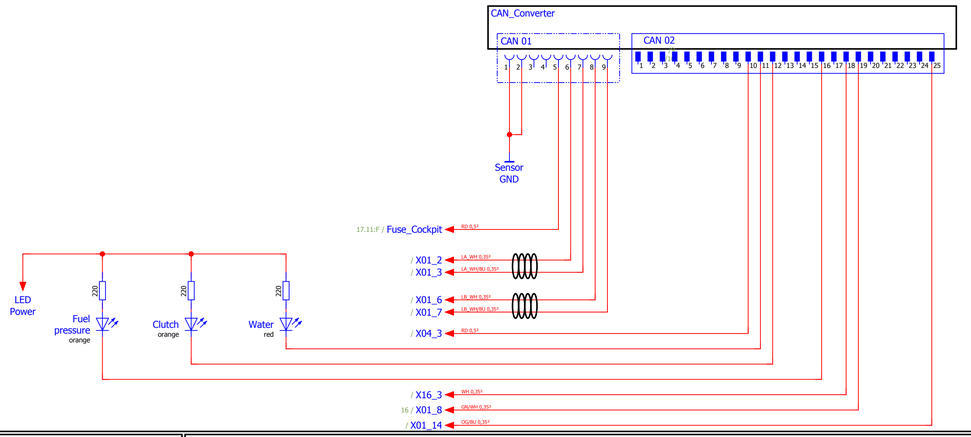
Revision A002

Gyro Indications

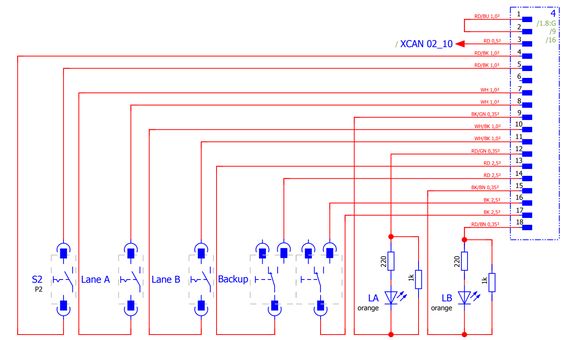


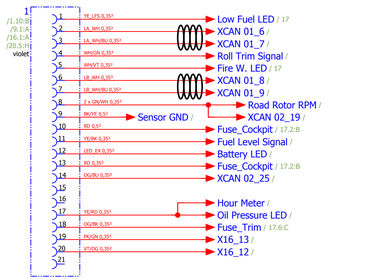
If no cockpit light installed, then
LED_GND connect to EPC
LED_Power connect to Fuse_Cockpit

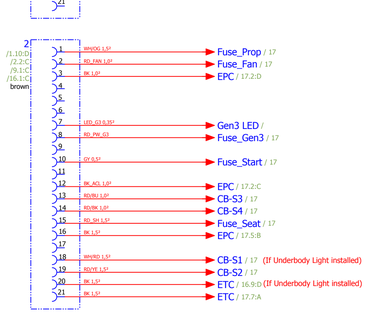
CAN-Converter installation



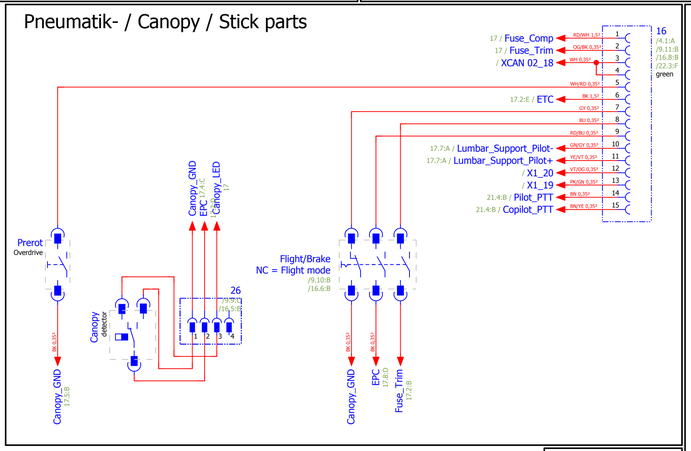
915 / 916 engine parts

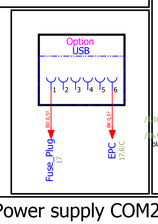




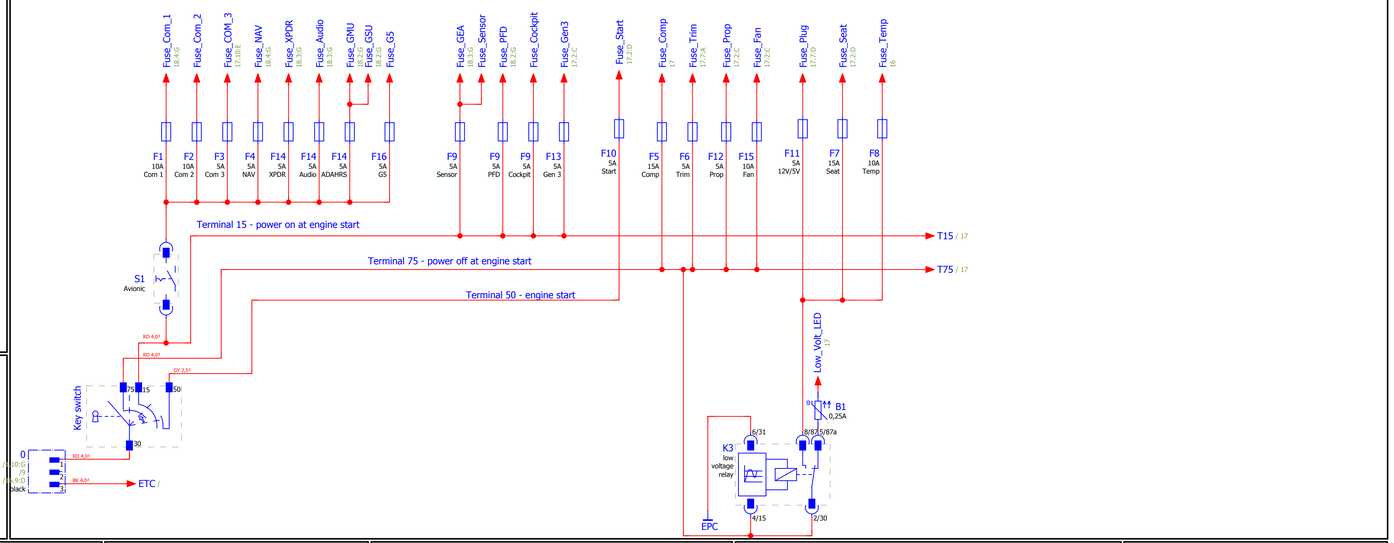


Pneumatik- / Canopy / Stick parts

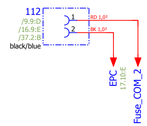




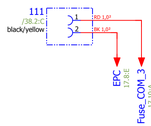
Power Managment



Power supply COM2

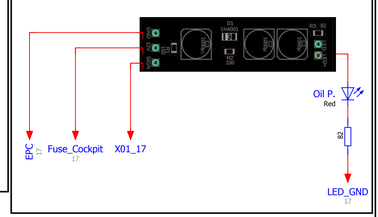


Power supply COM3

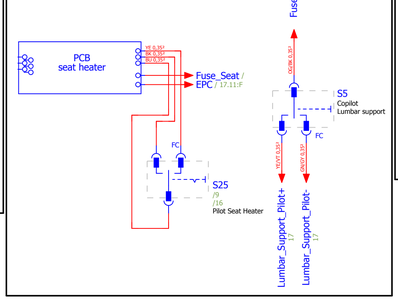


Woodcomp Prop Option

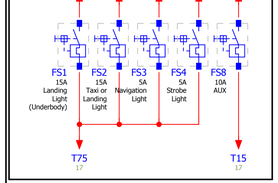
(Replaced the standard Oil Pressure LED)



Comfort Pilot



Circuit breaker switchable



ETC: Earth Point Cockpit

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

	Date	Name
Drawing	08.04.2024	HARRY
Pro.Nr.		
Format:	A2	
Sheet:	17 of 38	

Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY
A001		Added power supply COM2&COM3	10.12.2024	HARRY
A002		Added LED_Ground and changed Canopy_LED	12.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Cockpit EFIS with Com3 915iS/916iS

49278

Revision A002

GDU 460

GSU 25

GTP 59

40 P251 Sub-D

41 P252 Sub-D

42 /19.3:C

37 P4X01 Sub-D

38 P4X02 Sub-D

43 /24.3:E /28.3:E blau

49 /27.4:C weiß GMU 22

44 /33.5:B grau

51 /30.4:C

45 /20.10:C purpur

46 /22.7:F blue

50 /22.9:A brown

47 gelb

48 grün

39

AUDIO - WH/BU 0.35²
STEREO - WH/BU 0.35²
WH 0.5²
RS3 WH 0.35²
RS2 WH 0.35²
BK 0.5²
RD 0.2²
WH 0.35²
STEREO - WH/OG 0.35²
STEREO - WH 0.35²
RS3 WH/BU 0.35²
RS2 WH/BU 0.35²
RD5 0.5²
OG 0.5²
BK_RS1 0.35²
RS1 WH 0.35²
RS1 WH/BU 0.35²
BK 0.2²
YE 0.2²

Fuse_PFD 17.11:A
Fuse_GSU 17.10:A
Fuse_GMU 17.10:A
Fuse_GEA 17.11:A
Fuse_Audio 17.10:A
Fuse_ATC
Fuse_XPDR 17.10:A
Fuse_Com_1 17.9:A
Fuse_NAV 17.10:A
EFIS Ground
EFIS Backup Power

RS232_1	Connext Format 3	Garmin GTX 45R
RS232_2	Garmin VHF Comm	Garmin GTR 225
RS232_3	Garmin Instument Data	Garmin GMA 345
CAN-H	WH/BU	
CAN-L	WH	

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A2	
Sheet:	18 of 38	

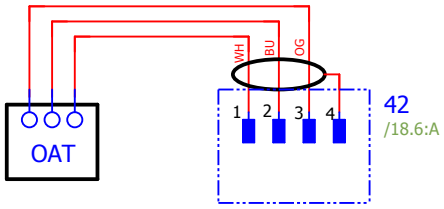
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin G3X cockpit installation 10"

48991 & 49278

Revision A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	12.12.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	19 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

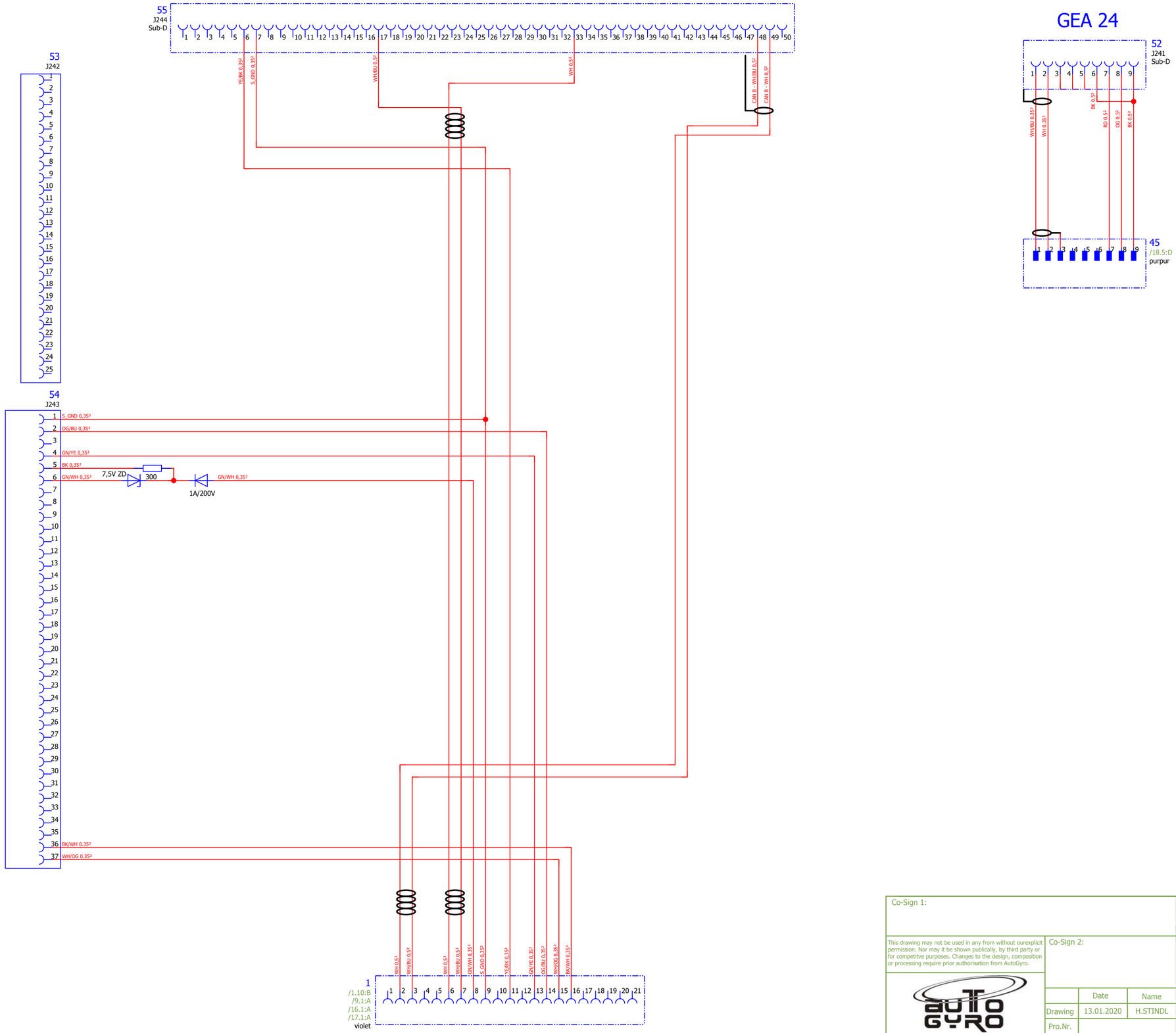
Rev	CMS	Modification	Date	Name
A000		new	12.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin GTP 59 (OAT) installation kit

48681

Revision A000



Co-Sign 1:

Co-Sign 2:

Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A2	
Sheet:	20 of 38	

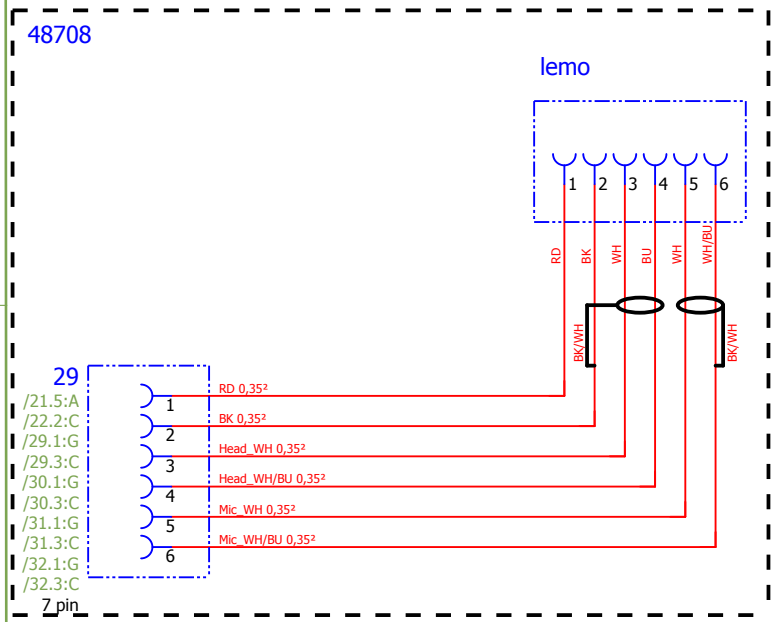
RotorSport UK Ltd
Unrivalled Sport Gyroplanes

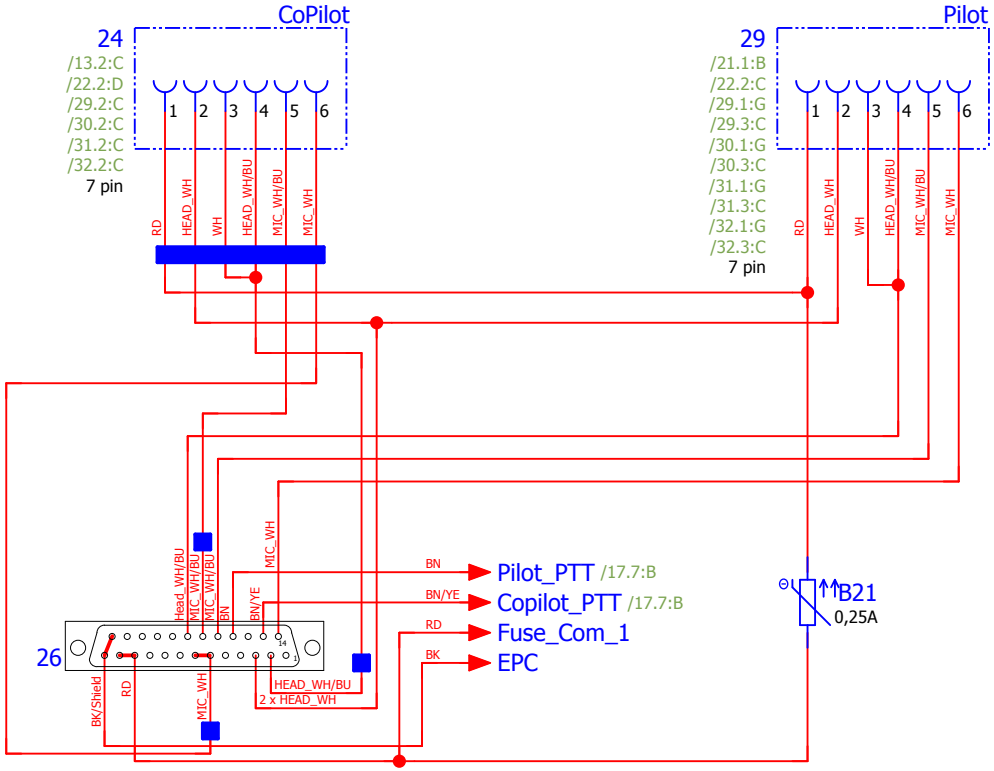
Name (engl.) / Name (ger.) / Part Number

Cockpit installation - Sensoren GEA 24

49345

Revision A000





Sub.-D 25 pol.

1 Free
2 Headset positiv (HEAD_WH/BU) Copilot
3 Headset negativ (2 x HEAD_WH)
4 Free
5 Free
6 Mic 2 negativ (MIC_WH) Copilot
7 GND bridge to 6
8 Free
9 Free
10 Free
11 Power 12V (RD)
12 Power 12V (RD)
13 Power GND (BK)
14 Mic 1 negativ (MIC_WH) Pilot
15 PTT 2 (BN/YE)
16 Free
17 PTT 1 (BN)
18 Mic 1 positiv (MIC_WH/BU) Pilot
19 Mic 2 positiv (MIC_WH/BU) Copilot
20 Headset positiv (Haed_WH/BU) Pilot
21 Free
22 Free
23 Free
24 Free
25 Power GND (BK)

Lemo

1 Power 12V / 250mA
2 GND & Head -
3 Head +
4 Head +
5 Mic +
6 Mic -

PushPull 7pin. Plug

1 Power 12V / 250mA
2 GND & Head -
3 Head +
4 Head +
5 Mic +
6 Mic -
7 Free

Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	13.01.2020	H.STINDL
Pro.Nr.		
Format:	A4	
Sheet:	21 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

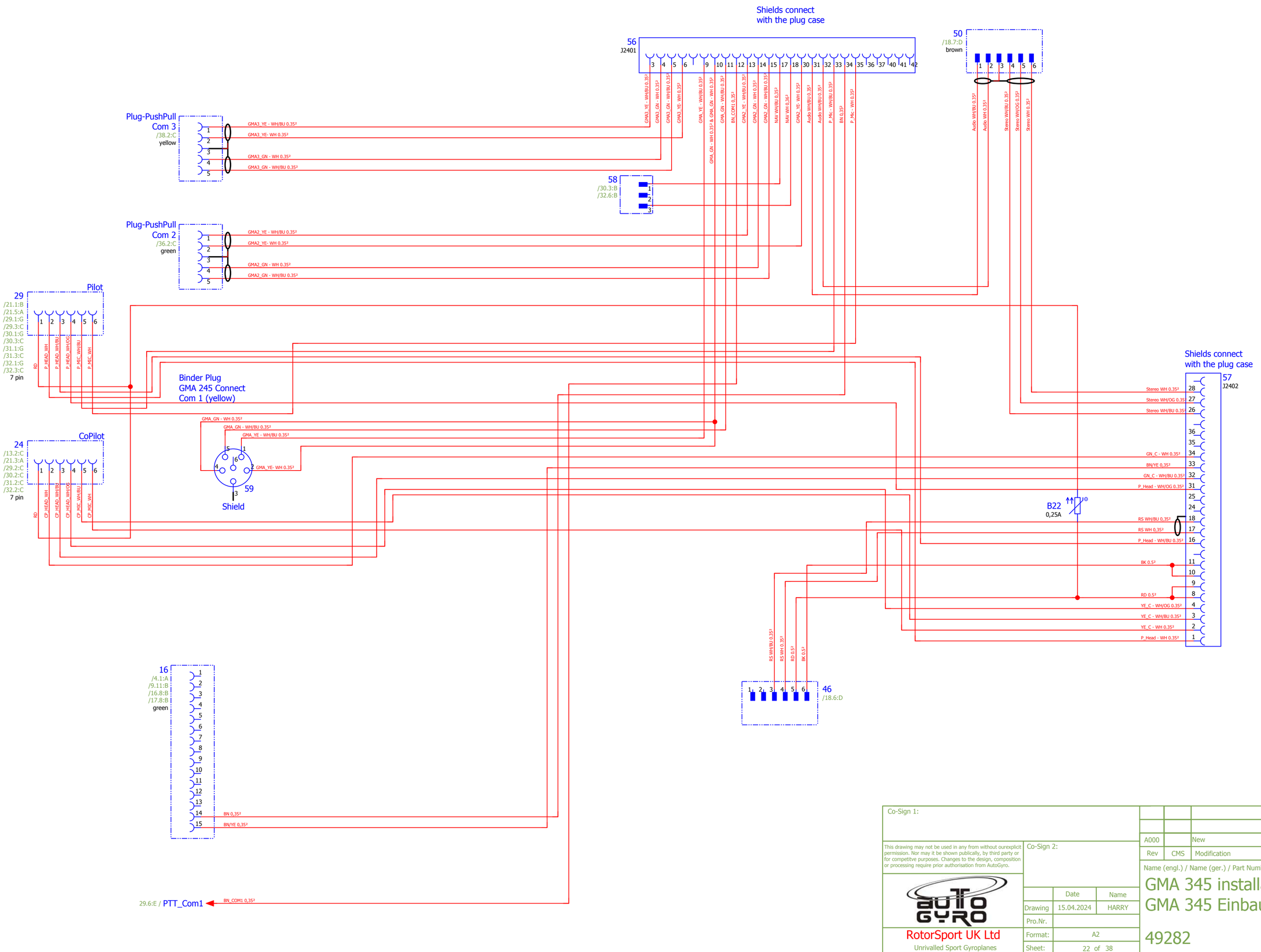
Rev	CMS	Modification	Date	Name
A000		New	19.03.2024	HARRY
A001		compatibled for 48708	05.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Wiring harness intercom ATR833 Lemo

49432

Revision A001



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	15.04.2024	HARRY
Pro.Nr.		
Format:	A2	
Sheet:	22 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

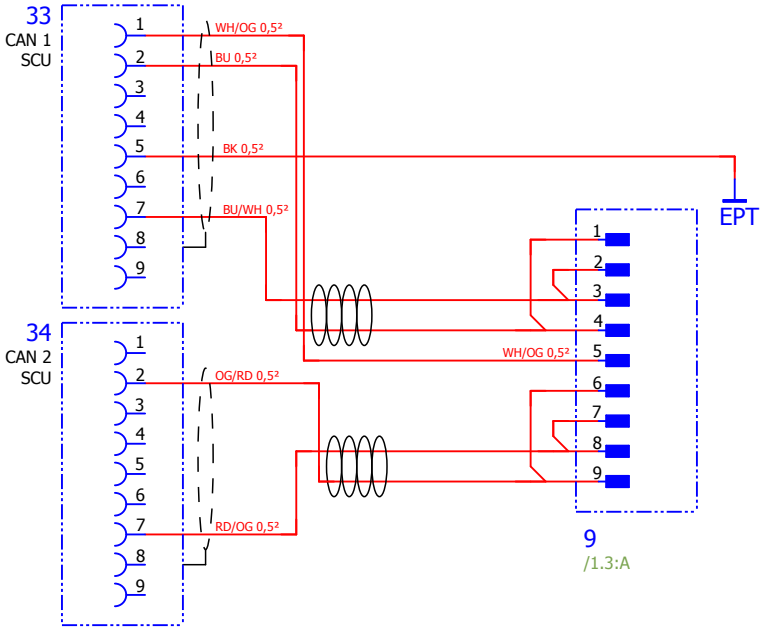
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

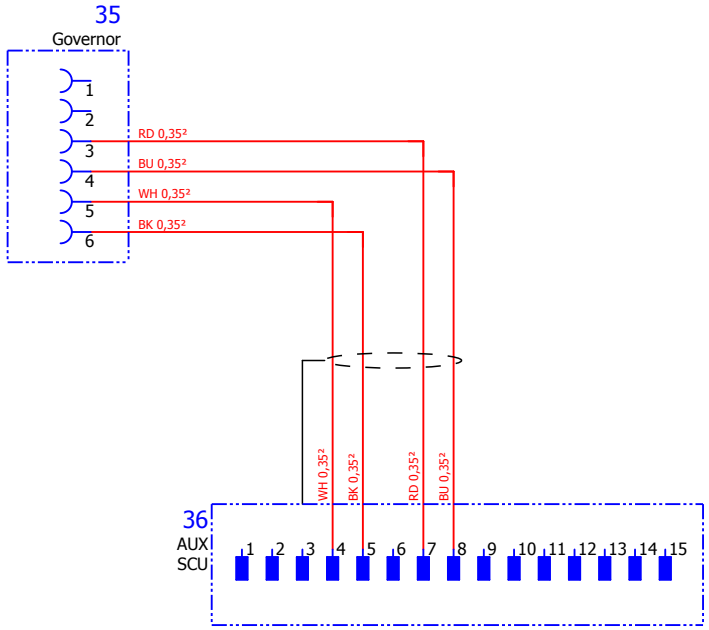
Name (engl.) / Name (ger.) / Part Number

GMA 345 installation kit
GMA 345 Einbausatz

49282

Revision A000





Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	19.07.2021	H.STINDL
Pro.Nr.		
Format:	A4	
Sheet:	23 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

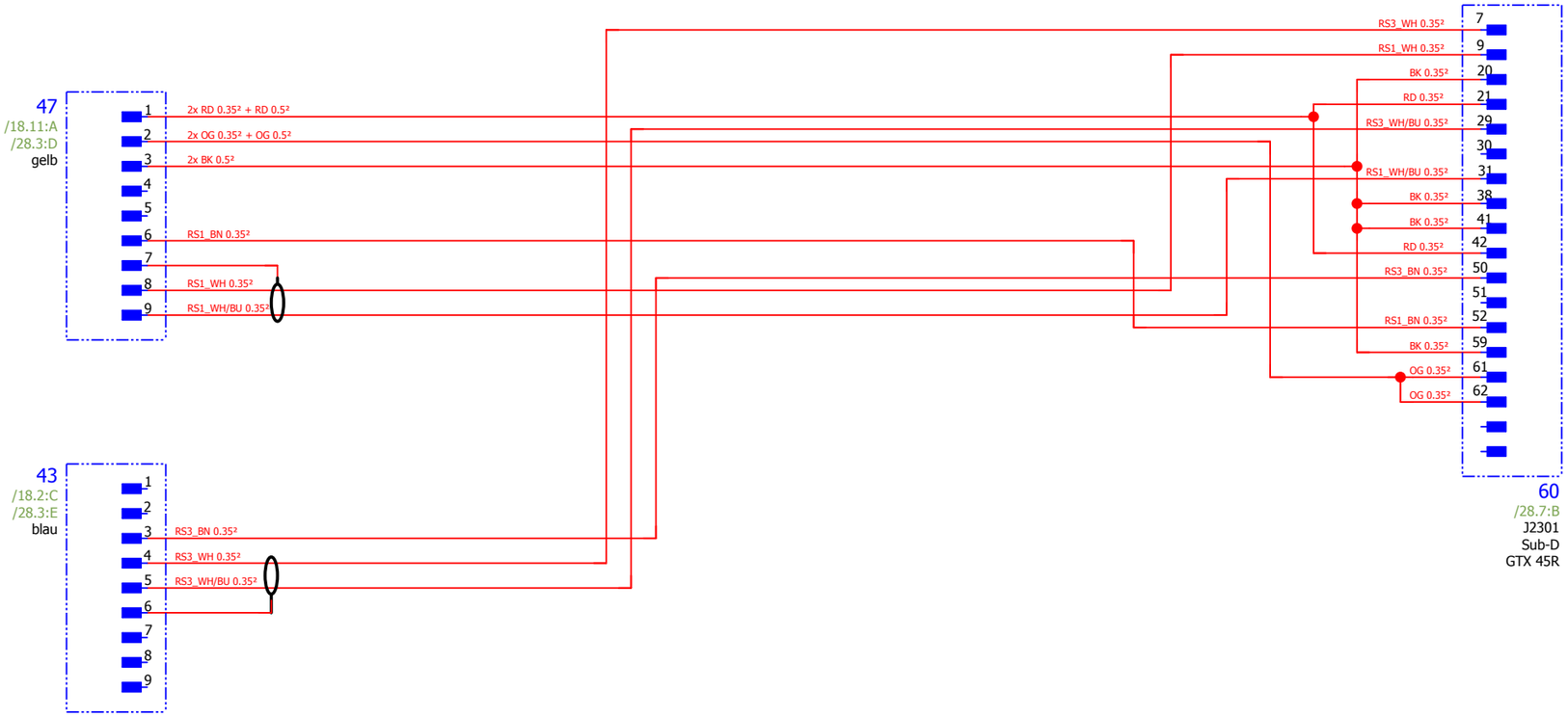
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

SCU installation kit
SCU Einbausatz

49380

Revision A000



RS232_1 Garmin GSU 25
RS232_3 Connext Format 1 Garmin GTX 45R

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

	Date	Name
Drawing	23.10.2024	HARRY
Pro.Nr.		
Format:	A3	
Sheet:	24 of 38	

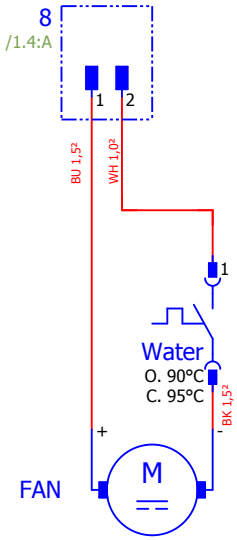
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin GTX 45R w/GPS installation kit / Einbausatz

49947

Revision A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	18.11.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	25 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

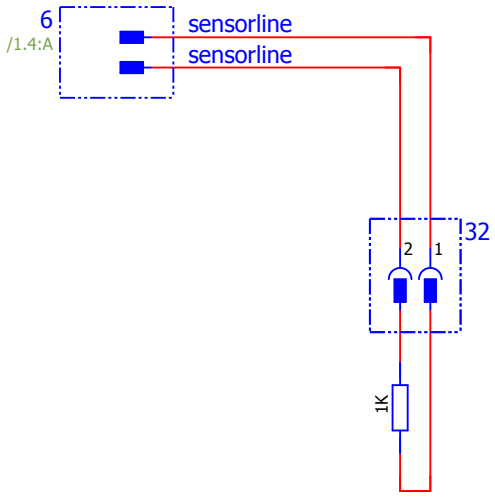
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

FAN
Lüfter

46983

Revision
A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	18.11.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	26 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

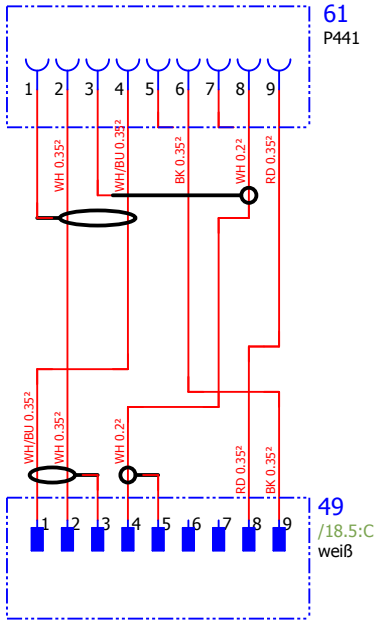
Rev	CMS	Modification	Date	Name
A000		New	18.11.2024	HARRY
A001		Removed Core	12.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Firewarning

33771

Revision A001



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	19.11.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	27 of 38	

RotorSport UK Ltd

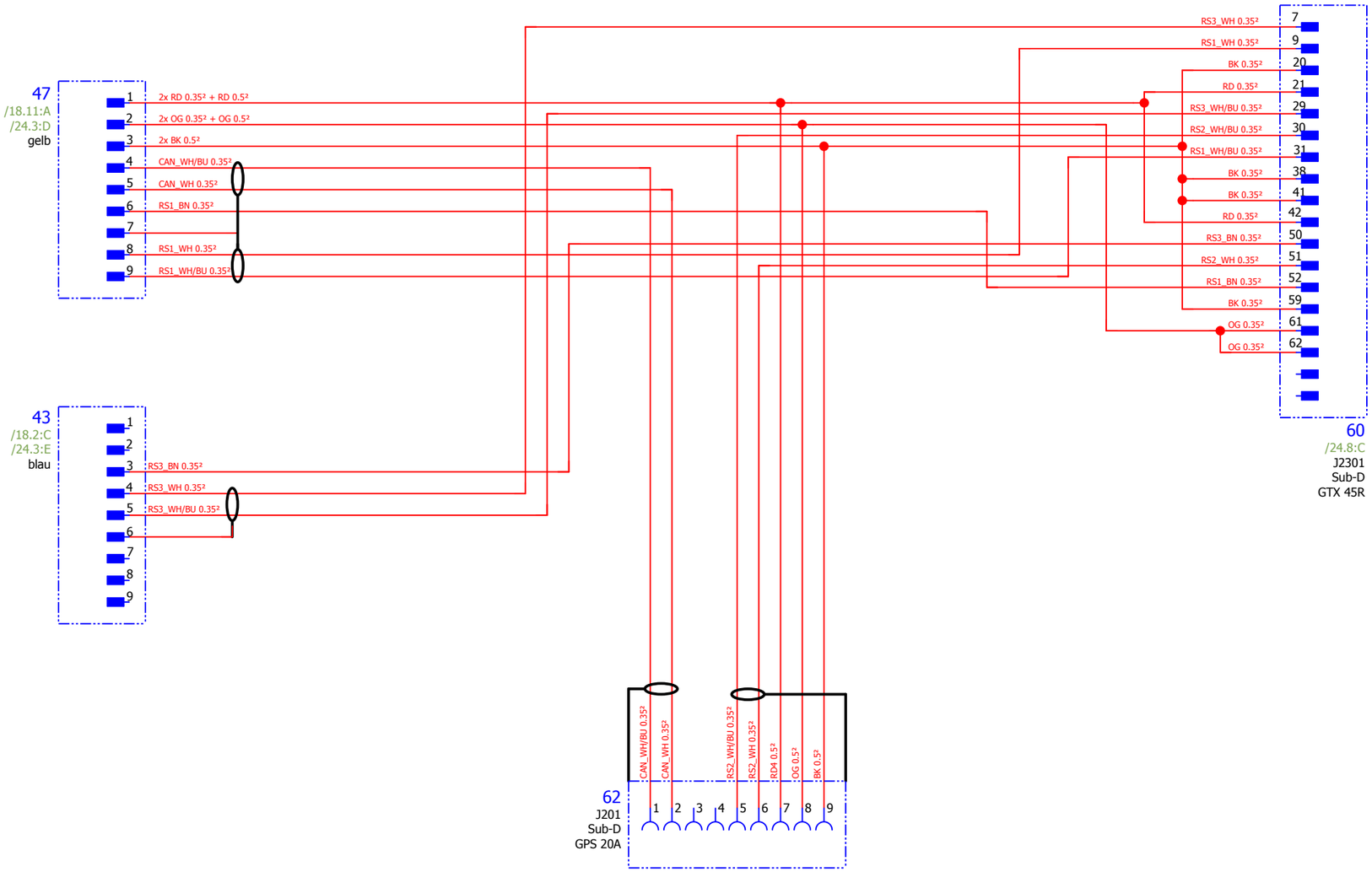
Unrivalled Sport Gyroplanes

Rev	CMS	Modification	Date	Name
A000		New	19.11.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

GMU22 installation kit / GMU22 Einbausatz

Revision A000



RS232_1	Garmin GSU 25
RS232_2 ADS-B+ GPS	Garmin GTX x5R
RS232_3 Connext Format 1	Garmin GTX 45R

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

	Date	Name
Drawing	19.11.2024	HARRY
Pro.Nr.		
Format:	A3	
Sheet:	28 of 38	

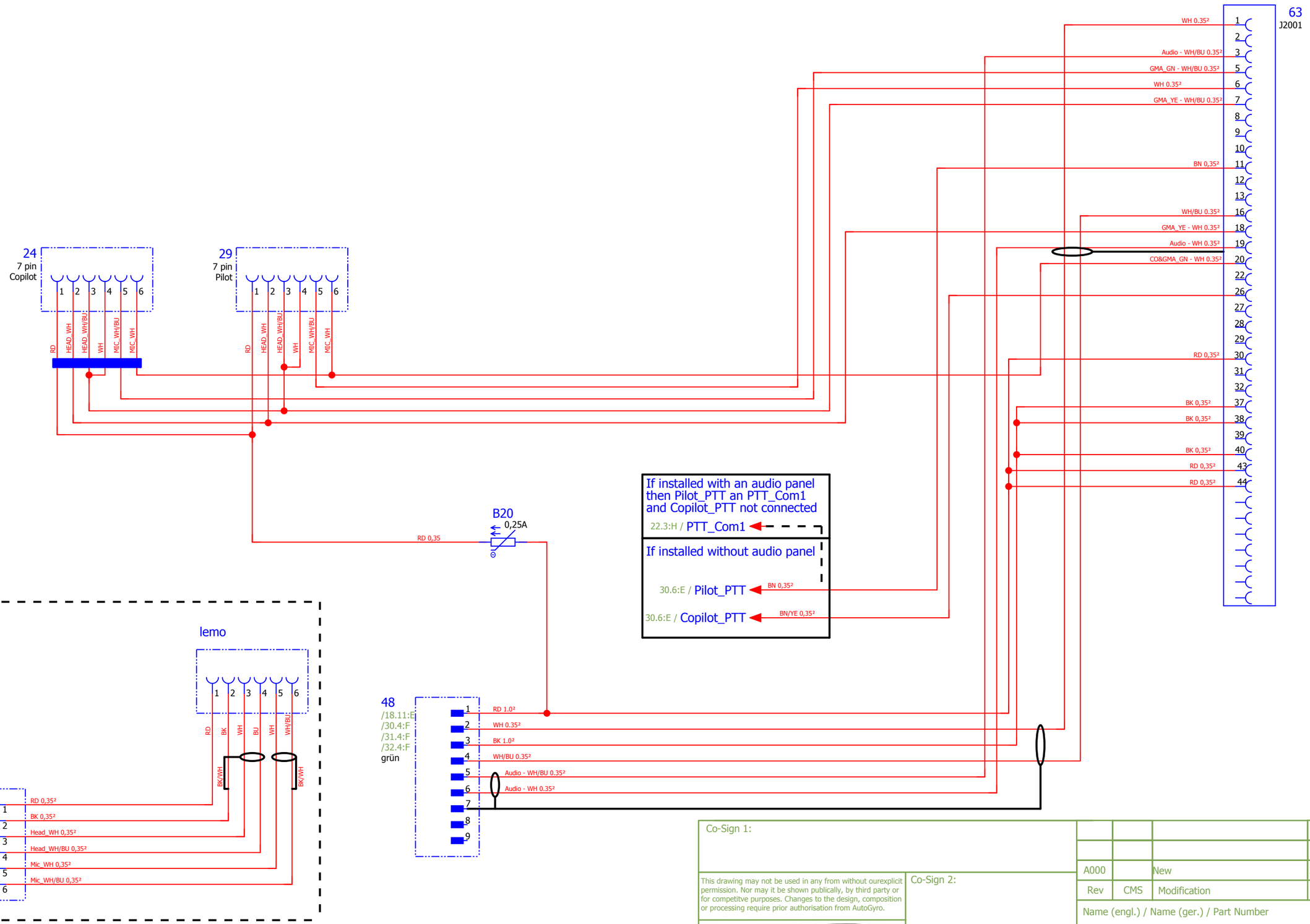
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin GTX 45R / GPS 20A installation kit / Einbausatz

47412

Revision A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	19.11.2024	HARRY
Pro.Nr.		
Format:	A3	
Sheet:	29 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

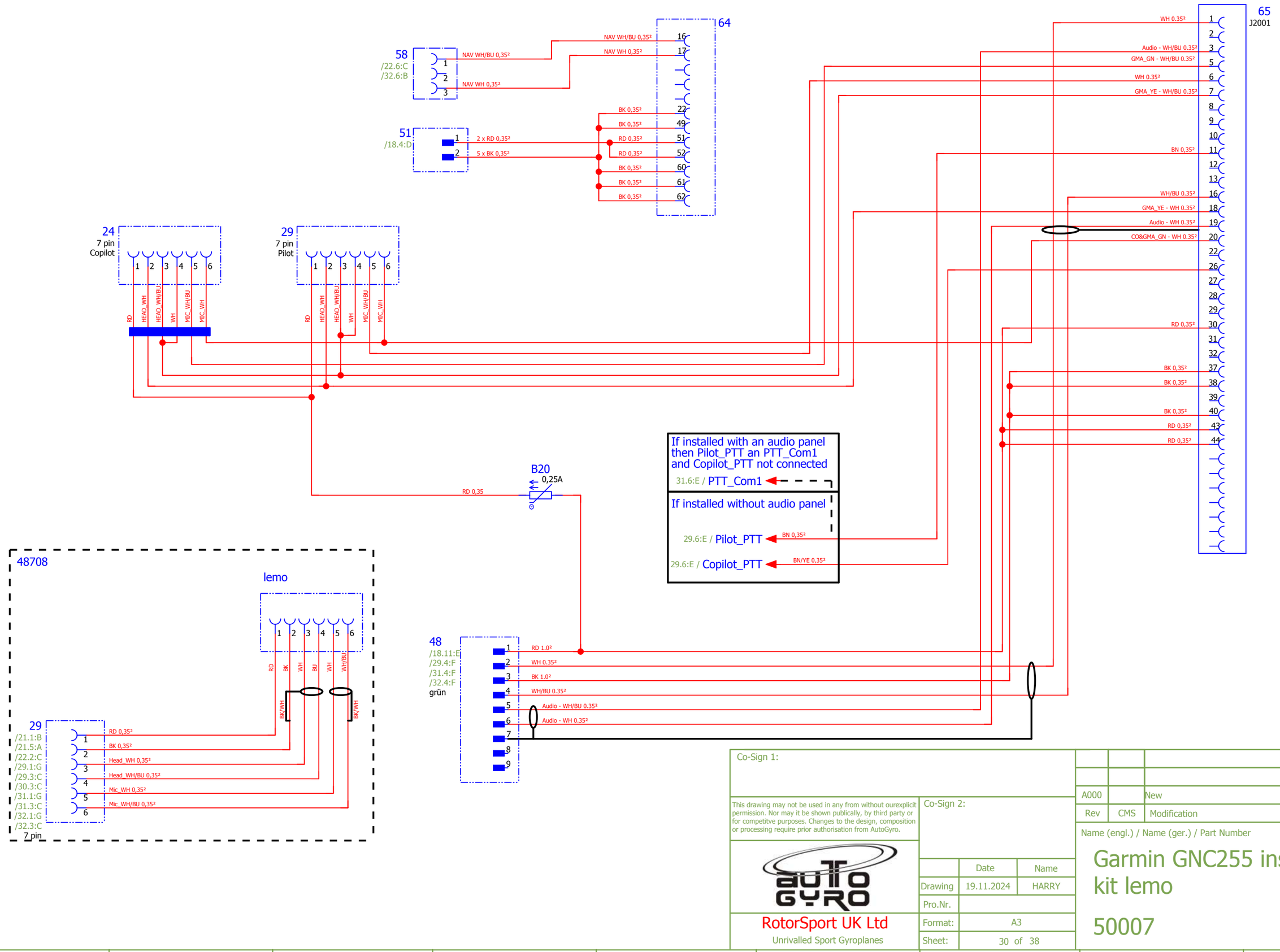
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin GTR225 installation kit lemo

50005

Revision A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	19.11.2024	HARRY
Pro.Nr.		
Format:	A3	
Sheet:	30 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

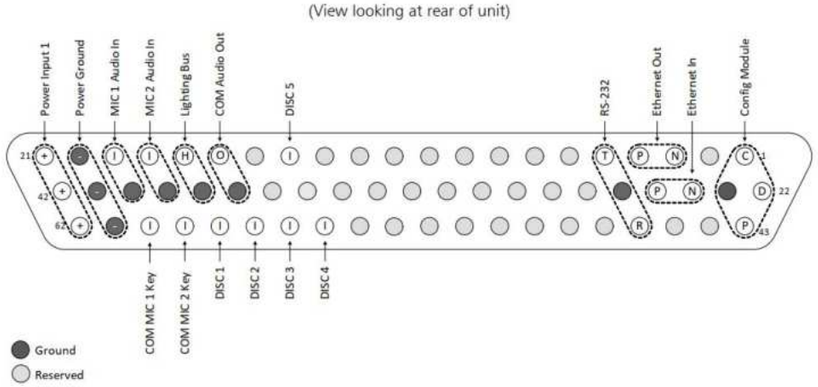
Name (engl.) / Name (ger.) / Part Number

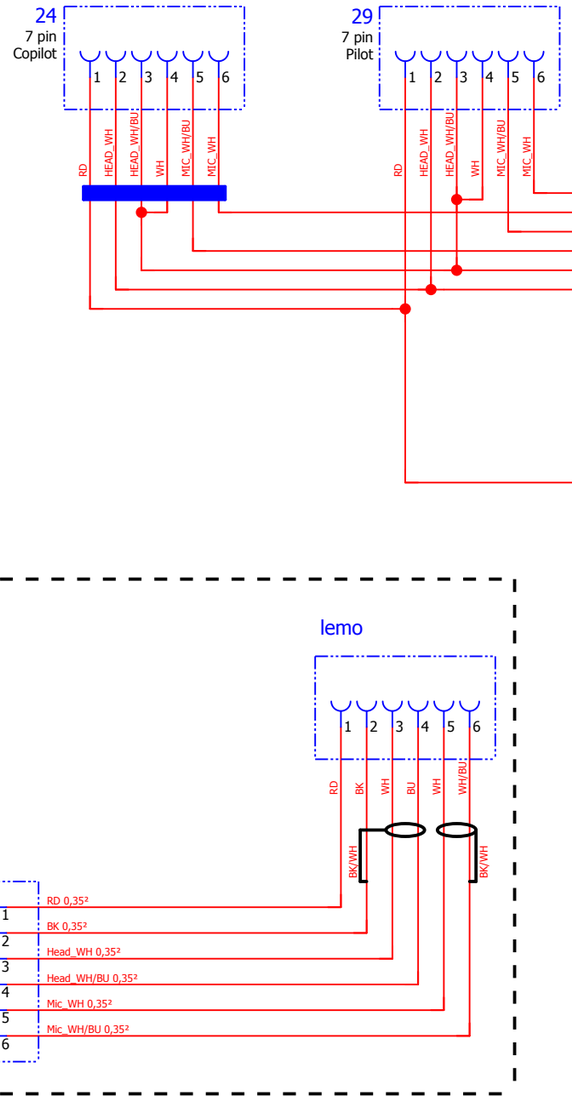
Garmin GNC255 installation kit lemo

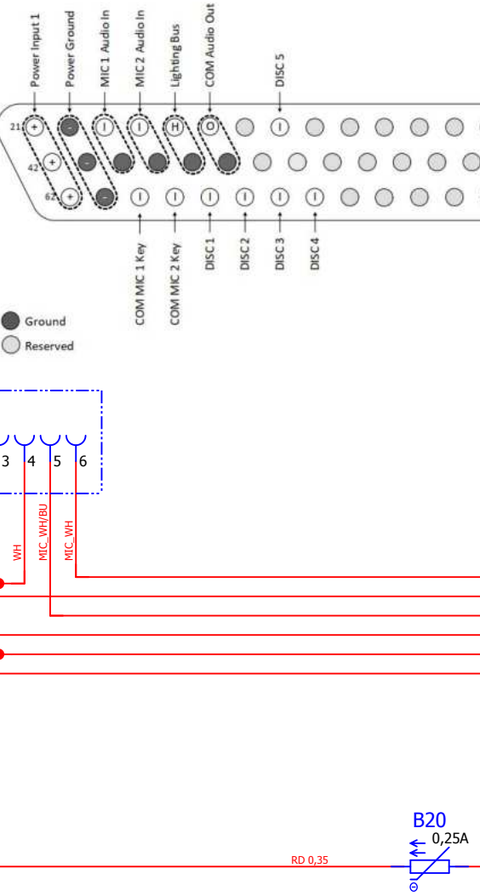
50007

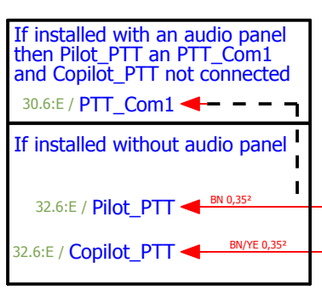
Revision A000

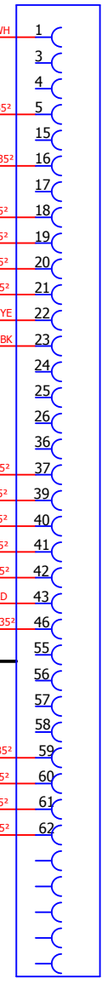
(View looking at rear of unit)

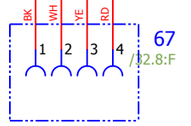


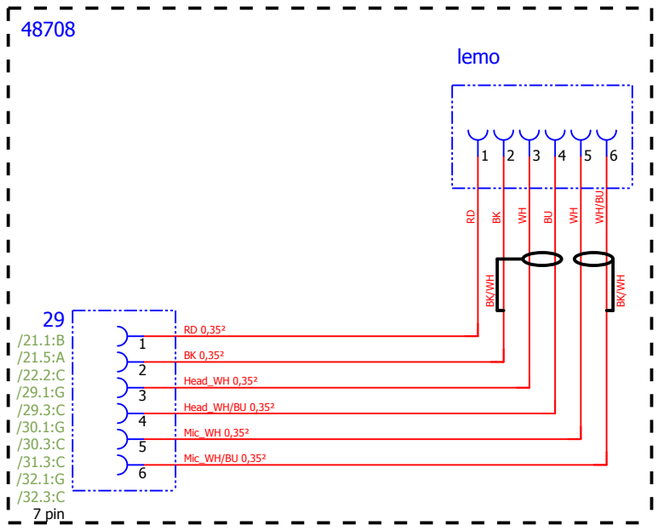


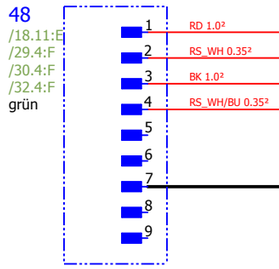












Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	19.11.2024	HARRY
Pro.Nr.		
Format:	A3	
Sheet:	31 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

A000		New	20.11.2024	HARRY
Rev	CMS	Modification	Date	Name

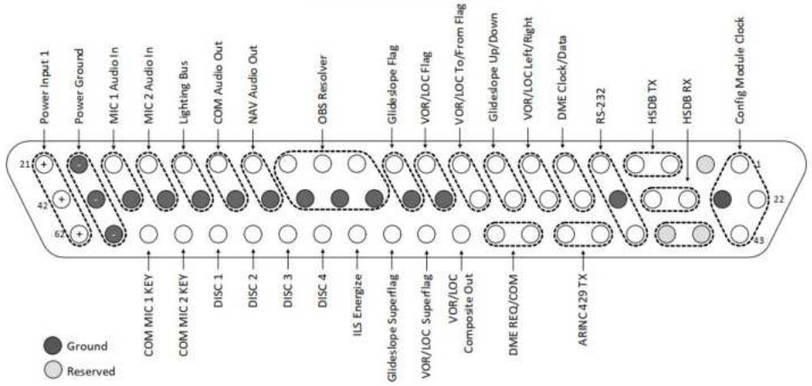
Name (engl.) / Name (ger.) / Part Number

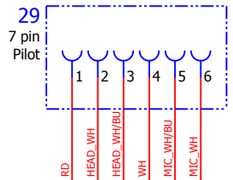
Garmin GTR205 installation kit lemo

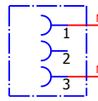
50008

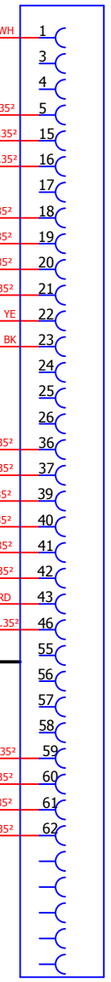
Revision A000

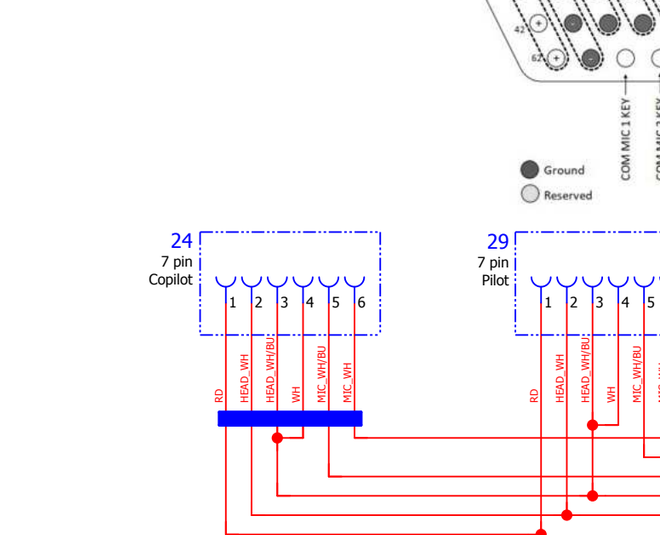
(View looking at rear of unit)











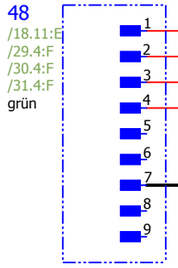
If installed with an audio panel
then Pilot_PTT an PTT_Com1
and Copilot_PTT not connected

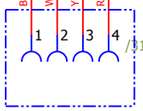
/ PTT_Com1

If installed without audio panel

31.6:E / Pilot_PTT ← BN 0,35²

31.6:E / Copilot_PTT ← BN/YE 0,35²





Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	20.11.2024	HARRY
Pro.Nr.		
Format:	A3	
Sheet:	32 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

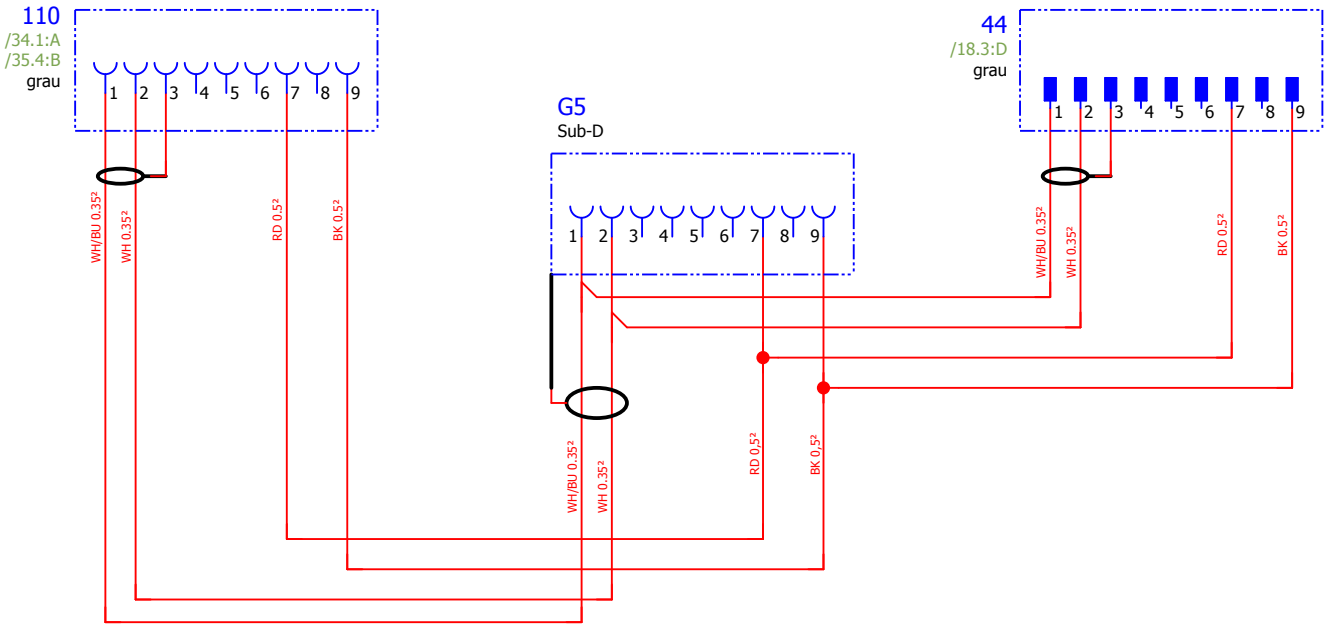
Rev	CMS	Modification	Date	Name
A000		New	20.11.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin GNC215 installation kit lemo

50009

Revision A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	10.12.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	33 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

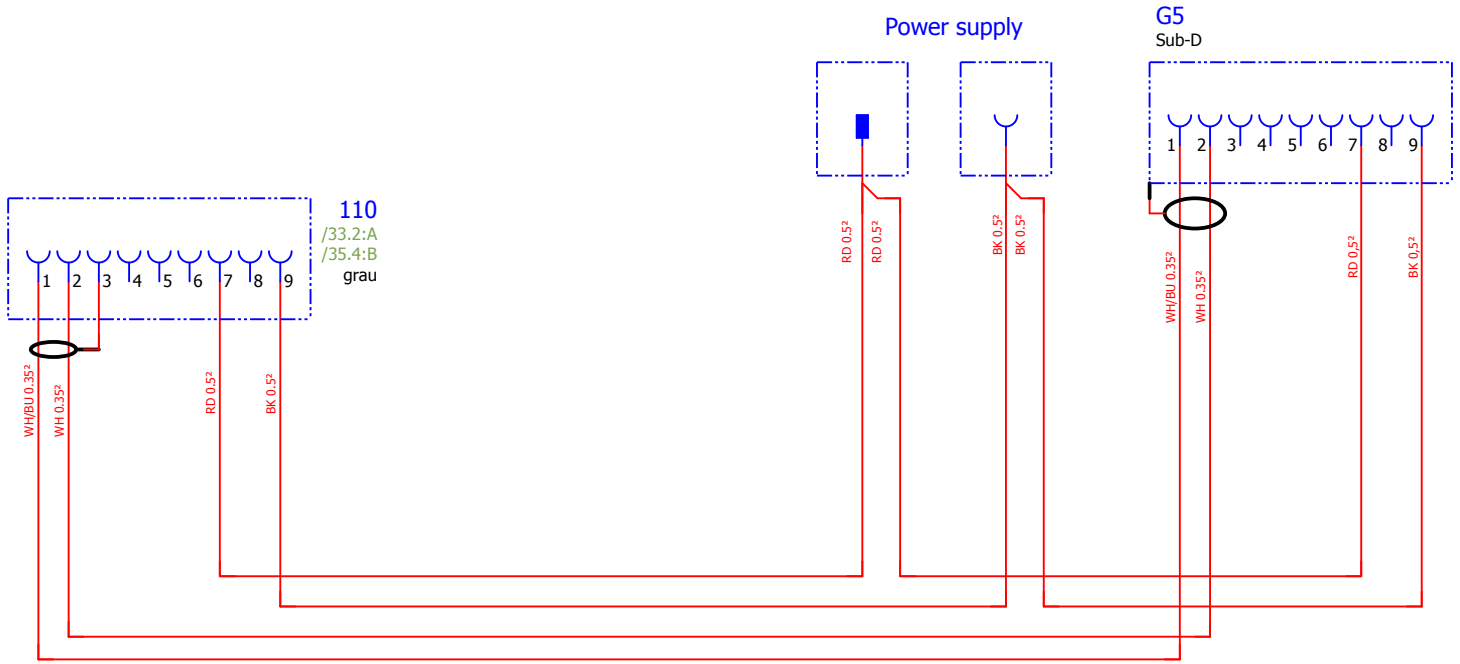
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin G5 installation kit G3X

48171

Revision A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	10.12.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	34 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

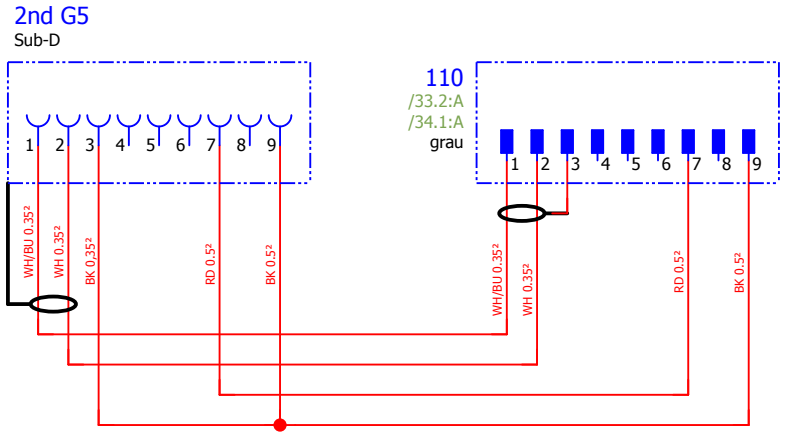
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Garmin G5 installation kit ETFE

47436

Revision A000



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	10.12.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	35 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

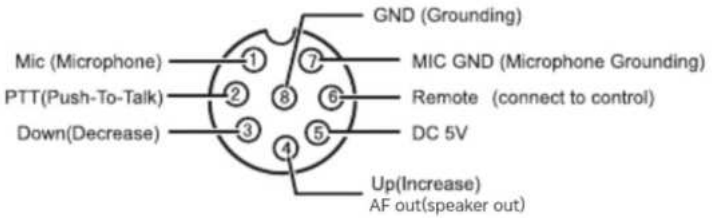
Name (engl.) / Name (ger.) / Part Number

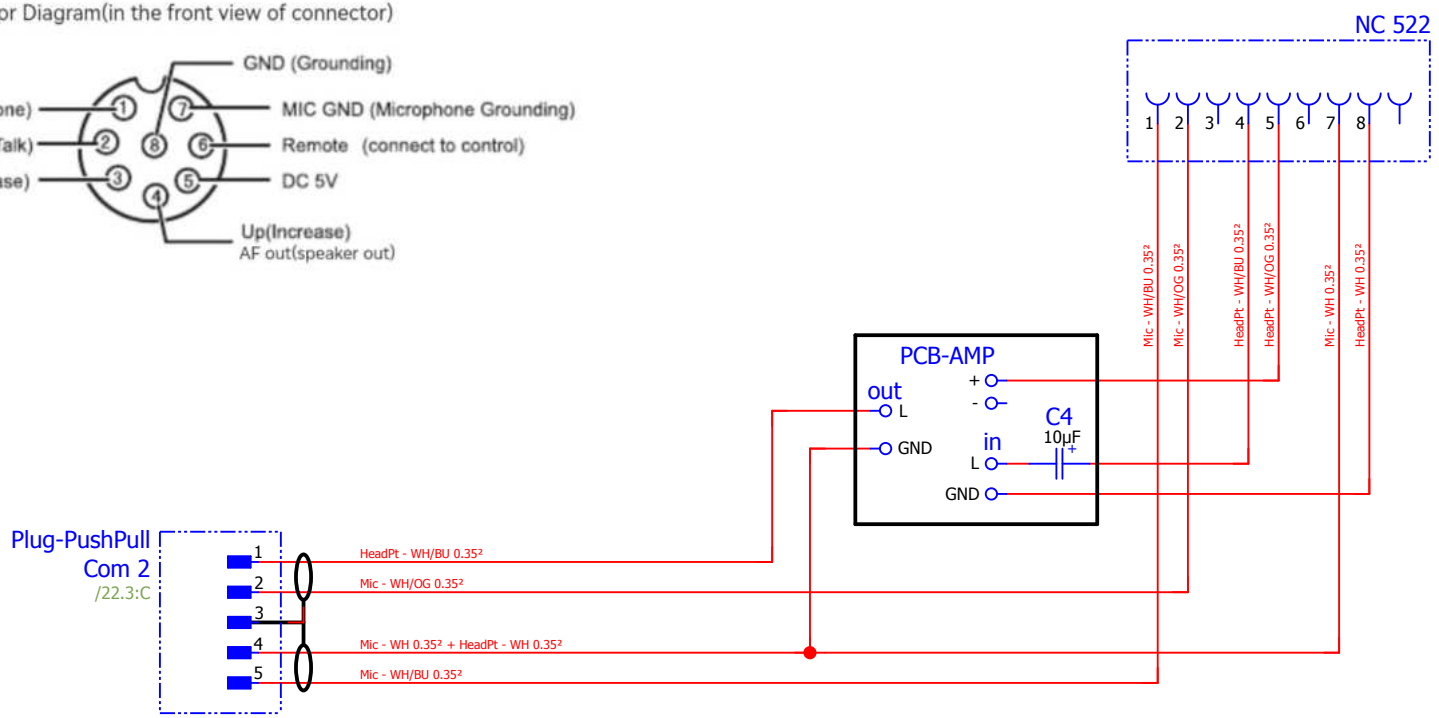
Garmin G5 installation kit for 2nd instrument without GMU11 support

50052

Revision A000

MIC Connector Diagram(in the front view of connector)





Plug-PushPull Com2

1 Headset positiv (YE_x - WH/BU)
2 PTT (YE_x - WH)
3 Shield
4 Mic & Headset negativ (GN_x - WH)
5 Mic 2 positiv (GN_x - WH/BU)

Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	10.12.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	36 of 38	

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

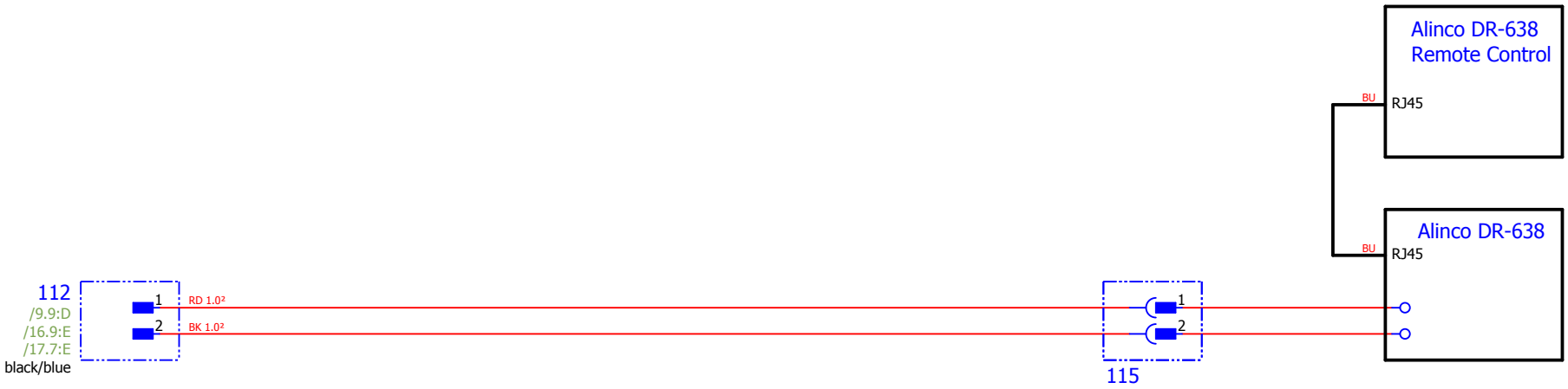
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY
A001		Added PCB	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Alinco DR-638 to GMA

49524

Revision A001



Co-Sign 1:

Co-Sign 2:

	Date	Name
Drawing	10.12.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	37 of 38	

RotorSport UK Ltd

Unrivalled Sport Gyroplanes

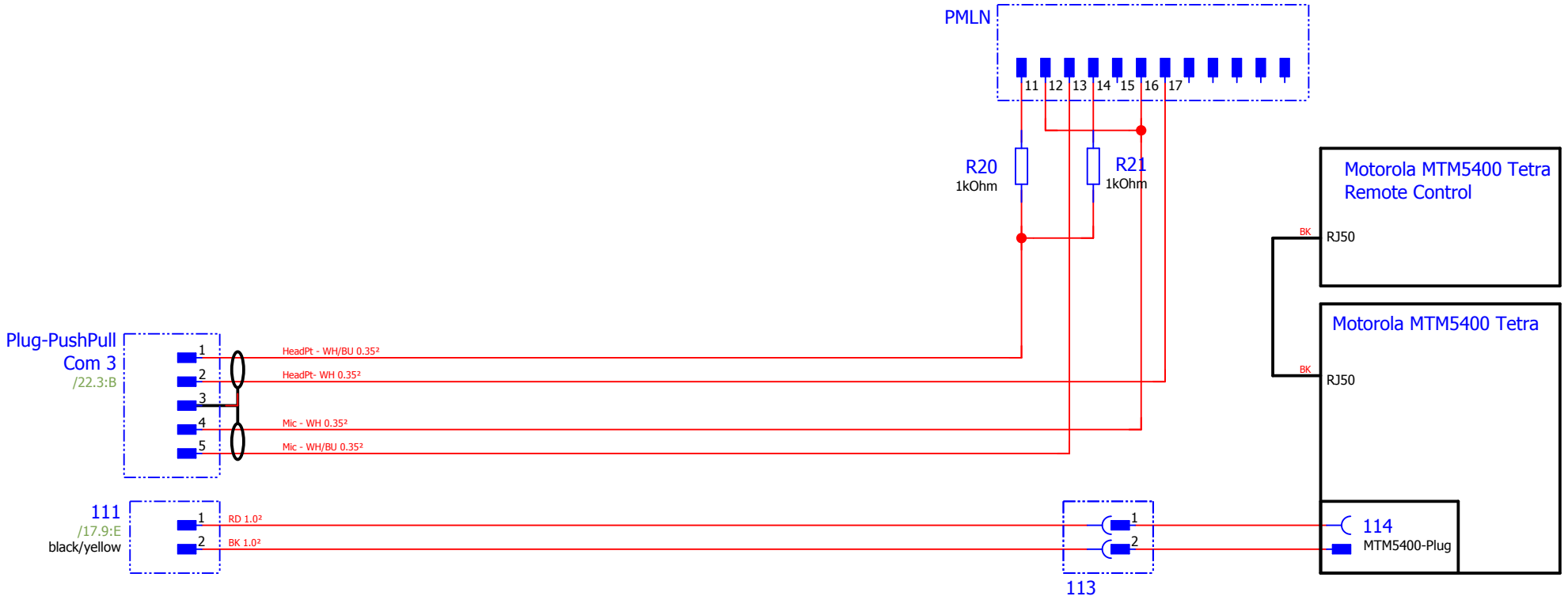
Rev	CMS	Modification	Date	Name
A000		New	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Alinco DR-638 Einbausatz C

49285

Revision A000



Plug-PushPull Com3

1 Headset positiv (YE_x - WH/BU)
2 PTT (YE_x - WH)
3 Shield
4 Mic & Headset negativ (GN_x - WH)
5 Mic 2 positiv (GN_x - WH/BU)

Co-Sign 1:

Co-Sign 2:

RotorSport UK Ltd
Unrivalled Sport Gyroplanes

	Date	Name
Drawing	10.12.2024	HARRY
Pro.Nr.		
Format:	A4	
Sheet:	38 of 38	

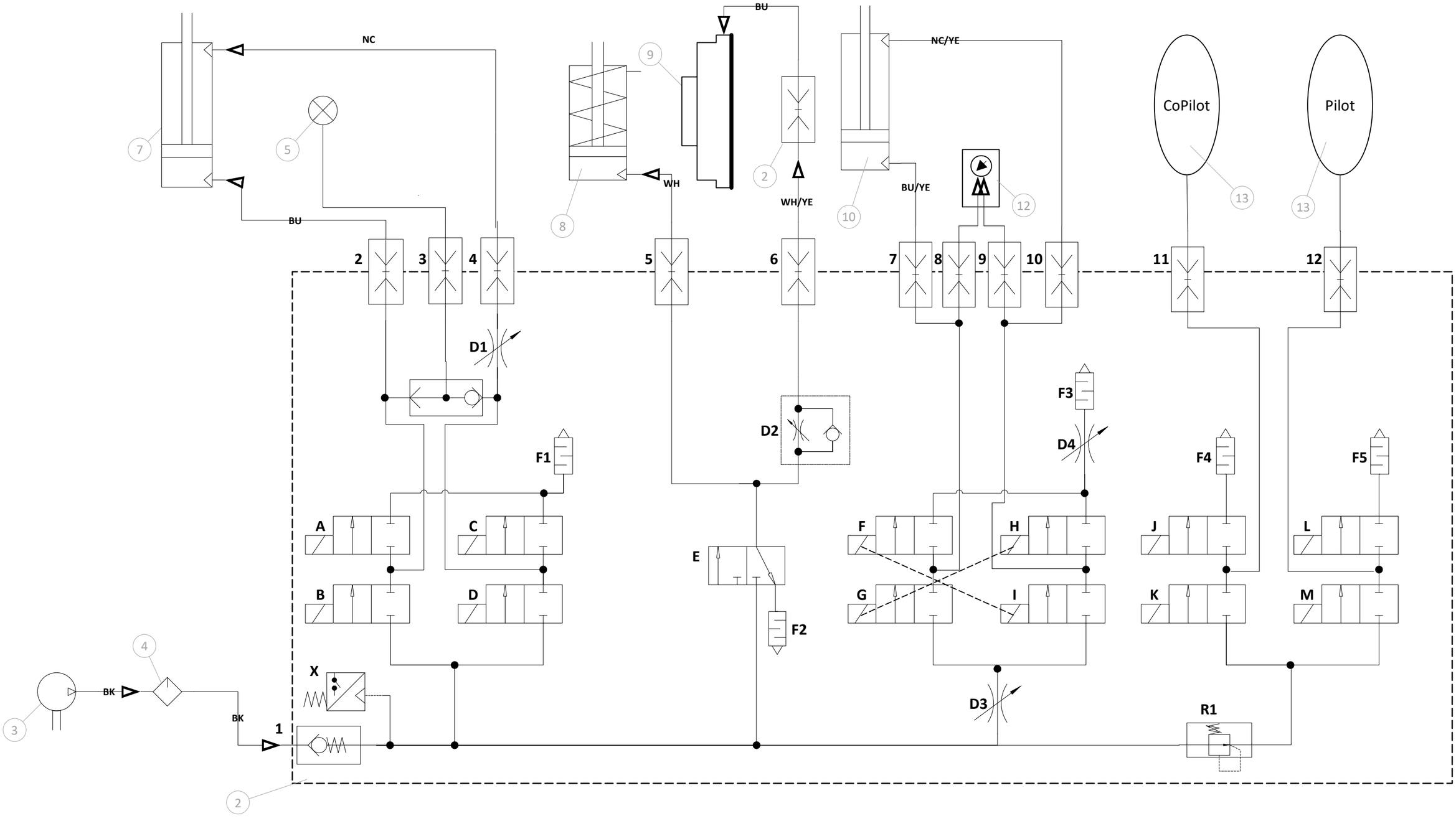
Rev	CMS	Modification	Date	Name
A003		Added Remote Control	10.12.2024	HARRY

Name (engl.) / Name (ger.) / Part Number

Motorola MTM5400 Tetra installation kit

49275

Revision
A003



NC	clear (not colored)
WH	white
BU	blue
BK	black

Ref.-No.	Qty.	Internal ID	Name (engl.)	Name (ger.)
13	2	26621	back cushion	Rückenstütze Air
12	1	34523	Roll trim sensor box	Rolltrimsensorbox
11	1	20855	T-connector	T-Stück
10	1	22200	Trim cyl. C85N16-100	Trimmzyl. C85N16-100
9	1	33792	Pneumatic coupling	Pneumatik Kupplung
8	1	21976	Cylinder CJPB6-15H4	Hubzylinder CJPB6-15H4
7	1	23099	Trimmcylinder 40	Trimmzylinder 40
5	1	20751	Manometer	Manometer
Ref.-No.	Qty.	Internal ID	Name (engl.)	Name (ger.)

Ref.-No.	Qty.	Internal ID	Name (engl.)	Name (ger.)
4	1	31015	Dryer	Trockner
3	1	31014	Compressor	Kompressor
2	1	47245	Valve block	Ventilblock
1	1	21713	Connector straight	Verbinder Gerade

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	Name	Date
Drawing	H. Stindl	18.10.2019
Co-Sign 1:		
Co-Sign 2:		
Blatt: 1/1	Format: A3	

Rev	CMS	Modification	Date	Name
A000		Neu	03.04.2025	H. Stindl

Name (engl.) / Name (ger.) / Part Number

Pneumatic box comfort

Pneumatikbox Komfort

49265

Revision A000

Contents

07-00-00 2-1 LIFTING OF GYROPLANE

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Rotor system must be removed, see Job Card 62-11-00 4-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

WARNING: Object is heavy! Inadequate handling could cause injury. Use proper lifting techniques or assistance!

WARNING: When working with cranes or other lifting equipment the general safety regulations have to be respected at all times!

CAUTION: Never attempt to lift gyroplane with rotor system attached!

PROCEDURES/ DESCRIPTION

1. Re-install teeter bolt, hand-tighten castellated nut and secure castellated nut adequately.
2. Loop a lifting belt around the teeter bolt and carefully lift the gyroplane.

CAUTION: Do not use a chain or any lifting gear that could damage the surface of the teeter bolt.

ILLUSTRATIONS

Figure 1 - Lifting belt looped around teeter bolt

07-00-00 2-2 JACKING OF GYROPLANE

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks).

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks).

PROCEDURES/ DESCRIPTION

Unload and lift nose gear

1. In order to unload the nose gear, load or lash-down keel tube in most aft position until gyroplane rests safely on both main wheels and keel tube.

Lift main gear

2. In order to unload one of the main wheels carefully jack the gyroplane under the keel tube, taking care not to damage the keel tube fin (where fitted).
3. Let the gyroplane tip to the desired side and continue to jack slowly until the gyroplane rests stable on nose wheel, one main wheel and jack.

NOTE: Sand bags or load may be used to add additional weight on the desired side

4. Secure gyroplane adequately before commencing work and do not leave unattended in jacked position. Do not work under the aircraft unless the aircraft is properly and safely supported.

07-00-00 2-3 SHORING OF GYROPLANE

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

CAUTION: Never use tie-down equipment or lashing straps in a way that would exert unsupported stress or high momentum on the structure of the gyroplane!

CAUTION: The suspension bow is not designed to take up high longitudinal forces!

PROCEDURES/ DESCRIPTION

Shoring, road transport or container transport

WARNING: The rotor system must be removed, disassembled and carefully packed for road transport.

CAUTION: When wrapping the gyroplane make sure that foil or stretch does not cover the painted surface directly. Put a soft layer in between for damage protection and let plastic components breathe. Do not expose wrapped gyroplane or parts to sun radiation or heat in order to avoid paint damage.

1. Restrain main wheels (blocks/chocks). For container transport replace main wheels with wooden blocks to provide safe stand.
2. Put a wooden block below the lowest point of the keel tube and lash keel tube against wooden block. The block should be dimensioned so that the main wheels (if installed) are half way unloaded.
3. Lash-down both main wheels through the lashing lugs (see figure 2, use rims/axles alternatively) and/or the mast tie-down kit (option). Also the keel tube can be used to lash the aircraft (see figure 3)
4. Lash-down nose wheel through its axle.
5. For container transport or shipping, use the mast tie-down kit (option) and consider folding the mast.

ILLUSTRATIONS:

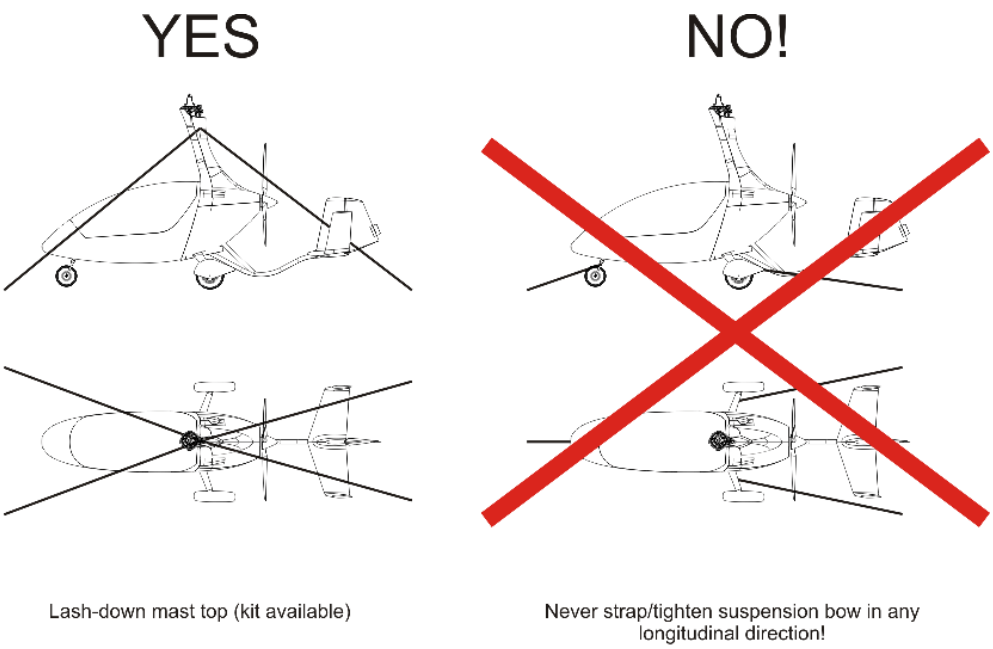


Figure 1 – Lash-down methods of gyroplane

Figure 2 – lashing lugs on the main wheels

Figure 3 – lashing down through the keel tube

08-10-00 2-1 WEIGHING OF GYROPLANE

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PROCEDURES/ DESCRIPTION

NOTE: Weighing is performed by measuring the weight below each wheel on a level surface.

The actual AutoGyro weighing form should be used and is available for download on the AutoGyro website.

24-30-00 4-1 REMOVAL - INSTALLATION: BATTERY

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

WARNING: Electrical shorting of the battery will produce high current with the risk of personal injury and damage to equipment

PROCEDURES/ DESCRIPTION

WARNING: Be careful to avoid electrical short cuts at all means.

Removal

1. Remove upper cowling according to 52-00-00 4-1
2. Remove ground (L-) connection at the frame and isolate metallic cable shoe.
3. Remove hot (L+) cable at the battery and protect battery poles.
4. Untighten battery retainer and remove battery.

Installation

1. Install battery in reverse order (work steps 4 to 1).

ILLUSTRATIONS

Figure 1 – Position of the Earth X battery seen from behind in direction of flight on 916iS aircraft

27-20-00 5-1 CHECK - ADJUSTMENT: RUDDER CONTROL ANGLES

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES/ DESCRIPTION

Check/adjust neutral setting

1. Adjust nose wheel point straight.
2. Check/adjust pedals neutral.
3. Check/adjust N2 = 840 mm (+/- 10 mm). See Figure 1 and Figure 2 for reference.
4. Check control linkage and push-pull control cables (threaded articulation rods) tight and secure.

ILLUSTRATIONS

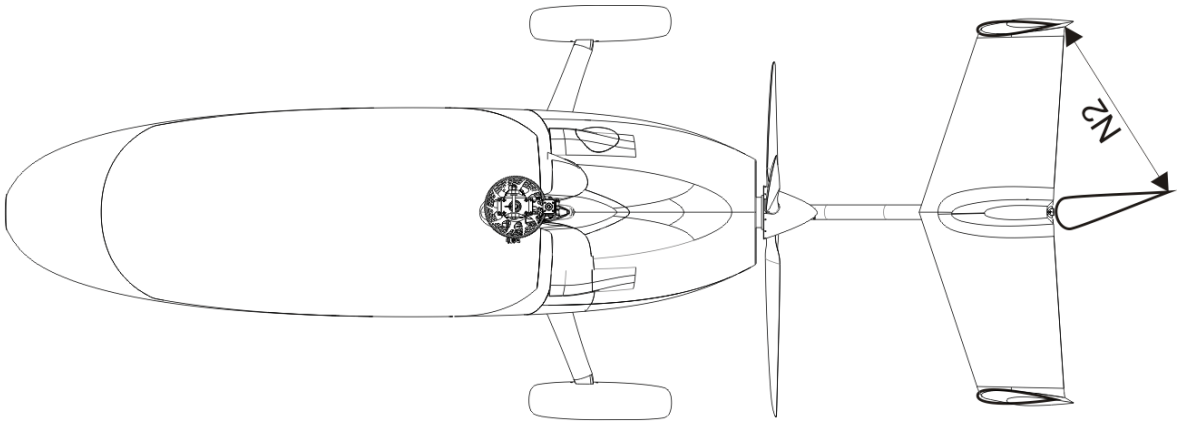


Figure 1 – Rudder control angle setting

Figure 2 – Measurement procedure (Example)

28-20-00 6-1 INSPECTION: FUEL FILTER (GASCOLATOR)

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

IMPORTANT NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

WARNING: Fuel and fuel vapours are HAZARDOUS MATERIAL, must be treated and handled accordingly, and constitute a danger to health and hardware!

IMPORTANT NOTE: Depending on engine variant and optional equipment, number and type of installed fuel filters may differ!

PROCEDURES/ DESCRIPTION

1. Close the Fuel Shut-off Valve
2. Remove and inspect gascolator filter.
3. Unscrew the housing to get access to the filter.
4. If contamination is found, clean the filter gauze. Use cleaner and compressed air applied.
5. In case of residual contamination or damage, strainer has to be replaced.
6. Re-install gascolator filter, tighten securely and open Fuel Shut-off Valve.

PARTS LIST

Figure	Position	Description	PN	Remarks
1		Gascolator	NPI	915/ 916 engine
3		Filter	46995	

ILLUSTRATIONS

Figure 1 – Location of gascolator drain point.

Figure 2 – Housing unscrewed

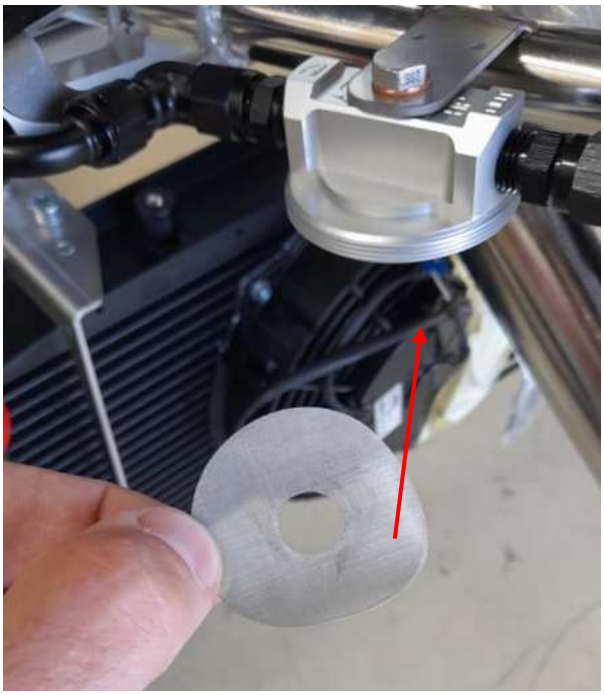


Figure 3 – Filter removed from Gascolator cap for inspection and cleaning

28-20-00 8-1 REPLACEMENT: FUEL FILTER

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Engine cowlings must be removed, see 52-00-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 542 (PN 30488)

IMPORTANT NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

WARNING: Fuel and fuel vapours are HAZARDOUS MATERIAL, must be treated and handled accordingly and constitute a danger to health and hardware!

PROCEDURES/ DESCRIPTION

NOTE: Depending on engine variant and optional equipment, number/type of installed fuel filters may differ.

1. CAUTION: Before disconnecting the fuel lines towards the filter close the fuel shut-off valve.

   NOTE: The small amount of fuel in the fuel hoses will leak out when the filter is removed and must be collected.

2. Disconnect filter and replace with new filter.
3. Remove adapter which are screwed into the filter, put new washer underneath and secure screw with Loctite 542.
4. Re-install new filter.
5. Re-connect hoses to filter and make sure tight fit (no leaks, dry).
6. Open fuel shut-off.

PARTS LIST

Figure	Position	Description	PN	Remarks
1		Fuel Filter	Rotax Part	915 engine
1		Fuel Filter	Rotax Part	916 engine
1		copper washer 12x16	47003	
1		copper washer M14	25787	

ILLUSTRATIONS

Figure 1 – Location of fuel filter

Position may be different depending on configuration

28-20-00 8-2 REPLACEMENT: ELECTRICAL FUEL PUMPS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

One fuel the tank must be removed. See Job Card 51-00-00 2-1

Important Note: Refer to Engine Manufacturers documentation for change of fuel pumps.

Note: Location of Fuel Pumps installed may be different than shown due to actual fuel tank size.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

IMPORTANT NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

WARNING: Fuel and fuel vapours are HAZARDOUS MATERIAL, must be treated and handled accordingly, and constitute a danger to health and hardware!

PROCEDURES/ DESCRIPTION

WARNING: Make sure the electrical system is switched off and protected against unintended activation.

1. Disconnect battery earth lead.
2. Close Fuel Shut-off Valve to prevent fuel spillage.
3. Unscrew both terminal nuts and disconnect both ring-eye cable connectors. Isolate blank connectors to prevent electrical short-cut.
4. Untighten the clamps which are holding the pumps in position.
5. Untighten nuts disconnect fuel hoses and remove old fuel pump.
6. Install new fuel pump and tighten nuts.

IMPORTANT NOTE: The electrical terminals of the pump and the ring-eye cable connectors have different diameters to ensure correct polarization

7. Re-connect electrical cable connectors and tighten terminal nuts. Secure terminal nuts with securing paint.
8. Re-install the clamps which are holding the pumps in position.
9. Re-connect hoses to pump and make sure tight fit. Use securing paint on nuts and threads.
10. Open Fuel Shut-off Valve.
11. Activate respective fuel pump and check function and proper fuel line connection (no leaks, dry).

Note: Location of the electrical fuel pumps may be different depending on aircraft configuration.

PARTS LIST

Figure Position	Description	PN	Remarks
	Fuel Pump	Rotax Part	Rotax Fuel Pump 915 engine
	Fuel Pump	Rotax Part	Rotax Fuel Pump 916 engine

ILLUSTRATIONS

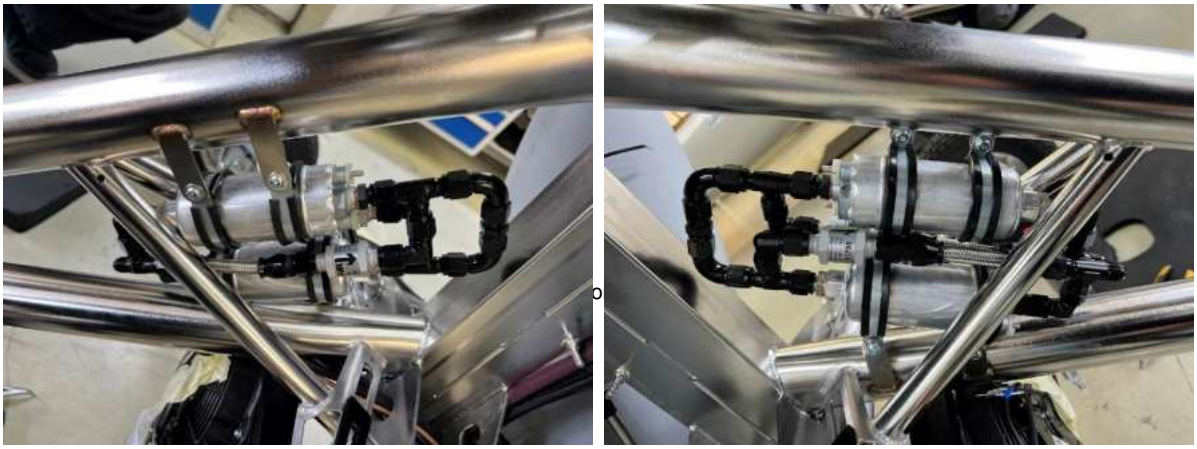


Figure 1 – Electrical fuel pumps seen from RH and LH – Position may vary depending on the engine type

32-40-00 4-1 REMOVAL - INSTALLATION: WHEELS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Gyroplane must be jacked, see Job Card 07-00-00 2-2

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

NOTE: Procedure involves spare parts with limited reusability. Check parts list below for ordering details of affected components!

PROCEDURES/ DESCRIPTION

Nose wheel – Removal

1. Unscrew and remove nut (Figure 1; 7) and washer (Figure 1; 6). Discard nut.
2. Pull out and remove bolt (Figure 1; 5) with washer (Figure 1; 6) and remove wheel.

Nose wheel – Installation

1. Install wheel with 2 bushes in place, bolt (Figure 1; 5) with washer (Figure 1; 6) and washer (Figure 1; 6) in reverse order.
2. Install new self-locking nut (Figure 1; 7) and torque-tighten with 35 Nm.

Main wheel – Removal

1. Remove wheel spat (if installed).
2. Unscrew and remove nut.
3. Unscrew and remove 4x bolt (Figure 3) with serrated washer. Mind limited reusability of serrated washer!
4. Remove wheel from axle assembly. Make sure that the spacer remains on the axle.

Main wheel – Installation

1. Insert main wheel on axle assembly.
2. Insert 4 x bolt (Figure 3) with new serrated washer and attach brake disc to main wheel.
3. Torque-tighten bolts with 10 Nm in crosswise sequence.
4. Install self-locking nut (Figure 4; 1) and torque-tighten nut with 35 Nm.
5. Check free rotation of wheel, radial run-out and braking action.
6. Install wheel spat, if required (using Loctite)

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Membrane grommet DG M50	NPI	
1	2	Steering bush	22169	
1	3	Control Nose wheel	46115	
1	4	Shock Absorber with metal	27553	
1	5	Nose wheel axle M10x155	NPI	
1	6	U10	NPI	
1	7	M10_Si	NPI	
1	8	U11x34x3	NPI	
1	9	M10x20	NPI	
1	10	Front fork spat attachment welded	NPI	
1	11	O-Ring 30x5	22640	
1	12	U6-18	NPI	
1	13	M6x12, round head	NPI	
3		M6x12, round head	21140	
3		serrated washer	20009	
4	1	M12, Si	20005	

ILLUSTRATIONS

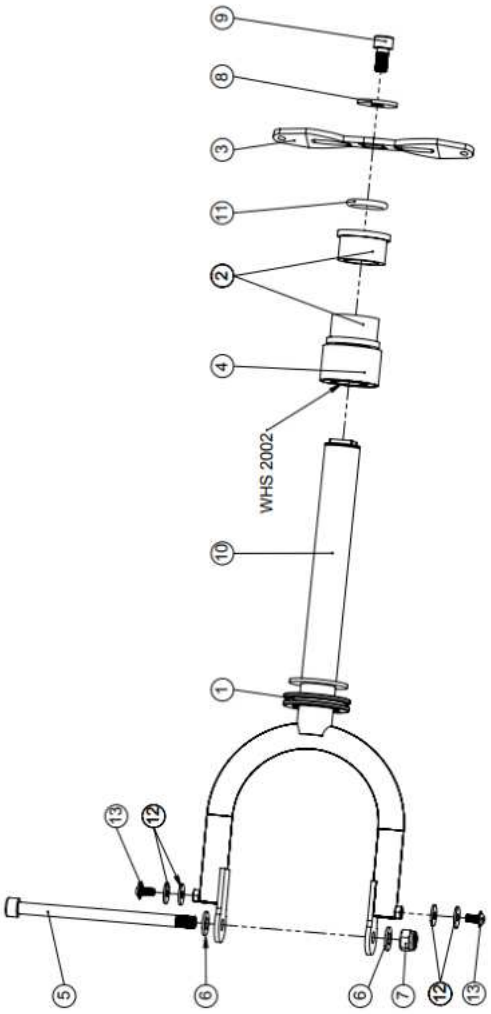


Figure 1 - Nose wheel assembly

Figure 2 – Rear Wheel assembly

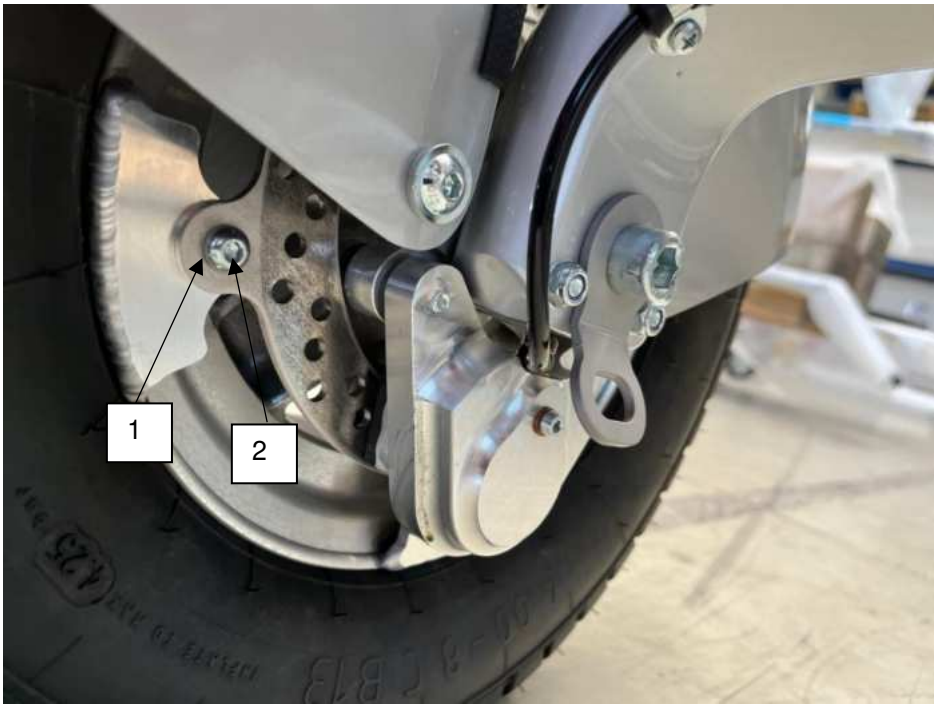


Figure 3 – M6 x 12 Screw and serrated wash holding the brake disc on the rim

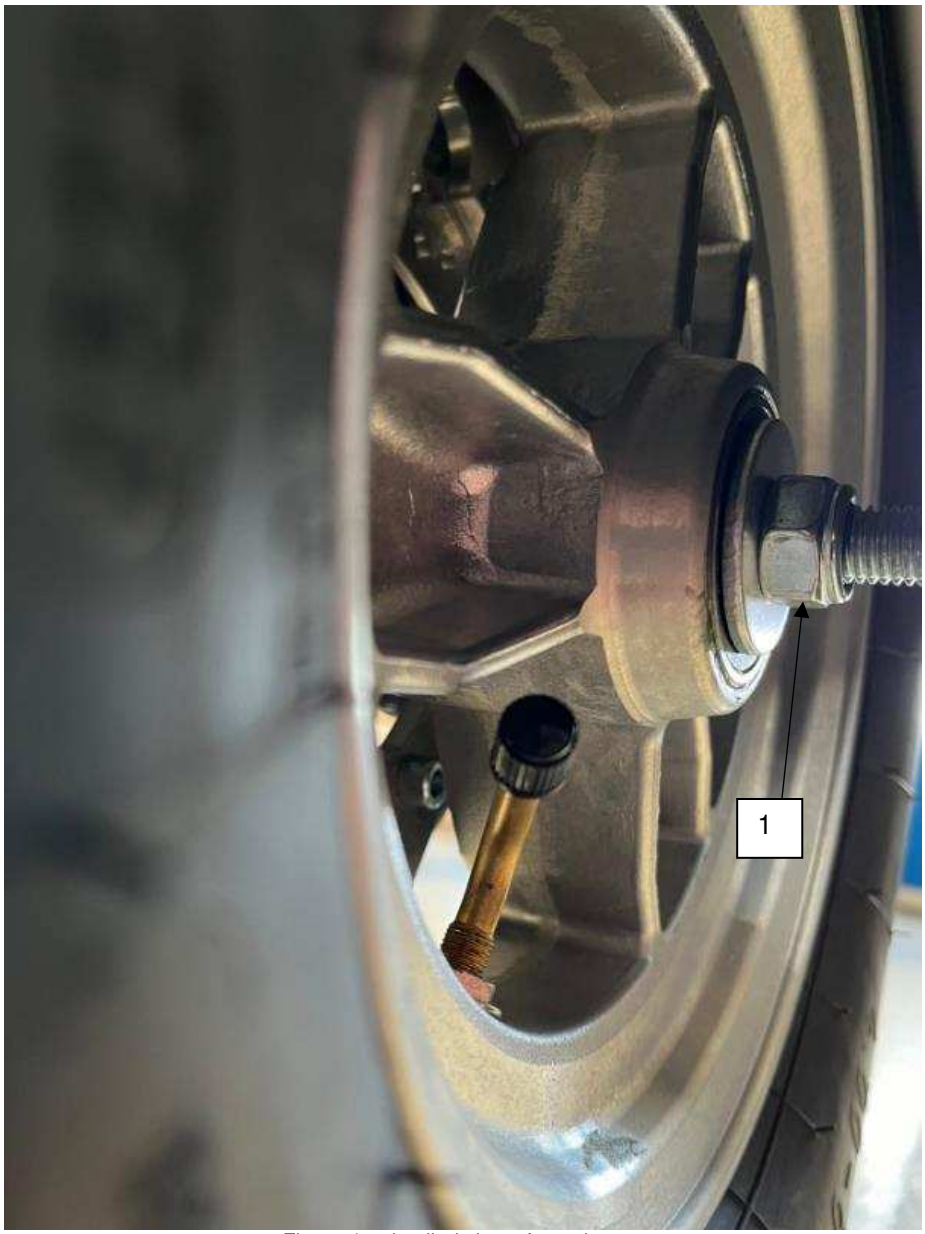


Figure 4 – detailed view of attachment

32-40-00 8-1 REPLACEMENT: NOSE GEAR RUBBER DAMPER

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Gyroplane must be jacked, see Job Card 07-00-00 2-2

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

Lagermeister WHS 2002 Grease (PN 30477)

PROCEDURES/DESCRIPTION

1. Remove bolt (9) and washer (8).
2. Pull nose wheel control link (3) from square shaft. Caution: Hold wheel assembly and prevent from falling out.
3. Pull out front wheel assembly. Note that bushings (2) remain in the fuselage.
4. Remove rubber damper (4).

Make sure to use only "new" rubber dampers having vulcanized metallic discs on both sides.

1. Install new rubber damper.
2. Apply Lagermeister on the tube but not on the threads. Install nose wheel assembly in reverse order. Make sure wheel assembly is installed so that angled fork faces forward, i.e. extends to the front.
3. Install (new) O-ring (11).
4. Install nose wheel control link (3) and washer (8).
5. Apply Loctite 243 to inner threads of nose gear assembly and install bolt (9).
6. Torque- tighten bolt (9) with 40 Nm.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Membrane grommet DG M50	NPI	
1	2	Steering bush	22169	
1	3	Control Nose wheel	46115	
1	4	Shock Absorber with metal	27553	
1	5	Nose wheel axle M10x155	NPI	
1	6	U10	NPI	
1	7	M10_Si	NPI	
1	8	U11x34x3	NPI	
1	9	M10x20	NPI	
1	10	Front fork spat attachment	NPI	
1	11	O-Ring 30x5	22640	
1	12	U6-18	NPI	
1	13	M6x12, round head	NPI	

ILLUSTRATIONS

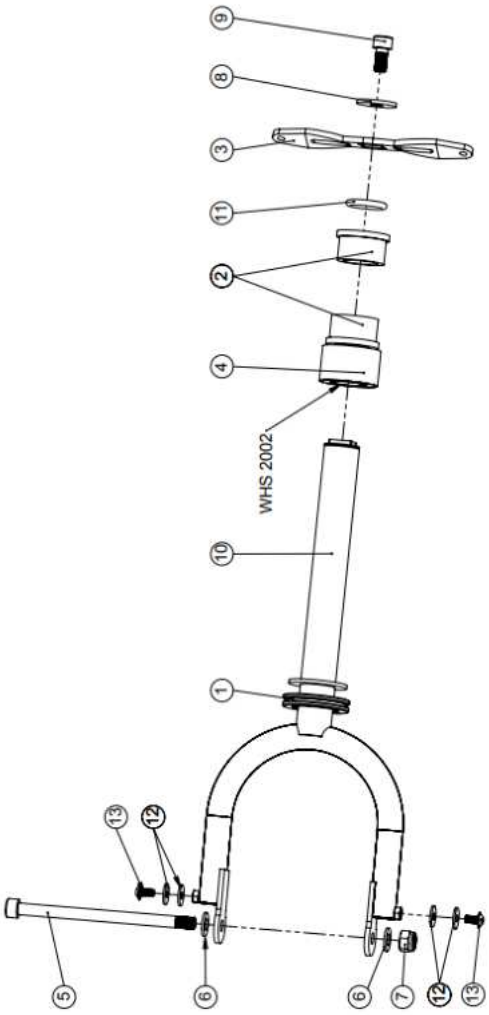


Figure 1 – Nose gear assembly

32-40-00 8-2 REPLACEMENT: MAIN WHEEL BRAKE PADS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Gyroplane must be jacked, see Job Card 07-00-00 2-2

Affected wheel must be removed, see Job Card 32-40-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Silicone Spray (PN 30490)

NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

IMPORTANT NOTE: Procedure involves handling and disposal of special materials. For your health and environmental aspects respect all applicable regulations.

PROCEDURES/ DESCRIPTION

1. Pull out brake disc between brake pads.
2. Remove 4 x shaft bolt (11) with serrated washer (12). Mind limited reusability of serrated washer!
3. Remove brake pad (9) and (10). Dispose properly.
4. Clean 4 x guide sleeves of axle assembly (1) and inspect for damage, scores or run-in grooves.
5. Apply a thin layer of silicone spray on guide sleeves of axle assembly.
6. Fit new brake pad (10) onto lower guide sleeves.
7. Fit new brake pad (9) onto upper guide sleeves.
8. Insert 4 x shaft bolt (11) with serrated washers (12) and torque-tighten with 10 Nm. Make sure that brake calliper and pad moves easily about the guide sleeve.
9. Insert brake disc between brake pads.
10. In order to re-install wheel continue with Job Card 32-40-00 4-1.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	9, 10	Brake pad Set	30044	
1	3	Serrated Washer	20009	

ILLUSTRATIONS

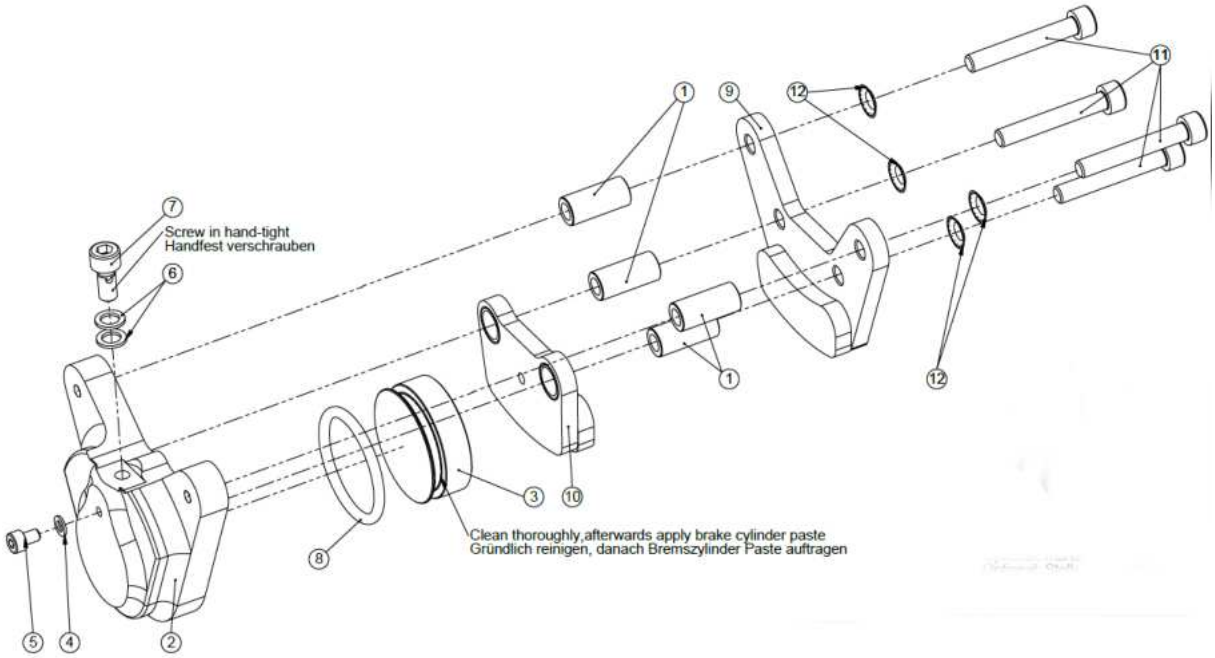


Figure 1 – Brake calliper

32-40-00 8-3 REPLACEMENT: MAIN WHEEL BEARING

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Gyroplane must be jacked, see Job Card 07-00-00 2-2

Affected wheel must be removed, see Job Card 32-40-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 638 green (PN 30485)

PROCEDURES/DESCRIPTION

1. Remove old bearings.
2. Degrease new bearing and dry-off with paper towel.
3. Apply Loctite 638 green on outer surface of first bearing and press in bearing.
4. Install spacer. Use of a tool may be appropriate.
5. Apply Loctite 638 green on outer surface of second bearing and press in bearing.
6. Spacer must be held by both inner bearing rings. Re-position and press as necessary.
7. Check easy run of bearings.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	2	Ball bearing 6204 ZRS	20078	
1	3	Spacer Wheel	20079	

ILLUSTRATIONS

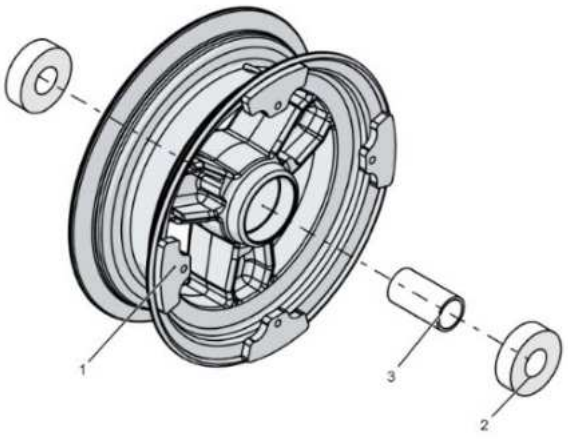


Figure 1 – Rim with bearings

32-40-00 8-4 REPLACEMENT: O-RING BRAKE PISTON

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Gyroplane must be jacked, see Job Card 07-00-00 2-2

Affected Wheels must be removed, see Job Card 32-40-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Würth Brake Cylinder paste (Würth PN: 0893980) or equivalent

NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

IMPORTANT NOTE: Procedure involves handling and disposal of special materials. For your health and environmental aspects respect all applicable regulations.

PROCEDURES/DESCRIPTION

1. Remove the wheel where the O-Ring needs to be replaced according to Job Card 32-40-00 4-1.
2. Remove 4 x shaft bolt (11) with serrated washer (12). Mind limited reusability of serrated washer!
3. Remove brake calliper (Figure1; 2).
4. Remove the brake piston (Figure1; 3) from the caliper, either by using the brake lever or using compressed air pushed through the vent screw hole. Be careful to avoid brake fluid contamination of the brake pads and aircraft, and especially of painted parts.
5. Remove the O-ring (Figure1; 8) from the brake calliper and clean the part.
6. Spread some cylinder paste into the groove than insert the O-ring and spread some paste on the surface of the brake piston and the O-ring.
7. Press the brake piston back to its position in the brake calliper.

IMPORTANT NOTE: Mind the direction of installation from the brake piston!

8. Insert 4 x shaft bolt (11) with serrated washers (12) and torque-tighten with 10 Nm. Make sure that brake calliper and pad moves easily about the guide sleeve.
9. Insert brake disc between brake pads.
10. In order to re-install wheel continue with Job Card 32-40-00 4-1.
11. After reassembly bleed the brake system to ensure that it is free of air entrapment in accordance with normal brake bleeding processes. Tighten the vent screw after bleeding.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Cylinder bushing 22x10x6	NPI	
1	2	Brake Calliper	NPI	
1	3	Brake Piston	NPI	
1	4	Copper Washer 6mm	21399	
1	5	M4x6	NPI	
1	6	Washer 6mm	21403	
1	7	Hollow Screw	NPI	
1	8	O-Ring	48751	
1	9	Inner Brake Pad	30044	9+10 as set
1	10	Outer Brake Pad	30044	9+10 as set
1	11	M6x40	20024	
1	12	safety washer M6	20009	

ILLUSTRATTIONS

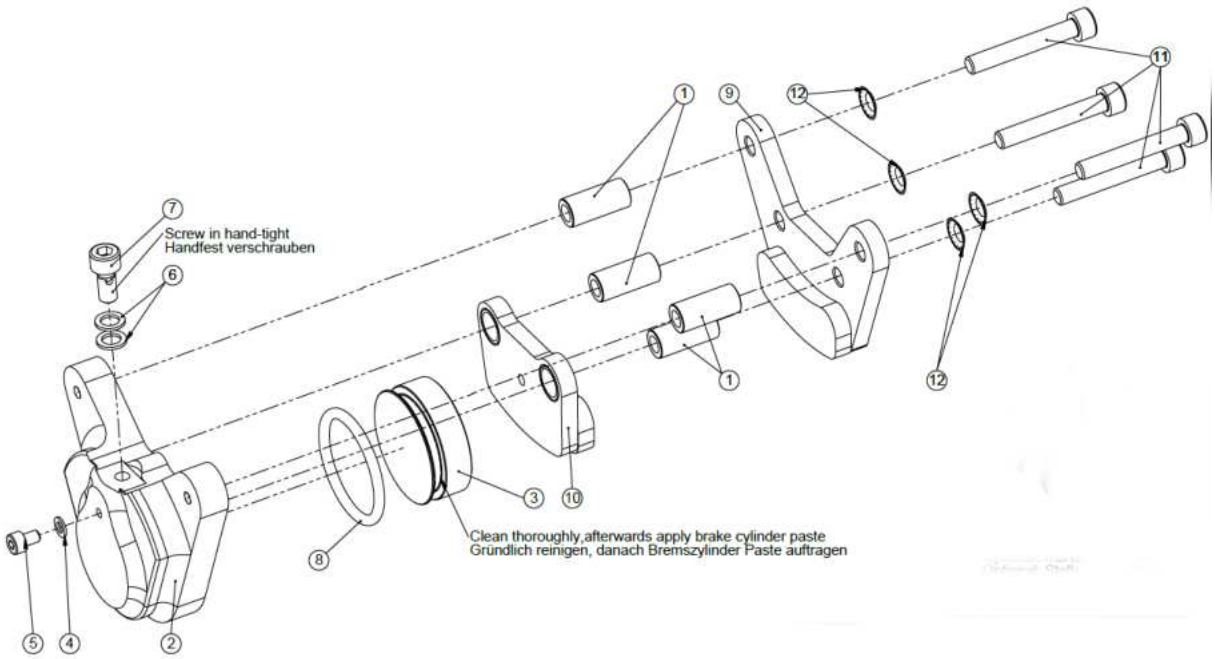


Figure 1 – Brake calliper

34-10-00 5-1 TEST: PITOT STATIC SYSTEM INTEGRITY

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

For special tools or assistance contact AutoGyro Technical Support

PRECAUTIPONS AND SAFETY MEASURES

CAUTION: Instruments can easily be damaged if test is performed improperly. Manipulate test equipment slowly and carefully. Monitor indicators and make sure that indication is always within normal indication range!

PROCEDURES/ DESCRIPTION

Pitot System Test

1. Pull-out plunger of test equipment for the pitot nozzle (long silicone tube) to read 2 ml.
2. Attach test equipment to pitot nozzle.
3. Slowly depress plunger to read 1 ml. Airspeed indication must increase significantly.

NOTE: The actual value will depend on the length and cross-section of the pipework installed.

4. Leave set-up unchanged and check decay over 10 seconds. Decay should be less than 10% per 10 seconds.
5. Gently ease tube off the pitot nozzle. Airspeed indicator(s) must return to zero.
6. If any of the preceding tests has failed, have system inspected and repaired.

Static System Test (if installed)

1. Block one static port with a strip of tape.

NOTE: Do not use transparent tape as this may be overlooked and forgotten. It is recommended to use red insulating tape with a relatively large extending end.

2. Press in plunger of test equipment for static port (short silicone adapter) completely.
3. Press and hold test equipment to the open static port tight to the hole.
4. Pill plunger slowly about 3ml.
5. Indicated altitude and airspeed must increase.
6. If installed, VSI indication must increase momentarily and will slowly fade to zero.
7. Leave set-up unchanged and check decay over 10 seconds. There shall be no noticeable decay (except VSI).
8. Remove silicone adapter from static port. Altitude must return to initial indication.
9. If any of the preceding tests has failed, have system inspected and repaired.

Figure 1 – Pitot static integrity test equipment

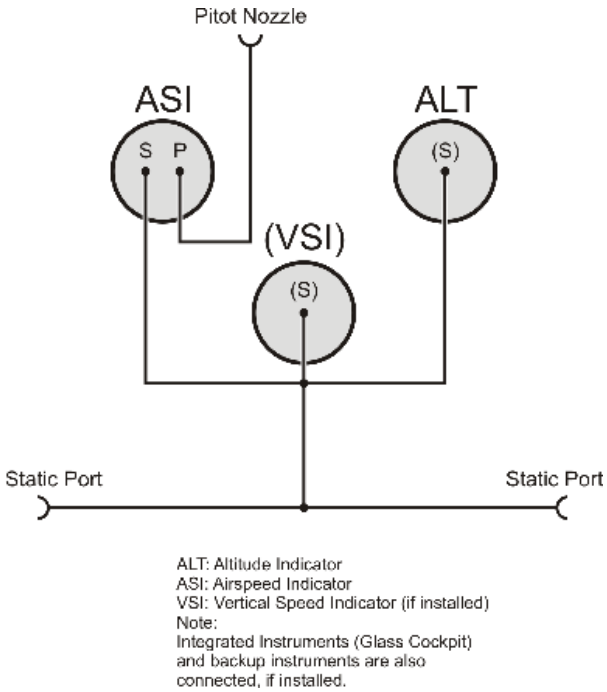


Figure 2 – Pitot static instruments connecting diagram

34-10-00 7-1 CLEANING: PITOT STATIC SYSTEM

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLES

None

PRECAUTIONS AND SAFETY MEASURES

CAUTION: Make sure all pitot and static lines are disconnected from any instruments before blowing through the lines!

CAUTION: Do not blow with the mouth directly into pitot or static ports. This will introduce moisture and might damage instruments!

PROCEDURES/ DESCRIPTION

1. Disconnect all instruments from pitot line. These are airspeed, and optionally integrated display systems, if installed.

   NOTE: In most cases it is not necessary to remove the instrument panel.

2. With the help of compressed air clean all pitot lines by blowing from the inside (cockpit panel side) to the outside.
3. Make sure to clean/check each branch of a line by closing the other open ends.

ILLUSTRATIONS

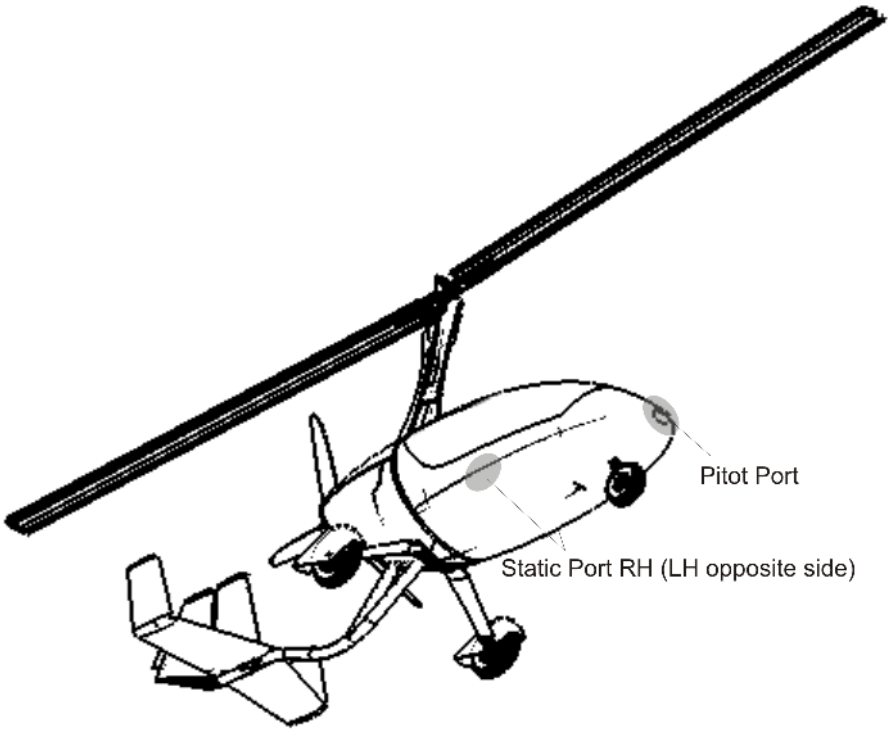
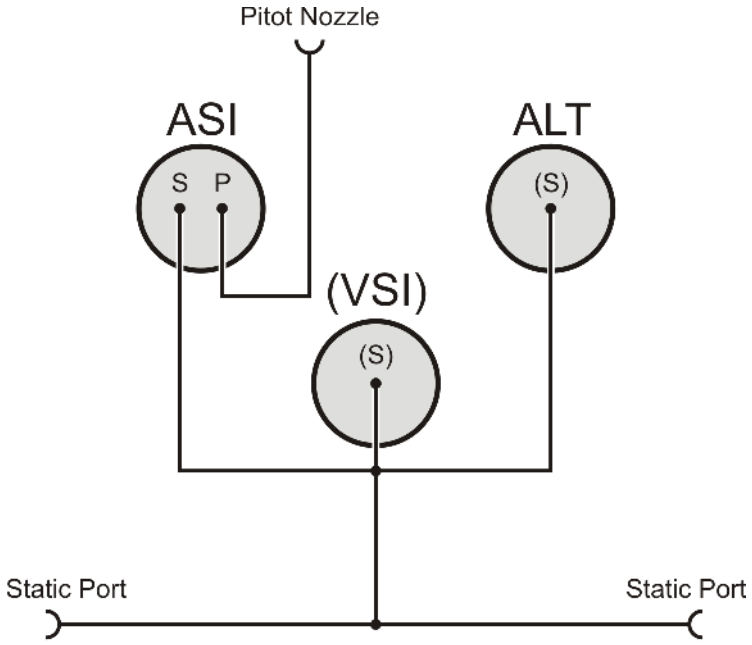


Figure1 – Static ports (2x) and pitot port

Figure 2 – Example for static lines, disconnect clear hose from instruments and use compressed air



ALT: Altitude Indicator
ASI: Airspeed Indicator
VSI: Vertical Speed Indicator (if installed)
Note:
Integrated Instruments (Glass Cockpit) and backup instruments are also connected, if installed.

Figure 3 - Pitot static instruments connecting diagram

36-21-00 8-1 REPLACEMENT: FILTER/DRYER

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Preparation work: Service covers / maintenance access accomplished, see Job Card 52-40-00 2-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

1. Open the central service cover beneath the rear seat to get access to the filter/dryer. In order to do so, three bolts have to be removed.
2. Disconnect inlet and outlet pneumatic hose via quick lock.
3. Replace filter/dryer with new one and make sure cartridge is tightened safely to airframe.
4. Re-connect inlet and outlet connection.
5. Close service cover.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Dryer II	48519	

ILLUSTRATIONS

Figure 1 – Location of filter/ dryer

51-00-00 4-1 REMOVAL – INSTALLATION: FUEL TANKS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Engine cowlings must be removed. See Job Card 52-00-00 4-1, tanks must be empty!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PROCEDURES/ DESCRIPTION

Dismantling

1. Remove the oil tank attachment bracket so that the oil tank is free to move.
2. Disconnect the fuel vent hose on top of the RH fuel tank.
3. Remove the clamp on the tank connection hose from the tank side.
4. Open/disconnect retaining straps of the RH fuel tank. Do not drop screws of retaining straps.
5. Carefully detach fuel tank from Velcro using a long metal ruler and bend away. Use caution not to damage any hoses or connections especially the tank outlet for the tank connection hose.
6. If it is necessary to remove the LH fuel tank please be aware of the additional work:
    a. Remove Intercooler (Figure 7)
    b. Disconnect fuel filler grounding connection (Figure 8, 1)
    c. Disconnect fuel filler hose from fuel tank. In order to do so, unscrew the two or three (Figure 8, 2 depending of the cowling type) bottom screws of the LH mast cover (in the area around the fuel filler neck) and untighten inner clamp of fuel filler hose (Figure 8,3). Use a suitable plug to protect the open fuel tank port from contamination.
    d. Carefully bend away fuel filler neck with hose (disconnected) and fixate in this position.
    e. Disconnect fuel tank vent line from LH fuel tank.
    f. Tank removal is possible with installed fuel level sensor if the cables are pinned out of the plug or by removing the complete level sensor from the tank.
    g. Continue with step “4” of dismantling. In addition to the tank connection there is also the fuel shut-off which has to be dis-connected (Figure 10).

Re-installation

1. Re-install in reverse order

ILLUSTRATIONS

Figure 1 – Oil tank bracket removed

Figure 2 – Tank vent line needs to be disconnected

Figure 3 – Clamp removed from tank connection

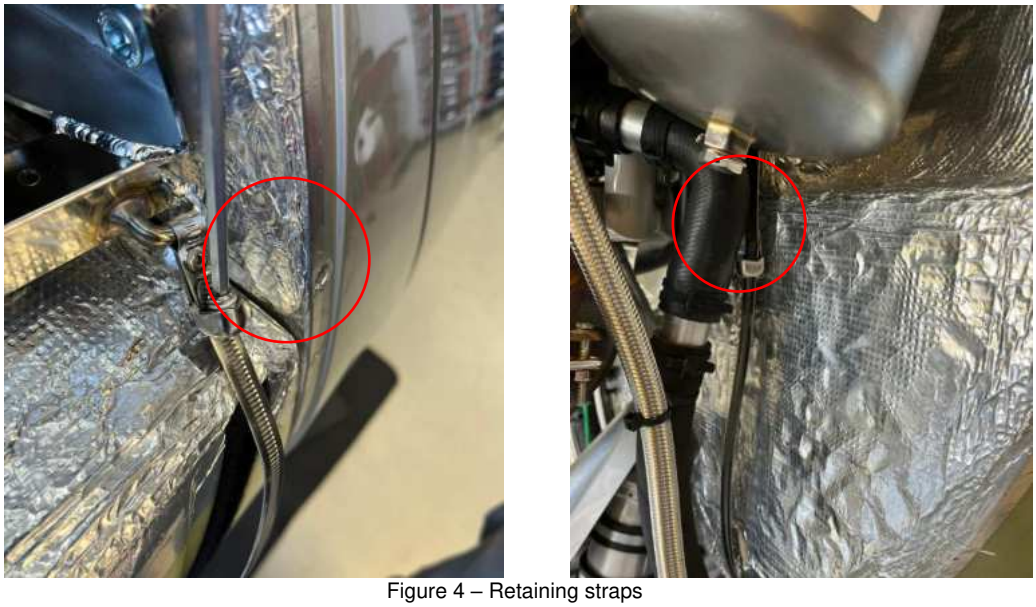


Figure 4 – Retaining straps

Figure 5 – Tank can be removed carefully

Figure 6 – Tank outlet to tank connection hose

Figure 7: Intercooler removed

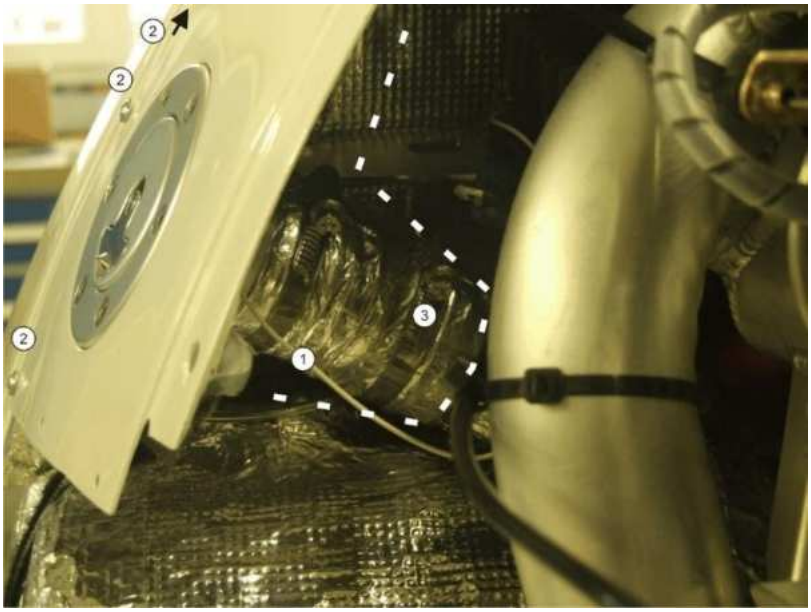


Figure 8 - LH tank ground connection and fuel hose clamp

Figure 9 – Fuel vent hose LH fuel tank

Figure 10 – Fuel shut-off valve needs to be disconnected

52-00-00 4-1 REMOVAL - INSTALLATION: COWLINGS AND FAIRINGS

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

Removal:

Upper engine cowling (Figure 1; 1) - Removal

1. Open all quick lock fasteners using a PH2 screw driver.
2. Completely remove inserts from specially marked fasteners, see shaded areas on Figure.1 (in total of 7 fastener)
3. With help of a second person carefully remove upper engine cowling.

Upper engine cowling (Figure 1; 1) - Installation

1. With the help of a second person bring engine cowling back into position.
2. Re-install all marked quick lock inserts.
3. Fasten all quick lock fasteners using a PH2 screw driver.

Lower engine cowling (Figure 1; 2) - Removal

1. Upper engine cowling must be removed!

RH cowling:

2. Remove all round head bolts with poly washers and maintain. Make sure not to lose poly washers. The cowling should be held by a second person.
3. With the help of the second person remove cowling. Make sure not to damage engine drain hoses.

LH cowling:

1. Remove the safety wire from the air filter and the air filter itself (Figure 2)
2. Perform work steps for 2 and 3 for LH cowling.

Lower engine cowling (Figure 1; 2) – Installation

1. Upper engine cowling must be removed.

RH cowling:

2. With the help of a second person bring cowling into position. Make sure to insert drain hoses without damage.
3. Insert round head bolts with poly washers and screw in without tightening, preferably working from top to bottom.
4. Fasten all bolts with 3 Nm.

LH cowling:

1. Perform wok steps 2-4 for RH cowling.
2. Re-install the air filter and the safety wire.

Mast cover – Removal

1. Upper engine cowling must be removed

Aft mast cover (Figure 1; 3):

2. Remove and maintain round head bolts with poly washers and the hexagon socket screw which hold the cylinder head cooling in place (Figure 3) and remove aft mast cover.

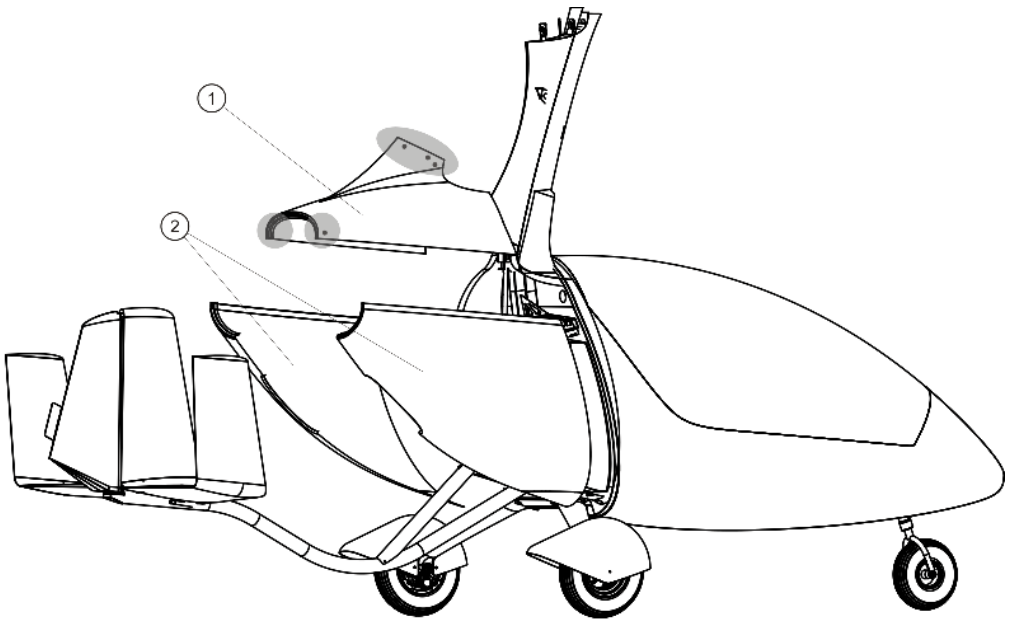
Forward mast cover (Figure 1; 4)

1. Disconnect fuel filler grounding connection.
2. Unscrew fuel hose clamp and disconnect from fuel filler.
3. Remove and maintain round head bolts with poly washers and the screw which is installed in the front of the fairing (Figure 3) and remove forward mast cover.

Mast cover – installation

1. Upper engine cowling must NOT be installed.
2. Install mast cover in reverse work order.

ILLUSTRATIONS



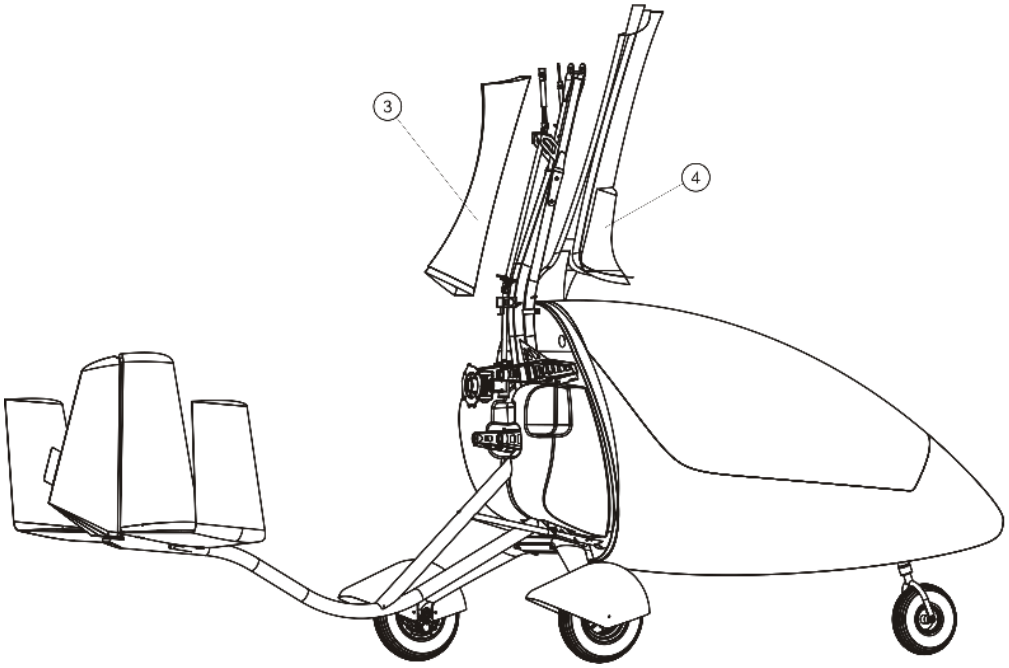


Figure 1 – Cowling and mast cover

Figure 2 – Air filter

Figure 3 – Screws for the cylinder head cooling tube

Figure 4 – Screw installed in the front of the forward mast cover

52-10-00 5-1 CHECK- ADJUSTMENT: CANOPY LOCKING MECHANISM

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Spring Balance/ Dynamometer (PN 34115)

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES/ DESCRIPTION

1. Measure breakout force to unlock the canopy lever at the outside of lever. In order to avoid unintended slip off, mask with tape or rubber padding. See Figure 1 for reference.
2. In case the breakout force is less than 40 N or more than 60 N adjust locking mechanism.
3. If impossible or in doubt, contact AutoGyro Technical Support.

ILLUSTRATIONS

Figure 1 – Measurement on canopy lever breakout

52-10-00 6-1 INSPECTION: CANOPY FRAME GAP

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 221 red (PN 30487)

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES/ DESCRIPTION

Measure canopy frame gap

1. Put a ball of plasticine/ modelling dough with approximately 10mm diameter in the area of locking mechanism (Figure 1).
2. Close and latch canopy until locking claw is in its detent position.
3. Open canopy and measure resulting thickness of plasticine.
4. A thickness of 2 mm or less is acceptable. If more, suitable spacers have to be retrofitted.

Retrofit of canopy spacers

1. Drill two 6 mm holes with distance of approx. 150mm (2x75mm) centred into upper canopy frame
   (Figure 2).
2. Insert 2x rivet nut (included in set 34709) using a rivet nut tool.
3. Screw on canopy spacers with appropriate height. Use Loctite 221 red on the threads.
4. Install scratch protector on lower cabin frame opposite of the spacers.
5. Check correct function of door latch and adjustment of canopy locking mechanism, see Job Card 52-10-00 5-1. If necessary, rework or use spacer with different height.

PARTS LIST

Figure	Position	Description	PN	Remarks
4		Canopy Spacer	34709	

ILLUSTRATIONS

Figure 1 – Plasticine ball (modelling dough) on fixed canopy frame

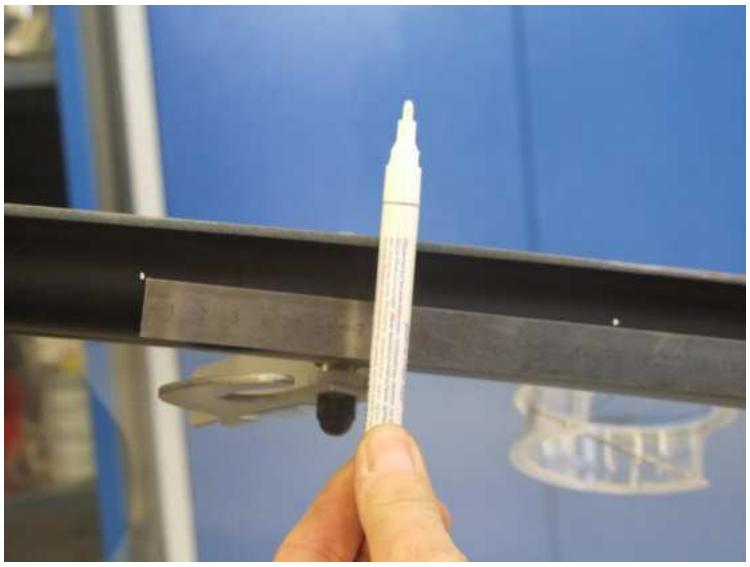


Figure 2 – Positions for attachment bores

Figure 3 – Attachment bores drilled

Figure 4 – Canopy spacers installed

52-40-00 2-1 DESCRIPTION: SERVICE COVERS IN COCKPIT SHELL

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PROCEDURES/DESCRIPTION

There are several covers in the Calidus cockpit which needs to be removed to get access to parts of the aircraft which needs to be inspected for maintenance purposes or needs access for mechanical repairs and/or replacements.

Service cover underneath the back seat

Underneath the back seat there are three access panel.

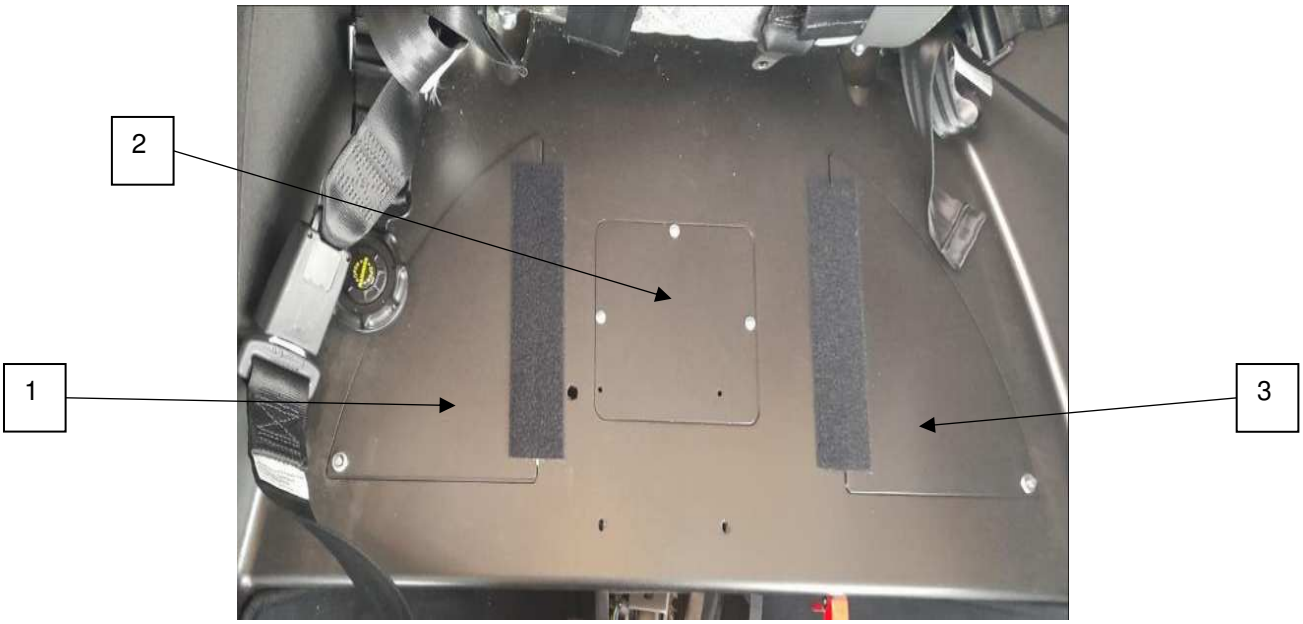


Figure 1

The middle cover (2) removed will give access to the compressor and the filter/dryer unit for the pneumatic system and parts of the steering.

Figure 2

Figure 3

The cover on the right side in the direction of flight (1) has to be removed to get to the pneumatic system. And to the static port and the connected static hose. The cover on the left side (3) needs to be removed for checking the static port L/H.

Service cover in the front of the aircraft

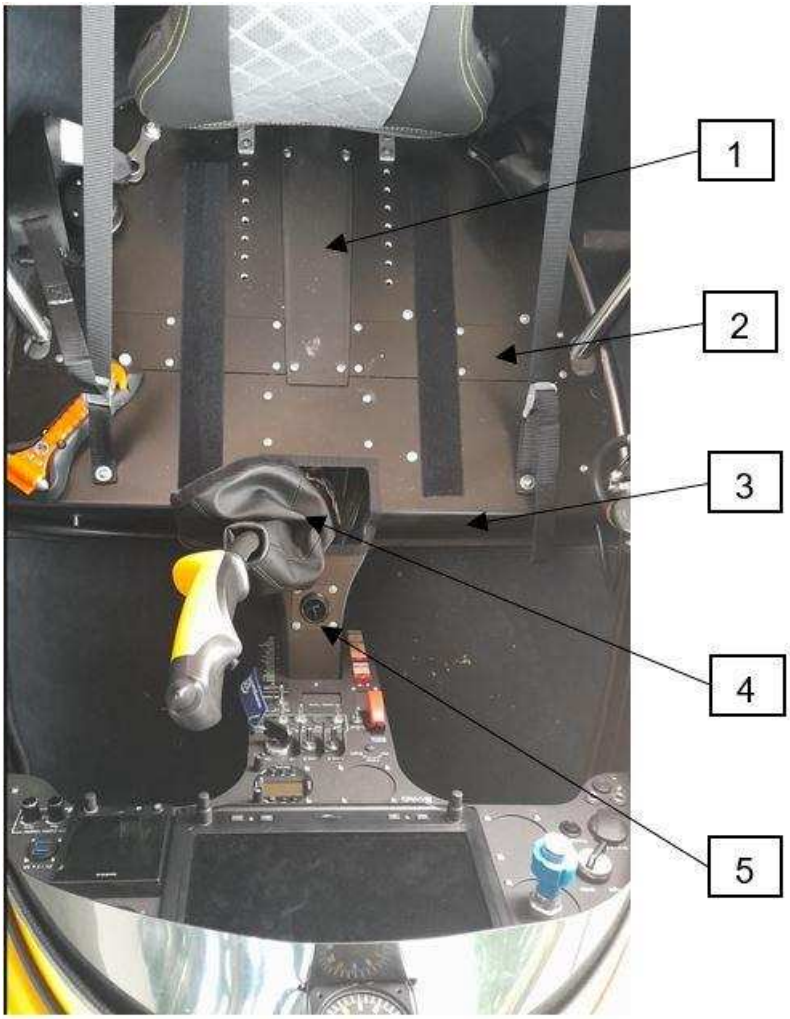


Figure 4

1 – cover underneath the front seat to the rear stick – access to parts of the steering

2 – cover on the pedals and the teflon bearings

3 – covers left and right – storage and access to inspect parts of the aircraft

4 – leather bag (same with rear stick) – access to stick connection/ parts of steering

5 – ventilation nozzle cover – access to inspect the forward bearing of the main control rod

53-00-00 6-1 INSPECTION: MAIN FRAME WELD SEAMS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Engine cowlings must be removed, see Job Card 52-00-00 4-1

Mast cover must be removed, see Job Card 52-00-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES

1. Inspect all main frame weld seams.
2. If a crack is detected, contact AutoGyro Technical Support.

ILLUSTRATIONS

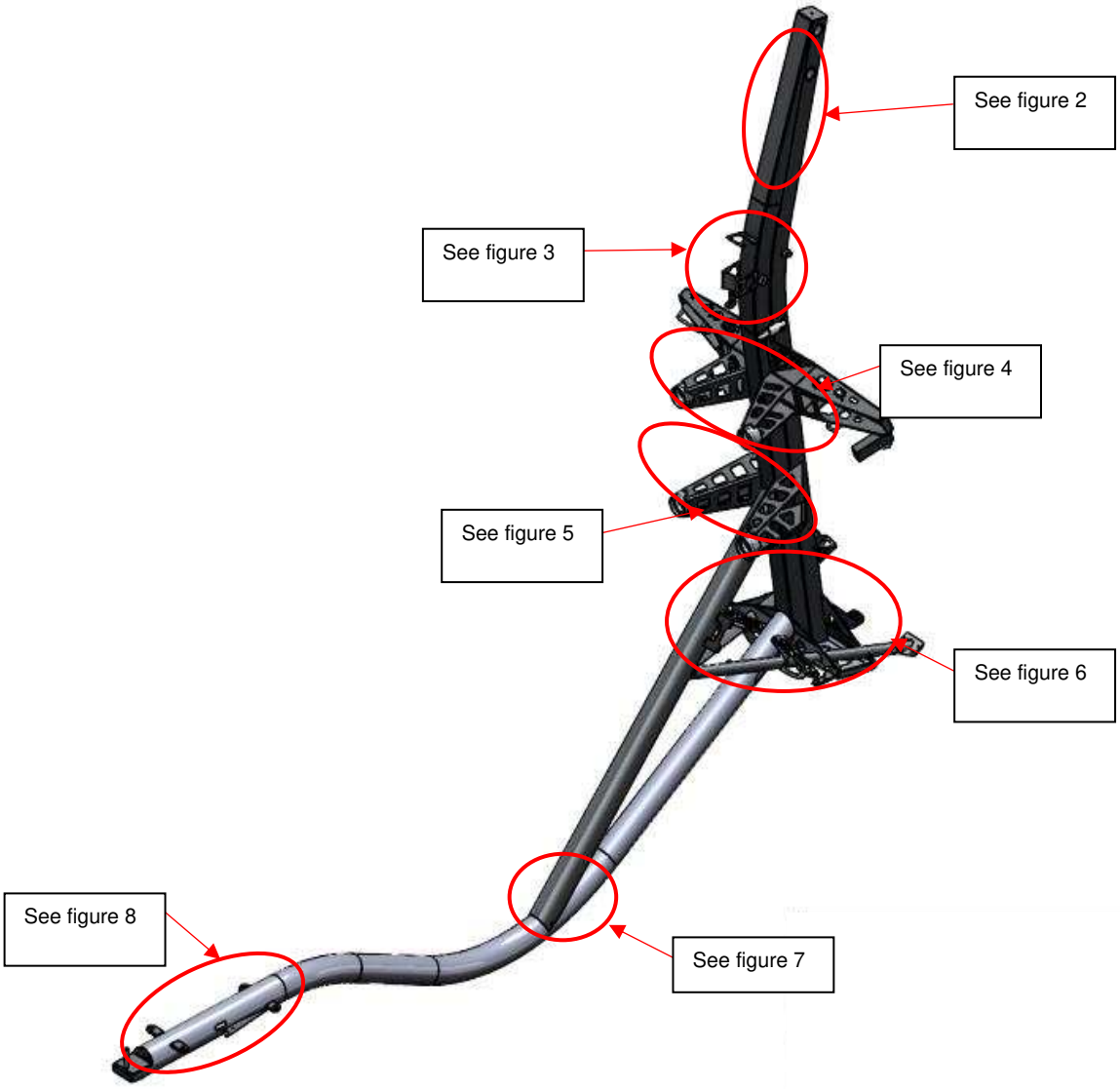


Figure 2 – Welding seams

Figure 3

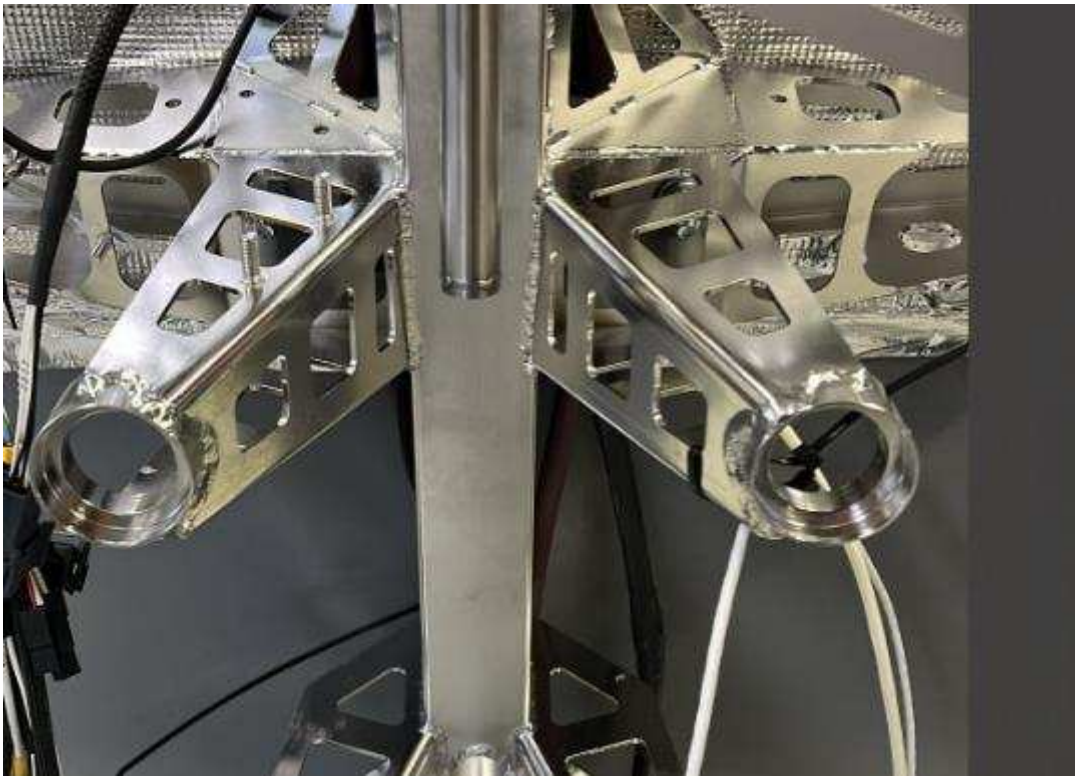


Figure 4 – Welding seams

Figure 5 – Welding seams

Figure 6 – Welding seams

Figure 7 – Welding seams

Figure 8 – Welding seams

53-20-00 4-1 REMOVAL - INSTALLATION: ENGINE SUPPORT ARM

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES/ DESCRIPTION

Removal

1. Loosen the nut on the lower attachment point and remove the bolt (Figure 1).
2. Loosen the two screws which are holding the engine support arm on the gear box (Figure 2, 3). Engine support arm can be removed now.
3. Loosen the two screws (Figure 4) installed in the clamp on the keel tube. Remove the screws and the clamp can be removed as well if rubber damper needs replacement.

Installation

1. Re-install the engine support arm with the distance and the two screws on the propeller gear box.
2. Unload the engine with 40kg by lifting it at the engine lifting points.
3. Re-install the engine support arm to the keel tube.
4. Check if the thrust angle of the engine is set to a maximum of 2.5° pointing downwards (see figure 6)
5. Torque-tighten the screws on the clamp and the bolt at the lower attachment point. Remove the screws at the upper attachment point one by one, apply Loctite 243 and torque-tighten.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Motor support tube welded	NPI	
1	2	engine support welded	NPI	
1	3	half clamp	NPI	
1	4	engine mount distance	12651	
1	5	spacer engine mount	NPI	
1	6	silent block engine mount	13813	
1	7	washer engine mount	20180	
1	8	M8x20	NPI	
1	9	U8 A2	NPI	
1	10	M8, SI	20121	
1	11	M10x30	NPI	
1	12	M10 67/18 A4-80	NPI	
1	13	U10	NPI	
1	14	M10 Si A4-80	43885	
1	15	M10x25	NPI	
1	16	Spacer Sleeve	NPI	

Illustrations

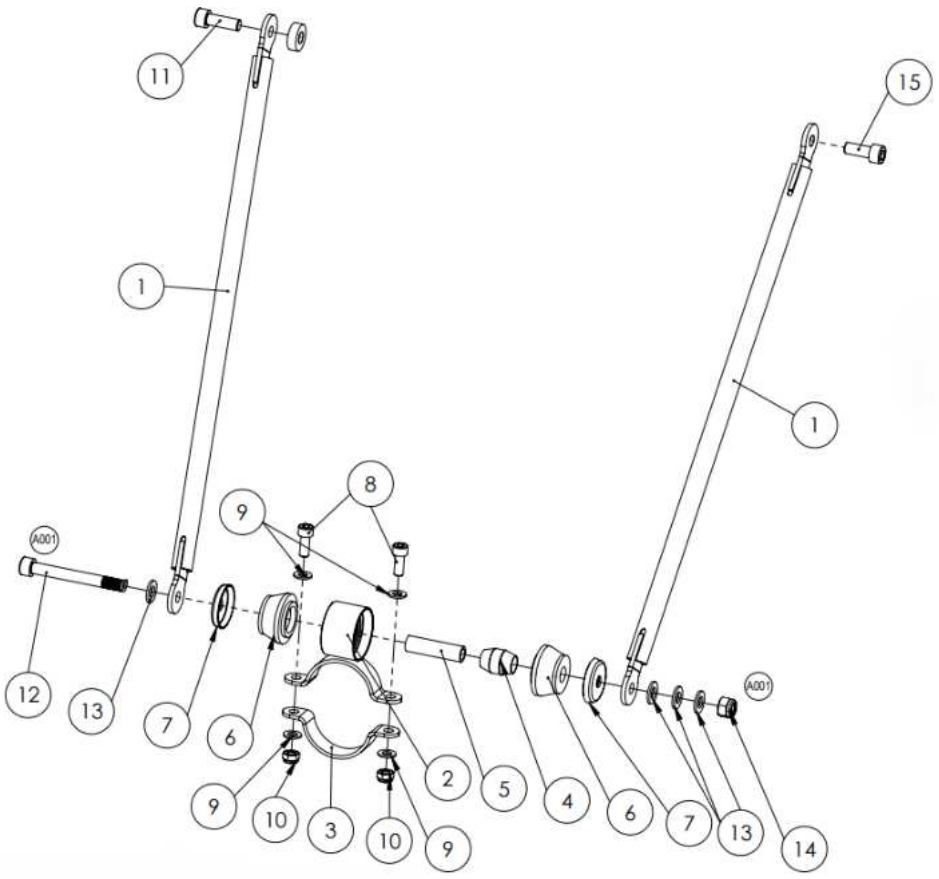


Figure 1 – drawing engine support arm

Figure 2 – Lower attachment of the engine support arm

Figure 3 and 4 – Upper attachment points at the gear box

Figure 5 – Screws on the clamp on the keel tube

Figure 6 – thrust angle

55-00-00 8-1 REPLACEMENT: KEEL TUBE PROTECTION PAD

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Line Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 221 red (PN 30487)

IMPORTANT NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES

1. Remove two bolts and replace protection pad.
2. Apply Loctite 221 red on threads of bolts and tighten.

PARTS LIST

Figure	Position	Description	PN	Remark
1	1	Skid Plate keel	31484	Bolts are included in kit

ILLUSTRATIONS

Figure 1 – Installation position of keel tube protection pad

56-00-00 8-1 REPAIR: CRACKS IN ACRYLIC GLASS

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

Repair only by a competent person.

Absolute cleanliness at any time during execution of the procedure must be ensured.

The following procedure is only approved for ductile (not brittle) canopies and windows without IR-/UV-protection of AutoGyro aircrafts.

Part must be in removed condition for executing the procedure.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Acrofix

PRECAUTIONS AND SAFETY MEASURES

WARNING: Do not execute procedure in pilot´s line of sight!

CAUTION: Acrylic glass may not get in contact with thinners, alcohol, fuels etc.

Window cleaner contain mostly alcohol. Vapours of thinners in workshops are also damaging.

NOTE: The material strength in the area of repair is impaired.

NOTE: Adhesive (AGOVIT® 1900 + KATALYSATOR 20) must be processed as quick as possible.

PROCEDURES

1. Clean acrylic glass with dishwashing liquid solution (2-3 drops per 0.2 l lukewarm tap water) and a clean sponge; let air dry or dry with damp chamois leather; for the repair material and adhesive should have a temperature of approx. 20°C.
2. Ensure a clean work environment with a temperature of approx. 20°C and good lighting conditions (day light is recommended).
3. Recommendation: If possible temper the acrylic glass at 80°C before and after the repair for avoiding stress cracks – material thickness divided by 3 to get the tempering duration in hours.
4. Stop drill the crack at the end using a 1.5 mm drill bit.
5. Fix crack with adhesive tape on the material bottom side, mill with low revolutions per minute (approx. 3000 min-1) and low pressure a channel into material top side using a small multifunction rotary tool (Figure 1).
6. Remove shavings carefully.
7. Position material so the crack is horizontal and mask the surrounding, intact acrylic glass with adhesive tape. Keep a distance to the edge of the channel of approx. 2 mm.
8. Stir AGOVIT® 1900 with 3-6 % hardener KATALYSATOR 20 in a PE-cup or glass bubble-free using a glass or metal stirring rod.

9. The adhesive must be applied in layers of approx. 2 mm thickness into the channel. The first layer must cover all areas of the channel and must protrude approx. 2 mm over the channel edge (Figure 2).
10. Any air bubbles or dirt particles can be pushed into the bead of adhesive to the top, as this will later be sanded away again. Next layers will be applied when the last layer is after approximately one hour hardened so far that it is not possible to push a nail or wire in.
11. After application of the last layer let adhesive seam harden for two hours at approx. 20°C.
12. Turn material upside-down.
13. Mill with low revolutions per minute (approx. 3000 min-1) and low pressure a channel into material bottom side using a small multifunction rotary tool (Figure 3).
14. Proceed as in steps 7-10 (Figure 4).
15. Sand adhesive area as follows, begin with the convex outside of the acrylic glass.
16. Create dishwashing liquid solution (2-3 drops per 0.2 l lukewarm tap water). Sand with grit 320 wet sandpaper and dishwashing liquid solution to the surface of the tape.
17. When the adhesive tape is scratched, remove these and shade the area extensively with a felt pen (Edding blue or red).
18. Create new dishwashing liquid solution (2-3 drops per 0.2 l lukewarm tap water). Rinse to be sanded area and aids with dishwashing liquid solution. When carrying on wet sanding with grit 600 and dishwashing liquid solution can now be seen exactly where material is removed.
19. Create new dishwashing liquid solution (2-3 drops per 0.2 l lukewarm tap water). Rinse to be sanded area and aids with dishwashing liquid solution. Shade again (Edding blue or red) before reaching the surrounding surface and continue sanding with grit 900 wet sandpaper and dishwashing liquid solution until the shaded area and the adhesive bead are equally abraded.
20. Create new dishwashing liquid solution (2-3 drops per 0.2 l lukewarm tap water). Rinse to be sanded area and aids with dishwashing liquid solution. With MicroMesh abrasive cloth grit 3200, a cellular rubber sanding block and dishwashing liquid solution to carry on wet sanding until the surface is uniformly rough.
21. Create new dishwashing liquid solution (2-3 drops per 0.2 l lukewarm tap water). Rinse to be sanded area and aids with dishwashing liquid solution. Finish-sand with Micro Mesh abrasive cloth grit 8000, a cellular rubber sanding block and dishwashing liquid solution.
22. Create new dishwashing liquid solution (2-3 drops per 0.2 l lukewarm tap water). Clean acrylic glass with dishwashing liquid solution and a clean sponge; let air dry or dry with damp chamois leather.
23. Polish with a polishing pad and polishing agent XERAPOL®. Applicate a pea-sized mass of polishing agent in the polishing pad. The speed must be selected not higher than approx. 800 min-1. The polishing pad may not be used for too long on one place. Remove at regular intervals used polishing agent with an unused polishing cloth and repeat the process with new polishing agent. The XERAPOL® should result in a closed, silky shimmering layer during polishing. If this is not the case, the amount of polishing agent is too small.

ILLUSTRATIONS

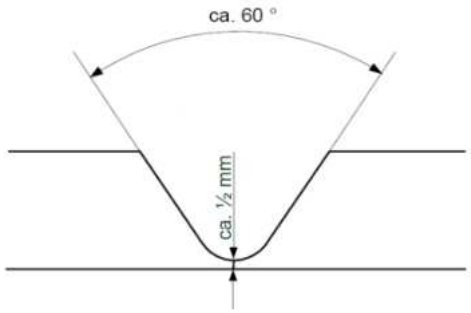


Figure 1 – Milling of a channel on material top side

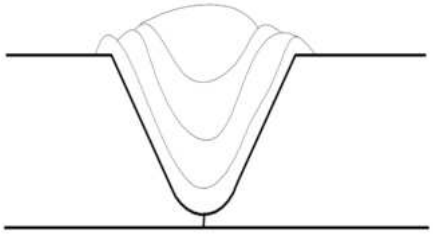


Figure 2 – Filled channel on material top side

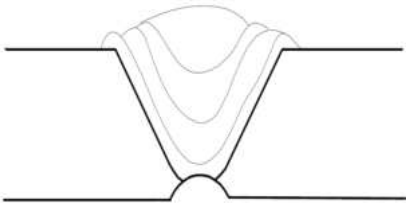


Figure 3 – Channel on material bottom side

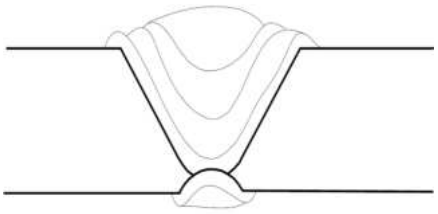


Figure 4 – Filled channels on material top and bottom side

61-10-00 4-2 REMOVAL-INSTALLATION: PROPELLER - HTC

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

PRECAUTIONS AND SAFETY MEASURES

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

PROCEDURES/ DESCRIPTION

Removal

1. Before removing the spinner (optional equipment) check marking (filed notch) is available on spinner and spinner base plate. If not, the installation position has to be marked accordingly (paint or tape mark).
2. Unscrew and remove bolts with poly washers (Figure1; 8, 9) and remove spinner (Figure1; 1).
3. Mark installation position of propeller hub, engine flange and spinner base plate (if installed) relative to each other.
4. Release torque on each bolt (Figure 1; 4) by turning bolt half a revolution in counter-clockwise direction. Do not untighten or unscrew bolts!
5. Unscrew and remove bolts (Figure 1; 2) and washers (Figure 1; 3).

Installation

1. Install propeller hub, bolts (Figure 1; 2) with washers (Figure 1; 3) in its original installation position.
2. Torque-tighten bolts (Figure 1; 2) with 15 Nm in crosswise sequence.
3. Torque-tighten bolts (Figure 1; 4) with 10 Nm in crosswise sequence.
4. Install spinner (Figure 1, 1), spinner bolts with poly washers. Make sure spinner is in correct installation position relative to spinner base plate. Check marking.
5. Secure spinner bolts (Figure 1; 8) with Loctite 243 and torque-tighten with 3 Nm in crosswise sequence.

Note: Paint marks between the propeller attachment bolt protruding threads and the captive flange nut are recommended.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	spinner HTC4B, painted	46905	
1	2	M8x130	NPI	
1	3	U8/24	NPI	
1	4	M6x40	NPI	
1	5	Hub 4B-LK101, 6-47 front	NPI	
1	6	Propeller Blade CCW-172, cut	35393	
1	7	Hub 4B-LK101, 6-47 rear	NPI	
1	8	M4 x 12	NPI	
1	9	U4, Poly	NPI	
1	10	Base Plate	46906	
1	11	Torque bush spacer	NPI	
1	12	Spacer	NPI	

Note that the propeller blades may be purchased separately, or as a complete propeller with pre-set blade pitch to suit the engine variant required. The blades and hub (front and rear as a pair) carry serial identification (same number on both parts).

ILLUSTRATIONS

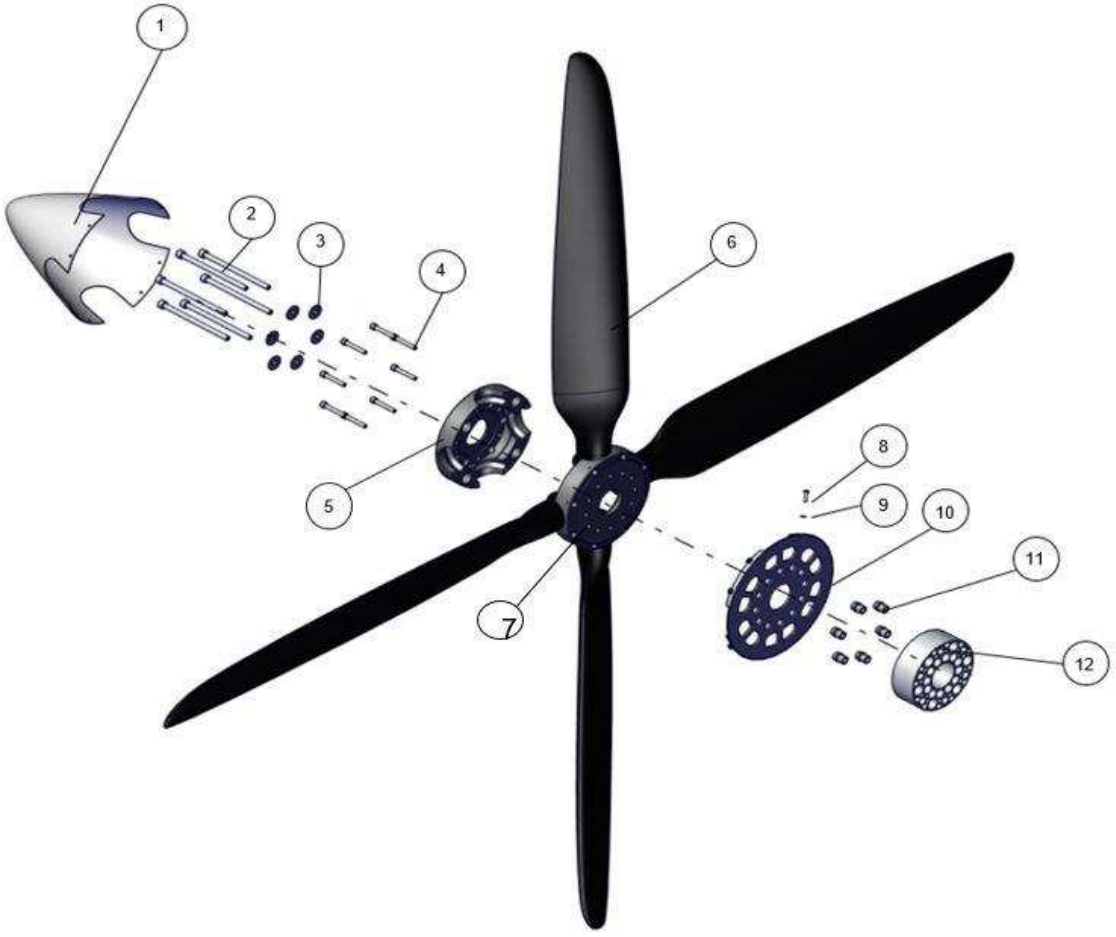


Figure 1 – HTC 4 Blade Propeller with Spinner and Base plate

61-10-00 4-3 DISASSEMBLY - ASSEMBLY: PROPELLER - HTC

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Propeller must be removed, see Jab Card 61-10-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

Disassembly

1. Mark inner and outer propeller hub to indicate relative installation position.
2. Place propeller assembly on a horizontal and clean surface and support propeller hub so that assembly does not lie on propeller blades.
3. Unscrew and remove bolts (Figure 1; 1).
4. Remove outer propeller hub and remove individual blades.

Assembly

1. Place inner propeller hub on horizontal and clean surface and support propeller hub.
2. Insert individual blades in correct position.
3. Attach outer propeller hub, insert bolts (Figure 1; 1) and hand-tighten.
4. Torque-tighten bolts with 10 Nm in crosswise sequence.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	spinner HTC4B, painted	46905	
1	2	M8x130	NPI	
1	3	U8/24	NPI	
1	4	M6x40	NPI	
1	5	Hub 4B-LK101, 6-47 front	NPI	
1	6	Propeller Blade CCW-172, cut	35393	
1	7	Hub 4B-LK101, 6-47 rear	NPI	
1	8	M4 x 12	NPI	
1	9	U4, Poly	NPI	
1	10	Base Plate	46906	
1	11	Torque bush spacer	NPI	
1	12	Spacer	NPI	

ILLUSTRATIONS

Figure 1 – Propeller and Hub

61-10-00 5-1 ADJUSTMENT: PROPELLER PITCH - HTC

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Spinner (if installed) must be removed, see Job Card 61-10-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Propeller Pitch Adjustment Tool (PN 30492)

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

1. Untighten bolts (Figure 1; 4) so that bolt heads do not contact outer propeller hub.
2. Unscrew bolts (Figure 1; 2) about 2 revolutions.
3. Position propeller pitch adjustment tool with the inner side on outer propeller hub and profiled section on the propeller blade. (over the surface of the tool where it has contact with the hub to avoid paint damages)
4. Carefully adjust blade pitch by tapping with a 200 g rubber hammer in the area of the blade's nose section so that blade pitch increases or decreases. Never use hammer on trailing edge as the blade may be damaged that way.
5. In order to read the correct setting it is advisable to let the blade's trailing edge rest in (touch) the tool while allowing a small light gap between blade's back and the tool's profiled section.
6. Repeat work steps 3 to 5 for the remaining blades.
7. Hand-tighten bolts (Figure 1; 1) and (Figure 1; 2) and check blade pitch setting for all blades. If necessary, untighten bolts and re-do from step 1. Ensure the all blades have the same pitch within 0.3deg.
8. Torque-tighten M8 bolts (Figure 1; 2) with 15 Nm in crosswise sequence.
9. Torque-tighten M6 bolts (Figure 1; 4) with 10 Nm in crosswise sequence.
10. Perform torque-check after first flight or ground run.

    Flight test should indicate 5400 engine rpm in 60mph (100km/h) climb.

Note: In the absence of a gauge, the propeller is set with an inclinometer measuring the angle of the blade chord to the thrust line at ¾ blade radius, with the blade set horizontally. The angle required is 20 deg.

ILLUSTRATIONS

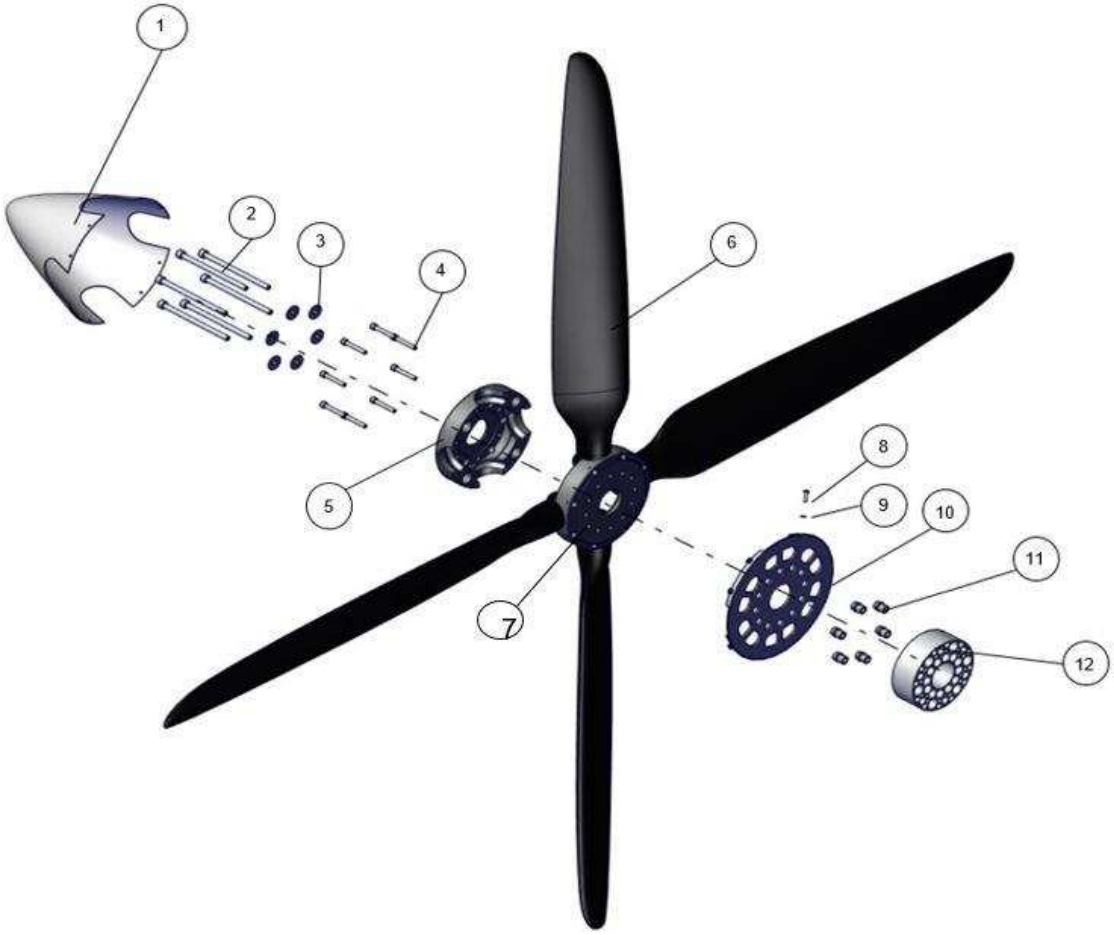


Figure 1 – Propeller and Hub

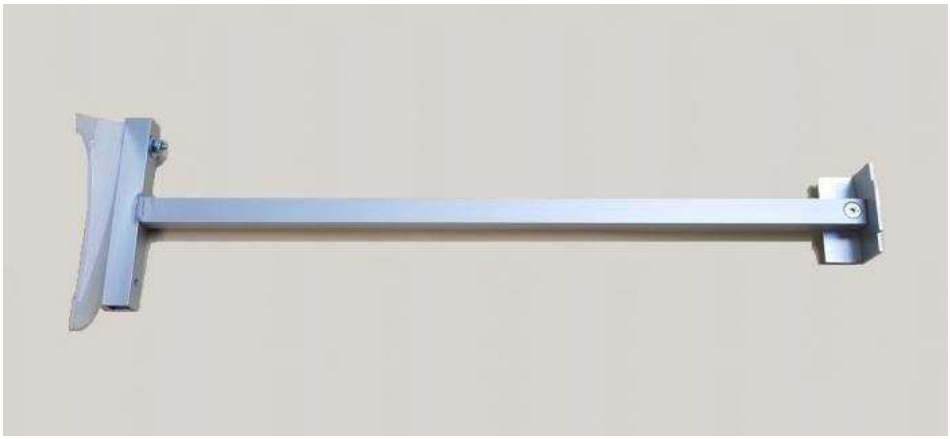


Figure 2 - Propeller pitch adjustment and tool

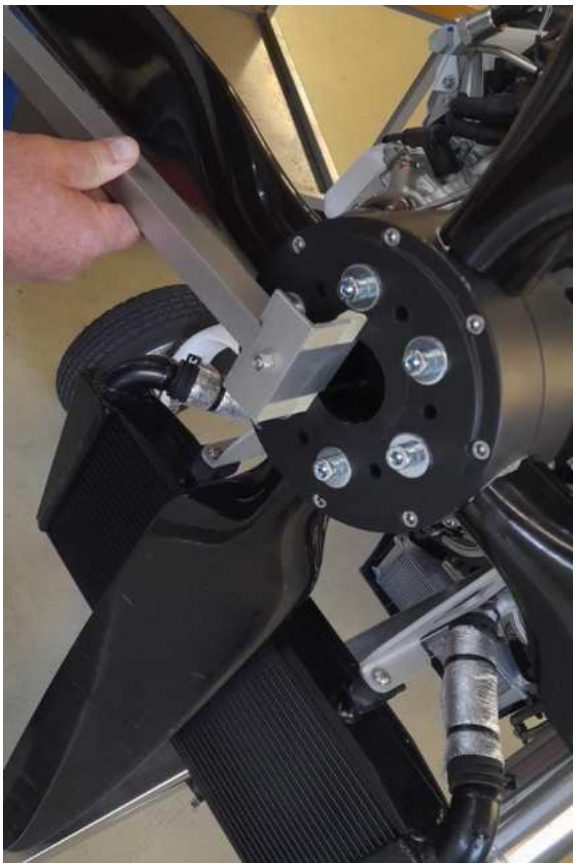


Figure 3 – Hub detail

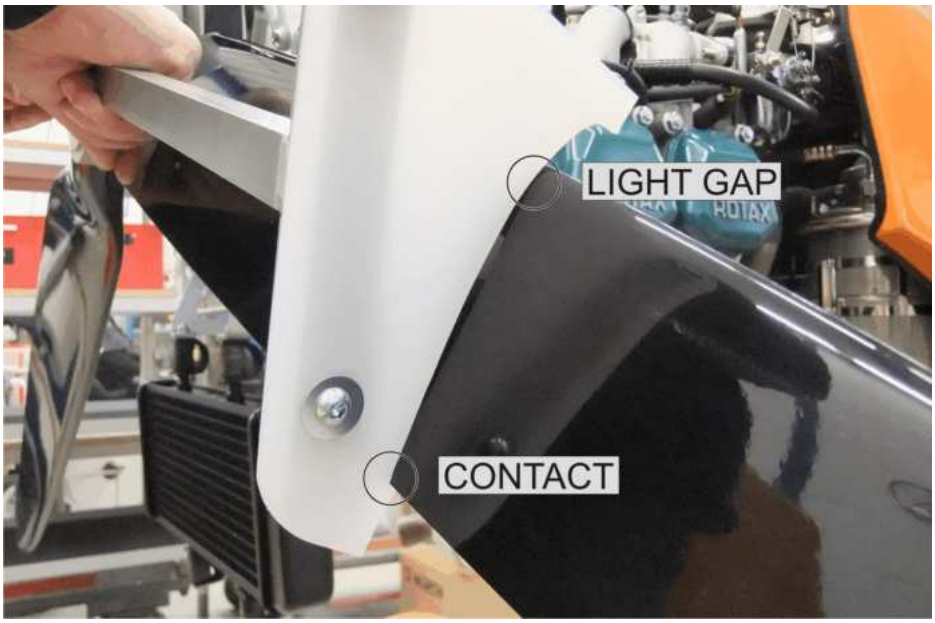


Figure 4 – Blade detail

61-10-10 4-1 REMOVAL - INSTALLATION: PROPELLER - WOODCOMP

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Screw locking varnish (PN 33587, PN3588, PN 33591, PN 33586, PN 33592)

PRECAUTIONS AND SAFETY MEASURES

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

PROCEDURES/ DESCRIPTION

Removal

1. Before removing the spinner check marking (red dot) is available on spinner and spinner base plate. If not, the installation position has to be marked accordingly (paint or tape mark).
2. Unscrew and remove 9 bolts with poly washers (Figure 3; 2,3) and remove spinner (Figure 3; 1).
3. Release torque on each bolt (Figure 4) by turning bolt half a revolution in counter-clockwise direction. Do not untighten or unscrew bolts!
4. Unscrew and remove bolts (Figure 4).

Note: For detailed instructions and Consumables please refer to the Manufacturers Maintenance Manual!

Installation

1. Install propeller hub, bolts (Figure 4) in its original installation position.
2. Torque-tighten M8 bolts (Figure 4) with 22 Nm in crosswise sequence (915 engine only!) Lock the nuts with locking varnish.
3. Torque-tighten M10 bolts (Figure 4) with 43 Nm in crosswise sequence (916 engine only!) Lock the nuts with locking varnish.
4. Install spinner (Figure 3; 1), spinner bolts with poly washers (Figure 3; 2,3). Make sure spinner is in correct installation position relative to spinner base plate. Check marking.

Note: Paint marks between the propeller attachment bolt protruding threads and the captive flange nut are recommended.

Note: For detailed instructions and Consumables please refer to the Manufacturers Maintenance Manual!

PARTS LIST

Figure	Position	Qty.	Description	PN	Remarks
1			Propeller KW30 hydraulic 915 white	48705	Rotax 915 engine
1			Propeller KW30 hydraulic 915 carbon	48231	Rotax 915 engine
1			Propeller KW30 hydraulic 916 white	49234	Rotax 916 engine
1			Propeller KW30 hydraulic 916 carbon	49233	Rotax 916 engine

ILLUSTRATIONS

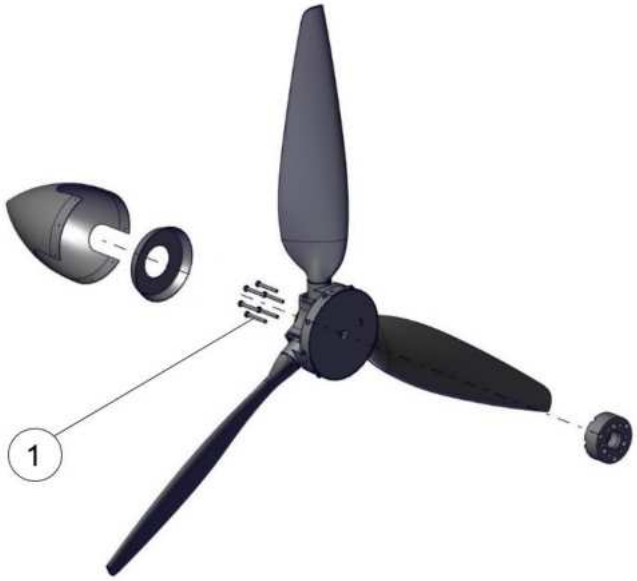


Figure 1 – Woodcomp KW30 propeller

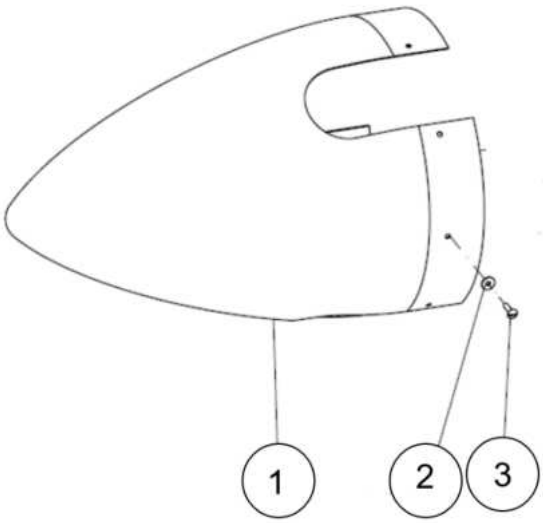


Figure 2 – Woodcomp spinner

Figure 3 – Propeller hub bolts

62-11-00 4-1 REMOVAL: ROTOR - TEETERING PARTS

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 221 red (PN 30487)

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

PRECAUTIONS AND SAFETY MEASURES

WARNING: Wear eye protection and mind FOD when removing attachment hardware!

WARNING: Object is heavy! Inadequate handling could cause injury. Use proper lifting techniques or assistance!

WARNING: Never place the rotor system on a dirty or grainy surface and avoid bending moments at the blade attachments!

WARNING: When handled incorrectly the rotor system can be damaged irreparably. If undetected this may have catastrophic consequences!

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

IMPORTANT NOTE: Some rotor blades have loose washers in them which are required as balance weights. Do not remove or restrain if present!

PROCEDURES/ DESCRIPTION

1. Secure the gyroplane on level ground by engaging the parking brake, adjust the rotor system lengthwise and pump up the rotor brake to its maximum.
2. Remove and discard split pin and unscrew the castellated nut (Figure 1; 4). The rotor system has to be tilted onto the black rotor teeter stop.
3. The teeter bolt (Figure 1; 1) has to be extracted by using only the hand, not a hammer. If needed tilt the rotor blades carefully onto the teeter stop, in order to prevent the bolt from jamming. Make sure that the rotor stays level in the teeter axis, if not the teeter bolt will damage the Teflon coated bushes, while being pushed out.
4. A supervised second person has to hold the rotor system in flying direction.
5. Lift the rotor system carefully out of the teeter tower and be aware of the position of the shim washers (Figure 1; 2). Their thicknesses may differ and it is essential that they are reinstalled on the correct side! They are marked with dots to identify the correct side.
6. Remove the rotor system to one side by letting it rest on your shoulder and take care not to collide with stabilizer or propeller.
7. The shim washers and the teeter block in the hub are marked on each side with one or two engraved dots. Directly after the disassembly the shim washers need to be fixed on their respective side with cable ties.

8. If possible, handle with two persons while holding approximately in the middle of each blade. When supporting the system use two stands each positioned in about 2 metres distance from the hub.
9. The rotor system must not be placed on a dirty or grainy surface, as the blades can scratch and damage easily. The best way is to place the rotor blades centrally onto two stands, supporting the rotor at approximately 2 m distance from the hub.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Teeter bolt	20718	
1	2	Shim Washer 3, 5	21959	
1	3	U13	20085	
1	4	M12 castle nut	20726	
1	5	Split Pin 3,2x40	20391	
1	6	Teetertower, mounted	43567	
		Teeterbolt Kit (With TefMet bushings)	30256	

ILLUSTRATIONS

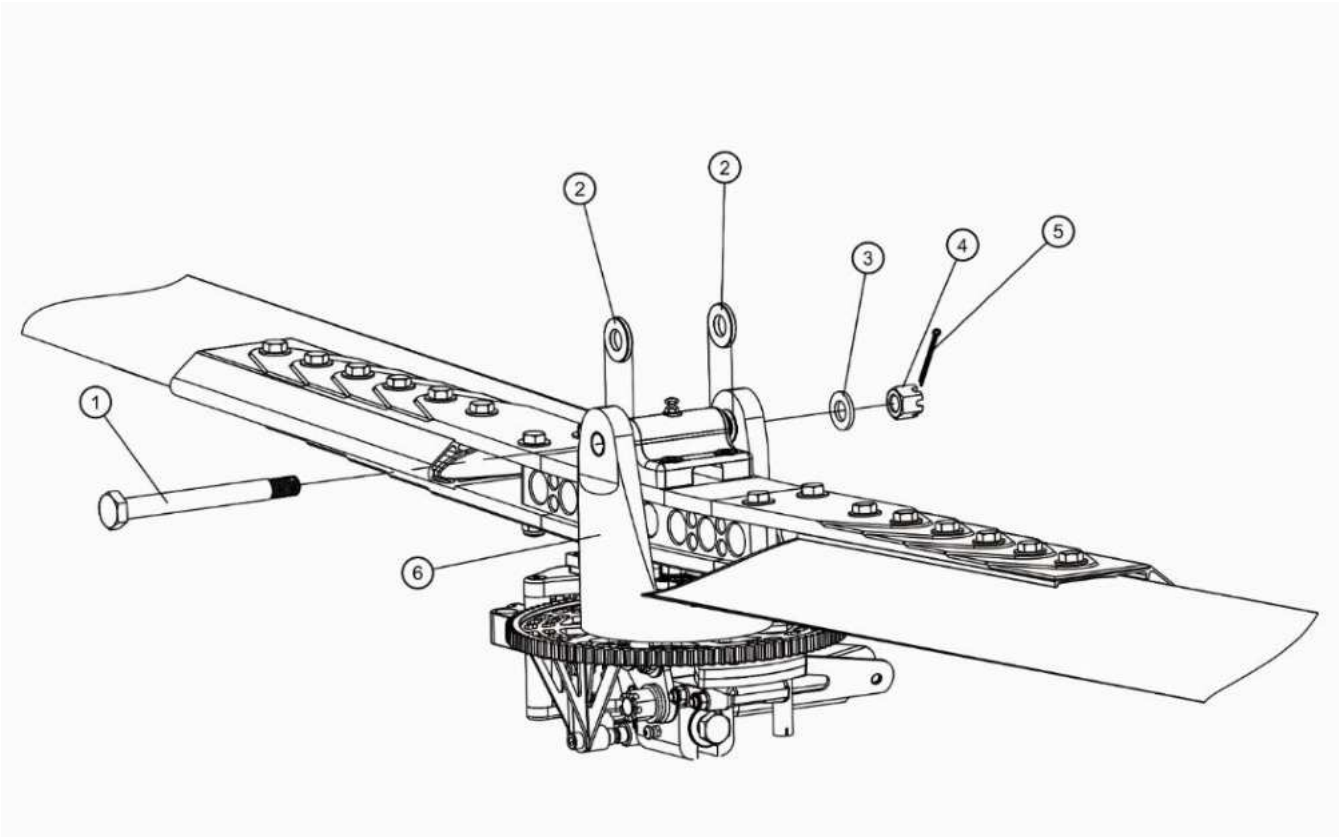


Figure 1 –Removal rotor – teetering parts

62-11-00 4-2 DISASSEMBLY: ROTOR - TEETERING PARTS

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

Rotor system must be removed, see Job Card 62-11-00 4-1!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

PRECAUTIONS AND SAFETY MEASURES

WARNING: When handled incorrectly the rotor system can be damaged irreparably. If undetected this may have catastrophic consequences!

CAUTION: The rotor hub must never be disassembled!

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

PROCEDURES/ DESCRIPTION

1. To disassemble the rotor system, place it upside down onto a clean surface or stands to support the rotor at approximately 2 m from the hub.
2. Untighten and discard self-locking nuts (Figure 1; 9) on the first blade by counter-holding the corresponding bolt head to prevent it from turning.
3. Push out all shoulder bolts (Figure 1; 1 - 5) without any force, but use no more than a gentle tapping if necessary. Tilt the rotor blade up and down to support easy removal of the bolt.
4. Carefully pull the rotor blade out of the hub (Figure 1; 7) in radial direction and take off the clamping profile (Figure 1; 10).
5. Repeat step 2 to 4 on second rotor blade.

IMPORTANT NOTE: Do not disassemble the rotor hub!

6. Place rotor blades, clamping profile and rotor hub in a suitable way to prevent bending or surface damage.

   IMPORTANT NOTE: Do not lift or support the rotor system at its blade tips as the bending moment due to the weight of the hub assembly may overstress the blade roots. If possible, handle with two persons while holding approximately in the middle of each blade. When supporting the system use two stands each positioned in about 2 metres distance from the hub.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Shoulder Bolt M8 37/12	NPI	
1	2	Shoulder Bolt M8 40/12	NPI	
1	3	Shoulder Bolt M8 43/12	NPI	
1	4	Shoulder Bolt M8 46/12	NPI	
1	5	Shoulder Bolt M8 49/12	NPI	
1	6	U8	20393	
1	7	Rotor Hub II	NPI	
1	8	U9/20	NPI	
1	9	M8, Si	20121	
1	10	Clamping profile blade	NPI	
1	11	Rotor blade	NPI	
		Replacement Set Bolts Rotorsystem II	33324	

ILLUSTRATIONS

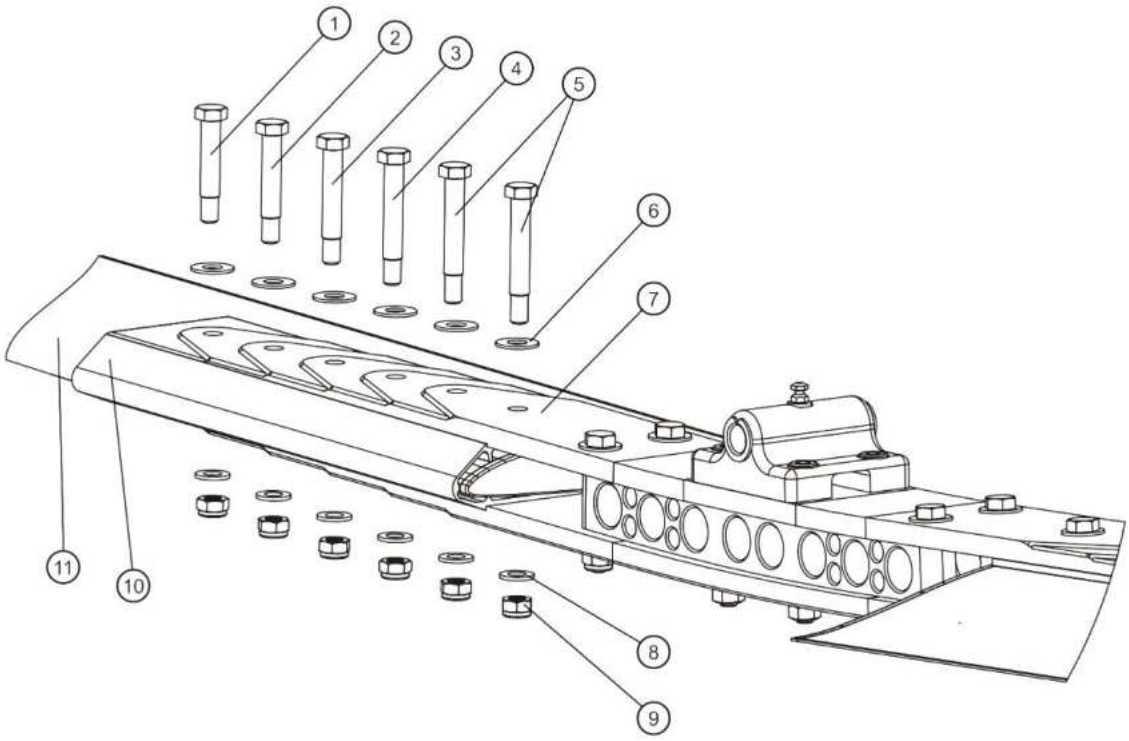


Figure 1 – Rotor teetering parts

62-11-00 4-3 ASSEMBLY: ROTOR - TEETERING PARTS

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Adhesive Lubricant HHS 2000 (PN 30476)

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

PRECAUTIONS AND SAFETY MEASURES

WARNING: When handled incorrectly the rotor system can be damaged irreparably. If undetected this may have catastrophic consequences!

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

PROCEDURES/ DESCRIPTION

1. The rotor blades (Figure 1; 11), clamping profile (Figure 1; 10) and rotor hub (Figure 1; 7) are each labelled with an engraved serial number.
2. Insert the first rotor blade carefully into the clamping profile. Make sure that all serial numbers match.

IMPORTANT NOTE: Grease shaft with HHS 2000, but do not allow HHS 2000 to come into contact with threads at any time!

3. Fit the rotor hub side with the according serial number to clamping profile (Figure 1; 10) and blade (Figure 1; 11). Insert 6 x shoulder bolts (Figure 1; 1-5) and corresponding washers (Figure 1; 6) without using force so that the bolt end is on top when the rotor system is installed. For re-identification and correct installation position the shaft length is provided in the figure above. Example: 40/12 means shaft length 40mm.
4. Position the washers (Figure 1; 8) and the self-locking nuts (Figure 1; 9) and hand-tighten.
5. Torque-tighten nuts (Figure 1; 9) with 20 +/- 5 Nm from the inside to the outside. When doing so, counter-hold bolts (Figure 1; 5) to prevent any damage to the hub and blade holes.
6. Repeat work steps 2 to 5 for the second rotor blade.
7. Check rotor system alignment according to Job Card 62-11-00 5-1 and adjust, if necessary.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Shoulder Bolt M8 37/12	NPI	
1	2	Shoulder Bolt M8 40/12	NPI	
1	3	Shoulder Bolt M8 43/12	NPI	
1	4	Shoulder Bolt M8 46/12	NPI	
1	5	Shoulder Bolt M8 49/12	NPI	
1	6	U8	20393	
1	7	Rotor Hub II	NPI	
1	8	U9/20	NPI	
1	9	M8, Si	20121	
1	10	Clamping profile blade	NPI	
1	11	Rotor blade	NPI	
		Replacement Set Bolts Rotorsystem II	33324	not shown

ILLUSTRATIONS

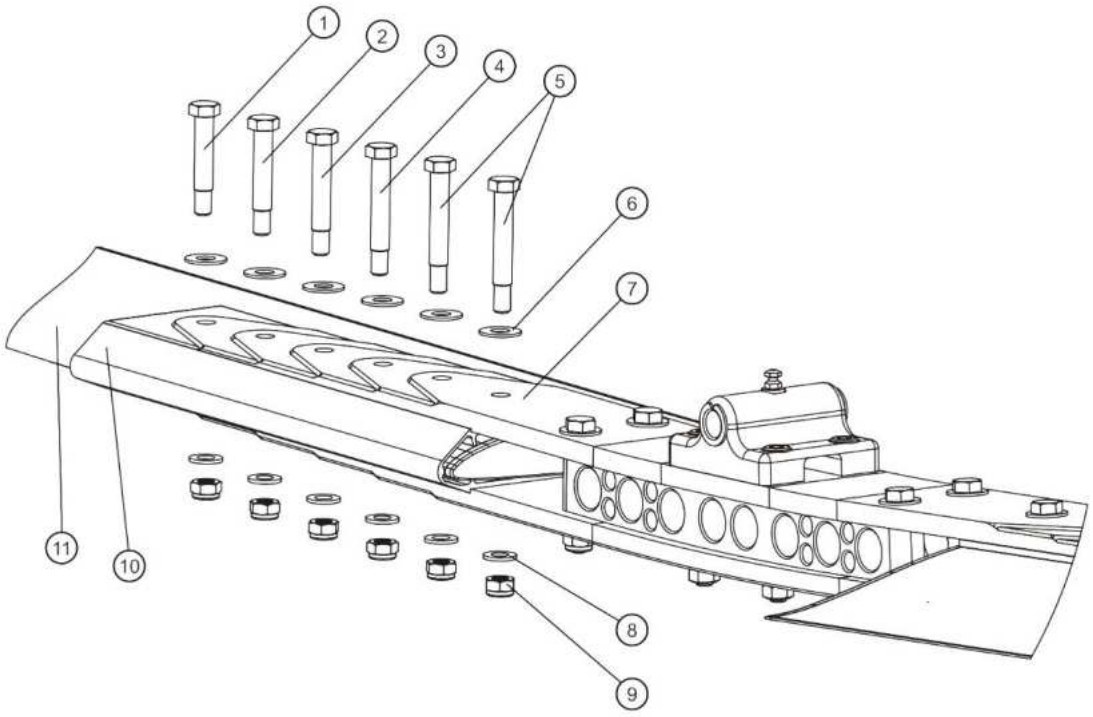


Figure 1 – Rotor teetering parts

62-11-00 4-4 INSTALLATION: ROTOR - TEETERING PARTS

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Silicone Grease Lagermeister WHS 2002 (PN 30477)

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

PRECAUTIONS AND SAFETY MEASURES

WARNING: Object is heavy! Inadequate handling could cause injury. Use proper lifting techniques or assistance!

WARNING: When handled incorrectly the rotor system can be damaged irreparably. If undetected this may have catastrophic consequences!

PROCEDURES/ DESCRIPTION

1. Secure the gyroplane on level ground by engaging parking brake, adjust the rotor head or teeter tower corresponding to fore-aft and pressurize the rotor brake up to maximum.
2. Check correct matching of parts: The rotor hub and the teeter tower are marked with two dots according to the orientation for installation.
3. Lift the rotor blade with a second briefed person (one person standing aft, one person standing directly in front of the hub).
4. Approach with the rotor system from the side to the gyroplane and make sure not to collide with propeller or stabilizer. Insert the rotor system into the hub from above while standing on a ladder or the rear seat.
5. The second person can let go, as soon as it is resting centrally in the teeter tower on the teeter stops.
6. Apply a thin layer of Silicone Grease Lagermeister WHS 2002 on teeter bolt (using a lint-free cloth).
7. Insert teeter bolt (Figure 1; 1) by hand in the same orientation as it was before (bolt head should be at that side of the teeter block which is marked with one dot) while matching the shim washers (Figure 1; 2) with the corresponding installation positions.
8. Check direction of assembly and shim washers: rotor hub, teeter tower and shim washers are marked on each side either with one or two engraved dots (Figure 2).
9. If the teeter bolt cannot be inserted, tilt the rotor blade along the teeter axis with the free hand.
10. Install washer and castellated nut (Figure 1; 3, 4). Check lateral play of the teeter block in the teeter tower (Figure 2, 2). If it is greater than 0.2mm contact AutoGyro for further support. Tighten the castellated nut of the teeter bolt by hand until there is no lateral play discernible between teeter block and teeter tower, but at least one shim is able to be rotated (Figure 3). Check whether the split-pin hole aligns. If it does not, remove the nut and assemble a 0.2mm shim and re-fit the nut. Tighten to the same position. The split-pin hole should now align. Nut torque should be approximately 1-2Nm. Teeter the rotor and ensure that the teeter block rotates

on the teeter bolt and not the teeter bolt in the teeter tower (Figure 4). Fit a new split-pin. Use split-pins only once.

11. Grease nipple in teeter block.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Teeter bolt	20718	
1	2	Shim Washer 3, 5	21959	
1	3	U13	20085	
1	4	M12 castle nut	20726	
1	5	Split Pin 3,2x40	20391	
1	6	Teetertower, mounted	43567	
		0.2 Shimm washer for castle nut	42945	not shown
		Teeterbolt Kit (With TefMet bushings)	30256	not shown

ILLUSTRATIONS

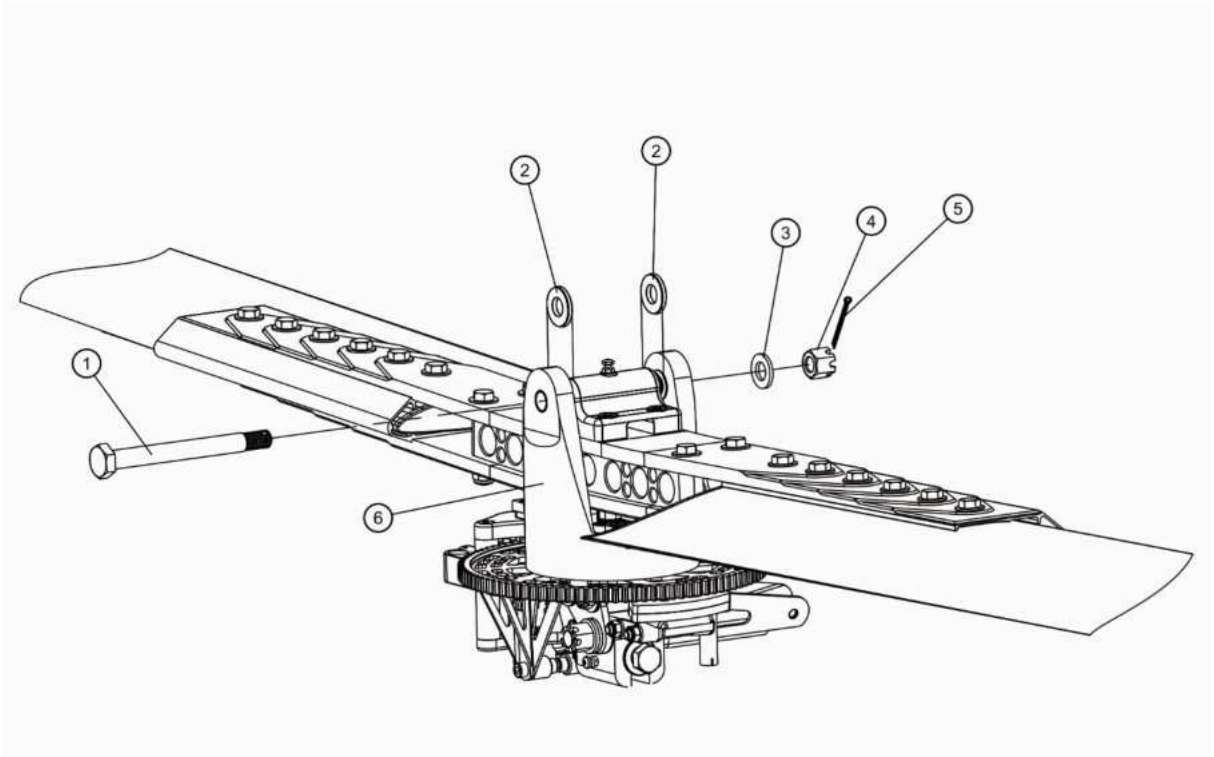


Figure 1 – Installation rotor – teetering Parts

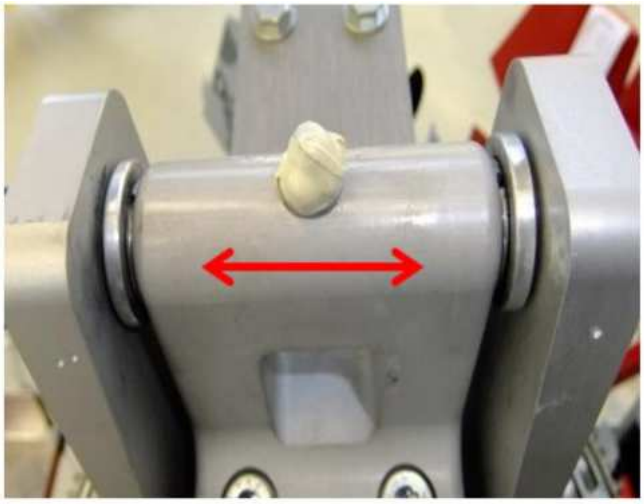


Figure 2

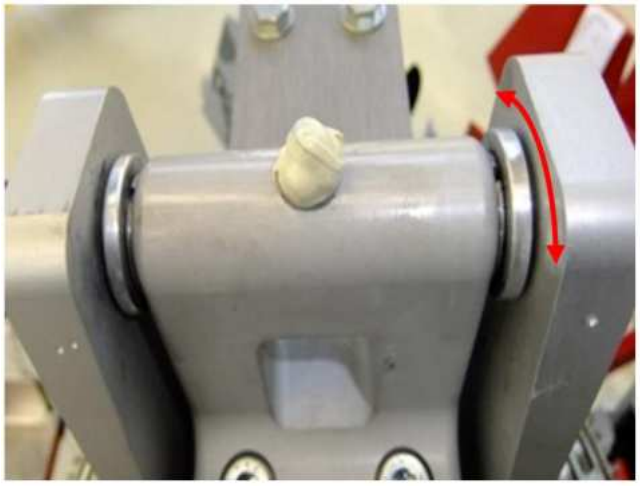


Figure 3

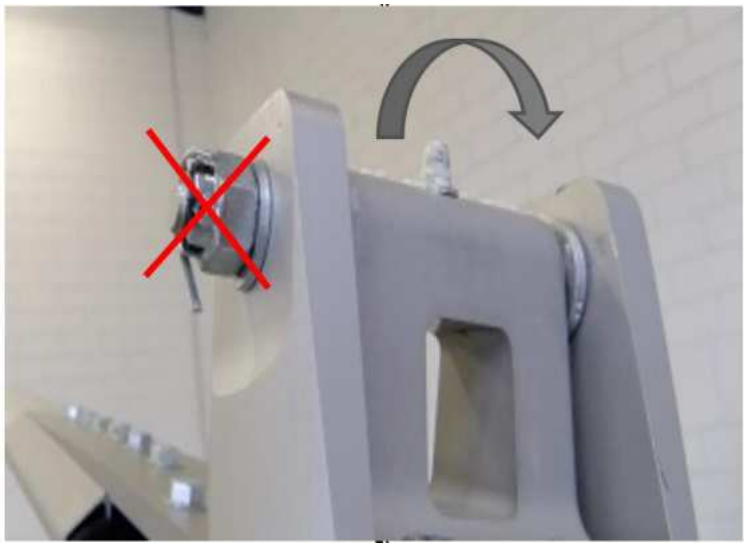


Figure 4 – bolt is not allowed to turn if rotor system teeters

62-11-00 5-1 CHECK – ADJUSTMENT: ROTOR SYSTEM ALIGNMENT

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Line Maintenance'!

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

WARNING: Object is heavy! Inadequate handling could cause injury. Use proper lifting techniques or assistance!

WARNING: Do not lift or support the rotor system at its blade tips as the bending moment due to the weight of the hub assembly may overstress the blade roots!

WARNING: Never place the rotor system on a dirty or grainy surface and avoid bending moments at the blade attachments!

WARNING: When handled incorrectly the rotor system can be damaged irreparably. If undetected this may have catastrophic consequences!

PROCEDURES/ DESCRIPTION

1. Place rotor system on suitable stands on level ground. Make sure stand surface is level and stand is oriented exactly 90 degrees to rotor blade (Figure 1).
2. String measuring cord between both outer blade tips. Position at rivet as depicted in Figure 2 'Positioning of measuring cord'.
3. Adjust distance of stand carefully so that measuring cord is strung slightly above the central grease nipple. Verify centre position of grease nipple (Figure 3).
4. In case the measuring cord deviates by more than 2 mm from centre position (i.e. grease nipple inner bore), adjust rotor system linearity. To do so perform the following work steps:
5. Untighten the self-locking nuts of the blade attachment bolts, except for the most inner bolt(s). Counter-hold bolt head to prevent it from turning.
6. Adjust linearity/alignment of rotor system and tighten nuts. Perform alignment check. If necessary, repeat procedure from step 5 on.
7. Torque-tighten nuts with 20 +/- 5 Nm from the inside to the outside. When doing so, counter-hold bolts to prevent any damage to the hub and blade holes.
8. Perform final linearity/alignment check. If necessary, repeat procedure from step 5 on.

IMPORTANT NOTE: In case of any adjustment, a functional test flight must be performed!

ILLUSTRATIONS

Figure 1 – Rotor system placed on stands

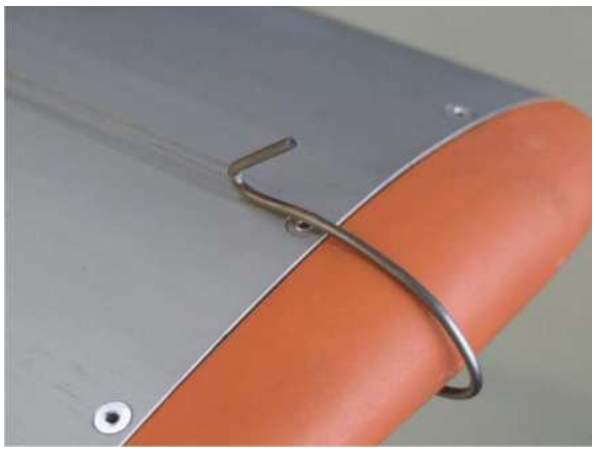


Figure 2 – Positioning of measuring cord

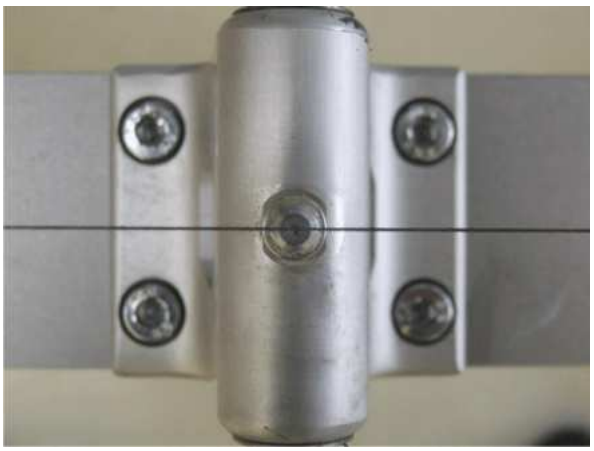


Figure 3 – Reference point at grease nipple

62-11-00 6-1 INSPECTION: ROTOR - TEETERING PARTS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Silicone Grease Lagermeister WHS 2002 (PN 30477)

Loctite 243 blue (PN 30483)

PRECAUTIONS AND SAFETY MEASURES

WARNING: Never place the rotor system on a dirty or grainy surface and avoid bending moments at the blade attachments!

WARNING: When handled incorrectly the rotor system can be damaged irreparably. If undetected this may have catastrophic consequences!

PROCEDURES/ DESCRIPTION

1. Check inner and outer blade caps for tight fit and general condition. Visible insets or score marks may indicate contact with obstacles with possible damage to the rotor system.
2. Perform visual inspection of clamping profile.
3. Perform visual inspection of rotor hub.
4. Perform visual inspection of grease nipple and check tight fit.
5. Check rotor system alignment Job Card 62-11-00 5-1, i.e. work steps 1 to 3 for trend monitoring purposes.
6. Inspect teeter bolt. In order to do so, clean with lint-free cloth and inspect for wear marks and corrosion. If corrosion or wear marks are evident (fingernail test), the teeter bolt must be discarded and replaced.
7. Apply a thin layer of Silicone Grease Lagermeister WHS 2002 on teeter bolt (using a lint-free cloth).
8. Inspect bushings in teeter block and teeter tower for correct seating (see Figure 2 - 4 for positions of slits) and secure installation (must not be possible to turn by hand). Otherwise, bushings must be replaced, see Job Card 62-11-00 8-1.
9. Insert teeter bolt in teeter block and inspect for play. If any bearing play is evident, try with new teeter bolt. If play is still evident, replace teeter block bushing, see Job Card 62-11-00 8-1.
10. Insert teeter bolt in teeter tower and inspect for play. If any bearing play is evident, try with new teeter bolt. If play is still evident, replace teeter tower bushings, see Job Card 62-11-00 8-1.

ILLUSTRATIONS

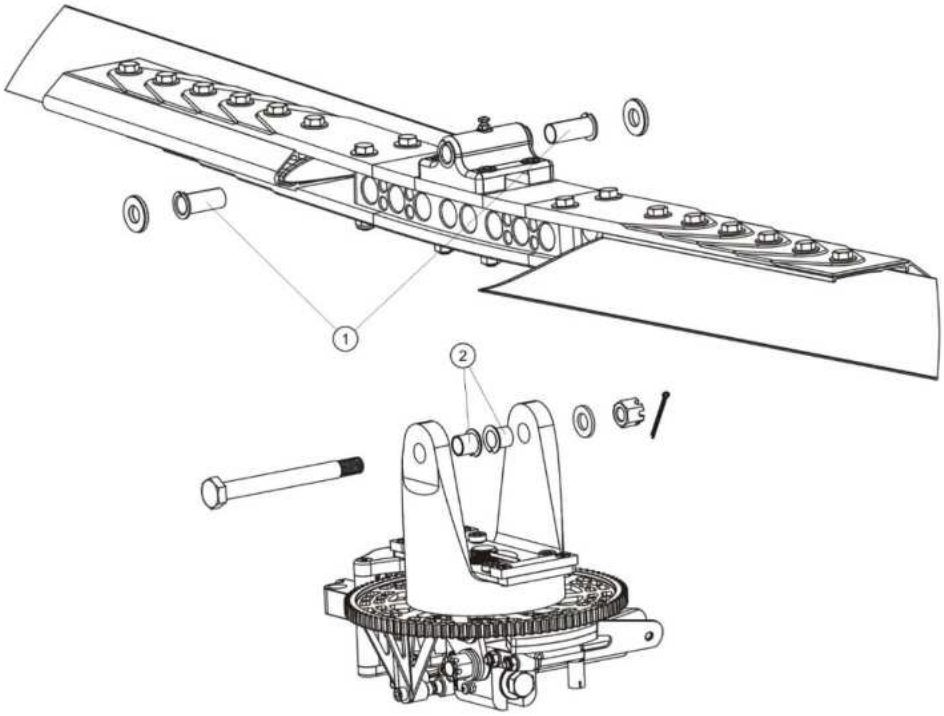


Figure 1 – Teeter block and rotor hub

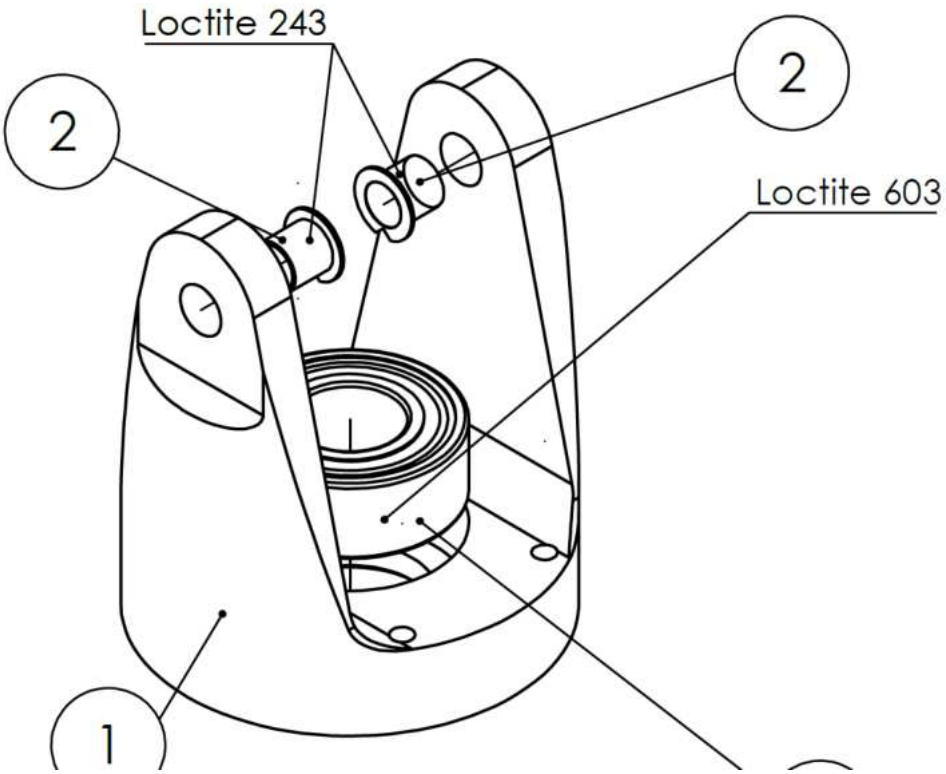


Figure 2 – Teeter tower

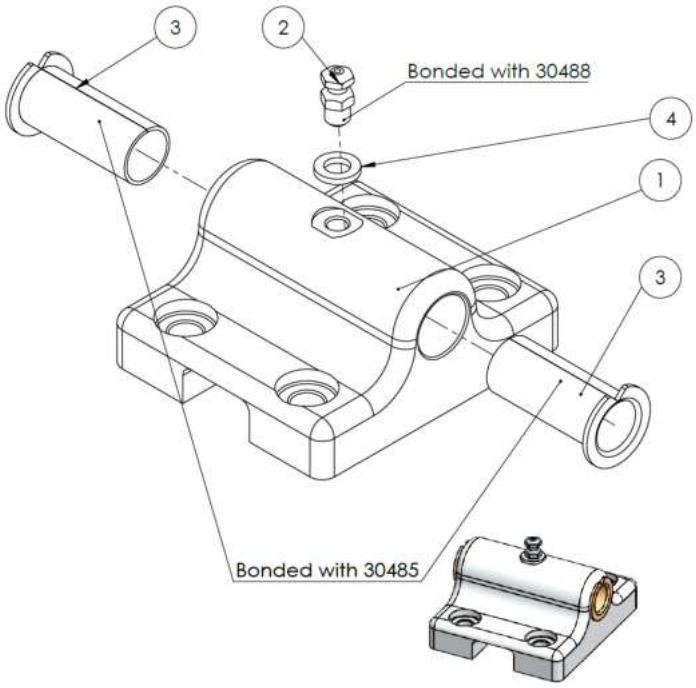
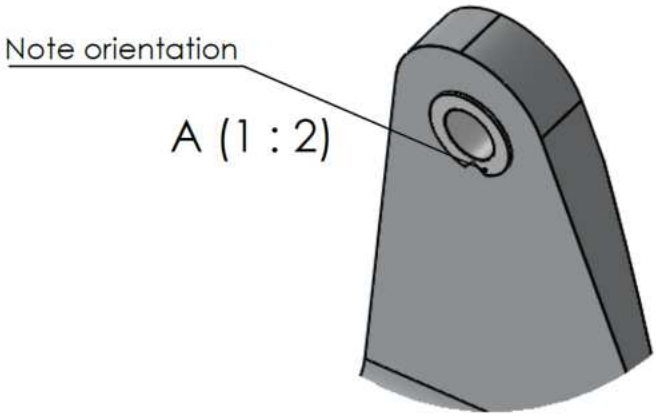


Figure 3 – Teeter block



Secure bushes with loctite 243 (2 places).
Ensure bushes are fitted as shown, with the notch towards the bearing position.

Figure 4 – Teeter tower

62-11-00 6-2 INSPECTION: ROTOR BLADES

GENERAL, REFERENCES AND REQUIREMENTS

Basic operational task, which can be performed by a licensed pilot or instructed personnel!

Rotor system must be disassembled, see Job Card 62-11-00 4-2

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Aluminium Ruler 1000mm (PN 35077)

PRECAUTIONS AND SAFETY MEASURES

WARNING: Do not use permanent marker on anodized (eloxated) parts!

CAUTION: Do not use sticky labels on aluminium or composite parts as they may be difficult to remove!

PROCEDURES/ DESCRIPTION

1. Inspect for cracks in the blade root area, especially in the area of the inner attachment bore (see Figure 1 "Critical Area", Figure 2 – crack in root area and Figure 3). In case of any cracks the complete rotor system must be replaced.
2. Check trailing and leading edge for damage.

   Trailing edge damage. The photo (Figure 4) shows an example of trailing edge damage. A ding in the trailing edge may be flatted out and the rotors continued in service provided that the ding does not cause a fracture into the inner part of the extrusion, and is not within 1m of the hub bar connection.

   Small damage resulting in a light bend (1-2mm, typically at the rotor tip) may be straightened carefully to the same profile as the rest of the blade section. More damage must be discussed with AutoGyro technicians. Remember, damage that changes the aerodynamic profile will affect the flight characteristic of the blade in that area. The further outboard the damage is, the faster the blade is turning, and thus the aerodynamic effect is greater.

   Leading edge damage. Occasionally a stone or other foreign object enters the rotor disc whilst spinning, resulting in a dent in the leading edge, or in the blade surface. The leading edge is solid aluminium of significant thickness. Small dings can be dressed out only to the basic blade profile. Filling is not permitted. Significant dings within 2m of the hub bar are potential stress raisers and damage left in service must be carefully considered by the inspector for the level of risk. If in doubt, contact AutoGyro Technical Support.
3. Check for dents in the upper and lower surface. Dents in the upper or lower surfaces (Figure 5) more than 1m from the hub bar up to 10mm in diameter are unlikely to cause a stress raiser and may be left in service and monitored by the user
4. Check each rotor blade in its root section for linearity. In order to do place each rotor blade with the nose section facing down on the support stands and measure gap with an aluminium ruler in 1 m distance from the inner end (see Figure 6). Maximum allowed gap (dimension A) is 0.5 mm (LTA DULV-2010-004).

Important Note: More substantial damage.

In all instances where the suffered damage such that the blade is bent in any plane, then the rotorsystem as a whole must be replaced. Rotor blades are carefully weighed and measured, and paired through the process for optimum performance. Random pairing is not likely to result in a satisfactory rotorsystem.

Whenever a rotorsystem is replaced due to damage, then the rotor bearing MUST be replaced. Due to the long lever arm of the rotor, impact damage at the tip can lead to high forces in the bearing and possible internal bearing brinelling. This will reduce service life and possibly create premature failure.

Every inspection must be thorough.

Cracks in the root area, either at the bolt holes or longitudinal at the blade root, are not permissible.

Bending of the blade in any plane is not permissible.

Limited damage may be dressed out or corrected

If in doubt, always ask.

IMPORTANT NOTE: In order to avoid measuring errors draw a straight and parallel line 200 mm from the trailing edge. Use a lead pencil. Do not use permanent marker on anodized (eloxated) parts!

ILLUSTRATTIONS

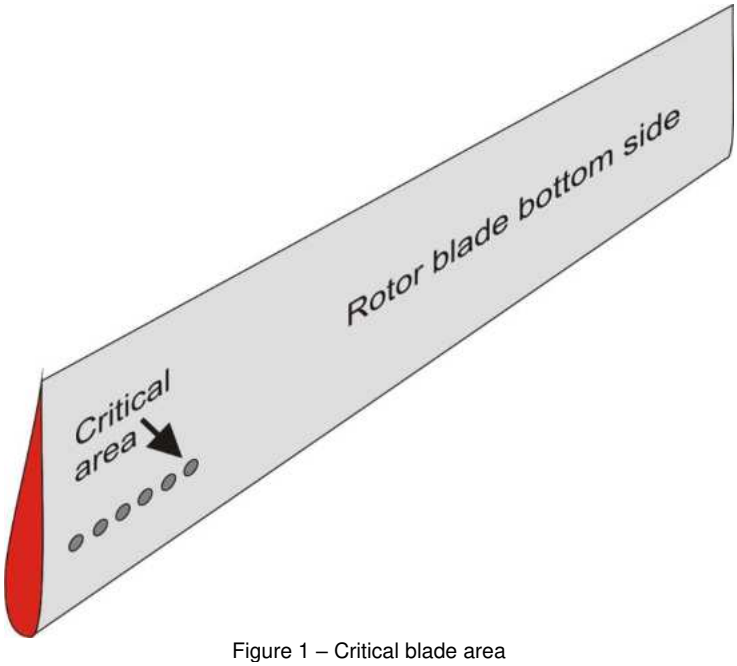


Figure 1 – Critical blade area

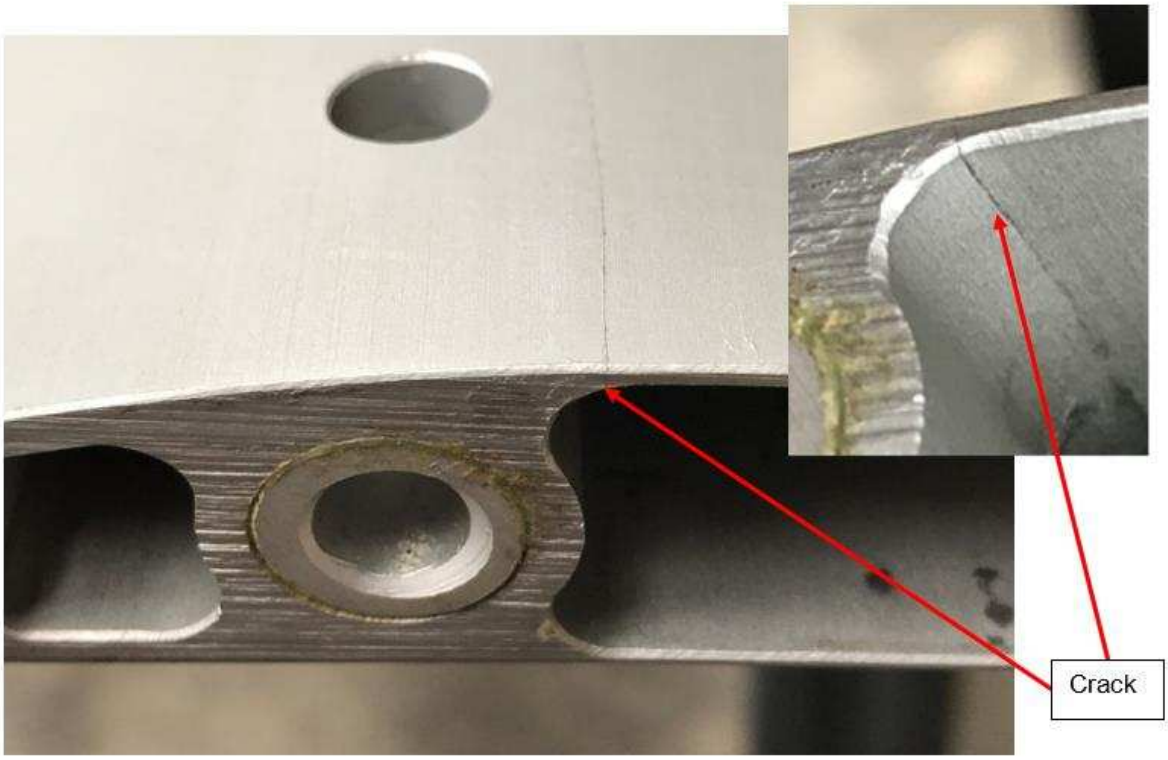


Figure 2 – Crack in root area, inner cap removed

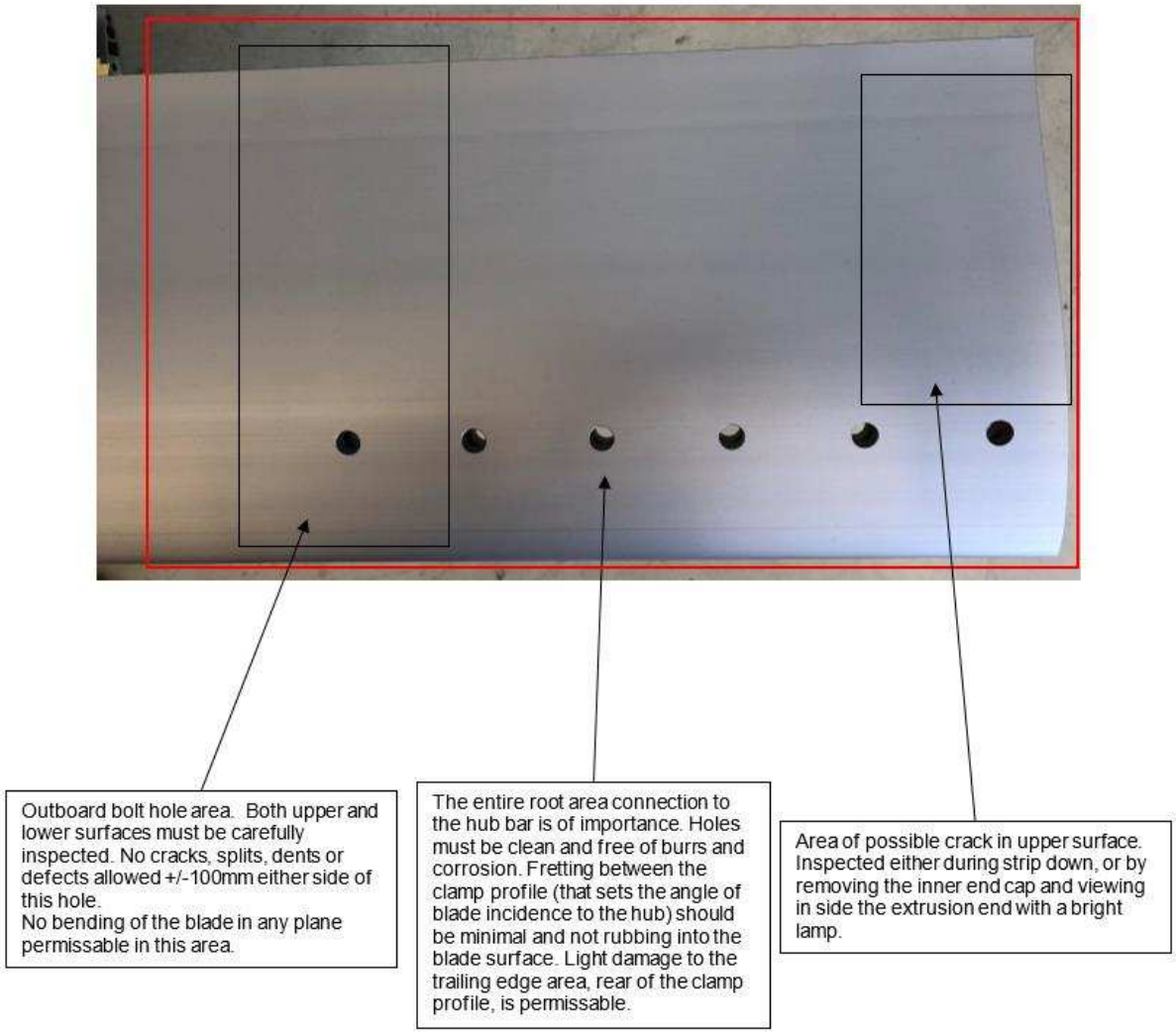


Figure 3 – View of the tope side of the rotor root (RSII, 6-hole attachment)

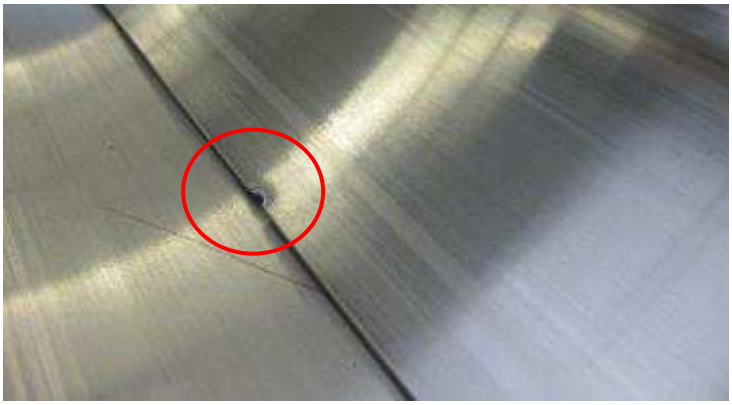


Figure 4 – Damage on trailing edge

Figure 5 – dent in surface

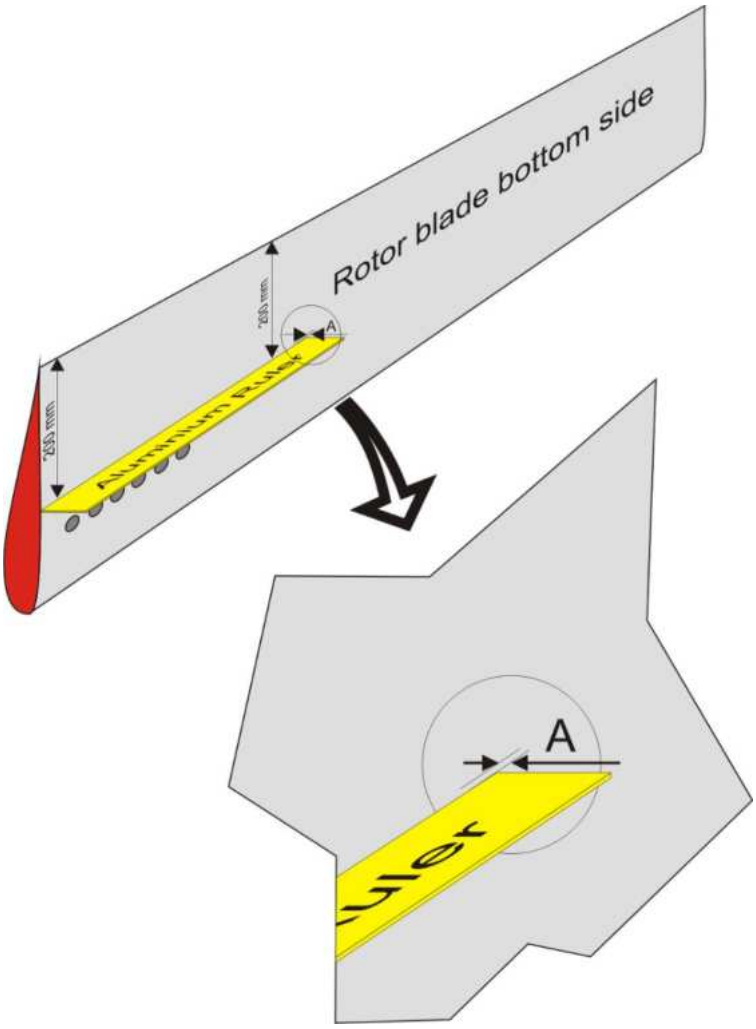


Figure 6 – Rotor Blade Inspection

62-11-00 6-3 INSPECTION: ROTOR HUB BOLTS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Rotor system must be removed, see Job Card 62-11-00 4-1

Rotor system must be placed on suitable supports to avoid scratching of the blades or bending moments at the blade attachment

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Silicone Grease Lagermeister WHS 2002 (PN 30477)

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

PRECAUTIONS AND SAFETY MEASURES

CAUTION: Remove and re-install only one bolt at a time. Never remove more than one bolt of the installation!

PROCEDURES/ DESCRIPTION

1. Remove first Rotor Hub Bolt and discard self-locking nut. If necessary use a mandrel and a hammer and tap carefully. Use caution not to damage the threads or the surface of the bore.
2. Inspect Rotor Hub Bolt for corrosion. In case of any signs of corrosion the bolt must be replaced.
3. Apply a thin layer of Silicone Grease Lagermeister WHS 2002 on shaft, but NOT on the thread.
4. Re-install bolt with moderate pressure.
5. Install new self-locking nut and pre-torque to approximately 10 Nm.
6. Repeat work steps 1 to 5 for the remaining bolts.
7. Torque-tighten all Rotor Hub Bolts to the final torque of 25 Nm in opposing/crosswise sequence.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Rotor Hub II Top	NPI	
1	2	Pin Rotor Hub II	NPI	
1	3	Rotor Hub II Bottom	NPI	
1	4	U8	20393	
1	5	M8, Si	20121	
1	6	Pin	20663	
1	7	Shoulder bolt M8 49/12	NPI	
1	8	U9/20	NPI	
1	9	Teeter Tower III, mounted	43567	
1	10	M8x70, flat	NPI	
1	11	Binx nut M8	28824	
		Replacement Kit Rotor Hub II Bolts	33355	

ILLUSTRATIONS

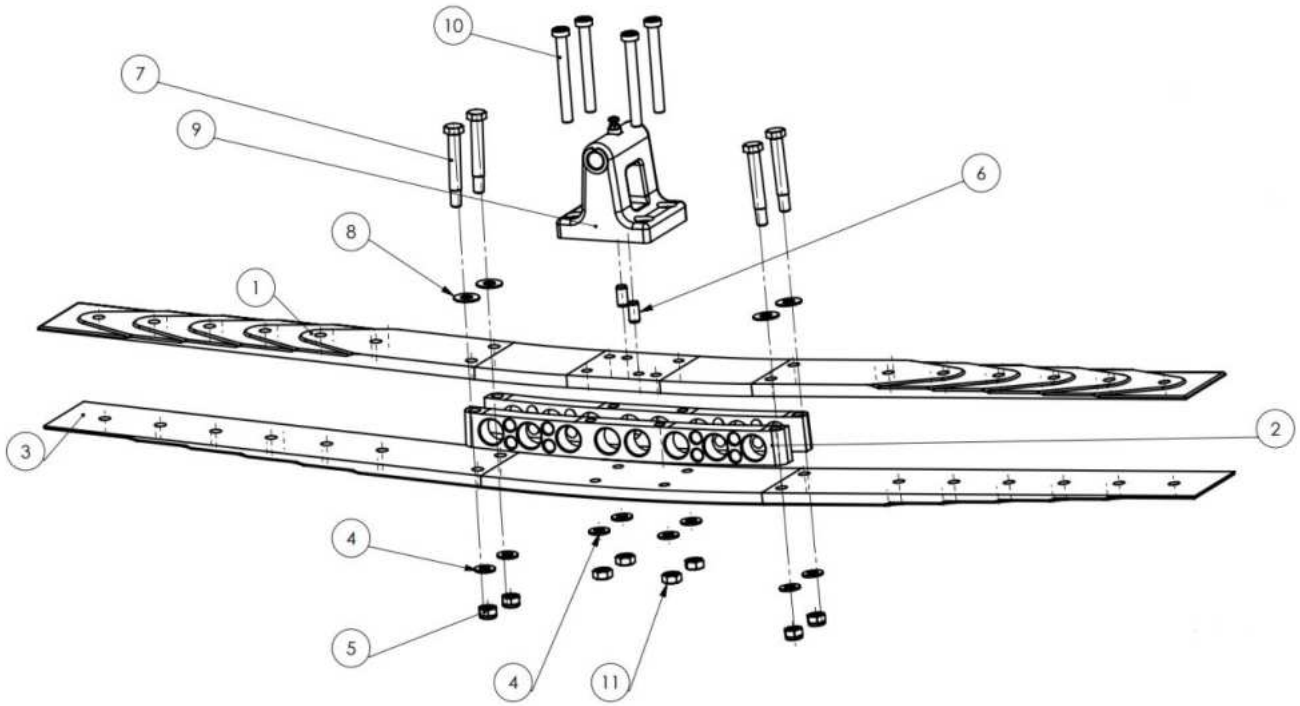


Figure 1 – rotor Hub bolts

62-11-00 6-4 CHECK: TEETER ANGLE

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Digital Level (PN 31438)

PRECAUTIONS AND SAFETY MEASURES

CAUTION: Be careful not to damage the blades while using the digital level. Any scratches or other damages on the blade or the hub may cause a failure!

PROCEDURES/ DESCRIPTION

1. Engage the rotor brake.

   Caution: Do not remove the rotor bag until rotor brake is engaged to avoid blade flapping.

2. Remove the rotor bag.
3. Move the rotor system until it touches the teeter stop. Hold the digital level and check angle.
4. Move rotor system to the other side of teeter stop and check angle again. Angle has to be 14° +/- 1°
5. If you use the tool which is mentioned above you have to sum up both angles for the blade which points to the flight direction because while moving from one teeter stop to the other one the horizontal line will be crossed. For this case it is 5.60°+8.90° = 14,5° (Figure 1)

Figure 1 – Angle measurement

6. Do it again for the blade which points to the end of the aircraft. This blade is above the horizontal line and the angle is the difference between both measurements.
7. If you use a tool which can be put to zero than it will only show the angle movement and there is no need to sum up or check the angle difference. Allowed angle is 14° +/- 1°.
8. You can see that the hub is in contact with the forward teeter stop on the left picture. Zero the level and you can check the angle by putting the rotor to the rear teeter stop.

9. Is the angle smaller than the tolerance given this could have one reason:

   Angle gets bigger due to blade flap damage or wrong stops. Smaller most likely wrong stops. It must be determined how this has occurred. This cannot happen in an in-flight or taxiing phase or normal aircraft operation.

62-11-00 8-1 REPLACEMENT: TEETER BUSHINGS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 638 green (PN 30485)

Bushing Removal Tool Teeter Block (PN 36039, Figure 4)

Bushing Removal Tool Teeter Tower (PN 33763, Figure 5)

PRECAUTIONS AND SAFETY MEASURES

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

PROCEDURES/ DESCRIPTION

Removal

CAUTION: It is advisable to heat up the teeter block in an oven. When removing the teeter block marks all parts or use cable ties so that each and every part of the component is re-assembled and installed in exactly the same location and orientation! This is especially important for the shim plates between teeter block and hub bar.

WARNING: Affected aluminium parts must not become warmer than 160 °C.

1. Remove bushings from teeter block. In order to do so warm up teeter block to 120 °C, preferably in an oven.
2. Use appropriate tools to drive out bushings. Be careful not to damage the surface of bore.
3. Remove bushings from pre-heated teeter tower.
4. Use appropriate tools to drive out bushings. Be careful not to damage the surface of bore.

Installation

1. Clean bushing seatings / bores from bonding residues and de-grease.
2. Teeter block: Apply a thin layer of Loctite 638 green to bore.
3. Press in first bushing (1) with joint/slit facing up. Use a bench vice and press carefully until bushing flange is flush.
4. Clean off excessive Loctite, if necessary.
5. Repeat step 6 to 8 for second bushing.
6. Teeter tower: Apply a thin layer of Loctite 638 green to bore.
7. Press in first bushing (2) with joint/slit facing down. Pull in bushing until flange is flush. Use thick washers on both sides to protect teeter tower and bushing flange from damage.
8. Clean off excessive Loctite, if necessary.
9. Repeat step 10 to 12 for second bushing.

10. If necessary rework inner diameter of bushings in teeter tower with a reamer 13H7.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Bushing TEF-MET 13/16/21x30	20662	
1	2	Bushing TEF-MET 13/15/21x15	20677	

ILLUSTRATIONS

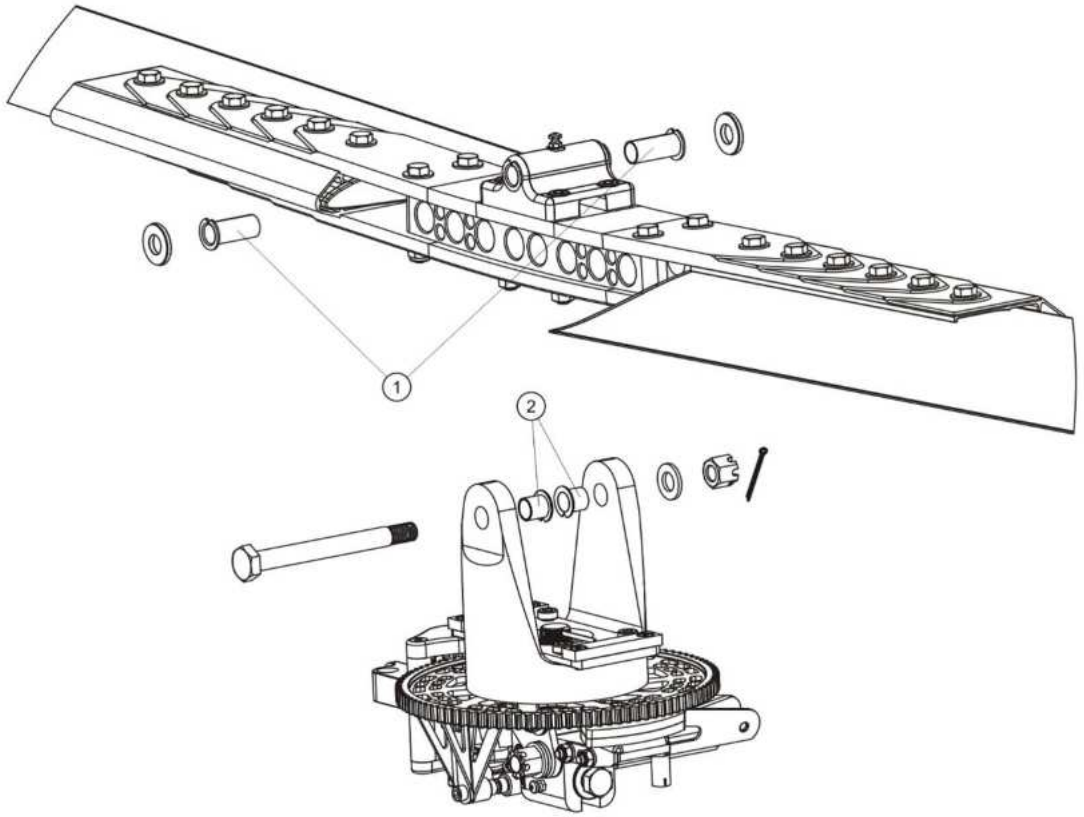


Figure 1 – Teeter block and tower with bushings

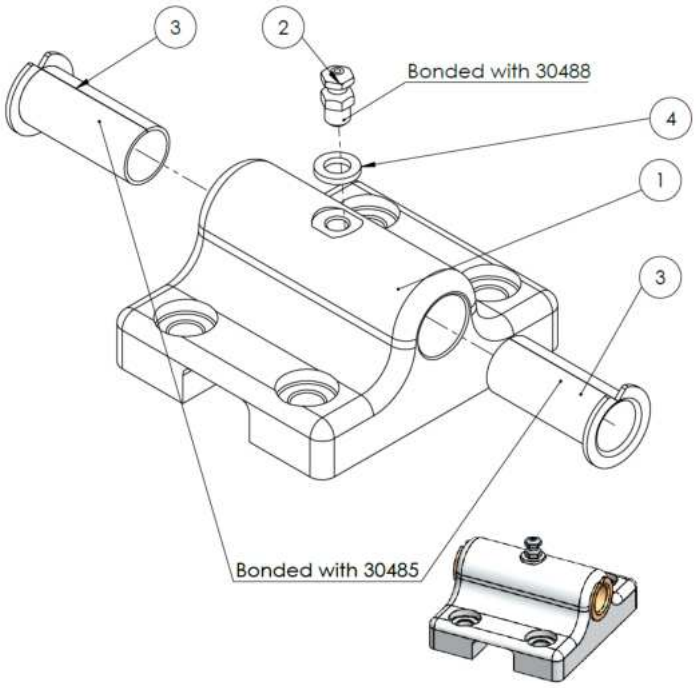
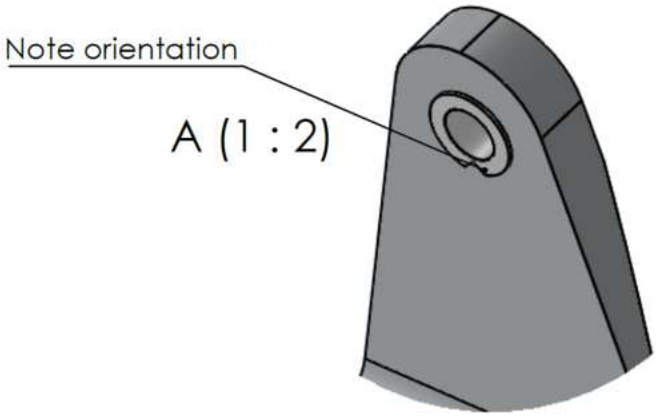


Figure 2 – Teeter block



Secure bushes with loctite 243 (2 places).
Ensure bushes are fitted as shown, with the notch towards the bearing position.

Figure 3 – Teeter tower

Figure 4 – Bushing removal tool teeter block

Figure 5 – Bushing removal tool for teeter tower

62-20-00 8-2 REPLACEMENT: ROTOR SPROCKET

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check Parts List below before starting job!

PRECAUTIONS AND SAFETY MEASURES

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

PROCEDURES/ DESCRIPTION

1. Switch pneumatic mode selector to BRAKE.
2. Remove and dispose the split pin (Figure 1; 1).

   WARNING: Wear eye protection when removing attachment hardware!
3. Untighten the castle nut (Figure 1; 2).
4. Switch pneumatic mode selector to FLIGHT.
5. Remove the castle nut (Figure 1; 2).
6. Remove the teeter tower with the Rotor Sprocket. Fix the teeter tower in a bench vise carefully.
7. Remove and dispose the 10 (Figure 2; 12) screws of the Rotor Sprocket. Remove the Rotor Sprocket.
8. Put new Rotor Sprocket on teeter tower.
9. Apply Loctite 243 to the 10 screws (figure 2; 12) of the Rotor Sprocket. Tighten the ten screws crosswise with a torque of 10 Nm.
10. Rotate rotor head so that rotor blades (removed!) would point exactly in flight direction.
11. Attach teeter tower with new Rotor Sprocket to the rotor head.
12. Align the hole or magnet to the 7 o´clock position in flight direction (Figure 4).
13. Tighten castle nut (Figure 1; 2) with a torque value enough to fix the adjustment of the main bolt.
14. Inspect backlash of pre-rotator upper engagement. Backlash should be as tight as possible, but also wide enough to allow easy engagement of the pinion into the sprocket wheel in any position.
15. Torque-tighten castle nut (Figure 1; 2) with final torque of 120 Nm and re-check position. Apply further torque until the split pin can be inserted.

16. Insert and secure new split pin (Figure 1; 1). Make sure that ends of the split pin do not contact rotating parts (Figure 5).
17. Inspect backlash of pre-rotator upper engagement again. Backlash should be as tight as possible, but also wide enough to allow easy engagement of the pinion into the sprocket wheel in any position.
18. Install the rotor system according to Job Card 62-11-00 4-4.
19. Perform job card Job Card 63-11-30 6-1.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Split Pin 3,2x50	23941	
1	2	M20 Castle Nut	23796	
1	3	Teeter Tower	43567	
2	12	M6 x 16 counter sunk Torx	44935	
2	13	Rotor Sprocket	45128	

ILLUSTRATIONS

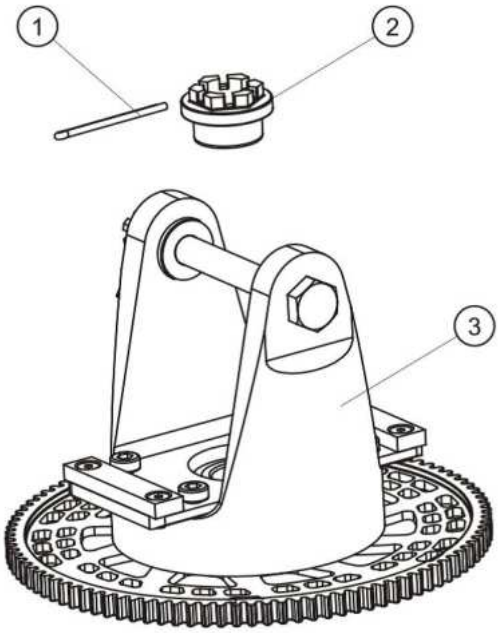


Figure 1 – Teeter tower

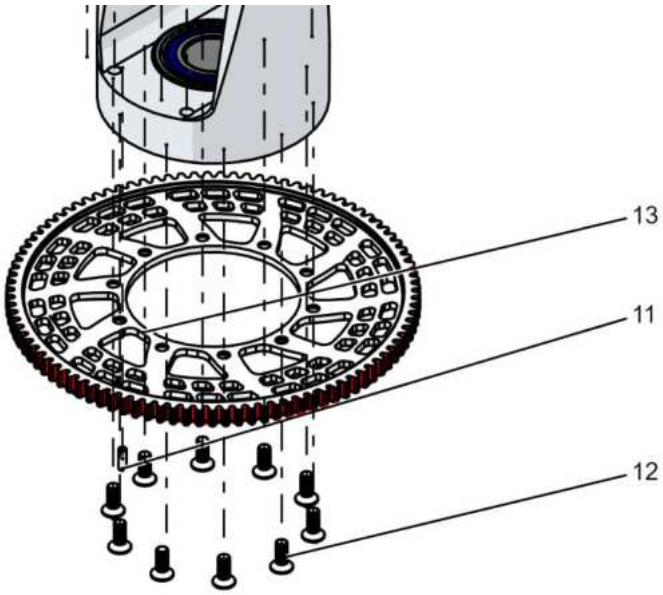


Figure 2 – Rotor sprocket

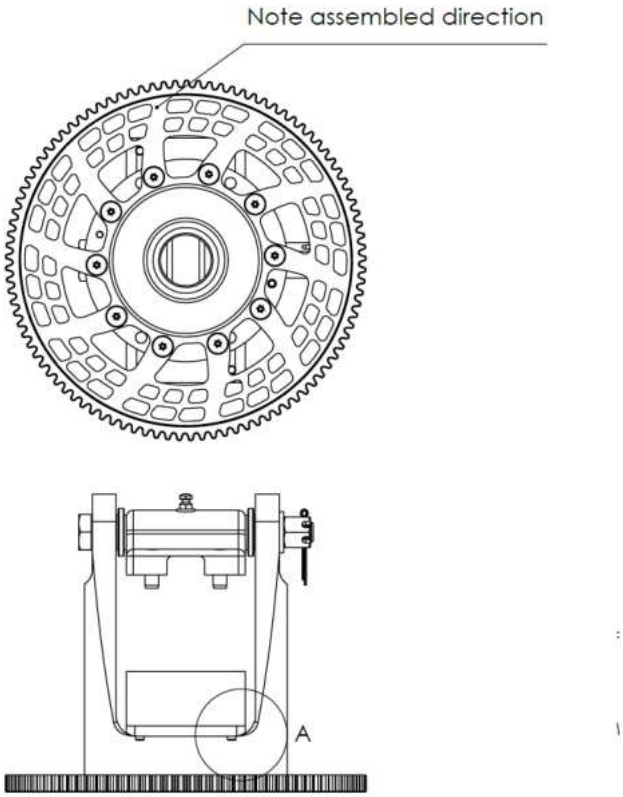


Figure 3 – Rotor sprocket

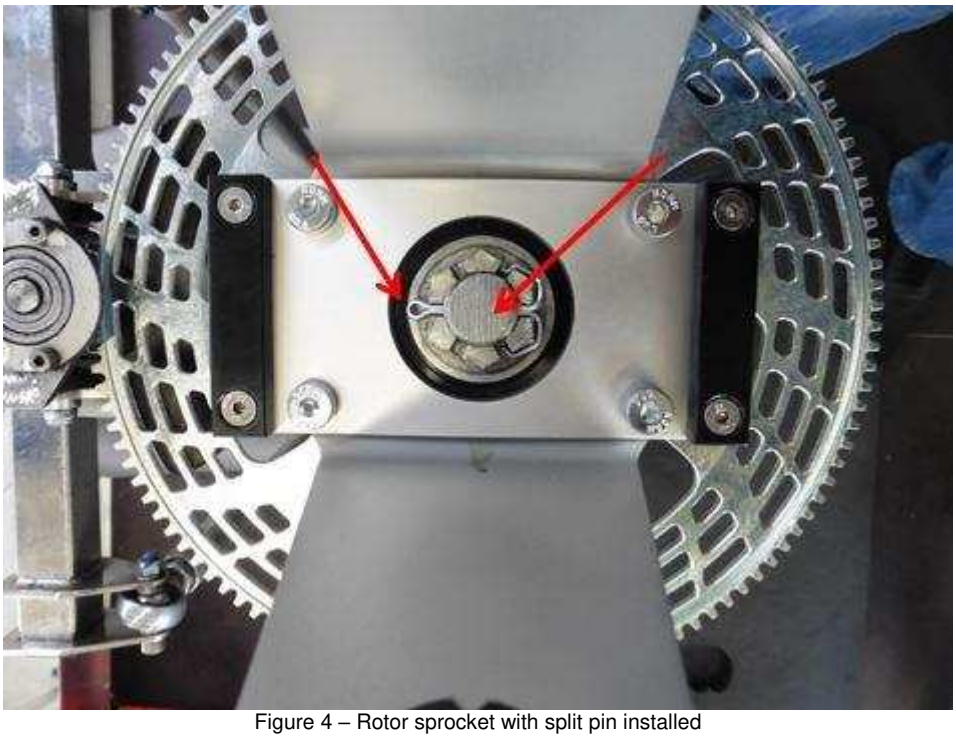


Figure 4 – Rotor sprocket with split pin installed

62-31-00 5-1 ADJUSTMENT: BACKLASH

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES/ DESCRIPTION

1. Backlash should be as tight as possible but also wide enough to allow easy engagement of the pinion into the sprocket wheel in any position.
2. If necessary adjust backlash by performing following work steps.
3. Loosen the two screws (Figure 1, 8).
4. Adjust the upper bearing holder (Figure 1, 5) as required to achieve an acceptable backlash.
5. Turn the sprocket 90 degrees and check backlash again. If ok repeat three times to ensure the rotor sprocket runs without problems and the backlash is identical.
6. Tighten one screw to hold the assembly in place and remove the other screw.
7. Apply Loctite 243 and torque-tighten the screw with 12 Nm.
8. Remove the second screw, apply Loctite 243 and torque-tighten it with 12 Nm.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Rotorhead Bridge III	43575	
1	3	distance bush 16-16/ 6,2	10399	
1	5	Bearing Mount Top	10402	
1	8	Screw M6x55 counter sunk	10458	
1	28	Angular Contact Ball bearing 7200-B-2RS-TVP FAG	43672	

ILLUSTRATIONS

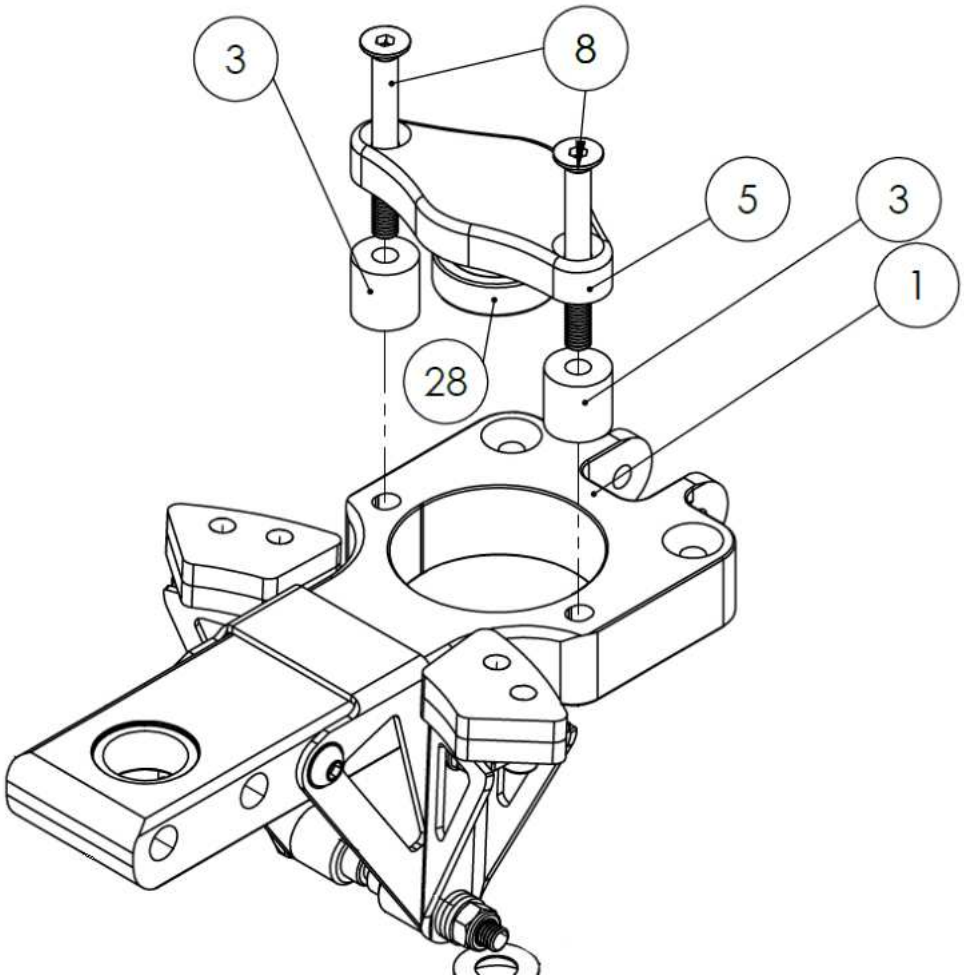


Figure 1 – rotor head III with Bendix assembly

62-31-00 6-1 INSPECTION: ROTOR HEAD BRIDGE, BEARING AND TEETER TOWER

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check parts list below before starting job!

PRECAUTIONS AND SAFETY MEASURES

WARNING: Wear eye protection and mind FOD when removing attachment hardware!

PROCEDURES/ DESCRIPTION

1. Inspect rotor head bridge (Figure 2) function and condition, i.e. no misalignment, dents, nicks, corrosion, or cracks. In case of any of the aforementioned is evident or suspected contact AutoGyro Technical Support.
2. Inspect teeter stops for correct attachment and condition.
3. Inspect teeter tower (Figure 1) for correct attachment and condition, i.e. no cracks, no looseness, no corrosion. In case of cracks or unusual condition or appearance contact AutoGyro Technical Support.
4. Remove and dispose of split pin (Figure 1; 3.1).
5. Perform torque-check on main bolt nut (Figure 1; 3.3). Torque-check castle nut with 120 Nm.
6. If torque-check fails more than 20% mark gyroplane unserviceable and contact AutoGyro Technical Support otherwise retighten.
7. Insert new split pin (Figure 1; 3.1) and secure. Make sure that ends do not contact rotating parts.

WARNING: Do not fly gyroplane in case torque-check failed. Clearly mark as unserviceable and prevent from use until resolved.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	3.1	Split Pin 3,2x50	23941	
1	3.3	M20 Castle Nut	23796	
1		M20x1,5 Rotor Bolt	45132	RH III

ILLUSTRATIONS

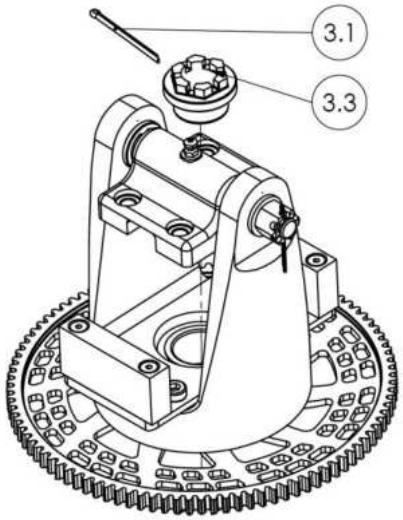


Figure 1 – Rotor head III, teeter tower

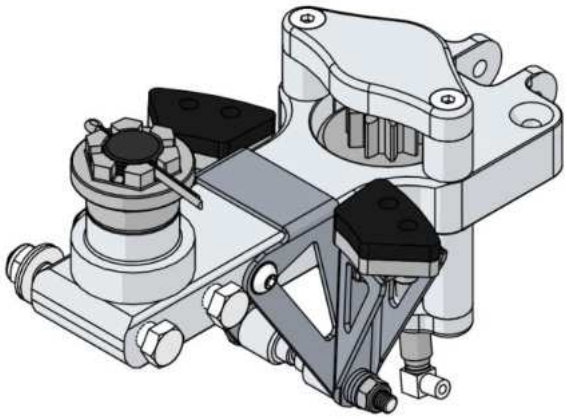


Figure 2 – Rotor head III, rotor head bridge

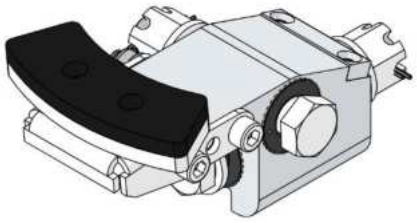


Figure 3 – Rotor head III, gimbal head

62-32-00 5-1 CHECK - ADJUSTMENT: ROTOR CONTROL FRICTION

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Scale (PN 36114)

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

1. Switch pneumatic mode selector to FLIGHT and release trim pressure completely, disconnect trim spring at the rotor head.
2. Attach spring balance / dynamometer as shown in Figure 1 and pull carefully until control stick starts to move. Note maximum value (breakout force).

WARNING: Job includes work at critical flight controls. Duplicate inspection must be performed after completion!

3. Breakout force can be adjusted by tightening the gimbal head pitch bolt. If the bore pin drill of the gimbal head pitch bolt is covered by the castle nut, place shim washers between the washers (Pos. 3 & 6). Note: 0.1 mm shim washer equates approximately 20° nut rotating angle.
4. Rotor vibration levels will decrease with higher control friction, but handling qualities will suffer, if control friction is too high. Friction should not exceed 10 N, with an absolute maximum of 15 N!
5. After completion, switch pneumatic mode selector to BRAKE, apply brake pressure and secure rotor system.

ILLUSTRATIONS

Figure 1 – Measurement of rotor control friction

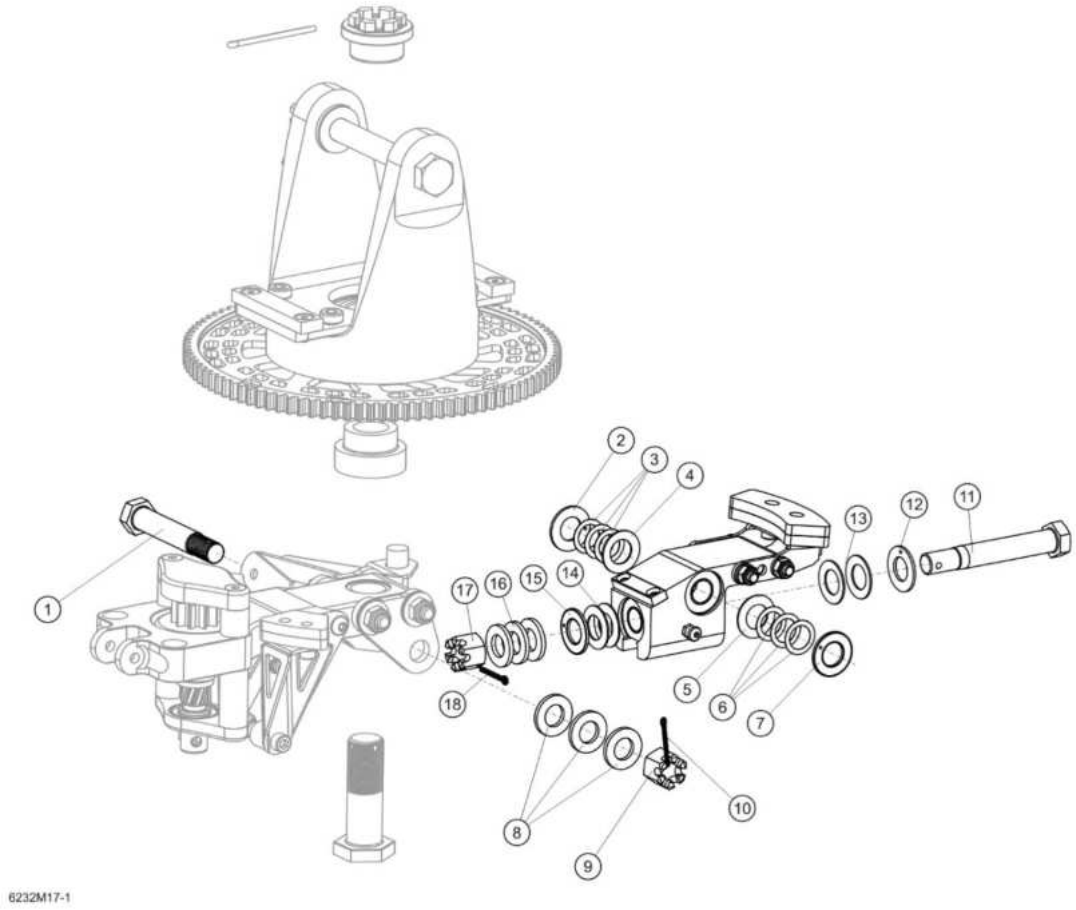


Figure 2 – Gimbal Assembly Rotor System III (with spring washers)

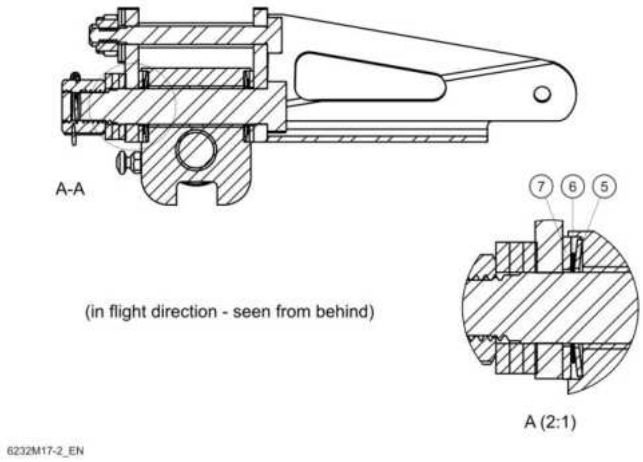


Figure 3 – Arrangement of spring and shim washers on gimbal head – Version II

62-32-00 6-1 INSPECTION: ROTOR GIMBAL HEAD

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Rotor system must be removed, see Job Card 62-11-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Silicone Grease Lagermeister WHS 2002 (PN 30477)

Digital Spirit Level (PN 31438)

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

1. Inspect gimbal head for correct function and condition, i.e. check split pins (Figure 1; 1) are installed and no play at the hinge points is evident.
2. Verify angles of gimbal head mechanical end stops. In order to do so perform the following work steps:
3. Place gyroplane on level ground with zero roll attitude and lower mast section vertical.
4. Rotate rotor head so that rotor blades (removed!) would point exactly fore-aft. Place inclinometer on top of teeter tower and measure RH and LH end stop angle. Make sure that mechanical stops are reached. Record values.
5. Rotate rotor head so that rotor blades (removed!) would point exactly left-right. Place inclinometer on top of teeter tower and measure FORE and AFT end stop angle. Make sure that mechanical stops are reached. Record values.
6. Verify measured angles comply with the values specified in the corresponding type certificate data sheet. If any of the values differs by more than 1° from the specified value mark component unserviceable and contact AutoGyro Technical Support.

ILLUSTRATIONS

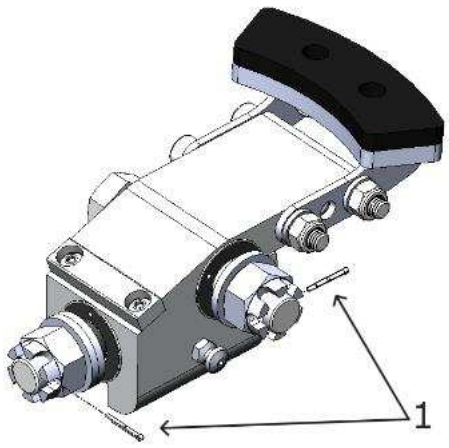


Figure 1 – gimbal head

62-51-00 4-1 REMOVAL - INSTALLATION: TOP MAST

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Rotor system must be removed, see Job Card 62-11-00 4-1

Mast cover must be removed, see Job Card 52-00-00 4-1

A suitable stand should be used if possible!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 221 red (PN 30487)

Loctite 243 blue (PN 30483)

Loctite 2701 green (PN 30482)

Lagermeister WHS 2002 Grease (PN 30477)

Würth HHS2000 Oil Spray (PN 30476)

PRECAUTIONS AND SAFETY MEASURES

WARNING: Safety critical Part – May have catastrophic consequences when component or part is missing, damaged or handled incorrectly!

WARNING: Job includes work at critical flight controls. Duplicate inspection must be performed after completion.

WARNING: Object is heavy! Inadequate handling could cause injury. Use proper lifting techniques or assistance!

WARNING: When working with cranes or other lifting equipment the general safety regulations have to be respected all the time!

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation.

PROCEDURES/ DESCRIPTION

Removal

1. Disconnect ball joint of roll control push-pull cable at upper attachment point.
2. Disconnect ball joint of pitch control push-pull cable at upper attachment point.

Note: When disconnecting the push-pull cable bulkhead at the top mast, unscrew only top (outer) attachment nut and leave lower (inner) attachment nut unchanged.

3. Disconnect roll push-pull cable mast connection. In order to do so, unscrew and remove top (outer) attachment nut.
4. Disconnect pitch push-pull cable mast connection. In order to do so, unscrew and remove top (outer) attachment nut.
5. Disconnect sensor cable from rotor rpm sensor, pneumatic hoses from pneumatic cylinders and remove respective cable ties.

6. Remove both bearing retaining plates of the long pre-rotator drive shaft and remove snap ring so that drive shaft can be pulled out.
7. Bring rotor head in horizontal position and remove pre-rotator shaft.

CAUTION: When removing mast attachment hardware mind installation position and protect gyroplane from possible damage. Note that shim washers may be installed.

8. Support the upper mast (using a crane or suitable lifting device) and remove mast attachment hardware. Use appropriate tools to drive out bolts and maintain attachment hardware.
9. Make sure all support lines, cables and controls are safely disconnected and out of the way. Carefully move upper mast aside (supported by crane) or remove completely.

Installation

1. Apply Würth HHS oil spray (30476) to the pre-rotator drive sliding shaft coupling and position upper mast. Make sure that coupling sleeve joins easily. Use shim washers to align top mast with bottom mast, if needed.
2. Apply Lagermeister WHS 2002 (30477) on bushing bores and guide mandrel and insert mandrel. Use a rubber hammer, if required.
3. Install nuts (8) using Loctite 2701 (30482) on the thread and torque-tighten with 70 Nm. Mark attachment hardware with securing paint.
4. Re-install pre-rotator drive shaft and retaining plates.
5. Re-install push-pull cable bulkhead and torque-tighten counter nut with 35 Nm.
6. Re-install roll and pitch control ball joint as in shown in the drawing. Secure with new self-locking nut and torque-tighten.
7. Re-connect support lines and cables. Secure support lines and cables with cable ties.
8. Move flight control stick carefully to all directions (full deflections) in order to ensure an installation without strain or stresses.
9. Have duplicate inspection performed on correct attachment of flight controls, i.e. push-pull cables and attachments.

WARNING: The ball joint must be installed with at least 8 threads on the rod end of the push-pull cable.

10. Check rotor head control angles according to Job Card 62-32-00 6-1 and re-adjust if necessary.

62-51-00 6-1 INSPECTION: MAST MOUNTING BUSHES

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Rotor system must be removed, see Job Card 62-11-00 4-1

A suitable stand should be used if possible!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Spring balance/ Dynamometer (PN 34115)

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES/ DESCRIPTION

1. Neutral mast position, no force applied: Measure diagonal distance from mast reference point to fuselage reference point (see illustrations in Figure 1) and record value in protocol.
2. Repeat measurement with 150 N, applied horizontally in flight direction (see Figure 1). Record value in protocol. Tolerances can be found on the Calidus Periodic Service work sheet.
3. Check if side plates move to contact the mast. Mast contact indicates worn bushes or failed bush retention.

Illustrations

Figure 1 – Mast reference point

Figure 2 – Fuselage reference point

Figure 3 – Force applied in flight direction

62-51-00 8-1 REPLACEMENT: MAST MOUNTING BUSHES

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Rotor system must be removed, see Job Card 62-11-00 4-1

Mast cover must be removed, see Job Card 52-00-00 4-1

A suitable stand should be used if possible!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 638 green (PN 30485)

Loctite 2701 green (PN 30482)

Lagermeister WHS 2002 Grease (PN 30477)

Würth HHS2000 Oil spray (PN 30476)

Würth Metal Cleaner 7063 (PN 46623) or Loctite 7063 (PN 10099)

PRECAUTIONS AND SAFETY MEASURES

WARNING: Job includes work at critical flight controls. Duplicate inspection must be performed after completion!

CAUTION: When removing or disassembling make sure to mark all parts so that each and every part of the component is re-assembled and installed in exactly the same location and orientation!

IMPORTANT NOTE: Before disconnecting and removing push-pull cables, mark position of (inner) counter nut and ball end in order to avoid re-adjustment (rigging) of flight controls!

PROCEDURES/ DESCRIPTION

1. Remove top mast according to Job Card 62-51-00 4-1.
2. Heat up seatings of mast mounting bushings (bottom mast) with a heat gun and push out bushings using appropriate tools.
3. Clean inner bores from residual Loctite, grind them with sand paper and degrease with Würth Metal Cleaner 7063 or suitable equivalent, i.e. Loctite 7063.
4. Grind the surfaces of the new bushings and the holes in the mast and clean it afterwards with Würth Metal Cleaner 7063 or suitable equivalent, i.e. Loctite 7063. (Figure 2,3,4)
5. Check that bushings can be inserted tightly into bores. If necessary, rework outer surface of bushing.
6. Apply Loctite 638 on outer surface of bushings and inside of the mast holes and install bushings in lower mast. Bushings shall be centred so that they extant equally on both sides. Ensure that the opening of the bottom bush faces down! (Figure 5)
7. Remove excessive Loctite. Use Würth Metal Cleaner or equivalent, if needed.
8. Re-install top mast according to Job Card 62-51-00 4-1.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	M12 62-19	NPI	
1	2	Bushing TEF-Met 16/18/24x22	45861	
1	3	Clamp bush mast	45826	
1	4	Bush mast top bottom	45827	
1	5	Rubber Bushing 90 shore	11082	
1	6	M12_SI	20005	
		Shim washer 0,2mm	22948	not shown
		Shim washer 0,3mm	22949	not shown

Illustrations

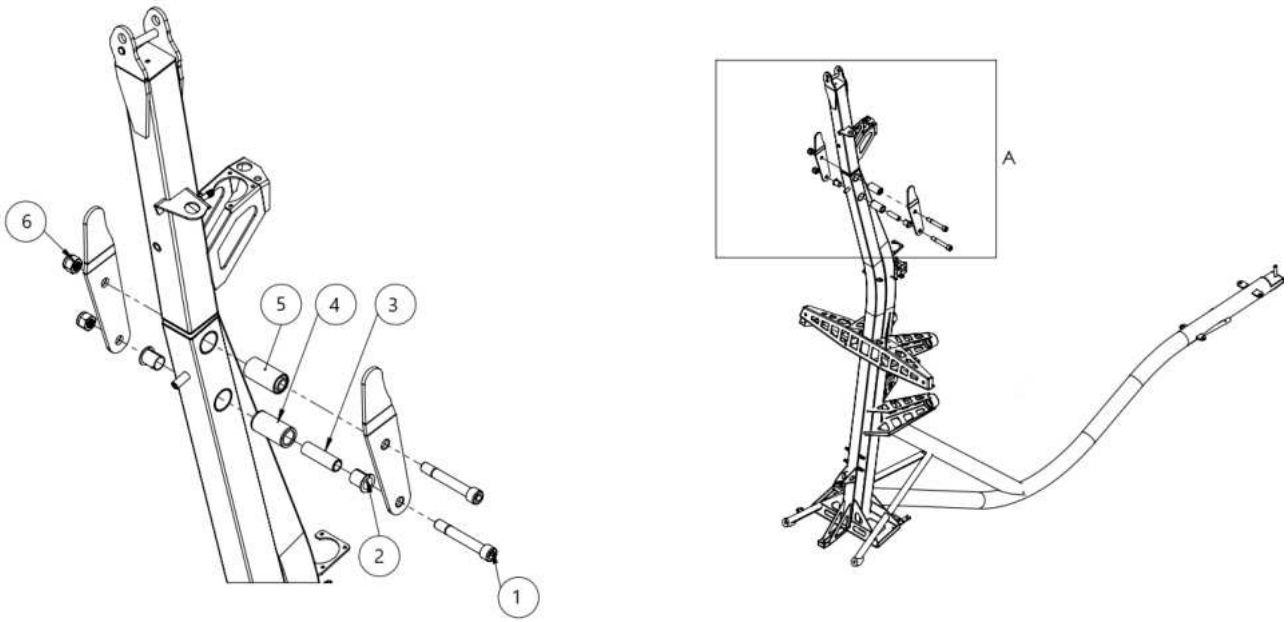


Figure 1 – Drawing of bushing assembly

Figure 2 – grinding

Figure 3 – grinding

Figure 4 – cleaning

Picture 5 – Preparation mast

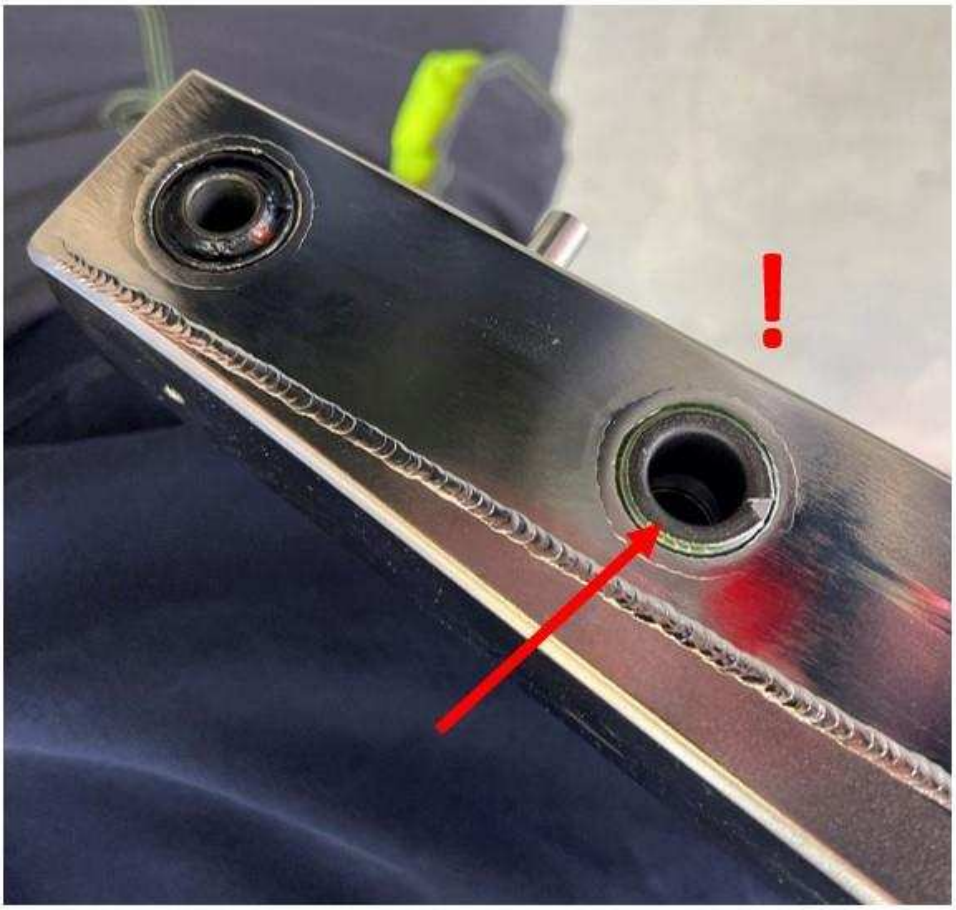


Figure 6 – Pay attention to the gap in the lower bushing

63-11-00 4-1 REMOVAL-INSTALLATION: PRE-ROTATOR COUPLING

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Engine cowlings must be removed, see Job Card 52-00-00 4-1.

Remove oil and fuel tank, see Job Card 51-00-00 2-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

Liqui Moly LM 47 MOS 2

IMPORTANT NOTE: Procedure involves parts with limited reusability. Check Parts List below before starting job!

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

Removal (Assumes aircraft side panels are already removed)

1. Loop a lifting belt around the propeller/gearbox shaft and take the load off the engine mounts using appropriate lifting equipment.

NOTE: Both engine mounts in the LH side remain in place.

2. Unscrew and remove 2 x attachment hardware of engine mounts on RH side. Discard self-locking nuts.
3. With the engine weight unloaded, tilt engine around remaining LH engine mounts as far as necessary (do not overstretch rubber bushings) in order to get access to the pneumatic coupling.
4. Disconnect pneumatic hose at quick connect coupling.
5. Cut open and discard affected cable ties.
6. Unscrew and remove M6 screw and M6 nut on top of the coupling (Figure 2, Figure 3; 1, 4) and disconnect Drive Shaft. Discard M6 nut.
7. Unscrew and remove 4 x M6x20 bolts and remove pneumatic clutch with attach ring (Figure 4).

NOTE: Do not separate attach ring from clutch and let adapter frame remain on engine.

8. Remove pneumatic clutch by pulling apart sliding shaft coupling.

Installation

1. Grease sliding shaft with Liqui Moly LM 47 and insert sliding shaft of coupling in drive shaft and position pneumatic coupling with attach ring on adapter frame.
2. Apply Loctite 243 blue on threads and torque-tighten 4 x M6x20 bolts with 10 Nm.
3. Insert M6 screw and new nut and tighten it (Figure 3; 1, 4).
4. Check that vertical pre-rotator drive can be easily turned by hand.

5. Re-connect pneumatic hose at quick connect coupling. Make sure flow control valve is in place and installed in correct flow direction (blue line to coupling, white line to pneumatic box).
6. Perform functional check (engine off) and monitor clutch actuation.
7. Re-install engine mounts. Use new self-locking nuts and torque-tighten.
8. Remove lifting belt.

ILLUSTRATIONS

Figure 1 – Pneumatic coupling

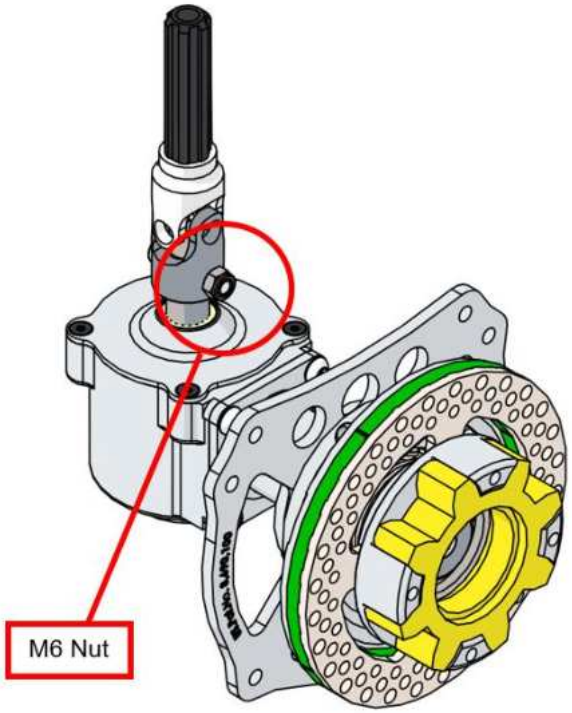


Figure 2 – Location of M6 Si nut (PN 20027)

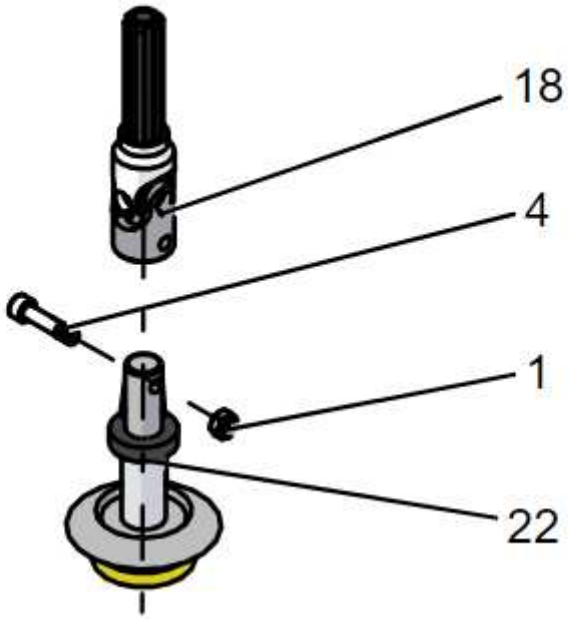


Figure 3 – M6 screw and M6 Si nut

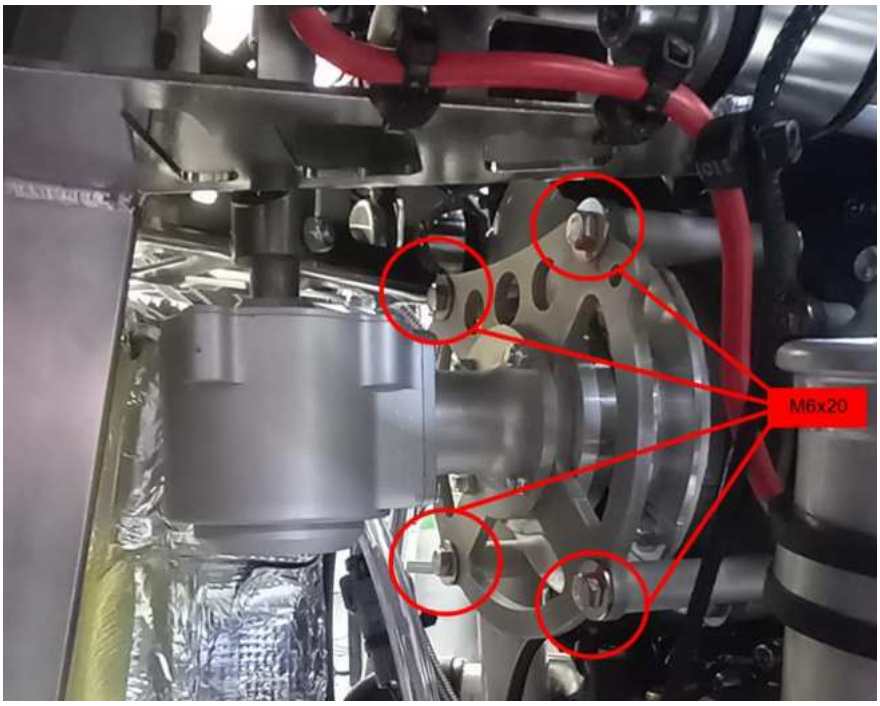


Figure 3 – Location of M6x20 screws (PN 45753)

63-11-00 6-1 INSPECTION: PRE-ROTATOR COUPLING

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Engine cowlings must be removed, see Job Card 52-00-00 4-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/.DESCRIPTION

1. Check wear state of coupling lining. Wear mark (groove in the lining) must be recognizable. See Figure 1, dimension A. Replace coupling if necessary. If no wear mark is visible check dimension of coupling lining according to Figure 2, if the lining has less than 7mm it must be replaced.
2. Measure clearance between coupling lining and coupling plate. See Figure 1, dimension B. Clearance must be between 0,5 – 1,0 mm. In case clearance is less than 0,5 mm or more than 1,0 mm contact AutoGyro Technical Support.
3. Measure clearance between inner (engine side) drive star disc and outer (coupling side) drive star claws. See Figure 1, dimension C. Clearance must be between 0,5 – 1,0 mm. In case clearance is less than 0, 5 mm or more than 1,0 mm contact AutoGyro Technical Support.

ILLUSTRATIONS

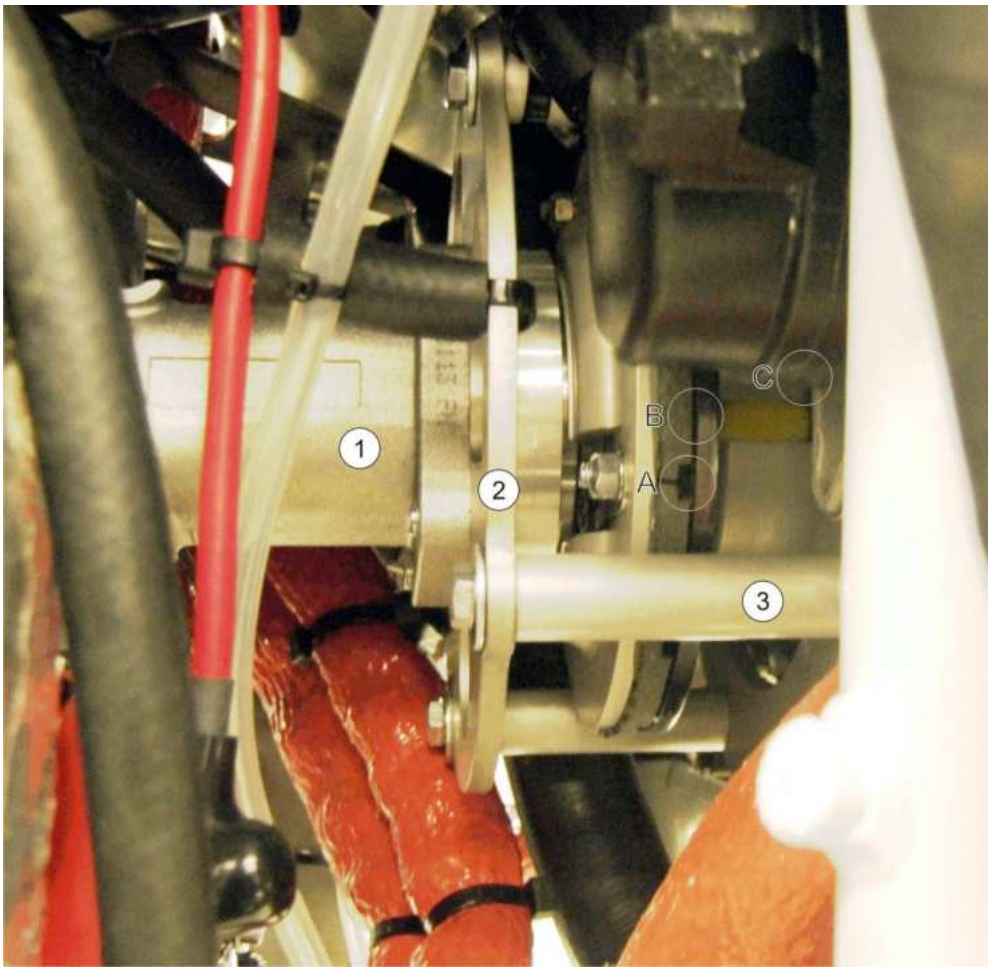


Figure 1 – Pre-rotator coupling

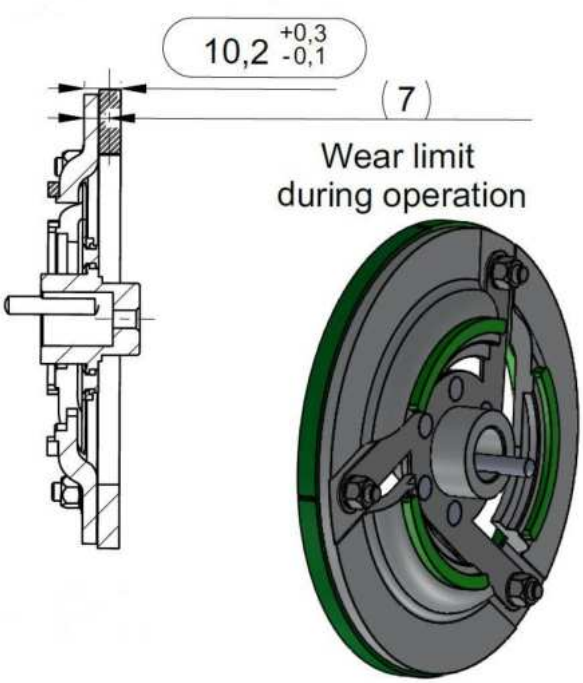


Figure 2 – Wear limit without wear marking

63-11-00 8-1 REPLACEMENT: PRE-ROTATOR FRICTION PLATE

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Engine cowlings must be removed, see Job Card 52-00-00 4-1.

Oil and fuel tank must be removed, see 51-00-00 4-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 7063 Super Clean (PN 35915)

Loctite 648 (PN 31023)

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks).

PROCEDURES/ DESCRIPTION

1. Remove Pre-Rotator coupling according to Job Card 63-11-10 4-1.
2. Untighten central screw. Should it not be possible to untighten central screw bore out bolt head and remove remaining screw thread with pliers.
3. Pull pressure plate off the drive shaft axially.
4. Pull friction pad of the gear shaft and install a new one.

NOTE: Be aware of the distance of 0.5-1 mm between pressure plate and friction plate. If this is not the case after installing the spare part shim washers have to be used to adjust the correct distance!

5. Re-install pressure plate and glue the screw back in with Loctite 243.
6. Re-install the Pre-Rotator coupling according to Job Card 63-11-10 4-1.

PARTS LIST

Figure Position	Description	PN	Remarks
1	Shim washer 0,1	47396	
1	Shim washer 0,2	47397	
1	Shim washer 0,3	47398	
1	M5x25, allen countersunk	23612	
2	Replacement Kit Friction Plate	46137	

ILLUSTRATIONS

Figure 1 – Central screw and pressure plate removed with previous installed shim washers

Figure 2 – Friction plate removed

63-11-00 8-2 REPLACEMENT: PRE-ROTATOR CRANKSHAFT DOG GEAR

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Engine cowlings must be removed, see Job Card 52-00-00 4-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 7063 Super Clean (PN 35915)

Loctite 648 (PN 31023)

Installation Aid Dog Gear (PN 35790)

Liqui Moly LM 47 (PN 31023)

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks).

PROCEDURES/ DESCRIPTION

1. Disconnect battery according to Job Card 24-30-00 4-1, work steps 1 - 2.
2. Remove M8x20 screw plug (Figure 1) with seal ring from the crankcase. Turn the crankshaft by propeller into top dead center (TDC) position of cylinder 1 and 2. TDC can be checked with the aid of a lamp through the opening of the removed screw. When the crankshaft is in correct position screw in thread pin M8x50 (Figure 2) so that the crankshaft is blocked (for further information see Rotax Maintenance Manual 12-20-00).
3. Remove Pre-Rotator coupling according to Job Card 63-11-00 4-1.
4. Heat up the crank shaft and the dog gear to approximately 100° and remove coupling dog gear with ‘Installation Aid Dog Gear’.
5. Thoroughly clean the crankshaft and the driver stud with Loctite 7063.

CAUTION: For the following work step, use Loctite 648 only! The use of other brands or alternative products will prevent correct functioning.

6. Apply a small amount of Liqui Moly 47 on the O-ring. Install the new O-ring on the spare part.
7. Apply Loctite 648 on inner and outer thread in sufficient quantity (Figure 4).

CAUTION: For the following work step, the clutch dog gear must be easily screwable (floating) up to the stop!

8. Screw coupling dog gear onto the thread and remove excess Loctite.
9. Tighten coupling dog gear using ‘Installation Aid Dog Gear’ with a torque of 150 Nm (Figure 7). Clean driver free of Loctite residues.
10. Remove thread pin M8x50. Install M8x20 screw plug with new copper seal ring and tighten with a torque of 15 Nm. Carefully turn propeller by hand to see if engine is free to turn.
11. Re-connect battery according to Job Card 24-30-00 4-1.
12. Re-install Pre-Rotator clutch according to Job Card 63-11-10 4-1.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Sealing ring A 8x13	950141	Rotax part
4	1	O-ring dog gear	45591	
4	2	Carrier crankshaft	43879	

ILLUSTRATIONS

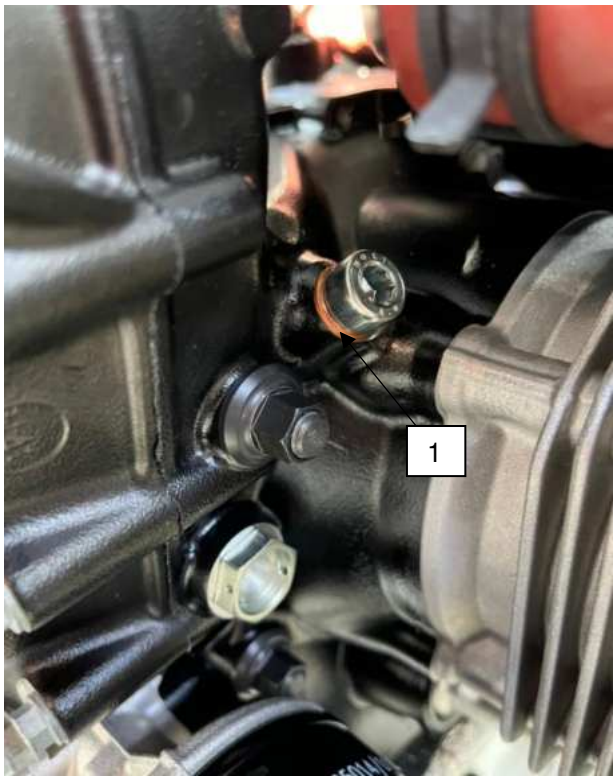


Figure 1 – M8 x 20 screw plug

Figure 2 – Thread pin M8 x 50

Figure 3 – Old part removed

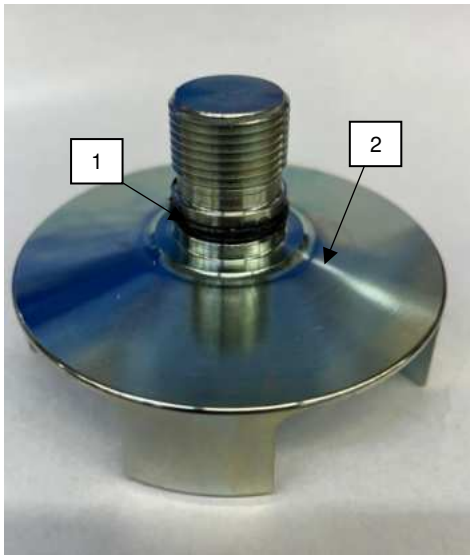


Figure 4 – New part with O-ring

Figure 5 – Loctite onto thread

Figure 6 – New part installed

Figure 7 – Tool to torque-tighten the part in the engine

63-11-00 8-3 REPLACEMENT: PRE-ROTATOR COUPLING PRESSURE PLATE

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Engine cowlings must be removed, see Job Card 52-00-00 4-1.

Oil and fuel tank must be removed, see Job Card 51-00-00 2-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 7063 Super Clean (PN 35915)

Loctite 648 (PN 31023)

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks).

PROCEDURES/ DESCRIPTION

Pressure Plate:

1. Remove Pre-Rotator Coupling according to Job Card 63-11-10 4-1.
2. Untighten central screw. Should it not be possible to untighten central screw bore out bolt head and remove remaining screw thread with pliers.
3. Pull pressure plate off the drive shaft axially. Place spare part and fix it with new central screw with Loctite 243 applied.

NOTE: Be aware of the distance of 0.5-1 mm between pressure plate and friction pad. If this is not the case after installing the spare part shim washers have to be used!

4. Re-install Pre-Rotator coupling according to Job Card 63-11-10 4-1.

PARTS LIST

Figure	Position	Description	PN	Remarks
2		Pressure plate mounted	31713	
2		Shim washer 0,1	47396	
2		Shim washer 0,2	47397	
2		Shim washer 0,3	47398	

ILLUSTRATIONS

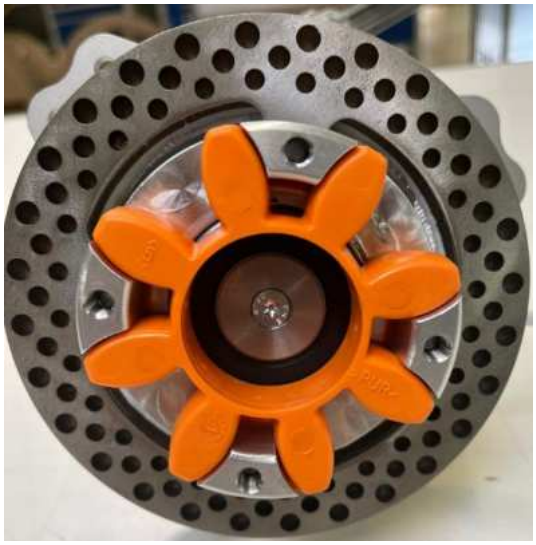


Figure 1 – Removed coupling with central screw

Figure 2 – Central screw and friction plate removed with previous installed shim washers

63-11-30 6-1 INSPECTION: PRE-ROTATOR UPPER ENGAGEMENT

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Mast cover must be removed, see Job Card 52-00-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Silicone Grease Lagermeister WHS 2002 (PN 30477)

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

1. Inspect wear pattern and gear mesh of Pre-Rotator upper engagement. If in doubt, contact AutoGyro Technical Support.
2. If the wear pattern is uneven (Figure 1), e.g. due to dynamic skew, the Pre-Rotator upper engagement / Bendix shaft must be repaired according to Job Card 63-11-30 8-2.
3. Inspect backlash of Pre-Rotator upper engagement. Backlash should be as tight as possible, but also wide enough to allow easy engagement of the pinion into the sprocket in any position.
4. If necessary, have backlash adjusted Job Card 62-31-00 5-1.
5. Grease ring gear with Silicone Grease Lagermeister WHS 2002.

ILLUSTRATIONS

Figure 1 – wear pattern

63-11-30 8-1 REPLACEMENT: PRE-ROTATOR UPPER AND LOWER BEARING

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

Loctite 648 green (PN 31023)

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES

Upper Bearing

1. Remove screws (Figure 1; 8).
2. To remove bearing top mount (Figure 1; 5) apply heat on the part. The bearing is glued onto the Bendix shaft and itself is slightly pressed into the bearing mount. Heat will loosen the Loctite and bearing with mount can be removed from the assembly.
3. Remove the bearing from the bearing mount, clean the mount and degrease it.
4. Degrease the new bearing (Figure 1; 28).
5. Install the new bearing into the mount, apply a thin layer of Loctite 648 on Bendix shaft and install mount with new bearing.

Note: Check orientation of bearing during replacement (Figure 2).

6. Apply a thin layer of Loctite 243 blue on threads of screws (Figure 1; 8), install bolts and torque-tighten bolts with 12 Nm.
7. Perform Job Card 63-11-30 6-1 "INSPECTION: PRE-ROTATOR UPPER ENGAGEMENT”

Lower Bearing

1. Remove the screw which holds the drive shaft top on the Bendix shaft. Slide the drive shaft downwards and remove it to avoid parts falling down and damage the aircraft (Figure 3)
2. Disconnect the pneumatic hose from the small pneumatic cylinder which engages the Bendix.
3. Remove the two screws which hold the lower bearing holder.
4. Heat up the upper bearing mount because the bendix shaft is glued into the upper bearing. Heat will loosen the Loctite and the bendix shaft can be removed. Be aware and don´t let the parts drop.
5. Press out the old bearing and degrease the area after cleaning.

6. Degrease the new bearing and install it in the lower bearing mount.
7. Press the Bendix shaft into the new bearing.
8. Apply Loctite 648 on the Bendix shaft and put the lower bearing mount together with the re-assembled Bendix shaft into the upper bearing and let it cure.
9. Apply Loctite 243 on the two screws and re-install the lower bearing holder. Torque-tighten the screws with 12 Nm.
10. Re-connect the pneumatic connection to the small cylinder and re-connect the drive shaft top.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	Rotor head Bridge III	43575	
1	3	distance bush 16-16/ 6,2	10399	
1	5	Bearing Mount Top	10402	
1	8	Screw M6x55 counter sunk	10458	
1	28	Angular Contact Ball bearing 7200-B-2RS-TVP FAG	43672	
3	4	Distance bush 16-34/M6	10400	
3	6	bearing holder bottom	10401	
3	7	deep groove ball bearing	10444	
3	13	Bendix shaft	36152	
3	27	M6x16 Allan key screw	20407	
3	29	cylinder	31886	

ILLUSTRATIONS

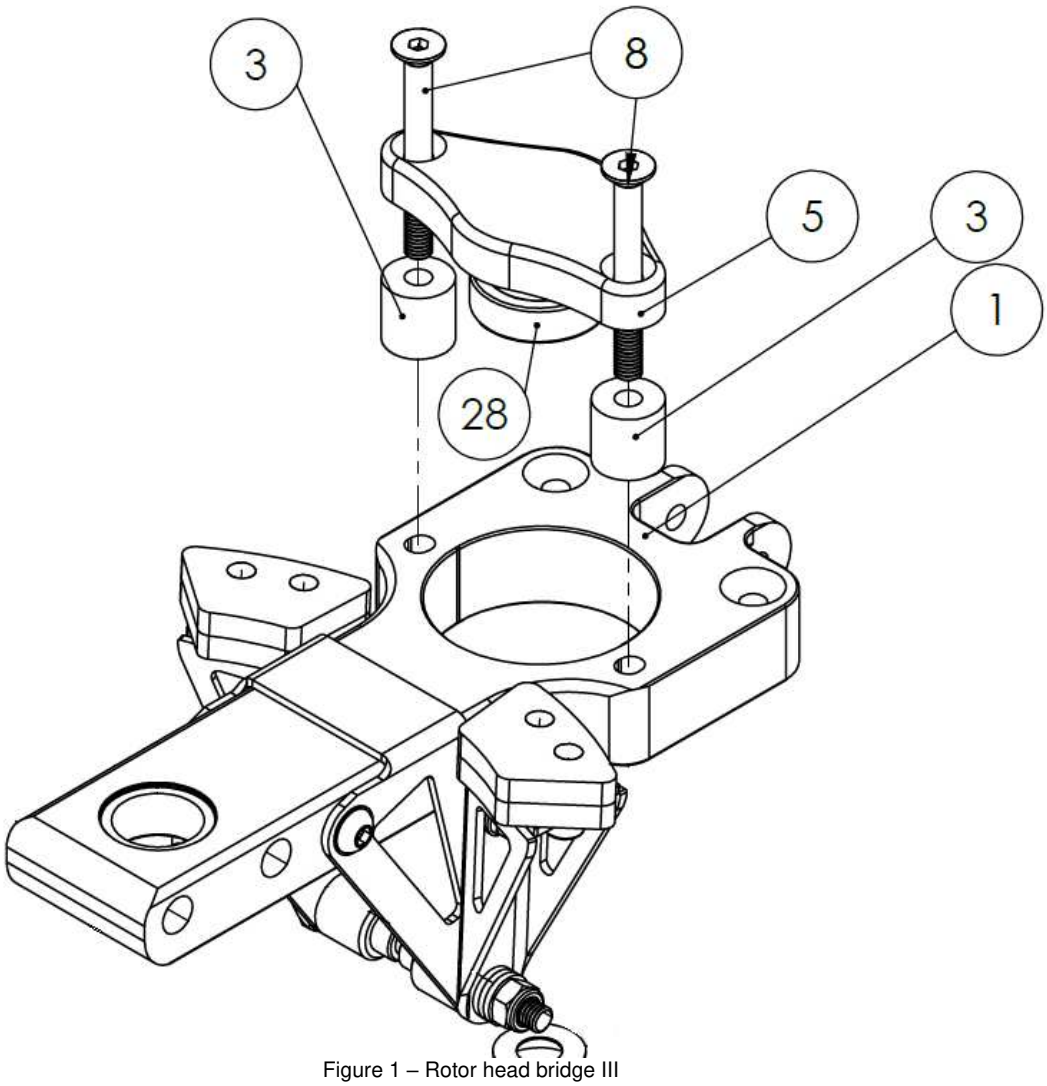


Figure 1 – Rotor head bridge III

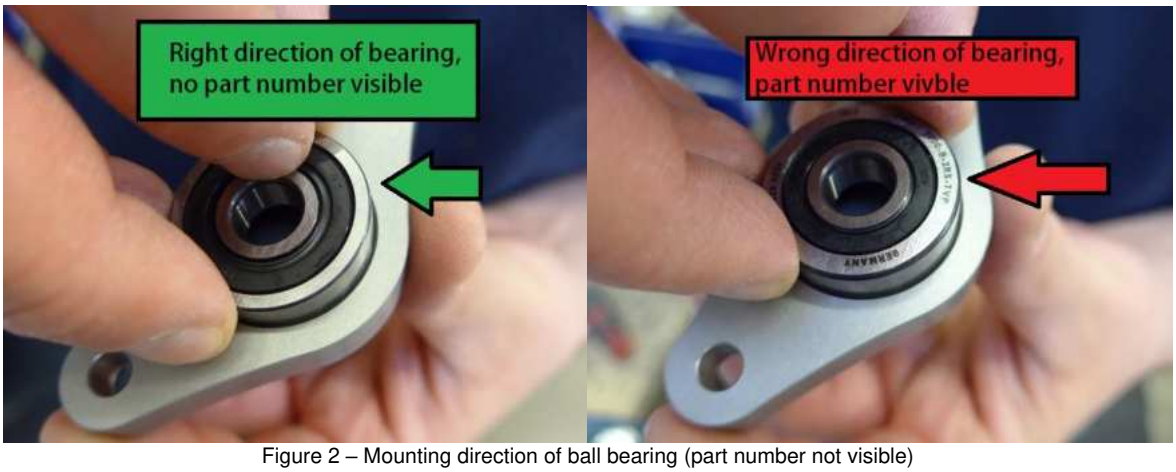


Figure 2 – Mounting direction of ball bearing (part number not visible)

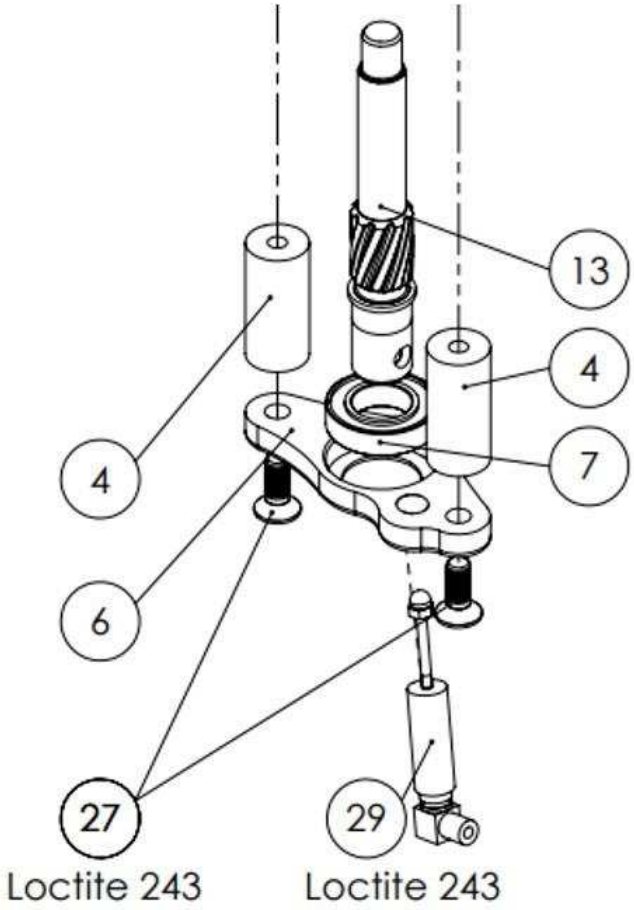


Figure 3 – Lower bendix assembly

Figure 4 – Drive shaft top disconnected from bendix shaft

Figure 5 – Lower bearing mount removed from rotor head

Figure 6 – Lower bearing mount

63-11-30 8-2 REPAIR: PRE-ROTATOR UPPER ENGAGEMENT

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 648 green (PN 30485)

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES

NOTE: For removal, replacement or re-installation of bearings, refer to Job Card 63-11-30 8-1

1. Remove lower bearing according to Job Card 63-11-30 8-1 and ensure that the shaft is, in free load condition, centrally positioned in the bearing seating. If free play in the upper bearing is present, the following must be carried out:
2. **Free play due to bearing abrasion:** Replace upper bearing and glue Bendix shaft with Loctite 648 green into the upper bearing. Re-assemble lower bearing, see Job Card 63-11-30 8-1.
3. **Free play due to abrasion of the Bendix shaft from ball bearing inner ring:** Glue Bendix shaft with Loctite 648 green into upper bearing. Re-assemble lower bearing. If free play is greater than 1/10 mm, then replace Bendix shaft with new part and glue new part with Loctite 648 green into upper bearing. Re-assemble lower bearing, see Job Card 63-11-30 8-1.
4. If in doubt or different cause of error suspected, contact AutoGyro Technical Support.

63-51-00 8-1 REPLACEMENT: ROTOR BRAKE PADS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks).

Rotor system must be removed, see Job Card 62-11-00 4-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 243 blue (PN 30483)

IMPORTANT NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

IMPORTANT NOTE: Procedure involves handling and disposal of special materials. For your health and environmental aspects respect all applicable regulations!

PROCEDURES/DESCRIPTION

1. Unscrew and remove screws (Figure 1; 1) with washers ((figure 1; 2) of affected brake pads.
2. Replace integrated rotor brake pad assembly (Figure 1; 3, 4) with new component.
3. Apply Loctite 243 (blue) on screws (Figure 1; 1), re-install screws with washers and torque-tighten.
4. After replacing the front pad, check that the head stops onto the pad before the stick reaches the forward limit stop. If not add some washer underneath the brake pad as required.

PARTS LIST

Figure	Position	Description	PN	Remarks
1	1	M5x8	NPI	
1	2	U5	NPI	
1	3	Brake Pad short Rotor Head III	43683	
1	4	Brake Pad long Rotor Head III	36139	

ILLUSTRATIONS

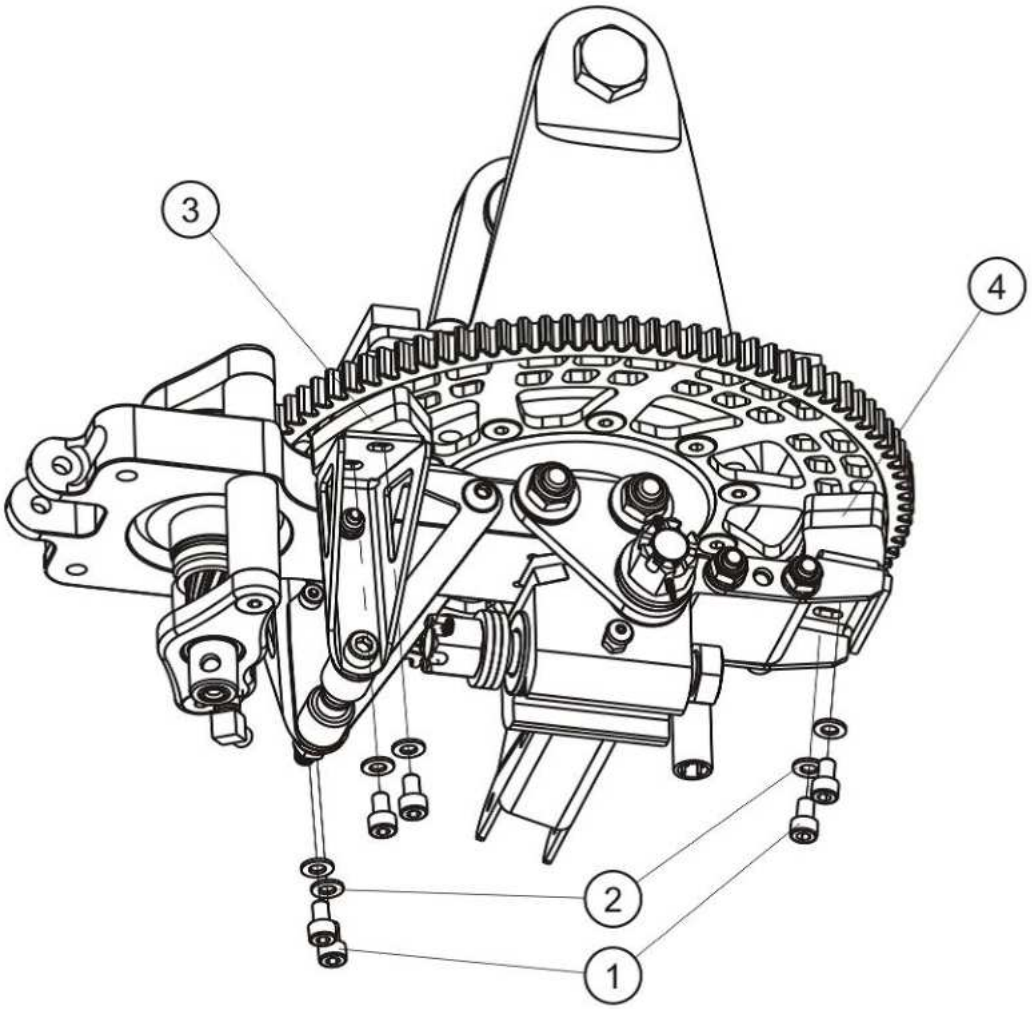


Figure 1 – Rotor Bridge III with Brake Pad

67-00-00 6-1 INSPECTION: FLIGHT CONTROL PUSH-PULL CABLES

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

None

PROCEDURES/DESCRIPTION

1. Inspect upper attachment points of pitch and roll control push-pull cables. Check firm installation, paint seal intact. Check condition of rubber seal of push-pull cable.
2. Inspect lower attachment point of rotor control push pull cable for “pitch”. Check firm installation, colour seal intact. Check condition of rubber seal of push-pull cable.
3. Inspect lower attachment point of rotor control push-pull cable for “roll” (visible at the bottom aft end of the fuselage). Check firm installation, colour seal intact.
4. Check free play of the pitch control push-pull cable. In order to do so, block the rotor head stop using composite part or equivalent underneath the brake pad or similar (Figure 4) and apply a minimum of 8bar of brake pressure. Measure free play/ dead travel at flight control stick as depicted in figure 5. To do so, carefully move control stick forward and aft.
5. If free play exceeds 5mm contact AutoGyro Technical Support. If free play is ok remove block.

ILLUSTRATIONS

Figure 1 – pitch and roll upper attachment

Figure 2 – pitch ppc lower attachment

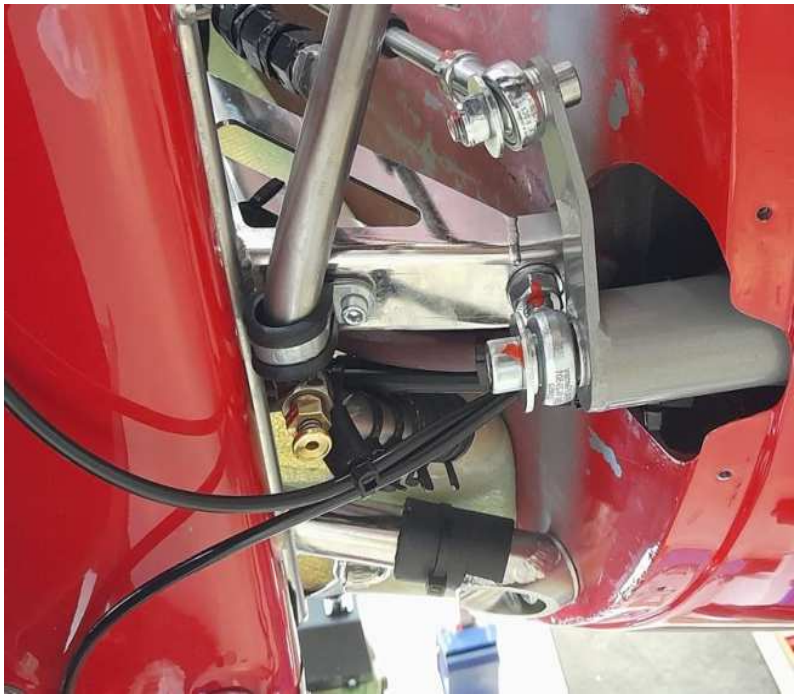


Figure 3 – roll ppc lower attachment seen from below

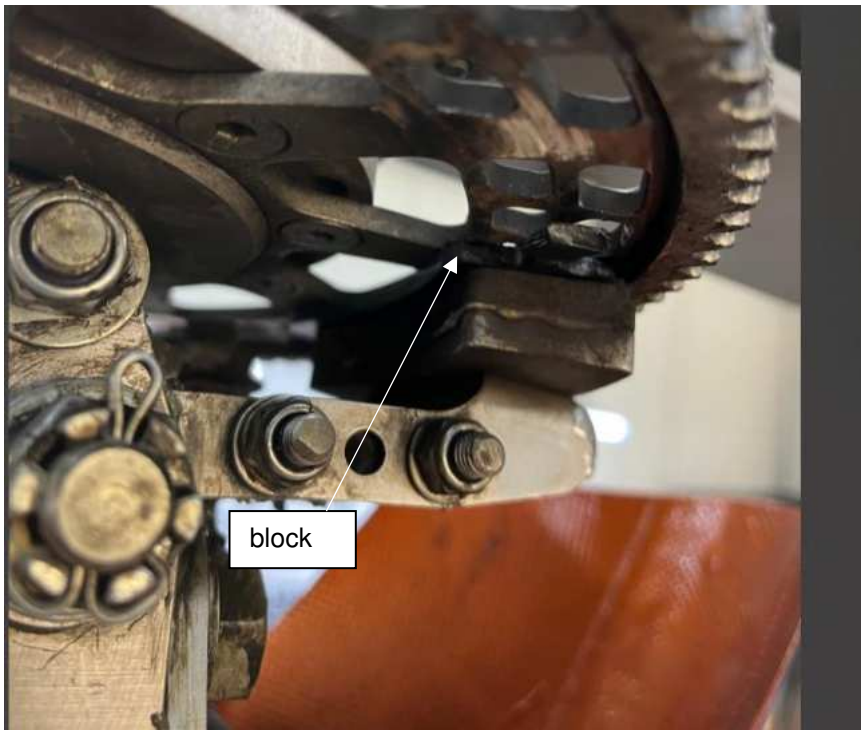


Figure 4 – blocked rotor head

Figure 5 – measurement of free play

67-05-00 8-1 REPLACEMENT: PITCH TRIM/BRAKE PNEUMATIC SEAL

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Gyroplane must be placed on level ground and restrained (blocks, chocks)

Mast cover must be removed, see Job Card 52-00-00 4-1

SPECIAL TOOLS AND CONSUMABLE MATERIALS

Loctite 2701 green (PN 30482)

GR-S-010 grease (supplied by SMC)

IMPORTANT NOTE: Procedure involves spare parts. Check parts list below for ordering details of affected components!

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES

1. Install rotor lash bag to support rotor system.
2. Switch pneumatic mode selector to FLIGHT and release trim pressure completely. If necessary, switch repeatedly!
3. Disconnect pneumatic cylinder from rotor head (Figure 3).
4. Tilt pneumatic cylinder to the side and remove the ball rod end, mark the position for re-installation.
5. Remove the circlip / snap ring with appropriate tool (Figure 4).
6. Move out piston. In order to do so, switch pneumatic mode selector to BRAKE and apply brake pressure.
7. Remove old seal ring and discard. Install new seal ring using the special grease if available or use local equivalent.
8. Retract piston and re-assemble pneumatic cylinder. Re-install circlip / snap ring. Use Loctite 2701 for the ball rod end and install it back to marked position.
9. Re-connect pneumatic cylinder with rotor head.

PARTS LIST

Figure	Position	Description	PN	Remarks
1		Pneumatic cylinder brake/trim repair kit	32926	
5	1	M6 Si A2	NPI	
5	2	Shim washer	NPI	
5	3	Spacer rotor brake	NPI	
5	4	M6 56/10 A4-80	NPI	
5	5	U6 A2	NPI	

ILLUSTRATIONS

Figure 1 – Repair kit

Figure 2 – Installed pneumatic cylinder

Figure 3 – Cylinder disconnected

Figure 4 – Circlip which has to be removed

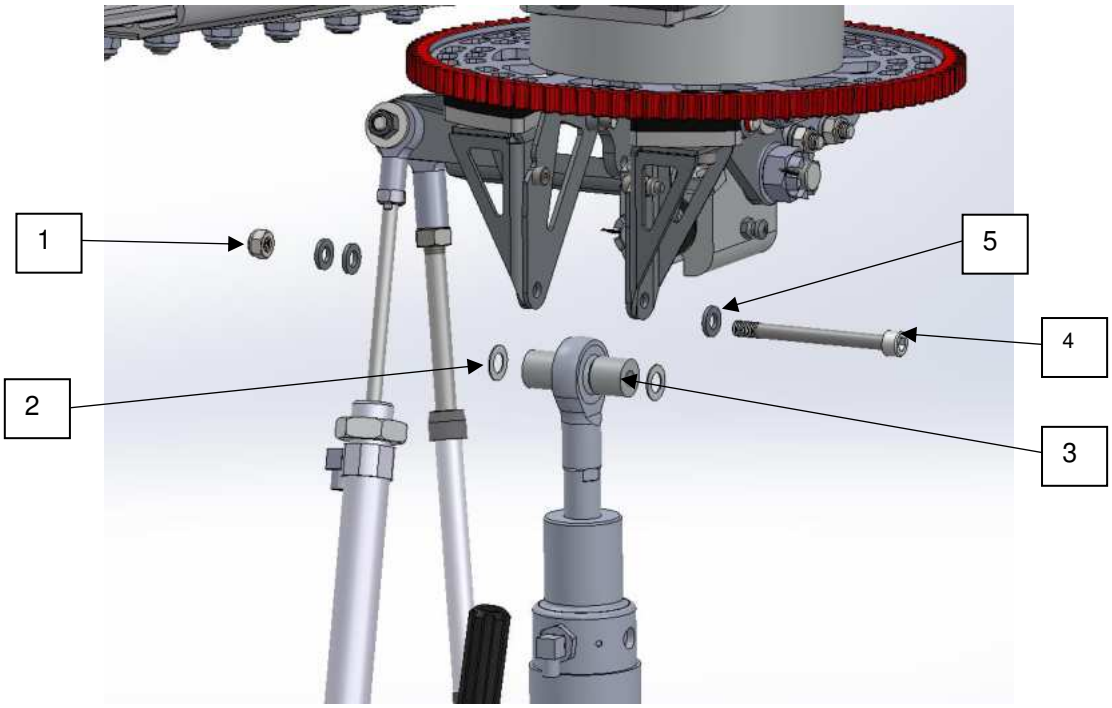


Figure 5 – Correct order of the parts to re-install pneumatic cylinder

71-20-00 8-1 REPLACEMENT: ENGINE MOUNT BUSHINGS

GENERAL, REFERENCES AND REQUIREMENTS

Task may only be performed by an organization or individual trained and entitled to carry out 'Professional Maintenance'!

Secure gyroplane against unauthorized or unintended operation!

Battery must be removed, see Job Card 24-30-00 4-1.

Fuselage fairing must be removed, see Job Card 52-00-00 4-1.

SPECIAL TOOLS AND CONSUMABLE MATERIALS

None

PRECAUTIONS AND SAFETY MEASURES

Gyroplane must be placed on level ground and restrained (blocks, chocks)

PROCEDURES/ DESCRIPTION

1. Use a crane to lift the engine. Mount the screw shekels and chains to the engine lifting points as shown.
2. Start with lower mounting bushings and replace engine mounting bushings one by one.
3. Check correct alignment of bushing prior torqueing.
4. After the engine is mounted check the engine for correct alignment to the body.

NOTE: For the 915iS/916iS. There are different engine mounts build by Rotax. Rotax has factory fitted a nut to the turbocharger plate. AutoGyro now use Nord-Lock washer in combination with this nut. This washer is only required for Rotax 915 iS / 916 iS engines with a fixed nut. Otherwise, the all-metal nut is used as before. Observe modified tightening torque 56 Nm. (Figure 3)

PARTS LIST

Figure	Position	Description	PN	Remarks
2		Engine Mount Set 65 Shore HNBR	48114	
4	1	Nord Lock Washer	48272	

ILLUSTRATIONS

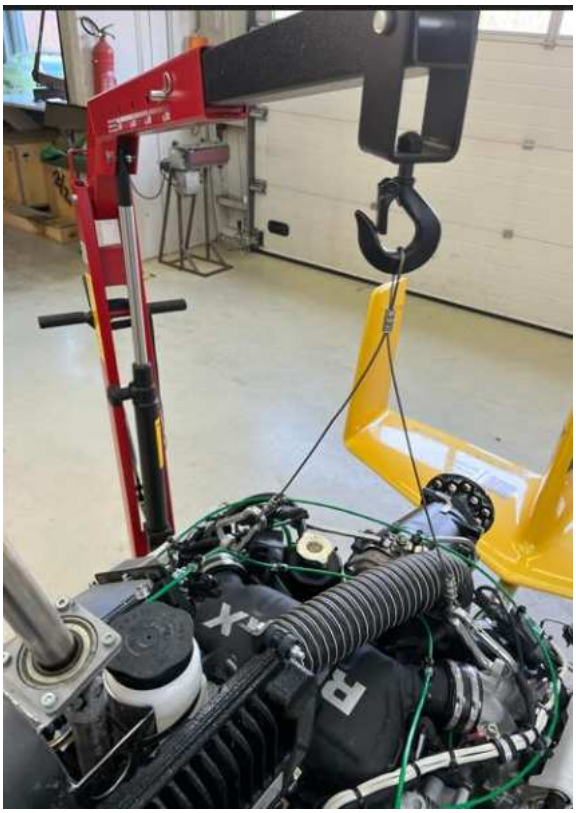


Figure 1 – Lifting points Rotax 915 / 916 engines

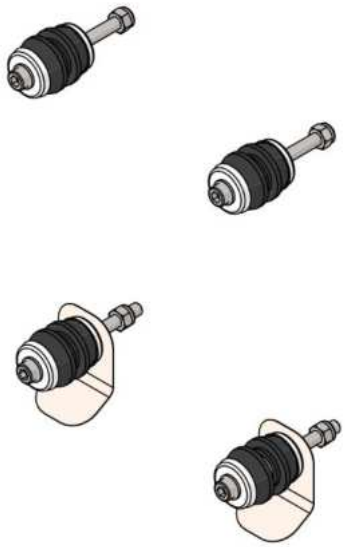


Figure 2 – Engine mounting set 48114

Figure 3 – 915 / 916 version with fixed nut

Figure 4 – Nord lock washer

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