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1) Depending on effectivity.

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1) Depending on effectivity.

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1) Depending on effectivity.

TABLE OF CONTENTS (Cont.)

RECORD OF REVISIONS

Revision Number	Date of Revision	Date Inserted	By	Revision Number	Date of Revision	Date Inserted	By
1	01.10.01			26	02.03.15		
2	29.10.01			27	21.07.15		
3	05.11.01			28	28.08.15		
4	07.11.01			29	29.02.16		
5	26.11.01			30	10.06.16		
6	01.03.02			31	09.10.18		
7	15.03.02			32	16.09.19		
8	22.03.02			33	08.06.22		
9	14.05.02						
10	18.05.02						
11	08.07.02						
12	26.04.05						
13	28.10.05						
14	18.01.06						
15	30.04.08						
16	15.09.09						
17	02.03.10						
18	21.06.10						
19	25.11.10						
20	24.02.11						
21	05.11.12						
22	19.03.13						
23	19.07.13						
24	15.08.13						
25	30.10.13						

RECORD OF TEMPORARY REVISIONS

Temp. Revision Number	Page	Date of Revision	By	Date Removed	By
01	05-20-00 p.4	24.01.13		19.03.13	
02	05-10-00 p.1 & 2	11.06.14		28.08.15	
03	05-20-00 p.7 76-10-00 p.203 & 204	14.08.14		28.08.15	
04	12-14-00 p.301 & 302 75-10-00 p.201 79-20-00 p.201	27.04.15		08.06.22	

HIGHLIGHTS OF REVISIONS

Revision Number	Date of Revision	Reason for Revision	Revision Number	Date of Revision	Reason for Revision
25	30.10.13	FAA validation: description/maintenance of electrical system, avionics and structures revised; airworthiness limitations;			
26	02.03.15	Life time limit, 6000 hour inspection			
27	21.07.15	“Fuel” revision; fuel indicating system calibration procedures			
28	28.08.15	TBO’s and maintenance checklist revised; Temp. rev. 2 & 3 incorporated			
29	29.02.16	Control surface ply lay-up added; repair procedures revised			
30	10.06.16	6000h check & TBOs added; battery check procedure added			
31	09.10.18	Rotax: new spark plugs			
32	16.09.19	TBO’s and maintenance checklist revised			
33	08.06.22	TBO’s and maintenance checklist revised; Temp. rev. 4 incorporated			

INTRODUCTION

1. General

This maintenance manual provides to maintenance personnel all information necessary for the maintenance of the aircraft. It contains detailed descriptions of the systems, troubleshooting and maintenance practices. This handbook only contains maintenance practices to be carried out on the aircraft, e.g. removal and installation of components.
Maintenance, repairs and inspections must be accomplished in accordance with the instructions given in this maintenance manual (MM).

2. List of Technical Publications

A. Use the MM in conjunction with the latest revisions of the technical publications listed in table 1.

NOTE: Due to the multiplicity of equipment coming onto the market the following list may be incomplete. If there is no information given on a certain component, use the documentation provided by the manufacturer of this component.

Table 1 - List of Technical Publications

No.	Title	Manual No. / Part No.	Supplier
1.	Airplane Flight Manual AQUILA AT01	FM-AT01-1010-100	AQUILA Aviation International GmbH
2.	Maintenance Manual (Line) for ROTAX Engine Type 912 Series	MML-912 899196	BRP-Powertrain GmbH & Co KG
3.	Maintenance Manual (Heavy) for ROTAX Engine Types 912 and 914 Series	MMH-912 899603	BRP-Powertrain GmbH & Co KG
4.	Operator's Manual for ROTAX Engine Type 912 Series	OM-912 899700	BRP-Powertrain GmbH & Co KG
5.	Illustrated Parts Catalog for ROTAX Engine Types 912 and 914 Series	IPC-912 899473	BRP-Powertrain GmbH & Co KG
6.	Operation & Installation Manual Hydraulically Controlled Variable Pitch Prop.	E-124	mt-Propeller Entwicklung GmbH
7.	Operation & Installation Manual Hydraulic Constant Speed Governor P-41()()-()	E-699	mt-Propeller Entwicklung GmbH
8.	Operation & Installation Manual Hydraulic Constant Speed Governor P-8()()-()	E-1048	mt-Propeller Entwicklung GmbH
9.	Maintenance Manual Cleveland Wheels and Brakes	AWBCMM0001	Parker Hannifin Corp.

Table 1 - List of Technical Publications (Cont.)

No.	Title	Manual No. / Part No.	Supplier
10.	Garmin G500 AML STC Installation Manual	190-01102-06	Garmin International Inc.
11.	Instructions for Continued Airworthiness G500 PFD/MFD System	190-01102-00	Garmin International Inc.
12.	Installation Manual EFD1000 and EFD500 Software Version 2.x	900-00003-001	Aspen Avionics Inc.
13.	Instructions for Continued Airworthiness EFD1000 and EFD500	900-00012-001	Aspen Avionics Inc.
14.	Installation Manual GMA 340 Audio Panel	190-00149-01	Garmin International Inc.
15.	Pilot's Guide GMA 340 Audio Panel	190-00149-10	Garmin International Inc.
16.	Installation Manual GMA 350/350H	190-01134-11	Garmin International Inc.
17.	Pilot's Guide GMA 350	190-01134-12	Garmin International Inc.
18.	Maintenance Manual Bendix/King KT 76C ATCRBC Transponder	006-15545-0002	Honeywell International Inc.
19.	Installation Manual GTX 328 Transponder	190-00420-04	Garmin International Inc.
20.	Installation Manual GTX 330 Transponder	190-00207-02	Garmin International Inc.
21.	Installation Manual 400 Series	190-00140-02	Garmin International Inc.
22.	Installation Manual 400W Series	190-00356-02	Garmin International Inc.
23.	Installation Manual 500 Series	190-00181-02	Garmin International Inc.
24.	Installation Manual 500W Series	190-00357-02	Garmin International Inc.
25.	Installation Manual GTN 6xx/7xx AML STC	190-01007	Garmin International Inc.
26.	Installation Manual Bendix/King KMD 150 MFD/GPS	006-10607-0000	Honeywell International Inc.
27.	Installation Manual Flymap L	500-301	Stauff Systec GmbH
28.	Installation Manual Model SL30 NAV/COMM	560-0404-03	Garmin AT Inc.

Table 1 - List of Technical Publications (Cont.)

No.	Title	Manual No. / Part No.	Supplier
29.	Pilot's Guide SL30 NAV/COMM	560-0403-01	Garmin AT Inc.
30.	Installation Manual Model SL40 VHF COMM Transceiver	560-0956-03	Garmin AT Inc.
31.	Pilot's Guide SL40 VHF COMM	560-0954-02	Garmin AT Inc.
32.	Installation Manual / Operation Manual Kannad 406 AF Compact	DOC 08038 Ref. 0145599	Kannad Aviation Enquiries Orolia SAS
33.	Installation Manual VT-01 Transponder	01.0200.11E	Garrecht Avionik GmbH
34.	Installation Manual VT-02 Transponder	02.0200.11E	Garrecht Avionik GmbH
35.	Installation Manual FLARM Collision Warning Unit	---	FLARM Technology GmbH
36.	Maintenance Manual Bendix/King KX 125	5006-05335-0001	Honeywell International Inc.
37.	Acceptable Methods, Techniques and Practices - Aircraft Inspection and Repair	AC 43.13-1B	Federal Aviation Administration (FAA)
38.	Restraint Systems Model 1-10-() Component Maintenance Manual	CMM 25-22-13	Schroth Safety Products GmbH
39.	Kannad AF Integra Operation Manual	DOC 09078 Ref. 0146257	Kannad Aviation Enquiries Orolia SAS
40.	Andromeda Aurora Installation Manual		Aveo Engineering
41.	Ultra Galactica Installation Manual	AVE-WPST-54G-IM	Aveo Engineering

3. Structure of the Maintenance Manual

The MM has been prepared in accordance with the Air Transport Association (ATA) Specification Number 100 for Manufacturer's Technical Data.

A. Classification of Subject Matter

The MM is divided into 5 major sections. Each of these sections is sub-divided into chapters. A table of contents is provided at the beginning of each MM chapter.

(1)	General	Ch. 05 - 12
(2)	Airframe Systems	Ch. 20 - 37
(3)	Structures	Ch. 51 - 57
(4)	Propeller	Ch. 61
(5)	Power Plant	Ch. 71 - 80

Each chapter is identified by a separator sheet with the chapter number and the title.

B. Page Numbering System

(1) The page numbering system consists of three-element numbers separated by dashes.

The first element identifies a system:
e.g. 27 Flight Controls (a chapter)

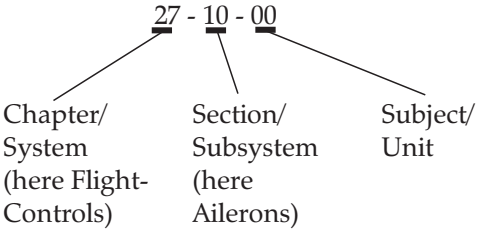
The second element identifis a subsystem in the system:

e.g. 27-30 Elevator (a section)

If the system comprises several subsystems, further sections are added:
e.g. 27 - 31 Elevator Trim Control (a further section)

The last number permits the identification of the individual units in a system or subsystem. However, this number is only used when detailed description of such individual units is required.

Example:



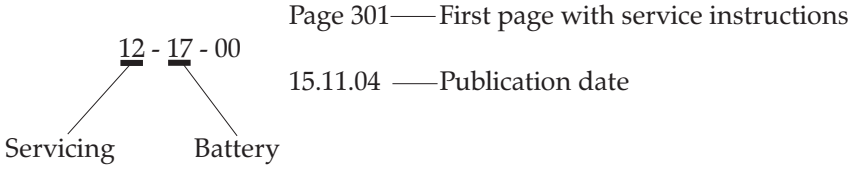
(2) When the chapter/system element number is followed by zeros in the section/subsystem and subject/unit element number (28-00-00), the information is applicable to the entire system.
(3) When the section/subsystem element number is followed by zeros in the subject/unit element number (28-20-00), the information is applicable to subsystem within the system.
(4) The subject/unit element number is used to identify information applicable to units within the subsystems.

This breakdown of the chapters provides a good overview and facilitates the exchange of revised pages. Since most of the systems are relatively simple, the third element is used only in the more complex systems, i.e. if it appears necessary to describe a unit or device in greater detail.

(5) All maintenance data given in the MM is divided into specific types of information. This facilitates work with the manual. For this purpose, page number blocks are reserved depending on type of information.

Page 1 - 99	Description and Operation
Page 101 - 199	Troubleshooting
Page 201 - 299	Maintenance Practices
Page 301 - 399	Servicing
Page 401 - 499	Removal/Installation
Page 501 - 599	Adjustment/Test
Page 601 - 699	Inspection/Check
Page 701 - 799	Cleaning/Painting
Page 801 - 899	Repairs

Example page number:



(6) Figures are numbered consecutively within each topic.

Example:	Fig. 201	1. Illustration for maintenance
	Fig. 202	2. Illustration for maintenance etc.

C. Page Order

(1) In the front of the manual:

Title
Table of Contents
Record of Revisions

Record of Temporary Revisions
Highlights of Revisions
Introduction
List of Effective Chapters

(2) Each chapter begins with:

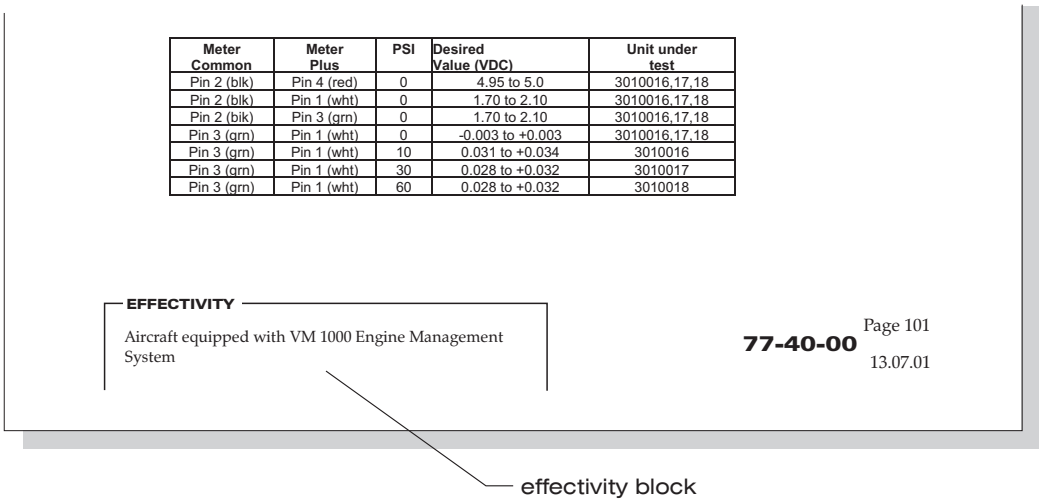
Title
Table of Contents

D. Figures

The figures within the sections of a chapter are numbered in accordance with the appropriate page number block. Numbering begins with one (1) and is continuous.

4. Using the Maintenance Manual

A. To obtain information about a specific system, refer to the list of effective chapters in the front of the manual to find the corresponding chapter number.
In the table of contents of the respective chapter, one then finds more detailed information about the arrangement of material.



Effectivity Block
Figure 1

B. Effectivity

This maintenance manual is "customized". It includes the following effectivity identification system to show modification and/or configuration differences.

(1) The MM starts with a list of effective chapters. Each chapter is listed with date of issue or revision.

(2) To identify the aircraft an effectivity statement (i.e. Garmin Avionics) or a six-digit numeric indicator is shown in the effectivity column in the table of contents if applicable.
(a) The six-digit numeric indicator begins with the last three digits of the lowest assigned number, to indicate first effectivity, and ends with the last three digits of the highest assigned number, to indicate last effectivity, of an unbroken sequence of assigned numbers. A hyphen is shown between the numbers. Open ended effectivity is indicated by "999" in the last effectivity if applicable. For example: 023-999 indicates aircraft 023 and subsequent.

(3) Effectivity Block
The system provides further direct annotation of applicability on the pages. On pages not applicable for all aircraft, an effectivity block appears at the bottom left-hand corner. Effectivity identification may be a six-digit numeric indicator (ref. to (2)(a)) or an effectivity statement (refer to figure 1).
The information on that page applies only to the aircraft noted in the effectivity block.

NOTE: Pages with no effectivity block may be followed by pages with effectivity blocks and vice versa and have identical page numbers.

C. Revisions

(1) Maintenance manual revisions, caused by variety of reasons (regulation changes, technical changes, typographical errors, etc.), will be published regularly.

Revision notification contains a note explaining the revision along with:

- the revised manual chapters
- the reason of revision
- the affected airplane serial numbers

(2) Should a revision be urgently required between regular updating, a temporary revision will be issued. The relevant pages are yellow and will usually be incorporated in the next scheduled revision of the maintenance manual.

(3) Identifying revised material
(a) Revisions and/or additions will be identified by a vertical black line (revision bar) in the outer margin of the page opposite the text/illustration that has been changed.
(b) When technical changes result in unaltered texts slipping on to a different page, a revision bar will be placed in the outside margin, opposite the chapter/section/subject, page number and date of all affected pages, providing no other revision bar appears on the page.

(4) Incorporating revisions into the manual

(a) In order to keep track of revisions and to facilitate the use of the manual, a revision always affects the entire chapter, i.e. all pages of a chapter have the same date of issue or revision and the entire chapter is replaced during a revision.

(b) MM revisions contain an effectivity page. Chapters to be removed or inserted are listed in sequence and assigned with the respective action.
Incorporation of revisions into the manual must be documented in the record of revisions at the front of the MM.

(c) Temporary revisions are issued as single pages and must be incorporated according to the notes on the effectivity page delivered with the revision. They become invalid and must be removed when the corresponding permanent revision is issued.

D. WARNINGS, CAUTIONS and NOTES

When carrying out maintenance on the airplane, general safety and maintenance rules should always be observed.
In addition, the MM contains warnings, cautions and notes to highlight or emphasize important and critical instructions.

WARNING:

Hazard for maintenance personnel!

CAUTION:

Hazard for systems and equipment!

NOTE:

Specific information

E. Abbreviations

Where it appears reasonable, abbreviations are used. They conform to recognized standards.

LIST OF EFFECTIVE CHAPTERS

Chapter	Title	Date*
	GENERAL	
	Table of Contents	08.06.22
	Introduction	08.06.22
04	Airworthiness Limitations	02.03.15
05	Time Limits / Maintenance Checks	08.06.22
06	Dimensions and Areas	08.06.22
07	Lifting & Shoring	30.10.13
08	Leveling and Weighing	27.09.01
09	Towing and Taxiing	02.03.10
10	Parking, Mooring, Storage & Return to Service	02.03.10
11	Placards and Markings	08.06.22
12	Servicing	08.06.22
	AIRFRAME SYSTEMS	
20	Standard Practices Airframe	09.10.18
21	Ventilation and Heating	08.07.02
23	Communications	30.10.13
24	Electrical Power	10.06.16
25	Equipment and Furnishings	30.10.13
27	Flight Controls	30.10.13
28	Fuel	21.07.15
31	Indicating/Recording Systems	30.10.13
32	Landing Gear	08.06.22
33	Lights	30.10.13
34	Navigation	30.10.13
	STRUCTURES	
51	Structures	29.02.16
52	Doors	30.10.13
53	Fuselage	30.10.13
55	Stabilizers	14.05.02
56	Windows	19.07.13
57	Wings	18.01.06
	PROPELLER	
61	Propeller	19.03.13

LIST OF EFFECTIVE CHAPTERS

Chapter	Title	Date*
POWER PLANT		
71	Power Plant	26.04.05
74	Ignition	09.10.18
75	Cooling System	08.06.22
76	Engine Controls	28.08.15
77	Engine Indicating	26.11.01
78	Exhaust	07.11.01
79	Oil	08.06.22
80	Starting	05.11.01
91	Charts and Wiring Diagrams	30.04.08

* The date refers to the issue / revision date of the respective chapter.

The technical content of this document (revision 33) is approved under the authority of DOA ref. EASA.21J.025.

08.06.22

Date, Signature Office of Airworthiness

CHAPTER 5

TIME LIMITS / MAINTENANCE CHECKS

TABLE OF CONTENTS

TIME LIMITS / MAINTENANCE CHECKS - GENERAL

1. Introduction

   A. This chapter provides scheduled and unscheduled maintenance checks and inspections, recommended by the type certificate holder as well as the time limits for service life limited components and parts.

2. General Description

   In the following, a brief description and intended purpose of each section of this chapter is given.

   A. Section 05-00-00 - Time limits / Maintenance Checks - General. This section provides a general overview of the content and purpose of this chapter.

   B. Section 05-10-00 – Component Time Limits. This section contains the time limits of all service life limited components and parts and recommended time between overhaul (TBO) for components.

   C. Section 05-20-00 - Scheduled Maintenance Checks. This section contains information about recommended scheduled maintenance and inspections. The recommended maintenance and inspection program for the systems and components as well as the relevant intervals are embodied in a checklist included in this section.

   D. Section 05-30-00 - Daily Inspections. In this section pre-flight and post-flight checks are described, that have to be carried out every day the aircraft is in operation.

   E. Section 05-50-00 - Unscheduled Maintenance Checks. This section specifies checks, which have to be conducted after unusual events and incidences such as hard landings.

COMPONENT TIME LIMITS

1. General

A. Different components and parts of the aircraft are certified for specific service life. When reaching this time limit, the respective item must be replaced or overhauled.
In order to monitor permissible service life the installation or removal of each item must be recorded in the aircraft logbook.
Where an interval is given in both flight time and calendar time, the limit which is reached first must be applied.

2. Component Time Limits

A. Under certain circumstances the replacement or overhaul of components may be required before the time limits listed below are reached.

B. Replacement time limits, recommended by the type certificate holder:

Chapter	Component / Part	Replacement Time	Overhaul
24	Ignition lock	6000 h	no
24	Starter relais	2000 h	no
27	Elevator control rods incl. rod ends	6000 h	no
27	Rudder control cables	6000 h	no
27	Control surface plain bearing bushings	6000 h	no
28	Electrical fuel pump	3000 h or 10 years	no
32	Nose landing gear spring package rubber elements	5 years	no
32	Main landing gear struts	no	6000 h
32	Flexible hoses of the brake system	10 years	no
55	Lower rudder hinge bracket	6000 h	no
57	Wing attachment bolts	6000 h	no
71	Flexible teflon hoses of the oil / fuel system[1)]	2000 h or 15 years	no

1) Hoses that are not covered by the engine type certificate (TC).

Chapter	Component / Part	Replacement Time	Overhaul
71	Flexible hoses of the cooling system	5 years	no
71	AQUILA engine mount and attaching bolts	6000 h	no
71	Engine shock mounts	with engine overhaul	no
76	Engine / propeller control Bowden cable wires	2000 h	no

C. Vendor Established Component Time Limits

Chapter	Component / Part	Replacement Time	Overhaul
25	ELT battery	Note 1	no
25	Fire extinguisher Air Total	10 years	Note 4
25	Fire extinguisher H3R	12 years	no
31	ASPEN internal battery	800 h or 3 years	no
34	KMD 150 MFD/GPS internal battery	10 years (recommended)	no
34	WINTER instruments	no	Note 5
61	Propeller MTV-21-A/175-05	no	2000 h or 6 years Note 2
61	Propeller governor Woodward A210786	no	6 years, with engine Note 6
61	Propeller governor P-410-13	no	2400 h or 6 years Note 2
61	Propeller governor P-850-12	no	2400 h or 6 years Note 2
71	Engine ROTAX 912S	no	2000 h or 15 years, 1500 h or 12 years, 1200 h or 10 years Note 3

71	ROTAX mechanical fuel pump	5 years Note 3	no
71	ROTAX flexible teflon hoses of the fuel system	with engine overhaul Note 3	no
71	ROTAX rubber parts of the engine (V-belt, hoses, carburetor parts)	5 years Note 3	no
71	Spark plugs	400 h Note 3	no

NOTES:

Note 1: Refer to manufacturer instructions for battery replacement time limits.

Note 2: Refer to latest issue of the mt-propeller Service Bulletin No. 1.-( ), and to the mt-Propeller E-124 Operation and Installation Manual.

Note 3: Refer to the latest issues of BRP-Rotax, i.e. Service Bulletins, Service Information and to the ROTAX Aircraft Engines Maintenance Manual for ROTAX Engine Type 912 Series.

Note 4: Refer to manufacturer instruction for overhauling.

Note 5: Though there is no TBO for these instruments, the manufacturer Gebr. Winter GmbH & Co. KG recommends that airspeed indicators and altimeters are subjected to retesting after 5 years.

Note 6: The 6 year calendar time limit applies for units not in continuous service with a minimum of 120 hours per year. Refer to the latest issue of the Woodward Service Bulletin S/B-33580-M.

SCHEDULED MAINTENANCE CHECKS

1. General

A. The inspection time intervals chart contained in this chapter shows the recommended intervals at which maintenance and maintenance checks should be carried out on the aircraft.

Annual inspections and 100 hour inspections on the AQUILA AT01 must include all inspection items as required by FAR 43, Appendix D, "Scope and detail of annual/100h inspections". Chapter 4 "Airworthiness Limitations" of this manual defines the inspection intervals for continued airworthiness.

B. If an aircraft is being operated under unusual environmental conditions, maintenance intervals may be reduced.

2. Inspection Time Intervals Chart

A. The maintenance and checks listed are to be carried out at the specified intervals and documented appropriately.

NOTE: For new aircraft and new engines the first check is carried out after 25 hours and should be of the extent of a 100-hour inspection. For new engines only an engine ground run and the checks listed in the "Engine" section have to be carried out.

NOTE: If more than 30% of operation hours have been flown with leaded fuel (e.g. AVGAS 100LL), an additional 50-hour inspection is necessary (refer to ROTAX Aircraft Engines SI-912-016).

NOTE: Where an interval is given in both flight time and calendar time, the limit which is reached first must be applied. The next interval starts with the flight time and calendar time of the latest performed maintenance check.

B. For intervals between maintenance work, the following tolerances must not be exceeded:

Interval	**Tolerance**
up to and including 100 h	10% of interval
>100 h up to and including 1000 h	5% of interval
>1000 h	50 h
calendar time limits	30 days

These tolerances must not me added up. For example: if the 100-hour inspection was done at 107 h, the next inspection must be done at 200±10 h, not 207±10 h.

If an inspection is carried out earlier than allowed by the specified tolerance, all subsequent inspection intervals are counted from that inspection. For example: If the 100 h inspection was done at 87 h, the next inspection must be done at 187±10 h.

C. Due to recent ROTAX publications the maintenance checks given for the ROTAX engine may not be up to date. Refer to the latest revisions of ROTAX Engine Type 912 Series Maintenance Manual and Service Bulletins.

D. Due to the multiplicity of equipment coming onto the market, no maintenance instructions are given for electronic equipment. For information on a certain component use the documentation provided by the manufacturer of this component.

NOTES:
R912* Maintenance Manual for ROTAX Engine Type 912 Series
MT* mt-Propeller E-124 Operation and Installation Manual
TTSN Total Time Since New
TTSO Total Time Since Overhaul

E. Inspection Time Intervals Chart:

Aircraft S/N		Operating Hours		Registration Number	
Engine S/N		Operating Hours TTSN / TTSO:		Date	
Propeller S/N		Operating Hours TTSN / TTSO:		Type of Inspection	

No.	Pre-Inspection / Engine Ground Test	Reference	Interval 100h	other	Initials
1.	Check that the following documents are up-to-date and available upon request: - AT01 Maintenance Manual - AT01 Airplane Flight Manual - Aircraft Log Book and required certificates - Engine and Propeller Log Books - Equipment List and Weight and Balance Record - Airworthiness Directives - Service Bulletins and Service Information - Services Time Record	AT01 Maintenance Manual, AT01 Airplane Flight Manual	X		
2.	Airworthiness Directives - Verify all Airworthiness Directives have been complied with.		X		
3.	Service Letters, Service Bulletins, and Service Information - Verify all AQUILA GmbH and suppliers Service Letters, Service Bulletins and Service Information have been complied with.		X		
4.	Service time records, equipment list and weight and balance records - Check. Update if necessary.		X		
5.	Aircraft file and technical documentation - Verify complete and in proper order.		X		

No.	Pre-Inspection / Engine Ground Test (Cont.)	Reference	Interval 100h	Interval other	Initials
6.	Engine and engine compartment - Clean for leakage check.	R912* 12-20-00	X[1)]		
7.	Perform an engine test run as follows: Start engine and warm-up at 820 RPM for approx. 2 minutes, continue at 1030 RPM, duration depends on ambient temperature until oil temperature reaches 50° C. Rudder pedal brakes and parking brake - Check for proper operation. Propeller governor - Set 1700 RPM and monitor the manifold pressure. Reduce engine speed by moving the propeller control by 200 RPM. Note the RPM drop and manifold pressure. Increase RPM to 1700 RPM. Repeat three times. RPM drop: _____RPM / Man. press :_____in. Hg Engine instruments - Check engine parameters. Magneto RPM drop - Set 1700 RPM. Check that RPM drop is less than 120 RPM while operating on one magneto and no more than a 50 RPM drop difference between left and right magnetos. RPM drop left magneto :_____RPM RPM drop right magneto:_____RPM Carburetor heat - Pull carburetor heat knob at 1700 RPM. Engine RPM should show a drop of at least 20 RPM. RPM drop:_____RPM Engine full power - Advance throttle to full forward. Tachometer should read 2265 ±50 RPM. Full power RPM:_____RPM Engine idle - Move throttle control lever to full aft. Tachometer should read 750 +50 RPM. Idle RPM:_____RPM Cool down engine at 1100 RPM. Shut down engine, set the ignition switch and the master switch to the OFF position. Remove ignition key from aircraft.	R912* 12-20-00 32-40-00 MT*	X[1)]		
8.	Airframe, power plant, propeller - Do a walk around to detect damages, fluid leaks or other abnormalities.		X[1)]		
9.	Fuselage and empennage - Clean.		X		
10.	Aircraft interior - Clean and vacuum.		X		
11.	Record all malfunctions and abnormalities.		X		

1) Check has to be carried out every 100 hours of operation or 12 month, whichever comes first.

No.	Engine	Reference	Interval 100h	Interval other	Initials
1.	Engine cowling - Remove engine cowling. Check for cracks, overheated areas, deformation, loose or missing fasteners. Check condition of fire protect paint and heat resistance shielding.		X		
2.	Engine oil change - Remove oil drain screw from oil tank. Drain old oil and dispose in accordance with environmental regulations.	12-12-00 R912* 12-20-00	X[2)]	50h[1)]	
3.	Oil tank - Check oil tank and clean if contaminated.	R912* 12-20-00	X[2)]	50h[1)]	
4.	Oil filter - Remove old oil filter from engine and install new oil filter. Lubricate mating sealing ring of new oil filter with engine oil. Tighten new oil filter by hand. Cut open old oil filter without producing any metal chips and inspect filter mat, filter cover, sealing lip, spring of bypass valve (small) and positioning spring (large) for particles, wear and missing material. Findings:_____	12-12-00 R912* 12-20-00	X[2)]	50h[1)]	
5.	Oil change - Renew gasket ring of drain screw on oil tank. Tighten drain screw to 25 Nm (221 in.lbs). Refill oil tank with approx. 3 liters of oil. For oil quality, see Operators Manual and SI-912-016. Refilled:_____Quantity:_____L CAUTION: DO NOT USE AIRCRAFT ENGINE OIL. Due to the friction clutch and the high stresses in the reduction gear 4-stroke motor cycle oils are recommended. For suitable lubricants and oil change intervals, see ROTAX Operators Manual and latest appropriate ROTAX publications.	12-12-00 R912* 12-10-00 R912* 12-20-00 SI-912-010 SB-912-040	X[2)]	50h[1)]	
6.	Visual inspection of the magnetic plug for accumulation of chips	R912* 12-20-00	X[2)]		
7.	Check compression by differential pressure method. Test pressure: 6 bar (appr. 6000 hPa / 87 psi) Pressure drop: max. 25% Cyl. 1 2 3 4 Pressure drop: _____ _____ _____ _____	R912* 12-20-00	X[1)]	200h	
8.	Cooling air ducts, engine baffling and cylinder cooling fins - Check for obstructions, cracks, wear and general condition. Check for signs of abnormal temperatures. Check crankcase for cracks.	R912* 12-20-00 SB-912-029	X[2)]		
9.	Leakage bore at the base of the water pump - Check for signs of leakage.	R912* 12-20-00	X[2)]		

1) If more than 30% of operation hours have been flown with leaded fuel e.g.: AVGAS 100LL
2) Check has to be carried out every 100 hours of operation or 12 month, whichever comes first.

No.	Engine (Cont.)	Reference	Interval 100h	Interval other	Initials
10.	Cooling system - Renew coolant (conventional coolant only). Flush the cooling system.	12-14-00 R912* 12-20-00		3 years[3)]	
11.	Coolant hoses and lines - Check for damage, leakage, hardening due to heat, porosity, loose connections and secure attachments. Check routing for kinks and narrow bends.	75-00-00 R912* 12-20-00	X[1)]		
12.	Coolant expansion tank - Check for damage and abnormalities. Inspect rubber protection plate on tank base for secure fit. Check coolant level, replenish as necessary. Check gasket of tank cap, inspect pressure control valve and return valve. The pressure control valve opens at 1,2 bar (18 psi). Check coolant with densimeter or glycol tester.	75-00-00 R912* 12-10-00 R912* 12-20-00 SB-912-043	X[1)]		
13.	Overflow bottle - Inspect for damage and abnormalities. Verify coolant level, replenish as necessary. Inspect venting bore in cap of overflow bottle for clear passage. Check line from exp. tank to overflow bottle for damage, leakage and clear passage.	75-00-00 R912* 12-10-00 R912* 12-20-00	X[1)]		
14.	Oil and coolant radiator - Check for obstructions, leaks and security of attachment. If necessary, clean cooling fins and do a pressure leakage test.	75-00-00 79-20-00	X[1)]		
15.	Oil lines - Inspect for damage, leakage, hardening due to heat, porosity, security of connections and attachments. Check routing for kinks or narrow bends. Check fire protection shielding.	R912* 12-20-00	X[1)]		
16.	Oil tank vent line - Check for proper routing, for obstructions and clear passage		X[1)]		
17.	Fuel lines - Check for damage, leakage, hardening due to heat, porosity, secure connections and attachments. Check routing for kinks or narrow bends. Check metal fuel lines for cracks and scuffing marks.	R912* 12-20-00	X[1)]		
18.	Fuel selector / shut-off valve - Check for security of attachment. Check that the valve engages noticeable into the positions LEFT, RIGHT and OFF.		X[1)]		
19.	Filter element of electrical fuel pump - Inspect and clean.	28-20-00	X[1)]		
20.	Battery - Clean. Check charge. Measure residual capacity [2)]. Residual capacity must be at least 19Ah [2)]. If applicable, check acid level and vent case. If necessary, charge/replace battery.	12-17-00 24-30-00	X[1)]		
21.	Battery tray, terminals and cables - Check for security, corrosion and general condition. Grease battery terminals.	12-22-00	X[1)]		
22.	Starter - Check security of attachment and electrical connections.		X[1)]		

1) Check has to be carried out every 100 hours of operation or 12 month, whichever comes first.
2) N/VFR equipped aircraft only.
3) If SB-AT01-025 or SB-AT01-029 (retrofit of a new cooling system) has been carried out.

No.	Engine (Cont.)	Reference	Interval 100h	Interval other	Initials
23.	Alternator - Check attachment and V-belt tension. Inspect electrical connections.	R912* 12-20-00	X[2)]		
24.	Spark plugs - Remove all spark plugs, check for spark plug defects (deposits, excessive wear, melting). Clean spark plugs and check electrode gap. Replace as required.	R912* 12-20-00 SI-912-027	X[2)]		
25.	Spark plug connectors - Check that resistance spark plug connectors fit tightly on the spark plugs. Minimum pull-off force is 30 N (7 lb).	R912* 12-20-00 SI-912-027		200h	
26.	Spark plugs - Replace spark plugs	R912* 12-20-00		400h 200h[1)]	
27.	Sensors - Check for tight fit, condition and security of attachment.		X[2)]		
28.	Exhaust system - Check attachment screws and springs for security and fit. Inspect system for damage and missing parts. Visual inspection of the muffler, exaust pipes and mounting flanges for cracks, corrosion and leakage. Check heat shielding for condition.		X[2)]		
29.	Cabin heat - Check heat shroud and heat ducts for damage and security of attachment. Check heat control function.		X[2)]		
30.	Exhaust muffler - Remove heat shroud from muffler and inspect muffler for condition, corrosion and leakage. WARNING: FAILURE TO INSPECT MUFFLER FOR LEAKS COULD RESULT IN CARBON MONOXIDE ENTERING THE CABIN, LEADING TO SERIOUS INJURY OR DEATH!	78-10-00		200h	
31.	Propeller gear box - Check the friction torque in free rotation. Actual friction torque is measured: _____Nm	R912* 12-20-00	X[2)]		
32.	Propeller gear box - Inspect overload clutch.	R912* 05-50-00 SB-912-033		600h[1,3)] 1000h	
33.	Propeller gear box - Check the propeller gearbox. Check gear set (pittings). Check wear on tooth of overload clutch.	R912* 12-20-00		1000h	
34.	Carburetors - Check carburetor synchronization. Mechanical and pneumatic synchronization.	R912* 12-20-00	X[2)]		
35.	Carburetors - Inspect the float chamber assy for contamination and corrosion. Check float weight.	R912* 12-20-00 SI-912-021		200h annual	
36.	Carburetors - Check the ventilation of the float chambers. Any trouble with float chamber ventilation impairs engine and carburetor function and must therefore be avoided. Check that the passage of the ventilation lines is free and that no kinks can arise.			200h	

1) If more than 30% of operation hours have been flown with leaded fuel e.g.: AVGAS 100LL
2) Check has to be carried out every 100 hours of operation or 12 month, whichever comes first.
3) Overload clutch without lead drain holes (P/N 996886) only

No.	Engine (Cont.)	Reference	Interval 100h	Interval other	Initials
37.	Carburetors - Removal/assembly of the two carburetors for carburetor inspection.	Rotax Heavy MM 73-00-00 3.1)		200h	
38.	Carburetors - Check the free movement of the carburetor actuation (throttle lever and starting carburetor). Check that the Bowden cable allows full travel of the throttle lever from stop to stop. Check Bowden cables for bulging with control lever in the full throttle position. Adjust throttle control if necessary. Lubricate carburetor throttle shaft.	R912* 12-20-00 76-00-00 12-22-00	X 2)		
39.	Carburetor sockets and drip tray - Inspect the carburetor for damage and abnormalities, check for cracks, wear and good condition. Take note of any changes caused by temperature.	Rotax Heavy MM 73-00-00 3.4.3) SB-912-030		200h	
40.	Airbox assy - Check for damage, security of attachment and condition. Inspect connected air hoses for condition and leakage. Check that the flaps can be moved through their full arc of travel for hot and filtered ram air.		X 2)		
41.	Air filter - Inspect and clean. Renew if necessary. Clean air filter casing. Check the drain hole at the bottom of casing for obstructions or blockage.	R912* 12-20-00	X 2)		
42.	Other external engine accessories - Inspect screws and nuts of all other external engine parts and accessories for tight fit. Inspect safety wiring if applicable, replace as necessary.		X 2)		
43.	Engine mounts (manufactured by ROTAX and AQUILA) - Check mounts for deformation, cracks, corrosion, security and damage from heat. Check mounting bolts for condition and correct torque value. At engine (4 bolts M10): 40 Nm (354 in.lbs) At shock mounts (4 bolts M10): 25 Nm (221 in.lbs) At firewall (4 bolts M10): 30 Nm (266 in.lbs) Inspect shock mounts for deterioration.	R912* 12-20-00 SB-912-028 SB-AT01-022	X 2)		
44.	Engine test run - Attach cowling and perform an engine test run as described above. After engine test run, re-tighten oil filter by hand and examine engine and engine compartment for signs of leakage. Compare results with first engine test run. Check oil level, replenish as necessary.	05-20-00 R912* 12-20-00	X 2)	50h 1)	

1) If more than 30% of operation hours have been flown with leaded fuel e.g.: AVGAS 100LL.
2) Check has to be carried out every 100 hours of operation or 12 month, whichever comes first.

No.	Propeller	Reference	Interval 100h	Interval other	Initials
1.	Spinner - Remove from aircraft and check for delamination and cracks.	61-10-00	X		
2.	Spinner plate - Check for cracks and fit.		X		
3.	Blade root and hub area - Examine for oil and grease leaks.		X		
4.	Propeller blades - Check blade play (up to 3 mm [1/8 in.] allowed).		X		
5.	Propeller blades - Check blade angle play. (max. 2°)		X		
6.	Hub - Inspect outside condition of the hub and parts for cracks, corrosion and deterioration.		X		
7.	Check nuts for low pitch - Inspect for tightness and safety wire.		X		
8.	Propeller assy - Check safetying.		X		
9.	Propeller flange stop nuts - Check correct torque value (45 - 47 Nm [398 - 416 in.lbs]).		X		
10.	Propeller blades - Visual inspection for damage, repair if necessary. Attach spinner.	MT* 6.2) - 6.10)	X		
11.	Propeller governor - Visually inspect for signs of oil leakage. Check bolts and nuts are tightened properly and safety wired. Check governor actuation for free movement and bulging.	61-20-00	X		

No.	Fuselage / Cabin	Reference	Interval 100h	Interval other	Initials
1.	Prepare aircraft for visual checks: Remove cabin carpets and floorboards; Remove glare shield; Remove baggage compartment floorboard; Remove access panel of the baggage compartment bulkhead; Remove access panel 210AB.	06-30-00	X		
2.	Fuselage shell / structure - Visual inspection for paint coat damage, dents, cracks, holes, distortion and other evidence of failure. All unpainted parts for delamination (white spots). Check frames for delamination, cracks and disbonding.	SB-AT01-038	X		
3.	Lower fin - Inspect fin and lower rudder for signs of breakage. Check skid plate for wear.		X		
4.	Canopy - Examine the acrylic glass for cracking, crazing and general condition. Inspect tubular canopy hinge frame and brackets for cracks, distortion, corrosion, wear, and security of attachment. Check the gas spring strut for sufficient power and evidence of leakage.		X		

No.	Fuselage / Cabin (Cont.)	Reference	Interval 100h	Interval other	Initials
5.	Canopy locking - Check the canopy locking mechanism operates correctly. Check wear of parts. Check existence of the locking pin. The pin has to protrude the cover by approx. 2 mm. Cases of lacking locking pins have to be reported to the type certificate holder (contact information: see cover sheet). Check function of the locking pin. The canopy locking mechanism must not be too smooth-running. In the locked position of the latch, a smooth running release of the latch due to in-flight vibrations must not be possible. If necessary, readjust locking pin.	52-10-00	X		
6.	Lubricate canopy lock assembly.	12-22-00		annual	
7.	Baggage door - Check door seal, door latching mechanism, and door hinge for defects and condition. Lubricate if needed. Inspect door structure for cracks or other damage.	12-22-00	X		
8.	ELT - Perform ELT inspection. Check ELT mount and Velcro strap for security of attachment. Replace strap if necessary.	25-62-00		annual	
9.	Seat belts/harnesses for pilot / co-pilot - Check components for completeness of the label, deformation, cracks, fractures, functioning of moveable parts, corrosion, surface finish condition and security of attachment. Check textile components for damaged stitching, injurious marks, broken fabric threads, chafe marks and fusing. Perform functional check of buckle and inertia reel.		X		
10.	Seats - Check security of attachment of the seat assy to aircraft structure. Check operation of seat adjustment mechanism and seat stops. Inspect gas spring struts for oil leakage or other damage.		X		
11.	Seats - Check ease of movement - if required remove seats, clean and lubricate seat rails.	25-10-00		annual	
12.	Center Console - Visually examine the parts of the engine controls, lines and cables, located in the center console.			annual	
13.	Engine and propeller controls - Check for proper function, security of attachment and for evidence of wear. Check Bowden cables for bulging with control levers in the full throttle / high RPM position. Check Bowden cable clamp screws on control levers are freely rotatable.		X		
14.	Parking brake valve - Check for evidence of leakage especially at the brake line connections. Check control assy for damage.		X		
15.	Rudder pedal bearing - Lubricate.	12-22-00		annual	
16.	Brake master cylinders and brake lines in the cabin area - Check for security, condition and signs of leakage.		X		
17.	Fuel lines - Check for leakage and security.		X		

No.	Fuselage / Cabin (Cont.)	Reference	Interval 100h	Interval other	Initials
18.	Main landing gear - Inspect fuselage structure at such points and areas where the main landing gear is attached. Check for stress marks, distortion, disbonding, and delamination. Inspect main landing gear strut brackets for distortion, cracks, corrosion, and security of attachment. Check wear and condition of the polyamide inserts. Check bolts for correct torque.		X		
19.	Flap actuator - Check for wear and damage, for secure mechanical connections and loose or missing lock devices. Check electrical wiring for wear, damage, and proper routing. Inspect electrical connections and switches for security, corrosion and poor condition. Check function of the limit switches and position indicator.		X		
20.	Elevator trim system - Check the actuator and the springs for security, wear and damage. Check safetying. Check electrical wiring for wear, insulation damage, and proper routing. Inspect electrical connections and switches for security, corrosion and poor condition. Perform system test and check the correct function of the position indicator.		X		
21.	Aileron and elevator control - Check the control sticks, the brackets and the control rods for distortion, cracks, chafing, corrosion and security. Examine all bearings for condition and secure fit. Check safetying. Check travel of control surfaces if the control stick is in the full forward /neutral/ aft, and full left /neutral/ right positions. Verify no binding or jumpy movement of the control sticks through their full range of travel.		X		
22.	Rudder control - Check rudder control weldment and rudder bellcrank for cracks, distortion, chafing and security. Examine rudder control support brackets, rudder pedal pivot brackets and connection of the rudder controls with the nose gear steering tubes for security, condition and correct splintering. Check centering of springs and cables. Inspect control cables, control cable guides, cable connections, turnbuckles and hardware for correct installation, corrosion, wear, safetying and proper operation.		X		
23.	Rudder / aileron control interconnection - Check condition and correct function.		X		
24.	Brake reservoir - Check for leakage and system for trapped air. Inspect the vent valve in the filler cap of the brake reservoir for obstruction and blockage. Make sure the hydraulic brake fluid level is correct and replenish, if necessary. Only use hydraulic brake fluid of the required grade.		X		
25.	Hydraulic brake fluid - Renew.	32-40-00		3000h 5 years	
26.	Wing main bolts - Inspect for proper fit, condition and correct safetying.	57-10-00	X		

No.	Fuselage / Cabin (Cont.)	Reference	Interval 100h	Interval other	Initials
27.	Wing main bolts - Remove for visual inspection and lubrication. Lube type used: _____	57-10-00 12-22-00		500h[1)] 5years[1)] or annual[1)]	
28.	Exterior / interior placards and markings - Check presence, legibility, and security.	11-20-00 11-30-00	X		
29.	Fire extinguisher - Check for physical damage, corrosion, leakage or clogged nozzle. Weigh unit to determine fullness. Check for obstructions to access or visibility, safety seal is not broken or missing, HMIS label in place, instructions are legible.			annual	
30.	Elevator control cover - Check that edge protection profile is installed in the baggage compartment.	SB-AT01-039	X		

No.	Wings, Ailerons, Flaps	Reference	Interval 100h	Interval other	Initials
1.	Wings with winglets, ailerons, and flaps - Visual inspection for paint coat damage, dents, cracks, holes, distortion and other evidence of failure. Examine all unpainted parts for delamination (white spots).		X		
2.	Wing spars in the fuselage belly - Remove spar covering and perform visual inspection of the spar web, the bonding between the spar web and the carbon fiber spar cap strip, as well as the attachment of the root ribs to the spars. Check security and function of control system brackets attached to the spars.			annual	
3.	Drain and vent holes - Check for blockage and suspect appearance of any liquid.		X		
4.	Ailerons - Check aileron hinges, bearings, and hinge brackets for security and excessive play. Check hinge bushings and replace if necessary. Check bolts and nuts for proper safetying. Examine aileron pushrod for correct installation with stop nuts. Check actuation assembly for suspect binding, excessive play.		X		
5.	Aileron hinges - Check play. Maximum play approx.: - Axial ± 1,00 mm (± 0.04 in.) - Radial ± 0,30 mm (± 0.01 in.)		X		
6.	Aileron control system - Measure the play in the aileron control system with the control surface locked. Apply a lateral force of 30 N (6.7 lb) to the control stick - the maximum play allowed on the top of the stick is 10 mm (0.4 in.) for both sides. The play should be measured for both control sticks. If excessive play is detected, investigate cause.		X		
7.	Flaps - Check hinge brackets for damaged paint, cracks and delamination. Check bearings for correct fit and excessive play. Check hinge bushings and replace if necessary. Check correct safetying of all hinge bolts and castle nuts with cotter pins.		X		

1) Interval depends on lube type. Refer to 12-22-00.

No.	Wings, Ailerons, Flaps (Cont.)	Reference	Interval 100h	Interval other	Initials
8.	Flap hinges - Check play. Maximum play approx.: - Axial ± 0,30 mm (± 0.01 in.) - Radial ± 0,30 mm (± 0.01 in.) Measure the play in the flap control system at the flap trailing edge, at the inboard flap end. Max. play allowed with flaps in take-off and landing positions: ± 5 mm (0.2 in.). No play with flaps retracted.		X		
9.	Flaps and ailerons - Check that the gap between fuselage and flaps, between flaps and ailerons, and at the outboard end of the ailerons is at least 2 mm (0.08 in.).		X		
10.	Stall warning system - Check for condition and proper operation.		X		
11.	For serial numbers from AT01-100 to AT01-126: Bonding between wing spar and upper shell - Check condition.	57-10-00 SB-AT01-002		annual	
12.	Navigation / strobe lights - Check operation, condition of glass, and security of attachments.	33-40-00	X		
13.	Inner fuel tank ribs - Check connection of fuel and vent lines to the fuel tank and the flange gasket of the fuel level sensors for signs of leakage.	28-10-00 28-20-00 28-40-00		annual	
14.	Fuel vent lines - Check for blockage.		X		
15.	Fuel tank drain valves - Check for correct function and leakage.		X		
16.	Fuel outlet screens - Check for damage. Clean if necessary.			1000h	
17.	Fuel filler caps - Check for proper function and leakage.		X		
18.	Tank inlet and upper wing shell in the fuel tank area - Check sealing of the bore hole in the tank inlet. Check wing skin for bubble formation or bulging.	SB-AT01-027		annual	
19.	Tie-down points - Check thread and structure around the tie-down attach points for any damage.	10-20-00	X		

No.	Empennage, Elevator, Rudder	Reference	Interval 100h	Interval other	Initials
1.	Empennage - Inspect complete surface of the vertical and horizontal stabilizers, the elevator and the rudder for dents, cracks, holes and delamination.		X		
2.	Rudder hinge, elevator hinge and bellcranks - Check brackets and bellcranks for security of attachment and corrosion. Examine bearings for binding and excessive play. Check hinge bushings and replace if necessary. Check correct safetying of the lower rudder pivot pin with castellated nut and cotter pin.		X		

No.	Empennage, Elevator, Rudder (Cont.)	Reference	Interval 100h	Interval other	Initials
3.	Hinge play and control surface positioning - Verify clearance between horizontal stabilizer and elevator horns and clearance between vertical stabilizer and rudder horn is at least 1 mm (0.04 in.). Check elevator hinge and rudder hinge play. Maximum play approx.: - Axial ± 0,30 mm (± 0.01 in.) - Radial ± 0,30 mm (± 0.01 in.)			annual	
4.	Elevator control system - Measure the play in the elevator control system with the control surface locked. Apply a force of 50 N (11.2 lb) forwards and then backwards to the control stick - the maximum play allowed on the top of the stick is 10 mm (0.4 in.) for both sides.			annual	
5.	Rudder - Remove rudder if there is noticeable play. Examine the elevator actuation assembly inside the vertical stabilizer. Check for any damage, for correct installation and function and for security and wear. Inspect rudder hinge brackets, rudder yoke and control cable thimble-eyes for security, conditions and wear. Lubricate control cable thimble-eyes as required.	55-40-00		annual	
6.	Rudder rigging - Set rudder pedals in neutral position. Verify the rudder and the nose landing gear are also in neutral position. Set rudder pedals to fully left and then to full right. The rudder must hit the rudder travel stops and the distance from rudder pedal to firewall must be sufficient to apply the pedal brake. Adjust position of the rudder pedals by varying the length of nose wheel steering tubes. Adjust rudder neutral position and control cable tension by means of the turnbuckles in the cabin area.	27-20-00	X		

No.	Nose and Main Landing Gear	Reference	Interval 100h	Interval other	Initials
1.	Wheel fairings - Check condition and correct fit. Remove and clean. Check for paint coat damage, cracks, dents and delamination.		X		
2.	Fairing mounts - Inspect for cracks, distortion or other damage.		X		
3.	Nose gear strut mount and wheel fork - Check for deformation, cracks and corrosion. Check nose gear strut journal bearing for proper operation, play and correct safetying.		X		
4.	Nose gear strut and elastomer package - Check strut for deformation, stress marks, and cracks. Inspect correct installation of the nose wheel fork. Inspect elastomer package for wear, deterioration, cracks, correct fit and security. Check journal bearings of the elastomer package for play and condition.		X		

No.	Nose and Main Landing Gear (Cont.)	Reference	Interval 100h	Interval other	Initials
5.	Nose wheel steering - Inspect nose wheel steering tubes for condition, excessive play and correct safetying. Check return springs at nose gear strut for security and verify they are tension-free, when the nose wheel is in neutral position.		X		
6.	Main landing gear - Check main gear struts for deformation, cracks, damage to the paint coat, and corrosion. Inspect wheel axles for security of attachment to struts and for any damage.		X		
7.	Wheels and rims - Clean. Check tires for wear, cuts, foreign matter and deterioration. Inspect rims for security, deformation, cracks and other damage. Examine wheel bearings for excessive play, corrosion and irregular operation. Check tire pressure and proper location of the red slide marks.		X		
8.	Wheel bearings - Clean and lubricate.	12-22-00		500h annual	
9.	Wheel brakes - Clean. Apply brakes, examine system for leaks. Inspect brake fluid carrying lines at the main landing gear for condition, leakage and security of attachment. Inspect brake discs for cracks, corrosion and wear. Replace brake discs if worn below 4.3mm (0.17 in.). Inspect brake pads for condition and wear. Replace linings when worn to 2.6mm (0.10 in.). Check freedom of movement of the pistons and pressure plates.	32-40-00	X		
10.	Wheel axles - Clean. Visually inspect for cracks, nicks, corrosion or other damage.			every wheel removal	

No.	Electrical System / Avionics	Reference	Interval 100h	Interval other	Initials
1.	Electrical wiring system - Check the complete electrical wiring system for security, damage, wear and secure fit. Check all cable connections for tight fit, good contact, corrosion and condition.	R912* 12-20-00 13)	X[1)]		
2.	Tank inlet bonding wires - Check bonding between electric ground (exhaust port) and tank inlet (max. 1Ω).			annual	
3.	Tank inlet bonding wires - Check bonding wires at the airframe ground tube for yellow discoloration.	SB-AT01-027		annual	
4.	Instruments - Check instrument panel mounting brackets for security and condition. Examine instruments for security of attachment. Check electrical cables, hoses and lines for correct installation, condition and proper routing. Inspect air filter of the pitot / static system for obstructions and contamination.			annual	
5.	Pitot / static system - Check pitot tube for security of attachment, condition and obstructions. Check pitot and static pressure lines for correct installation, condition, water and proper routing. Check water traps for water.[2)]	34-11-00	X		

1) Check has to be carried out every 100 hours of operation or 12 month, whichever comes first.
2) If installed.

No.	Electrical System / Avionics (Cont.)	Reference	Interval 100h	Interval other	Initials
6.	Pitot / static system - Perform pitot / static system leak test.	34-11-00		2 years	
7.	Pitot heating system - Carefully check pitot tube for heating up with pitot heating switched ON. WARNING: RISK OF SKIN BURNS! DO NOT TOUCH PITOT TUBE WHEN HEATING IS SWITCHED ON!		X[2)]		
8.	Integrated flight system - Check all components and wiring for damage, corrosion, proper operation and security of attachment.	34-25-00		annual[2)]	
9.	Garmin G500 system - Check bonding.	34-25-00		2000h[2)] 10 years[2)]	
10.	Aspen EFD1000 system - Check bonding.	34-25-00		annual[2)]	

No.	Return to Service	Reference	Interval 100h	Interval other	Initials
1.	Install wheel fairings. Install seats (if removed). Install cabin floor boards. Install baggage compartment floorboard. Install access panel of the baggage compartment bulkhead. Install access panel 210AB.	06-30-00	X		
2.	Flight controls - Check for full range of travel and excessive friction.		X		
3.	Flaps - Operate through full extension and retraction for steady and complete deployment. Check correct limit switches operation at CRUISE, T/O and LDG flap positions. Verify the corresponding flap switch position and the corresponding flap position indicator reading.		X		
4.	Elevator trim - Check for full range of travel and excessive friction. Inspect proper operation of the trim control switch, limit switches, and the trim position indicator. Verify that elevator control forces decrease or increase when operating elevator trim.		X		
5.	Engine and propeller controls - Check full range of motion without any obstruction or excessive friction to travel. Check throttle and propeller control levers friction lock.		X		
6.	Foreign items - Remove any foreign items from the aircraft.		X		

1) Check has to be carried out every 100 hours of operation or 12 month, whichever comes first.
2) If installed.

The aircraft is airworthy and meets the condition specified in the aircraft data sheet. All maintenance required by Service Information and Airworthiness Directives and all prescribed scheduled maintenance checks have been carried out.

Service Station:

Next inspection when _____ hours of operation have been reached.

Place, Date

Name, Signature of Mechanic

Name, Signature of Inspector

Stamp

3. 6000-Hour Inspection

A. The airframe of the type AQUILA AT01 is limited to 6.000 hours of flight time (refer to 04-00-00). An inspection program to reach an extension of replacement time can be obtained from the type certificate holder on request.
For all S/N`s having performed the 6000-hour inspection and possible maintenance actions resulting thereof no further life time limit beyond 6000 operating hours will be established and the composite structure is then considered to have "Safe Life".

B. All inspection items listed in the following table "6000-Hour Inspection Checklist" must be performed within **every 6000 hours of flight time**. The inspection **must be performed in conjunction with a 100-hour inspection including all annual inspection items** listed for the airframe (refer to "Inspection Time Intervals Chart" above).
All items performed, all findings discovered and their follow up corrections have to be recorded in acc. with an approved quality procedures manual.

NOTE: The first 6000-hour inspection is replaced by an inspection program to reach an extension of life time (refer to 04-00-00). It can be obtained from the type certificate holder on request.

C. The inspection table shows three different types of inspections listed in the column "Method/Inspection":

V	Visual inspection
T	Tap test
F	Functional / fit check

Refer to 51-10-00 for a description of visual inspection and tap test methods.

D. Prior to inspection all aircraft log-books have to be checked to establish the aircraft data set and the repair history of the aircraft.

Before starting the 6000-hour inspection the following actions are required:
(1) Fix the fuselage on jacks (refer to 07-10-00).
(2) Remove wing (refer to 57-00-00).
(3) Remove rudder (refer to 55-40-00).
(4) Remove elevator (refer to 55-20-00).
(5) Remove ailerons (refer to 57-50-00).
(6) Remove flaps (refer to 57-50-00).
(7) Remove cowling (refer to 71-10-00).

E. 6000-Hour Inspection Checklist

Aircraft S/N		Operating Hours TTSN		Registration Number	
Engine S/N		Operating Hours TTSN / TTSO		Date	
Propeller S/N		Operating Hours TTSN / TTSO		Date	

No.	Inspection Items Left Wing	Inspection Method	Finding / Condition	Initials
Root Ribs (in front of and behind wing spar)				
1.	Bonding area of ribs to the wing shell - delamination, cracks.	V, T		
2.	Condition of rib laminate, delamination, cracks.	V, T		
3.	Bonding area at the main wing spar web.	V		
4.	Wing attachment bolt bushing - bonding in the rib.	V		
5.	Condition of bushing, wear of bearing area, corrosion.	V		
Inner Flap Hinge Support Rib				
6.	Bonding area of rib to the wing shell - delamination, cracks.	V, T		
7.	Condition of rib laminate, delamination, cracks.	V, T		
8.	Bonding area at the main wing spar web.	V		
9.	Areas around bushing - delamination, cracks.	V		
10.	Condition of ball bearing, wear, corrosion.	V		
Wing Main Spar				
11.	Spar cap between root ribs - bonding to shear web, cracks.	V		
12.	Shear web between root ribs - condition, cracks, delamination.	V		
13.	Spar cap - inspection through openings in root rib and inspection opening in lower wing shell. Bonding to the wing shell (cracks), condition of the main shear web (delamination).	V		
Upper and Lower Wing Shell				
14.	Wing shell - delamination, cracks, scratches in shell surfaces, chipping of paint, UV damage.	V, T		
15.	Wing shell - core damage and dents in sandwich, disbond of shell laminate from core material.	V, T		

No.	Inspection Items Left Wing (Cont.)	Inspection Method	Finding / Condition	Initials
16.	Areas around inspection openings - delamination, cracks.	V		
17.	Wing leading edge bonding area - disbonds, cracks.	V, T		
18.	Area around pitot-static tube opening - delamination, cracks.	V, T		
19.	Area around tie-down fixation point - delamination, cracks.	V, T		
20.	Area around NAV-light opening - delamination, cracks.	V		
21.	Area around winglet root upper wing shell - cracks.	V, T		
22.	Area around ring insert of the tank filler - cracks, disbonding.	V, T		
Trailing Edge Shear Web				
23.	Wing trailing edge, flap area - bonding lower to upper shell, disbond, cracks.	V, T		
24.	Wing trailing edge, flap area - laminate condition, cracks.	V		
25.	Wing trailing edge, aileron area - bonding area shear web to wing shell, disbonds, cracks.	V, T		
26.	Wing trailing edge, aileron area - laminate condition, cracks.	V		
27.	Bonding left an right of hinge levers for flap and aileron.	V, T		
28.	Aileron hinge levers - delamination at bolt area, bolt corrosion.	V		
29.	Flap hinge levers - delamination at bolt area, bolt corrosion.	V		
Tank Rib				
30.	Bonding area of rib to the wing shell - delamination, cracks.	V, T		
31.	Condition of rib laminate, delamination, cracks.	V, T		
32.	Bonding area at the main wing spar web.	V		

No.	Inspection Items Right Wing	Inspection Method	Finding / Condition	Initials
Root Ribs (in front of and behind wing spar)				
1.	Bonding area of ribs to the wing shell - delamination, cracks.	V, T		
2.	Condition of rib laminate, delamination, cracks.	V, T		
3.	Bonding area at the main wing spar web.	V		
4.	Wing attachment bolt bushing - bonding in the rib.	V		
5.	Condition of bushing, wear of bearing area, corrosion.	V		

No.	Inspection Items Right Wing (Cont.)	Inspection Method	Finding / Condition	Initials
Inner Flap Hinge Support Rib				
6.	Bonding area of rib to the wing shell - delamination, cracks.	V, T		
7.	Condition of rib laminate, delamination, cracks.	V, T		
8.	Bonding area at the main wing spar web.	V		
9.	Areas around bushing - delamination, cracks.	V		
10.	Condition of ball bearing, wear, corrosion.	V		
Wing Main Spar				
11.	Spar cap between root ribs - bonding to shear web, cracks.	V		
12.	Shear web between root ribs - condition, cracks, delamination.	V		
13.	Spar cap - inspection through openings in root rib and inspection opening in lower wing shell. Bonding to the wing shell (cracks), condition of the main shear web (delamination).	V		
Upper and Lower Wing Shell				
14.	Wing shell - delamination, cracks, scratches in shell surfaces, chipping of paint, UV damage.	V, T		
15.	Wing shell - core damage and dents in sandwich, disbond of shell laminate from core material.	V, T		
16.	Areas around inspection openings - delamination, cracks.	V		
17.	Wing leading edge bonding area - disbonds, cracks.	V, T		
18.	Area around tie-down fixation point - delamination, cracks.	V, T		
19.	Area around NAV-light opening - delamination, cracks.	V		
20.	Area around winglet root upper wing shell - cracks.	V, T		
21.	Area around ring insert of the tank filler - cracks, disbonding.	V, T		
Trailing Edge Shear Web				
22.	Wing trailing edge, flap area - bonding lower to upper shell, disbond, cracks.	V, T		
23.	Wing trailing edge, flap area - laminate condition, cracks.	V		
24.	Wing trailing edge, aileron area - bonding area shear web to wing shell, disbonds, cracks.	V, T		
25.	Wing trailing edge, aileron area - laminate condition, cracks.	V		
26.	Bonding left an right of hinge levers for flap and aileron.	V, T		
27.	Aileron hinge levers - delamination at bolt area, bolt corrosion.	V		

No.	Inspection Items Right Wing (Cont.)	Inspection Method	Finding / Condition	Initials
28.	Flap hinge levers - delamination at bolt area, bolt corrosion.	V		
Tank Rib				
29.	Bonding area of rib to the wing shell - delamination, cracks.	V, T		
30.	Condition of rib laminate - delamination, cracks.	V, T		
31.	Bonding area at the main wing spar web.	V		

No.	Inspection Items Control Surfaces	Inspection Method	Finding / Condition	Initials
Ailerons				
1.	Aileron surfaces - Check for delamination of shells, scratches.	V, T		
2.	Paint surfaces - Check for condition, scratches, UV damage, chipping of paint.	V		
3.	Damage of core, dents to core, disbond between core and skin.	V, T		
4.	Aileron trailing and leading edges - bonding delamination.	V, T		
5.	Inner and outer aileron ribs - bonding delamination with skin.	V, T		
6.	Check condition of drain holes in inner and outer ribs.	V		
7.	Areas around hinges and aileron control horn fasteners - delamination from skin, cracks.	V		
8.	Condition of control horn bearing, corrosion, play.	V		
9.	Condition of hinges (bushings), corrosion, play.	V		
10.	Inspect for previously performed repairs and repaintings. If so, check aileron mass and static moment to be within specified limits (refer to 57-50-00).	V		
Flaps				
11.	Flap surfaces - Check for delamination of shells, scratches.	V, T		
12.	Paint surfaces - Check for condition, scratches, UV damage, chipping of paint.	V		
13.	Damage of core, dents to core, disbond between core and skin.	V, T		
14.	Flap trailing and leading edges - bonding delamination.	V, T		
15.	Inner and outer flap ribs - bonding delamination with skin.	V, T		
16.	Check condition of drain holes in inner and outer ribs.	V		

No.	Inspection Items Control Surfaces (Cont.)	Inspection Method	Finding / Condition	Initials
17.	Areas around hinge fasteners - delamination from skin, cracks.	V		
18.	Condition of control horn bearing, corrosion, play.	V		
19.	Condition of hinges (bushings), corrosion, play.	V		
20.	Inspect for previously performed repairs and repaintings. If so, check flap mass and static moment to be within specified limits (refer to 57-50-00).	V		
Rudder				
21.	Rudder surfaces - Check for delamination of shells, scratches.	V, T		
22.	Paint surfaces - Check for condition, scratches, UV damage, chipping of paint.	V		
23.	Damage of core, dents to core, disbond between core and skin.	V, T		
24.	Rudder trailing and leading edges - bonding delamination.	V, T		
25.	Lower rudder hinge rib - bonding delamination with skin.	V, T		
26.	Check condition of drain hole in lower hinge rib.	V		
27.	Area around upper hinge - delamination from skin, cracks.	V		
28.	Mass balance horn - Check for cracks and delamination.	V, T		
29.	Condition of hinge (bushing), corrosion, play.	V		
30.	Inspect for previously performed repairs and repaintings. If so, check rudder mass and static moment to be within specified limits (refer to 55-40-00).	V		
31.	Bolts at lower hinge - Check for condition, cracks, corrosion, thread.	V		
Elevator				
32.	Elevator surfaces - Check for delamination of shells, scratches.	V, T		
33.	Paint surfaces - Check for condition, scratches, UV damage, chipping of paint.	V		
34.	Damage of core, dents in core, disbond between core and skin.	V, T		
35.	Elevator trailing and leading edges - bonding delamination.	V, T		
36.	Inner elevator ribs - bonding delamination with skin.	V, T		
37.	Check condition of drain holes in inner ribs.	V		
38.	Areas around hinges - delamination from skin, cracks.	V		
39.	Mass balance horn - Check for cracks and delamination.	V, T		

No.	Inspection Items Control Surfaces (Cont.)	Inspection Method	Finding / Condition	Initials
40.	Condition of hinges (bushings), corrosion, play.	V		
41.	Inspect for previously performed repairs and repaintings. If so, check elevator mass and static moment to be within specified limits (refer to 55-20-00).	V		
42.	Bolts at inner hinge - Check for condition, cracks, corrosion, thread.	V		

No.	Inspection Items Horizontal Stabilizer	Inspection Method	Finding / Condition	Initials
1.	Stabilizer surfaces - Check for delamination of shells, scratches.	V, T		
2.	Paint surfaces - Check for condition, scratches, UV damage, chipping of paint.	V		
3.	Damage of core, dents in core, disbond between core and skin.	V, T		
4.	Stabilizer leading edges - Check for bonding delamination.	V, T		
5.	Trailing edge spar - Check for cracks and bonding delamination with skin.	V, T		
6.	Areas around hinge supports in trailing edge spar - Check for cracks and delamination.	V		
7.	Condition of hinges (bushings), corrosion, play.	V		

No.	Inspection Items Fuselage	Inspection Method	Finding / Condition	Initials
Fuselage Skin Structure and Vertical Stabilizer Skin				
1.	Skin surfaces - Check for delamination of shells, scratches.	V, T		
2.	Paint surfaces - Check for condition, scratches, UV damage, chipping of paint.	V		
3.	Damage of core, dents in core, disbond between core and skin.	V, T		
4.	Areas near bonding seam at centerline on upper and lower fuselage surfaces - Inspect for cracks in paint.	V, T		
5.	Check condition of drain holes in lower fuselage.	V		
6.	Inspect for previously performed repairs and repaintings.	V		
7.	Areas near bonding seam at connection between horizontal and vertical stabilizer on upper and lower horizontal surfaces - Inspect for cracks in paint.	V		

No.	Inspection Items Fuselage (Cont.)	Inspection Method	Finding / Condition	Initials
Fuselage / Wing Interconnection				
8.	Root ribs and intersection to fuselage - Check for cracks in paint and structure.	V		
9.	Area around wing attachment bolt bushings - Check for cracks and disbonding.	V		
10.	Wing attachment bolt bushings - Check for wear, scratches, corrosion and tightness of fit with the bolt.	V		
11.	Seat bulkhead and forward landing gear bulkhead in spar bridge - Check condition of laminate and bonding areas with the fuselage shell.	V, T		
12.	Forward landing gear bulkhead - Check laminate around fasteners of landing gear supports for cracks and delamination.	V, T		
Bulkheads, Ribs and Hinges in Vertical Stabilizer				
13.	Upper and lower shear web in vertical stabilizer - Check for delamination and cracks.	V		
14.	Upper and lower shear web in vertical stabilizer - Check bonding to the stabilizer shell.	V, T		
15.	Upper hinge plate - check for delamination and cracks.	V		
16.	Bushing in upper hinge plate - wear, corrosion, fit/play.	V		
17.	Lower shear web around fasteners for lower hinge bracket - Check laminate.	V		
18.	Bushing in lower hinge bracket - wear, corrosion, fit/play.	V		
19.	Lower end of the stabilizer (bumper) - delamination, cracks.	V		
20.	Bumper plate at lower end of the stabilizer - Check fixation and condition.	V		
Firewall				
21.	Check firewall bulkhead (from cockpit side) for cracks in the laminate (around cut outs).	V		
22.	Firewall bulkhead - Check bonding to the fuselage skin.	V, T		
23.	Areas around engine brackets - delamination, cracks.	V, T		
24.	Firewall metal shield - condition, wear, corrosion.	V		
25.	Fire resistant firewall sealer around the fire shield - condition, corrosion.	V		
26.	Areas around Camloc fasteners at fuselage cowling support - Check laminate for cracks and delamination.	V		

No.	Inspection Items Fuselage (Cont.)	Inspection Method	Finding / Condition	Initials
27.	Area around pedal control brackets - delamination, cracks.	V		
Cockpit Area and Baggage Compartment				
28.	Front cockpit floor - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V, T		
29.	Front shear bulkhead - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V, T		
30.	Front seat bulkhead - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V, T		
31.	Seat elements and attachments - delamination, cracks.	V, T		
32.	Rear seat bulkhead - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V, T		
33.	Front landing gear bulkhead - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V, T		
34.	Rear landing gear bulkhead - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V, T		
35.	Baggage bulkhead - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V, T		
36.	Lower lap belt attachments - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
37.	Lower lap belt fitting - Check for wear and corrosion.	V		
38.	Upper lap belt attachments - Check for delamination and cracks at the baggage bulkhead.	V, T		
39.	Baggage compartment floor supports - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
40.	Gas spring supports - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
41.	Composite tube stiffener and attachments - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
42.	Baggage compartment door, doorframe and supports - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
43.	Tailboom bulkheads - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		

No.	Inspection Items Fuselage (Cont.)	Inspection Method	Finding / Condition	Initials
44.	Elevator control lever mounting supports on baggage bulkhead - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
45.	Flap actuator mounting supports in middle tunnel - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
46.	Canopy frame (at the fuselage) - Check for delamination and cracks.	V, T		
47.	Step supports - Check for delamination and cracks. Check bonding area to the fuselage structure for disbonding.	V		
48.	Check step component for wear and corrosion.	V		
Canopy				
49.	Canopy frame - Check for delamination and cracks. Check bonding area of Plexiglas to the canopy frame structure for disbonding.	V		
50.	Canopy latching components - corrosion, wear, damage.	V		
51.	Canopy pin and bushing components - Check for corrosion, wear and fit/play.	V		
52.	Canopy Plexiglas including side windows - cracks, damage.	V		

No.	Inspection Items Landing Gear	Inspection Method	Finding / Condition	Initials
Main Landing Gear				
1.	Main landing gear struts - Check condition (distortion, corrosion, wear and paint damages).	V		
2.	Remove main wheels from axles and check axles for distortion, corrosion, wear and damages.	V		
3.	Check inner and outer main brackets for fit of shims, cracks and wear.	V		
Nose Landing Gear and Engine Mount				
4.	Nose landing gear main strut and wheel fork - Check condition (cracks, distortion, corrosion, wear and paint damages).	V		
5.	Nose wheel steering tubes - Check condition (cracks and distortion).	V		
6.	Engine mount - Check the entire tube frame and all welded joints, in particular at the firewall and nose gear suspension, for distortion, wear and cracks.	V		

No.	Inspection Items Landing Gear (Cont.)	Inspection Method	Finding / Condition	Initials
7.	Engine mount attachment bolts - Check for cracks and wear.	V		
8.	Nose wheel axle - Check for cracks and distortion.	V		

The aircraft is airworthy and meets the condition specified in the aircraft data sheet.
All prescribed 6000-hour inspection items and maintenance actions resulting thereof have been carried out.

Service Station:

Place, Date

Name, Signature of Mechanic | Name, Signature of Inspector | Stamp

DAILY INSPECTIONS

1. General

   A. Pre-flight and post-flight checks must be carried out daily when the aircraft is in operation.

2. Pre-Flight Check

   A. This check must be carried out before the first flight of the day. In this way, the general condition of the aircraft and its engine can be ascertained. Pre-flight checks are essential for flight safety as numerous accidents can be traced back to inadequate pre-flight checks.

      The scope of the pre-flight check is listed in the AQUILA AT01 Flight Manual, section 4.

3. Post-Flight Check

   A. This check should be carried out after the final flight of the day. For the most part, it is a visual inspection.

   B. The check should contain all points of the pre-flight check.
      (1) Supplementary measures:
         (a) Re-fuel.
         (b) Check that the aircraft is properly parked (refer to 10-10-00).
         (c) Check the logbook entries for remarks about faults or defects, and for correct number of landings and flight hours.
         (d) If necessary, moor the aircraft (refer to 10-20-00).

UNSCHEDULED MAINTENANCE CHECKS

1. General

A. Special checks are to be carried out when an incident has occurred that may have caused damage to the aircraft or impaired airworthiness.

In addition, a 25-hour inspection must be carried out on new aircraft and its engine, on overhauled engines and after extensive airframe repairs.

2. Special Checks

A. 25-Hour Inspection
After the first 25 hours of operation of a new aircraft and its engine or an overhauled engine or after extensive airframe repairs, an inspection of the extent of a 100-hour inspection must be carried out (refer to 05-20-00).

After the first 25 hours of operation of a new or overhauled engine, the engine and the propeller must be inspected. Refer to ROTAX Aircraft Engines Maintenance Manual for ROTAX Engines Type 912 Series for detailed information on this inspection.

B. Hard Landing
After an excessively hard landing or other unusual loading of the landing gear a thorough inspection of the affected components and their attachments is required. Even if no obvious defects are detectable, a visual inspection must be carried out. Perform the following:

(1) Prepare aircraft for visual checks as follows:
  (a) Remove engine cowling (refer to 71-10-00).
  (b) Remove landing gear fairings.
  (c) Inside the cabin and baggage compartment - remove carpets and floorboards as required to gain access to the landing gear mounting brackets (refer to 25-12-00).

(2) Inspect main landing gear.
  (a) Check wheel fairings for cracks, dents and delamination.
  (b) Check fairing mounts for cracks, distortion and other damage.
  (c) Check fuselage structure visually at such points and areas where the main landing gear is attached. Check for stress marks, distortion, disbonding, and delamination. Check main landing gear strut brackets for distortion, cracks and security of attachment. Check condition of the polyamide inserts. Check bolts for correct torque.
  (d) Check main gear struts for deformation and cracks. Examine wheel axles for security of attachment to struts and for any damage.
  (e) Inspect tires for integrity and proper location of the red slide marks.
  (f) Inspect brake fluid carrying lines at the main landing gear for condition, leakage, and security of attachment.

(3) Inspect nose landing gear.
  (a) Check wheel fairing for cracks, dents and delamination.
  (b) Inspect fairing mounts for cracks, distortion and other damage.
  (c) Check nose gear strut mount for deformation and cracks. Check nose gear strut journal bearing for proper operation and play.
  (d) Check strut for deformation, stress marks, and cracks. Check elastomer package for deterioration, cracks, correct fit and security. Check journal bearings of the elastomer package for play and condition.
  (e) Inspect nose wheel steering tubes for condition and excessive play.
  (f) Inspect tire for integrity and proper location of the red slide marks.
(4) Re-mount all items removed during the inspection.
(5) Perform a brake and steering system operational test (refer to 32-40-00).

C. Engine Fire

After an engine fire, carry out the following:

WARNING: IF IT IS SUSPECTED THAT PARTS OF THE STRUCTURE OR COWLING COULD HAVE BEEN DAMAGED BY HIGH TEMPERATURES (INDICATED BY BLISTERING ON THE PROTECTIVE COATING), THE MANUFACTURER MUST BE CONTACTED FOR DEFECT APPRAISAL BEFORE THE AIRCRAFT IS FLOWN AGAIN.

(1) Remove engine cowling (refer to 71-10-00).
(2) Examine engine cowling. Check for signs of fire damage.
(3) Disconnect battery (refer to 24-30-00).
(4) Examine electrical cables for damaged insulation.
(5) Examine fuel lines for damage of the fire-protection sleeves.
(6) Check oil lines for damage of the fire-protection sleeves.
(7) Check air filter element for fire damage.
(8) Examine engine mount and shock mounts for any fire damage.
(9) Check all other hoses and pipes, as well as all gaskets and seals for fire damage.
(10) Replace damaged items.
(11) Re-mount engine cowling (refer to 71-10-00).
(12) Perform an engine test run (refer to 05-20-00).

D. Violent Stop of the Engine

In event that the propeller has touched the ground or the engine has been inadvertently stopped violently (shock loading), the propeller gear box must be disassembled and inspected by an authorized workshop. For further information on engine inspections necessary after a propeller ground strike and for more general information, refer to the relevant technical documents and the ROTAX Maintenance Manual.

CAUTION: ONLY QUALIFIED TECHNICIANS (AUTHORIZED BY THE NATIONAL AVIATION AUTHORITY AND AFTER SUCCESSFULLY COMPLETING THE RELEVANT ROTAX TRAINING COURSE) ARE AUTHORIZED TO PERFORM THIS WORK.

Check additional equipment (external alternator, hydraulic governor, ignition unit, coolant and oil hoses) for damage.

CHAPTER 06

DIMENSIONS AND AREAS

TABLE OF CONTENTS

DIMENSIONS AND AREAS - GENERAL

1. Introduction

   A. This chapter provides information about dimensions and control surface travel and tolerances. Furthermore, this chapter contains information about aircraft zoning and access and inspection plates.

   B. Dimensions are presented to aid the operator and/or maintenance personnel in the ground handling of the aircraft, e.g. in full hangars.
   Information concerning aircraft zoning and the position of access / inspection plates helps to locate and access aircraft components.

2. General Description

   The following sets out a brief description and intended purpose of each section of this chapter:

   A. Section 6-00-00 - Dimensions and Areas - General. This section provides a general overview of content and purpose of the chapter.

   B. Section 6-10-00 - Aircraft Dimensions and Areas. This section provides aircraft dimensions and identifies areas of the aircraft.

   C. Section 6-20-00 - Aircraft Zoning. This section shows illustrations of all aircraft zones.

   D. Section 6-30-00 - Access and Inspection Plates. This section contains the position and numbering of all access and inspection plates.

AIRCRAFT DIMENSIONS AND AREAS

1. General

   A. The wing and tail spans are measured parallel to the relevant reference level.

   B. Refer to figure 1 for an illustration of aircraft dimensions.

2. Dimensions and Areas

Aircraft overall:

Wing span	10,3 m	33.8 ft
Overall length	7,3 m	23.9 ft
Height max.	2,4 m	7.9 ft

Wing:

Wing profile	HQ 42 mod.	
Wing area	10,5 m^2	113.6 ft^2
Dihedral angle	+4,5 ° ± 0 °	
Mounting angle	+2,5 ° ± 0 °	
MAC	1,07 m	3.52 ft
Max. load	71,4 kg/m^2	

Ailerons (both):

Area	0,65 m^2	7.0 ft^2
Up travel	16 ° + 1,5 °	
Down travel	11 ° + 1,0 °	
Neutral position	0 ° up	

Flaps (both):

Area		1,23 m^2	13.31 ft^2
Flap setting (ground)		Tolerance Left	Right
Up	0 °	0 °	0 °
Take-off	17 °	± 1,5 °	± 1,5 °
Landing	35 °	± 1,5 °	± 1,5 °

Horizontal Stabilizer and Elevator:

Profile	FX 71/L150-30	
Area (entire)	2,0 m^2	21.64 ft^2
MAC	0,68 m	2.24 ft
Elevator area	0,58 m^2	6.28 ft^2
Up travel	23 ° ±1,5 °	
Down travel	24 ° ±1,5 °	
Span	3,0 m	9.87 ft

Vertical Stabilizer and Rudder:

Profile	FX 71/L150-30	
Area	1,45 m^2	15.67 ft^2
Rudder area	0,44 m^2	4.76 ft^2
Travel	29 ° ±1,5 °	

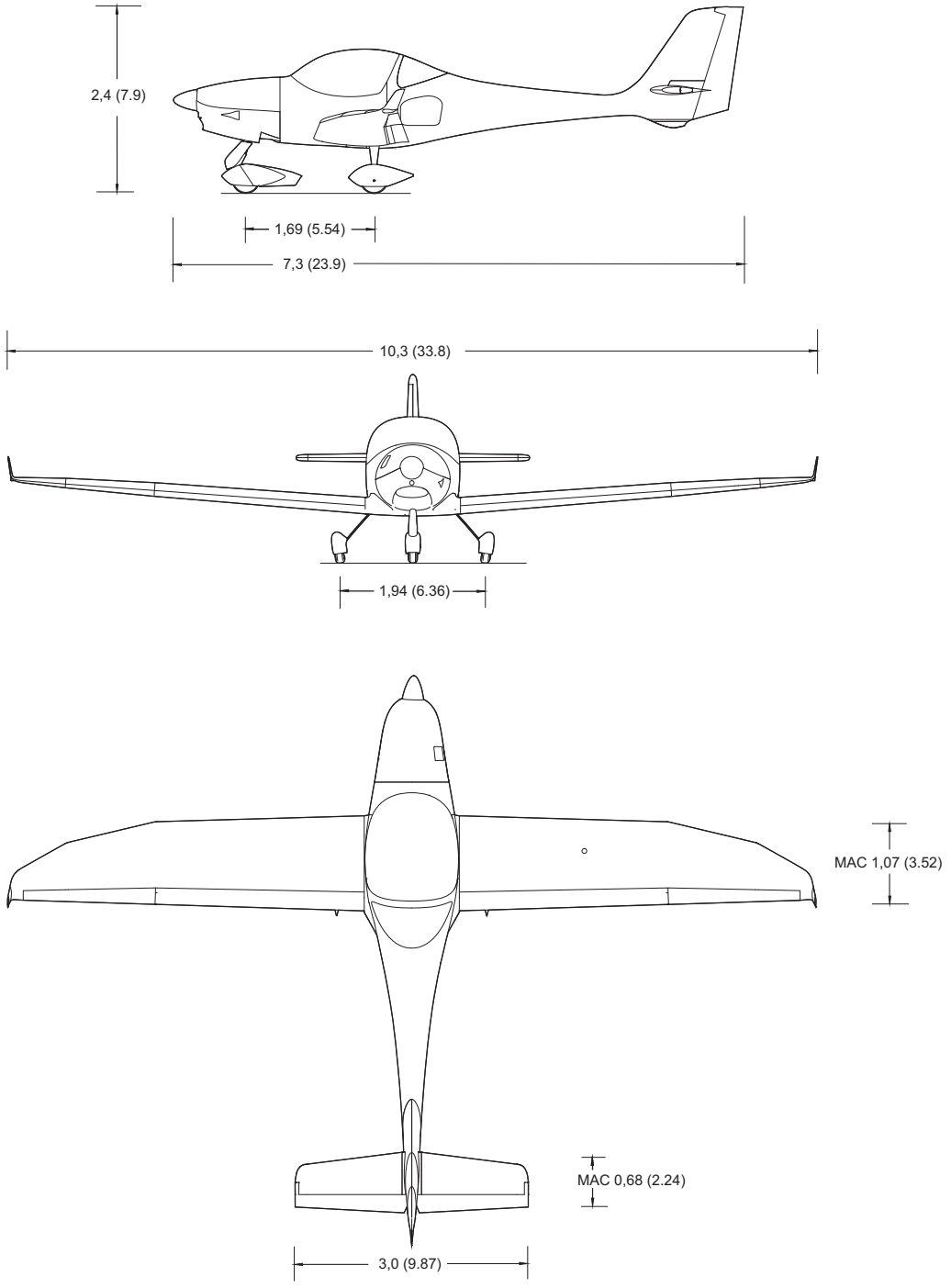
Landing Gear:

Wheel track	1,94 m	6.36 ft
Wheel base	1,69 m	5.54 ft
Nose gear wheel size	5.00-5	
Main gear wheel size	5.00-5	

3. Weight and Static Moments of Control Surfaces

	Control surface weight kg	Control surface static moment Ncm
Aileron	1,35 - 2,0	20 - 90
Fowler flap[1)]	2,7 - 3,4	500 - 660
Elevator[2)]	4,3 - 5,4	-30 - +40
Rudder	3,5 - 4,5	20 - 80

1) Weights are given for one flap. The moment is given for both flaps in the 35° position, flap actuator disconnected.
2) Weights are given for elevator assembly including both elevator halves.



Aircraft Dimensions [m (ft.)]
Figure 1

AIRCRAFT ZONING

1. General

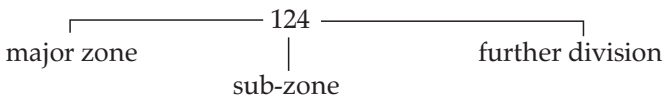
A. The aircraft is divided into numbered zones to facilitate the location of aircraft components and parts. The zoning used here is standard.

B. The zones are identified by a three-digit number. The first digit in the sequence denotes the major zone:

Major zones:
(1) 100 - Forward side of firewall and forward.
(2) 200 - Aft side of firewall to rear door post of the baggage door.
(3) 300 - Rear door post of the baggage door to end of aircraft.
(4) 500 - Left wing.
(5) 600 - Right wing.
(6) 700 - Landing gear.

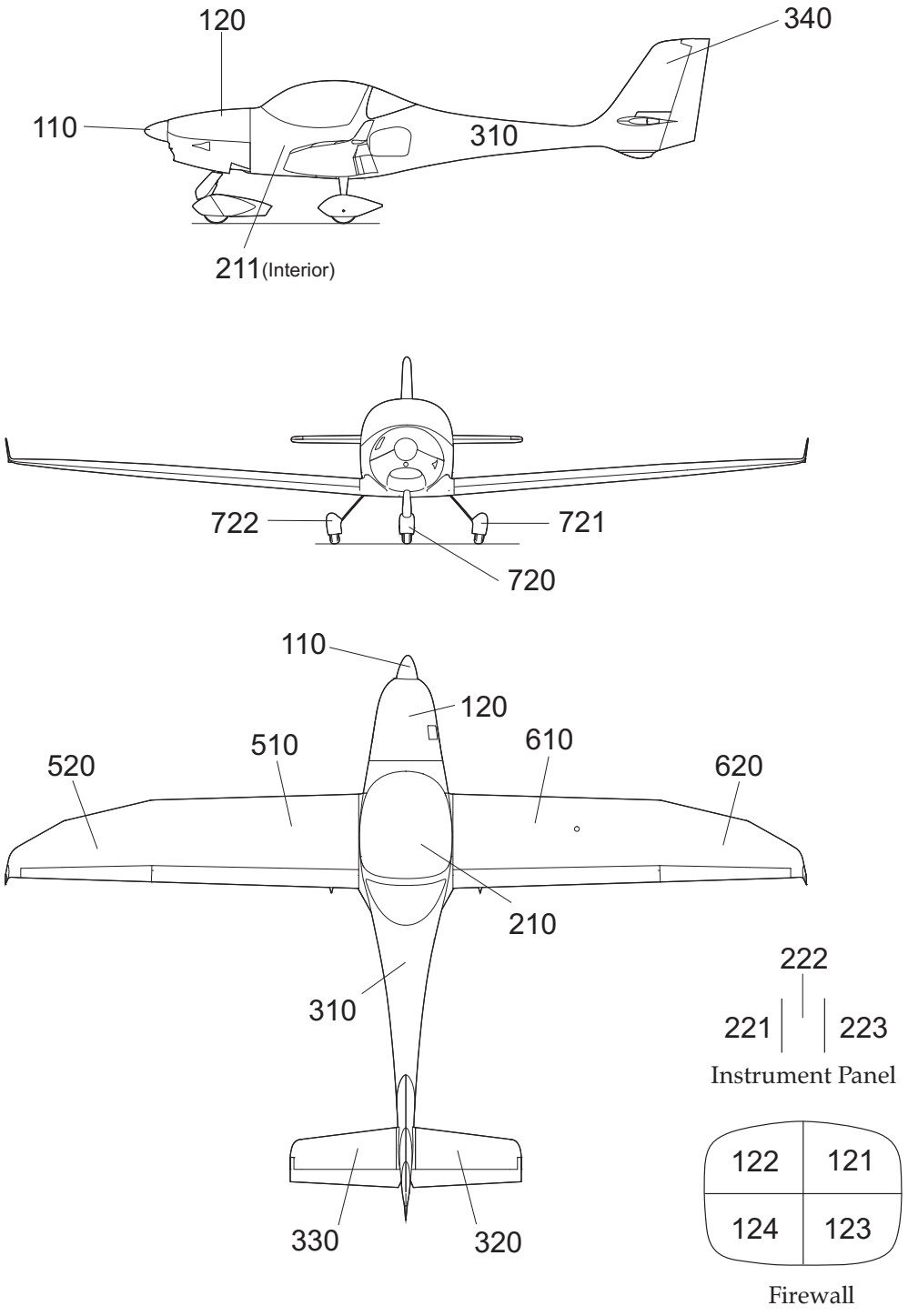
The second digit in the sequence divides the zones into sub-zones (zone 110 - propeller and spinner, zone 120 - upper and lower cowling). The third digit (if needed) divides the sub-zone into smaller subdivisions.

Example:



2. Description

A. For a classification of the aircraft zones, refer to figure 1.



Aircraft Zones
Figure 1

ACCESS & INSPECTION PLATES

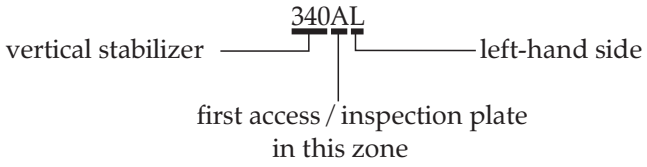
1. General

A. Access / inspection plates are used to gain access to various systems, components and parts of structure during maintenance and for inspection.

B. The access and inspection plates are designated logically.

(1) Access / inspection plates numbering system:
All access / inspection plates are identified using a series of numbers and letters which specify the aircraft zone (see section 6-20-00) and location within this zone. Primary identifiers follow the three-number sequence, with the first plate identified as "A", the second as "B" and so on. Locators follow the primary identifier and denote top, left, right or internal orientation of the plate.

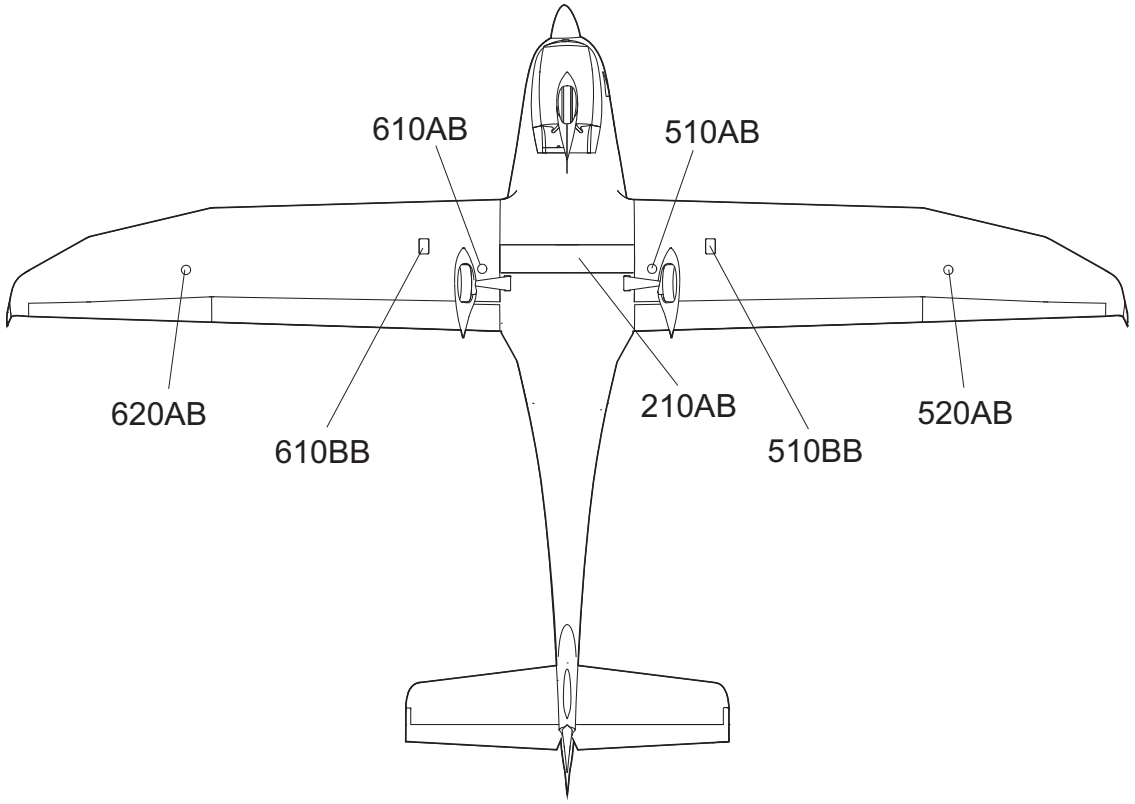
Example:



2. Description

A. For an illustration of the various access / inspection plates used on the aircraft, refer to figure 1.

210AB	Wing removal /installation, aileron / flap control systems, fuel system, wing structure (masked with cloth tape, e.g. Tesa 4651, to prevent intrusion of exhaust gases)
510AB	Left flap actuation lever
610AB	Right flap actuation lever
510BB	Left inboard fuel tank rib, fuel / vent lines, fuel lever sender
610BB	Right inboard fuel tank rib, fuel / vent lines, fuel lever sender
520AB	Left aileron bellcrank
620AB	Right aileron bellcrank



Access / Inspection Plates
Figure 1

CHAPTER 11

PLACARDS AND MARKINGS

TABLE OF CONTENTS

PLACARDS AND MARKINGS - GENERAL

1. Introduction

   A. This chapter provides information about interior and exterior graphics, placards, labels and interior markings, their maintenance and repair.

2. General Description

   Below a brief description and intended purpose of each section of this chapter is given.

   A. Section 11-00-00 - Placards and Markings - General. This section provides a general overview of content and purpose of the chapter.

   B. Section 11-20-00 - Exterior Placards and Markings. This section gives maintenance and care instructions for external placards, graphics, markings etc. and contains information about the equipment and material required.

   C. Section 11-30-00 - Interior Placards and Markings. This section gives maintenance and care instructions for internal placards, graphics, markings etc. and contains information about the equipment and material required.

EXTERIOR PLACARDS AND MARKINGS

1. General

A. This section gives maintenance and care instructions for exterior graphics, markings, etc.. Figure 201 shows the locations of the exterior placards and markings.

2. Tools, Equipment and Material

	Quantity	Equipment	Parts No.	Manufacturer
3.A. and B.	1	heat gun	-	commercially available
3.A. and B.	as required	isopropyl alcohol	-	commercially available
3.B.	1	needle	-	commercially available
3.B.	1	handy, dense, closed cell foam block	-	commercially available

3. Removal/Installation

A. Remove Self-Adhesive Placards

NOTE: Reference marks should be made on aircraft before removing old graphics.

(1) Warm the placard a little using a heat gun (approx. 40-50°C).
(2) Carefully separate a corner of the placard from the aircraft and then pull off parallel to the surface to remove it.
(3) Remove all traces of old adhesive by using a cloth with isopropyl alcohol as required.

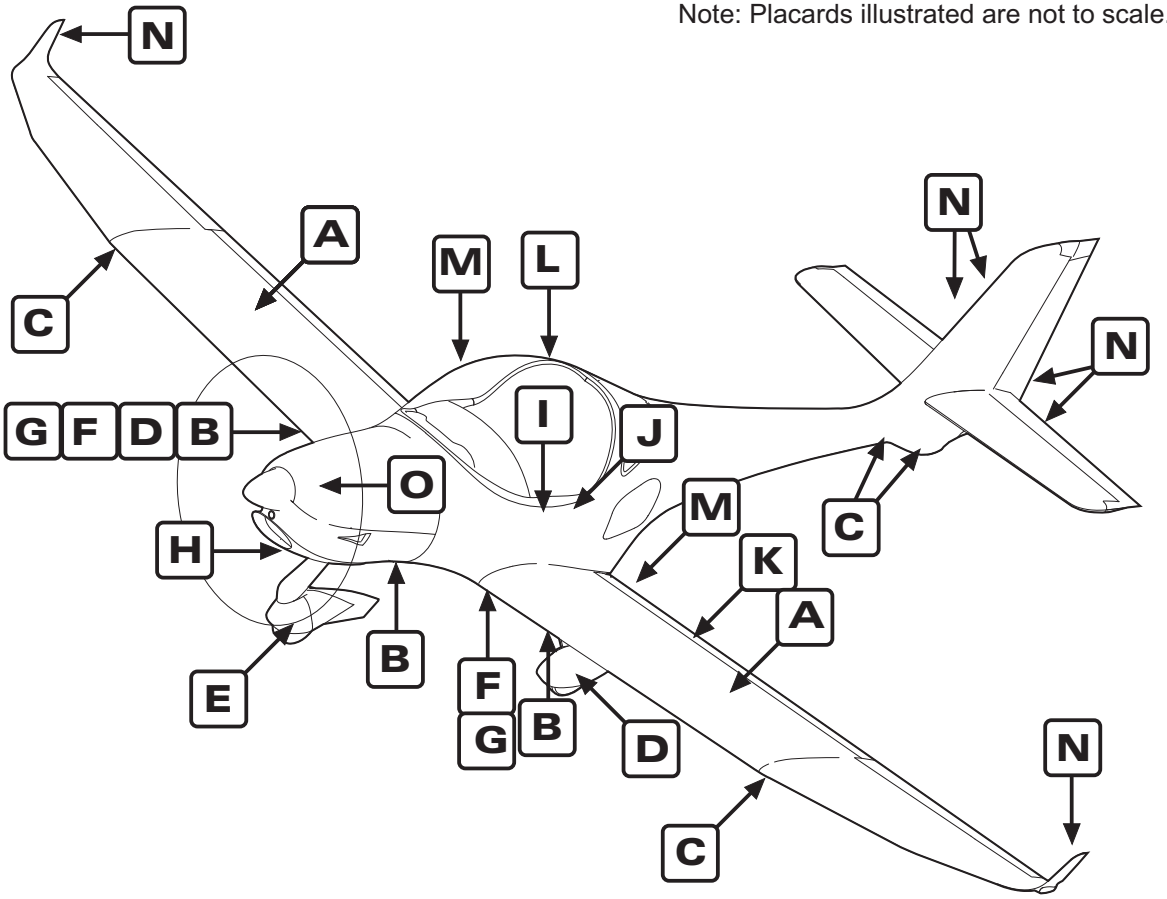
B. Placing Self-Adhesive Placards
(1) Clean aircraft surface carefully. Remove all old adhesive traces using isopropyl alcohol.
(2) Remove paperliner from backside of placard to expose adhesive.
(3) Position top edge of the placard precisely.
(4) Work uniformly downward and apply placard to aircraft with a dry, clean cloth.
(5) Remove the premask (outer protective film) from the placard.
(6) Remove air bubbles by perforating bubble with a small needle and then flattening.

4. Maintenance/Care

A. The following instructions should be followed to guarantee a maximum service life for the graphics:
(1) Clean aircraft exterior surface (refer to 12-23-00).
(2) Do not use any solvents to clean the graphics.
(3) Test other cleaning agents on a small inconspicuous part of the graphic.

(4) Do not allow fuel to spill on to graphics. If fuel spills on to graphics, wipe off with a cloth and rinse with water thoroughly.
(5) Do not remove snow and ice from surfaces using sharp-edged instruments.
(6) If a high-pressure washer is used, keep nozzle at least 0,5 m (approx. 1.6 ft) from edge of graphic.

Note: Placards illustrated are not to scale.



Detail-**A**

Exterior Placards and Markings
Figure 201 (1)

Note: Placards illustrated are not to scale.

KRAFTSTOFF ABLASS

Detail-**B**

FUEL DRAIN

VERZURRPUNKT

Detail-**C**

TIE DOWN

2,5 bar

Detail-**D**

36 psi

2,0 bar

Detail-**E**

29 psi

(red jack point markings)

Detail-**F**

Aufbockpunkt

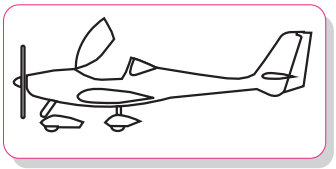
Detail-**G**

Jack Point

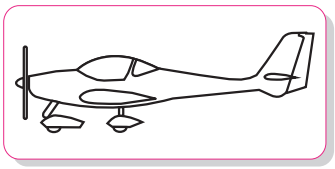
Erdungspunkt
Auspuffendrohr

Detail-**H**

Electric Ground
Exhaust Port



Detail-**I**



Detail-**J**

Exterior Placards and Markings
Figure 201 (2)

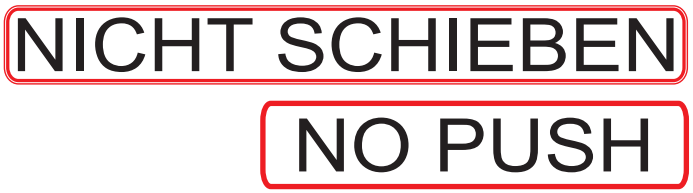
Note: Placards illustrated are not to scale.

Detail-**K**

(flap position markings)

Detail-**L**

Detail-**M**

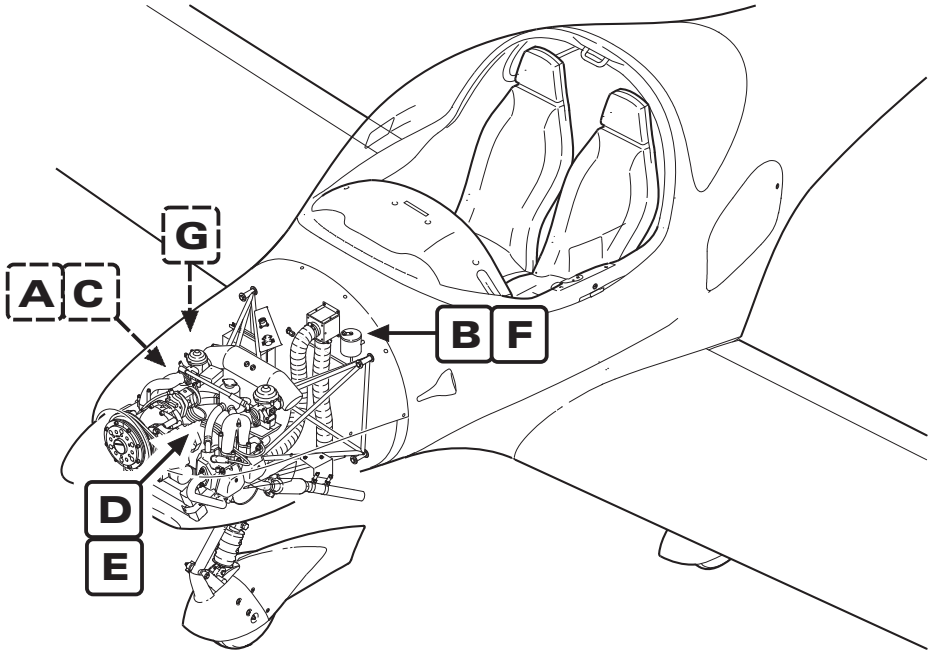


Detail-**N**

Detail-**O**

Exterior Placards and Markings
Figure 201 (3)

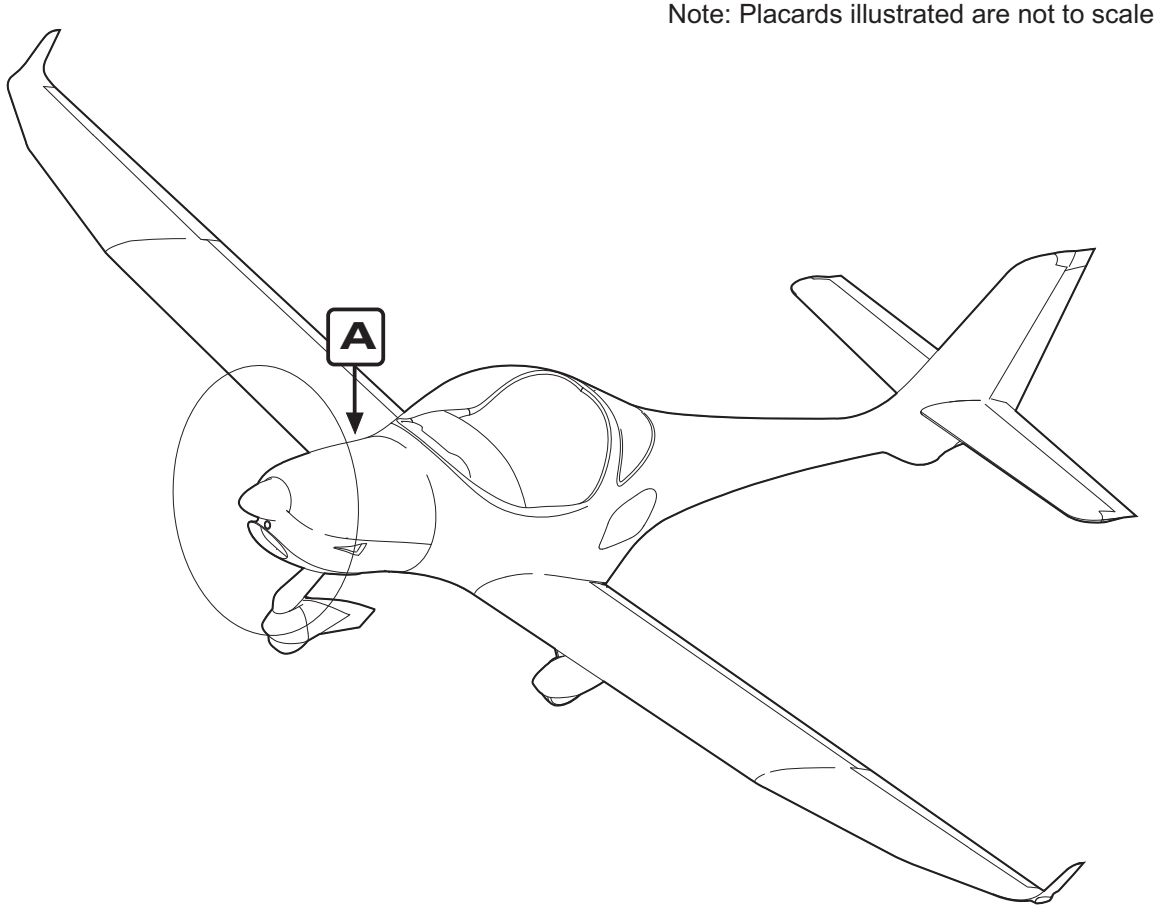
Note: Placards illustrated not in scale.



! ACHTUNG ! Kein Flugmotorenöl einfüllen. Siehe Flughandbuch	Detail-**A**	**! CAUTION !** DO NOT use aviation grade oil Refer to POH
! ACHTUNG ! Keine Automobilbremsflüssigkeit verwenden. Siehe Flughandbuch	Detail-**B**	**! CAUTION !** DO NOT use automotive brake fluid Refer to POH
ÖLFÜLLUNG 3,0 Liter **SIEHE FLUGHANDBUCH**	Detail-**C**	**OIL CAPACITY** **3.17 US quarts, 3,0 Liter** **REFER to POH**
KÜHLMITTEL-AUSGLEICHSGEFÄSS **BEI HEISSEM TRIEBWERK NICHT ÖFFNEN!**	Detail-**D**	COOLANT **DO NOT OPEN IF ENGINE IS HOT!**
KÜHLWASSERFÜLLUNG 2,3 Liter **SIEHE FLUGHANDBUCH**	Detail-**E**	**COOLANT CAPACITY** **2.43 US quarts, 2,3 Liter** **REFER to POH**
HYDRAULIKÖL FLUID 4	Detail-**F**	HYD. BRAKE FLUID (FLUID 4)
KÜHLMITTEL	Detail-**G**	COOLANT

Exterior Placards and Markings
Figure 201 (4)

Note: Placards illustrated are not to scale.



Externe Stromversorgung 12 V DC	Detail-A	GROUND POWER 12 VDC

Exterior Placards and Markings
Figure 201 (5)

EFFECTIVITY

Aircraft equipped with external power receptacle

INTERIOR PLACARDS AND MARKINGS

1. General

   A. This section gives information about removal and installation of interior placards, markings etc.. Figure 201 shows the aircraft interior placards and markings.

   B. If the information on the placard is no longer legible or the placard is partially destroyed or is no longer in place, it must be replaced.

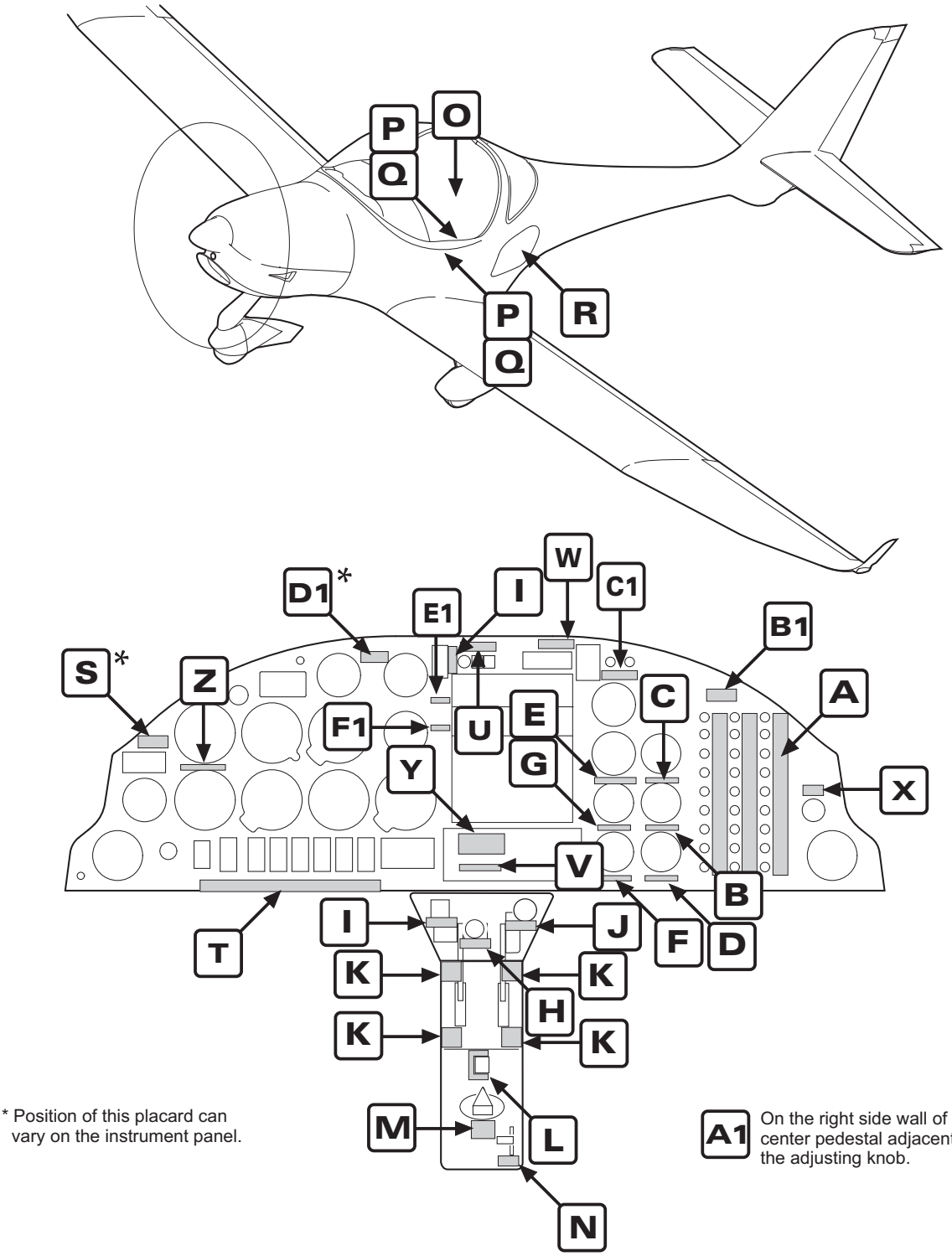
2. Tools, Equipment and Material

	Quantity	Equipment	Parts No.	Manufacturer
3.A	1	heat gun	-	commercially available
3.A	as required	isopropyl alcohol	-	commercially available
3.B	1	needle	-	commercially available

3. Removal/Installation

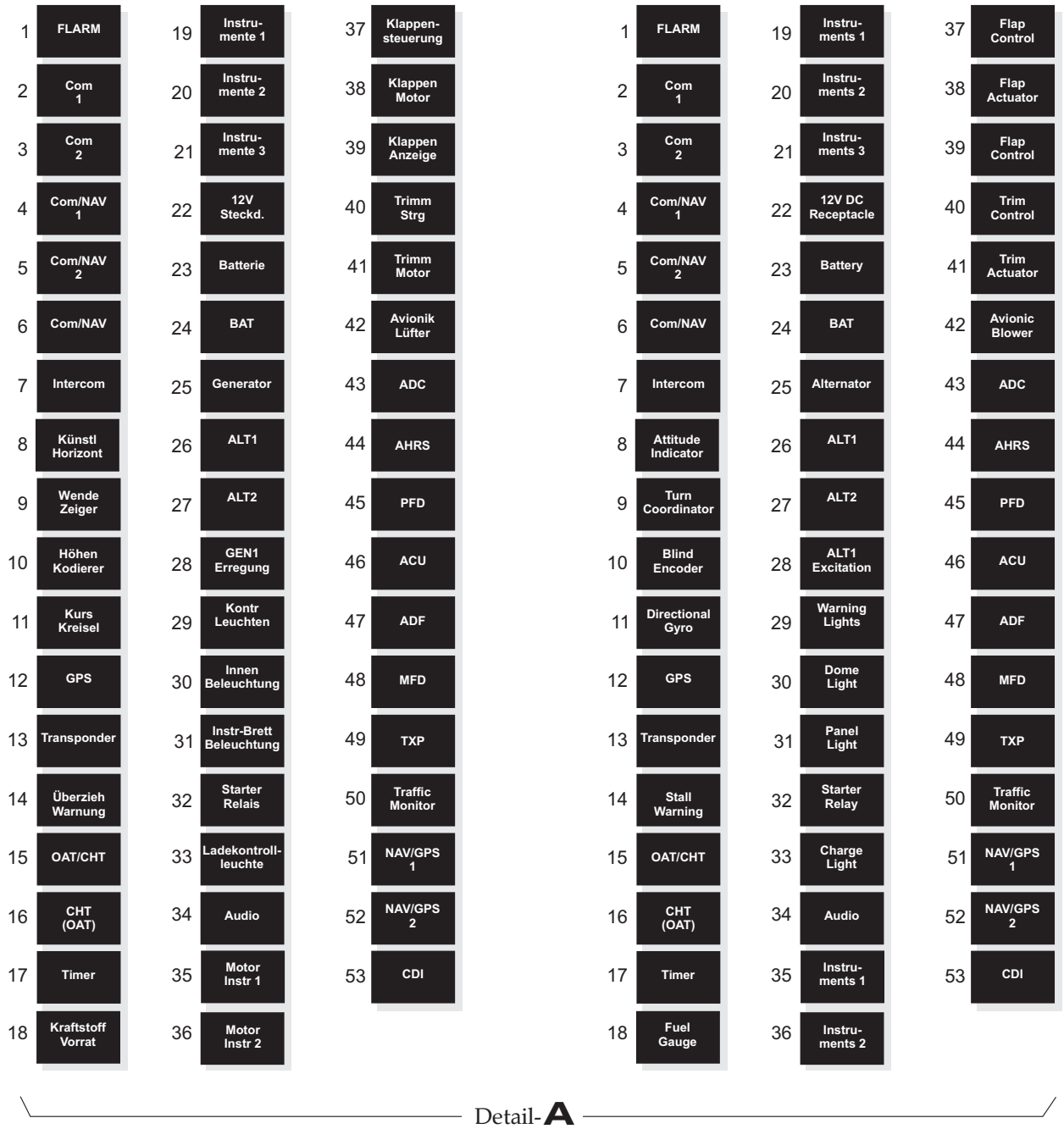
   A. Remove Self-Adhesive Placards
      (1) Warm the placard a little using a heat gun (approx. 40-50°C).
      (2) Carefully separate a corner of the placard from the aircraft and then pull off parallel to the surface to remove it.
      (3) Remove all traces of old adhesive by using a cloth with isopropyl alcohol as required.

   B. Placing Self-Adhesive Placards
      (1) Remove protective film from backside of placard to expose adhesive.
      (2) Position top edge of the placard precisely.
      (3) Apply placard by rubbing with a dry, clean cloth.
      (4) Remove air bubbles by perforating bubble with a small needle and then flattening.



Interior Placards and Markings
Figure 201 (1)

Note: Placards illustrated are not to scale.

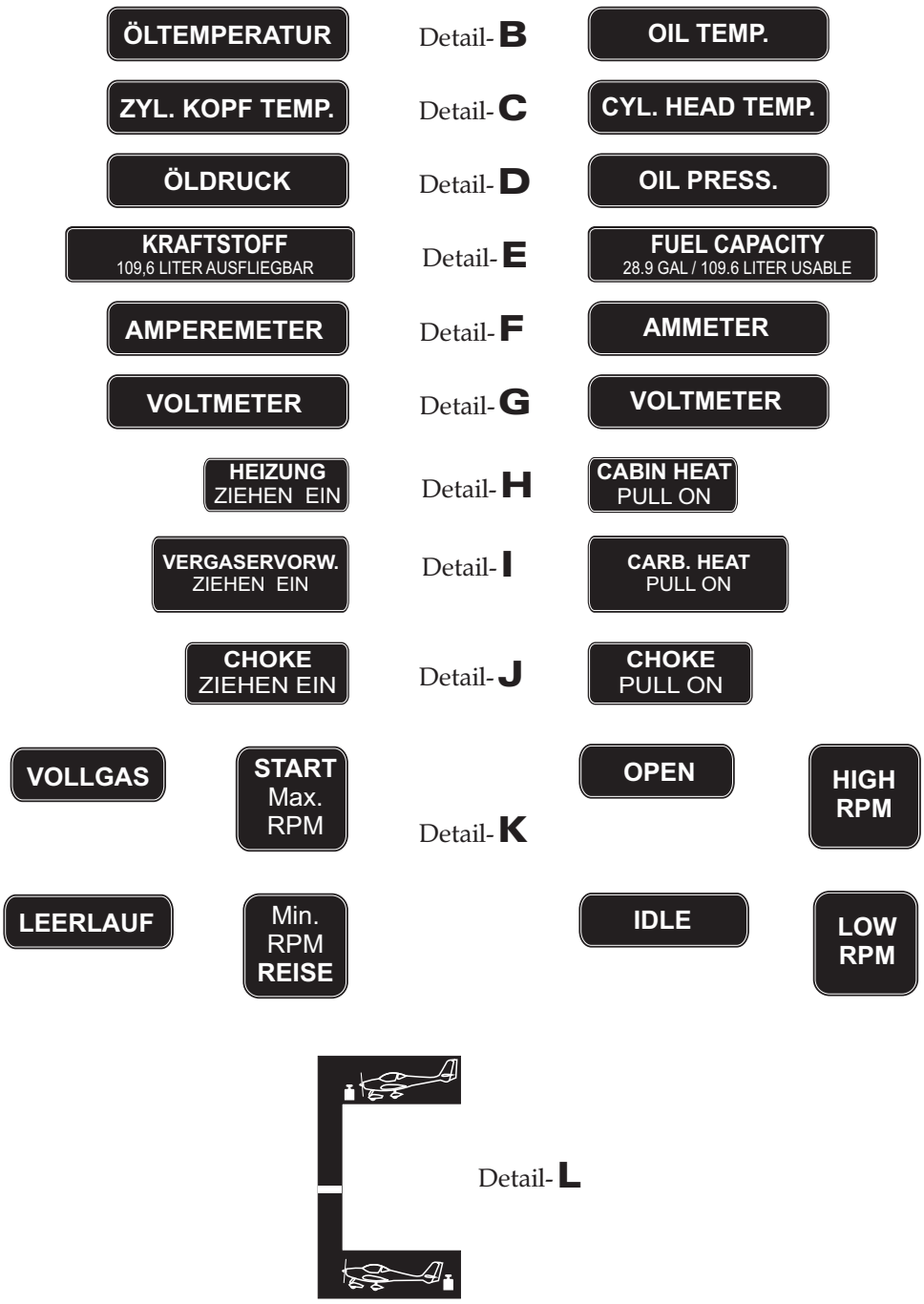


Detail-**A**

NOTE: Depending on equipment and serial number of the aircraft the placards shown may vary in presence and arrangement.

Interior Placards and Markings
Figure 201 (2)

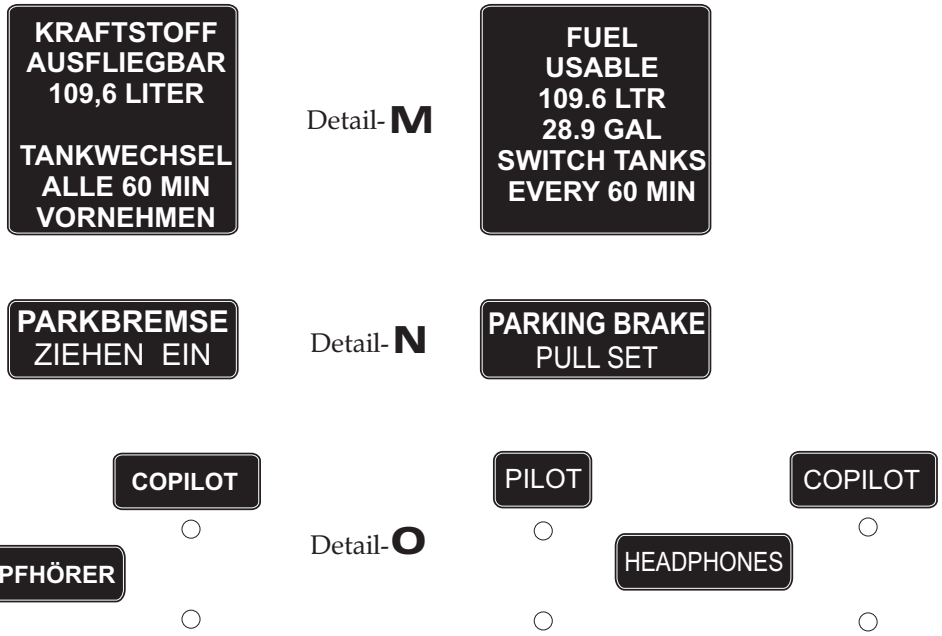
Note: Placards illustrated are not to scale.

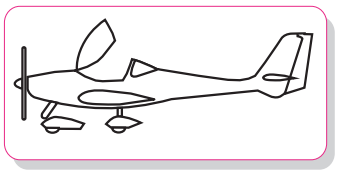


Detail-L

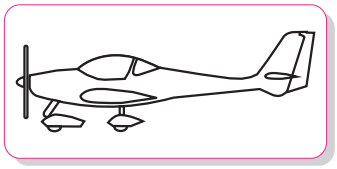
Interior Placards and Markings
Figure 201 (3)

Note: Placards illustrated are not to scale.

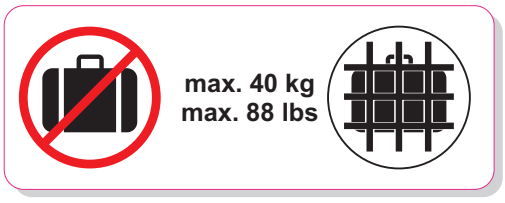




Detail-P



Detail-Q



Detail-R

Detail-S

Interior Placards and Markings
Figure 201 (4)

Note: Placards illustrated are not to scale.

ALT1 / BAT	Kraftst.-Pumpe AUX	PFD	Avionik	Positions-lichter	ACL	Lande-licht	Instrumenten-beleuchtung	P/S Heat
		1)						2)

ALT1 / BAT	Fuel Pump AUX	PFD	Avionics	Nav Lights	ACL	Landing Light	Instrument Lights	P/S Heat

Detail-**T**

ALT1	ALT2	KRAFTSTOFF-DRUCK	SPANNUNG	P/S HEAT
				2)

ALT1	ALT2	FUEL	VOLT	P/S HEAT

Detail-**U**

GPS NUR ZUR INFORMATION

Detail-**V** 3)

GPS FOR INFORMATION ONLY

ELT-FERNBEDIENUNG
ELT Hauptschalter
auf ARMED stellen!

Detail-**W**

ELT-REMOTE CONTROL
Switch ELT-transmitter
to ARM !

STECKDOSE
12 - 14 V
max. 5 A

Detail-**X**

RECEPTACLE
12 - 14 V DC
MAX: 5 A

Dieses Flugzeug ist in der Kategorie VLA zertifiziert und nur für den Betrieb VFR-Tag ohne Vereisungs-bedingungen zugelassen. Alle Kunstflugmanöver, einschließlich beabsichtigtem Trudeln, sind verboten. Weitere Betriebsgrenzen stehen im Flughandbuch.

Detail-**Y**

This aeroplane is classified as a very light aeroplane approved for day VFR only in non-icing conditions. All aerobatic manoeuvres, including intentional spinning are prohibited. See Flight Manual for other limitations.

Dieses Flugzeug ist in der Kategorie VLA zertifiziert und für den Betrieb VFR-Tag und VFR-Nacht ohne Vereisungs-bedingungen zugelassen. Alle Kunstflugmanöver, einschließlich beabsichtigtem Trudeln, sind verboten. Weitere Betriebsgrenzen stehen im Flughandbuch.

Detail-**Y** 4)

This aeroplane is classified as a very light aeroplane for day VFR and night VFR in non-icing conditions. All aerobatic manoeuvers including intentional spinning are prohibited. See Flight Manual for other limitations.

1) Aircraft equipped with Aspen avionics only.
2) Aircraft equipped with pitot heating system only.
3) Aircraft equipped with non-(E)TSO'd GPS-receiver only.
4) Aircraft equipped for Night-VFR only.

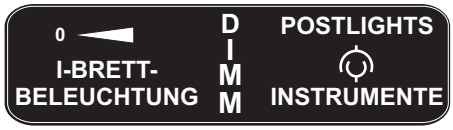
Interior Placards and Markings
Figure 201 (5)

Note: Placards illustrated are not to scale.

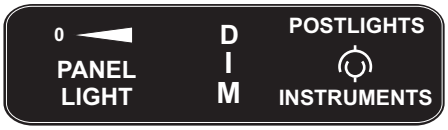
Detail-**Z**

Detail-**A1**

Detail-**B1**



Detail-**C1**



FOR	N	30	60	E	120	150
STEER						
FOR	S	210	240	W	300	330
STEER						
DATE:					AIRPATH C2300	

Detail-**D1**

Detail-**E1**

Detail-**F1**

Interior Placards and Markings
Figure 201 (6)

CHAPTER 12

SERVICING

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

SERVICING - GENERAL

1. Introduction

   A. This chapter gives information on the replenishment of fluids and the lubrication of components. The chapter also contains instructions required to carry out scheduled servicing.

2. General Description

   The chapter is designed to help authorized personnel to correctly service the aircraft.
   Below a brief description and intended purpose of each section of this chapter is given.

   A. Section 12-00-00 - Servicing - General. This section provides a general overview of content and purpose of the chapter.

   B. The subsequent sections are divided into 3 groups.
      (1) Replenishment Fluids
      Provides information for the maintenance personnel to help them to correctly perform the necessary servicing during daily aircraft operation. This group begins with section 12-10-00 - Replenishing - Description. The section includes approved fluids specifications and information about tank and reservoir capacities.

      (2) Scheduled Servicing
      Provides information for the maintenance personnel to help them to correctly perform periodic servicing, such as lubricating components or cleaning the aircraft. This group begins with section 12-20-00 Scheduled Servicing Description.

      (3) Unscheduled Servicing
      Provides information for the maintenance personnel to help them to correctly perform servicing, which is carried out at irregular intervals, for example removing ice and snow.

REPLENISHING - DESCRIPTION

1. General

   A. This chapter provides information about fluids which must be replenished during operation.

2. Fuel

   A. Fuel Capacity

	Liters	U.S. Gallons
Total Capacity	120,0	31.7
Usable Fuel	109,6	29.0
Unusable Fuel	10,4	2.7

   B. Fuel Specification
   The following fuel is approved for use in the AQUILA AT01. The minimum RON should be 95.

   EN 228 Super (Premium)
   EN 228 Super plus (Premium plus)
   AVGAS 100 LL (Grade ASTM-D910, blue color)
   AVGAS UL 91 (Grade ASTM-D7547)

   WARNING: ONLY USE FUEL SUITABLE FOR THE RESPECTIVE CLIMATIC ZONE.

   NOTES: For fuel specifications set down by the FAA, refer to standard spec. for automotive spark-ignition engine fuel ASTM D 4814.

   There is a risk of vapor formation if winter fuel is used for summer operation.

   Due to the higher lead content in AVGAS, wear of the valve sets and deposits in combustion chamber and lead sediments in the lubrication system will increase. It is, therefore, recommended to use AVGAS only if problems with vapor lock are experienced or if the other fuel types are not available.

3. Engine Oil

A. Engine Oil Capacity

	Liters	U.S. Quarts
Engine oil capacity	3,0	3.17
Initial filling	3,5	3.70
Minimum	2,5	2.64

B. Oil Specification

CAUTION: DO NOT USE AVIATION GRADE ENGINE OIL.

IF MORE THAN 30% OF OPERATION HOURS HAVE BEEN FLOWN WITH LEADED FUEL (E.G. AVGAS 100LL), AN OIL CHANGE SHOULD BE UNDERTAKEN EVERY 50 H (REFER TO ROTAX AIRCRAFT ENGINES SERVICE INFORMATION SI-912-016).

(1) Only use oil with ROTAX Norm (RON) 424 classification.
(2) Due to the high stresses in the reduction gears, oils with gear additives such as high performance motor cycle oils must be used.
(3) Because of the incorporated friction clutch, oils with friction modifier additives are unsuitable as this could result in a slipping clutch during normal operation.
(4) Heavy duty 4-stroke motor cycle oils meet all requirements. These oils are normally not mineral oils but semi- or full synthetic oils.
(5) Diesel engine oils are generally unsuitable due to temperature properties and additives which favor clutch slipping.

NOTE: For more information on the necessary lubricants, refer to Rotax Aircraft Engines Service Information SI-912-016.

C. Recommended Oil Viscosity for various Air Temperatures:

Mean ambient temperature	Multi grade oils	
0°C (32 °F) to 40°C (104 °F)	SAE 20W-50	SAE 20W-40
-10°C (14 °F) to 40°C (104 °F)	SAE 15W-50	SAE 15W-40
-20°C (-4 °F) to 40°C (104 °F)	SAE 10W-40	SAE 10W-30
-30°C (-22 °F) to 40°C (104 °F)	SAE 5W-50	SAE 5W-40

4. Hydraulic Fluid

A. Only hydraulic fluid fulfilling the MIL-H-5606 specification should be used.

FUEL - SERVICING

1. General

A. Fuel Tanks
(1) The aircraft is equipped with two integral wing fuel tanks.
The fuel tanks are located inside each wing between the front and rear spars. Each fuel tank has a filler cap on the top wing surface.

B. Drain System
(1) The fuel system is equipped with drain valves to allow examination for contamination, water and for de-fueling.
Each wing fuel tank has a drain valve at the bottom, inboard rear corner. A further drain valve is located at the lowest point of the fuel system; at the base of the electrical fuel pump. The drain is accessible from outside the nose section.
The center of the fuel drains can be pushed inward with the fuel sampler to inspect for water and contamination.

NOTE: Chapter 28 (Fuel) contains more detailed information about the fuel system.

2. Safety and Maintenance Precautions

A. Safety Precautions

WARNING: SERVICEABLE FIRE FIGHTING EQUIPMENT MUST BE AVAILABLE DURING ALL FUEL SYSTEM SERVICING PROCEDURES.

AIRCRAFT AND FILLING FITTINGS MUST BE GROUNDED.

ALL ELECTRICAL EQUIPMENT IN THE AIRCRAFT SHOULD BE TURNED OFF. THE ALT/BAT SWITCH SHOULD BE IN THE "OFF" POSITION AND THE IGNITION KEY REMOVED FROM THE AIRCRAFT.

NO SMOKING!

(1) Before beginning maintenance, a serviceable fire extinguisher (at least foam extinguisher) must be positioned within easy access.
(2) Do not wear clothing that has a tendency to generate static electricity (i.e. synthetic fabrics).
(3) No metal tabs on footwear.
(4) Carry out fuel system servicing procedures only in a designated fuel loading/unloading area.
(5) Ground equipment near the aircraft must be turned off.
(6) While filling do not turn on any electrical device.
(7) Make sure that the aircraft and filling fittings are properly grounded:
(a) First ground the aircraft;
(b) If a mobile filling device is being used, ground the filling device (same potential as aircraft);
(c) Ground the mobile filling device with the aircraft.

B. Maintenance Precautions
(1) Use designated equipment for fuel loading / unloading to prevent contamination.
(2) Only use approved anti-icing additive.
(3) Blend fuel in accordance with prescribed procedures.
(4) Document all fuel blending.

3. Fueling and Defueling

A. Fueling
(1) Move aircraft to a designated fuel loading / fuel unloading area.
(2) Make sure that the ALT/BAT switch is in the OFF position.
(3) Ground aircraft and filling device as described above.
(4) Position a fire extinguisher near to the fuel tank to be serviced.
(5) Remove fuel filler cap and fill fuel tank to desired level.
(6) Remove fuel service nozzle and install fuel cap.
(7) Move fire extinguisher and the fuel service nozzle to the other tank to be filled.
(8) Remove fuel filler cap and fill fuel tank to desired level.
(9) Remove fuel service nozzle and install fuel cap.
(10) Check correct lock of both fuel filler caps. Remove excess fuel from the wing area using a cloth.
(11) Remove ground cables.
(12) Compare reading of fueled amount on filling device with readings on the fuel indicators in the aircraft.

B. Defueling
(1) Move aircraft to a designated fuel loading / fuel unloading area.
(2) Make sure you have enough fuel collectors.
(3) Make sure that the ALT/BAT switch is in the OFF position.
(4) Ground aircraft and filling device as described above.
(5) Position a fire extinguisher near to the fuel tank to be defueled.
(6) Remove fuel cap and remove as much fuel as possible using a defueling nozzle.
(7) Install fuel cap.
(8) Move fire extinguisher and the defueling nozzle to the other tank to be defueled.
(9) Remove fuel cap and remove as much fuel as possible using a defueling nozzle.
(10) Install fuel cap.
(11) Drain remaining fuel from each wing fuel tank.
(12) Drain remaining fuel from the drain valve located at the base of the electrical fuel pump with the fuel selector valve in the position LEFT and then in the position RIGHT.
(13) Make sure all drain valves are closed securely.
(14) Remove ground cables.

ENGINE OIL - SERVICING

1. General

   A. This chapter provides information for checking and changing engine oil.

   B. The oil filler cap of the oil tank is located on the right side of the engine behind cylinder no. 3. It is accessible by opening the oil access plate on the upper cowling. The oil filler cap has a dipstick with min - max markings to check oil level.

   WARNING: AVOID SKIN CONTACT WITH ENGINE OIL. USED OIL IN PARTICULAR CONTAINS MATERIALS DETRIMENTAL TO HEALTH.

   WARNING: BEFORE ROTATING THE PROPELLER BY HAND, ENSURE IGNITION SWITCH IS OFF AND THE THROTTLE IS CLOSED.

   CAUTION: DO NOT ROTATE THE PROPELLER CLOCKWISE.

2. Checking Engine Oil

   A. Oil Checking Procedure

      (1) Turn the propeller several times by hand to transfer all the oil from the engine to the tank.

         NOTE: The process is completed when air flows back to the oil tank. This flow of air can be perceived as gurgling sound when the cover of the tank is removed.

      (2) Open oil access plate on upper cowling.
      (3) Remove oil filler cap and withdraw dipstick.
      (4) Wipe oil dipstick dry with a cloth.
      (5) Reinsert dipstick.
      (6) Withdraw dipstick and read oil level on dipstick.
      (7) If necessary, refill engine oil with correct grade and viscosity (refer to 12-10-00).

         NOTE: For normal engine operation maintain the oil level between the two marks as an excessive oil level will allow oil to escape via the venting line.
         For longer flights replenish oil to max. mark to warrant more oil reserve.

      (8) Reinsert oil dipstick, close filler cap, check for proper seating.
      (9) Close oil access plate.

3. Oil Change Intervals

   CAUTION: FOR ENGINE OPERATION WITH AVGAS, OIL SHOULD BE CHANGED EVERY 50 HOURS (REFER TO ROTAX AIRCRAFT ENGINES SI-912-016).

CAUTION: UNDER SEVERE OPERATING CONDITIONS, THE FREQUENCY OF OIL CHANGES MUST BE INCREASED REGARDLESS OF THE TYPE OF FUEL USED (MOGAS OR AVGAS).

A. Oil Change Intervals
(1) Under normal operating conditions, oil must be changed every 100 hours.
(2) For oil specifications, refer to 12-10-00 and to ROTAX Aircraft Engines SI-912-016, which contains further operating information for ROTAX engines.

4. Oil Changing

CAUTION: DRAINING THE OIL LINES AND OIL COOLER IS NOT NECESSARY AND MUST BE AVOIDED, AS IT RESULTS IN AIR ENTERING THE OIL SYSTEM. (REFER TO ROTAX AIRCRAFT ENGINES SI-912-018).

A. Oil Changing Procedure
(1) Run engine until operating temperature is reached.
(2) Shut down engine.

WARNING: HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

(3) Turn the propeller several times by hand to transfer all the oil from the engine to the tank.

NOTE: The process is completed when air flows back to the oil tank. This flow of air can be perceived as gurgling sound when the cover of the tank is removed.

(4) Remove engine cowling (refer to 71-10-00).
(5) Cut safety wire on drain screw at oil tank base. Remove drain screw.
(6) Drain oil and dispose of it as per environmental regulations.
(7) Remove oil filter from engine.
(8) Lubricate mating sealing ring of new oil filter with engine oil.
(9) Install new oil filter. Screw on new oil filter by hand.
(10) Cut oil filter out of its casing (without producing any metal chips) and inspect filter material.
(11) Renew gasket ring of drain screw on oil tank. Fit drain screw and tighten to 25 Nm (220 in.lbs). Secure drain screw with safety wire.
(12) Refill oil tank with approx. 3 liters (3.17 quarts) of oil. For oil specification, refer to 12-10-00 and to ROTAX Aircraft Engines SI-912-016.
(13) Reinsert oil dipstick, close filler cap, check for proper seating.
(14) Run engine until normal operating temperature is reached. Shut down engine.

WARNING: HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

(15) Check oil system for leaks.
(16) Tighten oil filter again by hand.
(17) Reinstall cowling (refer to 71-10-00).
(18) Document oil change as prescribed.

INDUCTION AIR FILTER - SERVICING

1. General

   A. The air filter in the air induction system keeps dust and dirt particles from entering the system. It is located in the air filter box on the left inside of the lower cowling.
   To increase its effectiveness, the filter element should be treated with filter oil.

   B. The condition of the air filter element will be determined primarily by engine operating conditions. Therefore, it should be regularly inspected, cleaned and replaced, if necessary, at least every 100 hours or once a year, whichever comes first.

2. Air Filter Changing

   A. Air Filter Changing Procedure
      (1) Remove upper cowling (refer to 71-10-00).
      (2) Remove the cover of the air filter box.
      (3) Remove air filter element from air filter box and replace by a new one.
      (4) Install the cover of the air filter box.
      (5) Reinstall cowling (refer to 71-10-00).

3. Air Filter Cleaning

   A. Cleaning Procedures
      (1) Remove air filter element as described above.
      (2) Inspect air filter element for damage. If necessary renew filter element.

      CAUTION: NEVER USE GASOLINE, STEAM, CAUSTIC LIQUIDS, DETERGENTS OR HIGH PRESSURE CLEANING.

      (3) Lightly tap and brush off surface dirt.
      (4) Spray filter cleaner on to entire element and let it soak for approx. 10 min.

      WARNING: DO NOT DRY OVER NAKED FLAME OR WITH HOT AIR GUN. EXCESSIVE HEAT WILL SHRINK THE PORES OF THE FILTER MATERIAL RESTRICTING ENGINE AIR FLOW.

      (5) Rinse filter element with water from the inside out and let it dry naturally.

      CAUTION: NEVER USE GEAR OIL, DIESEL OIL OR MOTOR OIL AS THEY ATTRACT WATER.

      (6) After cleaning, lubricate filter element evenly with filter oil spray or filter oil according to the manufacturer's instructions.
      (7) Ensure air filter box is clean and free of debris.
      (8) Install air filter as described above, pay attention to correct fit.

COOLING SYSTEM - SERVICING

1. General

WARNING: NEVER OPEN PRESSURE CAP OR RADIATOR CAP WHEN THE COOLING SYSTEM IS HOT. FOR SAFETY REASONS, COVER CAP WITH A CLOTH AND OPEN SLOWLY. SUDDEN OPENING OF THE CAP COULD PROVOKE THE EXIT OF BOILING COOLANT AND RESULT IN SEVERE SCALDING.

A. The cooling system of the ROTAX 912 is designed for liquid cooling of the cylinder heads and ram air cooling of the cylinders. The cooling system of the cylinder heads is a closed circuit with an expansion tank. For a more detailed description and related maintenance procedures of the cooling system, refer to 75-00-00.

B. Coolant
There are two different cooling systems possible on the AQUILA AT01, each requiring a different coolant. The standard cooling system of the AQUILA AT01 (combined water / oil radiator) must only be operated with waterless coolant based on propylene glycol. If SB-AT01-029 has been carried out (installation of the AT01-100 cooling system with separate water and oil radiators) only conventional coolant based on ethylene glycol with 50% water content must be used.

Refer to the ROTAX Service Instruction SI-912-016, latest revision, for further information on suitable coolants. The maximum coolant quantity is 2,5 liters (2.6 U.S. quarts).

(1) Waterless coolant based on propylene glycol such as EVANS Aero Cool 180

NOTE: This type of coolant must be used on the standard AQUILA AT01 cooling system with a combined water / oil radiator.

CAUTION: WATER OR COOLANT CONTAINING WATER MUST NEVER BE ADDED TO THE COOLING SYSTEM! THE MAX. WATER CONTENT MUST NOT EXCEED 3,6%; IT CAN BE TESTED USING A BRIX REFRACTOMETER. ANY WATER PRESENT IN THE COOLING SYSTEM IS SEPARATED OUT AS VAPOR. THIS CAN CAUSE THE COOLING SYSTEM TO FAIL DUE TO INSUFFICIENT COOLANT QUANTITY.

USE COOLANT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

NOTE: If EVANS Aero Cool 180 is not available locally for servicing the cooling system, a conventional coolant based on pure 100% ethylene glycol can be used temporarily. However, the coolant must be replaced again with EVANS Aero Cool 180 within the next 15 days. Only add 100% pure ethylene glycol!

(2) Conventional coolant based on ethylene glycol such as BASF Glysantin Protect Plus / G48 50% antifreeze concentrate with additives against corrosion and 50 % pure water, or use of an equivalent premixed coolant. The coolant must be renewed every three years.

NOTE: This type of coolant must be used if SB-AT01-029 has been carried out and the standard AQUILA AT01 cooling system has been replaced by the AT01-100 cooling system with separate water and oil radiators.

CAUTION: ENSURE THAT ONLY ANTIFREEZE CONCENTRATE CONTAINING ADDITIVES AGAINST CORROSION FOR LIGHT METAL ENGINES IS USED. USE ANTIFREEZE CONCENTRATE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2. Adding Coolant

A. Prior to adding coolant, the reason for the loss of the liquid must be investigated and corrected.

B. Servicing Procedure
(1) Remove engine cowling (refer to 71-10-00).
(2) When engine is cold, open pressure cap of the expansion tank and fill up the expansion tank completely.
(3) Run engine to operating temperature and allow engine to cool down before checking coolant level again. Replenish as necessary.
(4) Close pressure cap, check the condition of the rubber sealing rings.
(5) Install engine cowling (refer to 71-10-00).

3. Renewal of the Coolant

A. Servicing Procedure
(1) When engine is cold, open pressure cap of the expansion tank and lowest coolant hose on the radiator and drain the coolant.
(2) Reconnect coolant hose.
(3) Refill freshly mixed coolant into expansion tank (highest point of the cooling system).
(4) Install radiator tester and apply air pressure of 2 bar (30 psi). After 30 minutes there should be no noticeable pressure drop.
(5) Reinstall pressure cap of the expansion tank.
(6) Run engine to operating temperature and allow engine to cool down. Check system for leaks. Check coolant level and replenish as necessary.

4. Flushing the Cooling System (conventional coolant only!)

A. Servicing Procedure
(1) When engine is cold, open pressure cap of the expansion tank and lowest coolant hose on the radiator and drain the coolant.
(2) Flush system with a water hose at a max. pressure of 2 bar (30 psi).
(3) Reconnect coolant hose.
(4) Refill freshly mixed coolant into expansion tank (highest point of the cooling system).
(5) Install radiator tester and apply air pressure of 2 bar (30 psi). After 30 minutes there should be no noticeable pressure drop.
(6) Reinstall pressure cap of the expansion tank.
(7) Run engine to operating temperature and allow engine to cool down. Check system for leaks. Check coolant level and replenish as necessary.

BRAKE SYSTEM - SERVICING

1. General

   A. Ground service for the brake system is limited to the replenishment of brake fluid. The brake fluid reservoir is located at the upper left firewall in the engine compartment.

   B. Refer to 32-40-00 for brake system bleeding / brake fluid change procedures.

2. Replenishing Hydraulic Fluid

   A. Hydraulic Fluid Replenishing

      CAUTION: ONLY USE HYDRAULIC FLUID WHICH CONFORMS TO MIL-H-5606 SPECIFICATION.

      (1) Remove upper cowling (refer to 71-10-00).
      (2) Remove filler plug from hydraulic fluid reservoir.

      CAUTION: REMOVE EXCESSIVE HYDRAULIC FLUID IMMEDIATELY FROM PAINT SURFACES TO PREVENT CHEMICAL ATTACK.

      (3) Refill hydraulic fluid.
      (4) Install filler plug.
      (5) Install upper cowling (refer to 71-10-00).

TIRES - SERVICING

1. General

A. The landing gear is equipped with 5.00-5 tires. Required tire pressure is:

(a) Main gear tire: 2,5 bar (36 psi)
(b) Nose gear tire: 2,0 bar (29 psi)

Checking tire pressure regularly is the most important preventive measure in tire service. Improper tire pressure causes deterioration in the ground handling behavior of the aircraft and reduces the service life of the tire.
Under-pressure is indicated by excessive wear in the tire shoulder area, over-pressure by excessive wear in the center of tire.

2. Tire Servicing

WARNING: WHILE SERVICING, DO NOT STAND IN FRONT OF EITHER BEAD AREA OF THE TIRE BECAUSE BURSTING TIRES HAVE THE TENDENCY TO RUPTURE ALONG THE BEAD. ALWAYS STAND AT A 90° ANGLE TO THE AXLE ALONG THE TIRE CENTERLINE.

A. Service Notes
(1) If possible, do not expose the tires permanently to intensive solar radiation.
(2) Ensure tire pressure gauges used are accurate.
(3) While checking tire pressure, the aircraft should be on level ground and the tire cold.
(4) A freshly mounted and installed tube-type tire should be closely monitored during the first hours of operation. Air trapped between the tire and the tube at the time of mounting could seep out, resulting in under pressure in the tire.

B. Tire servicing comprises the following items:
(1) Check tire pressure regularly. If necessary inflate or drain air.
(2) Examine tires for wear, cuts, bruises, and foreign bodies in the tread.
(3) Check proper location of the red slide marks.
(4) Always remove oil, grease and mud from tires with soap and water.

BATTERY - SERVICING

1. General

   A. The battery should be serviced every 100 hours. In the case of heavy-duty operation or operation in cold regions, service intervals should be shorter.

   B. For installation/removal procedures and a capacity check of the battery, refer to 24-30-00.

2. Battery Servicing

   NOTE: The battery should be serviced only after it has been removed from the aircraft.

   A. Battery servicing involves the following:
      (1) Check battery and battery tray for any corrosion and dirt. Clean with clear water and dry.
      (2) Check battery charging using a battery tester. Recharge battery if required.
      (3) Clean and grease battery terminals (refer to 12-22-00).
      (4) If existent, test ventilation tube for condition and obstructions.

SCHEDULED SERVICING - DESCRIPTION

1. General

A. This section provides instructions necessary to carry out scheduled servicing, such as the periodic lubrication of aircraft components; external and internal cleaning. Service intervals are also provided. This section does not include lubrication procedures required to complete maintenance measures.

LUBRICANTS - DESCRIPTION

1. General

   A. This section assists with the selection of proper lubricants used to maintain the aircraft.
   To ensure a long service life of the lubricated components, it is recommended to always use pure and authorized lubricants.

2. Service Notes

   A. Use of the lubricants
      (1) Cleanliness is essential to good lubrication. Lubricants and required equipment must be kept clean.
      (2) Store the lubricants in a secure place and in accordance with the manufacturer's specifications.
      (3) Wipe grease fittings and areas to be lubricated with clean dry cloths before lubricating.
      (4) When lubricating bearings which are vented, force grease into fitting until old grease is expelled. Remove old grease.
      (5) Control cables should not be lubricated, unless to prevent corrosion.

3. Definition of "As Needed"

   A. In the following sections, time requirements for lubrication are shown either by a specific time interval or by „as needed“. The latter means that no interval is determined for this item. The mechanic decides when lubrication is required.

   B. If one or several of the following conditions occurs simultaneously, the component must be lubricated:
      (1) The old lubricant has been removed.
      (2) Dirt or wear residue are visible near the movement contact area.
      (3) While moving squeaks, grinding or other abnormal sounds are audible.
      (4) During movement by the hand, jerky or restricted movement occurs throughout portions of travel range.

4. Recommended Lubricants:

A. Categories of lubricants, their specifications and typical areas of application are provided below.

Abbreviation	Specification	Description
GR	MIL-PRF-81322	Grease, wide temperature range
GH	MIL-PRF-23827	Grease, aircraft and instrument, Gear and actuator screw
OG	MIL-L-7870	Oil, general purpose
PL	VV-P-236	Technical petrolatum
PG	SS-G-659	Powdered graphite
GL	MIL-G-21164	Grease, molybdenum disulfide, for high and low temperatures
OL	VV-L-800	Light oil
SG	MIL-S-8660 or SAE AS 8660	Thick silicone grease (-50°C to 200°C), (liquid grease in spray is not allowed)
CP	MIL-C81309E Type II & III	Corrosion preventive compound (corrosion protection of metal parts)

B. Recommended Lubricants

Abbrevation	Product	Manufacturer
GR	AeroShell Grease 22	Shell Oil Company
GL	AeroShell Grease 64	Shell Oil Company
PL	Royco 1 DC 4	Royal Lubricants Co. Inc. Dow Corning

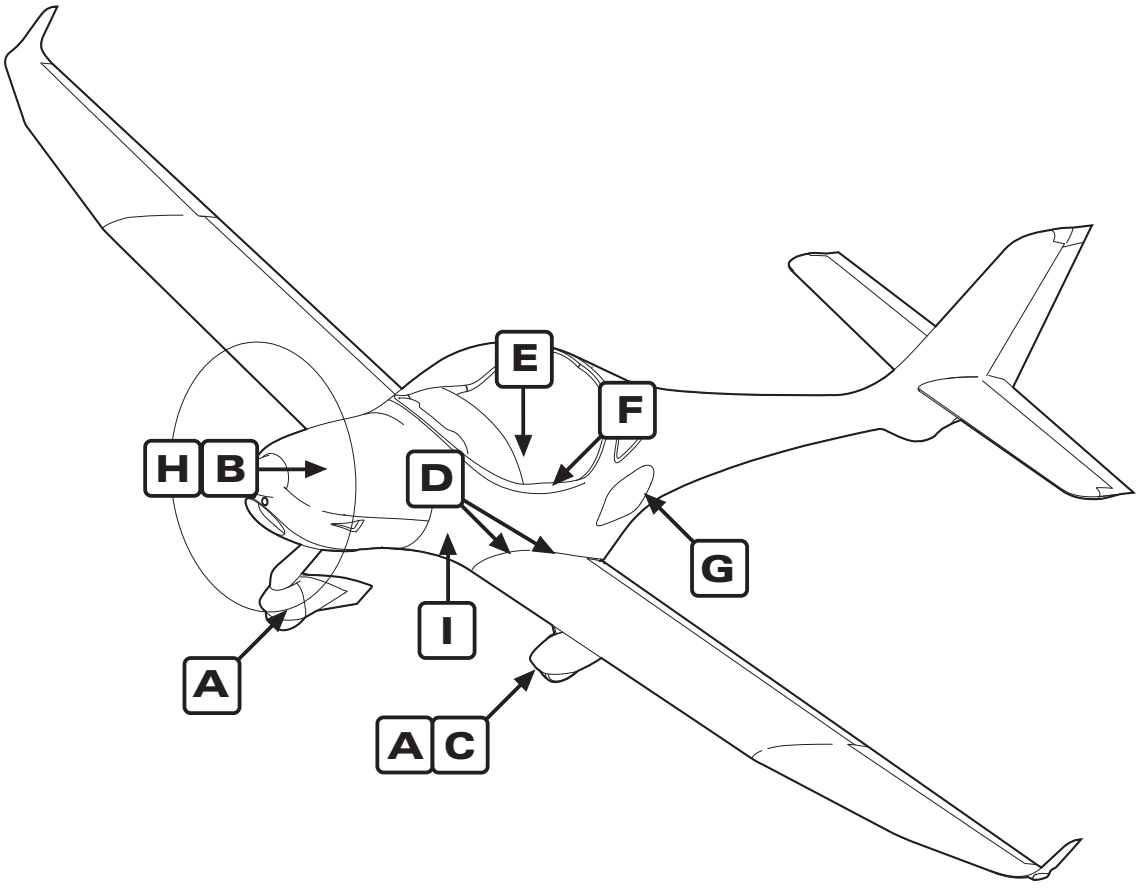
LUBRICATION - SERVICING

1. General

   A. This section contains information on lubrication intervals for components or parts.

2. Lubrication Chart

   A. Figure 201 shows the location of components or parts to be regularly lubricated. The following chart contains detailed information about the lubrication interval, the recommended lubricant and the dispensing equipment.



Lubrication Chart
Figure 301 (1)

INDEX	ZONE	ACCESS PLATE	ITEM	LUBE TYPE (APPL.)	INTERVAL
A	721, 722 720		Main wheel bearings Nose wheel bearings	GR (Hand)	500 h or annual
B	120		Battery terminals	PL (Hand)	100 h
C	721 722		Brake anchor bolts	SG	annual or on assembly
D	510 610		Wing attachment bolts	GL (Hand) or GR[1)] (Hand)	500 h / 5 years or on assembly
E	211		Seat tracks	Grease	annual
F	211		Canopy lock assembly	GR (Hand)	annual
G	211		Cargo door lock	GR (Hand)	as needed
H	120		Carburetor throttle shaft Engine / propeller control cables	Eng. oil (Oil can) OL, OG or Eng. oil	100 h on assembly
I	211		Rudder pedal bearing	GR (Hand)	annual

[1)] If this type of lubricant is used the lubrication interval is reduced to annual.

Lubrication Chart
Figure 301 (2)

AIRCRAFT EXTERIOR - CLEANING AND CARE

1. General

   A. The good flight performance of the aircraft is achieved due to the modern construction and the use of specific materials. For efficient laminar flow, a clean surface is very important. Therefore, one should always keep the entire aircraft clean, but especially the leading edges of the wing.

   B. Information on preventive and protection measures, such as waxing specific surfaces, is also given.

2. Safety Precautions

   A. Read and adhere to all manufacturer's instructions, warnings and cautions on cleaning/solvent compounds used.
   B. Do not use silicone-based wax to polish the aircraft exterior.
   C. Do not clean the aircraft at ambient temperatures close to 0°C with water.
   D. Cover all lubricated parts during any cleaning process.
   E. During the application of cleaners containing solvents (e.g. cleaning the engine), the other surfaces must be covered carefully or otherwise protected.

3. Cleaning and Care of the Canopy

   CAUTION: NEVER USE GASOLINE, BENZENE, ALCOHOL, ACETONE, CARBON TETRACHLORIDE, LACQUER THINNER OR GLASS CLEANER. THESE MATERIALS WILL SOFTEN THE PLASTIC AND MAY CAUSE IT TO CRAZE.

   CAUTION: DO NOT USE CLEANERS WITH CHEMICAL SUPPLEMENTS WHOSE EFFECT ON THE ACRYLIC SURFACE IS UNKNOWN.

   A. Cleaning Canopy
      (1) Park the aircraft in a hangar or in the shadows, avoid places with a lot of dust caused by wind or vehicles.
      (2) To prevent scratches, wash the canopy carefully with plenty of mild soap and water, using the palm of the hand to feel and dislodge dirt and mud. A soft cloth, chamois leather or sponge should be used.
      (3) Rinse thoroughly and then dry with a clean moist chamois.

   B. Care of the Canopy
      (1) As a protection from mechanical and chemical actions and to cover slight cuts in the canopy, a polish or a wax for acrylic glass can be applied in accordance with the manufacturer's specifications.

      NOTE: Clean surfaces before applying polish or wax.

4. Cleaning and Care of the Aircraft Exterior Surfaces

A. Procedure for cleaning the exterior surface of the aircraft
(1) Park the aircraft in a hangar or in the shadows, avoid places with a lot of dust caused by wind or vehicles.
(2) Close the canopy, close access / inspection doors.

CAUTION KEEP WATER AWAY FROM PITOT AND STATIC PORTS AND ELECTRICAL AND AVIONIC EQUIPMENT.

(3) Flush away loose dirt with water.

CAUTION: DO NOT USE HARSH ABRASIVES, ALKALINE SOAPS OR DETERGENTS.

DO NOT USE CLEANING OR POLISHING AGENTS WHICH CONTAIN SILICONE.

(4) Using a soft cleaning cloth or a sponge, wash with a mild, non-alkaline soap and water solution.
(5) Rinse thoroughly with clean water and then dry with a soft cloth or chamois.

B. Care of the Aircraft Exterior Surface
(1) To protect against corrosion, mechanical and chemical actions during operation, the exterior surfaces can be waxed with a good polish or aircraft wax in accordance with the manufacturer's instructions.

NOTE: Clean aircraft exterior before applying polish or wax.

(2) After using cleaners containing any solvent or chemical, the relevant surfaces should always be waxed.
(3) If the aircraft is operated in a coastal or other salt-water environment, it must be washed and waxed more frequently.
(4) A heavier wax layer on the leading edges of the wings and tail and on the cowl nose and propeller spinner will reduce abrasion in these areas.

5. Cleaning and Care of Navigation / Position / Anti-Collision Lights

A. Lights can be polished with a good wax and/or a liquid polishing compound. Refresh polish and hand buff once or twice a month.

B. After using a polishing compound, the lights should be waxed.

CAUTION: UNDER NO CIRCUMSTANCES USE ANY PETROLEUM BASED PRODUCT TO CLEAN THE LIGHTS.

6. Cleaning the Engine

A. Safety and Maintenance Precautions
(1) The engine should be cleaned during every 100-hour inspection.
(2) Handle chemical cleaners and solvents with caution. Always read the manufacturer's instruction and follow them carefully.
(3) Cleaning should be performed in the open air or in a well ventilated hangar.
(4) Suitable fire fighting and safety equipment should be available.
(5) If compressed air is used to apply solvents or to dry components, the lowest practical pressure level should be used.

B. Engine Cleaning Procedures

WARNING: DO NOT SMOKE OR EXPOSE A FLAME WITHIN 100 FEET OF THE CLEANING AREA.

(1) Remove cowling (refer to 71-10-00).

WARNING: DO NOT USE GASOLINE OR OTHER HIGHLY FLAMMABLE SUBSTANCES.

DO NOT ATTEMPT TO WASH AN ENGINE WHEN IT IS STILL HOT OR RUNNING.

CAUTION: DO NOT DIRECT CLEANING SOLVENTS OR WATER STREAMS AT OPENINGS OF THE ALTERNATOR OR THE STARTER.

(2) Carefully cover the openings of the alternator and the starter.
(3) If the engine is contaminated with salt or corrosive chemicals, first flush engine compartment with water.
(4) Apply a suitable solvent or cleaning agent to the engine compartment in accordance with the manufacturer's instructions.
(5) Leave the solvent on the engine for approx. ten minutes.

CAUTION: CLEANING AGENTS SHOULD NEVER BE LEFT IN ENGINE COMPARTMENT. CLEANER OR SOLVENT RESIDUE MAY CAUSE DAMAGE TO COMPONENTS SUCH AS NEOPRENE SEALS AND SILICONE FIRE SLEEVES.

(6) Rinse thoroughly with clean warm water.
(7) Allow engine to dry or dry it using compressed air.
(8) Remove all protection coverings.
(9) Re-lubricate all control arms and moving parts as required.
(10) Reinstall cowling (refer to 71-10-00).

WARNING: DO NOT OPERATE THE ENGINE UNTIL EXCESS SOLVENT HAS EVAPORATED OR OTHERWISE BEEN REMOVED.

BEFORE ROTATING THE PROPELLER BY HAND, ENSURE IGNITION SWITCH IS OFF AND THE THROTTLE IS CLOSED.

CAUTION: DO NOT ROTATE THE PROPELLER CLOCKWISE.

(11) Before starting the engine, rotate the propeller by hand no less than five complete revolutions.

7. Cleaning and Care of the Propeller

A. Clean propeller if necessary with any car wash solution or equivalent. This should be done at least every 50 hours.
Remove grease and dirt with a commercial detergent, which is suitable for polyurethane-lacquers.

CAUTION: IT IS IMPORTANT TO AVOID MOISTURE PENETRATING INTO THE WOODEN CORE.

Small scratches and nicks should be dealt with during routine maintenance applying a coating of water-resistant varnish, preferably Polyurethane.
Replace damaged or missing PU strips on the propeller leading edge as soon as possible.

8. Cleaning the Landing Gear

A. The landing gear struts and wheel fairings should be washed with clear water or with a mild detergent and water.

B. Wheels, axles, spacers and brake parts are protected from corrosion with an anodizing coating. This thin coating does not protect against basic agent with pH > 9.

CAUTION: CLEANING THE WHEEL AND BRAKE PARTS WITH BASIC AGENT MAY REMOVE TOTALLY THE ANODIZING COATING. ACID AGENT MAY ALSO ATTACK THE ANODIZING.

Wheel and brake parts should be cleaned using water and soap or dry clothes only.

C. After cleaning, the tires can be treated with standard tire protection.

D. Protect the disc and pads from brake fluid contamination. Brake pads are porous and cannot be cleaned if contaminated by brake fluid, they must be replaced by new ones. Clean the disc separately from the brake calipers, using thinner directly on the brake caliper may cause damage to the seals.

AIRCRAFT INTERIOR - CLEANING AND CARE

1. General

   A. This section provides the information required to clean the aircraft interior properly. Several recommended types of cleaning agents for different materials and the relevant cleaning and care procedures are also described below.

2. Aircraft Interior Cleaning

   A. Interior panels such as sidewalls, door panels etc. may be cleaned using a mild detergent solution. Stubborn deposits may be removed using a suitable material cleaner in accordance with manufacturer's instructions. If in doubt, apply a small amount of cleaner to a small unobtrusive part and test it for reaction.

3. Cleaning the Instrument Panel

   A. The instrument panel, center pedestal and instruments/displays can be cleaned with a soft cotton cloth dampened with clean water. Ensure that the ALT1/BAT switch is in OFF position. Switch on the electrical systems and components of the aircraft only after the instrument panel has dried completely.

      CAUTION: DO NOT USE ANY CHEMICAL CLEANING AGENTS. CARE SHOULD BE TAKEN TO AVOID SCRATCHING THE SURFACE OF DISPLAYS.

4. Cleaning the Cabin Floor

   A. The floor area, the area under the seats and the baggage compartment should be cleaned regularly with a vacuum.

   B. The carpet is made of high-quality, dirt repellant material and usually requires only a minimum of maintenance. If it becomes soiled, a standard carpet cleaner can be used.

5. Cleaning the Seats

   A. Seat upholstery is made of a dirt repellant, hardwearing material. They should, however, be cleaned regularly to keep them in good condition. The following recommendations should be followed.

   B. To remove dust and loose dirt from the seats, first clean with a vacuum.

      For cleaning and care use a foam type detergent, such as is available for car seats. Follow the manufacturer's instructions.

C. Blot up any liquid spilled promptly with an absorbent tissue or cloth. Press the blotting material firmly against the upholstery and hold for several seconds. Continue blotting until no more liquid is absorbed.

Scrape off sticky materials cautiously with a dull knife, then clean area as required.

Oil spots may be removed with household spot removers. Before using, read the instructions, test it on an obscure place on the seat and use it sparingly.

UNSCHEDULED SERVICING

1. General

A. This section contains those instructions necessary to carry out unscheduled servicing for example: removing ice and snow from a parked aircraft.

2. Removing Snow and Ice

CAUTION: DO NOT REMOVE SNOW AND ICE FROM SURFACES USING SHARP-EDGED INSTRUMENTS.

NEVER USE DE-ICING FLUIDS TO REMOVE SNOW OR ICE DEPOSITS FROM AIRCRAFT SURFACES.
HEATED DE-ICING FLUIDS CAN DAMAGE COMPOSITE STRUCTURES DUE TO EXTREME TEMPERATURE CHANGE. SOME DE-ICING FLUIDS MAY ALSO DAMAGE THE ACRYLIC GLASS OF THE CANOPY.

A. After snowfall, the snow should be removed immediately from the surface of the aircraft to prevent it from refreezing on the surface and/or in slits and gaps after it has started to thaw.

B. Procedure
(1) Remove loose snow from the wing surface with a broom, working outwards from the wing root.

NOTE: The areas between wings and ailerons and stabilizers and rudders must be treated particularly carefully.

CAUTION: DO NOT DAMAGE THE ANTENNAE.

(2) Free canopy of snow.
(3) Remove snow from cowling, fuselage and empennage.

C. In the case of ice, it is recommended to defrost the aircraft in a heated hangar. Allow all aircraft surfaces to completely dry prior to flight to prevent control surfaces from freezing.

CHAPTER 32

LANDING GEAR

TABLE OF CONTENTS

LANDING GEAR - GENERAL

1. Introduction

   A. This chapter describes units and components which furnish a means of supporting and steering the aircraft on the ground, including the main and nose landing gears, brakes, wheels and tires.

2. General Description

   A. The aircraft has a fixed tricycle landing gear with a steerable nose gear. The wheels are equipped with either "Highspeed" aerodynamic wheel fairings to decrease drag forces or "Softfield" wheel fairings to avoid soiling of the wing and fuselange.
   The main gear struts are leaf springs which are attached to the center section of fuselage using two mounting brackets each. The nose gear is a tubular strut which is attached to the engine mount and linked through the rudder pedals to provide ground control. For shock absorption an elastomer package is installed between nose gear strut and nose wheel fork. Hydraulically actuated disc type brakes are installed on the inboard side of the main gear wheels.

   B. Descriptive Data

Tire type:	6 ply
Wheelbase:	1,685 m (5,53 ft)
Track width (max. fuel, no persons on board):	1,938 m (6,36 ft)
Main tire size:	5.00x5
Nose tire size:	5.00x5
Main tire pressure:	2,5 bar (36 psi)
Nose tire pressure:	2,0 bar (29 psi)
Max. nose gear wheel fork deflection:	+/- 20°
Max. brake system operating pressure:	69 bar (1000 psi)

MAIN LANDING GEAR - DESCRIPTION

1. Introduction

   A. The main landing gear consists of the main landing gear struts, the wheels with brakes and the wheel fairings. The wheel fairings are standard equipment. The main gear struts are cantilever spring legs made of spring steel and carry the landing loads. The aircraft is serially equipped with disc type brakes.

2. Description and Operation

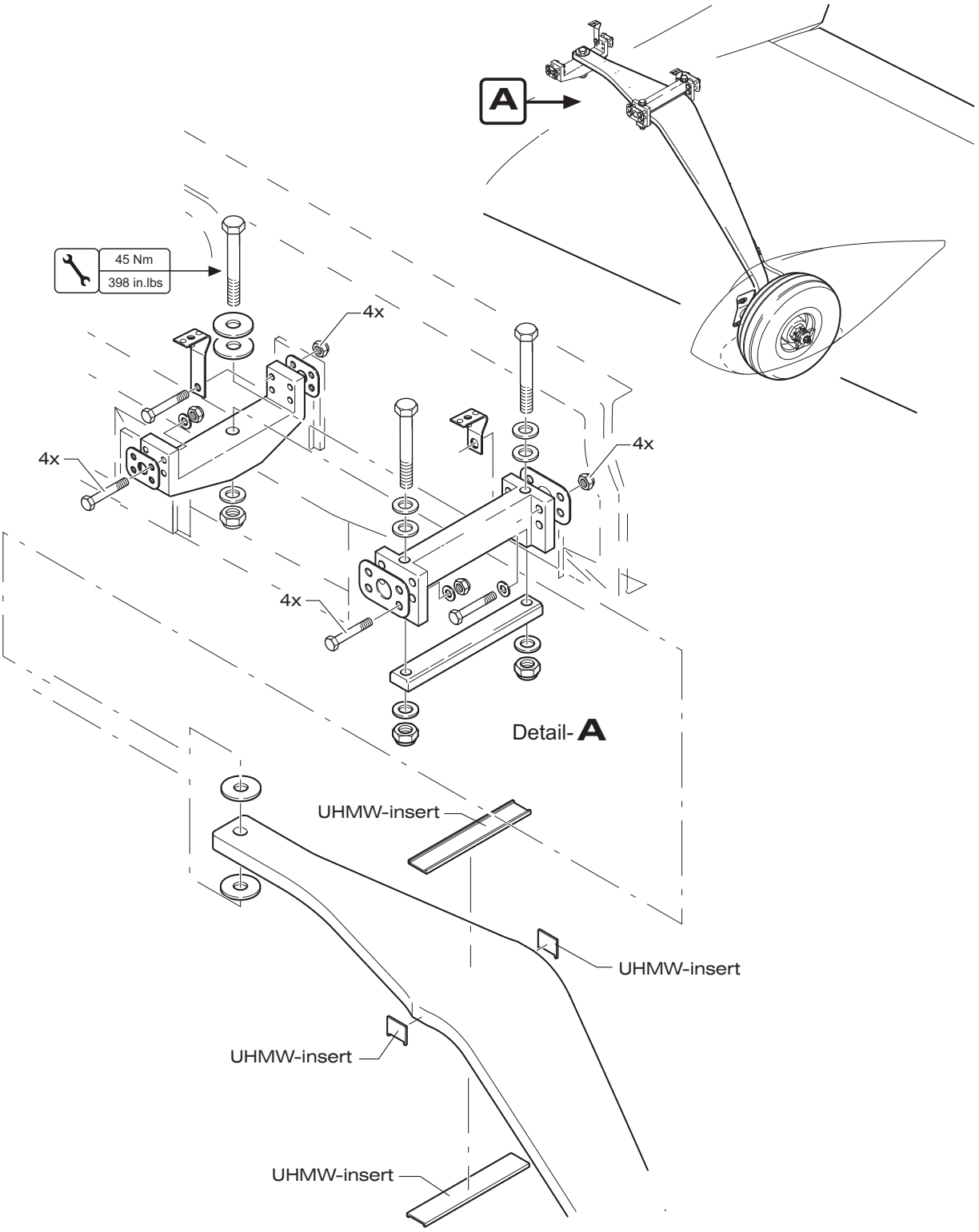
   A. Each main landing gear strut is attached to the fuselage structure by means of two aluminum mounting brackets. These brackets are bolted to the main landing gear ribs, which are bonded into the fuselage belly.
   The struts are mounted to the inner bracket with a special single bolt. The outer mounting bracket consists of two parts; the upper part on top of the main strut and the lower retaining bar below the main strut. The retaining bar is attached to the upper part of the bracket with two bolts. This arrangement ensures correct absorption of the landing loads, similar to a rocker plate.
   To prevent chafing damage and to allow angular movement of the struts, synthetic rubber inserts have been installed between the contact surfaces.
   The wheel axle is attached to the lower end of the landing gear strut with four bolts.
   A mounting plate for the wheel fairing is installed on the inboard side of the lower end of each main landing gear strut using the bolts to secure the wheel axle to strut.

MAIN LANDING GEAR - MAINTENANCE

1. Main Gear Leg Removal/Installation

A. Remove a Main Gear Leg
   (1) Gain access to the appropriate landing gear mounting brackets (refer to 25-00-00).
   (2) Lift aircraft (refer to 07-10-00).
   (3) Remove screws/nut securing wheel fairing to wheel assembly and remove fairing.
   (4) Remove brake line and brake caliper from main gear leg (refer to 32-40-00).
   (5) Remove grounding connection from inboard end of the main gear leg.
   (6) Remove bolt and nut attaching inboard end of main gear leg to inner mounting bracket.
   (7) Loosen two bolts securing main gear leg retainer clamp to outer mounting bracket.
   (8) Pull main gear leg from fuselage.

B. Install a Main Gear Leg
   (1) Slide main gear leg into place so the leg retainer clamp is supporting the leg.
   (2) Install bolt attaching inboard end of main gear leg to inner mounting bracket in the fuselage belly. Ensure flexible washers and washers are in correct position. Torque to to 45 Nm (398 in.lbs).
   (3) Tighten two bolts securing main gear leg retainer clamp to outer mounting bracket.
   (4) Reconnect grounding connection to inboard end of the main gear leg.
   (5) Reinstall brake caliper, brake line and wheel (refer to 32-40-00).
   (6) Reinstall wheel fairing.
   (7) Test brake system and ensure brakes are operating properly (refer to 32-40-00).



Main Gear Leg Installation
Figure 201

NOSE LANDING GEAR - DESCRIPTION

1. Introduction

   A. The aircraft has a steerable nose landing gear which is equipped with a shock absorber and wheel fairing.

2. Description and Operation

   A. The nose gear consists of a welded tubular steel strut pivotally attached to the engine mount.
   The forward bottom end of the nose gear strut has a horizontal pivot for the nose wheel fork.
   The nose wheel fork with the nose gear wheel can thus only move up and down.
   Shock absorption is provided by a shock absorber unit equipped with stacked rubber disks, which is installed between nose wheel fork and nose gear strut.
   Nose wheel steering is accomplished through use of the rudder pedals. Spring loaded steering rod assemblies connect the nose gear steering arm at the upper end of the nose gear strut to arms on the rudder pedals. Steering is afforded up to approximately 20 degrees each side of neutral.

NOSE LANDING GEAR - MAINTENANCE

1. Nose Gear Leg Removal/Installation (Figure 201)

   A. Remove Nose Gear Leg
      (1) Jack aircraft or weight tail of aircraft to raise nose wheel (refer to 07-00-00).
      (2) Remove engine cowling (refer to 71-10-00).
      (3) Disconnect retaining springs at the nose gear steering arm.
      (4) Disconnect steering rod assemblies at nose gear steering arm.
      (5) Remove nut securing upper end of the nose gear strut to engine mount.
      (6) Remove pivot bolt securing nose gear strut assembly to the engine mount at the bracket.
      (7) Remove nose gear leg from the aircraft downwards.

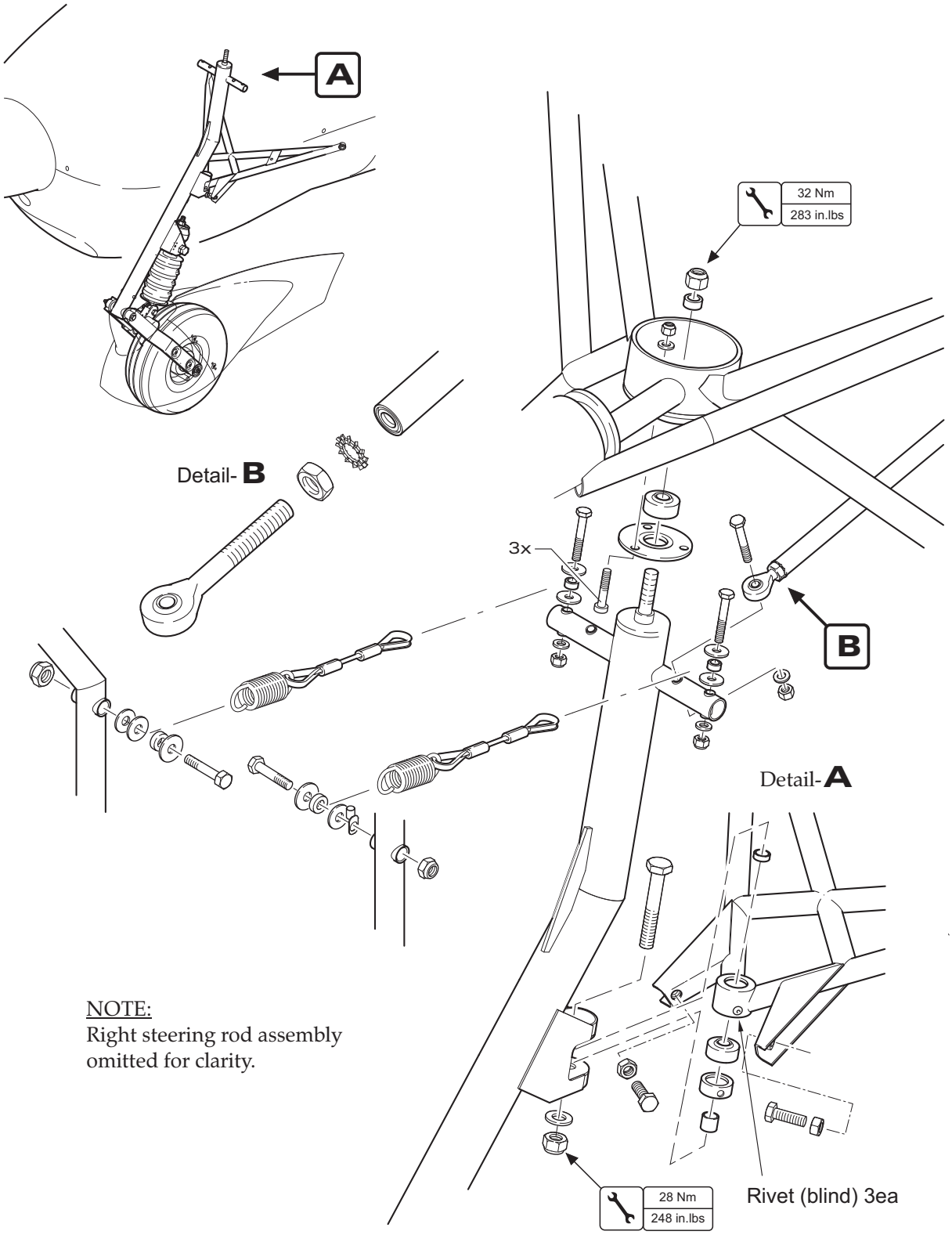
   B. Install Nose Gear Leg
      (1) Place nose gear leg in position.
      (2) Install pivot bolt securing nose gear strut assembly to the engine mount at the bracket.
      (3) Install nut securing upper end of the nose gear strut to engine mount.
      (4) Connect steering rod assemblies to the nose gear steering arm.
      (5) Connect retaining springs to the nose gear steering arm.
      (6) Install engine cowling (refer to 71-10-00)

2. Wheel Fairing "High Speed" Removal/Installation

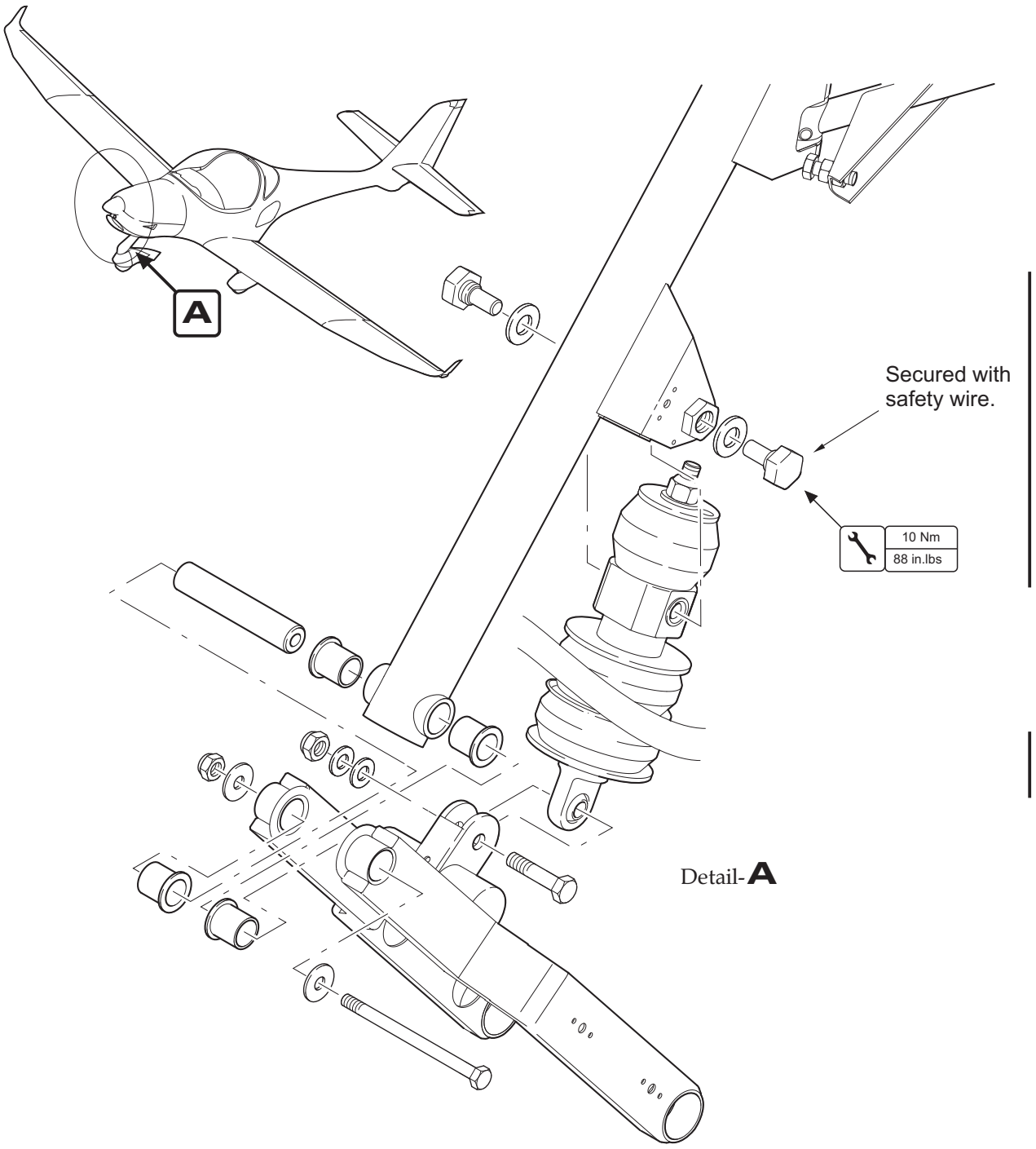
   NOTE: The threaded pins are secured to the nose wheel fork with high strength threadlocker (Loctite 648 or equivalent) and should protrude the nose wheel for by approx. 13 mm (upper pins) resp. 16 mm (lower pins). The threaded pins don't need to be removed for wheel fairing removal/installation.

   A. Remove Wheel Fairing
      (1) Remove nuts and washers securing wheel fairing to nose wheel fork.
      (2) Carefully bend apart and remove front part of the wheel fairing over threaded pins.
      (3) Carefully bend apart and remove rear part of the wheel fairing over threaded pins.

   B. Install Wheel Fairing
      (1) Place rear part of the wheel fairing in position. Carefully bend apart wheel fairing and install over threaded pins.
      (2) Place front part of the wheel fairing in position. Carefully bend apart wheel fairing and install over threaded pins.
      (3) Secure wheel fairing using washers and nuts.

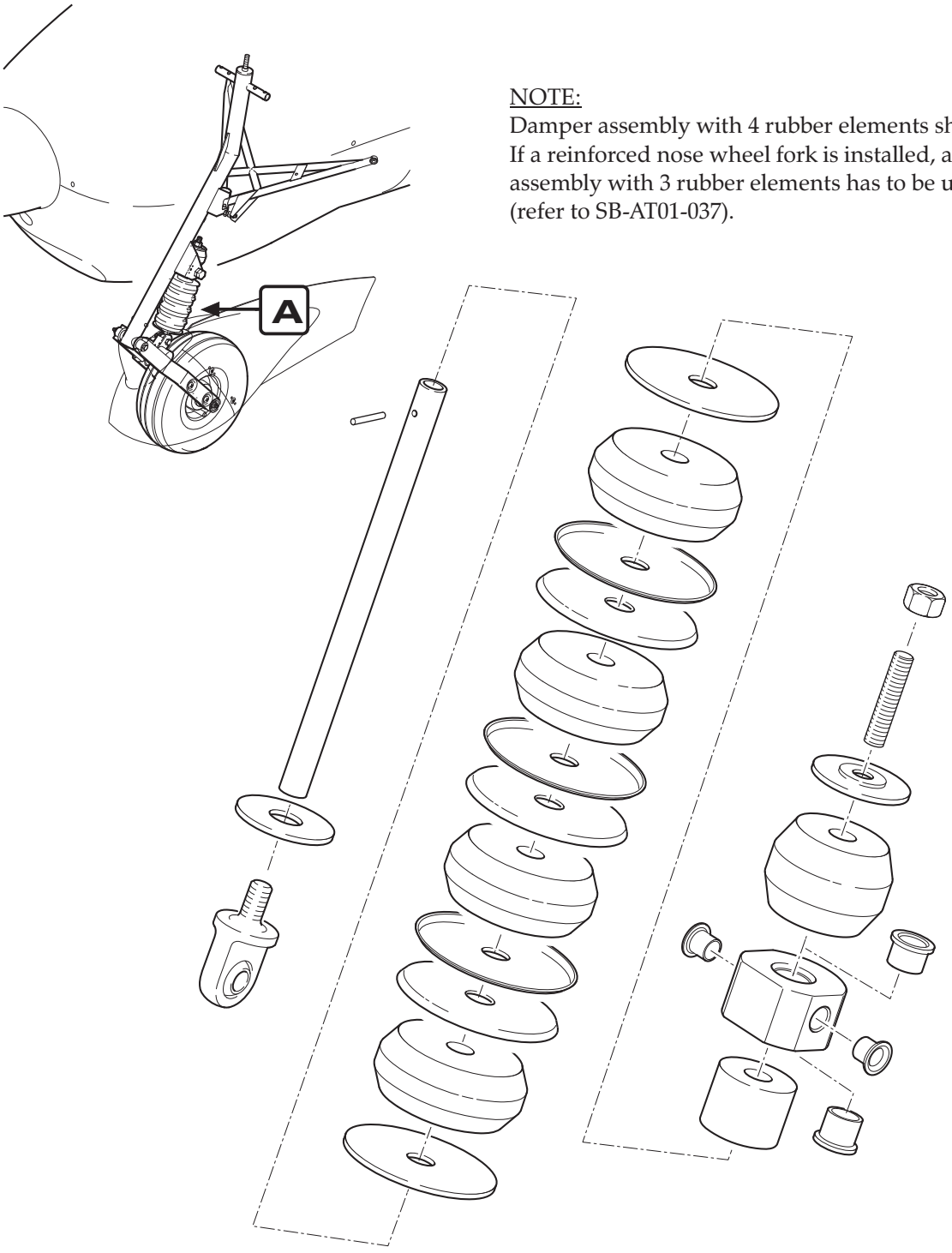


Nose Gear Leg Installation
Figure 201



Damper Assy and Nose Wheel
Fork Installation
Figure 202

NOTE:
Damper assembly with 4 rubber elements shown.
If a reinforced nose wheel fork is installed, a damper assembly with 3 rubber elements has to be used (refer to SB-AT01-037).



Detail-**A**

Damper Assembly
Figure 203

WHEELS AND BRAKES - DESCRIPTION

1. Introduction

   A. Nose and main landing gear wheels are of conventional design.
   The wheels of the main landing gear are each equipped with a single brake disc, floating cylinder brake assembly.

   B. For tire specifications, refer to "Landing Gear - General".

   C. For more detailed information on Cleveland wheels and brakes, refer to Cleveland Wheels & Brakes component maintenance manual, P/N AWBCMM0001, latest revision.

2. Description and Operation

   A. The main gear wheels consist of the two wheel halves, the tubing, and the tire. The brake disc is bolted to the inboard wheel side. The tire valve is on the outboard wheel side. There are two sets of roller bearings in each wheel, one on the inboard wheel half and one on the outboard wheel half.
   The nose gear wheel construction is the same as that of the main gear wheels but without a brake disc.

   B. The brake system comprises single disc, hydraulically actuated brakes on each main landing gear wheel, four master cylinders, linked with the rudder pedals, a brake fluid reservoir on the left cabin wall in front of the firewall, and brake fluid lines and hoses.

   The brakes are operated by pushing the upper part of either the left or right rudder pedal- in either pilot position. Each set of rudder pedals is interconnected. This motion is mechanically transmitted to the respective brake master cylinder, and through brake fluid lines and hoses out to the respective hydraulic brake assembly.

WHEELS AND BRAKES - MAINTENANCE

1. Main Gear Wheel Removal/Installation

   A. Remove a Main Gear Wheel
      (1) Jack aircraft or appropriate main gear wheel (refer to 7-00-00).
      (2) Remove screws securing wheel fairing and remove wheel fairing.
      (3) Remove bolts securing brake back plate to brake caliper. Remove back plate.
      (4) Remove wheel axle nut.
      (5) Pull wheel from axle.

   B. Install a Main Gear Wheel
      (1) Slide the wheel assembly on to the axle, with the brake disc inboard and the valve stem outboard.
      (2) Install axle nut and finger-tighten. Then, while slowly continuing to tighten with a wrench, simultaneously rotate the wheel assembly by hand. Tighten until a slight resistance in the wheel bearings is obvious. Back off nut to nearest castellation and install cotter pin.

         NOTE: When the axle nut is set in its final position, there should be no resistance to rotation and no side-to-side play in the wheel bearings.

      (4) Position brake back plate between brake disc and inboard wheel hub and secure using bolts and washers.
      (5) Install wheel fairing.

2. Main Gear Wheel Disassembly/Assembly

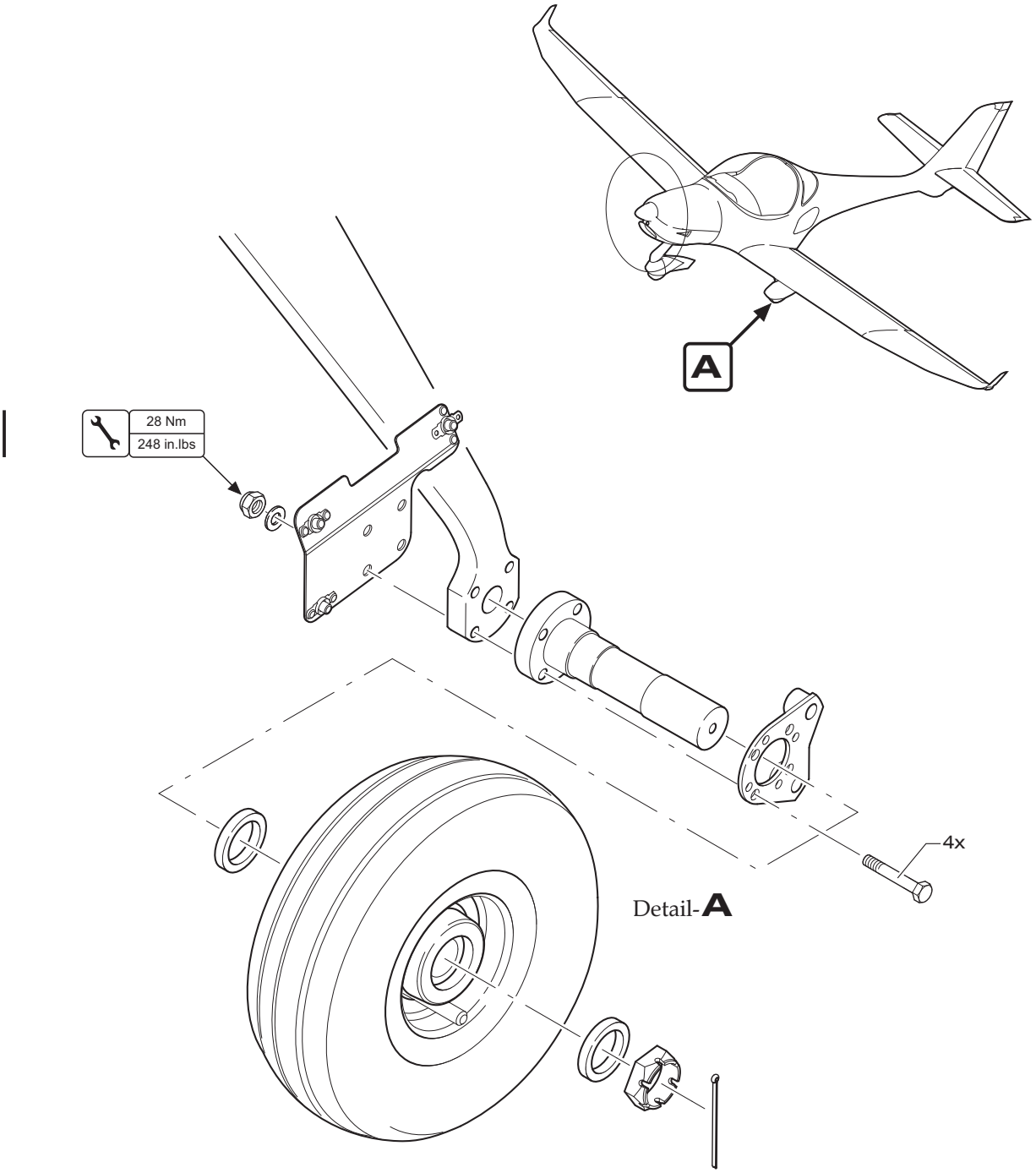
   A. Disassemble a Main Gear Wheel

      WARNING: DO NOT ATTEMPT TO SEPARATE WHEEL HALVES BEFORE WHEEL AND TUBE ARE COMPLETELY DEFLATED.

      (1) Completely deflate tire and tube, and break loose tire bead.
      (2) Remove bolts to separate wheel halves and brake disc.
      (3) Remove wheel halves and brake disc from tire.
      (4) Remove tube from tire.
      (5) If necessary remove wheel bearing assembly from wheel halves.

   B. Assemble a Main Gear Wheel
      (1) If removed, install wheel bearing assembly to wheel halves.
      (2) Insert tube into tire with the valve stem aligned with the painted reference mark on the tire. Inflate the tube with just enough pressure to give it shape inside the tire.
      (3) Insert the two wheel halves into the tire, taking care to avoid pinching the tube between them. Guide the valve stem through the rubber-grommeted hole in the outboard wheel half while bringing the halves together.

         NOTE: When the wheel halves are joined, it is recommended to double check that the tube isn't pinched, using an inspection mirror and a flashlight.



Main Gear Wheel Installation
Figure 201

(4) Reassemble the wheel unit, including the brake disc, with bolts, washers, and nuts. Torque to 10 - 12 Nm (89 - 106 in.lbs.).
(5) Inflate the tire as required (refer to "Landing Gear - General").

3. Nose Gear Wheel Removal/Installation

A. Remove Nose Gear Wheel
(1) Jack aircraft or weight tail of aircraft to raise nose wheel (refer to 07-00-00).
(2) Remove screws securing wheel fairing and remove wheel fairing.
(3) Remove axle bolt from wheel fork.
(4) Remove cap bushings from wheel fork arms.
(5) Remove nose wheel assembly backwards from wheel fork.

B. Install Nose Gear Wheel
(1) Slide the whole wheel assembly (with axle, spacers, and washers in position) between wheel fork arms.
(2) Insert cap bushings into wheel fork arms.
(3) Insert axle bolt and torque nut until slight bearing drag, when the wheel is rotated. Then, turn back nut to nearest castellation and install pin.

NOTE: When the axle bolt nut is set in its final position, there should be no resistance to rotation and no side-to-side play in the wheel bearings.

(4) Install wheel fairing.

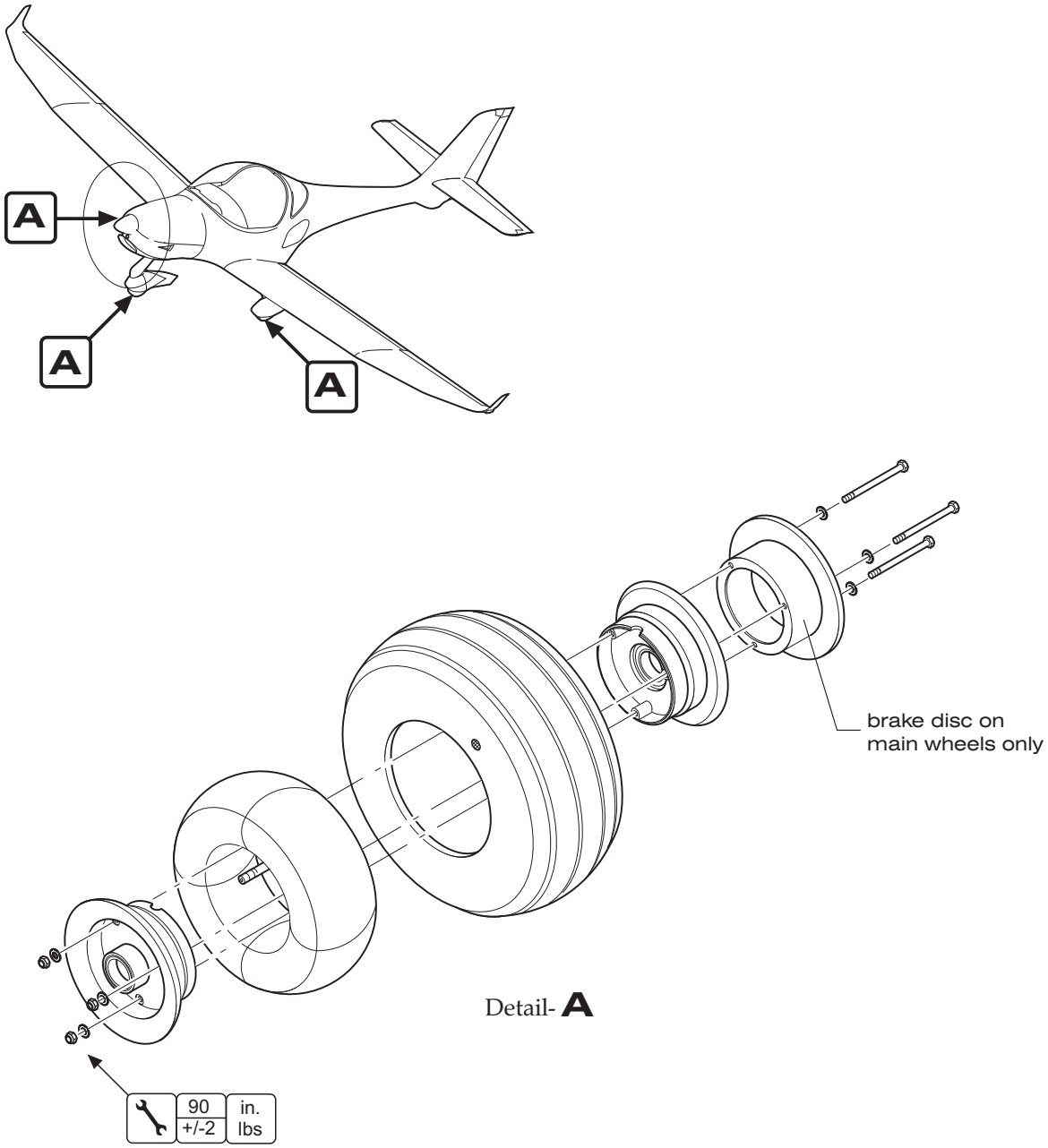
4. Nose Gear Wheel Disassembly/Assembly

A. Disassemble Nose Gear Wheel
(1) Remove spacers, washers, and axle from wheel.

WARNING: DO NOT ATTEMPT TO SEPARATE WHEEL HALVES UNTIL WHEEL AND TUBE ARE COMPLETELY DEFLATED.

(2) Completely deflate tire and tube and break loose tire bead.
(3) Remove bolts to separate wheel halves.
(4) Remove wheel halves from tire.
(5) Remove tube from tire.
(6) If necessary remove wheel bearing assembly from wheel halves.

B. Assemble Nose Gear Wheel
(1) If removed, install wheel bearing assembly to wheel halves.
(2) Insert tube into tire with the valve stem aligned with the painted reference mark on the tire. Inflate the tube with just enough pressure to give it shape inside the tire.
(3) Insert the two wheel halves into the tire, taking care to avoid pinching the tube between them. Guide the valve stem through the rubber-grommeted hole in the outboard wheel half while bringing the halves together.



Wheel Assembly
Figure 202

NOTE: When the wheel halves are joined, it is recommended to double check that the tube isn't pinched, using an inspection mirror and a flashlight.

(4) Reassemble the wheel unit with bolts, washers, and nuts. Torque to 10 - 12 Nm.
(5) Inflate the tire as required (refer to "Landing Gear General").
(6) Insert wheel axle and place washers and spacers onto the axle.

5. Brake Master Cylinder Removal/Installation

WARNING: CONTACT WITH HYDRAULIC FLUID CAN CAUSE SKIN IRRITATIONS.

CAUTION: EXCESSIVE HYDRAULIC FLUID WILL ATTACK THE SURFACE OF VARIOUS MATERIALS. READ AND ADHERE TO ALL MANUFACTURER'S INSTRUCTIONS. PROVIDE A SUITABLE COLLECTING VESSEL FOR HYDRAULIC FLUID.

A. Remove a Brake Master Cylinder
(1) Remove bleeder fitting at wheel brake caliper and drain hydraulic fluid from brake cylinder.
(2) Disconnect brake cylinder from rudder pedal assembly.
(3) Disconnect hydraulic brake line hoses from cylinder and remove brake cylinder.
(4) Plug or cap hydraulic fittings, hoses and lines to prevent contaminants entering.

NOTE: Brake master cylinder repair should be accomplished according to manufacturer's specifications.

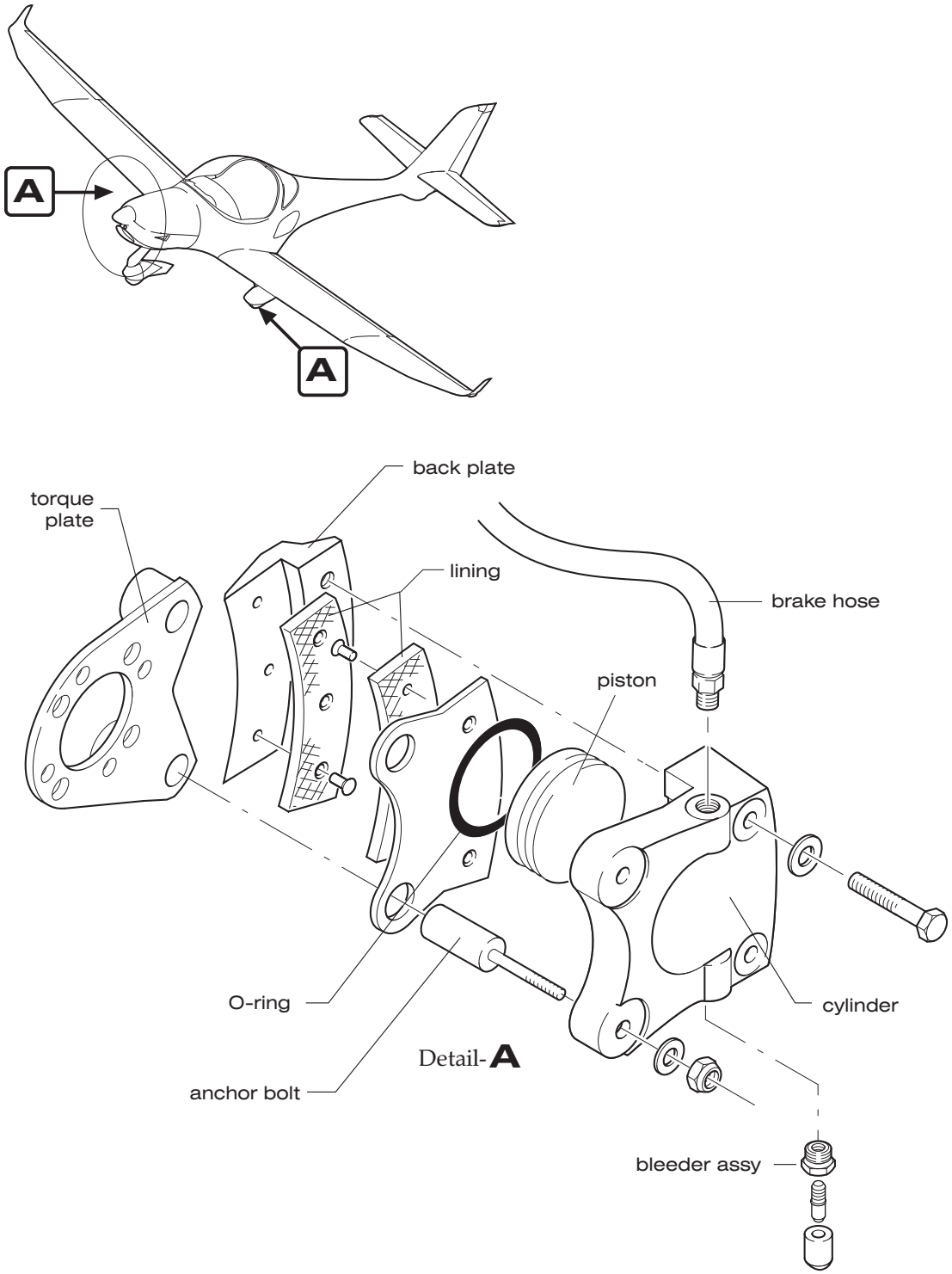
B. Install a Brake Master Cylinder
(1) Connect hydraulic hoses to brake master cylinder.
(2) Put brake master cylinder in position and connect cylinder to rudder pedal assembly.
(3) Install bleeder fitting at wheel brake caliper.
(4) Refill and bleed brake system (refer to "Brake System Bleeding" below).
(5) Test brake system and ensure brakes are operating properly (refer to "Adjustment/Test").

6. Brake Caliper Removal/Installation

WARNING: CONTACT WITH HYDRAULIC FLUID CAN CAUSE SKIN IRRITATIONS.

CAUTION: EXCESSIVE HYDRAULIC FLUID WILL ATTACK THE SURFACE OF VARIOUS MATERIALS. READ AND ADHERE TO ALL MANUFACTURER'S INSTRUCTIONS. PROVIDE A SUITABLE COLLECTING VESSEL FOR HYDRAULIC FLUID.

A. Remove a Caliper
(1) Disconnect brake line at brake caliper and immediately plug or cap hydraulic fitting and brake line.
(2) Remove bolts securing the back plate to caliper casing.
(3) Remove back plate and slide caliper casing with pressure plate away from the wheel.



Brake Caliper Assembly
Figure 203

B. Install a Caliper
(1) Slide the caliper casing anchor pins into the torque plate bushings until the lining on the pressure plate contacts the brake disc.
(2) Position the back plate against the other side of the disc and thread the two caliper casing bolts with their washers into the back plate from opposite side of the caliper casing. Tighten bolts to 90 in.lbs..
(3) Safety-wire the bolts.
(4) Reconnect brake line to caliper.
(5) Refill if necessary, and bleed brake system (refer to "Brake System Bleeding" below).
(6) Test brake system and ensure brakes are operating properly (refer to "Adjustment/Test").

7. Brake Disc Removal/Installation

A. Remove a Brake Disc
(1) Remove main gear wheel from main gear strut (refer to "Main Gear Wheel Removal/Installation" above).
(2) Disassemble main gear wheel (refer to "Main Gear Wheel Disassembly/Assembly" above).
(3) Remove brake disc.

B. Install a Brake Disc

NOTE: Before re-installing the brake disc, inspect it for camber and excessive scoring. Scoring should not deeper than 0,5 mm (0.02 in.).

(1) Install brake disc (refer to "Main Gear Wheel Disassembly/Assembly" above).

8. Brake Lining Replacement

Minimum permissible brake lining thickness is 2,5 mm (3/32 in.).

A. Remove Brake Linings
(1) Remove caliper from main gear wheel (refer to "Brake Caliper Removal/Installation" above).
(2) Slide pressure plate off anchor pins of the brake caliper casing assembly.
(3) Place the back plate or pressure plate on a vice with the lining material down and with the rivets positioned over gap between the vice jaws. Drive the rivets out using a hammer and a punch.

B. Install Brake Lining
(1) Position the new lining material against the back plate or the pressure plate, making sure that the counter-bores on both pieces are facing outward (away from each other).
(2) Insert a rivet into each of the holes in the lining material with the head of the rivet fitting into the counter-bore in the lining.
(3) Place the plate and lining into a brake lining installation fixture with the head of the rivet down against the bucking anvil of the tool. Insert the rivet setting mandrel into the fixture with the mandrel contacting the rivet tail.
(4) Support the plate and the lining in the installation fixture with one hand while tapping the mandrel with a hammer. Proceed slowly and rotate the assembly while driving the rivet so that the tail is evenly formed.

NOTE: Before setting the first rivet fully, start the other rivets to keep the lining aligned properly with the plate.

(5) Set all the rivets fully.
(6) Slide the pressure plate with its new lining material over the caliper casing anchor pins.
(7) Reinstall caliper from main gear wheel (refer to "Brake Caliper Removal/Installation" above).

9. Brake System Bleeding / Brake Fluid Change

To bleed the brakes or change the brake fluid, use a fluid pump, a clear tube, and a collecting container. Only hydraulic fluid fulfilling the MIL-H-5606 specification should be used.

WARNING: CONTACT WITH HYDRAULIC FLUID CAN CAUSE SKIN IRRITATIONS.

CAUTION: EXCESSIVE HYDRAULIC FLUID WILL ATTACK THE SURFACE OF VARIOUS MATERIALS. READ AND ADHERE TO ALL MANUFACTURERS INSTRUCTIONS. PROVIDE A SUITABLE COLLECTING VESSEL FOR HYDRAULIC FLUID.

CAUTION: PROTECT THE DISC AND PADS FROM BRAKE FLUID CONTAMINATION. BRAKE PADS ARE POROUS AND CANNOT BE CLEANED IF CONTAMINATED, THEY MUST BE REPLACED BY NEW ONES.

A. Bleeding Procedure
(1) Connect fluid pump to the brake caliper bleeder fitting.
(2) Connect collecting container with clear tube to brake fluid reservoir.
(3) Open the bleeder and pump fluid from the caliper through the master cylinders to the reservoir until no air bubbles are evident in the reservoir (clear tube). Then, tighten the bleeder fitting.
(4) Repeat for both brake calipers.
(5) Test brake system and ensure brakes are operating properly (refer to "Adjustment/Test" below).

B. Brake Fluid Change Procedure
(1) Remove bleeder fitting at wheel brake caliper and drain hydraulic fluid.
(2) Operate the pilot's brake pedal to remove remaining brake fluid from the system.
(3) Refill and bleed brake system as described above.
(4) Repeat for both brake calipers.

10. Adjustment/Test

A. There is no need to adjust the brakes as the brake pistons move to compensate for brake and wear.

B. After component replacement or repair:
(1) Check the brakes for firm pedal pressure and bleed the system if either brake feels spongy.
(2) Perform a minimum of six stops from a speed of between 25 and 40 knots, using light pedal effort and letting the brakes cool partially (about one minute) between stops. Check the aircraft is not turning from centerline while apply left and right brakes uniformly.
(3) Check all fittings and hoses for any leakage.

CHAPTER 75

COOLING SYSTEM

TABLE OF CONTENTS

COOLING SYSTEM - GENERAL

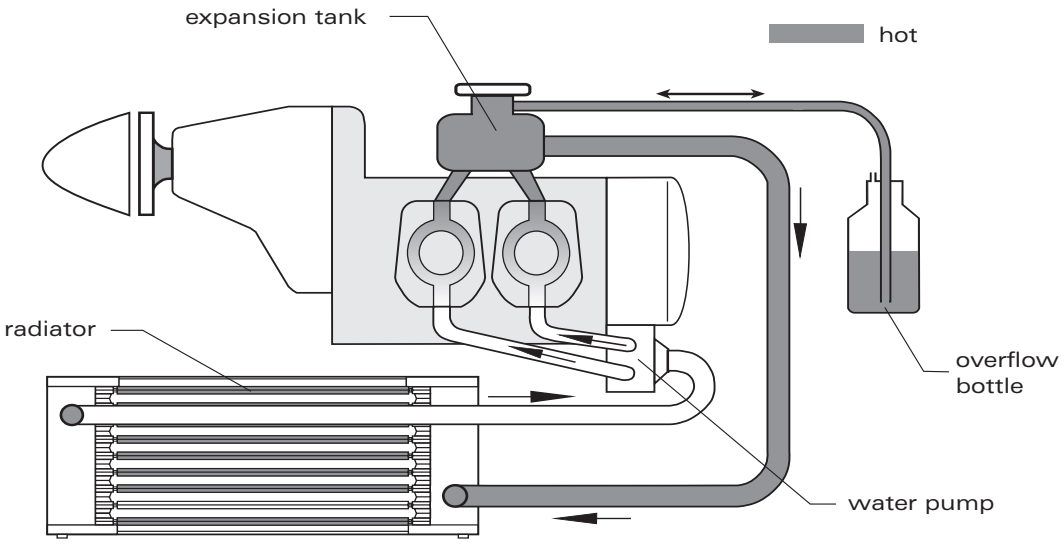
1. Introduction

   A. This chapter covers those units and components which are used for liquid cooling of the cylinder heads and are not part of the engine.
   For additional information on the internal engine cooling system components, refer to the respective engine manufacturer's publications.

   B. For cooling system servicing, such as replenishing or flushing, refer to 12-14-00.

2. General Description

   A. The cooling system of the engine is designed for liquid cooling of the cylinder heads and ram air cooling of the cylinders. The cooling system of the cylinder heads is a closed circuit with an expansion tank.



Engine Cooling System (Schematic)
Figure 1

B. The coolant flow is forced by a camshaft driven water pump from the radiator to the cylinder heads. The coolant passes from the top of the cylinder heads on to the expansion tank. Since the radiator is installed below engine level, the expansion tank located on top of the engine allows for coolant expansion.

The expansion tank is closed by a pressure cap (with excess pressure valve and return valve). As coolant temperature rises, the excess pressure valve opens and the coolant will flow through the hose at atmospheric pressure to the transparent overflow bottle. When coolant temperature drops, the coolant will be sucked back into the cooling circuit. Coolant temperature is measured by a temperature sensor installed in cylinder head 3.

C. Optional winterization kits are provided for cold weather operations. Refer to 75-00-01.

COOLING SYSTEM - MAINTENANCE

1. General

WARNING: NEVER OPEN RADIATOR, EXPANSION TANK OR OVERFLOW BOTTLE CAP WHEN THE COOLING SYSTEM IS STILL HOT! FOR REASONS OF SAFETY, COVER CAP WITH A CLOTH AND OPEN SLOWLY. SUDDEN OPENING OF THE CAP WOULD PROVOKE EXIT OF BOILING COOLANT AND RESULT IN SEVERE SCALDS.

CAUTION: IF ENGINE WAS RUNNING RECENTLY, HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

A. Maintenance of the engine cooling system is limited to removal and installation of components. Inspection procedures for the cooling system are also provided.

B. There are two types of cooling systems in use:
- Type 1: Standard cooling system of the AQUILA AT01 with a combined oil / water radiator and waterless coolant.
- Type 2: A retrofit cooling system with separate oil and water radiators and conventional coolant based on water and ethylene glycol. Refer to SB-AT01-029 for further information on upgrading to this type of cooling system.

C. For information beyond the scope of this section pertaining to the engine cooling system, refer to the respective engine manufacturer's publications.

D. For inspection time requirements of the cooling system components, refer to 05-20-00.

E. Use only coolant in accordance to 12-14-00.

2. Radiator Removal/Installation

A. Remove Radiator
(1) Remove engine cowling (refer to 71-10-00).
(2) When engine is cold, open pressure cap of the expansion tank and lowest coolant hose on the radiator and drain the coolant.
(3) Disconnect remaining hose at radiator.
(4) Disconnect inlet and outlet hoses at oil cooler (cooling system type 1 only).
Remove bolts securing radiator to mounting plate (cooling system type 2 only).
(5) Remove radiator from aircraft.

B. Install Radiator
(1) Connect inlet and outlet hoses at oil cooler (cooling system type 1 only).
Secure radiator to mounting plate using bolts, washers and spacers (cooling system type 2 only).
(2) Connect inlet and outlet hoses at radiator.
(3) Replenish engine coolant as required (refer to 12-14-00).

(4) Replenish engine oil as required (cooling system type 1 only). Refer to Rotax SI-912-018 for purging of the lubrication system.
(5) Install engine cowling (refer to 71-10-00).
(6) Perform an engine run and check oil cooler / radiator and connections for leaks.

3. Overflow Bottle Removal/Installation

A. Remove Overflow Bottle
(1) Remove engine cowling (refer to 71-10-00).
(2) Disconnect hose at overflow bottle.
(3) Open clamps securing overflow bottle to bracket and remove overflow bottle from aircraft.

B. Install Overflow Bottle
(1) Place overflow bottle on bracket. Ensure the correct position of the protection rubbers.
(2) Secure overflow bottle to bracket with clamps.
(3) Connect hose at overflow bottle.
(4) Install engine cowling (refer to 71-10-00).

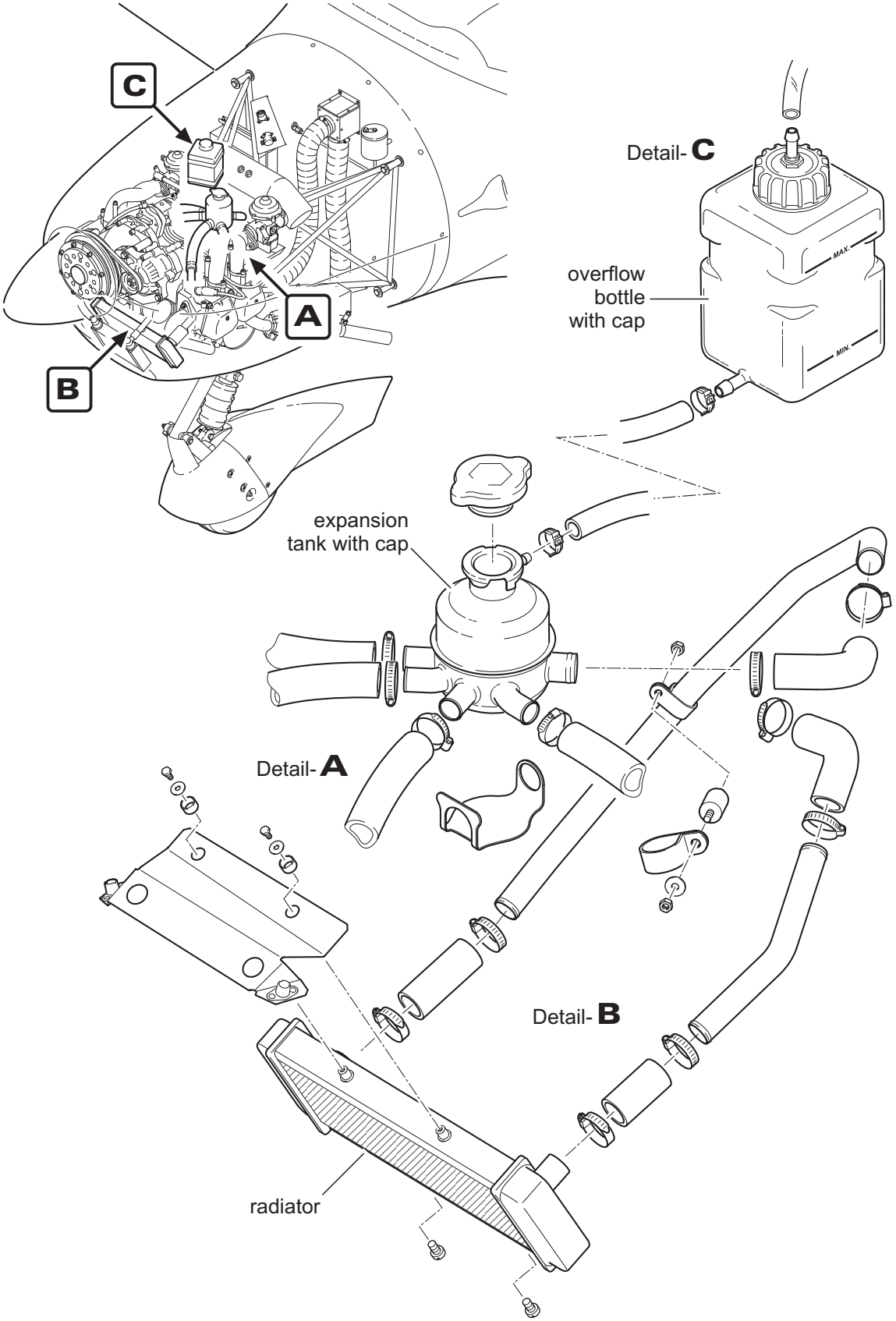
4. Expansion Tank Removal/Installation

A. Remove Expansion Tank
(1) Remove engine cowling (refer to 71-10-00).
(2) Drain coolant as required either at water pump or radiator.
(3) Remove all hoses connected to expansion tank.
(4) Remove expansion tank from engine.

B. Install Expansion Tank
(1) Position expansion tank on engine.
(2) Connect all hoses to expansion tank.
(3) Replenish coolant as required (refer to 12-14-00).
(4) Install engine cowling (refer to 71-10-00).

5. Inspection/Check

A. Engine Cooling System
(1) Inspect all coolant hoses for damage through heat, cracking, wear and evidence of leaking.
(2) Check all connections on cylinder head top- and bottom sides and on the water pump.
(3) Check expansion tank for damages. Check protection rubber at bottom of the tank for tight fit.
(4) Check gasket of radiator cover as well as the pressure control valve and return valve. The pressure control valve opens at 1,2 bar (17.4 psi).
(5) Check coolant with densimeter or glycol tester (cooling system type 2 only). lf necessary, replenish with coolant of same composition. Badly discolored or thick coolant must be renewed.



EFFECTIVITY

Aircraft equipped with retrofit cooling system
(type 2 / SB-AT01-029)

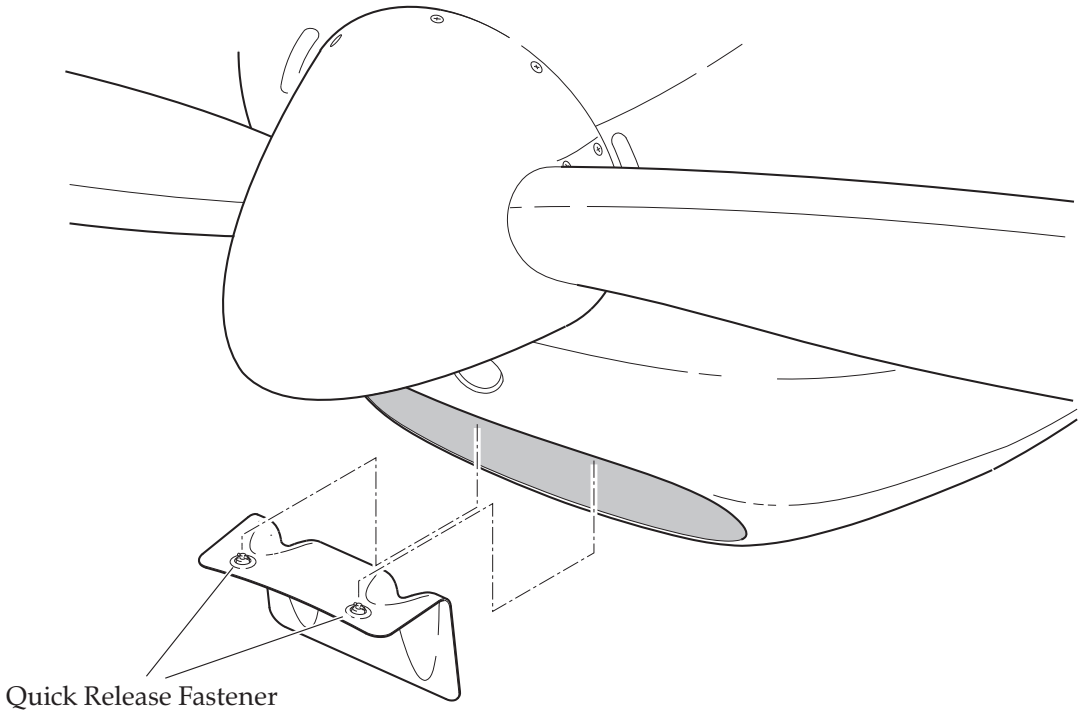
WINTERIZATION KIT - MAINTENANCE

1. General

A. Optional winter kits are supplied for use in cold weather operations.

The kits include a special air inlet cover with fasteners, a placard (refer to 11-20-00) and the appropriate AFM supplement. The cover should be fitted in front of the oil and coolant radiators as shown in figure 201. This restricts the airflow entering the engine compartment for cooling and provides faster and adequate heating of the engine oil and coolant in cold weather conditions.

CAUTION: THE MAXIMUM PERMISSIBLE OUTSIDE AIR TEMPERATURE TO PERFORM TAKE-OFF WITH INSTALLED AIR INLET COVER IS GIVEN IN THE AFM SUPPLEMENT AND ON THE PLACARD FOR THE RESPECTIVE COVER AND MUST NOT BE EXCEEDED.



Air Inlet Cover Installation
Figure 201

EFFECTIVITY

Aircraft equipped with a winterization kit

2. Air Inlet Cover Removal/Installation

A. Install air inlet cover as shown in figure 201. If there is no placard directly on the air inlet cover, the placard should be glued on the engine cowling front side just below the landing light.

3. Inspection/Check

A. Perform the following checks if the air inlet cover is installed.
(1) Verify the cover is fastened correctly (both quick release fasteners are closed).
(2) Check the placard delivered with the winterization kit is firmly in place, not damaged and readable.

CHAPTER 79

OIL

TABLE OF CONTENTS

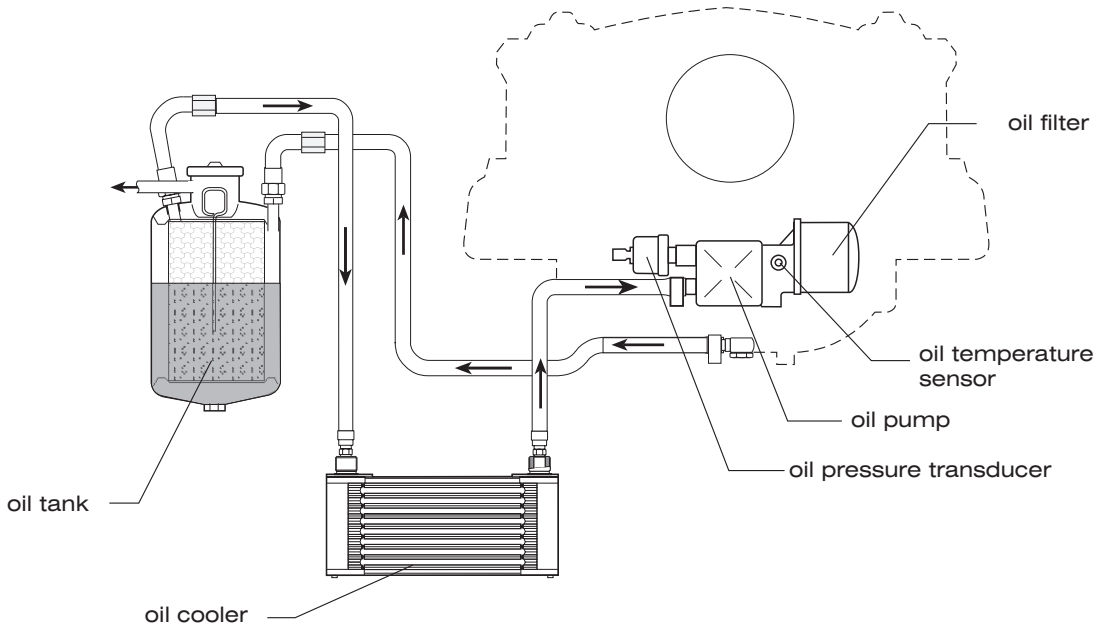
OIL - GENERAL

1. Introduction

   A. This chapter covers those units and components which are not part of the engine but store and/or supply lubricating oil to/from the engine or indicate oil condition.
   For additional information on the internal engine oil system components, refer to the respective engine manufacturer's publications.

2. General Description

   A. The external oil system comprises an oil tank, oil cooler and an oil filter. An oil pressure and oil temperature measuring system monitors oil condition.
   The oil tank is attached to the engine mount on the right hand side of the engine. The oil cooler is located in the forward part of the lower engine cowling behind the main air intake. It is connected to the engine and the oil tank via flexible hoses. The oil pump with an integrated oil pressure regulator is mounted at the front of the engine below the propeller gearbox. It is driven by the camshaft. The oil filter is installed on the left side of the oil pump casing.



Lubrication System (Schematic)
Figure 1

B. Oil Circuit
The oil pump sucks the engine oil from the oil tank via the oil cooler and forces it through the oil filter to the points of lubrication in the engine. Surplus oil emerging from the points of lubrication accumulates on the bottom of the crankcase and is forced back to the oil tank by the blow-by gases. The oil circuit is vented via a bore on the oil tank.

C. Oil Indication
Oil temperature and oil pressure are measured by sensors electrically connected with analog instruments. Refer to sections 79-31-00 and 79-33-00 for further information on the engine oil indicating system.

OIL TANK - MAINTENANCE

1. General

   A. The oil tank is attached to the engine mount. It can be removed and disassembled (figure 201) for maintenance.

   B. The oil tank must be removed, disassembled and cleaned when oil contamination is detected.

2. Oil Tank Removal/Installation

   CAUTION: IF ENGINE HAS BEEN RUNNING RECENTLY, HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

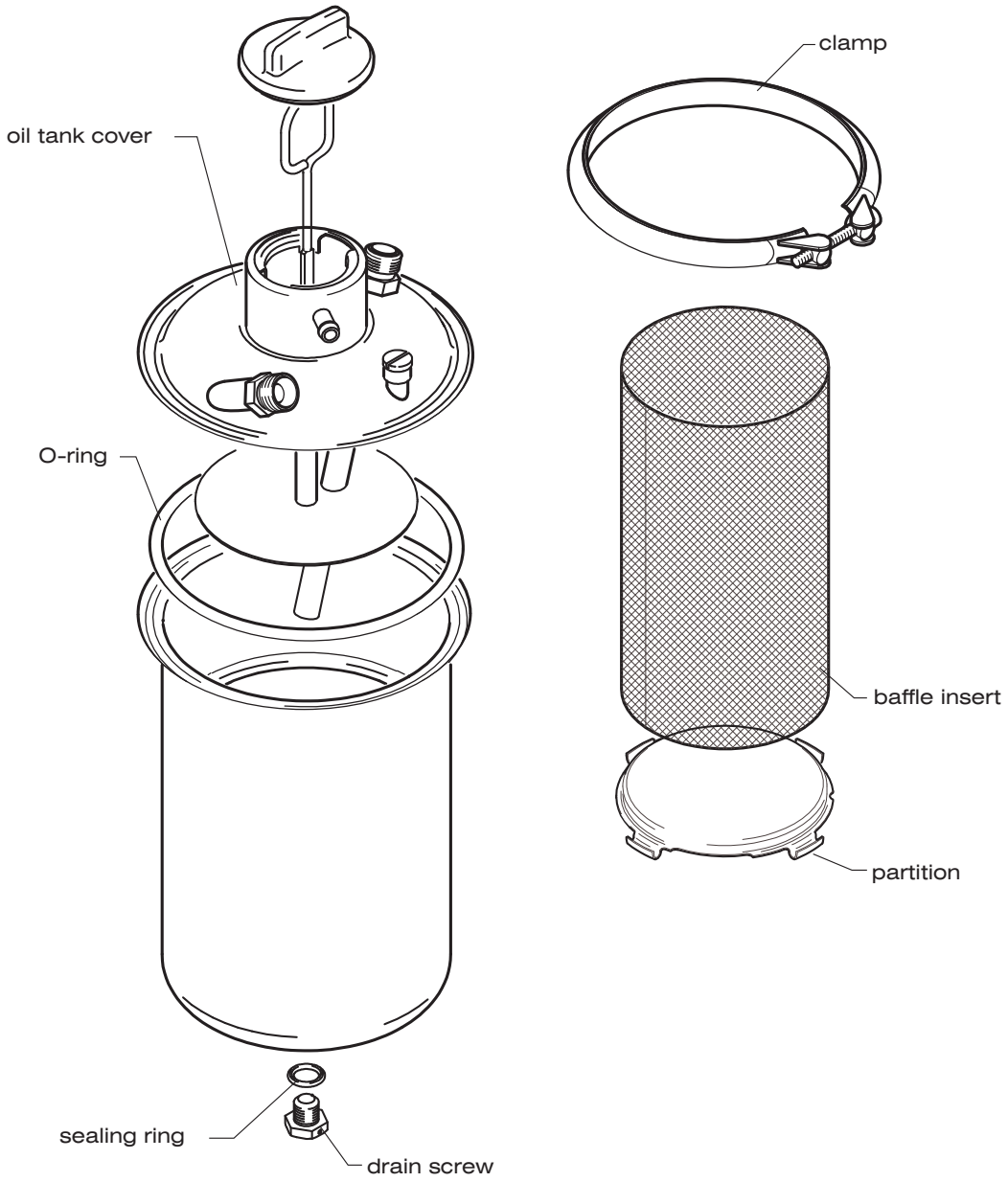
   A. Remove Oil Tank
      (1) Remove upper engine cowling (refer to 71-10-00).
      (2) Disconnect inlet and outlet hoses at oil tank.
      (3) Loosen clamps securing oil tank to engine mount. Remove oil tank from aircraft.

   B. Install Oil Tank
      (1) Position oil tank on engine mount and secure with clamps.
      (2) Connect inlet and outlet hoses at oil tank.
      (3) Replenish engine oil as required. Refer to Rotax SI-912-018 for purging of the lubrication system.
      (4) Install engine cowling (refer to 71-10-00).
      (5) Perform an engine run and check oil tank and connections for leaks.

3. Oil Tank Cleaning

   CAUTION: IF ENGINE HAS BEEN RUNNING RECENTLY, HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

   A. Oil Tank Cleaning Procedure
      (1) Remove upper engine cowling (refer to 71-10-00).
      (2) Disconnect inlet and outlet hoses at oil tank.
      (3) Remove clamp and oil tank cover with O-ring.
      (4) Remove baffle insert and partition.
      (5) Unscrew and remove drain screw.
      (6) Clean all parts and inspect for damage.
      (7) Re-assemble oil tank.
      (8) Fit drain screw with a new gasket, torque to 25 Nm (220 in.lbs) and safety wire.
      (9) Connect inlet and outlet hoses at oil tank.
      (10) Replenish engine oil as required. Refer to Rotax SI-912-018 for purging of the lubrication system.
      (11) Install engine cowling (refer to 71-10-00).
      (12) Perform an engine run and check oil tank and connections for leaks.



Oil Tank Disassembly
Figure 201

OIL COOLER - MAINTENANCE

1. General

CAUTION: IF ENGINE WAS RUNNING RECENTLY, HOT ENGINE COMPONENTS MAY CAUSE SKIN BURNS!

A. The oil cooler is mounted in front of the radiator on the inner forward part of the lower engine cowling behind the main air intake. There are two types of cooling systems in use:
- Type 1: Standard cooling system of the AQUILA AT01 with a combined oil / water radiator and waterless coolant.
- Type 2: A retrofit cooling system with separate oil and water radiators and conventional coolant based on water and ethylene glycol. Refer to SB-AT01-029 for further information on upgrading to this type of cooling system.

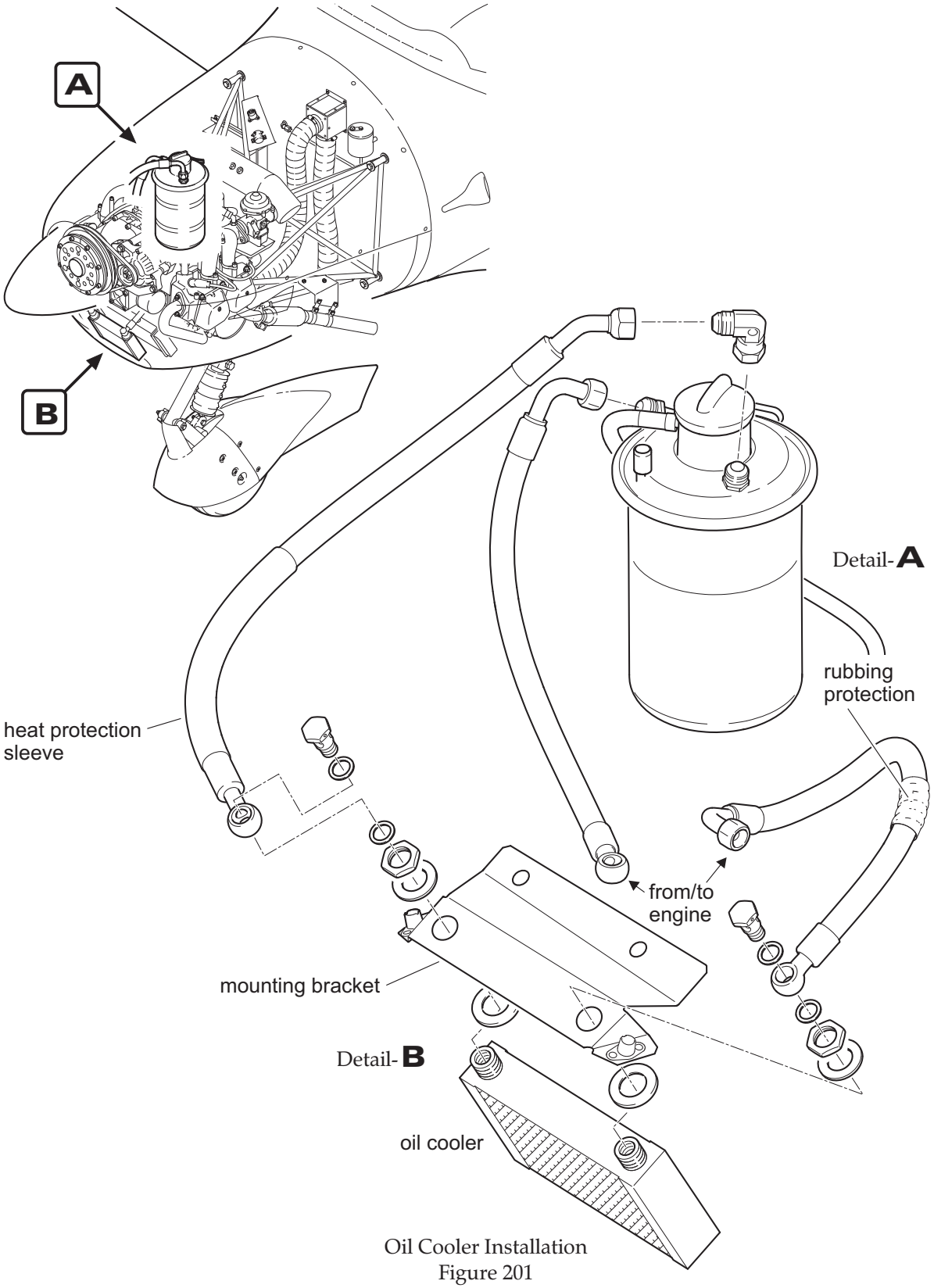
B. The oil cooler should be replaced if metal particles were found while servicing oil screens and the engine therefore had to be disassembled.

2. Oil Cooler Removal/Installation

A. The standard (type 1) cooling system has a combined oil / water radiator. Refer to 75-00-00 for removal/installation of the combined oil / water radiator.

B. Remove Oil Cooler (cooling system type 2 only)
(1) Remove engine cowling (refer to 71-10-00).
(2) Disconnect inlet and outlet hoses at oil cooler.
(3) Remove nuts securing oil cooler to mounting plate and remove oil cooler.

C. Install Oil Cooler (cooling system type 2 only)
(1) Install oil cooler on mounting plate using washers and nuts.
(2) Connect inlet and outlet hoses at oil cooler.
(3) Replenish engine oil as required. Refer to Rotax SI-912-018 for purging of the lubrication system.
(4) Install engine cowling (refer to 71-10-00).
(5) Perform an engine run and check oil cooler and connections for leaks.



Oil Cooler Installation
Figure 201

OIL PRESSURE INDICATION - MAINTENANCE

1. General

   A. The oil pressure indicating system consists of an oil pressure transducer, an oil pressure indicator and wiring connecting the two components.
   The oil pressure transducer is mounted on the right side of the oil pump casing. The oil pressure transducer is a membrane pressure transducer with a built-in current source. The current varies depending upon oil pressure. The transducer is supplied with system voltage.
   The analog oil pressure indicator is located on the right side of the instrument panel in the cluster of engine gauges.

   B. Maintenance is limited to the removal and installation of the system components.

2. Oil Pressure Indicator Removal/Installation

   A. Remove Oil Pressure Indicator
      (1) Ensure electrical power to aircraft is OFF.
      (2) Disconnect battery (refer to 24-30-00).
      (3) Remove glare shield (refer to 31-10-00).
      (4) Remove cable connector from back of indicator.
      (5) While supporting the indicator, remove screws attaching indicator to instrument panel.
      (6) Remove indicator from aircraft.

   B. Install Oil Pressure Indicator
      (1) Position indicator to instrument panel hole and secure with screws.
      (2) Install cable connector at back of indicator.
      (3) Install glare shield (refer to 31-10-00).
      (4) Reconnect battery (refer to 24-30-00).

3. Oil Pressure Transducer Removal/Installation

   A. Remove Oil Pressure Transducer
      (1) Ensure electrical power to aircraft is OFF.
      (2) Remove engine cowling (refer to 71-10-00).
      (3) Disconnect battery (refer to 24-30-00).
      (4) Disconnect electrical connector from transducer.
      (5) Unscrew and remove transducer and gasket from engine.

      CAUTION: CAP OR PLUG TRANSDUCER PORT TO PREVENT ENTRY OF FOREIGN MATERIAL.

B. Install Oil Pressure Transducer
   (1) Install new gasket and transducer to engine. Torque to 15 Nm (135 in.lbs).
   (2) Connect electrical connector to transducer.
   (3) Reconnect battery (refer to 24-30-00).
   (4) Install engine cowling (refer to 71-10-00).

OIL TEMPERATURE INDICATION - MAINTENANCE

1. General

   A. The oil temperature indicating system consists of a temperature sensor, an oil temperature indicator and wiring connecting the two components.
   Oil temperature is measured in the oil filter / oil pump area. The resistance-type sensor functions with system voltage. The analog oil temperature indicator is mounted on the right side of the instrument panel in the cluster of engine gauges.

   B. Maintenance is limited to the removal and installation of the system components.

2. Oil Temperature Indicator Removal/Installation

   A. Remove Oil Temperature Indicator
      (1) Ensure electrical power to aircraft is OFF.
      (2) Disconnect battery (refer to 24-30-00).
      (3) Remove glare shield (refer to 31-10-00).
      (4) Remove cable connector from back of indicator.
      (5) While supporting the indicator, remove screws attaching indicator to instrument panel.
      (6) Remove indicator from aircraft.

   B. Install Oil Temperature Indicator
      (1) Position indicator in the instrument panel hole and secure with screws.
      (2) Install cable connector at back of indicator.
      (3) Install glare shield (refer to 31-10-00).
      (4) Reconnect battery (refer to 24-30-00).

3. Oil Temperature Sensor Removal/Installation

   A. Remove Oil Temperature Sensor
      (1) Ensure electrical power to aircraft is OFF.
      (2) Remove engine cowling (refer to 71-10-00).
      (3) Disconnect battery (refer to 24-30-00).
      (4) Disconnect electrical lead to sensor.
      (5) Unscrew and remove sensor from engine.

      CAUTION: CAP OR PLUG SENSOR PORT TO PREVENT ENTRY OF FOREIGN MATERIAL.

   B. Install Oil Temperature Sensor
      (1) Install sensor to engine. Torque to 10 Nm (90 in.lbs).
      (2) Connect electrical connector to sensor.
      (3) Reconnect battery (refer to 24-30-00).
      (4) Install engine cowling (refer to 71-10-00).