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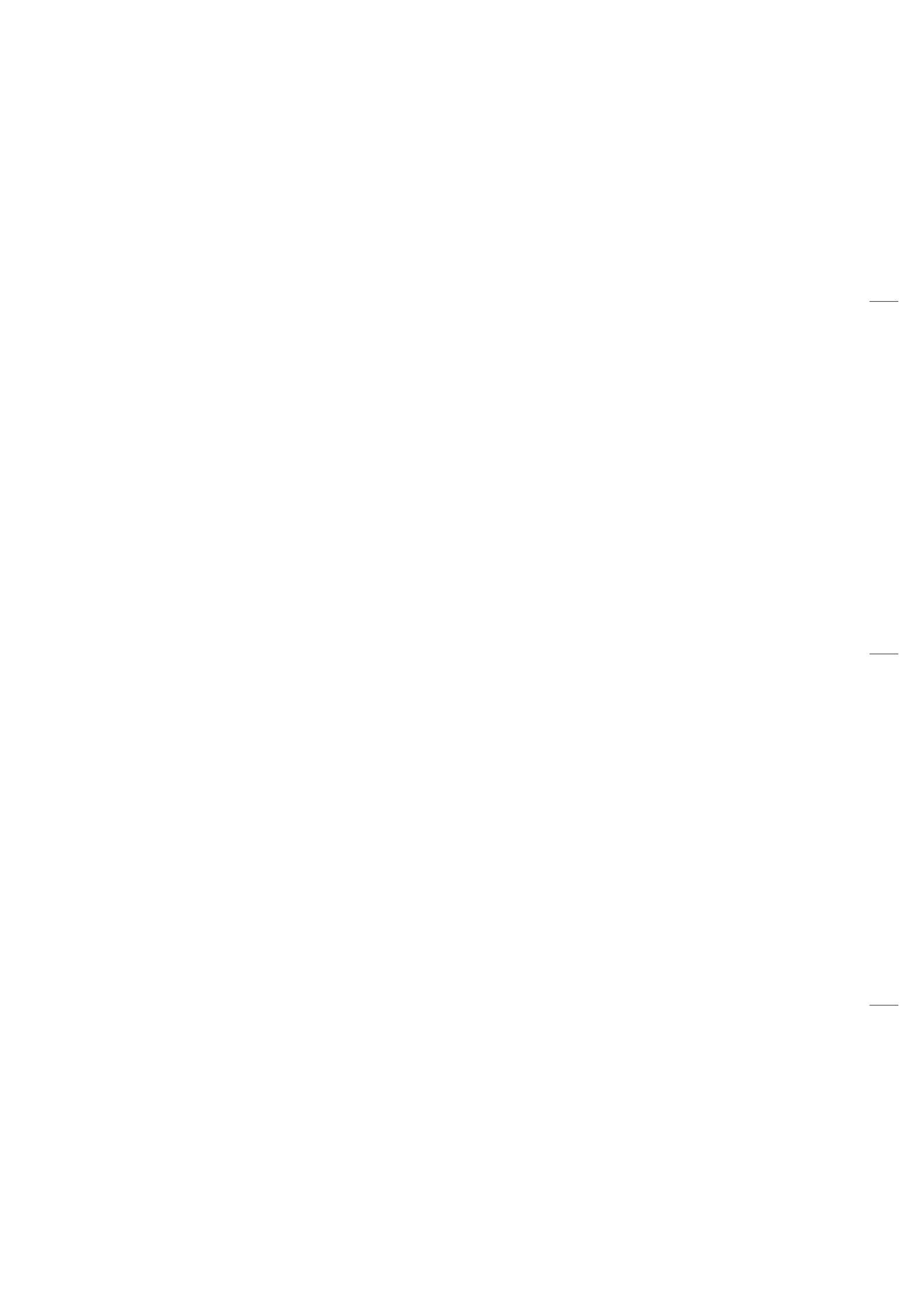
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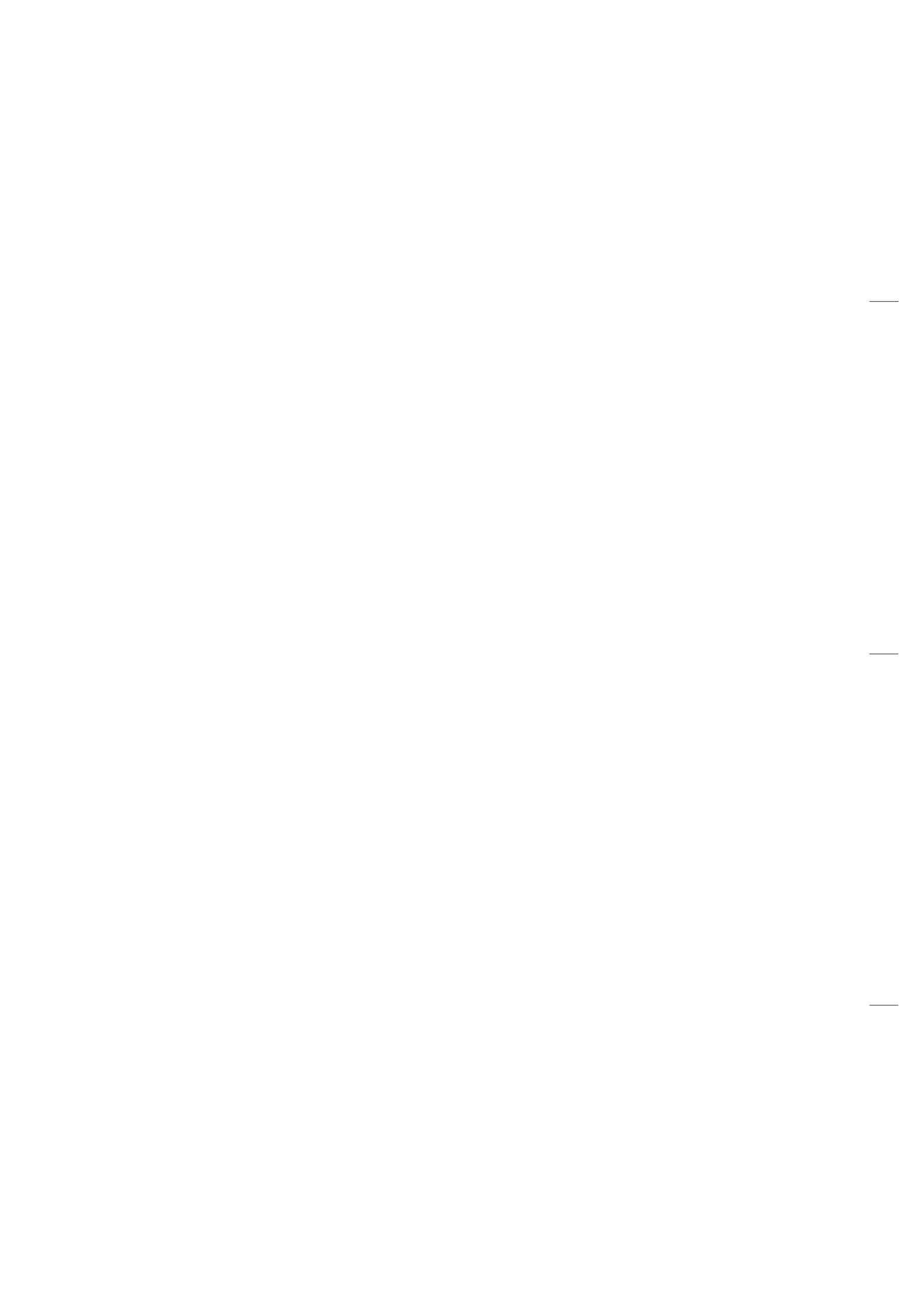
**RECORD OF REVISIONS**

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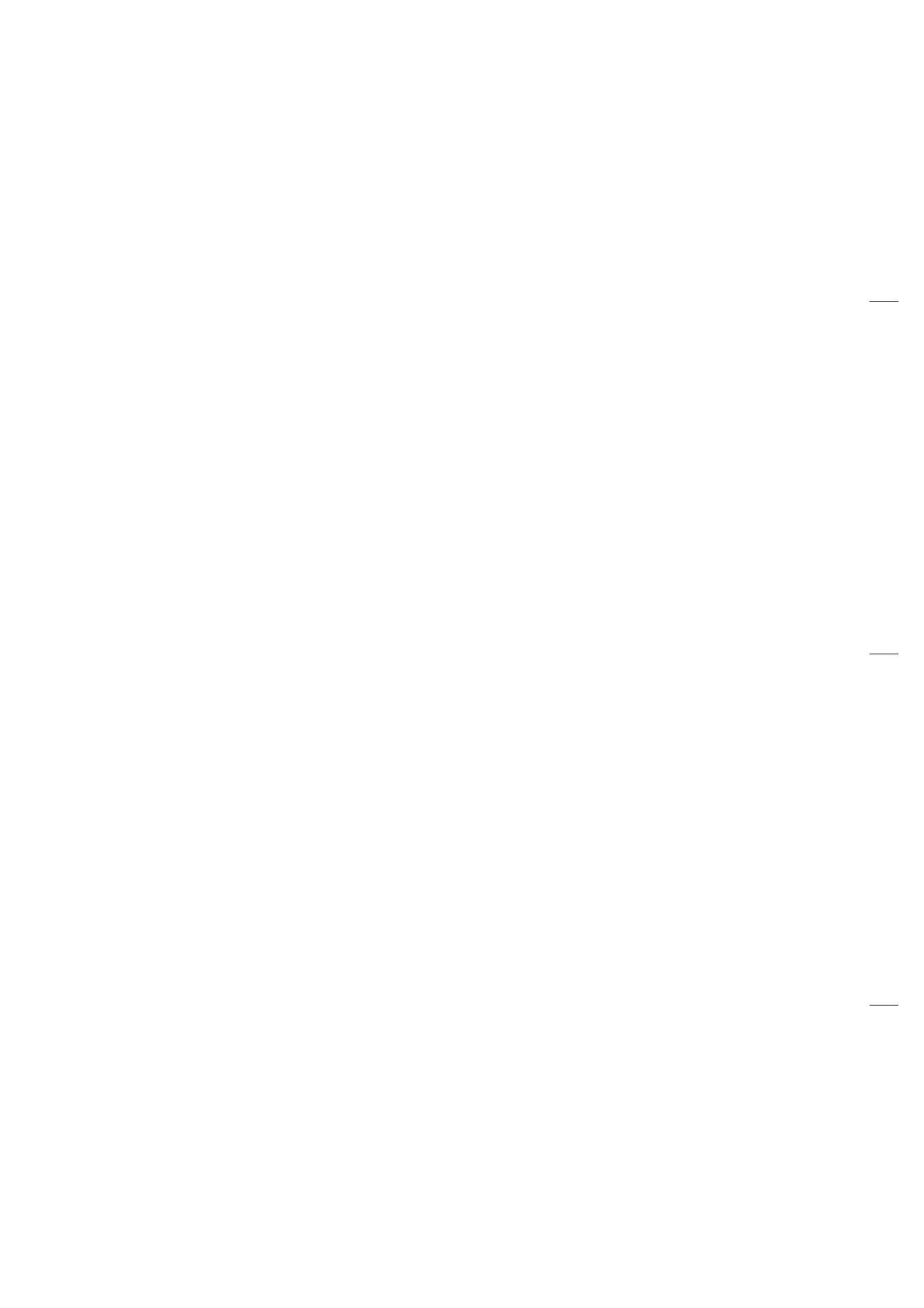












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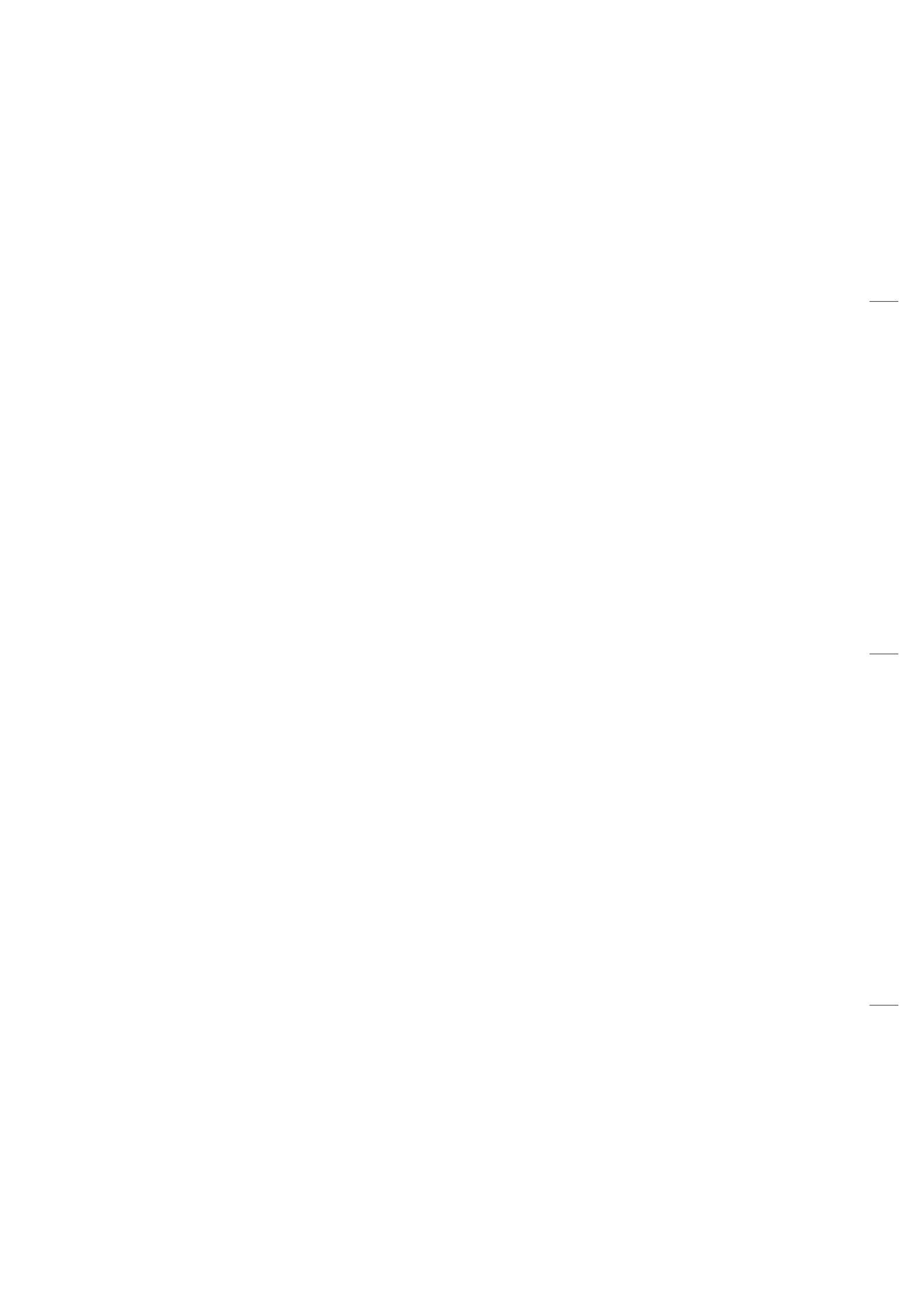
\* The date refers to the issue / revision date of the respective chapter.

The technical content of this document (revision 28) is approved under the authority of  
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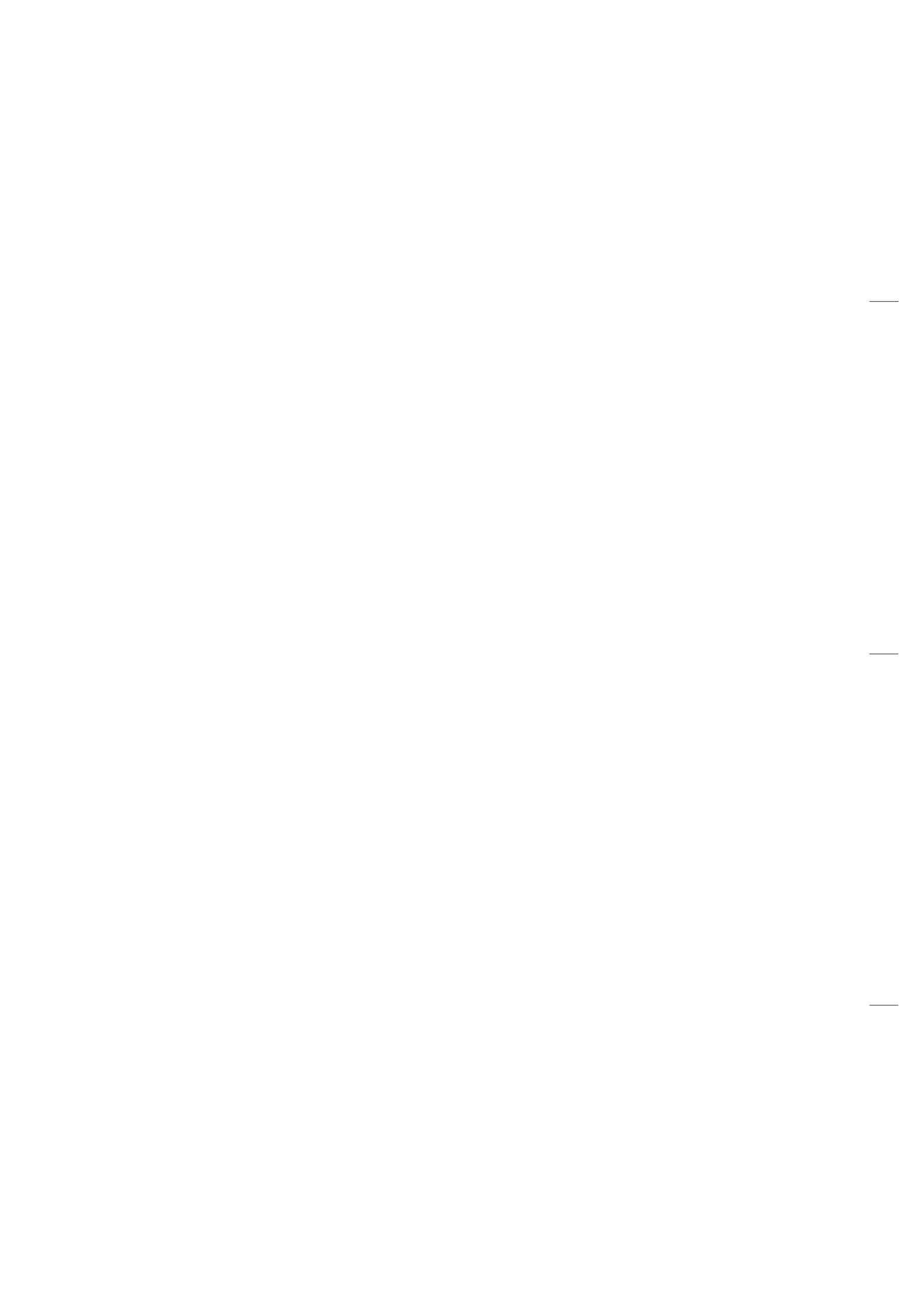
**CHAPTER 5**  
**TIME LIMITS / MAINTENANCE CHECKS**





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## TIME LIMITS / MAINTENANCE CHECKS - GENERAL

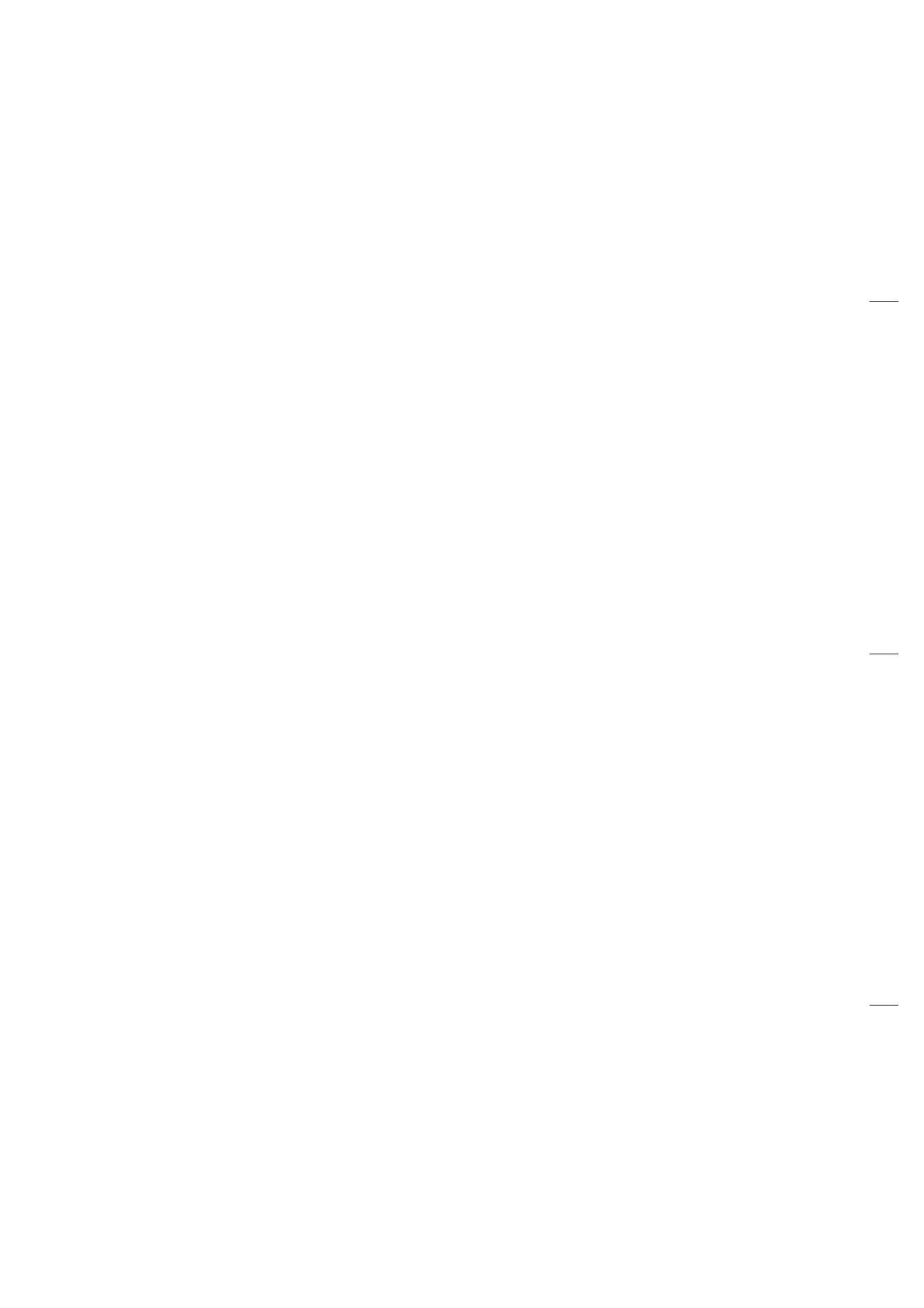
### 1. Introduction

- A. This chapter provides scheduled and unscheduled maintenance checks and inspections, recommended by the type certificate holder AQUILA Aviation GmbH 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 AQUILA Aviation GmbH:

| Chapter | Component / Part   | Replacement Time     | Overhaul |
|---------|--|----------------------|----------|
| 24      | Ignition lock  | 6000h                | no       |
| 25      | Restraint assy pilot / co-pilot                                  | no                   | 12 years |
| 32      | Rubber elements of the elastomer spring package at the nose gear | 5 years              | no       |
| 32      | Flexible hoses of the brake system                               | 10 years             | no       |
| 71      | Flexible teflon hoses of the oil / fuel system <sup>1)</sup>     | 2000h or 15 years    | no       |
| 71      | Flexible hoses of the cooling system                             | 5 years              | no       |
| 71      | Engine shock mounts  | with engine overhaul | no       |

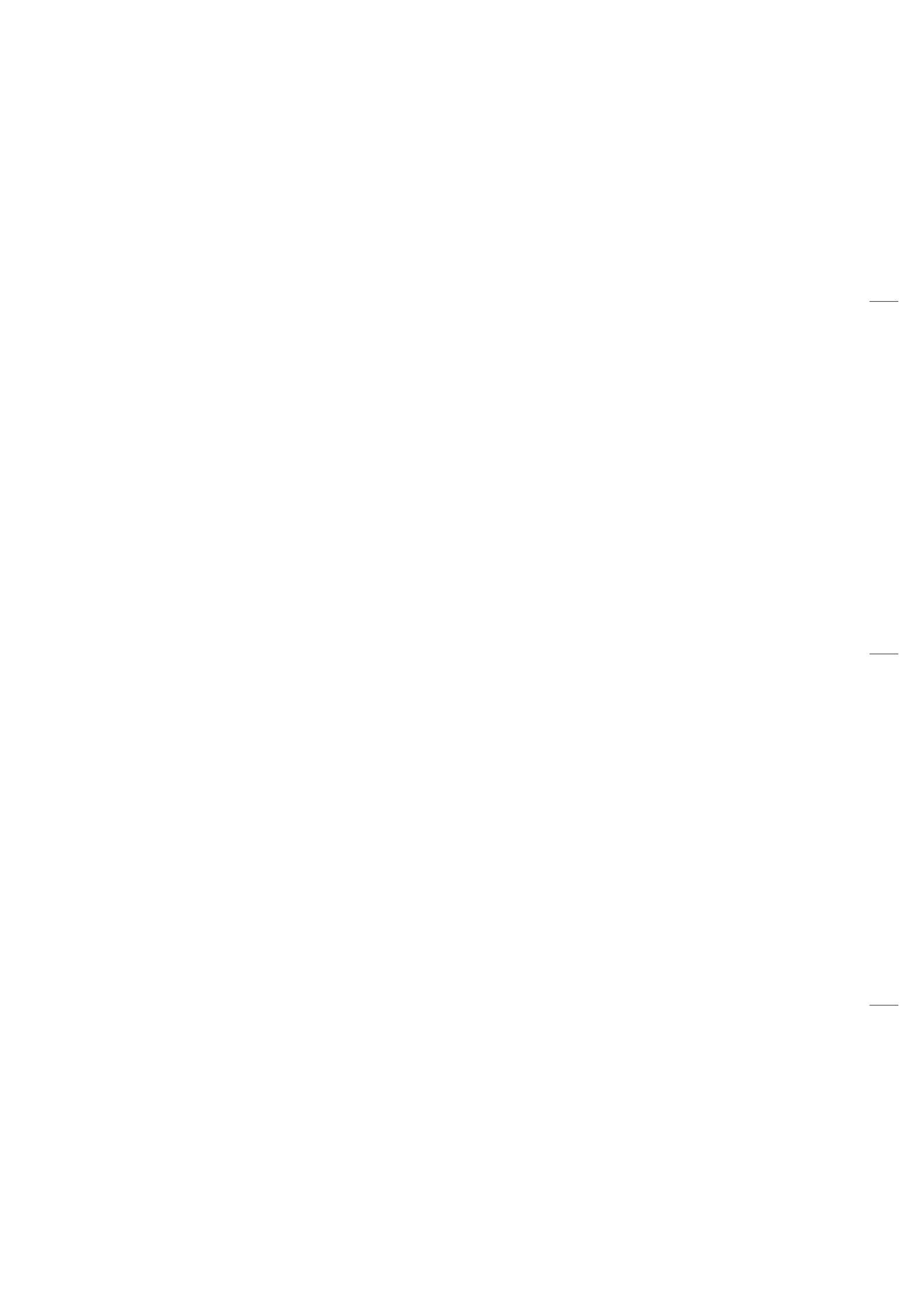
<sup>1)</sup> Hoses that are not covered by the engine type certificate (TC).

C. Vendor Established Component Time Limits

| Chapter | Component / Part  | Replacement Time               | Overhaul  |
|---------|---|--------------------------------|---|
| 25      | ELT battery   | Note 1                         | no  |
| 25      | Fire extinguisher<br>Air Total  | 10 years                       | Note 4  |
| 25      | Fire extinguisher<br>H3R  | 12 years                       | no  |
| 31      | ASPEN internal battery  | 800h or 3 years                | no  |
| 34      | KMD 150 MFD/GPS<br>internal battery   | 10 years<br>(recommended)      | no  |
| 34      | WINTER instruments  | no                             | Note 5  |
| 61      | Propeller<br>MTV-21-A/175-05  | no                             | 2000h or 6 years<br>Note 2  |
| 61      | Propeller governor<br>Woodward A210786                                      | no                             | 6 years, with engine<br>Note 6  |
| 61      | Propeller governor<br>P-410-13  | no                             | 2000h or 6 years<br>Note 2  |
| 61      | Propeller governor<br>P-850-12  | no                             | 2000h or 6 years<br>Note 2  |
| 71      | Engine ROTAX 912S   | no                             | 2000h or 15 years,<br>1500h or 12 years,<br>1200h or 10 years<br>Note 3 |
| 71      | ROTAX mechanical<br>fuel pump   | 5 years<br>Note 3              | no  |
| 71      | ROTAX flexible teflon<br>hoses of the fuel system                           | with engine overhaul<br>Note 3 | no  |
| 71      | ROTAX rubber parts<br>of the engine<br>(V-belt, hoses,<br>carburetor parts) | 5 years<br>Note 3              | no  |
| 71      | Spark plugs   | 200h<br>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:

| <b>Interval</b>                   | <b>Tolerance</b> |
|-----------------------------------|------------------|
| 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 be 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<br>TTSN / TTSO: |  | Date                |  |
| Propeller S/N |  | Operating Hours<br>TTSN / TTSO: |  | Type of Inspection  |  |

| No. | Pre-Inspection / Engine Ground Test   | Reference  | Interval |       | Initials |
|-----|---|--|----------|-------|----------|
|     |   |  | 100h     | other |          |
| 1.  | Check that the following documents are up-to-date and available upon request:<br>- AT01 Maintenance Manual<br>- AT01 Airplane Flight Manual<br>- Aircraft Log Book and required certificates<br>- Engine and Propeller Log Books<br>- Equipment List and Weight and Balance Record<br>- Airworthiness Directives<br>- Service Bulletins and Service Information<br>- 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        |       | Initials |
|-----|---|---|-----------------|-------|----------|
|     |   |   | 100h            | other |          |
| 6.  | Engine and engine compartment - Clean for leakage check.  | R912* 12-20-00 1)                                   | X <sup>1)</sup> |       |          |
| 7.  | <p>Perform an engine test run as follows:<br/>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.</p> <p>Rudder pedal brakes and parking brake - Check for proper operation.</p> <p>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.</p> <p>RPM drop: _____ RPM / Man. press : _____ in. Hg</p> <p>Engine instruments - Check engine parameters.</p> <p>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.</p> <p>RPM drop left magneto : _____ RPM<br/>RPM drop right magneto: _____ RPM</p> <p>Carburetor heat - Pull carburetor heat knob at 1700 RPM. Engine RPM should show a drop of at least 20 RPM.</p> <p>RPM drop: _____ RPM</p> <p>Engine full power - Advance throttle to full forward. Tachometer should read 2265 ±50 RPM.</p> <p>Full power RPM: _____ RPM</p> <p>Engine idle - Move throttle control lever to full aft. Tachometer should read 750 +50 RPM.</p> <p>Idle RPM: _____ RPM</p> <p>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.</p> | <p>R912* 12-20-00 8)</p> <p>32-40-00</p> <p>MT*</p> | X <sup>1)</sup> |       |          |
| 8.  | Airframe, power plant, propeller - Do a walk around to detect damages, fluid leaks or other abnormalities.  |   | X <sup>1)</sup> |       |          |
| 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        |                   | Initials |
|-----|---|---|-----------------|-------------------|----------|
|     |   |   | 100h            | other             |          |
| 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<br>R912* 12-20-00 11)  | X <sup>2)</sup> | 50h <sup>1)</sup> |          |
| 3.  | Oil tank - Check oil tank and clean if contaminated.  | R912* 12-20-00 11)  | X <sup>1)</sup> | 200h              |          |
| 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.<br><br>Cut open old oil filter without producing any metal chips and inspect filter mat for particles.<br><br>Findings: _____   | 12-12-00<br>R912* 12-20-00 11)  | X <sup>2)</sup> | 50h <sup>1)</sup> |          |
| 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.<br><br>Refilled: _____ Quantity: _____ L<br><br><b>CAUTION:</b><br>DO NOT USE AIRCRAFT ENGINE OIL.<br><br>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<br>R912* 12-10-00 4)<br>R912* 12-20-00 11)<br>SI-912-010<br>SB-912-040 | X <sup>2)</sup> | 50h <sup>1)</sup> |          |
| 6.  | Visual inspection of the magnetic plug for accumulation of chips  | R912* 12-20-00 12)  | X <sup>2)</sup> | 50h <sup>1)</sup> |          |
| 7.  | Check compression by differential pressure method.<br>Test pressure: 6 bar (appr. 6000 hPa / 87 psi)<br>Pressure drop: max. 25%<br>Cyl.            1        2        3        4<br><br>Pressure drop:    _____  | R912* 12-20-00 5)   |                 | 200 h             |          |
| 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 3)<br>SB-912-029   | X <sup>2)</sup> |                   |          |
| 9.  | Leakage bore at the base of the water pump - Check for signs of leakage.  | R912* 12-20-00 4)   | X <sup>2)</sup> |                   |          |

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        |                       | Initials |
|-----|--|--|-----------------|-----------------------|----------|
|     |  |  | 100h            | other                 |          |
| 10. | Cooling system - Renew coolant (conventional coolant only). Flush the cooling system.  | 12-14-00<br>R912* 12-20-00 9)                                    |                 | 2 years <sup>3)</sup> |          |
| 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<br>R912* 12-20-00 9)                                    | X <sup>1)</sup> |                       |          |
| 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 radiator cover, 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<br>R912* 12-10-00 3)<br>R912* 12-20-00 9)<br>SB-912-043 | X <sup>1)</sup> |                       |          |
| 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<br>R912* 12-10-00 3)<br>R912* 12-20-00 9)               | X <sup>1)</sup> |                       |          |
| 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<br>79-20-00   | X <sup>1)</sup> |                       |          |
| 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 4)  | X <sup>1)</sup> |                       |          |
| 16. | Oil tank vent line - Check for proper routing, for obstructions and clear passage  |  | X <sup>1)</sup> |                       |          |
| 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 4)  | X <sup>1)</sup> |                       |          |
| 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 <sup>1)</sup> |                       |          |
| 19. | Filter element of electrical fuel pump - Inspect and clean.  | 28-20-00   | X <sup>1)</sup> |                       |          |
| 20. | Battery - Clean. Check charge. Measure residual capacity <sup>2)</sup> . Residual capacity must be at least 19Ah <sup>2)</sup> . If applicable, check acid level and vent case. If necessary, charge/replace battery.  | 12-17-00   | X <sup>1)</sup> |                       |          |
| 21. | Battery tray, terminals and cables - Check for security, corrosion and general condition. Grease battery terminals.  | 12-22-00   | X <sup>1)</sup> |                       |          |
| 22. | Starter - Check security of attachment and electrical connections.   |  | X <sup>1)</sup> |                       |          |

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        |                    | Initials |
|-----|---|----------------------------------|-----------------|--------------------|----------|
|     |   |                                  | 100h            | other              |          |
| 23. | Alternator - Check attachment and V-belt tension. Inspect electrical connections.   | R912* 12-20-00 6)                | X <sup>2)</sup> |                    |          |
| 24. | Spark plugs - Remove all spark plugs, check the heat range designation, clean, check electrode gap and adjust if necessary. Replace as required.  | R912* 12-20-00 13)               | X <sup>2)</sup> |                    |          |
| 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).  |                                  |                 | 200h               |          |
| 26. | Spark plugs - Replace spark plugs   | R912* 12-20-00 13)               | X <sup>1)</sup> | 200h               |          |
| 27. | Oil temperature / oil pressure sensor - Check for tight fit and condition.  |                                  | X <sup>2)</sup> |                    |          |
| 28. | Exhaust system - Check attachment screws and springs for security and fit. Inspect system for damage and missing parts. Visual inspection of the muffler, exhaust pipes and mounting flanges for cracks, corrosion and leakage. Check heat shielding for condition. |                                  | X <sup>2)</sup> |                    |          |
| 29. | Cabin heat - Check heat shroud and heat ducts for damage and security of attachment. Check heat control function.   |                                  | X <sup>2)</sup> |                    |          |
| 30. | Exhaust muffler - Remove heat shroud from muffler and inspect muffler for condition, corrosion and leakage.<br><br><b>WARNING:</b><br>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.<br><br>Actual friction torque is measured: _____ Nm  | R912* 12-20-00 14)               | X <sup>2)</sup> |                    |          |
| 32. | Propeller gear box - Inspect overload clutch.   | R912* 05-50-00 2)<br>SB-912-033  |                 | 600h <sup>1)</sup> |          |
| 33. | Propeller gear box - Check the propeller gearbox (with overload clutch).  | R912* 12-20-00 14)               |                 | 1000h              |          |
| 34. | Carburetors - Check carburetor synchronization. Mechanical and pneumatic synchronization.   | R912* 12-20-00 10)               | X <sup>2)</sup> |                    |          |
| 35. | Carburetors - Inspect the float chamber assy for contamination and corrosion.   | R912* 12-20-00 10)<br>SI-912-021 |                 | 200h               |          |
| 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.

| No. | Engine (Cont.)  | Reference                                       | Interval        |                   | Initials |
|-----|---|---|-----------------|-------------------|----------|
|     |   |   | 100h            | other             |          |
| 37. | Carburetors - Removal/assembly of the two carburetors for carburetor inspection.  | Rotax Heavy MM<br>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 10)<br><br>76-00-00<br>12-22-00  | x <sup>2)</sup> |                   |          |
| 39. | Carburetors - Check the idle speed.   | R912* 12-20-00 10)                              | x <sup>2)</sup> |                   |          |
| 40. | 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<br>73-00-00 3.4.3)<br>SB-912-030 |                 | 200h              |          |
| 41. | 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 <sup>2)</sup> |                   |          |
| 42. | 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 2)                               | x <sup>2)</sup> |                   |          |
| 43. | 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 <sup>2)</sup> |                   |          |
| 44. | 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.<br>At engine (4 bolts M10): 40 Nm (354 in.lbs)<br>At shock mounts (4 bolts M10): 25 Nm (221 in.lbs)<br>At firewall (4 bolts M10): 30 Nm (266 in.lbs)<br>Inspect shock mounts for deterioration. | R912* 12-20-00 3)<br>SB-912-028<br>SB-AT01-022  | x <sup>2)</sup> |                   |          |
| 45. | 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.   | 17-10-00<br>05-20-00<br>R912* 12-10-00 8)       | x <sup>2)</sup> | 50h <sup>1)</sup> |          |

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 |       | Initials |
|-----|---|------------------|----------|-------|----------|
|     |   |                  | 100h     | other |          |
| 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 |       | Initials |
|-----|---|-----------|----------|-------|----------|
|     |   |           | 100h     | other |          |
| 1.  | Prepare aircraft for visual checks:<br>Remove cabin carpets and floorboards;<br>Remove glare shield;<br>Remove baggage compartment floorboard;<br>Remove access panel of the baggage compartment bulkhead;<br>Remove access panel 210AB.                                      | 06-30-00  | X        |       |          |
| 2.  | Fuselage shell - Visual inspection for paint coat damage, dents, cracks, holes, distortion and other evidence of failure. All unpainted parts for delamination (white spots).   |           | 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 |        | Initials |
|-----|---|-----------|----------|--------|----------|
|     |   |           | 100h     | other  |          |
| 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 for proper operation, condition, and security of attachment.  |           | 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. | 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        |        |          |
| 14. | Parking brake valve - Check for evidence of leakage especially at the brake line connections. Check control assy for damage.  |           | X        |        |          |
| 15. | 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        |        |          |

| No. | Fuselage / Cabin (Cont.)  | Reference            | Interval |  | Initials |
|-----|---|----------------------|----------|--|----------|
|     |   |                      | 100h     | other  |          |
| 16. | 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        |  |          |
| 17. | 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        |  |          |
| 18. | 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        |  |          |
| 19. | Rudder / aileron control interconnection - Check condition and correct function.  |                      | X        |  |          |
| 20. | Rudder pedal bearing - Lubricate.   | 12-22-00             |          | annual   |          |
| 21. | Brake master cylinders and brake lines in the cabin area - Check for security, condition and signs of leakage.  |                      | X        |  |          |
| 22. | 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        |  |          |
| 23. | Hydraulic brake fluid - Renew.  | 12-15-00             |          | 2 years  |          |
| 24. | Fuel lines - Check for leakage and security.  |                      | X        |  |          |
| 25. | Wing main bolts - Inspect for proper fit, condition and correct safetying.  | 57-10-00             | X        |  |          |
| 26. | Wing main bolts - Remove for visual inspection and lubrication.<br><br>Lube type used: _____  | 57-10-00<br>12-22-00 |          | 500h <sup>1)</sup><br>5years <sup>1)</sup><br>or<br>annual <sup>1)</sup> |          |
| 27. | Engine and propeller controls - Check for proper function, security of attachment and for evidence of wear.   |                      | X        |  |          |

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

| No. | Fuselage / Cabin (Cont.)  | Reference            | Interval |       | Initials |
|-----|---|----------------------|----------|-------|----------|
|     |   |                      | 100h     | other |          |
| 28. | Exterior / interior placards and markings - Check presence, legibility, and security. | 11-20-00<br>11-30-00 | X        |       |          |

| No. | Wings, Ailerons, Flaps   | Reference | Interval |        | Initials |
|-----|--|-----------|----------|--------|----------|
|     |  |           | 100h     | other  |          |
| 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 bolts and nuts for proper safetying. Examine aileron pushrod for correct installation with stop nuts. Check aileron actuation assembly for suspect binding, and excessive play.   |           | X        |        |          |
| 5.  | Aileron hinges - Check play. Maximum play approx.:<br>- Axial $\pm 1,00$ mm ( $\pm 0.04$ in.)<br>- Radial $\pm 0,30$ mm ( $\pm 0.01$ in.)  |           | X        |        |          |
| 6.  | Aileron control system - Measure the play in the aileron control system with the control surface locked.<br>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 the correct safetying of all hinge bolts and castle nuts with cotter pins.   |           | X        |        |          |
| 8.  | Flap hinges - Check play. Maximum play approx.:<br>- Axial $\pm 0,30$ mm ( $\pm 0.01$ in.)<br>- Radial $\pm 0,30$ mm ( $\pm 0.01$ in.)<br>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: $\pm 5$ 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        |        |          |

| No. | Wings, Ailerons, Flaps (Cont.)   | Reference                        | Interval |        | Initials |
|-----|--|----------------------------------|----------|--------|----------|
|     |  |                                  | 100h     | other  |          |
| 10. | Stall warning system - Check for condition and proper operation.   |                                  | X        |        |          |
| 11. | For serial numbers from AT01-100 to AT01-126:<br>Bonding between wing spar and upper shell - Check condition.  | 57-10-00<br>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<br>28-20-00<br>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 filler caps - Check for proper function and leakage.  |                                  | X        |        |          |
| 17. | 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 |          |
| 18. | 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 |        | Initials |
|-----|--|-----------|----------|--------|----------|
|     |  |           | 100h     | other  |          |
| 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 correct safetying of the lower rudder pivot pin with castellated nut and cotter pin.  |           | X        |        |          |
| 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.:<br>- Axial $\pm 0,30$ mm ( $\pm 0.01$ in.)<br>- Radial $\pm 0,30$ mm ( $\pm 0.01$ 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 |          |

| No. | Empennage, Elevator, Rudder (Cont.)  | Reference | Interval |        | Initials |
|-----|--|-----------|----------|--------|----------|
|     |  |           | 100h     | other  |          |
| 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 |       | Initials |
|-----|--|-----------|----------|-------|----------|
|     |  |           | 100h     | other |          |
| 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        |       |          |
| 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        |       |          |

| No. | Nose and Main Landing Gear (Cont.)   | Reference | Interval |                        | Initials |
|-----|--|-----------|----------|------------------------|----------|
|     |  |           | 100h     | other                  |          |
| 9.  | Wheel bearings - Clean and lubricate.  | 12-22-00  |          | 500h<br>annual         |          |
| 10. | 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        |                        |          |
| 11. | Wheel axles - Clean. Visually inspect for cracks, nicks, corrosion or other damage.  |           |          | every wheel<br>removal |          |

| No. | Electrical System / Avionics  | Reference          | Interval           |   | Initials |
|-----|---|--------------------|--------------------|---|----------|
|     |   |                    | 100h               | other   |          |
| 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 <sup>1)</sup>    |   |          |
| 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. <sup>2)</sup>  | 34-11-00           | X                  |   |          |
| 6.  | Pitot heating system - Carefully check pitot tube for heating up with pitot heating switched ON.<br><br><b>WARNING:<br/>RISK OF SKIN BURNS! DO NOT TOUCH<br/>PITOT TUBE WHEN HEATING IS SWITCHED ON!</b>  |                    | X <sup>2)</sup>    |   |          |
| 7.  | Garmin G500 system - Check all components and wiring for damage, corrosion, proper operation and security of attachment.  | 34-25-00           | X <sup>1) 2)</sup> |   |          |
| 8.  | Garmin G500 system - Check bonding.   | 34-25-00           |                    | 2000h <sup>2)</sup><br>10 years <sup>2)</sup> |          |

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

2) If installed.

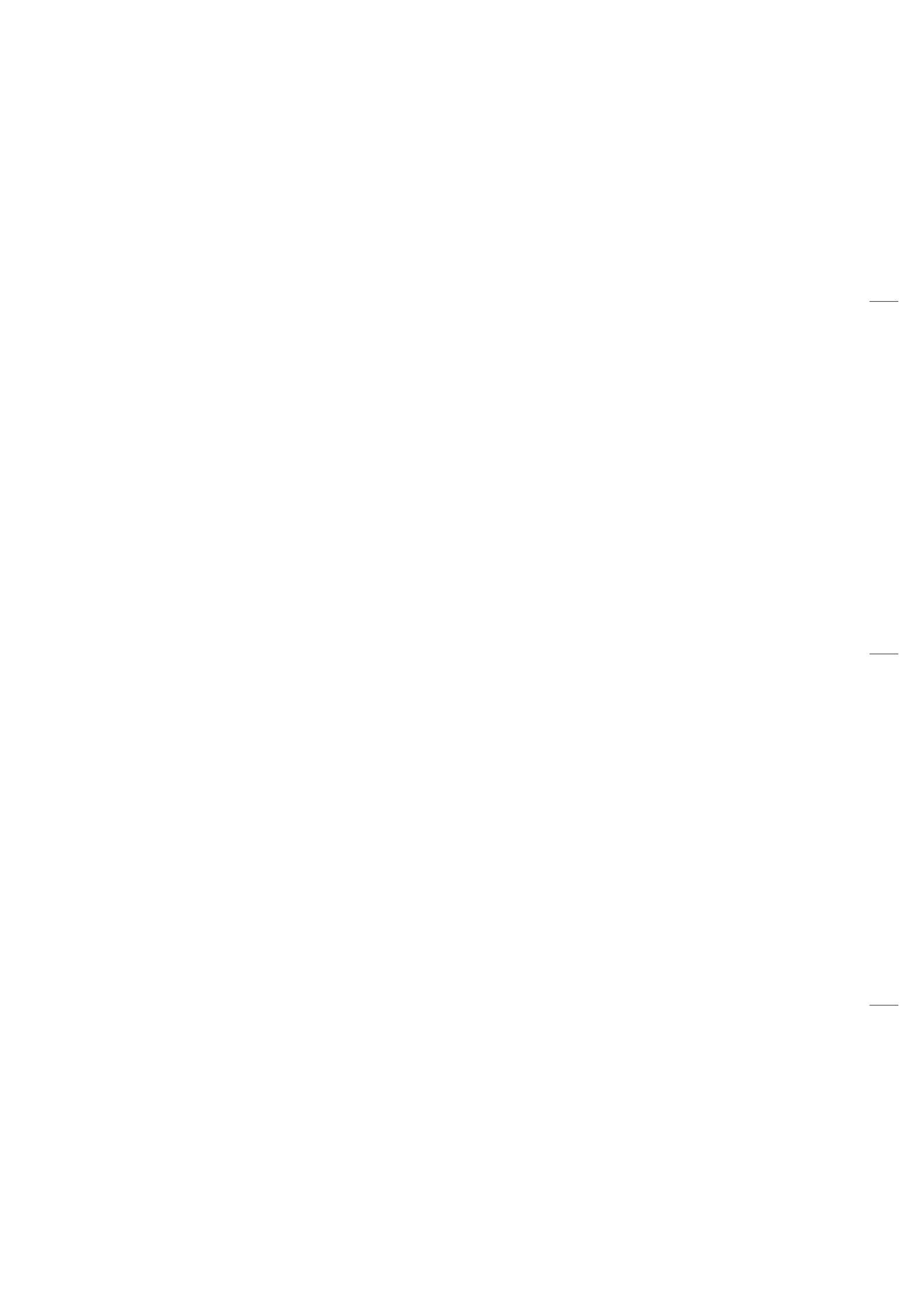
| No. | Electrical System / Avionics (Cont.)  | Reference | Interval |                      | Initials |
|-----|---|-----------|----------|----------------------|----------|
|     |   |           | 100h     | other                |          |
| 9.  | Aspen EFD1000 system - Check all components and wiring for damage, corrosion, proper operation and security of attachment. Perform bonding check. | 34-25-00  |          | annual <sup>1)</sup> |          |

| No. | Return to Service | Reference | Interval |       | Initials |
|-----|-------------------|-----------|----------|-------|----------|
|     |                   |           | 100h     | other |          |

|    |  |          |   |  |  |
|----|--|----------|---|--|--|
| 1. | Install wheel fairings.<br>Install seats (if removed).<br>Install cabin floor boards.<br>Install baggage compartment floorboard.<br>Install access panel of the baggage compartment bulkhead.<br>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 |  |  |

|  |   |              |
|--|---|--------------|
| <p>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.</p> |   |              |
| <p>Service Station:</p>  | <p>Next inspection when _____ hours of operation have been reached.</p> |              |
| <p>Place, Date</p>   |   |              |
| <p>Name, Signature of Mechanic</p>   | <p>Name, Signature of Inspector</p>                                     | <p>Stamp</p> |

<sup>1)</sup> If installed.





## DAILY INSPECTIONS

### 1. General

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

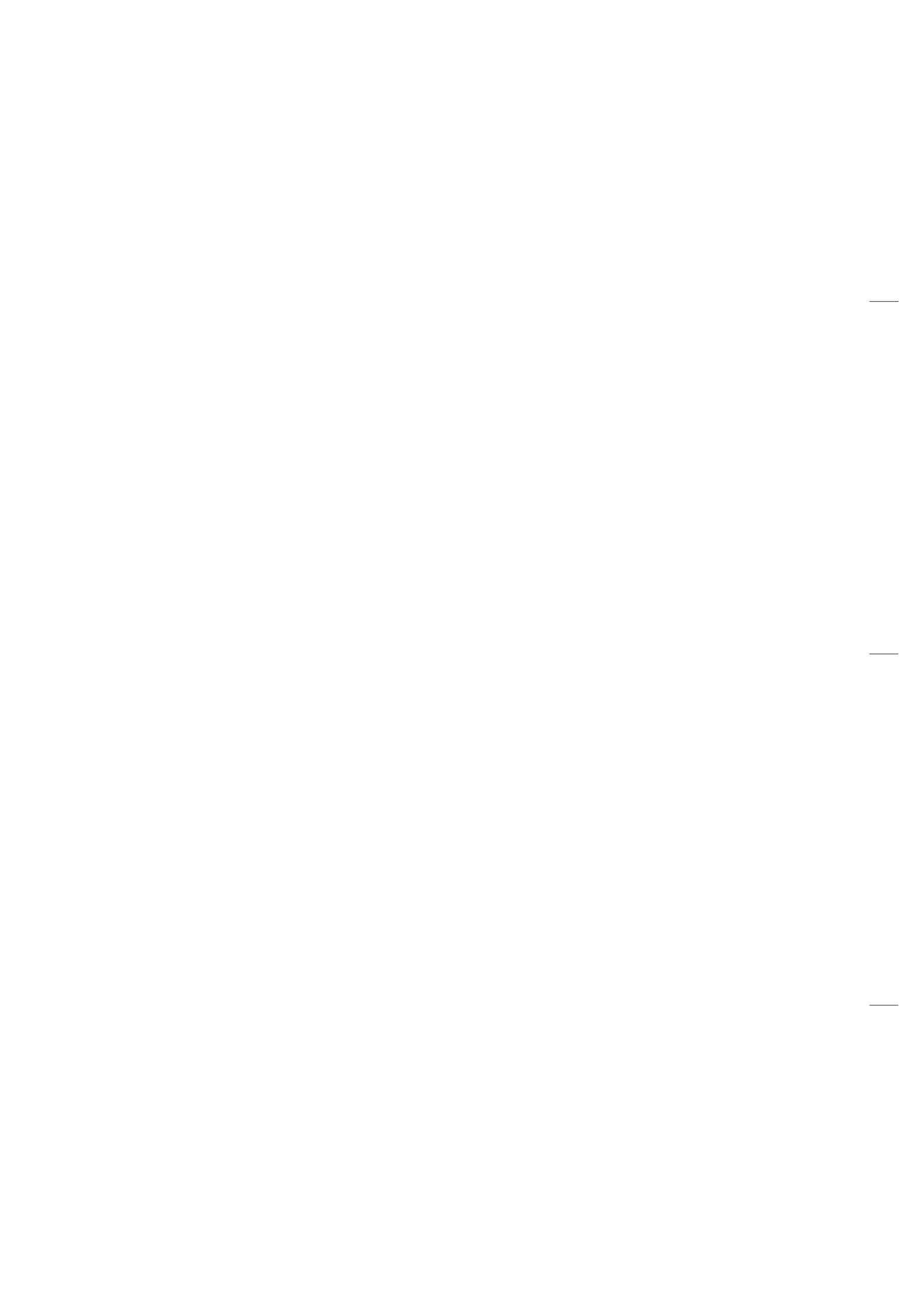
### 2. Pre-Flight Check

- 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.

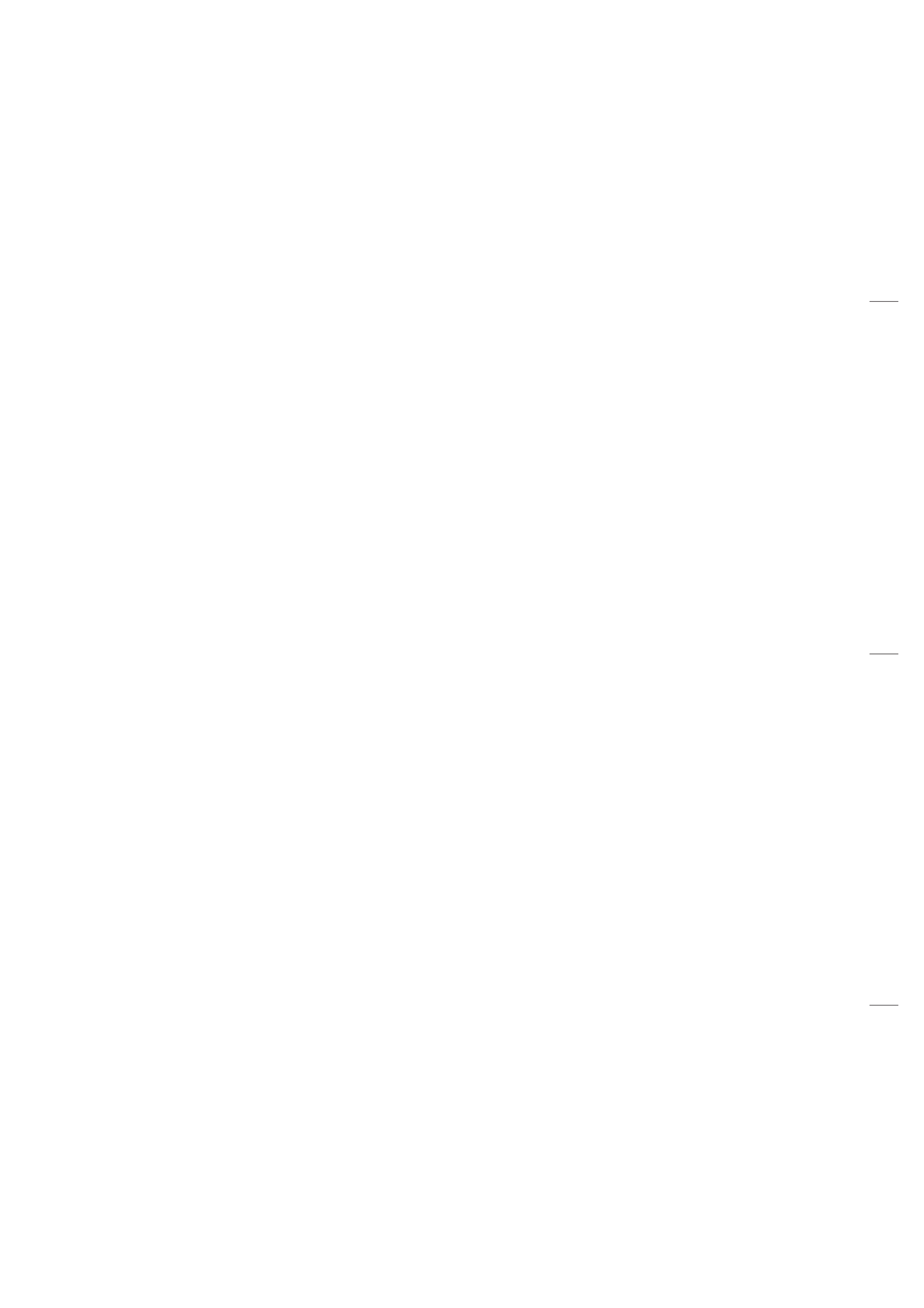
Check additional equipment (external alternator, hydraulic governor, ignition unit, coolant and oil hoses) for damage.



**AQUILA AT01  
MAINTENANCE MANUAL**

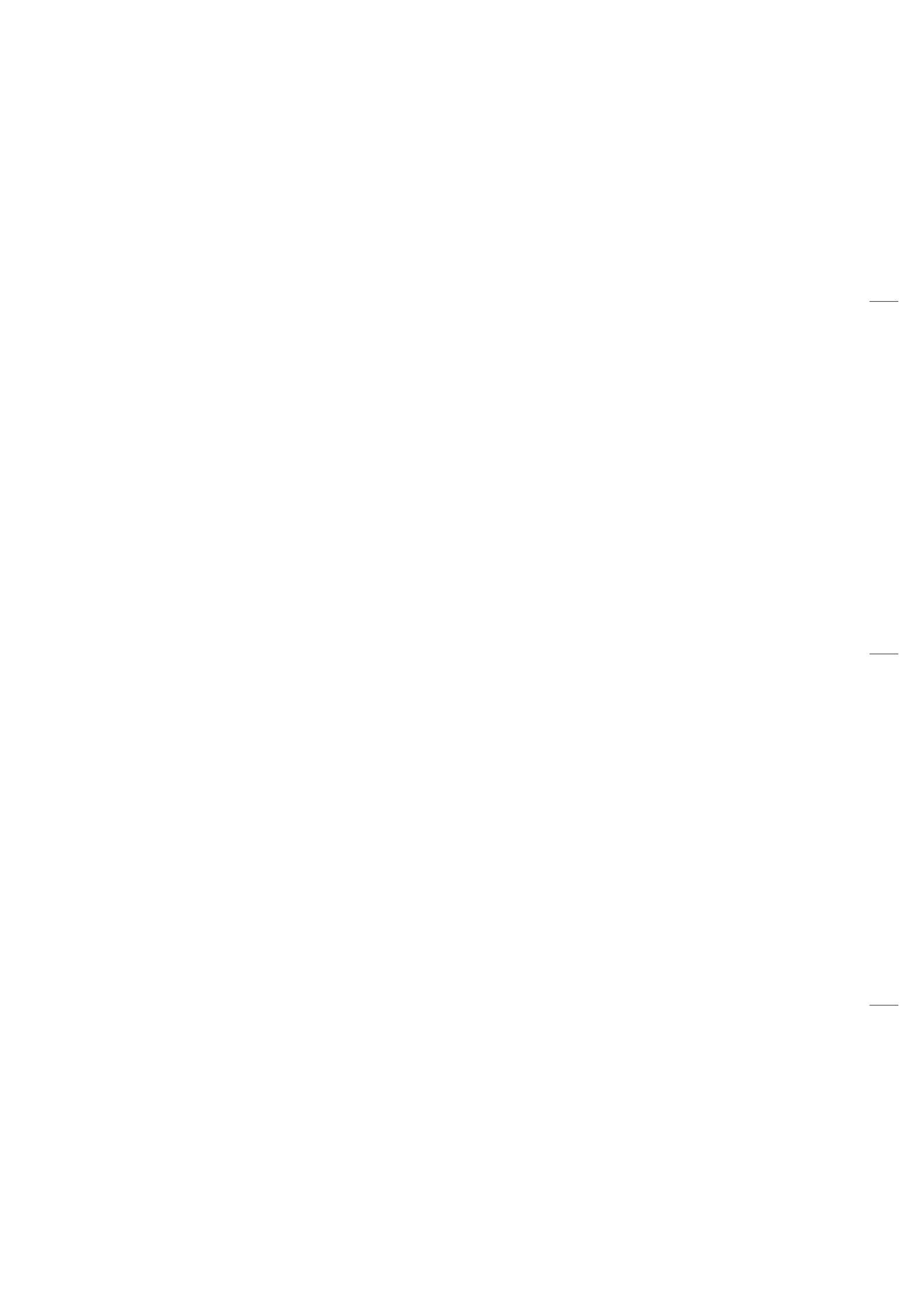
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**CHAPTER 76  
ENGINE CONTROLS**



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## ENGINE CONTROLS - GENERAL

### 1. Introduction

- A. This chapter describes and provides maintenance instructions for components and systems used to control the engine.

### 2. General Description

- A. Engine controls include throttle, choke, propeller and carburetor heat. The primary engine controls, the throttle and propeller controls, employ conventional push-pull type levers and are connected to a control quadrant mounted on the center console. The push-pull type choke and carburetor heat control knobs are to be found in the center console, below the instrument panel.

#### Throttle Control

The throttle control lever is connected via Bowden cables with the throttle actuation arm on each carburetor. The Bowden cable jackets are attached at both ends to a support bracket which is adjustable on the carburetor side.

#### Propeller Control

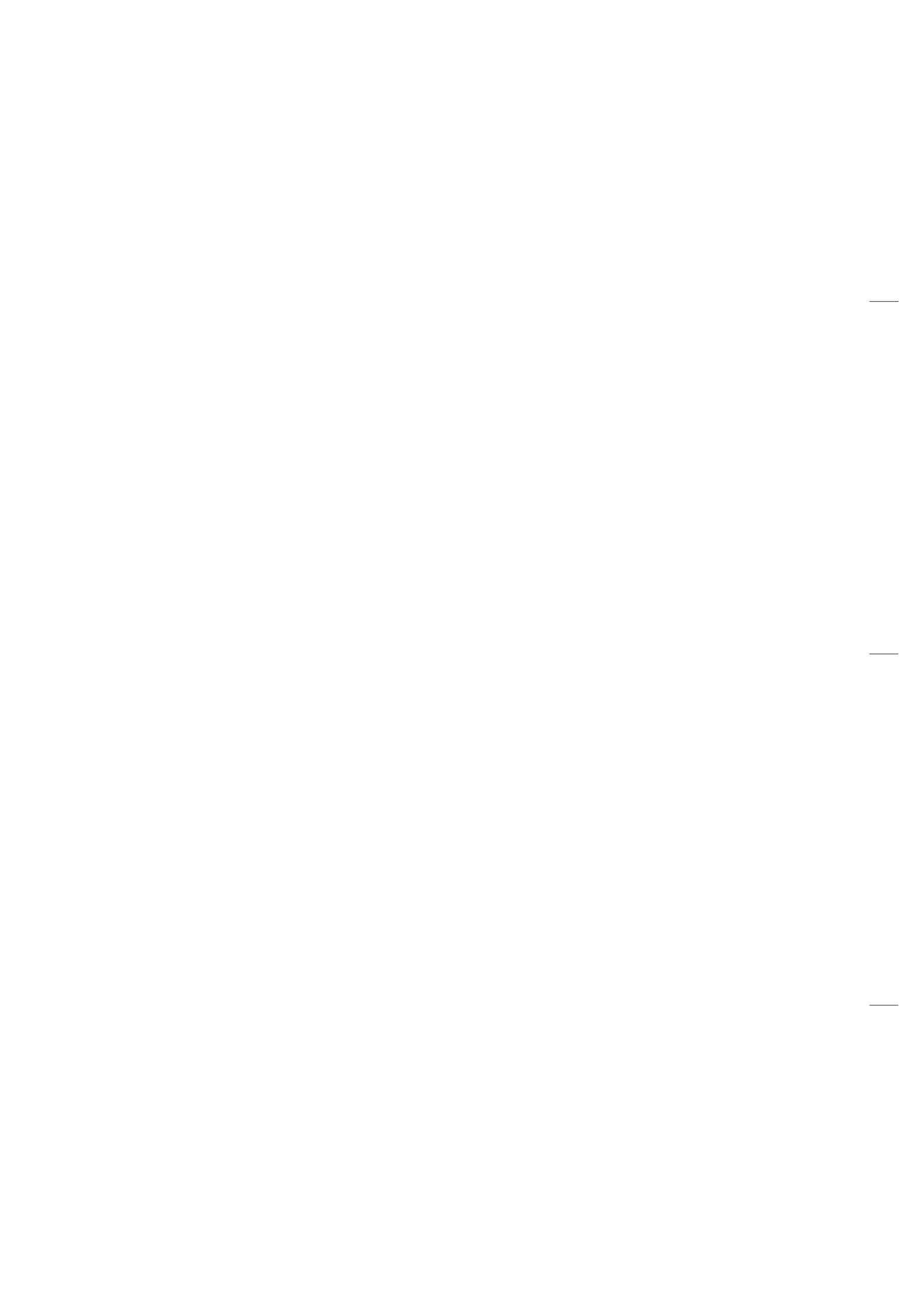
Movement of the propeller speed control lever is transferred to the propeller governor control arm via a Bowden cable. The Bowden cable is adjustable on the propeller governor.

#### Choke

The choke control knob is connected via Bowden cables to the choke actuation lever on each carburetor.

#### Carburetor Heat

By pulling the carburetor heat control knob, two coupled flap valves in the air distribution box are operated. The valves stop airflow from the air intake and allow heated alternate air from the exhaust muffler area to flow to the carburetors. Movement of the carburetor heat knob is transferred to the flap valves through a Bowden cable.



## ENGINE CONTROLS - MAINTENANCE

1. General

- A. For propeller speed control adjustment/test procedures, refer to 61-20-00.
- B. For carburetor heat control adjustment/test procedures, refer to 71-60-00.

2. Control Quadrant Disassembly/Assembly

- A. For control quadrant disassembly/assembly, refer to figure 201.

3. Throttle Control Cable Removal/Installation

**WARNING:** WHEN THE THROTTLE CONTROL CABLES ARE NOT CONNECTED, THE CARBURETORS ARE IN FULL OPEN POSITION. NEVER START ENGINE WHEN THE CARBURETOR THROTTLE CONTROL CABLES ARE NOT CONNECTED.

## A. Remove Throttle Control Cables

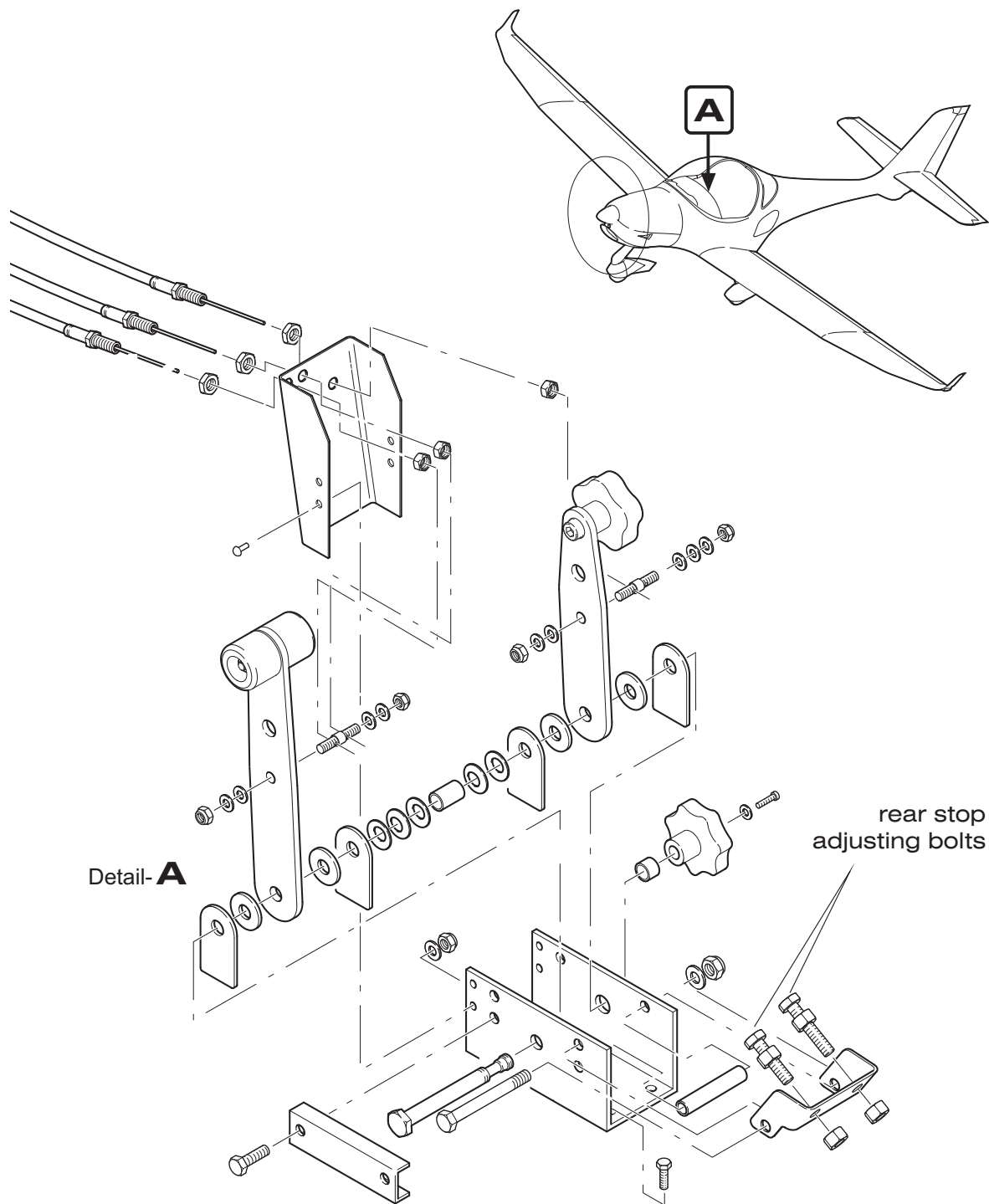
- (1) Remove engine cowling (refer to 71-10-00).
- (2) Remove access panels 211 FT, 211 FB, 211 EC (refer to 25-12-00) in the cabin.
- (3) Disconnect throttle control cables from carburetors.
- (4) Disconnect throttle control cables at throttle control lever.
- (5) Carefully pull throttle control cables through firewall and control cable support bracket, and remove from aircraft.

## B. Install Throttle Control Cables

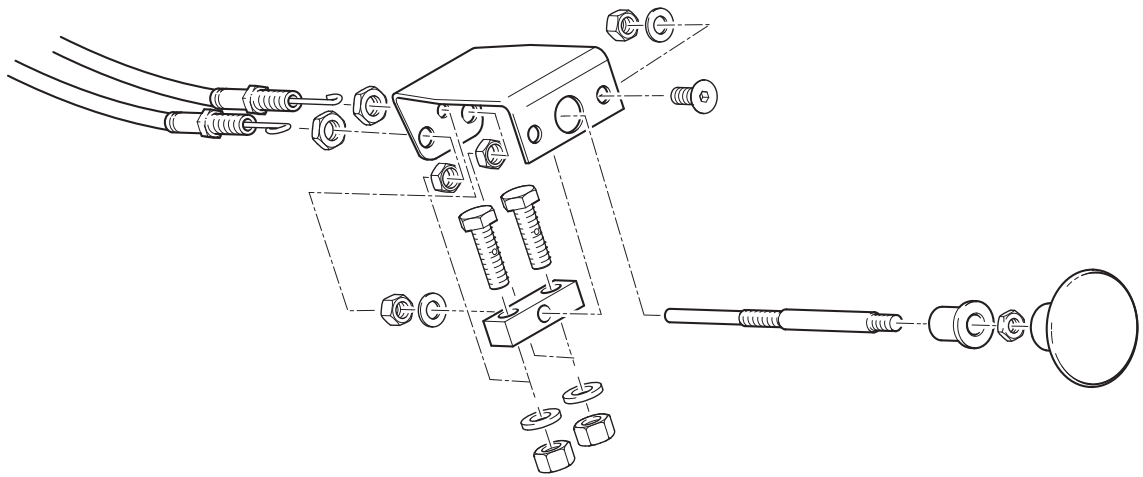
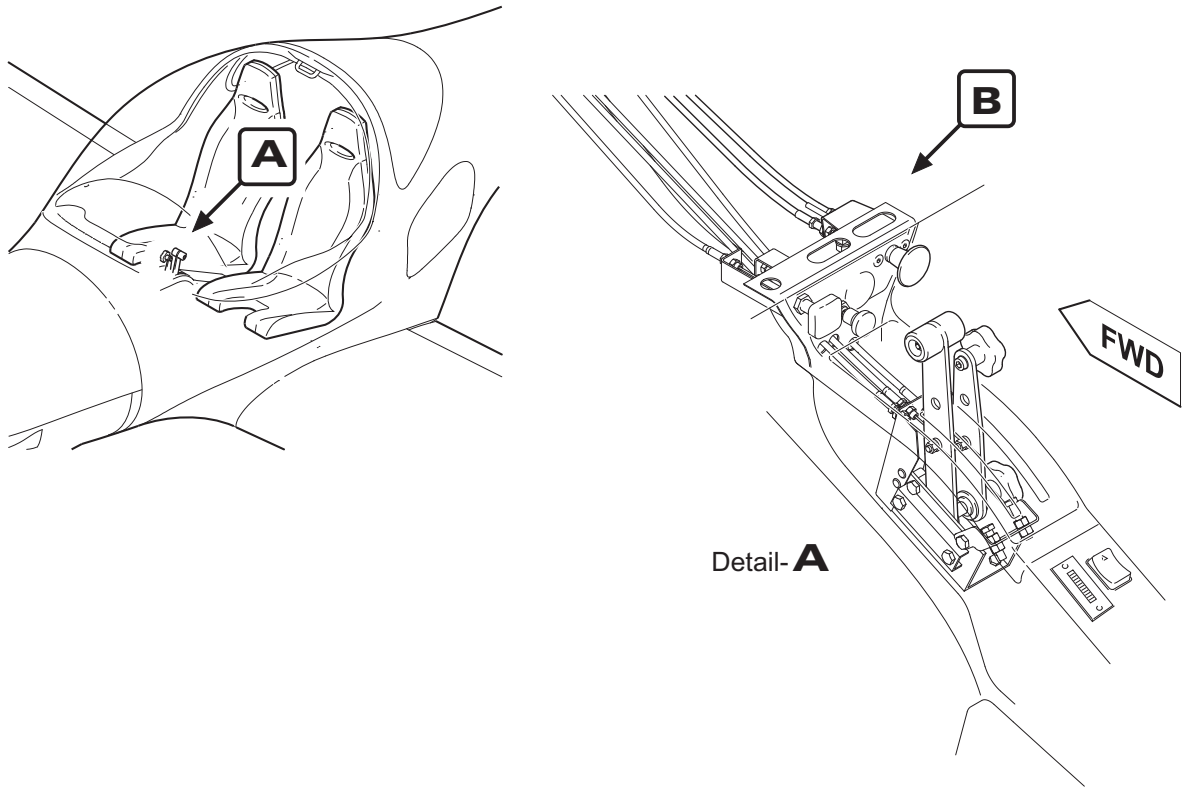
**NOTE:** When installing throttle control cables, ensure the cables are routed exactly as previously installed.

Before installing, ensure cable fitting on firewall is clear and free of sealant.

- (1) Route throttle cables from the cabin, through control cable support bracket and then through the firewall to the engine compartment.
- (2) Install washers and nuts securing control cables to cable support bracket at the console.
- (3) Secure control cables to support brackets at carburetors and connect to carburetor throttle control arm using hardware in the engine compartment.
- (4) With throttle control lever in full forward position, connect control cables to the throttle control lever in the cabin as shown in figure 201.
- (5) Perform throttle control cable adjustment/test (refer to "Throttle Control Adjustment/Test" below).
- (6) Fill firewall seal fitting with silicone sealant.
- (7) Install all items removed for access.



Control Quadrant Assembly  
Figure 201



Detail- **B**

Choke Control Assembly  
Figure 202

#### 4. Governor Control Cable Removal/Installation

##### A. Remove Governor Control Cable

- (1) Remove engine cowling (refer to 71-10-00).
- (2) Remove access panels 211 FT, 211 FB, 211 EC (refer to 25-12-00) in the cabin.
- (3) Disconnect governor control cable from governor control arm.
- (4) Remove any clamps or ties securing governor cable to engine or engine mount.
- (5) Disconnect governor control cable at propeller control lever.
- (6) Carefully pull governor control cable through firewall and control cable support bracket, and remove from aircraft.

##### B. Install Governor Control Cables

**NOTE:** When installing throttle control cables, ensure the cables are routed exactly as previously installed.

Before installing, ensure cable fitting on firewall is clear and free of sealant.

- (1) Route governor cable from the cabin, through control cable support bracket and then through the firewall to the engine compartment.
- (2) Install washers and nuts securing control cable to cable support bracket at the console.
- (3) Install governor control cable to governor control arm using hardware at the governor in the engine compartment.
- (4) Connect control cable to the propeller control lever in the cabin as shown in figure 201.
- (5) Re-install clamps or ties securing governor cable to engine or engine mount.
- (6) Perform governor control adjustment/test (refer to 61-20-00).
- (7) Fill firewall seal fitting with silicone sealant.
- (8) Install all items removed for access.

#### 5. Choke Control Adjustment/Test

##### A. Adjust Choke Control

- (1) Adjust control cables so, if the choke control knob is in the full forward position, the starting carburetor control arms on both carburetors reach their low stop.

## 6. Throttle Control Adjustment/Test

### A. Idle Speed Adjustment

NOTE: Always perform idle speed adjustment at operating temperature of the engine.

- (1) Close idle mixture control screw by turning clockwise.
- (2) Open idle mixture control screw again 1.5 turns counterclockwise.

NOTE: Turning idle mixture control screw in clockwise direction results in a leaner mixture and turning counterclockwise in a richer mixture.  
If no satisfactory engine idling cannot be achieved, an additional pneumatic synchronization will be necessary.

### B. Adjust Throttle Control

- (1) Move throttle lever in the cockpit to full throttle position.
- (2) Disconnect control cables from the throttle control arms of both carburetors.
- (3) Move throttle lever in the cockpit 1-2 mm (0.04-0.08 in.) back.
- (4) Tighten the Bowden cable clamps on the throttle control arms of both carburetors.
- (5) Move throttle control lever between idle and full throttle positions. Ensure the throttle control lever is only limited by the throttle control arm stops on the carburetors and has positive clearance of 1 mm (0.04 in.) to the console slot in both the full forward and full aft positions. There must be no notable bulging of the Bowden cables on the carburetors with control lever in the full throttle position.

WARNING: IN FULL THROTTLE POSITION THE THROTTLE WIRE MUST NOT BULGE NOTABLE OUT OF LINE BETWEEN THE CARBURETOR LEVER AND THE BOWDEN CABLE ADJUSTMENT, BECAUSE THIS MAY RESULT IN FATIGUE FAILURE OF THE THROTTLE WIRE!

- (6) Adjust rear stop adjusting bolt in the cockpit so the throttle control lever and the control arms of the carburetors contact their rear stops simultaneously.
- (7) Perform carburetor synchronization (refer to ROTAX Maintenance Manual for Rotax Engine Type 912 Series, chapter 12-20-00, section 10).

### C. Throttle Inspection/Check

- (1) Check proper Bowden cable routing to prevent influence to carburetors actuation caused by any movement of engine or other controls, thus possibly falsifying precise idle speed setting and synchronization.
- (2) Inspect the throttle control cable attachment to carburetors throttle control arm and to the control quadrant. Check hardware for security and condition.
- (3) Check the throttle control slides smoothly and without any resistance to movement throughout its full range of travel. Verify the throttle control lever is only limited by the throttle control arm stops on carburetors and has positive clearance of 1 mm (0.04 in.) to the console slot in both the full forward and full aft positions. There must be no notable bulging of the Bowden cables on the carburetor with control lever in the full throttle position.
- (4) Check reset springs and inspect engagement holes for wear.
- (5) If required lubricate carburetors actuation linkage with engine oil.

