

12-Month Condition Inspection Guide

Gyroplane Make: Air Command International

Gyroplane Model: _____ S/N: _____

Engine Make/Model: _____ S/N: _____

Rotor Blade Make: _____ S/N: _____

Total Time Airframe: _____

Total Time Engine: _____

Total Time Rotor Blades: _____

Date of Inspection: _____

This Inspection Expires: _____ (calendar month end)

Inspected By (Print): _____

Inspected By (Signature): _____

Certificate #: _____

Signed on this Date: _____

Upon completion of the condition inspection,

Logbooks updated: Airframe
 Engine
 Other: _____

Gyroplane determined: Airworthy
 Unairworthy

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IMPORTANT NOTICE

DISCLAIMER:

This condition inspection guide is subject to change without notice. Refer to www.aircommand.com for updates and safety bulletins.

Before using this Guide, review and follow all safety instructions, relevant notes, and manufacturer manuals. There are risks and hazards associated with working around, maintaining, or making modifications to rotorcraft and, as a result, are potentially dangerous and could cause harm.

This Guide is for reference only and does not modify, replace, substitute for, or supersede official regulations or any manufacturer's instructions.

Air Command International, LLC and Skywheels, LLC is not responsible for errors or omissions and assumes no liability, either express or implied, in the use of this Guide.

Preface

What is a Condition Inspection?

A condition inspection is the same as an "annual" for a type certificated aircraft. While the FAA's FAR Part 43 does not apply to experimental airworthiness certificates, the operating limitations on your Air Command gyroplane include the following:

No person shall operate this aircraft unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with the scope and detail of appendix D to FAR Part 43, or other FAA-approved programs, and found to be in a condition for safe operation. This inspection will be recorded in the aircraft maintenance records. Condition inspections shall be recorded in the aircraft maintenance records showing the following or a similarly worded statement: "I certify that this aircraft has been inspected on (insert date) in accordance with the scope and detail of appendix D to FAR part 43 and found to be in a condition for safe operation." The entry will include the aircraft total time in service, and the name, signature, certificate number, and type of certificate held by the person performing the inspection.

Who can perform a Condition Inspection?

The inspection can be performed by any licensed A&P mechanic, an FAA Approved Repair Station, or by the builder of the gyroplane provided the builder obtains a "Repairman's Certificate" from the FAA. Note that unlike an annual for a type certificated aircraft, the A&P mechanic does NOT have to have his/her "Inspection Authorization".

Who can maintain my Air Command gyroplane?

FAR Part 43 states that the rules of that part do not apply to amateur-built gyroplanes. Therefore, any maintenance on an experimental gyroplane can be performed virtually by anyone regardless of credentials. However, this does not apply to the condition inspection. Let common sense be your guide as to what maintenance you conduct yourself.

When does the condition inspection expire on my gyroplane?

Air Command operating limitations require a condition inspection has been completed and recorded in the gyroplane's logbook within the preceding 12 calendar months. The word "calendar" is key, as this means the condition inspection runs through the end of the 12th month. For example, if a condition inspection was completed and recorded in the gyroplane's logbook on 06/15/2020, it would be in force through 06/30/2020 (i.e. through the end of June).

Tools Required

Tools commonly required to complete a condition inspection.

- Wrench and Ratchet Sets
- Torque Wrench (inch-pounds)
- Allen Wrench Set
- Screwdriver Set
- Standard and Needle Nose Pliers
- Safelying Safety Wire Pliers and Cutter

Supplies Required

Supplies commonly consumed during a condition inspection.

- Loctite™ Threadlock (Blue)
- High Temperature Wheel Bearing Grease (Red Color)
- Lithium Grease
- LPS Aircraft Lubricant (Greaseless)

Torque Values

It is important not to over or under tighten your AN fasteners. Never go so tight with a fastener that the tubes will deform in anyway. The recommended torque values are:

Air Command Airframe

AN3 Bolts (3/16" Diameter)	10 to 20 inch-pounds
AN4 Bolts (1/4" Diameter)	30 to 50 inch-pounds
AN5 Bolts (5/16" Diameter)	60 to 80 inch-pounds
AN6 Bolts (3/8" Diameter)	160 to 190 inch-pounds
AN8 Bolts (1/2" Diameter)	480 to 690 inch-pounds

Skywheels Rotor System

AN6 Bolts (3/8" Diameter)	180 inch-pounds
Chordwise Balance Set Screw	60 inch-pounds



WARNING



WARNING indicates a hazardous situation which, if not avoided, COULD result in death or serious injury.

Avoid torque of any bolt that is a pivot point. Tighten only enough to take out slop, so that any pivot point can be moved by hand with only moderate resistance.

Avoid use of self-locking nyloc nuts on parts subject to rotation.

Avoid use or replace nuts and bolts with damaged threads, corrosion, or rust.

Avoid use of self-locking nyloc nuts that don't provide locking action. Do not reuse the same self-locking nyloc nut more than three times.

Avoid under-sizing bolt length. Bolt threads must protrude past the end of the self-locking nyloc nut nylon insert 1-1/2 to 3 threads.

Avoid torque of rotor head bolts, disassembly, or reassembly, with exception of the rotor head main teeter bolt and tower retaining nuts and bolts. The rotor head is pre-assembled at the factory to assure quality control. Contact the Air Command factory immediately with maintenance questions, teardown inspection requests, or rebuild.

Safe Operation

Keeping your gyroplane clean and well maintained is the first step in safety. Refer to the Assembly or Owner's Manual for guidance. Contact us with any questions.

Contact Us

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12-Month Condition Inspection

The following Condition Inspection Guide is compiled from FAR 43, Appendix D, and adapted for Air Command gyroplane models. This checklist is a guide and not a complete list. It is designed as a general list subject to one's additions, modifications, and/or deletions as necessary to effectively carryout a proper and integral condition inspection.

Scope and Detail of Items to be Included in a 12-Month Condition Inspection:

Performing A Condition Inspection

(a) Each person performing a condition inspection shall, before that inspection, remove or open all necessary inspection plates, access doors, fairing, and cowling. He shall thoroughly clean the aircraft and aircraft engine.

Entire Airframe Group

(b) Each person performing a condition inspection shall inspect (where applicable) the following components and assemblies of the entire airframe group:

- Pass Fail (1) Nuts and bolts for incorrect torque value and obvious defects.
- Pass Fail (2) Lack of safetying (safety wire), obvious defects, or damage.
- Pass Fail (3) Tubes, plates, brackets, Heim joints, saddles, and all other parts for damage or any deviation from normal.
- Pass Fail (4) Cables, guides, pulleys, and push-pull cables for defects, damage, or unsatisfactory condition or operation.
- Pass Fail (5) Rudder pedals, rudder, and horizontal stabilizer for insufficient bolt and nut security, incorrect torque value, defects, damage, unsatisfactory operation, and excess play in control movements.
- Pass Fail (6) Systems and components for improper installation, apparent defects, and unsatisfactory operation.
- Pass Fail (7) Parts or hardware in poor condition, i.e., rust, corrosion.

Rotor Head, Joystick, and Prerotator Flight Control Group:

(c) Each person performing a condition inspection shall inspect (where applicable) the following components of the rotor head, prerotator, and joystick flight control group:

Rotor Head

- Pass Fail (1) The rotor head is factory-built for quality control purposes and times out for inspection and replacement of critical parts by the factory every five-years or 100-hours, whichever comes first. Contact the Air Command factory regarding inspection services.
- Pass Fail (2) DO NOT attempt to disassemble the rotor head or check torque values, unless otherwise instructed. Turn rotor head towers slowly to check main bearing(s) for play or grinding, visually inspect all parts for excessive wear, damage, defects, or incorrect operation.
- Pass Fail (3) Condition monitor the rotor head main teeter bolt and rotor head tower nuts and bolts for defects, damage, scratches, and wear fatigue based on a physical inspection every 20-hours (replace as needed), or replace every 40-hours or 12-months, whichever comes first.
- Pass Fail (4) Inspect rotor head main teeter bolt shank and stainless-steel teeter tower bushings for insufficient light film of high temperature wheel bearing grease (red color).

Joystick & Flight Control System

- Pass Fail (5) Joystick parts and oilite bushings for obvious defects, damage, or excessive wear, the bolt shank has a light film of high temperature wheel bearing grease (red color).
- Pass Fail (6) Check the Joystick assembly AN hardware and, in particular the bolts at each end of the parallelogram rod, for obvious defects, damage, excessive wear, incorrect torque value, and safetying (safety wire). NOTE: These bolts incur most of the vibration from the rotor head system and should be checked prior to each flight.
- Pass Fail (7) Joystick control system and assemblies for improper operation, excess play in control movements, lack of safetying (safety wire), and nuts and bolts for improper security, and incorrect torque value.
- Pass Fail (8) Inspect flight control system push tubes and Heim joints, nuts and bolts for incorrect security or torque value, excess play in control movements, or insufficient LPS Aircraft Lubricant on Heim joints.

Prerotator

- Pass Fail (9) Prerotator system for improper operation or wear, insufficient LPS Aircraft Lubricant on Bendix gear fittings, and lack of safetying (safety wire).
- Pass Fail (10) Prerotator black housing and flex shaft visually inspected for damage, wear, unwinding, and insufficient lithium grease on shaft.

Cabin and Flight Deck Group

(d) Each person performing a condition inspection shall inspect (where applicable) the following components of the cabin and flight deck group:

- Pass Fail (1) Generally for uncleanliness and loose equipment that might foul the controls or impede safe operations.
- Pass Fail (2) Seats and safety belts for poor condition and apparent defects.
- Pass Fail (3) Windows and windshields for deterioration, breakage, and security.
- Pass Fail (4) Instruments for poor condition, mounting, marking, and (where practicable) improper operation.
- Pass Fail (5) Flight and engine controls for improper installation and improper operation.
- Pass Fail (6) All systems for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment.

Engine, Redrive, and Fuel System Group

(e) Each person performing a condition inspection shall inspect (where applicable) components of the engine, redrive, and fuel system group:

- Pass Fail (1) Engine section for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks.
- Pass Fail (2) Nuts and bolts for incorrect torque value and obvious defects.
- Pass Fail (3) Evidence of regular maintenance and overhaul (TBO) as per the engine manufacturer's recommendations.

- Pass Fail (4) Engine mount for cracks, looseness of mounting, and looseness of engine to mount and mast.
- Pass Fail (5) Rubber engine vibration dampeners for poor condition and deterioration.
- Pass Fail (6) Engine controls for defects, improper travel, and improper safetying.
- Pass Fail (7) Engine and fuel lines, hoses, rubber bushings, and clamps for leaks, improper condition, and looseness.
- Pass Fail (8) Starter motor for improper operation, defects, or damage.
- Pass Fail (9) Seat or extended range fuel tanks for cracks, leakage, defects, and improper or loose attachment.
- Pass Fail (10) Missing safety chain or lanyard on fuel cap.
- Pass Fail (11) Evidence inline fuel filters or filter screens replaced every 100-hours or 12-months, whichever comes first, or replaced if debris is noticed.
- Pass Fail (12) Exhaust stacks for cracks, defects, and improper attachment.
- Pass Fail (13) Redrive for cracks, defects, improper attachment, leaks, and sources of such leaks.
- Pass Fail (14) Evidence of newly installed redrive gear oil changed the first 10-hours of use, and every 100-hours thereafter, or as per the manufacturer's recommendations.
- Pass Fail (15) Belt driven redrive defects, damage, wear fatigue, verify tension of redrive belt(s) as per the manufacturer's recommendations, and tighten or adjust as necessary.
- Pass Fail (16) Accessories for apparent defects in security of mounting.
- Pass Fail (17) All systems for improper installation, poor general condition, defects, and insecure attachment.

Landing Gear Group

(f) Each person performing a condition inspection shall inspect (where applicable) the following components of the landing gear group:

- Pass Fail (1) All units for poor condition and insecurity of attachment.
- Pass Fail (2) Linkages, trusses, and members for undue or excessive wear fatigue and distortion.
- Pass Fail (3) Hydraulic brake connections and lines for leakage, and brake fluid level.
- Pass Fail (4) Wheels for cracks, defects, and condition of bearings.
- Pass Fail (5) Tires for wear and cuts.
- Pass Fail (6) Brakes and calipers for improper adjustment.
- Pass Fail (7) Loctite™ Threadlocker (Blue) evidence on brake assembly socket head cap screw threads.
- Pass Fail (8) Floats and skis for insecure attachment and obvious or apparent defects.

Rotor System Group

(g) Each person performing a condition inspection shall inspect (where applicable) all components of the rotor system group:

- Pass Fail (1) For poor general condition, fabric or skin deterioration, chips or cracks, damage, distortion, evidence of failure, and insecurity of tower height parts, stainless steel barrel, or blade retention hardware, and distortion or elongation of blade retention holes.
- Pass Fail (2) Center section hub bar barrel set screw evidence of Loctite Threadlocker Blue on threads, and incorrect torque value.
- Pass Fail (3) Rotor system out of track and/or barrel chordwise balance.

Hull and Fiberglass Parts Group

(h) Each person performing a condition inspection shall inspect (where applicable) all components that make up the hull and fiberglass parts group:

Pass Fail (1) All fiberglass fabric and skin for deterioration, distortion, other evidence of failure, and defective or insecure attachment of fittings, improper component installation, and improper component operation. NOTE: Fiberglass fabric may include, but is not limited to, the hull, cowling, airframe enclosure, instrument pod or panel, and wheel pants or fairing.

Propeller Group

(i) Each person performing a condition inspection shall inspect (where applicable) the following components of the propeller group:

Pass Fail (1) Propeller assembly for cracks, nicks, binds, and oil leakage.

Pass Fail (2) Bolts for incorrect torque value and lack of safetying (safety wire).

Pass Fail (3) Improper propeller tip clearance from keel (proper clearance is 1" to 1-1/4").

Pass Fail (4) Control mechanism for improper operation, insecure mounting, and restricted travel.

Electrical System and Radio Group

(j) Each person performing a condition inspection shall inspect (where applicable) the following components of the electrical system and radio group:

Pass Fail (1) Radio, instruments, and electronic equipment for improper installation and insecure mounting.

Pass Fail (2) Wiring and conduits for improper routing, insecure mounting, and obvious defects.

Pass Fail (3) Bonding and shielding for improper installation and poor condition.

Pass Fail (4) Electrical system for chafing, incorrect connections, or improper operation of switches.

Pass Fail (5) Antenna including trailing antenna for poor condition, insecure mounting, and improper operation.

Pass Fail (6) Batteries for corrosion, improper installation and charge.

Miscellaneous Items

(k) Each person performing a condition inspection shall inspect (where applicable) each installed miscellaneous item that is not otherwise covered by this listing for improper installation and improper operation.

Pass Fail (1) _____

Pass Fail (2) _____

Pass Fail (3) _____

Pass Fail (4) _____

Pass Fail (5) _____

Pass Fail (6) _____

Notes of Fail and Unairworthy Items

Notes and explanation of fail and unairworthy items found:

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