

**Type Inspection Report
Part I
Rotorcraft Ground Inspection**

TIA No: _____

Dated: _____

APPLICANT:

Address: _____

ROTOCRAFT:

Model _____ Identification No. _____

Serial No. _____

TC Data Sheet or Aircraft Specification _____

Basis for Certification, FAR _____ Dated _____

Amendments _____

MODIFIED BY:

Address _____

Alteration Description: _____

Reports Consists of, Pages _____

Attachments _____

Inspections Conducted By: _____

Report Prepared by _____ Date _____

Reviewed by _____ Date _____

Approved by _____ Date _____

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GENERAL INSTRUCTIONS

- A. This report provides a means whereby manufacturing inspectors, as part of their type certification responsibilities, may record the results of investigations of prototype or modified rotorcraft presented for type certification. The questions contained herein are intended as a guide in determining:
1. That the rotorcraft conforms to the approved type design data furnished by the applicant
 2. The suitability of fabrication and inspection methods exercised on the rotorcraft by the applicant
 3. That design features or characteristics which cannot be readily evaluated from technical data are safe for the category in which certification is requested.
 4. The suitability of provisions for accessibility to inspect and service the rotorcraft
 5. The preflight inspection program to be conducted prior to the release of a rotorcraft for FAA flight test evaluation

The manufacturing inspector will conduct those inspections required by Type Inspection Authorization, FAA Form 8110-1, and such other inspections as are considered necessary to establish that the rotorcraft conforms to the approved type design and is safe for operation. These inspections will be conducted in accordance with Handbook 8110.0

- B. The items which are recorded within this report may be referred to at a future date to determine the inspections conducted, the results of these inspections, corrective action, etc. for a particular item; therefore, it is essential that all entries in this report be clear, concise and self-explanatory.
- C. The results of investigations and special tests, such as static, endurance, operational, pressure, functional and reliability, conducted or witnessed by manufacturing inspectors on the basis of instructions contained in Item 18 of the type inspection authorization and/or other written requests, will be recorded on page 8 titled "TIA Comments". The TIA item number and item description will be listed directly below the TIA item description.
- D. Each question itemized in this report should be answered with an appropriate "yes" or "no", entered on the line provided. When the answer to a question denotes that an action is required to render the item acceptable, the line following the "yes" – "no" line will be checked. When an action is required, an additional page (s) will be used to list the unsatisfactory conditions found during inspection, with reference to any letters or conformity inspection reports relative to the item. The page(s) will be numbered with the page number on which the question appears plus a letter, i.e., 10a, 10b, etc. The item number will be used as a heading and the unsatisfactory conditions will be numerically listed with sufficient space between each entry to note the corrective action taken. When the item has been reinspected, the previous answer to the question will be crossed out and the new answer entered above it; i.e., yes/no. This will be done for each inspection until the item is acceptable to the product being inspected, the abbreviation "NA", denoting "not applicable", will be entered on the line provided for the answer to the question. Pages containing only inapplicable questions may be omitted, and the page numbers that are submitted in this report (pages omitted may be listed if more convenient) will be indicated in the space provided on page one.

- E. The applicant's weight and balance report may be used in lieu of the weight and dimensional page of this form, provided it contains all of the information requested. An equipment list with enough duplicates for each copy of the FAA Form 8110-4 submitted, setting forth where pertinent, the make, model, serial number and a notation to identify the equipment as either "required" or "optional" for each item. A copy of this list shall be affixed as an attachment to this report. When any part of this list is part of the weight and balance report, the weight of each item and the horizontal distance from the datum line should likewise be shown. This list should include only significant items or accessories; i.e., those of a type that could have an adverse effect on the airworthiness or operational characteristics of the rotorcraft if replaced by other items; the acceptability of which have not been determined. For example, this list shall include, but not necessarily be limited to seats, safety belts, fire extinguishers, electronic equipment, electric motors, instruments, wheels and brakes, tires, skis, floats, superchargers, heaters, engines, starters, generators, etc. When concerned with alteration of rotorcraft under the supplemental type certification program, it is especially important to consider this list.
- F. This report is prepared in a form which includes manufacturing inspection items and a reference to the applicable FAR. Some sections are interrelated, and future FAR revisions may modify the requirements of an item. It is essential that the specific FAR, applicable to the rotorcraft involved, be reviewed to insure a complete and effective inspection.
- G. FAA Form 8110-4 has been prepared for use on rotorcraft and rotorcraft systems as a guideline for conformity and compliance inspection. Many inspections and tests will be witnessed or participated in which are not covered by questions listed here. It is, therefore, important that all inspections and all changes to the rotorcraft and/or type design data resulting from these inspections be recorded and made a part of this report.
- H. When this form is used in conjunction with a program which involves a rotorcraft being certified under CAR 6 or 7, the FAR reference should be crossed out and the equivalent CAR reference should be inserted.
- I. The section provided on page one for signatures shall be signed by the responsible persons with their title noted below the line provided. When more than one inspector participates in completing this report, they shall all enter their signatures and titles on page one. The individual inspector shall also insert his initials along with those answers or determinations that he provides within the report.
- J. It will be difficult to keep this form current with the additions, deletions, and revision to the FAR requirements. The Washington Quality Standards Branch welcomes any suggestions for improvement in this reporting form which will result in a more accurate presentation of the manufacturing inspector(s) accomplishments in the type certification area.

ADMINISTRATIVE DATA

A. Period of Inspection _____ To _____

B. Where Conducted _____

C. Check in Appropriate Block, the FAA Forms that have been submitted by the Applicant:

Statement of Conformity dated: _____

Major Repair and Alteration Form dated: _____

D. Does the applicant's inspection system assure that the materials and parts used in the product and test articles are in conformity with data approved or submitted for FAA approval? Yes
No

E. Does the applicant maintain records of the inspections conducted on the product and test articles to substantiate his statement of conformity? Yes No

F. Record Number of Conformity Inspections (FAA Form 8110-1):

Inspected By:	Satisfactory	Unsatisfactory	Total
ASI			
DMIR			
(Other)			

G. Record number of unresolved unsatisfactory FAA Form 8110-1's

H. Description of rotorcraft inspected _____

I. Is TC or STC Approval recommended? Yes No

GROUND INSPECTION

1. ACTUAL EMPTY WEIGHT AND CENTER OF GRAVITY LOCATION

1.0 Describe Leveling Means (Ref. FAR 27.871, 29.871)

1.1 Location of Datum _____

1.2 Items required prior to weighing (Ref. FAR 27.29, 29.29)

	Item	Volume Gal.	Weight Lbs.
Fixed Ballast			
Unusable Fuel			
Undrainable Oil			
Engine Coolant			
Hydraulic Fluid			

1.2.1 Actual Empty Weight

	Weight Lbs.	Horizontal Distance from Datum (Inches)	Moment
Fw'd Left Scale			
Fw'd Right Scale			
Rear Left Scale			
Rear Right Scale			
Auxiliary Scale			

Total _____

1.2.2 Empty Weight C.G. is _____ inches (fw'd) (Aft) of Datum.

1.2.3 Aircraft weighed was in conformity to:

- (a) Drawing List (MDL) & Rev No. _____ Dated _____
(b) Equipment List & Rev No. _____ Dated _____

1.2.4 Aircraft Weighed Manufacture Serial No(s). _____

NOTE 1: See page 4, Item E for Weight and Balance Information

TIA- COMMENTS

Note: See page 3, item C for general instructions

2.0 <u>Fabrication Processes</u>		<u>Answer.</u>	<u>Check if Action is Required</u>
2.1	Have the chemical and physical properties of materials used in the fabrication of major and/or critical parts been satisfactory substantiated to assure conformity with material requirements of the related data? FAR 21.33 27.603 29.603		
2.2	Has the heat treatment of major and/or critical parts been adequately controlled to assure the fabrication of these parts in accordance with pertinent requirements of approved data? FAR 21.33 27.605 29.605		
2.3	Has welding and brazing of major and/or critical parts been adequately controlled to assure fabrication of these parts in accordance with pertinent requirements of the approved data? FAR 21.33 27.605 29.605		
2.4	Have special techniques (i.e., structural shotpeening, etching, etc.) on major and/or critical parts been adequately controlled to assure fabrication of these parts in accordance with pertinent requirements of the approved data? FAR 21.33 27.605 29.605		
2.5	Have special forming processes (explosive, magnetic, etc.) on major and/or critical parts been adequately controlled to assure processing according to related specifications and fabrication in accordance with pertinent requirements of the approved data? FAR 21.33 27.605 29.605		
2.6	Have processes for manufacturing or forming of special materials (i.e., plastics, phenolics, fiberglass, etc.) for major and/or critical parts been adequately controlled to assure fabrication of these parts in accordance with pertinent		
2.7	Has application of protective treatments to major and/or critical parts been adequately controlled to assure conformity with pertinent requirements of the approved data? FAR 21.33 27.605 29.605		
2.8	Have processes for bonding, or gluing of major and/or critical parts been adequately controlled to assure conformity with pertinent requirements of the approved data? FAR 21.33 27.605 29.605		
2.9	Have processes for sealing and finishing of major and/or critical parts been adequately controlled to assure conformity with pertinent requirements of the approved data? FAR 21.33 27.605 29.605		

2.10 List, by specification or drawing number below, any critical special process or fabrication method used, that is not covered in this section.

3.0 <u>Inspection-General</u>		<u>Answer</u>	<u>Check if Action is Required</u>
3.1	Are drawings, specifications, equipment, lists, and other type design available for inspection of the prototype product? FAR 21.33 27.605 29.605		
3.2	Has a method been established to update these data to show the latest type design changes? FAR 21.33 27.605 29.605		
3.3	Has a method been established to show the status of these changes relative to the prototype article and parts thereof? FAR 21.33 27.605 29.605		
3.4	Are deviations from the type design being recorded? FAR 21.33 27.605 29.605		
3.5	Are parts and assemblies properly stamped, marked or otherwise identified to indicate the inspection status during various stages of fabrication? FAR 21.33 27.605 29.605		
3.6	Are major components, for which a service life or retirement period has or will be established, identified by serial number or equivalent means? FAR 27.1529 29.1529		
3.7	Does inspection of procured items show that they are in conformity with the vendor's drawings and/or the applicant's specification drawings? FAR 27.621 29.621		
3.8	Have critical castings received 100 percent inspection by visual, radiographic, and magnetic particle or penetrate inspection or approved equivalent nondestructive inspection methods? FAR 27.621 29.621		
3.9	Have noncritical castings been inspected in accordance with the following table:		

Casting Factor

(a) 2.0 or more

(b) Less than 2.0 greater than 1.5

(c) 1.25 through 1.50

Inspection

100 percent visual

100 percent visual, and magnetic particle (ferromagnetic materials), penetrant (nonferromagnetic materials), or approved equivalent inspection methods.

100 percent visual, and magnetic particle (ferromagnetic materials), penetrant (nonferromagnetic materials), and radiographic or approved equivalent inspection methods.

4.0 Airframe			
4.1	General	<u>Answer</u>	Check if Action is Required
4.1.1	Are nonmetallic external components protected against erosion? FAR 27.609 29.609		
4.1.2	Have adequate drainage provisions been provided to prevent the accumulation of fuel, water, hydraulic oil, etc.? FAR 27.609 29.609		
4.1.3	Have adequate ventilation provisions been provided to prevent the accumulation of fumes, smoke, gasses, etc.? FAR 27.609 29.609		
4.1.4	Have all members of the structures been suitably protected against deterioration or loss of strength in service due to weathering, corrosion, and abrasion? FAR 27.609 29.609		
4.1.5	Have adequate inspection openings, doors, and access panels been provided to allow close examination of and access to, each part requiring recurring inspection, adjustments for proper alignment and function or lubrication? FAR 27.611 29.609		
4.2 Fuselage			
4.2.1	Have rivets been driven in accordance with acceptable standards? FAR 27.603 29.603 27.605 29.605		
4.2.2	Have bolts been installed in accordance with acceptable standards with respect to proper length, washer, nuts, fits, finish, etc.? FAR 27.603 29.603 27.605 29.605		
4.2.3	Are self-locking nuts used on any bolt subject to rotation during aircraft operation? FAR 27.607 29.607		
4.2.4	Do detail parts fit into subassemblies without being forced or sprung? FAR 27.603 29.603 27.605 29.605		
4.2.5	Do subassemblies fit the fuselage assembly without being forced or sprung? FAR 27.603 29.603 27.603 29.605		

<u>4.2 Fuselage (Cont.)</u>		<u>Answer</u>	Check if Action Required
4.2.6	Are major attachment points of the wing, empennage, landing gear, power plant, etc., adequately controlled to insure proper alignment when mated? FAR 27.603 29.603 27.605 29.605		
4.2.7	Are structural panels such as bulkhead, spar and beam webs and outside skin panels, free from buckles or wrinkles? FAR 27.603 29.603 27.605 29.605		
4.2.8	Do access doors, hatches, etc., fit and operate properly? FAR 27.603 29.603 27.605 29.605		
4.2.9	Are there any questionable design items? FAR 27.601 29.601		
<u>4.3 Wings</u>			
4.3.1	Have rivets been driven in accordance with acceptable standards? FAR 27.605 29.605		
4.3.2	Have bolts been installed in accordance with acceptable standards with respect to proper length, washer, nut, hole size, finish, etc.? FAR 27.605 29.605		
4.3.3	Are self-locking nuts used on any bolt subject to rotation during rotorcraft operation?		
4.3.4	Do detail parts fit into subassemblies without being forced or sprung? FAR 27.605 29.605		
4.3.5	Do subassemblies fit the wing assembly without being forced or sprung? FAR 27.605 29.605		
4.3.6	Are major attachment points of fuselage landing gear, etc., adequately controlled to insure proper alignment when assembled to corresponding structures? FAR 27.605 29.605		
4.3.7	Are structural panels such as spar webs, rib webs, and skin panels free from buckles or wrinkles? FAR 27.605 29.605		

4.3 <u>Wings (Cont.)</u>		<u>Answer</u>	Check if Action Required
4.3.8	Are adequate inspection openings, doors, or access panels being provided to allow close examination of each part requiring recurring inspection, adjustments for proper alignment and function or lubrication? FAR 27.611 29.611		
4.3.9	Has wing alignment been properly controlled?		
4.3.10	Are adequate ventilation and drainage provisions being provided? FAR 27.609 29.609		
4.3.11	Are there any questionable design items? FAR 27.605 29.605		
4.4 <u>Stabilizers</u>			
4.4.1	Have rivets been driven in accordance with acceptable standards? FAR 27.605 29.605		
4.4.2	Have bolts been installed in accordance with acceptable standards with respect to proper length, washers, nuts, hole size, finish, etc.? FAR 27.605 29.605		
4.4.3	Are self-locking nuts used on any bolt subject to rotation during rotorcraft operations? FAR 27.607 29.607		
4.4.4	Do detail parts fit onto subassemblies without being forced or sprung? FAR 27.605 29.605		
4.4.5	Do assemblies fit the stabilizer assemblies without being forced or sprung? FAR 27.605 29.605		
4.4.6	Are major attachment points of the stabilizers adequately controlled to insure proper alignment when assembled to corresponding structure? FAR 27.605 29.605		
4.4.7	Are adequate inspection openings, door and/or access panels provided to allow close examination of each part requiring recurring inspection, adjustments for proper alignment and function or lubrication? FAR 27.605 29.605		
4.4.8	Are structural panels such as spar webs, rib webs, skin panels, etc., free from buckles or wrinkles? FAR 27.605 29.605		
4.4.9	Has the stabilizer alignment been properly controlled? FAR 27.605 29.605		

4.4 Stabilizers (Cont.)		<u>Answer</u>	Check if Action Required
4.4.10	Are positive stops provided to limit the range of motion of a movable stabilizer? FAR 27.675 29.675		
4.4.11	Are adequate drainage provisions provided for the stabilizer ? FAR 27.675 29.675		
4.4.12	Ate there any questionable design items? FAR 27.601 29.601		
4.5 Rotor Blades			
4.5.1	Have rivets been driven in accordance with acceptable standards? FAR 27.605 29.605		
4.5.2	Have bolts been installed in accordance with acceptable standards with respect to proper length, washers, nuts, hole size, finish, etc.? FAR 27.605 29.607		
4.5.3	Are self-locking nuts being used on any bolt subject to rotation during operation?		
4.5.4	Do detail parts fit into subassemblies without being forced or sprung? FAR 27.605 29.605		
4.5.5	Do subassemblies fit the rotor blade assembly without being forced or sprung? FAR 27.605 29.605		
4.5.6	Is a means provided for venting the internal pressure of the rotor blades? FAR 27.653 29.653		
4.5.7	Are drainage holes provided for the rotor blades? FAR 27.653 29.653		
4.5.8	Are there any areas within the rotor blades where water can be trapped? FAR 27.653 29.653		
4.5.9	Is the aerodynamic contour of the rotor blades within the tolerances of approved data? FAR 27.605 29.605		
4.5.10	Ate the rotor blade weights in accordance with approved data? FAR 27.605 29.605		
4.5.11	Are the rotor blades balanced in accordance with approved data? FAR 27.605 29.605		
4.5.12	Is the alignment of the rotor blades in accordance with approved data? FAR 27.601 29.601		
4.5.13	Are there any questionable design items? FAR 27.601 29.601		

5.0 <u>Flight Control System</u>		<u>Answer</u>	Check if Action is Required
5.1	Do all flight controls operate with ease, smoothness, and positiveness throughout their maximum limits?		
5.2	Is each element of each flight control system designed, or distinctively and permanently marked, to minimize the probability of incorrect assembly that could result in the malfunctioning of the system? FAR 27.671 29.671		
5.3	Are stops provided for all flight controls and is there positive engagement to limit the range of motion of the controls? FAR 27.675 29.675		
5.4	Does each main rotor blade have stops, which limit its travel about hinges? FAR 27.675 29.675		
5.5	Is a means provided to prevent the blades from hitting the droop stops during any operation other than starting and stopping the rotor? FAR 27.675 29.675		
5.6	Do the droop stops prevent the blades from striking any part of the structure during starting or stopping of the rotor? FAR 27.661 29.661		
5.7	Does a functional check show that the control system locks operate as placarded or marked? FAR 27.661 29.661		
5.8	Has a means been provided to prevent the control system locks from engaging during flight? FAR 27.679 29.679		
5.9	Does an operational check show that the flight control system is free from jamming, excessive friction, and excessive deflection when the controls are operated from the pilots compartment with the control system loaded with loads specified for the system?		
5.10	Is the control system protected from jamming, chafing and interference by cargo, passengers, or loose objects? FAR 27.685 29.685		
5.11	Are means provided in the cockpit to prevent the entry of foreign objects into places where they would jam the control system? FAR 27.685 29.685		
5.0 <u>Flight Controls System Cont.</u>		<u>Answer</u>	Check if Action is Required
5.12	Are means provided to prevent the slapping of cables or tubes against other parts? FAR 27.685 29.685		
5.13	Are the control pulleys provided with guards to prevent the cables from being misplaced or fouled?		

	FAR 27.685 29.685		
5.14	Do the control pulleys lie in a plane passing through the cable so that the cable does not rub against the pulley flange? FAR 27.685 29.685		
5.15	Are there any fairlead installation which change the cable direction more than 3 degrees? FAR 27.685 29.685		
5.16	Are there any clevis pins in the control system subject to load or motion which are retained only by cotter pins? FAR 27.685 29.685		
5.17	Are turnbuckles and push rods attached to parts having angular in a manner that will positively prevent binding or bending throughout the range of travel? FAR 27.685 29.685		
5.18	Where cable systems are used, are provisions provided for the visual inspection of fairleads, pulleys, terminals, and turnbuckles? FAR 27.611 29.611		
5.19	Are there any questionable design items? FAR 27.601 29.601		
6.0 Landing Gear			
6.1	General		
6.1.1	Is the landing gear suitability protected against deterioration or loss of strength in service due to weathering, corrosion, abrasion, etc.? FAR 27.609 29.609		
6.1.2	Are fluid lines, cables and electrical lines attached to the landing gear suitability protected against damage by stones, slush, water, ice, etc.? FAR 27.609 29.609		
6.1.3	Are self-locking nuts being used on any bolt subject to rotation during landing gear operation? FAR 27.607 29.607		
6.1.4	Are the wheels, tires and brakes as specified per the related drawings and installed in accordance with this data? FAR 27.731 through 735 & 29.731 through 735		
6.2 Landing Gear Installation			
6.2.1	Did the retractable landing gear operational tests demonstrate proper functioning of the landing gear and landing gear door installations throughout the retraction and extension cycles? FAR 29.729		
6.2.2	Did the emergency extension system ground tests demonstrate proper extension of the landing gear? FAR 29.729		
6.2.3	Is a positive means provided to lock the landing gear in the extended position? FAR 29.729		
6.2.4	Is a means provided to indicate, to the pilot, when the landing is		

	secured in the extended or retracted position? FAR 29.729		
6.3 <u>Ski Installation</u>			
6.3.1	Are the skis fabricated and installed in accordance with approved data? FAR 27.737 29.737		
6.3.2	Are the stabilizing means adjusted to maintain the skis in an appropriate position during flight? FAR 27.737 29.737		
6.4 <u>Float Installation</u>			
6.4.1	Are the floats fabricated and installed in accordance with approved data? FAR 27.751 29.751		
7.0 <u>Personnel and Cargo Accommodations</u>			
7.1	Is there a suitable means to prevent passengers from entering the pilot compartment without permission? FAR 29.771		
7.2	Is the windshield and window panels in the pilot compartment clear and free of distortions? FAR 27.773 29.773		
7.3	Is nonsplintering safety glass used in glass windshields and windows? FAR 27.775 29.775		
7.4	Is there a means for locking crew and external passenger doors and for preventing their opening in flight inadvertently or as a result of mechanical failure? FAR 29.783		

7.0 Personnel and Cargo Accommodation Cont.		<u>Answer</u>	Check if Action is Required
7.5	Can the external doors be readily unlocked and opened from inside and outside the cabin with the rotorcraft on the ground? FAR 29.783		
7.6	Is the means of opening the external doors simple, obvious, and so arranged and marked that it can be readily located and operated? FAR 29.783		
7.7	Are direct visual inspection means provided to determine whether the external doors (including passenger, crew service and cargo doors) are fully locked? FAR 29.783		
7.8	Is a visual means provided to signal to appropriate crewmembers when normally used external doors are closed and fully locked? FAR 29.783		
7.9	Is each seat in accordance with approved data? FAR 27.785 29.785		
7.10	Is each occupant protected from head injury? FAR 29.785		
7.11	Is there a means provided along each aisle to enable occupant's to steady themselves while using the aisle in moderately rough air, such as hand grip or rail along each aisle or a firm hand hold on each seat back? FAR 29.785		
7.12	Is each projecting object that would injure persons seated or moving about the rotorcraft on normal flight padded? FAR 29.785		
7.13	Are cargo and baggage compartments placarded in accordance with approved data? FAR 27.787 29.787		
7.14	Are emergency exits openable from the inside and outside of the cabin without undue effort? FAR 29.809		
7.15	In each emergency exit that is more than six feet from the ground with the rotorcraft on the ground and the landing gear extended provided with a means to assist the occupants to the ground? FAR 27.807 29.809		
7.16	Is each emergency exit, its means of access, and its means of opening conspicuously marked? FAR 29.811		

7.0 <u>Personnel and Cargo Accommodation Cont.</u>		<u>Answer</u>	Check if Action is Required
7.17	Is the means of opening the emergency exits simple, obvious and so arranged and marked so that they can be readily located and operate, even in darkness? FAR 27.807 29.811		
7.18	Is the identity and location of each emergency exit recognizable from a distance equal to the width of the cabin? FAR 29.811		
7.19	Is the location of each emergency exit operating handle and the instructions for opening marked on or adjacent to the emergency exit? FAR 29.811		
7.20	Are these markings and instructions required by item 7.19 readable from a distance of 30 inches? FAR 29.811		
7.21	Is a source of light, independent of the main lighting system, installed to illuminate each emergency exit marking? FAR 29.811		
7.22	Is each emergency exit and its means of opening marked on the outside of the rotorcraft? FAR 29.811		
8.0 <u>Ventilation and Heating</u>			
8.1	Is the installation of the ventilation and heating system in accordance with approved data? FAR 27.831 29.831		
8.2	Are the ventilation and heating controls placarded and marked in accordance with approved data? FAR 27.1555 29.1555		
8.3	Is each combustion heater approved and installed in accordance with the approved data? FAR 29.833		
9.0 <u>Fire Protection-Compartment Interiors</u>			
9.1	Are the materials used for compartment interiors in accordance with approved data? FAR 27.853 29.853		
9.2	Are compartments where smoking is to be prohibited so placarded? FAR 27.853 29.853		
9.3	Does each towel, paper and waste receptacle have a means for containing possible fires? FAR 28.853		

9.0 <u>Fire Protection-Compartment Interiors (Cont.)</u>		<u>Answer</u>	Check if Action is Required
9.4	Is there at least one hand fire extinguisher for use by the flight crewmembers? FAR 29.853		
9.5	Are the required number of hand fire extinguishers located in the passenger compartments? FAR 29.823		
9.6	Are controls, wiring, fluid lines, equipment or accessories whose damage or failure would affect safe operation, protected so that they cannot be damaged by cargo or baggage and their breakage or failure will not create a fire hazard?		
9.7	Are inaccessible cargo and baggage compartments adequate to contain compartment fires until landing and safe evacuation can be made? FAR 27.855 29.855		
9.8	Are the combustion heater fire zones protected from fire? FAR 27.859 29.859		
9.9	Are the ventilation and combustion air ducts adjacent to the heater of fireproof material and installed in accordance with approved data? FAR 27.859 29.859		
9.10	Do the heater installation fuel drains permit safe drainage clear of the rotorcraft? FAR 29.859		
9.11	Is each part of the structure, controls, and the rotor mechanism and other parts essential to controlled landing and (for category A) flight that would be affected by powerplant fires: <ul style="list-style-type: none"> a. Fireproof for category "A" rotorcraft or, b. Protected so that they can perform their essential functions for at least five minutes under any foreseeable powerplant fire condition for category "B" rotorcraft and Part 27 rotorcraft. FAR 27.861 29.861		
9.12	Is a means provided to prevent the ignition by any equipment of flammable fluids or vapors, resulting from the leakage of fluid systems, or to control any fire resulting from that ignition? FAR 29.863		

10.0 <u>Powerplant</u>		<u>Answer</u>	Check if Action is Required
10.1 General			
10.1.1	Is (Are) the engines(s) type certificated? TC No. _____ FAR 27.903 29.903		
10.1.2	Is (Are) the propeller(s) type certificated? TC No. _____ FAR _____		
10.1.3	Are the powerplant components and accessories installed in accordance with approved data? FAR 27.901 29.901		
10.1.4	Is a means provided to allow the close examination of each part requiring inspection, adjustments for proper alignment and function or lubrication? FAR 27.611 29.611 27.901 29.901		
10.1.5	Are major components of the powerplant installation electrically bonded to other parts of the rotorcraft? FAR 27.901 29.901		
10.1.6	Are any self-locking nuts used on any bolt subject to rotation in operation? FAR 27.607 29.607		
10.1.7	Does a ground operational test show that all powerplant components and accessories are operating successfully? FAR 27.901 29.901		
10.2 <u>Rotor Drive System</u>			
10.2.1	Is the rotor drive systems installed in accordance with approved data? FAR 27.917 29.917		
10.2.2	Is a means provided to allow the close examination of each rotor drive part requiring recurring inspection, adjustment for proper alignment and function or lubrication? FAR 27.611 29.611		
10.2.3	Is the rotor brake control adequately placarded and provided with a guard to prevent inadvertent operation? FAR 27.921 29.921		
10.3 <u>Fuel Systems</u>			
10.3.1	Is the fuel systems installed in accordance with approved data? FAR 27.951 29.951		

10.3 <u>Fuel System (Cont.)</u>		<u>Answer</u>	Check if Action is Required
10.3.2	Does a ground operational check indicate that the fuel system operates satisfactorily? FAR 27.951 29.951		
10.3.3	Is a means provided to warn the crew before overflow through the vents occurs? FAR 29.957		
10.3.4	Are the fuel tanks constructed, installed, and sealed in accordance with approved data? FAR 27.963 29.963 29.967		
10.3.5	Is there at least one-half inch of clearance between any fuel tank and any firewall? FAR 27.963 29.963		
10.3.6	Are the spaces adjacent to the surfaces of fuel tanks ventilated? FAR 27.963 29.967		
10.3.7	Can the fuel tank expansion space be filled with the rotorcraft in the normal ground attitude? FAR 27.969 29.969		
10.3.8	Is each fuel tank filler connection installed in a manner which will prevent the entrance of fuel into any part of the rotorcraft other than the tank? FAR 27.973 29.973		
10.3.9	Does each tank have a positive locking drain that allows the complete drainage of the fuel tank sump? FAR 27.971 29.971		
10.3.10	Does the fuel tank sump drain discharge clear of the rotorcraft? FAR 29.971		
10.3.11	Is each recessed fuel tank filler connection that can retain any appreciable quantity of fuel provided with a drain that discharges clear of the rotorcraft? FAR 29.973		
10.3.12	Is each fuel filler cover marked on r near with the word "fuel", the minimum fuel grade or designation approved for the engines, and the useable fuel capacity? FAR 27.1557 29.973 29.1557		
10.3.13	Does each filler cap provide a fuel tight seal? FAR 27.953 29.973		

10.3 <u>Fuel System (Cont.)</u>		<u>Answer</u>	Check if Action is Required
10.3.14	Does each fill cap or filler cap cover installed on category “A” rotorcraft warn when the cap is not fully locked or sealed on the filler connection? FAR 29.973		
10.3.15	Is there any point on any fuel vent line where moisture can accumulate with the rotorcraft in the ground attitude or level flight attitude? FAR 27.975 29.975		
10.3.16	Are the vent and drain line outlets located in a position where the discharge of fuel or vapor would not constitute a fire hazard or allow fumes to enter a personnel compartment? FAR 29.975		
10.3.17	Are the fuel strainers accessible for inspection and cleaning? FAR 29.977		
10.3.18	Does an operational check of each fueling connection below the fuel level in each tank show it to be operating satisfactorily? FAR 29.979		
10.3.19	Do the emergency pumps function in accordance with the placards located at the controls? FAR 27.991 29.991		
10.3.20	Are the fuel lines installed and supported to prevent excessive vibration and motion due to fuel pressure and accelerated flight conditions? FAR 27.993 29.993		
10.3.21	Do fuel lines connected to components of the rotorcraft between which relative motion could exist have provisions for flexibility? FAR 27.993 29.993		
10.3.22	Does each fuel valve have positive stops or suitable index provisions in the “on” and “off” positions? FAR 27.995 29.995		
10.3.23	Can drainage of the fuel system be accomplished by the use of fuel strainer and fuel tank sump drains with the rotorcraft in the normal ground attitude? FAR 29.999		

10.3 <u>Fuel System (Cont.)</u>		<u>Answer</u>	Check if Action is Required
10.3.24	Is there at least one accessible positive locking drain at the lowest point in each fuel system to completely drain the system with the rotorcraft in the normal ground attitude? FAR 27.999		
10.3.25	Do the fuel system drain provisions discharge clear of the entire rotorcraft? FAR 27.999 29.999		
10.4 <u>Oil System</u>			
10.4.1	Is the oil system installed in accordance with the approved data? FAR 27.1011 29.1011		
10.4.2	Can the oil tank expansion space be filled with the rotorcraft in the normal ground attitude? FAR 27.1013 29.1013		
10.4.3	Is each recessed oil tank filler connection that can retain any appreciable quantity of oil have a drain that discharges clear of the rotorcraft? FAR 29.1013		
10.4.4	Is each oil tank filler marked with the word "oil" and the oil capacity? FAR 27.1557 29.1013 29.1017		
10.4.5	Does each filler cap provide an oil-tight seal? FAR 29.1013		
10.4.6	Are the oil lines and oil tank vents routed so that condensed water that might freeze and obstruct the line cannot accumulate at any point? FAR 29.993 29.1017		
10.4.7	Are the oil lines installed and supported to prevent excessive vibration and motion due to oil pressure and accelerated flight conditions? FAR 27.1017 29.993 29.1017		
10.4.8	Do oil lines connected to components of the rotorcraft between which relative motion could exist have provisions for flexibility? FAR 27.1017 29.993 29.1017		
10.4.9	Is there at least one accessible oil drain which allows the safe drainage of the entire oil system and is provided with a positive locking means in the closed position? FAR 27.1021 29.1021		

10.4 <u>Oil System (Cont.)</u>		<u>Answer</u>	Check if Action is Required
10.4.10	Does each oil valve have positive stops or suitable index provisions in the “on” and “off” positions? FAR 29.1025		
10.5 <u>Induction System</u>			
10.5.1	Are all units of the engine air induction system, including icing protection and induction system screens, fabricated and installed in accordance with approved data? FAR 27.1091 29.1091		
10.5.2	Does the carburetor air preheater installation allow the inspection of exhaust manifold parts that it surrounds and the critical parts of the preheater itself? FAR 29.1101		
10.5.3	Are drains for induction system ducts installed in accordance with approved data and do they discharge in a location which will not cause a fire hazard? FAR 29.1103		
10.6 <u>Exhaust System</u>			
10.6.1	Are the exhaust system components constructed and installed in accordance with the approved data? FAR 27.1121 19.1121		
10.6.2	Are the parts of the rotorcraft upon which hot exhaust gases could impinge or that could be subjected to high temperatures from exhaust system parts constructed of fireproof material or shielded by fireproof material? FAR 29.1121		
10.6.3	Are exhaust gases discharged near any flammable fluid vent or drain? FAR 27.1121 29.1121		
10.6.4	Is each exhaust manifold supported to withstand any vibration and inertia loads to which it may be subjected? FAR 29.1123		
10.6.5	Has a means been provided for the inspection of critical parts of the exhaust heat exchangers? FAR 29.1125		

10.7 <u>Controls and Accessories</u>		<u>Answer</u>	Check if Action is Required
10.7.1	Are the powerplant controls constructed, located, installed, adjusted and marked in accordance with the approved data? FAR 27.1141 29.1141		
10.7.2	Is there a means to warn the crew if the rotor brake had not been completely released before takeoff? FAR 29.1151		
10.7.3	Are all engine mounted engine accessories installed in accordance with the approved data? FAR 27.1163 29.1163		
10.7.4	Is the electrical equipment that is subject to arcing or sparking installed to minimize the probability of contraction any flammable fluids or vapors? FAR 29.1163		
10.8 <u>Fire Protection</u>			
10.8.1	Are all tanks, lines and fittings which contain flammable fluids or gases in a designated fire zone constructed, installed and secured in accordance with approved data? FAR 27.1183 29.1183 27.1185 29.1185		
10.8.2	Can complete drainage and discharge of fluids at each designated fire zone be accomplished to minimize the hazard resulting from the failure or malfunctioning of any component containing flammable fluids? FAR 29.1187		
10.8.3	Is each designated fire zone ventilated to prevent the accumulation of flammable vapors? FAR 27.1187 29.1187		
10.8.4	Are the shutoff valves and controls installed and marked in accordance with approved data? FAR 27.1189 29.1189		
10.8.5	Are firewalls and shrouds constructed and installed in accordance with approved data? FAR 27.1191 29.1191		
10.8.6	Are all openings in firewalls and shrouds provided with close fitting fireproof grommets, bushings, or firewall fittings? FAR 27.1193 29.1193		
10.8.7	Is each part of the cowling provided with a means for rapid and complete drainage in the normal, ground and flight attitudes? FAR 27.1193 29.1193		
10.8.8	Is the cowling and engine compartment constructed and installed in accordance with approved data? FAR 27.1193 29.1193		

10.8 <u>Fire Protection (Cont.)</u>		<u>Answer</u>	Check if Action is Required
10.8.9	Are fire extinguishing systems which are provided for designated fire zones installed in accordance with approved data? FAR 29.1195		
10.8.10	Are visual discharge indicators provided at the discharge end of each discharge line of the fire extinguishing system? FAR 29.1203		
10.8.11	Are all powerplant fire or overheat detector systems installed in accordance with approved data? FAR 29.1203		
11.0 <u>Equipment</u>			
11.1	General- Due to the differences on the minimum equipment requirements of FAR 27 and 29, the following list of instructions and equipment items is provided as a means of recording the inspection of these items. The FAR which requires the particular item is noted for reference purposes only.		

11.2 The answers to the following questions should be noted in the appropriate column. Yes or No

11.2.1 Is the item installed and marked in accordance with approved data?

FAR 27.1301 29.1301
27.1541 29.1541

11.2.2 Does a ground operational check show that the item operates satisfactorily?

FAR 27.1309 29.1309

11.2.3 Is action required as a result of this inspection?

11.2.4 Flight and Navigational Instruments FAR 27.1303 29.1303

<u>Item</u>	<u>FAR Reference</u>		<u>11.2</u>		
	27	29	11.2.1	11.2.2	11.2.3
a. Airspeed Indicator	X	X			
b. Altimeter	X				
c. Altimeter (sensitive)		X			
d. Magnetic Direction Indicator	X	X			
e. Clock (sweep-second)		X			
f. Free Air Temp. Indicator		X			
g. Non-tumbling gyroscopic and pitch indicator		X			
h. Gyroscopic rate-of-turn indicator with bank indicator		X			
i. Gyroscopic Direction Indicator		X			
j. Rate-of-climb (vertical speed) Indicator		X			
k. Electrical Power Indicators	X	X			
l. Hydraulic Pressure Indicator		X			
m. Landing Gear Position Indicator	X	X			

11.2.5 Powerplant Instruments FAR 27.1305 29.1305

a. Carburetor air temperature Indicator	X	X			
b. Cylinder head temp. Indicator	X	X			
c. Fuel Quantity Indicator	X	X			
d. Fuel supply warning Indicator		X			
e. Manifold pressure Indicator	X	X			
f. Gearbox oil pressure warning device	X	X			
g. Engine oil quantity Indicator	X	X			
h. Gearbox oil quantity Indicator		X			
i. Engine oil temp. Indicator	X	X			
j. Gearbox oil temp warning device	X	X			

11.2.5 Powerplant Instruments (Cont.) FAR 27.1305 29.1305

<u>Item</u>	<u>FAR Reference</u>			<u>11.2</u>		
	27	29	11.2.1	11.2.2	11.2.3	
k. Main rotor tachometer	X	X				
l. Engine tachometer	X	X				
m. Fuel pressure indicator	X	X				
n. Fire warning indicator		X				
o. Engine oil pressure indicator	X	X				
p. Emergency pump operation indicator	X					
q. Gas temp. indicator	X					
r. Torque indicator	X					
s. Augmentation liquid quantity indicator		X				

11.2.6 Miscellaneous Equipment FAR 27.1307 29.1307

a. Approved seat (each occupant)	X	X			
b. Approved safety belt (each occupant)	X	X			
c. Electrical master switch	X	X			
d. Electrical protective devices	X	X			
e. Windshield wiper or equivalent		X			
f. Two-way radio equipment		X			
g. Hand fire extinguisher		X			
h. Ignition switch	X	X			
i. Adequate electrical energy source	X	X			

12.0	<u>Electrical System</u>	<u>Answer</u>	Check if Action is Required
12.1	Is the electrical system installed in accordance with approved data? FAR 27.1309 29.1309 27.1351 29.1351		
12.2	Does a ground operational test show that the electrical system adequately performs its intended function? FAR 27.1309 29.1309 27.1351 29.1351		
12.3	Is the electrical system protected from fuel, oil, water, other detrimental substances and mechanical damage? FAR 27.1351 29.1351		
12.4	Are all electrical control devices operated by a crewmember, marked or placarded in accordance with approved? FAR 27.1351 29.1351 27.1301 29.1301 27.1541 29.1541		

12.0 <u>Electrical Systems (Cont.)</u>		<u>Answer</u>	Check if Action is Required
12.5	Are electrical cables, terminals, and equipment in designated fire zones that are used in emergency procedures, fire restraint? FAR 29.1359		
12.6	Is the battery installation provided with adequate drainage and ventilation and enclosed so that no corrosive fluids or gases may damage the surrounding structure or essential equipment? FAR 27.1353 29.1353		
12.7	Are instrument lights installed in accordance with approved data? FAR 27.1381 29.1381		
12.8	Are the landing lights installed in accordance with approved data? FAR 27.1383 29.1383		
12.9	Are position lights installed in accordance with approved data? FAR 27.1401 29.1401		
13.0 <u>Safety Equipment</u>			
13.1	Are the safety equipment release controls, such as flares and automatic life raft releases readily accessible to the crew? FAR 27.1411 29.1411		
13.2	Is each life raft and life preserver installed so that it is readily available to the crew and passengers? FAR 27.1411 29.1411		
13.3	Are the life rafts and life preserver in accordance with approved data? FAR 27.1415 29.1415		
14.0 <u>Miscellaneous Equipment</u>			
14.1	Electronic System		
14.1.1	Is the electronic system installed in accordance with approved data? FAR 27.1309 29.1309 29.1431		
14.1.2	Does a ground operational check show that the electrical system adequately performs its intended function? FAR 27.1309 29.1309 29.1431		
14.1.3	Is the electronic system protected from damage by fuel, oil, water, other detrimental substances and mechanical damage? FAR 27.1309 29.1309 29.1431		

12.0 <u>Electrical Systems (Cont.)</u>		<u>Answer</u>	Check if Action is Required
14.1.5	Are the electronic system controls and wiring installed so that the operation of any one unit or system of units will not adversely affect the simultaneous operation of any other unit or system of units within the aircraft? FAR 27.1309 29.1431		
14.1.6	Are the electronic units properly ventilated? FAR 27.1309 29.1309 29.1431		
14.1.7	Are shock-mounted units provided with adequate clearance between other units or aircraft parts to prevent damage or malfunction? FAR 27.1309 29.1309 29.1431		
14.2 <u>Hydraulic- Pneumatic- Vacuum</u>			
14.2.1	Is the hydraulic system installed in accordance with approved data? FAR 27.1309 29.1309 27.1435 29.1435		
14.2.2	Does a ground operational test show that the hydraulic system adequately performs its intended function? FAR 27.1309 29.1309 27.1435 29.1435		
14.2.3	Is each hydraulic line, fitting and component installed and supported to prevent excessive vibration and damage due to inertia loads? FAR 27.1309 29.1309 27.1435 29.1435		
14.2.4	Has a flexible means been used to connect points in the hydraulic system between which relative motion or differential vibration exists? FAR 27.1309 29.1435 27.1435		
14.2.5	Is each element of the hydraulic system protected from abrasion, corrosion and mechanical damage? FAR 27.1309 29.1435 27.1435		
14.2.6	Are the hydraulic reservoirs and accumulators installed in accordance with approved data? FAR 27.1309 29.1309 27.1435 29.1435		
14.2.7	Are the vacuum air system components in designated fire zones at least fire resistant? FAR 27.1309 29.1433		

15.0 <u>Rotorcraft Identification Data</u>		<u>Answer</u>	Check if Action is Required
15.1	Is the manufacturer's identification plate fireproof and attached in an accessible location where it will not likely be defaced during normal service or be lost or destroyed in the event of an accident? FAR 45.11		
15.2	Does the manufacturer's identification plate contain the data required by FAR 45.13? FAR 45.11		
15.3	Are the aircraft nationality and registration marks in accordance with approved data? FAR 45.21 45.31		