

CESSNA®
MODEL 172 SERIES (1977 - 1986)
SERVICE MANUAL

INSPECTION

1. GENERAL INSPECTION (MODEL 172 AIRPLANES)

NOTE: Cessna Aircraft Company recommends PROGRESSIVE CARE for airplanes flown 200 hours or more per year, and 100-HOUR INSPECTION for airplanes flown less than 200 hours per year.

A. Inspection Requirements.

- (1) Two basic types of inspections are available as defined below:
 - (a) As required by Federal Aviation Regulation Part 91.409(a), all civil airplanes of U.S. registry must undergo an annual inspection each 12 calendar months. In addition airplanes operated commercially (for hire) must also have an annual 100 hour inspection each 100 hours of operation as required by Federal Aviation Regulation Part 91.409(b).
 - (b) In lieu of the above requirements, an airplane may be inspected in accordance with a progressive inspection program in accordance with Federal Aviation Regulation Part 91.409(d), which allows the work load to be divided into smaller operations that can be accomplished in a shorter time period. The CESSNA PROGRESSIVE CARE PROGRAM has been developed to satisfy the requirements of Part 91.409 (d).

B. Inspection Program Selection.

- (1) As a guide for selecting the inspection program that best suits the operation of the airplane, the following is provided:
 - (a) If the airplane is flown less than 200 hours annually, the following conditions apply:
 - 1 If flown for hire.
 - a An airplane operating in this category must be inspected each 100 hours of operation (100-HOUR) and each 12 calendar months of operation (ANNUAL).
 - 2 If not flown for hire.
 - a An airplane operating in this category must be inspected each 12 calendar months of operation (ANNUAL). It is recommended that between annual inspections, all items be inspected at the intervals specified in the Inspection Time Limits Charts and Component Time Limits Charts.
 - (b) If the airplane is flown more than 200 hours annually, the following condition applies:
 - 1 Whether flown for hire or not, it is recommended that airplanes operating in this category be placed on the CESSNA PROGRESSIVE CARE PROGRAM. However, if not placed on the CESSNA PROGRESSIVE CARE PROGRAM, the inspection requirements for airplanes in this category are the same as those defined under Paragraph ab.(1)(a)1a or 1.B.(1)(a)2a. CESSNA PROGRESSIVE CARE PROGRAM may be utilized as a total concept program which ensures that the inspection intervals in the inspection charts are not exceeded. Manuals and forms which are required for conducting the CESSNA PROGRESSIVE CARE PROGRAM inspections are available from the Cessna Supply Division.

C. Inspection Charts.

NOTE: Cessna has prepared these Inspection Charts to assist the owner or operator in meeting the foregoing responsibilities and to meet the intent of Federal Aviation Regulation Part 91.409(d). The Inspection Charts are not intended to be all-inclusive, for no such charts can replace the good judgment of a certified airframe and powerplant mechanic in performance of his duties. As the one primarily responsible for this airworthiness of the airplane, the owner or operator should select only qualified personnel to maintain the airplane.

- (1) The following Inspection Charts (Inspection Time Limits, Component Time Limits, Progressive Care Inspection, and Expanded Inspection) show the recommended intervals at which items are to be inspected based on normal usage under average environmental conditions. Airplanes operated in extremely humid tropics, or in exceptionally cold, damp climates, etc., may need more frequent inspections for wear, corrosion, and lubrication. Under these adverse conditions, perform periodic inspections in compliance with this chart at more frequent intervals until the

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operator can set his own inspection periods based on field experience. The operator's inspection intervals shall not deviate from the inspection time limits shown in this manual except as provided below:

- (a) Each inspection interval can be exceeded by 10 hours or can be performed early at any time prior to the regular interval as provided below:
 - 1 In the event of late compliance of any operation scheduled, the next operation in sequence retains a due point from the time the late operation was originally scheduled.
 - 2 In the event of early compliance of any operation scheduled, that occurs 10 hours or less ahead of schedule, the next phase due point may remain where originally set.
 - 3 In the event of early compliance of any operation scheduled, that occurs more than 10 hours ahead of schedule, the next phase due point must be rescheduled to establish a new due point from the time of early accomplishment.
- (2) As shown in the charts, there are items to be checked at 50 hours, 100 hours, 200 hours, or at Special or Yearly inspection. Special or Yearly inspection items require servicing or inspection at intervals other than 50, 100, or 200 hours. If two inspection time requirements are listed for one inspection item, one hourly and the yearly, both apply and whichever requirement occurs first determines the time limit.
 - (a) When conducting a 50-hour inspection, check all items listed under EACH 50 HOURS. A 100-hour inspection includes all items listed under EACH 50 HOURS and EACH 100 HOURS. The 200-hour inspection includes all items listed under EACH 50 HOURS, EACH 100 HOURS, and EACH 200 HOURS. All of the items listed would be inspected, serviced, or otherwise performed as necessary to ensure compliance with the inspection requirements.
 - (b) A COMPLETE AIRPLANE INSPECTION includes all 50-, 100-, and 200-hour items plus those Special and Yearly Inspection Items which are due at the specified time.
 - (c) Component Time Limits Charts should be checked at each inspection interval to ensure proper overhaul and replacement requirements are accomplished at the specified times.

D. Inspection Guidelines.

- (1) The Inspection Charts are to be used as a recommended inspection outline. Detailed information of systems and components in the airplane will be found in various chapters of this Maintenance Manual and the pertinent vendor publications. It is recommended that reference be made to the applicable portion of this manual for service instructions, installation instructions, and to the vendor's data or publications specifications for torque values, clearances, settings, tolerances, and other requirements.
- (2) For the purpose of this inspection, the term on condition is defined as follows: The necessary inspections and/or checks to determine that a malfunction or failure will not occur prior to the next scheduled inspection.
- (3) MOVABLE PARTS: Inspect for lubrication, servicing, security of attachment, binding, excessive wear, safetying, proper operation, proper adjustment, correct travel, cracked fittings, security of hinges, defective bearings, cleanliness, corrosion, deformation, sealing, and tension.
- (4) FLUID LINES AND HOSES: Inspect for leaks, cracks, bulging, collapsed, twisted, dents, kinks, chafing, proper radius, security, discoloration, bleaching, deterioration, and proper routing rubber hoses for stiffness and metal lines for corrosion.
- (5) METAL PARTS: Inspect for security of attachment, cracks, metal distortion, broken spot welds, condition of paint (especially chips at seams and around fasteners for onset of corrosion) and any other apparent damage.
- (6) WIRING: Inspect for security, chafing, burning, arcing, defective insulation, loose or broken terminals, heat deterioration, and corroded terminals.
- (7) STRUCTURAL FASTENERS: Inspect for correct torque in accordance with applicable torque values. Refer to Bolt Torque Data during installation or when visual inspection indicates the need for a torque check.

NOTE: Torque values listed are not to be used for checking tightness of installed parts during service.

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- (8) FILTERS, SCREENS, AND FLUIDS: Inspect for cleanliness and the need for replacement at specified intervals.
- (9) System check (operation or function) requiring electrical power must be performed using 28.5 ± 0.25 volts bus voltage. This will ensure all components are operating at their designed requirements.
 - (a) Airplane file.
 - 1 Miscellaneous data, information, and licenses are a part of the airplane file. Check that the following documents are up-to-date and in accordance with current Federal Aviation Regulations. Most of the items listed are required by the Federal Aviation Regulations. Since the regulations of other nations may require other documents and data, owners of exported airplanes should check with their own aviation officials to determine their individual requirements.
 - a To be displayed in the airplane at all times:
 - 1. Standard Airworthiness Certificate (FAA Form 8100-2).
 - 2. Aircraft Registration Certificate (FAA Form 8050-3).
 - 3. Aircraft Radio Station License (Federal Communication Commission Form 556 if transmitter is installed).
 - 4. Radio Telephone Station License (Federal Communication Commission Form 409 if Flitephone Radio Telephone is installed).
 - b To be carried in the airplane at all times:
 - 1. Weight and Balance Data Sheets and associated papers (all copies of the Repair and Alteration Form, FAA Form 337, are applicable).
 - 2. Equipment List.
 - 3. Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual.
 - c To be made available upon request:
 - 1. Airframe, Engine, Propeller, and Avionics Maintenance Records.

2. PRE-INSPECTION CHECKS (MODEL 172 AIRPLANES)

- A. Pre-inspection Operational Checks.
 - (1) Before beginning the step-by-step inspection, start and run up the engine and upon completion, shut down the engine in accordance with instructions in the Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual. During the run-up, observe the following, making note of any discrepancies or abnormalities:
 - (a) Engine temperatures and pressures.
 - (b) Static RPM (Also refer to Engine section of this manual).
 - (c) Magneto drop (Also refer to Engine section of this manual).
 - (d) Engine response to changes in power.
 - (e) Any unusual engine noises.
 - (f) Fuel selector and/or shutoff valve operate engine on each tank (or cell) position and OFF position long enough to ensure shutoff and/or selector valve functions properly.
 - (g) Idling speed and mixture proper idle cut-off.
 - (h) Alternator and ammeter.
 - (i) Suction gage.
 - (j) Fuel flow indicator.
 - (2) After the inspection has been completed, an engine run-up should again be performed to determine that any discrepancies or abnormalities have been corrected.
 - (3) Some of the items in the Inspection Time Limits paragraph are optional, therefore not applicable to all airplanes.

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3. INSPECTION TIME LIMITS (MODEL 172 AIRPLANES)

Table 1. INSPECTION TIME LIMITS (MODEL 172 AIRPLANES).

	S.NO		EACH 50 HOURS	EACH 100 HOURS	EACH 200 HOURS	SPECIAL INSPECTION HOURS YEARS	
A	Placards (Refer to Pilot's Operating Handbook).						
A	1	Placards and Decals - Inspect presence, legibility, and security. Consult Pilot's Operating Handbook and FAA-Approved Airplane Flight Manual for required placards.			X		
B	Fuselage (Section 3).						
B	1	Fuselage Surface - Inspect for skin damage, loose rivets, condition of paint, and check pitot-static ports and drain holes for obstruction. Inspect covers and fairings for security.		X			
B	2	Internal Fuselage Structure - Inspect bulkheads, door posts, stringers, doublers, and skins for corrosion, cracks, buckles, and loose rivets, bolts and nuts.			X		
B	3	Control Wheel Lock - Check general condition and operation.			X		
B	4	Fuselage Mounted Equipment - Check for general condition and security of attachment.			X		
B	5	Antennas and Cables - Inspect for security of attachment, connection, and condition.			X		
B	6	Emergency Locator Transmitter - Inspect for security of attachment and check operation by verifying transmitter output. Check cumulative time and useful life of batteries in accordance with FAR Part 91.207. Refer to Emergency Locator Transmitter - Checkout Interval, in the Electrical Systems section of this manual.		X			
B	7	Instrument Panel Shock Mounts, Ground Straps, and Covers - Inspect for deterioration, cracks, and security of attachment.			X		
B	8	Pilot's and Copilot's Inertia Reels - Inspect for security of installation, proper operation, and evidence of damage.		X			

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Table 1. INSPECTION TIME LIMITS (MODEL 172 AIRPLANES). (continued)

	S.NO		EACH 50	EACH 100	EACH 200	SPECIAL INSPECTION	
			HOURS	HOURS	HOURS	HOURS	YEARS
B	9	Seats, Seat Belts, and Shoulder Harnesses - Check general condition and security. Check operation of seat stops and adjustment mechanism. Inspect belts for condition and security of fasteners.		X			
B	10	Windows, Windshield . Doors, and Seals - Inspect general condition. Check latches. hinges, and seals for condition, operation, and security of attachment.		X			
B	11	Upholstery, Headliner, Trim, and Carpeting - Check condition and clean as required.				Each 400	Each 1
B	12	Flight Controls - Check freedom of movement and proper operation through full travel with and without flaps extended. Check electric trim controls for operation (as applicable).		X			
B	13	Aileron, Elevator, and Rudder Stops - Check for damage and security.		X			
B	14	Portable Hand Fire Extinguisher - Inspect for proper operating pressure, condition, security of installation, and servicing date.		X			
B	15	Seat Tracks and Stops - Inspect seat tracks for condition and security of installation. Check seat track stops for damage and correct location. Ensure inspection of seat rails for cracks EACH 50 HOURS. Refer to Fuselage section in this manual.	X				
B	16	Control Column - inspect pulleys, cables, sprockets, bearings, chains, bungees, and turnbuckles for condition.			X		
B	17	Fuel Line and Selector Valve Drain(s) - Remove plug and drain.		X			
B	18	Reel Type Secondary Seat Stops - Make sure manual lock operates correctly.		X			
C	Wings and Empennage (Section 4).						
C	1	Wing Surfaces and Tips - Inspect for skin damage, loose rivets, and condition of paint.		X			

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Table 1. INSPECTION TIME LIMITS (MODEL 172 AIRPLANES). (continued)

	S.NO		EACH 50	EACH 100	EACH 200	SPECIAL INSPECTION	
			HOURS	HOURS	HOURS	HOURS	YEARS
C	2	Wing Struts and Strut Fairings - Check for dents, cracks, loose screws and rivets, and condition of paint.		X			
C	3	Wing Spar and Wing Strut Fittings - Check for evidence of wear Check attach bolts for indications of looseness and retorque as required.			X		
C	4	Wing Structure - Inspect spars, ribs, skins, and stringers for cracks wrinkles loose rivets corrosion or other damage.			X		
C	5	Metal Lines Hoses Clamps and Fittings - Check for leaks condition and security Check for proper routing.			X		
C	6	Wing Access Plates - Check for damage and security of installation.			X		
C	7	Vertical and Horizontal Stabilizers, Tips and Tailcone - Inspect externally for skin damage and condition of paint.		X			
C	8	Vertical and Horizontal Stabilizers and Tailcone Structure - Inspect bulkheads spars, ribs and skins for cracks, wrinkles, loose rivets, corrosion or other damage. Inspect vertical and horizontal stabilizer attach bolts for looseness, retorque as necessary. Check security of inspection covers, fairings and tips.		X			
D	Landing Gear and Brakes (Section 5).						
D	1	Brakes, Master Cylinders, and Parking Brake - Check master cylinders and parking brake mechanism for condition and security. Check fluid level and test operation of toe and parking brake.		X			
D	2	Main Gear Tubular Struts - Inspect for cracks, dents, corrosion, condition of paint or other damage. Check axles for condition and security.		X			
D	3	Brake Lines Wheel Cylinders, Hoses Clamps and Fittings - Check for leaks, condition, and security and hoses for bulges and deterioration. Check brake lines and hoses for proper routing and support.				Each 400	Each 1
D	4	Wheels, Brake Discs and Linings - Inspect for wear, cracks, warps, dents, or other damage. Check wheel thru-bolts and nuts for looseness.		X			

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	S.NO		EACH 50	EACH 100	EACH 200	SPECIAL INSPECTION	
			HOURS	HOURS	HOURS	HOURS	YEARS
D	5	Tires- Check tread wear and general condition. Check for proper inflation.		X			
D	6	Wheel Fairings, Strut Fairings, and Cuffs - Check for cracks, dents, and condition of paint.		X		A	
D	7	Main Landing Gear Attachment Structure - Check for damage, cracks, loose rivets, bolts and nuts and security of attachment.		X			
D	8	Nose Gear Steering Mechanism - Check for wear, security, and proper rigging.			X		
D	9	Nose Gear - Inspect torque links, steering rods , and boots for condition and security of attachment. Check strut for evidence of leakage and proper extension. Check strut barrel for corrosion, pitting, and cleanliness. Check shimmy damper and/or bungees for operation, leakage, and attach points for wear and security.		X			
D	10	Nose Gear Fork - Inspect for cracks, general condition, and security of attachment.			X		
D	11	Wheel Bearings - Clean, inspect and lube.				B	
D	12	Nose Gear Attachment Structure - Inspect for cracks, corrosion, or other damage and security of attachment.		X			
E	Aileron Control System (Section 6).						
E	1	Ailerons and Hinges - Check condition, security and operation.		X			
E	2	Aileron Structure, Control Rods, Hinges, Balance Weights, Bellcranks, Linkage, Bolts, Pulleys, and Pulley Brackets - Check condition, operation, and security of attachment.		X			
E	3	Ailerons and Cables - Check operation and security of stops. Check cables for tension, routing, fraying, corrosion, and turnbuckle safety. Check travel if cable tension requires adjustment or if stops are damaged. Check fairleads and rub strips for condition.			X		

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	S.NO		EACH 50 HOURS	EACH 100 HOURS	EACH 200 HOURS	SPECIAL INSPECTION HOURS YEARS	
E	4	Autopilot Rigging - Check per Avionics Installation Manual.				C	
E	5	Aileron Controls - Check freedom of movement and proper operation through full travel with and without flaps extended.		X			
F	Wing Flap Control System (Section 7).						
F	1	Flaps - Check tracks, rollers, and control rods for security of attachment. Check operation.		X			
F	2	Flap Actuator Threads - Clean and lubricate. Refer to WING FLAP ACTUATOR lubrication for detailed instructions.		X			
F	3	Flap Structure, Linkage, Bellcranks, Pulleys, and Pulley Brackets - Check for condition, operation and security.			X		
F	4	Wing Flap Control - Check operation through full travel and observe Flap Position indicator for proper indication.			X		
F	5	Flaps and Cables - Check cables for proper tension, routing, fraying, corrosion, and turnbuckle safety. Check travel if cable tension requires adjustment.			X		
F	6	Flap Motor, Actuator, and Limit Switches (electric flaps) - Check wiring and terminals for condition and security. Check actuator for condition and security.			X		
G	Elevator Control System (Section 8).						
G	1	Elevator Control - Check freedom of movement and proper operation through full travel with and without flaps extended.		X			
G	2	Elevator, Hinges, and Cable Attachment - Check condition, security, and operation.		X			
G	3	Elevator Control System - Inspect pulleys, cables, sprockets, bearings, chains, and turnbuckles for condition, security, and operation.			X		
H	Elevator Trim Tab Control System (Section 9).						