

50-Hour/100-Hour/Annual Maintenance Inspection Guide



Registration Number:		Serial Number:		Model Number:		Owner's Name:	
Date Started:		Date Completed:		Work Order:		A/C Tach Time: _____	
Eng Model No:		Eng Serial No:				G1000 Time: _____	
Prop Model No:		Prop Serial No:				Hobbs Time: _____	
						Engine Time: _____	
						Calendar Years: _____	
						Oil/Weight: _____	
Mechanic's Name: _____				Inspection <input type="checkbox"/> 50-hr <input type="checkbox"/> 100-hr <input type="checkbox"/> Annual			
AFM/POH in A/C? <input type="checkbox"/> Yes <input type="checkbox"/> No				RUNUP CHECKS			
Current & in Proper Condition? <input type="checkbox"/> Yes <input type="checkbox"/> No				Discrepancies Noted During Runup See last page for additional comments.			
Current Log Books in A/C? <input type="checkbox"/> Yes <input type="checkbox"/> No				System		Pre-Inspection	
Current & in Proper Condition? <input type="checkbox"/> Yes <input type="checkbox"/> No				Post-Inspection			
Registration Cert. in A/C? <input type="checkbox"/> Yes <input type="checkbox"/> No				Boost/Primer Pump		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
Current & in Proper Condition? <input type="checkbox"/> Yes <input type="checkbox"/> No				High/Lo Boost Pump Cut-Off		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
Registration Cert. in A/C? <input type="checkbox"/> Yes <input type="checkbox"/> No				Starter (Annunciation)		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
Current & in Proper Condition? <input type="checkbox"/> Yes <input type="checkbox"/> No				Oil pressure at RPM _____		_____ PSI <input type="checkbox"/> Hot <input type="checkbox"/> Cold	
Airworthiness Cert in A/C? <input type="checkbox"/> Yes <input type="checkbox"/> No				Oil temperature at RPM _____		_____ °F	
Current & in Proper Condition? <input type="checkbox"/> Yes <input type="checkbox"/> No				Charging System, Main (@1800 RPM)		_____ Amps _____ Volts	
Weight & Balance Record in A/C? <input type="checkbox"/> Yes <input type="checkbox"/> No				Charging System, Standby (@1800 RPM) (if installed)		_____ Amps _____ Volts	
Current & in Proper Condition? <input type="checkbox"/> Yes <input type="checkbox"/> No				Left Brake:		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
All Applicable Factory Service Information Complied with? <input type="checkbox"/> Yes <input type="checkbox"/> No				Right Brake:		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
All Applicable FAA Airworthiness Directives Complied with? <input type="checkbox"/> Yes <input type="checkbox"/> No				Parking Brake:		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
All Applicable (ICA) Instructions for Continued Airworthiness complied with? <input type="checkbox"/> Yes <input type="checkbox"/> No				Comm/Nav		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
ELT battery due: ELT remote battery:				L. Mag		_____ RPM Drop	
Altimeter/Transponder test (IFR) due:				R. Mag		_____ RPM Drop	
O2 bottle hydro, test due:				Prop Checkout (_____ RPM)		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
Fire extinguisher insp. due:				CAUTION: Ensure CHT and oil temp. are in the green range.			
Magnetos 500-hr insp. due:				Static RPM		_____ RPM	
Flexible hose replcmt. due:				Fuel Flow at RPM _____		_____ GPH	
Oil Sample? <input type="checkbox"/> Yes <input type="checkbox"/> No				Carb. Heat (_____ RPM)		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
Comments:				ALT AIR System		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
Hot Differential Compression Check:				Defrost and Cabin Ventilation		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
				Cabin Heat		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
				Oil Pressure		_____ PSI	
				Fuel Pressure		_____ PSI	
Cylinder				Reading		Master Orifice (C.M.I. Motors Only)	
1				Idle RPM/Cut-Off RPM Rise		_____ RPM	
2				Fuel Selector Check @run-up		_____ LH _____ RH	
3				CAUTION: Allow engine to cool to 300° F (CHT) before shutdown.			
4				All annunciation lights are off		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
5				Check for fuel odors in cabin		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
6				Check Fuel Valve "OFF" position		<input type="checkbox"/> OK <input type="checkbox"/> Defect	
Mechanic Signature: _____				Inspector Signature: _____			

NOTE: This document is to be used as a guide only and not in any specific order - refer to the specific model's Mooney Service & Maintenance Manual for airframe; the engine manufacturer's Service & Maintenance Manual for engine; and the propeller manufacturer's Service & Maintenance Manual for propeller.

Mooney / M20B M20C M20D M20E M20F M20G M20I M20K M20L M20M M20R M20S M20TN M20U M20VA

50-Hour/100-Hour/Annual Maintenance Inspection Guide



ENGINE SECTION: (Refer to engine manufacturers manual & Mooney Service & Maintenance Manual for appropriate model)	Reference Chapter(s) in S&M	MECH	INSP
1. Remove and clean engine cowling; inspect for foreign object debris, cracks, chafing, heat damage, de-lamination, evidence of exhaust leakage, condition of fastening system, presence of oil filler door placard, and condition of paint; wash engine (protect magneto vents, cabin fresh air intake).	71		
2. Lubricate cowl flaps & inspect for proper opening & operation. NOTE: M20C & G, 1968 & ON, cowl flaps are fixed. M20R, M20S, M20TN, M20U, and M20V have no cowl flaps.	71		
3. Perform a HOT engine differential compression check. Refer to front page for criteria	71		
4. Drain sump and remove oil filter (if installed). Obtain oil sample if required.	71		
5. Remove pressure and suction screens; check for metal particles.	71		
6. Clean and inspect screens/Cut oil filter & inspect element. Reinstall and safety wire screens/filter.	71		
7. Service engine with recommended lubricating oil. (Refer to Textron Lycoming Specification 301E & Service Instruction 1014 or CMI Service Manual.)	71		
8. Check engine for oil leaks (note/repair any findings).	71		
9. Check baffling; inspect for cracks, excessive gaps, security of mounting to engine. Check inter-cylinder baffles for security. Inspect cylinders for burned paint and cracked and broken fins. Inspect baffle sealant.	71		
10. Inspect condition of oil cooler for leaks, cracks, straightness of fins, secure mounting.			
11. Check engine mount (support) and isolation mounts; inspect for cracks, corrosion, loss of mounting hardware torque, chafing of cables, wires, hoses, etc. Check safety wiring and security. Refer to service manual for torque values.	71		
Fuel System - M20B, C, D, G: (Engine Section)	Reference Chapter(s) in S&M	Mech	Insp
1. Drain fuel sumps and fuel selector valve (right & left tanks).	IV		
2. Inspect & drain carburetor, clean screens and check fuel flow.	IV		
3. Inspect carburetor heat system for leaks & proper operation.	IV		
4. Remove, clean, inspect and replace or re-oil (Challenger Type) air filter as required.	II		
5. Inspect carburetor airbox & induction system for condition.	II		
6. Inspect fuel selector valve for operation & proper pointer indication. Verify positive valve selection while rotating fuel selector valve through selection range. Tighten/Loctite set-screw if required.	IV		
7. Operate boost pump, check pressure and all lines for leaks.	IV		
8. Clean electric fuel pump screen (1963 & previous models).	IV		
Fuel System - M20E, F, J, K, M, R, S, TN, U, V: (Engine Section)	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect fuel injection system, clean screens and injector nozzles (refer to Textron Lycoming O/H Manual, Section 8 or CMI Service Manual).	28, 71		
2. Check power boost system for proper door operation & seal for leaks (M20E, F, J). NOTE: Power boost system deleted on 1990 & ON.	28		
3a. Remove, clean & inspect dry-air filter. Replace paper induction filter at 500 hours.	71		
3b. (Challenger Aviation Filter Equipped Aircraft) Recharge filter every 100 hours. Inspect filter housing for debris and component condition (hoses, clamps, etc.); replace when worn or after 25 cleanings or 2500 hours.	71		
4. Inspect air induction system and alternate air valve. Check opening pressure/operation of ALT air door.	71		
5. Inspect fuel selector valve for operation & proper indication. Verify positive valve selection while rotating fuel selector valve through selection range. Tighten/Loctite set-screw if required.	28		
6. Operate boost pump; check pressure & all lines for leaks.	28		
7. Drain Right & Left tank fuel sumps. Inspect gascolator for contamination & reseal.	28		
EXHAUST SYSTEM:	Reference Chapter(s) in S&M	Mech	Insp
1. Remove heater jacket & inspect exhaust system for leaks & cracks; remove exhaust cavities; inspect area. Inspect muffler inner baffles.	71, 78		
2. Inspect clamps for tightness at turbocharger(s) (M20K, M20M, M20TN, M20V). Lube waste gate operation with mouse milk.	71, 78		

50-Hour/100-Hour/Annual Maintenance Inspection Guide



IGNITION SYSTEM: (Engine Section)	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect spark plugs for condition; replace or clean & re-gap per manufacturer's service manual. Torque Wrench S/N: _____ Exp. Date: _____	74		
2. Inspect ignition harness for general condition, broken shielding, fraying or chafing and security.	74, 91		
3. Inspect magnetos & points; check magneto for grounding and synchronization timing and record; Check distributor block for erosion or cracks. Inspect cam follower felt for proper lubrication, and remove excessive oil from breaker compartment. Overhaul CMI/Bendix magnetos each 500 hours/4 years per CMI SB 643B. Repair and replace components, if required.	74		
CONTROLS: (Engine Section)	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect engine & prop controls for free movement. Full travel, proper connection (security) of cable housing swage at the HEAD tube and security of attachment. NOTE: Cablecraft control cables are lubricated for the life of the control cable. DO NOT REMOVE seals or lubricate control cable.	76		
2. Check propeller governor; inspect for security of mounting hardware, evidence of leakage, tightness of lever on governor shaft. Check operation of propeller control cable. Ensure high RPM stop is contacted before cable reaches end of travel.	76		
PROPELLER:	Reference Chapter(s) in S&M	Mech	Insp
1. Check propeller blades; inspect for play, cracks, nicks, dents, pitting, corrosion and leading edge erosion. On TKS equipped; inspect de-ice boots, slip ring and fluid nozzles for security, cracks and condition. On Electric propeller De- Ice, inspect boots and brushes.	61		
2. Remove propeller spinner and bulkhead; inspect for cracks, security of mounting hardware and dynamic balance weights. Clean inside of spinner. Inspect propeller hub for grease leakage; check hub bolts & mounting bolts for proper torque; inspect blades for cracks, nicks, and dents; lubricate as needed (refer to appropriate manufacturer's handbooks).	61		
3. Reinstall spinner; check for correct interference fit with prop. Wrap hub with Teflon tape as required for fit (M20J, K, L). Shim interference fit between hub and bulkhead (M20M, R) W/McCauley props.	61		
ELECTRICAL SYSTEM:	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect battery(ies) for security, battery box (or area) for corrosion & vent for obstruction (if equipped) or evidence of leakage. Inspect blast tube for obstruction (as applicable). Charge battery(ies) & check water level if serviceable. Flush battery mount areas with soda solution to neutralize corrosive action, if necessary.	24		
2. Inspect generator/alternator(s) and accessories for security and general condition. Inspect electrical connections for security. Inspect belt for tension, fraying, and dry-rot. Inspect pulleys for nicks, scratches, warpage, and alignment.	24		
3. Check engine starter and starter solenoid mounting; inspect for loss of mounting hardware torque, general condition and signs of leakage.	80		
4. Inspect electrical components & wiring for security, routing, chafing, signs of arcing and proper termination.	24		
5. Check accessory case, starter, starter drive, alternator, firewall and fittings for security and damage; lubricate starter drive.	71, 80		
GARMIN G1000 SYSTEM: Refer to FAA approved applicable Garmin or Mooney Service Manual as appropriate.	Reference Chapter(s) in S&M	Mech	Insp
1. Complete Visual Inspection	22, 39		
GARMIN G1000 with NXi SYSTEM: Refer to FAA approved applicable Garmin or Mooney Service Manual as appropriate.	Reference Chapter(s) in S&M	Mech	Insp
1. Complete Visual Inspection	22, 39		
GARMIN GFC700 SYSTEM: (if equipped) Refer to FAA approved applicable Garmin or Mooney Service Manual as appropriate.	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect the servos, connectors, support structures, and control cables to ensure that no corrosion, chaffing, cracks, or other defects exist.	22, 39		

50-Hour/100-Hour/Annual Maintenance Inspection Guide



2. Manually move the ailerons (for roll servo), elevators (for pitch servo - cable driven), elevator trim wheel (for pitch trim servo - chain driven), and rudder pedals from stop to stop and observe the servo, capstan, rudder trim motor, and control surface rigging (jack nose gear before moving rudders). Ensure there is no binding in the control cabling and that the capstan/cable pulleys or chain rotates freely.	22, 39		
3. Check the servo control cable (pitch servo) to ensure no fraying, corrosion, or other damage exists. Replace the cable if the condition is questionable. Check the tension of servo control cable and chain tension on pitch trim servo. Refer to the OEM Maintenance documentation for cable tension specifications.	22, 39		
4. Inspect the GFC 700 system wiring to ensure no chaffing, wear, or other damage exists.	22, 39		
5. Flap Discrete Function Test - Test Flap-in-motion discrete inputs to the G1000 to verify proper operation.	22, 39		
6. GSA 81 Servos - Inspect. (Clean and lubricate output gears, 1000 hrs or 3 years.)	22		
7. GSM 85/86 Servo Mounts - Refer to ICA.	22		
LANDING GEAR, WHEELS AND BRAKES:	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect landing gear shock discs (main & nose gear) (Refer to Mooney S & M manual).	32		
2. Raise aircraft on jacks.	7		
3. Inspect tires for damage or wear, brake linings for excessive damage or wear and hydraulic system for leaks & general condition. Inspect brakes, hydraulic brake cylinders & hydraulic system for leaks and general condition: Service reservoir with MIL- H- 5606 (RED) fluid.	32		
4. Remove wheels, inspect, repack bearings, torque nut, reinstall using new cotter pin, lubricate brake guide pins using Silicone-based lubricant. Check wheels for free rotation & proper brake action. Refer to Chapter 32 in the Mooney S & M manual for torque specifications.	32		
5. Lubricate & inspect landing gear pivot points & moving parts.	32		
AIRFRAME SECTION: The Steps listed below are mixed - Interior and Exterior (Refer to Mooney Service & Maintenance Manual)	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect exterior & interior of aircraft for general condition, collision damage, loose rivets, dents & corrosion.	All		
2. Inspect tubular structure lower longerons for corrosion (for specific models Reference SB M20- 208[*]) (* latest FAA approved revision).	51		
3. Inspect wings & empennage for general condition, collision damage, loose rivets, dents & corrosion.	53, 55, 57		
4. Inspect TKS System (if installed) visual inspection of TKS panels and tanks for leaks, general condition and proper operation of system.	30		
5. Inspect flight control surfaces for security of attachment, proper rigging, free movement, collision damage, loose rivets, dents and corrosion.	27		
6. Lubricate flight control system guide blocks, hinge points, rod end bearings & bell cranks.	27		
7. Inspect all wing, fuselage & empennage drain holes for obstructions.	53, 55, 57		
8. Inspect empennage trim system for proper operation & rigging.	55		
9. Inspect downspring end loops, cable & pulley for wear and corrosion. Comply with Bendix/King Install Bulletin 343 (inspect & lube trim carrier bearing) for A/C with KAP/KFC 100 series autopilots.	22		
10. Inspect flap system for proper operation & rigging; lubrication accordance with Mooney Service & Maintenance Manual.	57		
11. Inspect flight instruments, filters & vacuum system (if equipped) for proper operation, marking, and condition; clean vacuum inlet air filter as required.	34, 37, 39		
12. Inspect cabin lights, circuit breakers & electrical components for proper operation.	33		
13. Check operation of stall warning system.	27		
14. Inspect P.C. system components for security, leaks & proper operation; servo seals for deterioration, all other autopilot components for security & proper operation. A/C equipped with Bendix/King autopilots, comply with Honeywell Service Memo 292.	34, 22		
15. Inspect vacuum step (if equipped) for security & proper operation; fixed step for security & damage.	37		
16. Inspect wing interior in fuel tank area for fuel leaks, fuel tank vents for obstructions & fuel filler caps for security & proper operation.	28, 57		
16. Inspect cabin & baggage doors for condition, proper operation and sealing.	52		
17. Inspect windshield & windows for cracks, crazing, scratches and distortion and sealing.	56		

50-Hour/100-Hour/Annual Maintenance Inspection Guide



AIRFRAME SECTION: The Steps listed below are mixed - Interior and Exterior (continued) (Refer to Mooney Service & Maintenance Manual)	Reference Chapter(s) in S&M	Mech	Insp
18. Inspect seats, seat latch pins, seat belts & shoulder harnesses for security, proper operation and condition. If AMSAFE Restraint equipped, perform diagnostic test per Mooney Service and Maintenance Manual and/or AAIR Supplemental Maintenance Manual every 1,000 flight-hours or annually (whichever comes first).	25		
19. Inspect compass & compass deviation card for proper indication & compensation. (Refer to Mooney Service Bulletin M20- 150A.)	34, 39		
20. Inspect all radio equipment for proper installation and operation.	39		
21. Inspect cabin for proper sealing.	52		
22. Inspect oxygen system (AVOX) for leaks, proper ON/OFF valve operation and filler for safety of operation. Perform hydrostatic test of oxygen bottle every 3 years and perform regulator overhaul every 6 years. Composite bottles expire @ 15 years.	35		
23. Inspect oxygen system (PRECISE FLIGHT) flexible lines for security of connections, kinks or tube discoloration. Perform functional test per Mooney Service Manual Chapter 35. Perform hydrostatic test of (Kevlar) oxygen bottle & regulator overhaul every 3 years. (Carbon) oxygen bottle and regulator overhaul every 5 years. Bottles expire @ 15 years. See ICA 106NM0002.	35		
24. Replace oxygen cannulas and standard (clear) mask every 200 hours. Replace/overhaul oxygen face mask with microphone (blue) every 500 hours.	35		
25. Inspect ELT as required by FAR 91.207d(1- 4).	39		
26. Inspect Altimeter and Transponder as required by FAR 91.411 and 91.413.	39 & 77		
MANUAL GEAR RETRACTION SYSTEM:	Reference Chapter(s) in S&M	Mech	Insp
1. Raise aircraft on jacks.	7		
2. Check operation and rigging (preload).	32		
3. Check warning system light and horn.	32, 39		
4. Check gear down lock preload (mains and nose).	32		
5. Check landing gear doors for proper closing/rigging.	32		
6. Check retract lever welds for cracks.	32		
ELECTRIC GEAR RETRACTION SYSTEM:	Reference Chapter(s) in S&M	Mech	Insp
1. Raise aircraft on jacks.	7		
2. Check operation and rigging.	32		
3. Check warning system lights, horn and visual indicator.	32, 39		
4. Check air pressure safety switch or squat safety switch.	32		
5. Check main & nose gear down lock preload.	32		
6. Lubricate actuator gear box (Dukes and ITT actuators only)	32		
7. Check landing gear doors for proper closing/rigging.	32		
8. Check emergency landing gear extension system; extend gear using emergency gear extension system. Do not attempt gear retraction using emergency system. (Refer to Mooney S & M manual.)	32		
FIXED GEAR:	Reference Chapter(s) in S&M	Mech	Insp
1. Inspect landing gear fairing (M20D only).	V		
2. Check air seals in wheel well areas.	V		
POST-INSPECTION OPERATIONAL CHECK: (Refer to Mooney Owner's Manual or POH)	(Refer to POH)	Mech	Insp
1. Check propeller governor operation with engine running at 2000 RPM & pitch control at low pitch (High RPM): When propeller control is pulled out to high pitch (low RPM), engine speed should decrease at least 500 RPM.			
POST-INSPECTION OPERATIONAL CHECK: (continued) (Refer to Mooney Owner's Manual or POH)	(Refer to POH)	Mech	Insp
2. Check ease of operation for all engine controls with engine running.			
3. Check generator/alternator output & indication.			

50-Hour/100-Hour/Annual Maintenance Inspection Guide



4. Check oil pressure indication.			
5. Check fuel pressure indication.			
6. Check fuel quantity indication.			
7. Check cylinder head temperature (CHT) indication.			
8. Check oil temperature indication.			
9. Check idle RPM, idle mixture & idle cut-off.			
10. Check propeller pitch through complete range.			
11. Check operation of cabin & panel lights.			
12. Check Radios/Avionics operation.			
13. Check autopilot operation.			
14. Check magneto drop and grounding circuits.			
15. Check operation of brakes.			
16. Inspect Engine for proper set-up (refer to Engine Mfg Maintenance & Service Manual).			
17. Check fuel selector valve for smooth operation.			
18. Check unmetered fuel pressure per Mooney Service & Maintenance Manual (M20K, M20R, M20S, M20TN, M20U, M20V) and Continental SID 97-3E.			
19. Check vacuum warning lights & instruments for proper operation.			
20. Check flap position indicator (Take-Off & Full down).			
21. Check trim position indicator and smooth operation of Trim System.			
22. Flight check gear-up warning horn at: 12" manifold pressure (MP) (M20J prior to S/N 24-3154); 14- 16" MP (M20K [231, 252]) & with throttle 1/4- 3/8 inch from idle position M20J (after S/N 24- 1354), M20K (Encore), M20L, M20M, M20R, M20S, M20TN, M20U, M20V.			
23. Flight check aircraft flight control rigging.			
24. Flight check P.C. or other autopilot systems for proper operation.			
25. Check cabin ventilation and heating system for carbon monoxide.			
26. Check EGT/TIT gauge and any other items of installed equipment.			
27. Check operation of remote ELT switch between top of hour and 5 min after the hour.			
28. Other checks (Specify as necessary):			

REMARKS:
