# ANNUAL CONDITION INSPECTION

**REMOVE ALL INTERIOR AND EXTERIOR INSPECTION COVERS, COWLING, WHEEL PANTS, AND SPINNER**

**GENERAL GROUP**

* Add Squawks and Might–As–Well items
* Review Velocity Aircraft website for “Kit Plans Changes” (**KPCs**)
* Check for ADs at the [**Airworthiness Directives Biweekly**](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/ADBiweekly%21OpenView%26Start%3D1%26Count%3D200%26Expand%3D2#2) website applicable to certified components/ accessories
* Review items on **Squawk List**
* Review **W&B** and **Equipment List** for currency. Reweigh at the first annual and every 3 years thereafter or after any major modification

## LIGHTS – Check:

* Navigation
* Strobes
* Landing
* Panel Dimmer
* Reading Lights

## CANARD GROUP / NOSE COMPARTMENT

* **Nose Access Cover** – Operation and damage
* **Canard Cover** – Hinge attachment and condition
* **Canard Attachment Bolts** – Condition and torque
* **Canard** -- Damage, delamination and cracks
* **Elevator Travel** –28° down/24°-26° up
* **Elevator Hinges** – Screws, operation and damage
* **Elevator Counterweights** – Covers, attachment and damage
* **Pitch Trim Motor System** – Security, operation and range
* **Autopilot Pitch Servo System** – Security, operation and range
* **Elevator/Control Stick** – Bolt and connecting rods
* **Elevator Torque Tubes / Center Hinge** – Attachment and damage
* **Nose Gear Strut** – Attachment and damage
* **Rubber Bumper System** – Security
* **Oil Lines** – Connections, leaks, security
* **Fresh Air intake** – Hose condition, attachment and security
* **Batteries/Bus Fuses** – Security, condition and connections
* **Contactors** – Component attachment and wires
* **Electrical System** – Component attachment and wires
* **Pitot tube System** – Connections, leaks, heating
* **Voltage Regulator** – Attachment and condition
* **Brake System** – Security, operation, fluid level and leaks
* **Pedals** – Attachment and operation
* **Oil Cooler** – Attachment, damage, obstructions and leaks
* **Heating System** – Hose condition and operation
* **Nose Tie down** – Condition
* **Landing Light** – Condition and wiring
* **Panel Components** – Security, condition and connections

**FUSELAGE**

* **Landing Light Lens** – Condition and security
* **Nose NACAs –** Condition
* **Static Air Ports** – Obstructions
* **Windshield** – Condition
* **Speed Brake** – Condition, hinges, motor, and operation
* **Doors**Hinge screws & pins
Lubricate door locking mechanism.
Check cotter pins
Check annunciator lights operation
* **Windows** – Condition
* **Strakes Surface/ Passenger Windows / Tie Downs/ Fuel Caps –** Condition, security and operation
* **Fuel Leak Stains –** Surface
* **Overhead NACAs** – Condition, obstructions
* **Upper Cowling** – Condition, oil access door for security/operation
* **Bottom Cowling** – Condition
* **Cowling Interior** – Flanges, hinges, pins
* **Transponder Antenna** – Condition and security
* **Fuel Vent –** Obstructions
* **Sump Tank Drain** – Condition and operation
* **Fuel Pump/Induction Fuel Drains** – Condition and obstructions
* **Cowl Hinges** – Hinge attachment and condition

# PROPELLER GROUP

* **Propeller/ Spinner** – Damage, delamination, cracks and security
* **Propeller Hub** – Bolts (65 ft–lbs dry torque) safety wire
* **Blade End Play** – < 1/8”
* **Blade Travel** – < 2°
* **Blade Tracking** - < 3/16”

# ENGINE GROUP

* **Cowl Exterior and Interior** – Damage, delamination and cracks
* **General** – Loose bolts, nuts or clamps in engine compartment
* **Cooling Plenum** – Remove. Condition, leaks, cracks, baffles
* **Wash Engine** – Check for oil leaks
* **Oil / Filter Change** – If due, every 50 hrs

Open oil filter and inspect for contaminants and send for analysis

* **Oil Temperature Sensor/System** – Leaks and security
* **Rear Oil Cooler** – Leaks and security
* **Spark Plugs** – Condition. Clean, gap and reinstall with anti–seize.

Gap tool has .015 & .019 on one end

Aircraft Plugs – .015 must pass and .019 must not

Auto Plugs -- .30 must pass and .35 must not

Torque Plugs: 30 ft/lbs

* **Cylinder Compression**#1 /80 #3 /80 #5 /80
#2 /80 #4 /80 #6 /80
* **Cylinders** – Broken or cracked fins
* **Valve Covers** – Oil leaks, security, torque 20–in. lbs
* **Push Tube Seals** – Oil leaks
* **Ignition Harnesses** – Condition
* **Slick Magneto** – 20° **BTDC**. **Magneto points** for gap and condition, **oil leaks, magneto switch** and **“P” leads** for operation.
* **Air Induction System** – Condition and leaks
* **Air Filter** – Clean, inspect, recharge and reinstall
* **Air Oil Separator** – Clean and reinstall
* **Crankcase Vent Check Valve** – Remove, decoke, clean, check operation, reinstall
* **Fuel Filter** – Clean and reinstall
* **Fuel Injectors** – Leaks
* **Fuel Divider And Lines** – Leaks, security
* **Intake Tubes/Seals** – Leaks, condition
* **Flexible Fuel Lines** – Leaks, condition
* **Fuel Control/Injector** – Leaks, security
* **Fuel Vent System** – Condition, security
* **Fuel Drain** – Condition and leaks
* **Electric Fuel Pump** – Turn on look for leaks and pressure reading
* **Exhaust Stacks** – Connection, gaskets
* **Engine Controls** – Condition, security, travel, rigging, lubricate
* **Engine Mount** – Cracks, security, bolt condition, washers, shims and torque
* **Alternator** – Condition, security, wires, belt tension
* **Rudder Cables** – Return springs, condition, lubricate
* **Aileron System** – Bell cranks, cables and rod ends. Condition and security. Lubricate as needed
* **Starter –** Security. Clean service shaft with silicone oil
* **Wiring –** Condition, security

# CABIN GROUP

* **Fuses** – Condition
* **Door Latches** – Operation and condition
* **Door Locking Pins / Receptacles** – Clean and lubricate
* **Open Door Annunciators** – Operation and condition
* **Upholstery** – Tears condition, operation
* **Seat Belts** – Tears, fraying, security
* **Seats** – Check bolts
* **ELT** – Operation, security
* ELT Switch battery, replace every 5 years (2017)

Duracell PX28L 6 volt Lithium battery, or equivalent

* Audio Alert Indicator, replace every 10 years (2022)

Duracell CR–2, 3 volt or equivalent

* ELT Primary Lithium, The lithium battery (P/N E–04.0) must be replaced on, or before the battery expiration date marked on the battery
* **AP Roll Servo** – Condition, operation, lubricate as needed
* **Ailerons System** – Condition, operation, lubricate as needed
* **Roll Trim** – Condition, operation
* **Sump Tank** – Attachment and leaks
* **Transponder Antenna** – Condition and connection
* **Fuel Shutoff Valve** – Condition, operation and leaks
* **Brake Lines (Rear)** – Condition, security
* **Electrical/Electronics** – Condition, security, operation
* **Wiring** – Condition, security
* **Fuel Vent System** – Condition, security, operation
* **Rudder Pedals** – Operation, security, lubricate as needed
* **Brake Lines (Front)** – Condition, security
* **Rudder Controls** – Condition, security, operation
* **Pitot/Static System** – Plumbing, condition
* **Cabin Heater Control / Ducting** – Condition, operation
* **Control Stick** – Wiring, condition, operation
* **Speed Brake Actuator** –Wiring, condition, operation
* **Cabin Air Vents / Cabin Lights** – Condition, operation
* **Fuel Shutoff** **Knob** – Condition, operation
* **Panel Instruments** – Condition, security, operation
* **Radios Avionics** – Condition, security, operation
* **Compass** – Calibrate if needed
* **Rear Cabin Panels** – Reinstall

# WING GROUP

* **Wing surfaces** for delamination, cracks and condition
* **Wing** **vortilons** for condition and security
* **Fuel caps** for condition and operation. Clean, lube and reinstall
* **Fuel tanks** for leaks, including fuselage
* **Winglet surfaces** for delamination, cracks and condition
* **Rudders** for condition, travel (3 ½” – 4”) and security
* **Rudder hinges, return springs.** Lubricate if needed
* **Rudder control horns / cables** for condition and security
* **Rudder operation**
* **Ailerons** for condition, travel (2-1/2” up and down), cracks and security
* **Aileron hinges** for condition and operation. Lubricate if necessary
* **Aileron bell cranks**, cables, and rod ends for condition. Lubricate as needed
* **Aileron torque tubes** and attachment points for condition
* **Aileron bearings / brackets** for condition and operation
* **Wing attach bolts** for condition and security
* **Wing fairings** and **inspection plates** forattachment and condition
* **Polish and wax strobes**

# LANDING GEAR GROUP

* **Wheel pants** for cracks, cuts and condition
* **Nose gear strut** for condition and security
* **Shimmy damper system** for condition, adjustment and security
* **Brake pads** for condition and wear **.100** minimum thick
* **Brake discs** for pitting and wear. **.327** minimum thick
* **Brake calipers** for condition and leaks
* **Brake lines** Leaks
* **Bleed brakes** – Fill fluid to reservoir
* **Heat Shields** – Condition, reflective insulation
* **Tires** for wear and condition
* **Tire pressure** ❒ Main: 55psi ❒ Nose: 45psi
* **Main wheel bearings.** Clean and repack
* **Main gear legs** for integrity, cracks
* **Main gear axles and system** for condition and attachment
* **Main gear camber** – axle 10° down with plane on jacks and level
* **Main gear toe in** 1” per side

# OPERATIONAL GROUP

* **Fuel** **pump** and shutoff
* **Speed** **brake** operation
* **Oil** **pressure/temperature** indication
* **Alternator** output indication
* **Manifold** **pressure** indication
* **Magneto** drop (RPM variation)
* **Electronic Ignition** operation
* **Throttle** and **mixture** operation. Lubricate as needed
* **Engine idle speed** – 650 – 700 RPM
* **Full power static RPM** at 2700
* **Brakes** operation
* **Lights** interior/exterior operation
* **Oil/fuel leaks** after shut down
* **Aircraft documents**
* Applicable **Airworthiness Directives**
* **Instruments/ avionics** operation, changes or repairs

**Logbook Entry:**

1. Aircraft total time in service
2. Name, signature, and certificate type and number of the person performing the inspection