

Phase 1 restoration of Taylorcraft BC12-D NC96130 (Dec. 2006–June 2007)

Engine

- fabricated forward and side engine baffles, repaired rear and cylinder baffles
- removed non-original synthetic rubber baffle gaskets, installed period stapled felt gaskets
- fabricated oil breather tube
- removed non-original carburetor air box and Brackett air filter, installed original unfiltered airscoop
- replaced oil tank
- painted valve covers, engine mount, and oil filler cap
- installed new spark plugs
- removed non-original orange SCAT ducting, installed authentic flexible aluminum ducting
- replaced all plastic cable ties with period friction tape and cord
- repaired exhaust stud on one cylinder
- replaced exhaust gaskets
- installed new Wag-Aero exhaust system
- repaired exhaust heater shroud
- repaired distributor rotors on original Case magnetos
- replaced previously-spliced tubes on engine mount

Cockpit

- repaired and swung compass
- replaced previously-spliced tubing behind windshield
- repaired altimeter
- removed non-original inclinometer from panel
- repaired oil temperature gauge, remounted from behind panel
- repaired glove boxes, fabricated glove box doors and handles
- refinished panel and control wheels
- fabricated placards
- installed new parking brake cable and T-handle
- fabricated safety latch for fuel shutoff knob
- installed new throttle cable
- installed new custom-engraved throttle knob
- fabricated all control cables
- sealed main tank
- repaired fuel shutoff valve
- fabricated bezel for cabin heat outlet
- repaired floorboards, fabricated heel scuff guard
- installed EBC 502 ELT
- installed RT-A600 Halon fire extinguisher
- repaired wing tank fuel transfer valve
- fabricated fuel line from wing tank to main tank
- fabricated placard panel for wing tank fuel transfer valve
- fabricated bezel for elevator trim crank handle
- fabricated wooden door frames
- repaired cracks and broken spotwelds on both doors, removed non-original handles
- fabricated extensions for door handles to accommodate Airtex panels
- fabricated aluminum edging for side windows, installed window handles
- removed non-original baggage compartment cover
- installed new Airtex firewall cover, carpet, wall panels, door panels, seat sling and baggage compartment, seat cushions, headliner
- installed new Wag-Aero seat belts and shoulder harnesses

Wings

- repaired compression tube in right wing
- straightened 12 ribs
- tightened drag wires
- straightened leading edges of both wings
- straightened both wing tip bows
- straightened left aileron tip bow
- refinished aileron attachment hardware with Dow 17 alodine and epoxy primer
- sealed wing tank
- fabricated and stamped tabs on fuel tank cap, painted cap
- fabricated wing root fairings
- fabricated jury strut and tie-down ring clamps
- fabricated aileron bellcrank inspection panels

Empennage

- straightened rudder and both elevators
- fabricated elevator inspection panels
- fabricated leather patches for rudder cable openings, trim tab rod opening

Fuselage

- installed new Aircraft Spruce aluminum nose bowl
- fabricated upper and lower cowlings
- fabricated cowl hinge bracket
- painted fuel tank cap (still has original cork on wire)
- fabricated upper and lower windshield fairings, installed new rubber channel
- straightened right rear strut attach fitting
- fabricated landing gear to fuselage fairings
- removed external whip antenna
- installed new Advanced Aircraft Electronics 5T internal VHF communication antenna
- removed external ELT antenna and Narco ELT-10
- replaced corroded tubes on bottom of fuselage
- sandblasted and primed tubing
- replaced all wood stringers
- replaced almost all Phillips-head screws with period slotted screws

Landing gear

- removed non-original aluminum wraps from landing gear legs, replaced with fabric
- installed new shock cords
- fabricated shock cord snare cables
- fabricated shock cord covers
- installed new brake cables
- replaced Shinn brake adjustment nuts and safety clips
- installed new tires and inner tubes
- installed reconditioned original hubcaps
- installed new tailwheel springs
- removed Maule SFS-P8A tailwheel, installed new Lang tailwheel

Covering

- recovered with Stits Poly-Fiber medium weight Dacron polyester fabric
- painted with Poly-Tone, custom-mixed Taylorcraft Ivory and stock AN Blue

Materials used

- 120 feet of spruce stringer stock
- 100 feet of 1/8 inch control cable
- 50 yards of fabric
- 125 feet of clip wire to attach fabric to ribs
- 400 yards of pinked edge fabric tape
- 29 gallons of coatings

Weight loss

- 17 pounds lost during restoration!
- New empty weight 793 pounds; maximum weight 1200 pounds

Phase 2 restoration of Taylorcraft BC12-D NC96130 (Aug. 2007–July 2008)

Engine

- replaced exhaust gaskets
- replaced cracked carburetor float, replaced carburetor needle
- repainted rocker box covers
- installed new rocker box cover gaskets

Cockpit

- replaced inauthentic A-9 ignition switch with a reconditioned authentic A-7 switch
- installed reconditioned authentic stamped brass placards
- repainted wing tank fuel transfer valve handle

Wings

- performed ultrasonic inspection of lift struts to comply with Airworthiness Directive 2007-16-14
- performed visual inspection of wing strut attach fittings to comply with AD 2008-09-18, patched and repainted fabric that was required to be cut away for inspection
- stripped, reprimed and repainted lift struts, jury struts, and jury strut straps
- replaced inauthentic black friction tape under jury strut and tie-down ring straps with authentic white cloth tape
- repainted fuel tank cap
- installed anti-chafe tape on undersides of wing root fairings

Empennage

- repainted tail brace wires

Fuel tank

- installed new varnished cork float on main fuel tank indicator wire (no more cork bits in the gascolator fuel samples)

Landing gear

- removed inauthentic black paint from wheels, leaving original bare aluminum
- riveted in replacement brake linings
- repainted external brake components
- replaced inauthentic Phillips-head screws on hubcaps with slotted screws
- replaced inauthentic tailwheel spring shims with authentic rubber pads

Phase 3 restoration of Taylorcraft BC12-D NC96130 (Aug. 2008–July 2009)

Engine overhaul and detailing (after Aug. 2008 nose-over and prop strike)

- inspected crankcase with Zyglo penetrant dye
- inspected camshaft, camshaft gear, connecting rods, crankshaft, crankshaft gear, magneto drive gears, piston pins, pushrods, rocker arms, rocker arm shafts with magnaflux
- reground crankshaft, worn below service limits on cam journals, 0.010" undersize and re-nitrided
- replaced crankshaft bearings
- replaced crankshaft oil seal
- replaced crankshaft plug in propeller hub
- replaced piston rings
- replaced piston pin bushings
- replaced connecting rod bearings and bolts
- replaced cylinder bases packing
- reground camshaft
- reground valve tappet bodies
- replaced valve tappet hydraulic units
- replaced pushrods
- replaced pushrod tubes
- replaced pushrod housing flange gaskets and connectors
- replaced intake valves, seats, guides, and springs
- replaced exhaust valves, seats, guides, and springs
- replaced valve rocker bushings
- replaced rocker cover gaskets
- replaced oil pressure pump gears and cover
- replaced accessory case
- replaced damaged carburetor air box and intake screen
- replaced intake hoses, clamps, and gaskets
- repainted crankcase, cylinders, rocker covers, pushrod tubes, intake pipes and elbows
- replaced engine identification plate with reproduction plate
- replaced crankcase baffle
- replaced stapled felt gasket on rear engine baffle
- polished firewall
- replaced engine mount bushings and bolts
- cleaned magneto rotors, checked internal timing
- repainted magneto cases
- replaced Case trademark decals on magnetos with reproduction decals
- replaced ignition switch wires, covered them with black shrink tubing forward of firewall
- replaced nylon thread cable ties with waxed linen thread and shellacked black friction tape

Propeller replacement

- replaced worn propeller hub flange and bolts
- replaced broken Sensenich W72CK-42 standard propeller with new Sensenich W72CK-40 climb prop with authentic period decals
- replaced damaged spinner mounting bow
- replaced damaged inauthentic Cessna-style spinner with appropriately-shaped spinner

Cowlings

- repaired and repainted dented nosebowl and lower cowling
- reshaped crankcase cooling airscoop on nosebowl to fit new crankcase baffle
- replaced main tank fuel filler neck rubber grommet
- replaced cloth anti-chafe tape on cowling edges

Windshield replacement

- replaced windshield with new windshield from Taylorcraft factory original equipment supplier
- replaced inauthentic rubber channel with reproduction Taylorcraft rubber windshield weatherstrip
- replaced inauthentic silicone caulk with felt
- replaced inauthentic vinyl tube pads on windshield brace bows with black rubber tube

Fairings

- replaced rubber channel on windshield upper trim strip with stapled welt
- trimmed inauthentic bulges from wing root bands, replaced rubber channel with stapled welt
- replaced rubber channel on gear leg fairings with stapled welt

Cockpit

- replaced inauthentic clear vinyl tube on pitot and static lines with black rubber tube and safety wire
- installed missing trim indicator plate, wire and reproduction placard
- replaced reproduction wing tank fuel transfer valve placard with Taylorcraft factory placard
- replaced wing tank fuel transfer valve plate
- repaired, repainted, and felted false ribs at top corners of windshield
- replaced inauthentic vinyl-wrapped aluminum glareshield with textured panel board and welt glareshield
- repaired and repainted dented instrument panel
- removed inauthentic firewall pad
- removed inauthentic boot cowl upholstery panels
- relocated aircraft documents holder to original location in baggage compartment
- replaced inauthentic sliding windows in doors with salvaged original window frames, new plexiglas windows, and fabricated trim pieces
- removed inauthentic door upholstery panels, replaced with correct vinyl
- fabricated and installed black textured panel board floorboard in front of rudder pedals
- repainted floorboards and cable covers
- removed inauthentic heel scuff plate, replaced with Taylorcraft factory scuff plate
- replaced worn rudder cable pulley
- replaced inauthentic carpet on seat kick panel with textured panel board
- removed inauthentic vinyl wrapping from cable covers

Wings

- repaired dent in left wingtip leading edge
- replaced inauthentic clear vinyl tube pitot tube connection with black rubber tube and safety wire
- replaced 22 inauthentic and mismatched inspection hole covers with Taylorcraft factory inspection hole covers
- shellacked the white cloth anti-chafe tape under the jury strut and tie-down ring straps
- re-rigged ailerons

Fuselage

- repaired and repainted rope chafe damage on top longerons

Empennage

- replaced inauthentic shrink tubing on rudder cable ends with shellacked linen cord wrappings
- replaced safety wire on tailwheel steering spring ends
- replaced inauthentic round inspection hole cover with Taylorcraft factory inspection hole cover

Phase 4 restoration of Taylorcraft BC12-D NC96130 (May 2010)

Cowlings

- fabricated and installed authentic riveted stainless steel doublers around Dzus fastener holes in lower cowling
- touched up zinc chromate primer on cowling interiors
- touched up paint on noseowl and cowling latches

Engine

- replaced inauthentic clamps on oil breather hose with authentic thumb screw tangential clamps
- reversed crankcase half bolts and engine lift ring (inauthentically installed backwards during engine overhaul)

Wings

- replaced inauthentic painted pitot tube cover with new unpainted cover
- fabricated and installed aileron bellcrank inspection panel frames to replace inauthentic Tinnerman nuts holding inspection panel screws

Main landing gear

- tapped out gravel dents and touched up paint on hubcaps
- touched up paint on brake covers and gear legs

Window

- replaced plexiglas in left front sliding window, which had cracked at a rivet hole

Tail brace wires

- stripped ivory paint from tail brace wires and fittings, repainted silver (originally unpainted), re-installed with correct unusual AN940-416 washers

Rudder arm

- repaired elongated worn holes for tailwheel steering springs by brazing in new metal and drilling new holes