

N2913M

1946 PA12 SuperCruiser
Aircraft Serial # 12-1444

Aircraft was restored by **Classic Aircraft Restorations** (9)
(Note: Red numbers indicates the document page number to view photos of the listed item)

Listed below are the items and workmanship accomplished during the restoration.
Restoration began in late 2010 and the first flight was May 11, 2013.

AWARDS:

EAA award for Workmanship at the 2013 Arlington Fly-In, Arlington Washington. (19, 29)

Phoenix award (out of the ashes) at the 2013 NWAAC, Northwest Antique Airplane Club, Scappoose Oregon. (28)

Note: All times listed are from June 2021 when the current Annual Inspection was completed.

TTAF: 3477 hrs

Time since restoration: 190 hrs

All 4 Cylinder compression readings at annual inspection (June 2021) were 80/80.

ENGINE:

Lycoming O-290-D2

140 hp for takeoff (2800 rpm - 5 minutes)

135 hp continuous (2600 rpm)

101 hp 75% cruise (2300 rpm)

87 hp 65% cruise (2200 rpm)

Engine Serial # 6169-21

Overhauled by *Premier Aircraft Engines*, Troutdale Oregon (overhaul sheet attached)

TIME SINCE NEW: 3063 hrs

SMOH: 190 hrs

Installed 4 overhauled chrome cylinders and new piston rings from *Harrison Engines*, LaPorte Indiana (12)

Installed new engine mount, bushings and bolts. (19)

Installed Marvel-Schebler MA-3SPA carburetor overhauled by *Quality Aircraft*, Tulsa Oklahoma. (10)

Rebuilt Carb Heat air-box. (10)

Installed new primer control, primer lines and nozzles. (31, 39-40)

Installed Bendix magnetos overhauled by *Quality Aircraft*, Tulsa Oklahoma. (39-40)

Installed a new *Skytronics* magneto harness and P-leads. (39-40)

Installed new lightweight *Sky-Tek* 122-NL starter. (13)

Installed new *Plane-Power* SAL-12-70 lightweight alternator and R1224 solid state voltage regulator. (18)

Installed a new *Gates* 13A0850 Green Stripe alternator belt. (18)

Installed new *BC700* oil filter adapter. Extends oil changes to 50 hrs, but I have changed oil and filter every 25 hrs since the restoration with Aero Shell oil and Lycoming/FAA approved Camguard additive. (39)

Installed a new *Aero Classics* lightweight oil cooler from *Pacific Oil Cooler Service*, La Verne, California. (18)

Installed a cockpit controllable custom oil cooler shutter that keeps the oil temp at the proper range during cold days. (29, 51)

Installed new muffler, shroud, exhaust pipes and gaskets. (39-40)

Installed a muffler bale. The bale prevents the engine from quitting if the flame tube fails. Without the bale the debris from a collapsing flame tube can clog the tailpipe and choke the engine. This was a recommended modification for safety.

Installed new Brackett Air filter housing and BA-4108 filter element. (42)

Installed silicone *Real Gaskets* on valve covers and oil dip stick. The *Real Gaskets* are reusable and do no leak.

Installed all new fuel and oil lines/hoses and fire sleeve. (39-40)

Fire rated clamps were installed in certain areas of the engine compartment.

Installed an electric powered *Reiff* engine heater system on the oil pan and oil cooler.

Purchased a *Wiggy's* Arctic cowl cover to expedite the engine heating process and complimenting the Reiff heating system. Overnight heating with the blanket will produce 120 degrees on the oil temp gauge. No waiting for takeoff on a cold day, just taxi out, do a run up and go. Preheating an engine supposedly saves wear and tear when starting an engine in low ambient temperatures. (17)

Installed custom engine baffling and *McFarlane Cowl Saver* baffle seal. Cowl Saver reduces friction and vibration between the seals and the cowling. It works well as there is no evidence of cowl chafing. (39-40)

Installed all new scat tubing and clamps. (39-40)

Installed 8 new Champion RHM40E spark plugs at annual inspection June 2021.

Installed CHT/EGT probes on each cylinder that sends temperatures to the *Electronics International* 4-channel gauge mounted on the right wing root panel in the cockpit. The gauge also has an OAT feature. It was install in the wing root panel to keep the classic look of the instrument panel. I did not want modern gauges on the instrument panel, but wanted to be able to monitor cylinder head temps and EGT readings for accurate leaning. (39-40)

Installed new throttle and carb heat cables.

Installed a new vernier mixture control and a new mixture cable. (31)

PROPELLER:

Sensenich 74-DM6-0-52

Serial # A52461

Installed new prop bolts.

Installed new polished prop spinner and backing plate. (34)

Backing plate modified for prop balancing weights.

Engine and Prop dynamically balanced to .026 IPS on May, 26, 2021 by *DashAir*, Troutdale Oregon

FUEL SYSTEM:

Installed Cub Crafter's 38 gallon fuel system that eliminates the problematic header tank. There is one fuel selector control with Left/Right/Both/Off. (31)

Installed 2 new WagAero fuel tanks, useable fuel per tank is 17.2 gallons for a total of 34.4 gallons usable.

Installed all new fuel lines, hoses and fire sleeve. (39-40)

Installed new fuel sight gauges with new floats. (37)

Installed new vented fuel caps from *Attlee Dodge*, Anchorage Alaska. (34, 48)

Installed new wing tank drains.

Installed a new aluminum/anodized gascolator from *Steve's Aircraft*, White City Oregon. Steve's Gascolator does not leak, is easy to clean and reduces the chance of a post-accident fire. (30)

The aircraft has the Petersen STC for Mogas, but I have never fueled with anything other than 100LL.

ELECTRICAL:

Installed a complete new electrical system. (38)

All new wiring

All new switches and circuit breakers (52)

All circuits are grounded to a single heavy duty copper bus-bar for easy access and troubleshooting.

Installed a simple switch and circuit breaker panel. (52)

Installed a *Bogert* low loss 1 gauge copper cable. Improves electrical reliability and hot and cold starting. (40, 42)

Installed a new Concorde RG 25 battery in 2020 and FAA approved 12V DC Socket. (36, 47)

Installed new battery box. (22)

Installed a new battery relay.

Installed a new Master/Ignition switch. (47, 52)

Installed new *Plane-Power* SAL-12-70 lightweight alternator and R1224 solid state voltage regulator. (18)

AIRFRAME:

The airframe was inspected and all necessary tubes/stringers etc. were replaced and welded. The welding was accomplished by *DashAir*, Troutdale Oregon (9)

Crosswinds plexiglass skylight STC was add along with the cabin X-brace. This brace prevents the wings from collapsing into the cockpit in the event of an accident. A safe addition for Cubs. (15)

Installed PA18 balanced tail feathers due to the Lycoming O-290-D2 installation. (28)

All new control cables, pulleys and turnbuckles installed. (22-23)

New jackscrew and new tail inspection plates installed. (23)

PA18 double pulley trim system. Does not slip like the original PA12 single pulley trim.

The completed frame and tail feathers were epoxy finished prior to covering. (9)

Poly-Fiber Covering was used and the heavyweight fabric was used on the fuselage bottom for extra protection if landings are made on unimproved off airport sites. (24-26)

Painting was accomplished using Aerothane. Color is Juneau White and Bahama Blue.

All new decals and required placards were applied. (33, 43)

2" vertical N-number is painted on the rudder in Bahama Blue. (21)

Wings were inspected with no corrosion found and covered with Poly-Fiber. (26)

Installed new wingtip bows

Installed new leading edge panels.

Installed new Univair sealed struts. (37, 43)

Seaplane drain grommets were installed on wings, tail and fuselage. (50)

All inspection plates were replaced with heavy duty acrobatic type. (48)

Installed all new windows, windshield and a plexiglass observer cabin door. The observer door is helpful if the rear seat person is flying, especially for takeoffs and landings. (34-35)

Installed a green tinted skylight. (15, 49)

Installed Micro Vortex Generators on wings and tail per the STC. I was on the fence with this addition to the aircraft, but now I'm pro VGs, at least on the PA12. Takeoff performance has improved and stall speed has certainly decreased. Money well spent in my opinion, but they just look a bit different on this classic aircraft. You must be careful of them when washing the plane. (34)

Installed custom wing root fairings with inspection doors. Very useful during annual inspections. (49)

Replaced original cabinet type door latch with a magnetic one that's easier to use. (34)

Installed new boot cowling. (18, 22)

Installed new engine cowling with new and correct Piper badges. (12,15, 18, 22)

Installed new stainless firewall. (19)

GEAR and BRAKES:

Installed new Univair PA14 landing gear. The PA14 has streamlined gear that's supposedly better than the PA12 stock gear and without the excessive drag from the PA18 gear if you don't need the extra strength for extreme backcountry operations.

Installed all new shock cords. (24)

Installed *Attlee Dodge* gear safety cables.

Installed new Cleveland wheels. (36, 45)

Installed new Cleveland double puck disc brakes. (45)

Installed all new high pressure brake lines/hoses.

Installed *Steve's Aircraft* brake boosters. Steve's brake booster eliminates the need for continuously adding brake fluid. The brake boosters give superior braking, in fact almost too much. You need to be careful after installing them until you get used to them. The brake boosters were one of the best modification I did to the aircraft. (30)

Installed a new Scott 3200 tail wheel, tail wheel spring and rigging.

Installed a new Aero Classic tail wheel tire.

Installed Goodyear Flight Special II 8.00x6 8 ply tires and new tubes. (45)

Installed new metal *Univair* Cub hubcaps (27)

INTERIOR:

Installed new instrument panel. (22)

Installed new throttle panel.

Installed new electrical panel.

Installed new FAA approved fire resistant seat upholstery and foam. (33)

Installed new FAA approved fire resistant matching side trim. (31)

Installed new FAA approved fire resistant carpet. (13)

Installed custom (carpet matching) vinyl protective shock cord cover. (13)

Installed new seatbelts and pilot inertia reel shoulder harness. (51)

Fabricated and installed a custom lockable baggage compartment with top shelf covered in matching seat trim. (33, 37)

Nomex, strong & lightweight panels used for seats and baggage compartment lid. (10)

Installed new Marine plywood flooring and applied clear coat urethane. (24)

INSTRUMENTS:

All instruments were rebuilt by *Keystone Instruments*, Lock Haven, Pennsylvania and are yellow faced. (11, 31-32)

Note: A new *Mitchell* tach was installed at 51 hrs after restoration. It is yellow faced with the cub logo. The cub logo was not original on the PA12 instruments. The tach is the only non-original gauge on the panel. (31)

Installed a new *Airpath* pedestal mounted wet compass. (31)

Installed a 4-channel EGT/CHT *Electronics International* digital temperature gauge. Selectable exhaust gas and cylinder head temperatures for each cylinder can be displayed. This gauge also has an OAT function. (32)

Installed new ammeter and voltmeter gauges. (31-32)

AVIONICS:

installed a new iCom IC-200 transceiver and new Comant antenna. (31-32' 50)

Installed a yellow tagged King KT-76A transponder. Transponder check on 2/20/2020. (31-32)

Installed a new ACK A30 encoder.

Installed a new Garmin GLD 82 ADS-B (out) transmitter and GPS antenna. (49)

Installed a used PS Engineering 501 4-place intercom and jacks for all 3 seat positions. (31)

Installed a Levil Aviation BOM (Broadcasting Outer Module). This solid state unit is self-powered and self-charging, there are no wires to connect, it turns on/off automatically and sends information to the pilot using Wi-Fi. You get a “Glass Panel” in a cub, it’s truly amazing. (15-16, 37) Our BOM was *updated in 2020 by Levil Aviation to include new software/hardware/battery. (17)*

The BOM broadcasts the following information to an iPad, iPhone or Android device:

- Angle of Attack AOA
- WAAS GPS
- ADS-B (in) Traffic and weather
- Air Data (altitude and airspeed)
- AHARS (attitude, directional gyro, turn coordination, rate of turn, VSI, and OAT)
- Heated Pitot/Static for Indicated airspeed
- Records Flight Data with an SD card and can be downloaded for review

Installed new micro push to talk switches in each throttle knob.

Installed new AmeriKing ELT with replaceable D-cell batteries. (23)

LIGHTING:

Installed PAR36 *Aero-Lites* LED landing and taxi lights. (46)

Installed *Sextant* nav lights with constant and fast strobe. (48)

Note: The aircraft has the retro looking Grimes original tail position light. (28, 33, 42)

MISCELLANEOUS:

Custom cover and carrying bag. The cover is useful for overnight parking if traveling. It’s about the same color as the Bahama Blue and covers the cabin area and windshield. There is a Velcro section that allows access to the cabin if needed. The cover has straps with plastic buckles that secure it to the aircraft. (20, 35)

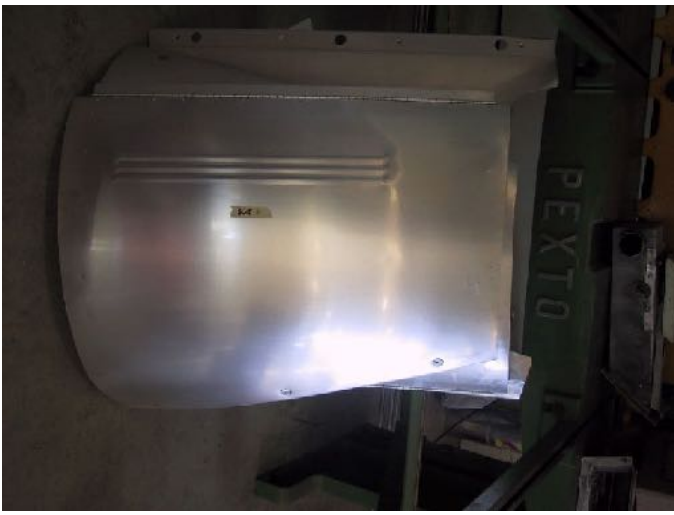
Almost all AN hardware was replaced with new.

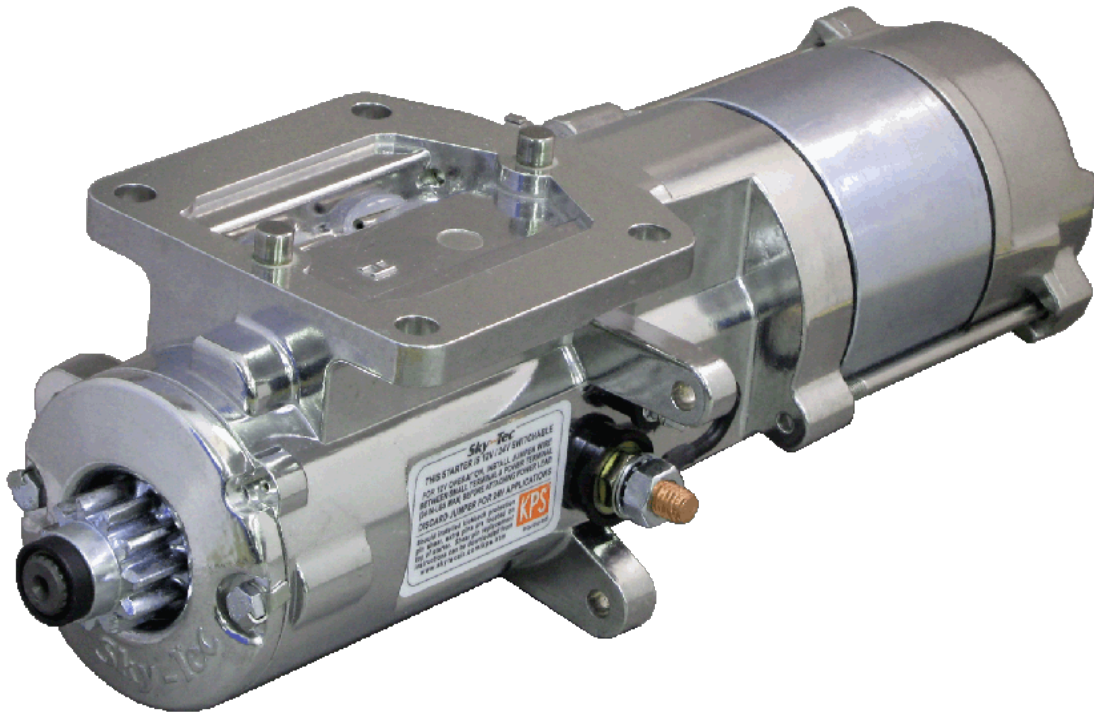
There is a matching rear “booster seat” for smaller folks. (33)



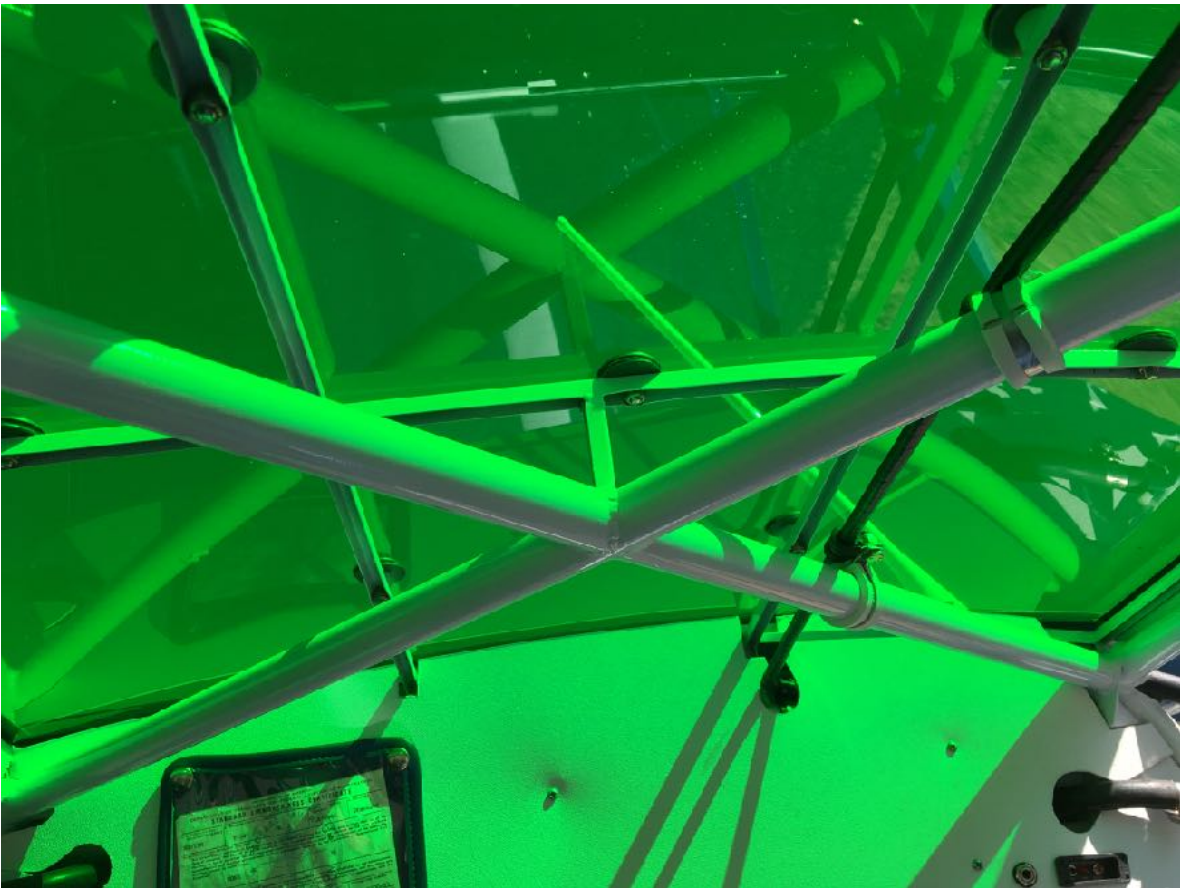






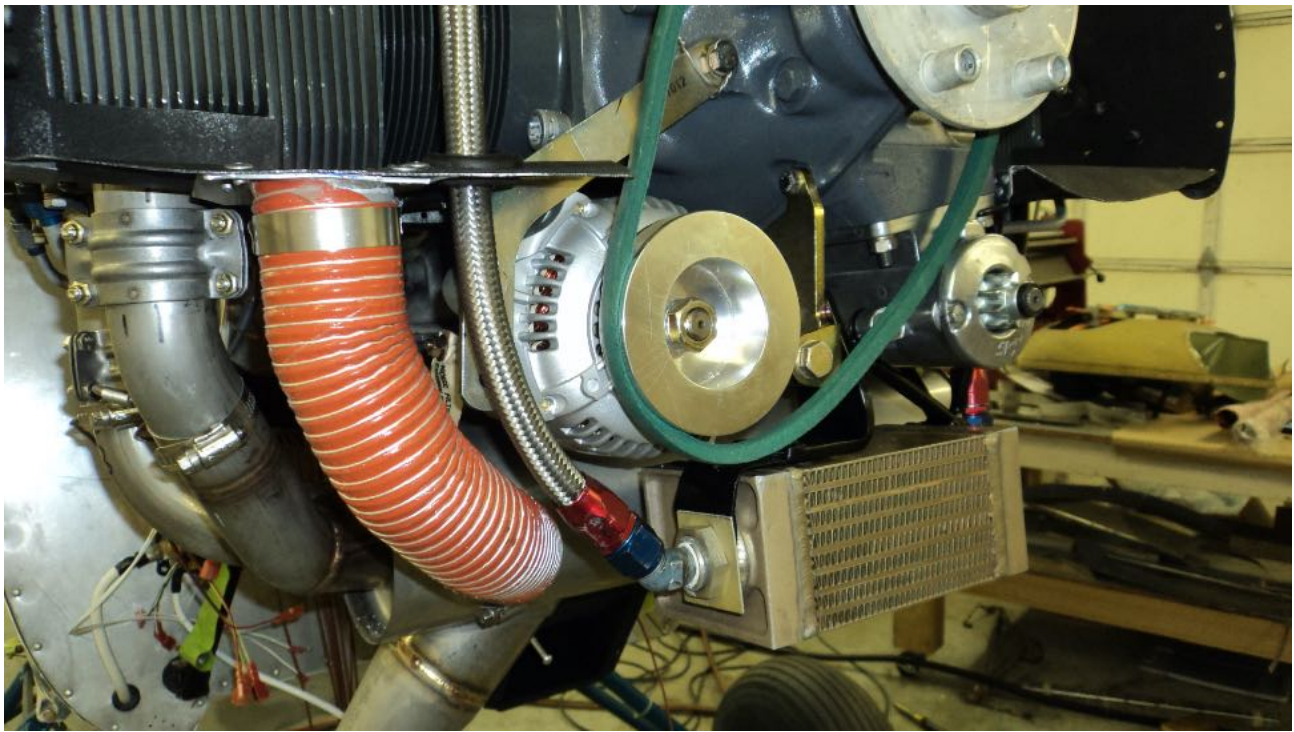












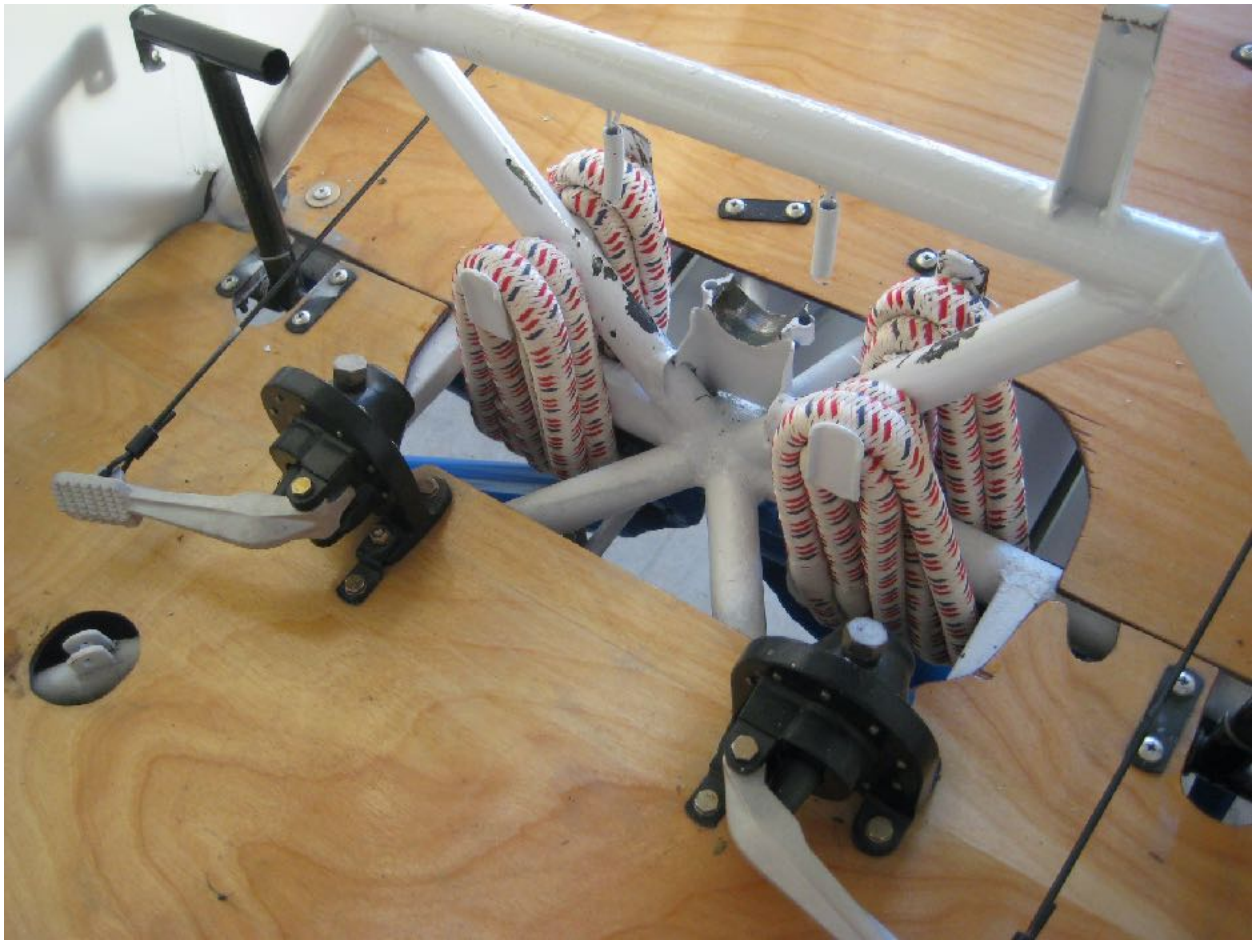












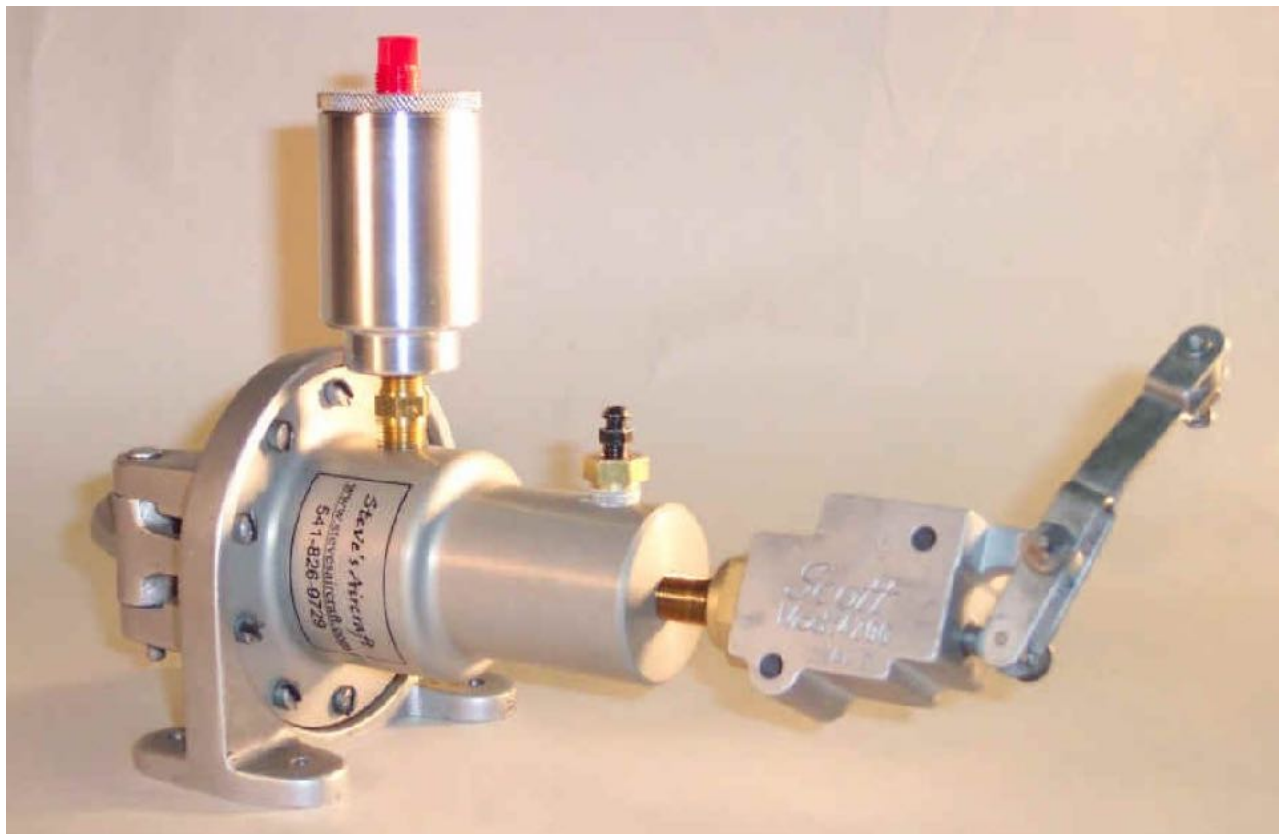
















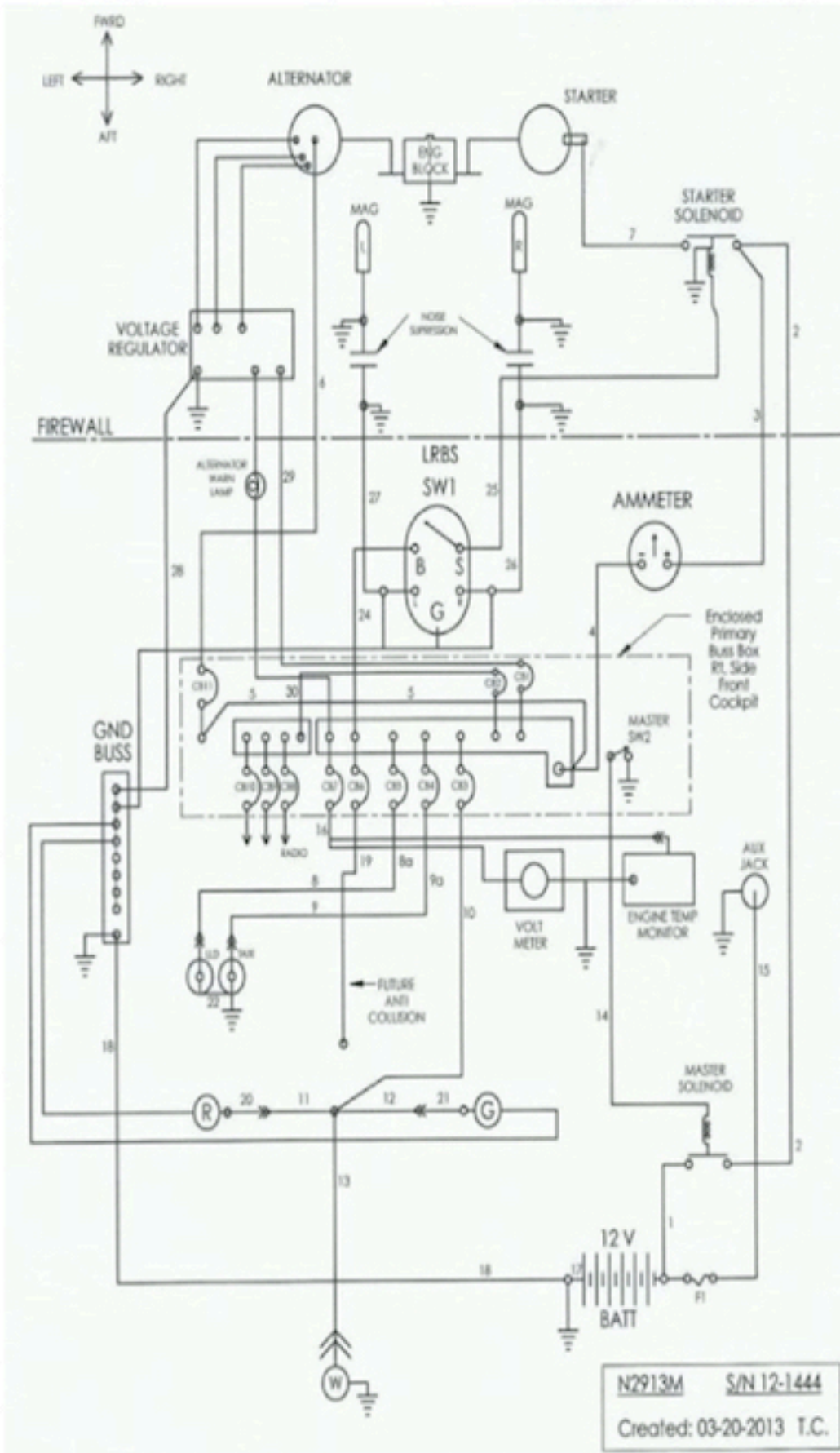


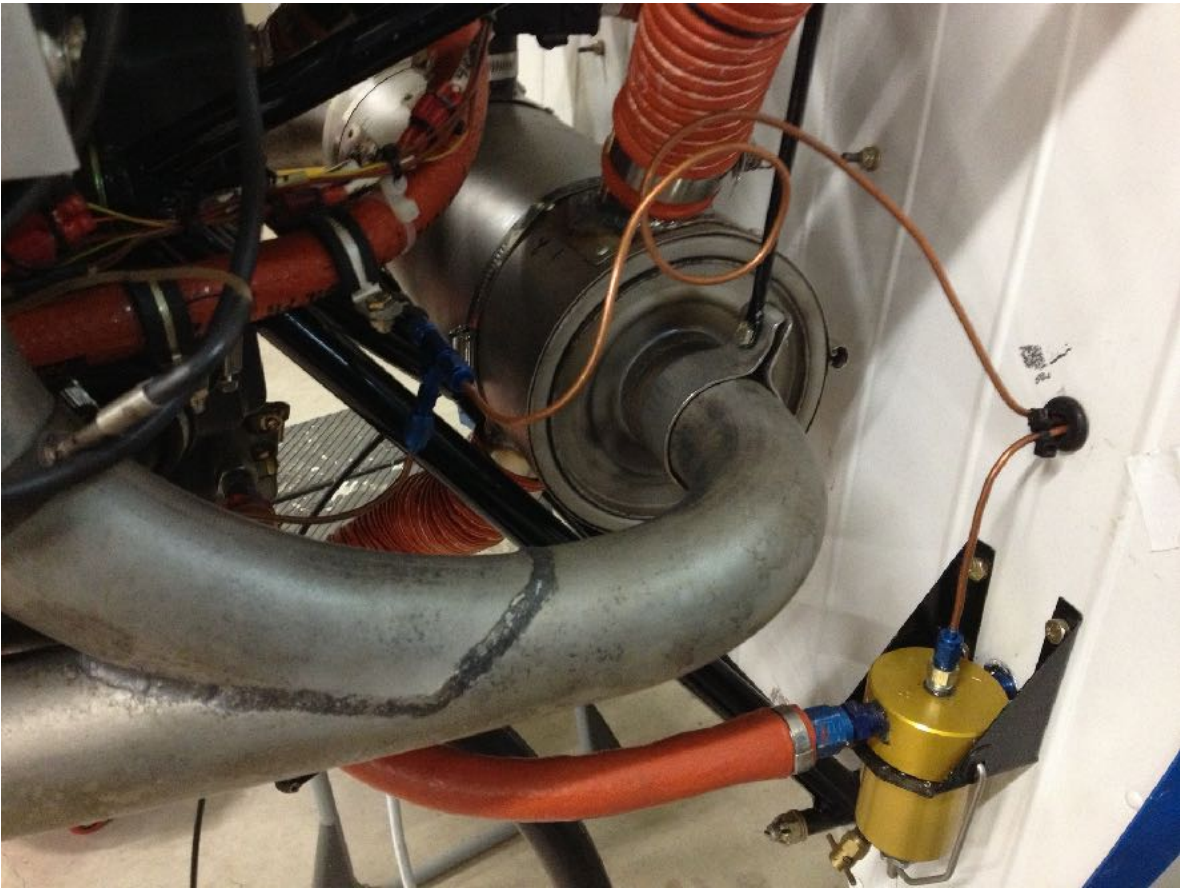


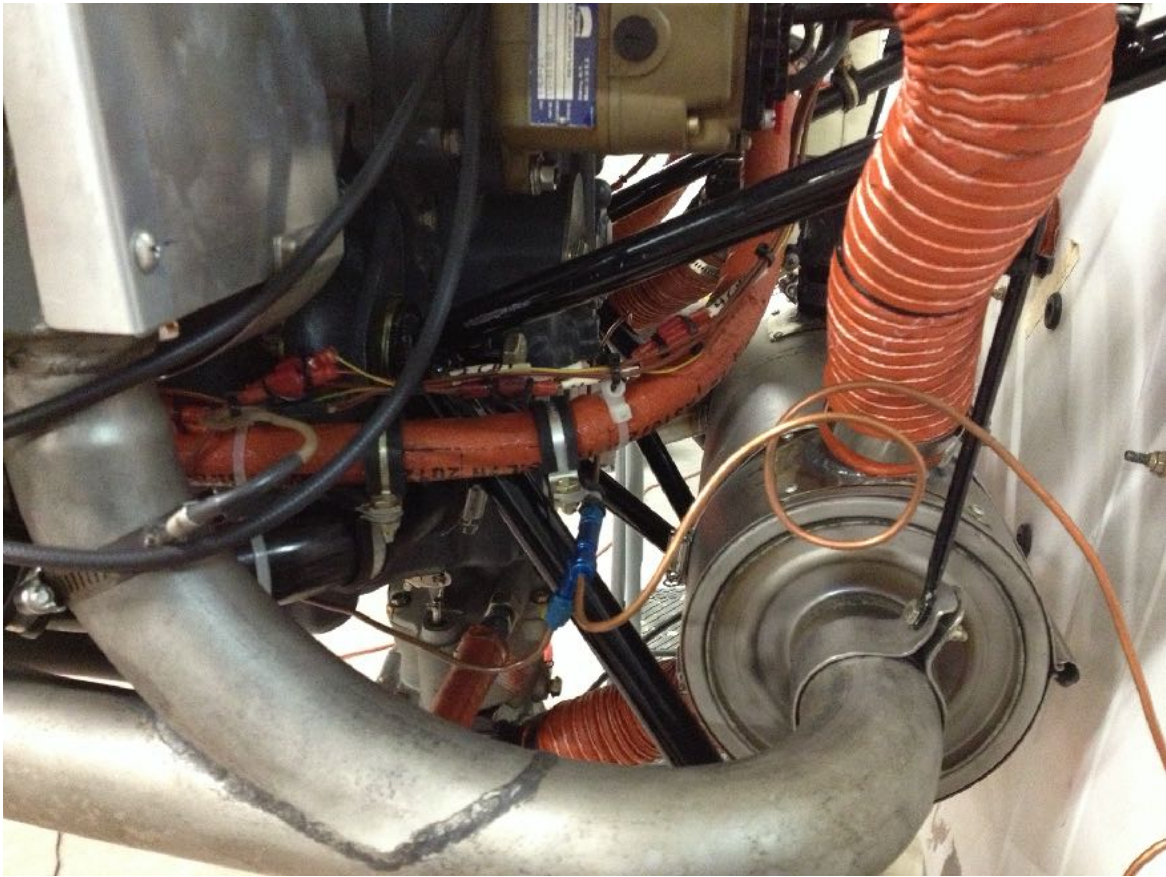




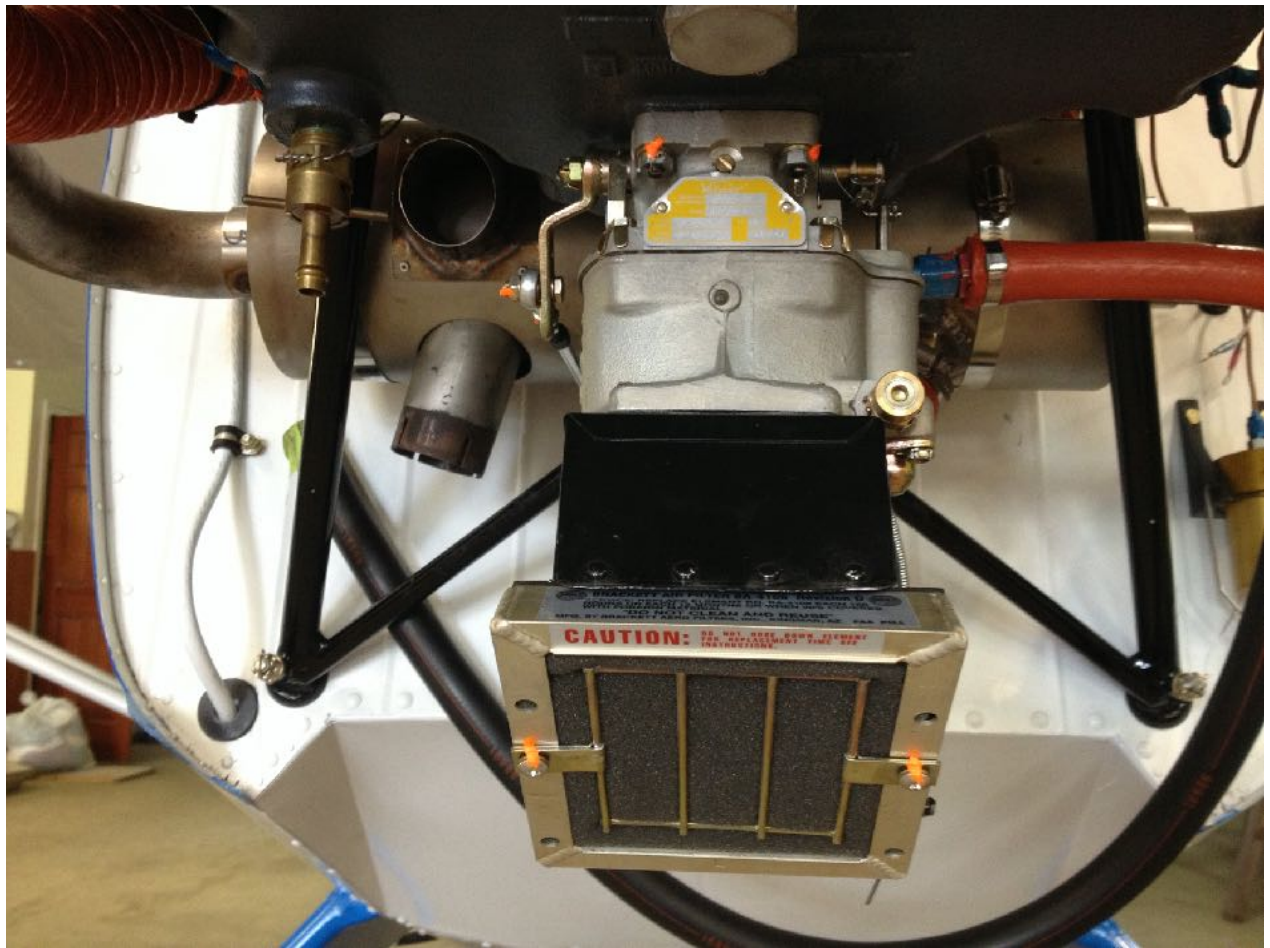




















Inc - Vortex Generator System
with STC #SA00530SE
5 VGe are damaged or
aircraft is not airworthy.

FUEL SUMPS BEFORE
IGHT OF EACH DAY

at be operated in compliance with
roved Operating Limitations
plane Flight Manual)



DC13.8V
SOCKET

OFF R L BOTH START

GABIN HEAT
PULL
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