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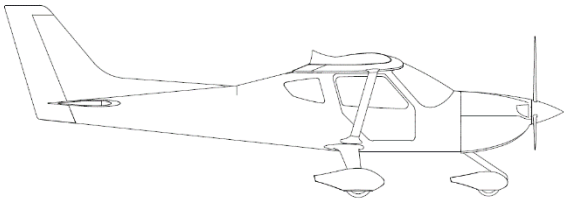
Hondo TX, 78861 USA



# Aircraft Maintenance Manual

## T1-AMM-13

The Colt 100 Aircraft is manufactured by Texas Aircraft Manufacturing, INC in the United States of America and is approved by the FAA regulations as a Special Light-Sport Aircraft under the accepted ASTM consensus standards.

**Make:** Texas Aircraft Manufacturing, INC

**Model:** COLT 100

**Aircraft Configuration:** Single Dynon-VFR- Sterna Propeller- with Parachute- Rotax 912 ULS2-01 Anti-Vapor lock system

**Airplane Serial Number:**

**Airplane Registration Number:**

# T1-AMM-13

**Revision NC**
**11/18/2024**

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Texas Aircraft, Engineering Manager

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- Log of Revisions

| Revision | Date | Description of Revision |
|---|---|---|
| NC | 11/18/2024 | Initial Release, based on the T1-AMM-E Manual and adapted to this configuration |

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- Introduction

This manual has been prepared exclusively for the Colt 100, manufactured by Texas Aircraft Manufacturing, INC., in accordance with the ASTM F2483. It supplies the best practices and ensures the correct maintenance, repairs, and alterations for the Special Light-Sport Aircraft Colt 100 , and contains the following main subjects:

1 – General
2 – Inspections
3 – Structures
4 – Engine
5 – Fuel System
6 – Propeller
7 – Utility Systems
8 – Instruments and Avionics
9 – Electrical System
10 – Heavy Maintenance, Repairs and Alterations
11 – Texas Aircraft Manufacturing Contact and Feedback
12 – Inspection Checklist
13 – Placards

The aim of this manual is to ensure the safe flight and the correct use of the aircraft in accordance with the manufacturer specifications.

The disregard of the operating and technical specifications contained inside this manual can result in injury or loss of life.

- Warnings, Cautions and Notes

The following safety definitions are used in this manual:

**WARNING**

**A WARNING STATEMENT IDENTIFIES A SPECIFIC HAZARD TO PERSONNEL OR DAMAGE TO EQUIPMENT. THE ABSENCE OF THE CORRECT PROCEDURE COULD RESULT IN INJURY AND LOSS OF LIFE.**

**CAUTION**

**A CAUTION statement identifies the possible risk of damage to aircraft or equipment, if not observed or corrected with the appropriate procedure.**

**NOTE**

A NOTE statement identifies the important or unusual procedure, which is emphasized.

## TABLE OF CONTENTS



## List of Abbreviations

ASTM - American Society for Testing and Materials
$arm_{MLG}$ - distance between the DATUM and Main Landing Gear
$arm_{NLG}$ - distance between the DATUM and Nose Landing Gear
CG - center of gravity
DATUM - reference point for balance calculation
IFR - instrument flight rules
MTOW - maximum takeoff weight
POH - Pilot's Operating Handbook
S-LSA - Special Light-Sport Aircraft
VFR - visual flight rules
$W_{empty}$ - total weight of the empty aircraft
$W_{MLG}$ - sum of weight on the Main Landing Gears
$W_{NLG}$ - weight on the Nose Landing Gear

- Unit Conversions

| | | |
|---|---|---|
| Length | meter [m] | 3.281 feet [ft] |
| | inch [in] | 25.4 millimeters [mm] |
| Area | square meter [$m^2$] | 10.764 square feet [$ft^2$] |
| Volume | liter [l] | 0.264 gallon [us gal] |
| | cubic inches [$in^3$] | 16.387 cubic centimeter [$cm^3$] |
| Weight | kilogram [kg] | 2.205 pounds [lb] |
| Speed | knots [kts] | 1.151 miles per hour [mph] |
| Pressure | bar | 14.504 psi |
| | pound per square feet [$lb/ft^2$] | 4.882 kilogram per square meter [$kg/m^2$] |
| Power | kilowatt [kW] | 1.341 horse-power [hp] |
| Moment of Force | kilogram meter [kg.m] | 7.233 pound feet [lb.ft] |
| | kilogram millimeter [kg.mm] | 0.0868 pound inch [lb.in] |

| Temperature | | Formula |
|---|---|---|
| Celsius [°C] | Fahrenheit [°F] | Celsius = 5/9 * (Fahrenheit – 32) |


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# 1 General

## 1.1 Equipment List

This Chapter 1.1 presents the equipment installed in the aircraft Colt 100 , manufactured by Texas Aircraft Manufacturing.
Information on assemblies and parts of the airframe (wing, fuselage, stabilizers, control surfaces, etc.) can be found in detail in the T1-IPC (Illustrated Parts Catalog) document, which can be accessed at this link: https://www.texasaircraft.com/support.

| DESCRIPTION | PART NUMBER | SECTION |
|---|---|---|
| SV-HDX1100 EFIS SkyView HDX Display | 102864-000 | Avionics |
| SV-EMS-220 Engine Monitoring Module | 101292-000 | Avionics |
| SV-BAT-320 SkyView System Backup Battery | 101265-000 | Avionics |
| SV-KNOB-PANEL SkyView Knob Control Panel | 102136-000 | Avionics |
| SV-COM-PANEL SkyView VHF Com Radio | 102035-000 | Avionics |
| SV-COM-T25 VHF Com Transceiver Module | 103708-000 | Avionics |
| SV-INTERCOM-2S Two-Place Stereo Intercom | 101677-000 | Avionics |
| SV-XPNDR-261 SkyView Mode S Transponder | 101409-000 | Avionics |
| SV-ADSB-472 Dual Band ADS-B Traffic and Weather Receiver | 102985-000 | Avionics |
| SV-AP-PANEL SkyView Autopilot Control Panel | 102137-000 | Avionics |
| SV32 SkyView Autopilot Roll Servo | 100854-002 | Avionics |
| SV42 SkyView Autopilot Pitch Servo | 101058-000 | Avionics |

| | | |
|---|---|---|
| SV-MAG-236 SkyView Remote Magnetometer | 102388-000 | Avionics |
| SV-GPS-2020 GPS Antenna Receiver Module | 102749-000 | Avionics |
| SV-ADAHRS-200 Air Data and Heading Module (With SV-OAT-340) | 101293-000 | Avionics |
| ELT 345 Emergency Locator Transmitter | A3-06-2880 | Avionics |
| Flap Motor | FA-400-12-2"-P | Avionics |
| Vertical Speed Indicator 3.1/8" 3000FT Range | VSI3FM-3 | Avionics |
| Airspeed Indicator 3.1/8" 0-140 Knots | ASI140N-3 | Avionics |
| Sensitive Altimeter 3.1/8" | ALT20INF-3 | Avionics |
| Glass Shield Electro Luminescent Light Inverter | 10-700-14 | Avionics |
| Position Light Green Model Sigma | 1017 | Avionics |
| Position Light Red Model Sigma | 1017 | Avionics |
| Tail Beacon Red | 918 | Avionics |
| Taxi Light LED | AVE-EX9TZYW-ENA | Avionics |

| | | |
|---|---|---|
| Landing Light LED | AVE-EX9LZYW-ENA | Avionics |
| Main Wheel Assembly (Qtd 2) | RF-019(A) | Airframe |
| Nose Wheel Assembly | RA-015(A) | Airframe |
| Brake Assembly (Qtd 2) | EA-006N(A) T2 | Airframe |
| Master Cylinder Assembly (Qtd 4) | MP-002.5N(A) | Airframe |
| Fuel Flow Transducer | FT-60 | Power Plant |
| Ignition Switch with start position | A-510-2 | Power Plant |
| Engine Rotax | 912 ULS2-01 | Power Plant |
| Propeller Type S69CBMR-3LE-WR-C // 3-RT-B | ---- | Power Plant |
| Propeller Hub | 3-RT-B | Power Plant |
| Propeller Blade #1 | S69CBMR | Power Plant |
| Propeller Blade #2 | S69CBMR | Power Plant |

| | | |
|---|---|---|
| Propeller Blade #3 | S69CBMR | Power Plant |
| Galaxy Rescue System Ballistic Parachute - GRS | GRS 6/600 SD | Airframe |
| SkyMaster Switches | SAS-108L | Avionics |
| Thermostasis Oil Temperature Control | 08-07212 | Power Plant |

## 1.2 Sources to Purchase Parts

The purchase of parts can be ordered directly from Texas Aircraft Manufacturing, by email request to support@texasaircraft.com or from authorized dealers.

## 1.3 List of Disposal Replacement Parts

| | |
|---|---|
| Air Filter | ROTAX P/N: 825551 |
| Fuel Filter / Gascolator | ACS Gascolator 10580 |
| Oil Filter | ROTAX P/N: 825016 |
| Nose Gear Tire | Aero Classic 11x4.00-5 8Ply |
| Main Gear Tire | 5.00-5 8Ply Michelin Air TL (recommended) |
| | 5.00-5 6Ply Goodyear Custom III |
| Brake Fluid | MIL-H-5606 |
| Master Brake Cylinder Fluid | MIL-H-5606 |

## 1.4 Engine Specifications

| | |
|---|---|
| Manufacturer | BRP-Rotax Gmbh & CO KG |

| | | |
|---|---|---|
| Model | | 912 ULS2-01 |
| Maximum Power | Take-off (5800 rpm) | 73.5 kW / 100 hp (max 5 minutes) |
| | Max continuous (5500 rpm) | 69.0 kW / 93 hp |
| Reduction Ratio (crankshaft : propeller shaft) | | 2.43 |

## 1.5 Weight and Balance Information

The Chapter 1.5 – Weight and Balance contains the following subjects:

1.5.1 - General Data
1.5.2 - CG Calculation

- **General Data**

The next table presents the general data regarding the weights and allowable CG range for flight.

| | |
|---|---|
| MTOW | 600 kg / 1320 lb |
| Empty Weight (including Unusable Fuel) | 386.0 kg / 851.0 lb |
| Maximum Baggage Weight | 20 kg / 44.1 lb |
| Maximum Fuel | 120 l / 31.7 US gal |
| Most Forward CG | 1.916 m / 75.86 in (20.85%) |
| Most Afterward CG | 2.018 m / 80.51 in (29.32%) |

**WARNING**

**THE PILOT IS THE RESPONSIBLE TO CORRECTLY LOAD THE AIRCRAFT. ANY CONFIGURATION BEYOND THE CG BOUNDARIES COULD RESULT IN UNSTABLE FLIGHT, ACCIDENT AND LOSS OF LIFE.**

- **CG Calculation**

In order to obtain the Center of Gravity, CG, position the aircraft on the 3 scales to get the weights in each landing gear. Before the weight recording, be sure that:

- ✓ The hangar is closed;
- ✓ The aircraft is cleaned, without personal objects, tools and any instrument that does not make part of the standard instruments;
- ✓ The wing tanks are completely empty;
- ✓ The seats are located at the center of the seat track;
- ✓ Flaps are retracted;
- ✓ Flight Controls are in neutral position;
- ✓ The aircraft is aligned to the horizontal.

The figure below shows the main distances from the reference points and DATUM, to get the CG of the empty aircraft. The DATUM is located behind the spinner plate, as can be seen in figure 3.2.1. In addition, the distance between the DATUM and the pilot and passenger seats (at the center of the seat track), baggage and fuel can be viewed in the next table.

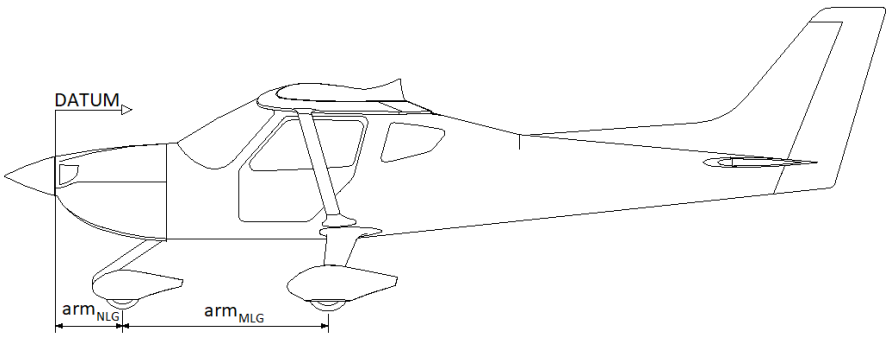


Figure 3.2.1. DATUM reference.

After recording the weights on the landing gears, the Center of Gravity can be calculated as follow:

$$CG = \frac{\sum Moment}{\sum Weight} = \frac{(W_{NLG}.arm_{NLG}) + (W_{MLG}.arm_{MLG})}{W_{empty}}$$

where:
$W_{empty}$ - total weight of the empty aircraft

$W_{MLG}$ - sum of weight on the Main Landing Gears
$W_{NLG}$ - weight on the Nose Landing Gear
$arm_{MLG}$ - distance between the DATUM and Main Landing Gear = m
$arm_{NLG}$ - distance between the DATUM and Nose Landing Gear = m

| | |
|---|---|
| $arm_{NLG}$ | 0.495 m / 19.50 in |
| $arm_{MLG}$ | 2.153 m / 84.75 in |
| Pilot | 2.108 m / 82.99 in |
| Passenger | 2.108 m / 82.99 in |
| Fuel | 2.197 m / 86.50 in |
| Baggage | 2.743 m / 107.99 in |
| Leading Edge | 1.634 m / 64.35 in |

The Center of Gravity in terms of wing chord is calculated below.

$$\%CG = \frac{(CG - LE)}{c} * 100$$

where:
CG - $X_{CG}$
LE - distance between the wing leading edge and datum.
c - wing chord (1.400 m or 55.12 in)

## 1.6 Recommended Tire Inflation Pressures

| | |
|---|---|
| Nose Gear Tire | 25 psi |
| Main Gear Tire | 35 psi |

At the discretion of the mechanic and operator, the average pressure on the main gear tire can be between 31 and 35, depending on the operating weight.

## 1.7 Approved Oils and Capacities

The ROTAX 912 ULS2-01 engine is provided with a dry sump forced lubrication system (please refer to figure 1.7.1.) equipped with a main oil pump integrated pressure regulator (1) and oil pressure sensor (2).

The oil pump (3) sucks the motor oil from the oil tank (4) via the oil cooler (5) and forces it through the oil filter (6) to the points of lubrication in the engine.

The surplus oil emerging from the points of lubrication accumulates on the bottom of the crankcase and is forced back to the oil tank by blow-by gases.

The oil circuit is vented via a bore (7) on the oil tank.

The oil temperature sensor (8) for reading the oil inlet temperature is located on the oil pump housing.

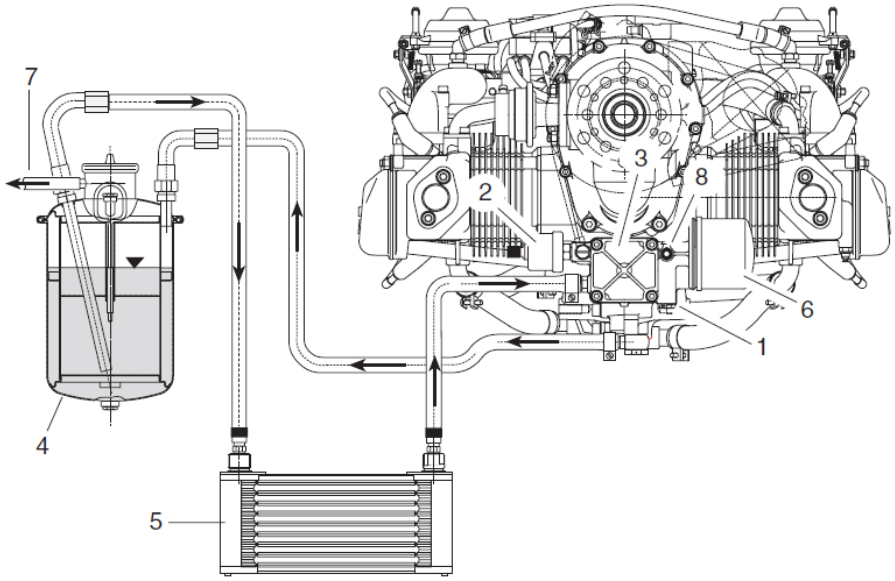


Figure 1.7.1. Engine Lubrication System.

| | |
|---|---|
| Oil * | AeroShell Sport Plus 4 (recommended) |
| Oil Capacity | Min. 2.5 l (0.66 US gal or 2.6 quarts) |
| | Max. 3.0 l (0.8 US gal or 3.2 quarts) |
| Oil Change | every 50 hours |
| Oil Filter Change | every 50 hours |
| Oil Tank** | every 100 hours |

Notes:

* Climate condition temperature can affect recommended oil (see NOTE below).

**Check the oil tank and clean the oil tank if contaminated.

The allowable viscosity grade oil is shown below. More information can be found in the Rotax Operators Manual.

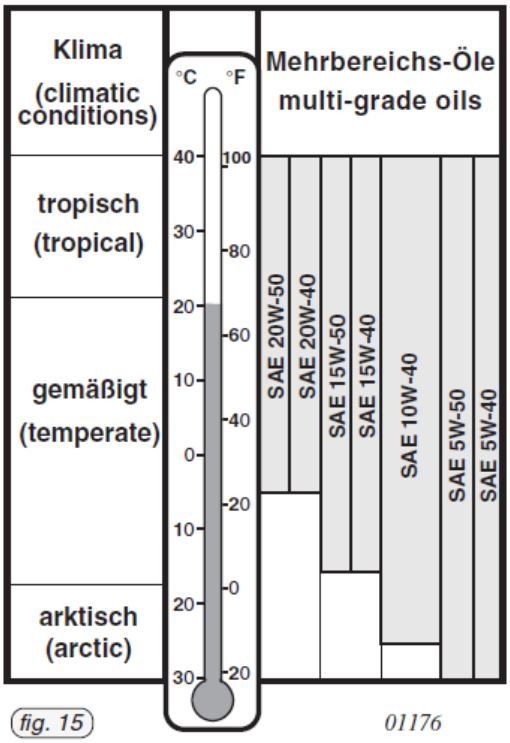


fig. 15 01176

**NOTE**

Multi-viscosity grade oils are less sensitive to temperature variations than single grade oils. They are suitable for use throughout the seasons, ensure rapid lubrication of all engine components at cold start and get less fluid at higher temperature.

## 1.8 Cooling

The cooling system of the Rotax 912 ULS2-01 is designed for liquid cooling of the cylinder heads and ram-air cooling of the cylinders. The cooling system of the cylinder heads is a closed circuit with an expansion tank.

The coolant flow is forced by a water pump loop, driven from the camshaft. Coolant flows from the radiator to the cylinder heads. From the top of the cylinder heads the coolant flows to the expansion tank. After the expansion tank, the coolant flows back to the radiator to complete the circuit.

The expansion tank is closed by a pressure cap. As coolant temperature rises, a pressure valve will open and some coolant will flow to the transparent overflow bottle mounted on the firewall. When cooling down, the coolant will be sucked back into the cooling circuit.

| | |
|---|---|
| Cooling System | Liquid / Ram-air |
| Coolant* | See Rotax Operators Manual |
| Coolant Types** | Conventional, based on ethylene glycol (50% concentrate, 50% water) |
| | Waterless, based on propylene glycol |
| Coolant Tank** | 200 hours |

Notes:

*Verify coolant level, replenish as necessary.

**Flushing the cooling system each 200 hours.

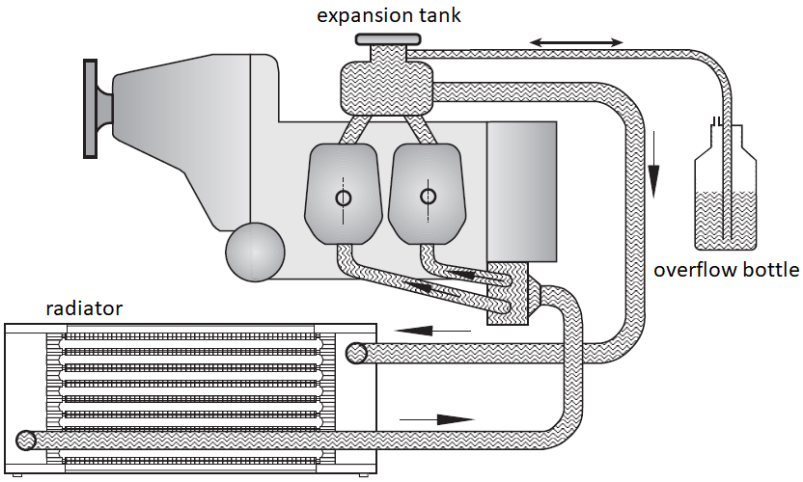


Figure 1.8.1. Cooling System.

**NOTE**

The important advantage of water-less coolant is its higher boiling point than a conventional mixture.

**CAUTION**

**- Verify coolant level in the expansion tank, replenish as required up to top. The coolant level must be at least 2/3 of the expansion tank.**

**- Verify coolant level in the overflow bottle, replenish as required. The coolant level must be between max and min mark.**

## 1.9 Recommended Fastener Torque Values

The importance of correct torque application cannot be overemphasized. Under torque can result in unnecessary wear of nuts and bolts, as well as the parts they secure. Over torque can cause failure of a bolt or nut from overstressing the threaded areas. Uneven or additional loads that are applied to the assembly may result in wear or premature failure.

Consult the figure 1.9.1 below to find the correct torque parameters for various fasteners.

| AN Bolt Size | Bolt Size-<br>Threads Per Inch | Standard Nuts<br>AN310, AN315, AN365 | |
|---|---|---|---|
| | | *INCH POUNDS* | *FOOT POUNDS* |
| *AN3* | *#10-32* | *20-25* | *1.6-2.0* |
| *AN4* | *1/4-28* | *50-70* | *4.2-5.8* |
| *AN5* | *5/16-24* | *100-140* | *8.3-11.6* |
| *AN6* | *3/8-24* | *160-190* | *13.3-15.8* |
| *AN7* | *7/16-20* | *450-500* | *37.5-41.7* |
| *AN8* | *1/2-20* | *480-690* | *40.0-57.5* |
| *AN9* | *9/16-18* | *800-1000* | *66.6-83.3* |
| *AN10* | *5/8-18* | *1100-1500* | *91.6-125.0* |

Figure 1.9.1. Torque values (inch pounds). Ref: AC 43.13-1B.

## 1.10 General Safety Information

To minimize the risk of accidents, always perform the airframe maintenance tasks following the procedures described in this manual, additionally, regularly consult the manuals referring to the installed components (engine and propeller) and the best practices of aircraft maintenance training. Use the right tool and personal protective equipment, such as ear and eye protections, gloves, safety shoes, apron and splash gloves as needed.

Others general safety information to follow are:

- Make sure the ignition switch is in the off position and the key is removed before any maintenance is performed;
- Allow engine to cool down to ambient temperature before starting any work on the engine, reducing the risk of burnings;
- Before any electrical component substitution, disconnect the negative lead from the battery source;
- Remove all jewelry, rings and watches, because they can conduct electricity and may cause a short circuit;
- Do not start the engine if any person is close to the aircraft;
- Never parking the aircraft under a hanger door for long periods of time.

- **Instructions for Ground Handling**

The aircraft should be moved by pulling the propeller near the hub or pushing the wing strut near the wing on both sides. Steer by pulling only one wing strut or pressing the tail cone down in front of the empennages to raise the nose wheel and turn the aircraft. Be careful to not touch the tail on the ground and never use the control surfaces to move the aircraft.

- **Lubrication**

*1.10.1.1 Brakes*

Use a brake cleaner to remove brake fluid, grease, oil and dirt on the brake disk.

**Directions:**

- Protect all rubber brake parts, plastic parts, rims, and painted surfaces from the overspray.
- Wet down surfaces to be cleaned using short bursts of the cleaner at a distance of 18-24 inches.
- After all surfaces have been wetted, continue spraying to remove contaminants.
- Air dry or wipe with a clean cloth.
- For heavy deposits, repeat application as necessary.

*1.10.1.2 Elevator Control*

The elevator control should be cleaned and lubricated with aerosol spray lubricant on all rod ends and all ball links, as shown below. From the left to right, the figures are: close to the pedals, push-rods connections and elevator actuator.

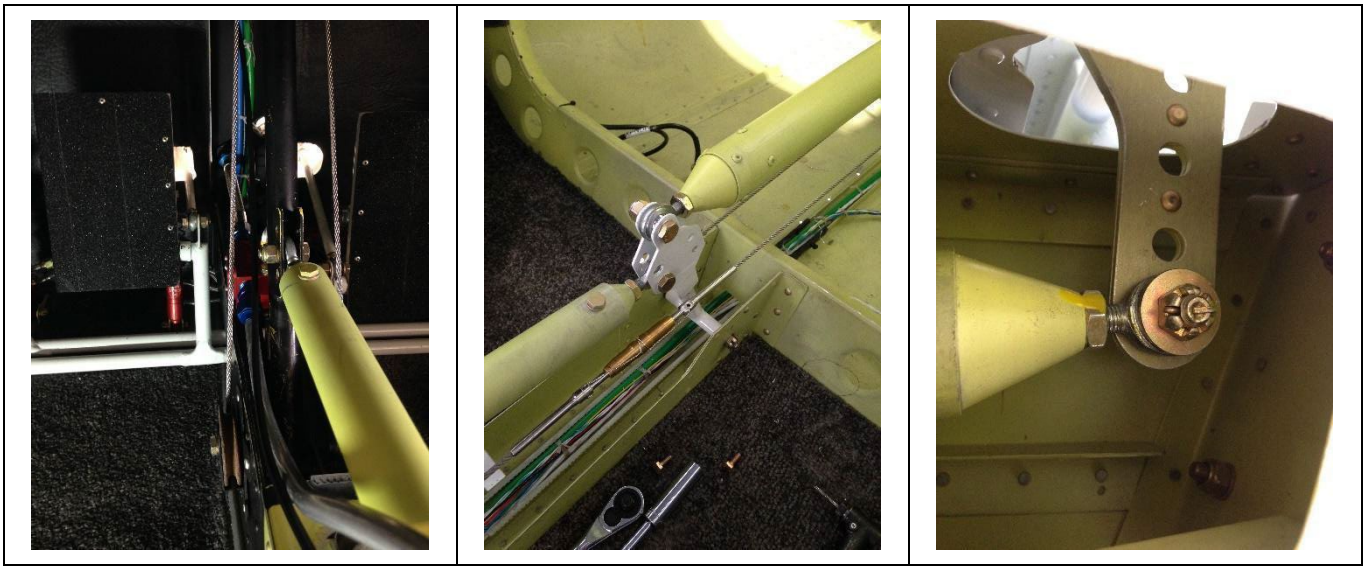

Figure 1.10.2.2.1. Elevator Control System.

Lubricate all rod ends that connect the elevator to the horizontal stabilizer.

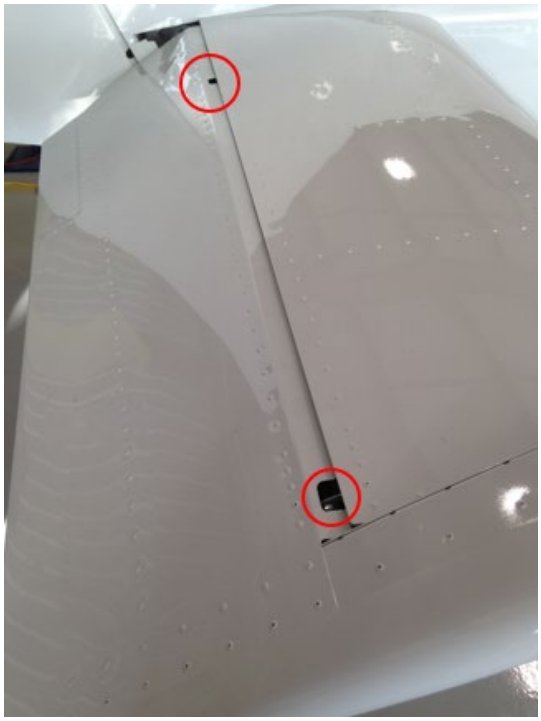

Figure 1.10.2.2.2. Elevator Attach Points.

### *1.10.1.3 Aileron Control*

The aileron system is lubricated with aerosol spray lubricant.

Figure 1.10.2.3.1. Aileron Horn.

Figure 1.10.2.3.2. Aileron Rod End.

*1.10.1.4 Rudder Control*

Lubrication of the rudder system is done using aerosol spray lubricant in all rod ends, inside and outside the cockpit, as shown below.

Fittings between tubes are lubricated with lithium general purpose grease, grade 2.

The rod ends used in the connection to the vertical stabilizer are also lubricated with aerosol spray lubricant.

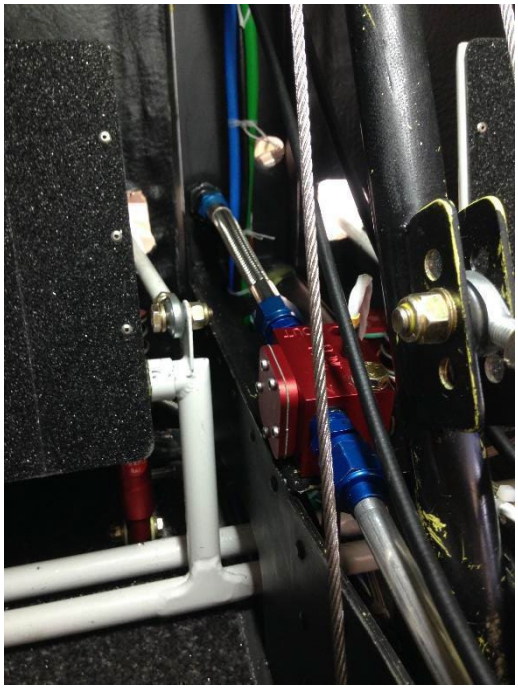

Figure 1.10.2.4.1. Rudder Control System.

Figure 1.10.2.4.2. Rudder whiffletree.

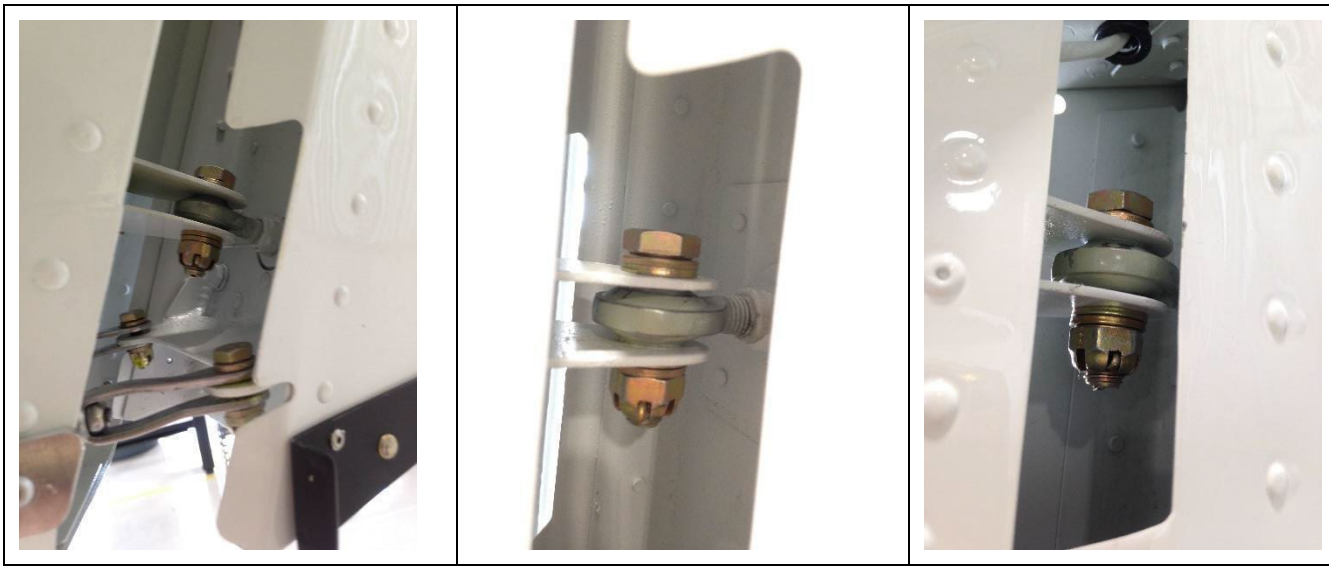

Figure 1.10.2.4.3. Rudder Rod Ends.

*1.10.1.5 Flap Control*

Lubricate the flap attachments with aerosol spray lubricant.

Figure 1.10.2.5.1. Flap attachments.

The flap actuator pushrod should be lubricated with lithium general purpose grease, grade 2.

Figure 1.10.2.5.2. Flap Motor.

### *1.10.1.6 Main Column Control*

Use lithium general purpose grease, grade 2 for fittings between tubes and metal-to-metal connections in the main control.

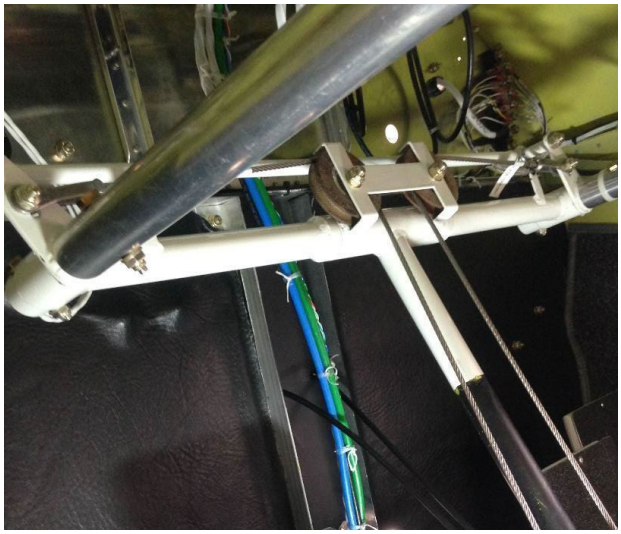

Figure 1.10.2.6.1. Main Control System.

*1.10.1.7 Autopilot*

Use aerosol spray lubricant in the rod ends of the elevator servo push-rod.

Figure 1.10.2.7.1. Push-rod elevator servo.

*1.10.1.8 Engine*

*For Engine lubrication, see Chapter 1.7.*

## 1.11 Reporting Safety of Flight Concerns

Contact Texas Aircraft Manufacturing to report possible safety of flight and service difficulty issues (faults, malfunctions, defects, and other occurrences) upon discovery using the Feedback Form in Section 16. Please send the mentioned form by Mail or Email to:

Texas Aircraft Manufacturing, INC

508 Vandenberg Road, Hangar 5

Hondo, TX 78861

800-922-2161

www.texasaircraft.com

support@texasaircraft.com

Owners/operators have the responsibility to understand that they may submit written comments and questions regarding any mandatory Notice issued by Texas Aircraft Manufacturing, by using the Feedback Form in Section 16 and sending an email with the form to support@texasaircraft.com.

Should an owner/operator not comply with any mandatory service requirement, the aircraft shall be considered not in compliance with applicable ASTM standards and may be subject to regulatory action by the presiding aviation authority.


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tension



# 2 Inspections

tension

tension



## 2.1 Aircraft Alignment

In order to verify the alignment of the Colt 100 aircraft, there are reference points and distances provided in the tables and figures below. The following reference points are located at the wings and stabilizers. The distances are from the wings to vertical stabilizer (W-VT) and vertical to horizontal stabilizer (VT-HT). The measurement between the wing root and fuselage as well as the wing dihedral is also provided below.

Table 2.1.1. Distance references for alignment.

| Reference | Distance | Figure |
|---|---|---|
| W - VT | 4109 mm ± 20 mm | 9.1.1 / 9.1.6 |
| VT’ - HT | 1810 mm ± 10 mm | 9.1.1 / 9.1.7 |
| TR - TL height | 43 mm ± 4 mm | 9.1.1 / 9.1.4 |
| wing – fuselage gap | 37.4 mm ± 1.0 mm | 9.1.5 |

tension



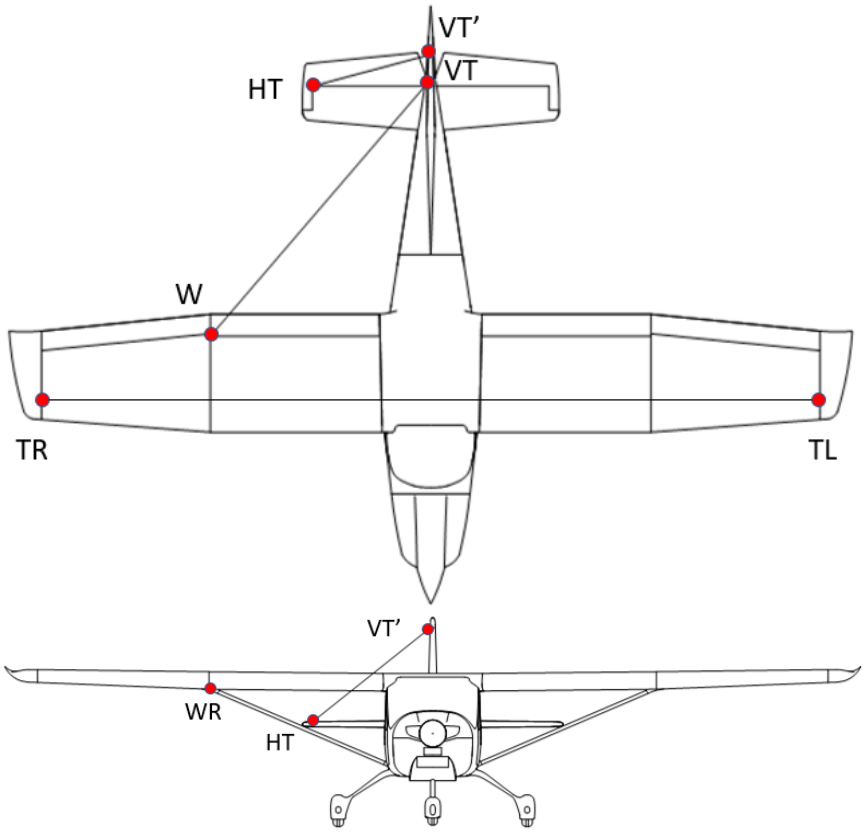


Figure 2.1.1. Reference points and distances.

**Wing Dihedral and Incidence**: The first procedure is leveling the fuselage as shown in the figure. The angle measurement is taken by placing the level gauge at the center of the fuselage in front of the rivet row.

tension



Figure 2.1.2. Fuselage alignment.

Then, put a line between the wing tips at the first rivet row and stretch it as straight as possible.

tension



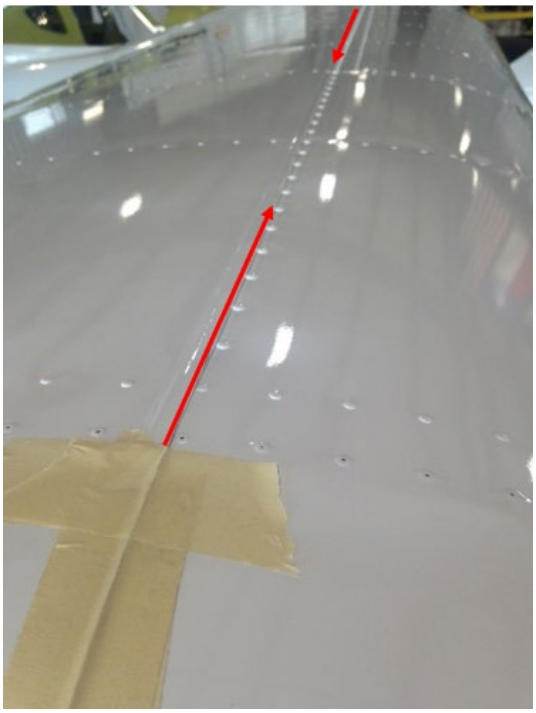

Figure 2.1.3. Line location to align the wings.

The wing dihedral and wing incidence are verified by measuring the distance from the top of the fuselage (first lateral rivet row) to the stretched line across from the wing tips. See figure 9.1.4 below.

tension



Figure 2.1.4. Height of line at the fuselage.

**Wing Span and Sweep**: The wing span and wing sweep are verified by measuring the gap between the wing root and outboard edge of the fuselage. Make sure to measure the gap along the wing chord. See figure 2.1.5 below.

tension



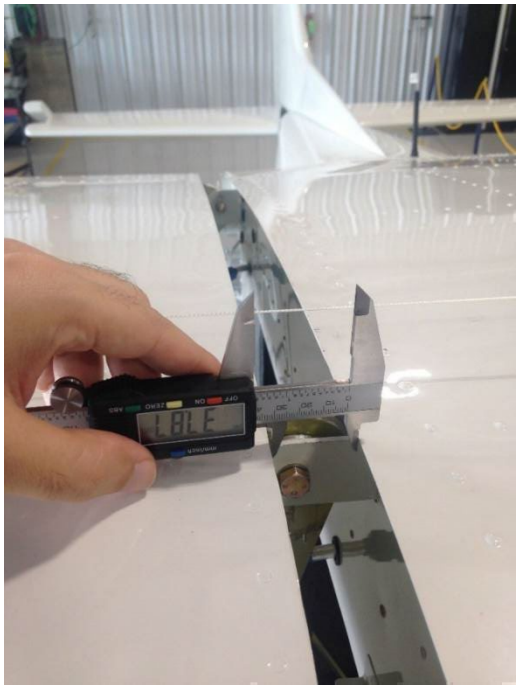

Figure 2.1.5. Gap between fuselage and wings.

**Airframe Alignment**: An airframe alignment verification can be performed by taking a measurement between a specific point of the wing and vertical stabilizer. The point W on the wing is located at the first rivet of the second rivet row between the aileron and flap station (see figure 9.1.6 below). The VT point is the lower corner of the vertical stabilizer, on the inboard edge.

The alignment of the vertical and horizontal stabilizers is performed by taking a measurement between the first rivet forward of the trailing edge corner on the horizontal stabilizer and the third rivet from the top corner of the vertical stabilizer (see figure 2.1.6 below.) Airframe alignment described above on both left and right sides.

tension



Figure 2.1.6. W and VT reference points.

Figure 2.1.7. HT and VT' reference points.

tension



## 2.2 Control Cable

The table below shows the required tension for the control cables.

The measurement must occur with the following situation: Sticks in the neutral position for the elevator and centered (neutral position of the ailerons).

Rudder and aileron cables are 1/8“ in diameter

Table 2.2.1. Control Cable, Tensions.

| Surface Control | Tension |
|---|---|
| Rudder | 35 lbs ± 5 lbs |
| Aileron cockpit | 25 lbs ± 5 lbs |
| Aileron | 25 lbs ± 5 lbs |

The procedure to check those values is as follows:

- Remove the seats and the upholstery on the center console and measure the rudder cable

tension



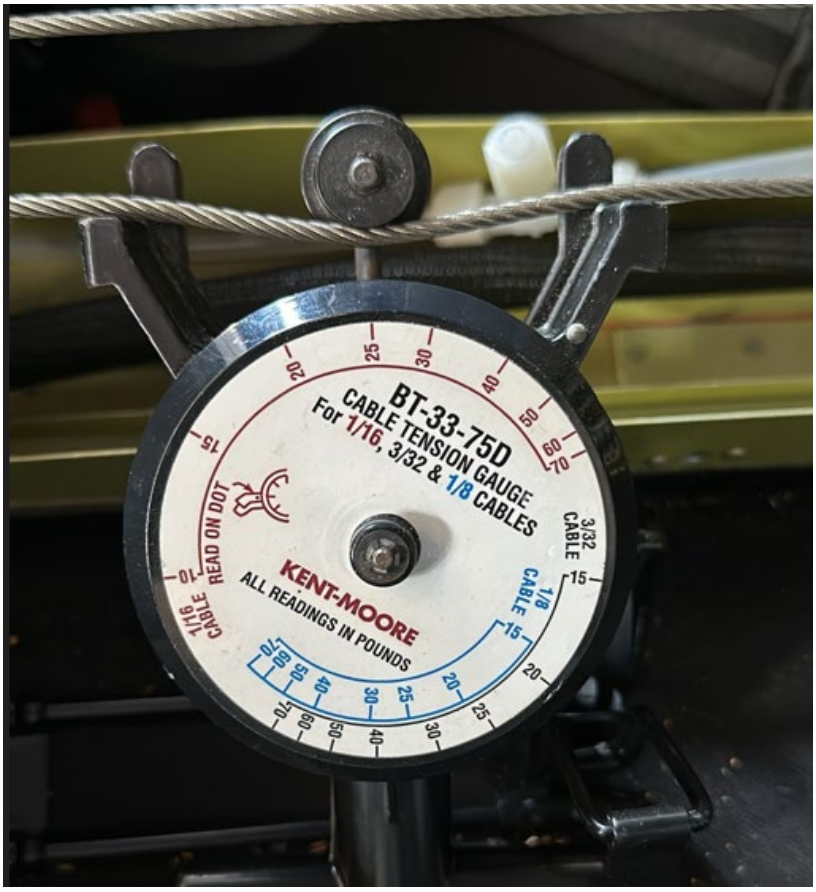


Figure 2.2.1. Measure of the rudder tension cable

- If the readings are OK, then proceed. If not, tension the cables using the tensioner located near the elevator bell crank.
- No temperature compensation is required
- Any tensiometer can be used, as long as the tool has the following specification:
    - *Range 15-70 Lbs in 1 lb increments or a greater resolution..*
    - *Cable sizes: at least 1/8".*
    - *Accuracy within +/-10 percent or greater.*

tension



Figure 2.2.2. Tensioning point of the rudder

- Do the same with the Aileron, noting the different tension
- If adjustment is needed, find the tensioners on the roof near the seatbelts fixtures as the picture shows:

tension



Figure 2.2.2. Tensioning point of the aileron

## 2.3 Level of Certification

*Owner* - Items that can be expected to be completed by a responsible owner who holds a pilot certificate but who has not received any specific authorized training.

**NOTE**

FAA regulations authorize SLSA aircraft owners who hold at least a sport pilot certificate to perform preventative maintenance as outlined in 14 CFR Part 43.

tension



*LSA Repairman Maintenance* - Items that can be expected to be completed on a SLSA by a responsible individual, which holds a FAA repairman certificate (light sport aircraft), with a maintenance rating or equivalent.

*A&P* - Items that can be expected to be completed by a responsible individual who holds a mechanic certificate with airframe or powerplant ratings, or both, or equivalent.

*Task Specific* - Items that can be expected to be completed by a responsible individual who holds either a mechanic certificate or a repairman certificate and has received task specific training to perform the task.

tension



## 2.4 Line Maintenance, Repairs, and Alterations

Alterations must be approved by **Texas Aircraft Manufacturing INC** prior to the alteration

***Authorized to perform*** – LSA Repairman Maintenance or A&P.

- **First 25 hours**

This section outlines the inspection for the **first** 25 hours. For this inspection, it is not necessary to remove inspection panels or the center console.

Visual inspection should be conducted for:

1. Cracks on exterior surfaces, such as: wings, stabilizers and control surface.
2. Looseness of bolts and nuts.
3. Excessive wear on brake assembly.
4. Rod ends and attachments of surface controls.
5. Evidence of fuel leakage on the wing.

### *2.4.1.1 Engine*

The inspection performed on the engine at 25 hours is the same as for the 100 hours engine inspection as provided by the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series on Chapter 05-20-00 (Maintenance Schedule). To do any work on the Rotax engine and keep warranty on the engine, it is recommended to take the appropriate maintenance course from Rotax Aircraft Engines.

**Consult the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series for more details.**
**Visit https://www.flyrotax.com/services/technical-documentation.html.**
The recommended tasks are:

- All (Alert) Service Bulletins are complied with. If necessary, perform these and document their execution;
- All SI-PAC (Service Instruction Part and Accessories) for additional GENUINE-ROTAX® –parts and accessories used on the relevant aircraft are complied with If necessary to perform these and document it;
- Remove all spark plugs and check for spark plug defects (deposits, melting...) Check if GENUINE–ROTAX® spark plugs are used;
- Check the magnetic plug;

tension



- General visual inspection of the engine for damage or abnormalities. Check cooling air duct and cooling fins of the cylinders for obstruction, cracks, wear and good condition. Take note of changes caused by temperature influence;
- Inspect all coolant hoses of the engine for damage, including leakage, hardening from heat, porosity, loose connections and secure attachment. Verify routing is free of kinks and restrictions;
- Carry out visual inspection of leakage bore at the base of the water pump for signs of leakage;
- Inspect the expansion tank for damage and abnormalities. Check coolant level, replenish as necessary. Inspect radiator cap. Inspect protection rubber on expansion tank base for correct fit;
- Inspect the overflow bottle for damage and abnormalities. Verify coolant level, replenish as necessary. Inspect line from expansion tank to overflow bottle for damage, leakage and clear passage. Inspect venting bore in cap of overflow bottle for clear passage;
- Inspect all oil lines for damage, leak age, hardening from heat, porosity, security of connections and attachments. Verify routing is free of kinks and restrictions;
- Inspect all fuel lines for damage, leakage, hardening from heat, porosity, security connections and attachments. Verify routing is free of kinks and restrictions. Check steel fuel lines for any cracks and/or scuffing marks;
- Inspect the wiring and its connections for secure fit, damage and signs of wear;
- Inspect engine suspension and fasteners (GENUINE-ROTAX®-) for secure fit, including damage from heat, deformation, cracks;
- Check the airbox (GENUINE ROTAX®) incl. throttle body actuation. Inspect sensors for tight fit, damage from heat, damage and signs of wear;
- Checking the air filter;
- Inspection of the GENUINE ROTAX® exhaust system included in the standard delivery. Inspect the exhaust system for crack formation and uncharacteristic exhaust stains (leaks). NOTE: If there is no GENUINE ROTAX® exhaust system in use, the specifications of the manufacturer must be observed;
- Drain oil from oil tank;
- Check the oil tank and clean the oil tank if contaminated;
- Refill oil tank with approx. 3 liters of oil. For oil quality, see Operators Manual latest edition;
- Install new oil filter;
- On configurations with auxiliary alternator, check the attachment and the V-belt tension;
- Check all temperature sensors;
- Check all pressure sensors;
- Check all exhaust gas temperature sensors;
- Check all speed sensors;
- Check the throttle control sensor;

tension



- Check the knock sensor;
- Download the ECU fault memory (fault and data logs);
- Check the ECU wiring;
- Check the throttle valve adjustment;
- Visual inspection of the fuses;
- Engine cleaning;
- Checking the air filter;
- Verify liquid level, replenish as necessary;
- Start the engine and run to operating temperature. Limits see Operators Manual 912 Series. Ignition check at _____ rpm engine speed. Speed drop without LANE: A (Off)_____rpm B (Off)_____rpm A/B (difference)_____rpm Checking the idle speed. After engine test run, re-tighten the oil filter by hand (only at cold engine). Checks for leaks;

*2.4.1.2 Lights*

Check the function of all lights: Navigation (Red/Green), Beacon, Taxi, Landing, Dome, LED Panel and Dimmer control.

- **50 hours**

*2.4.1.3 Engine*

The inspection performed on the engine at 50 hours is provided by the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series on Chapter 05-20-00 (Maintenance Schedule). The engine service requirements are outlined in section 2.4.2.1 below. To do any work on the Rotax engine and keep warranty on the engine, it is recommended to take the appropriate maintenance course from Rotax Aircraft Engines.

**Consult the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series for more details.**

**Visit https://www.flyrotax.com/services/technical-documentation.html.**

According to Section 1.7, Engine Lubrication System, Approved Oils and Capacities.

The recommended tasks are:

- Remove the old oil filter from the engine. Cut old filter without producing any metal chips and inspect following components for wear and /or missing material;
- Drain oil from oil tank;
- Check the oil tank and clean the oil tank if contaminated;
- Refill oil tank with approx. 3 liters of oil. For oil quality, see Operators Manual latest edition;
- Install new oil filter.

tension



- **100 hours or Annual Inspection**

Before the 100 hours inspection or annual inspection the authorized to perform maintenance needs to check with the CAA registry that the registration identification (a) is still the same for that serial number, and (b) the owner information is still current.

Remove all covers/fairings and inspection panels.

To do any work on the Rotax engine and keep warranty on the engine, it is recommended to take the maintenance course from Rotax Aircraft Engines.

***Authorized to perform*** – LSA Repairman Maintenance or A&P.

*2.4.1.4 Fuselage*

- Skin - for deterioration, distortion, other evidence of failure, and defective or insecure attachment of fittings.
- Systems and components - for improper installation, apparent defects, and unsatisfactory operation.
- Control surface system - for lubrication.

*2.4.1.5 Cabin and Cockpit Group*

- Generally - for uncleanliness and loose equipment that might foul the controls.
- Seats and safety belts - for poor condition and apparent defects.
- Windows and windshields - for deterioration and breakage.
- Instruments - for poor condition, mounting, marking, and (where practicable) improper operation.
- Flight and engine controls - for improper installation and improper operation. Full and unrestricted movement of travel.
- Batteries - for improper installation and improper charge.
- All systems - for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment.
- All control cables - for broken wires strands. Any cable assembly that has one broken wire strand located in a critical fatigue area must be replaced. Check and adjust the tension according to Section Control Cables.
- Inspect pulleys - for roughness, sharp edges, and presence of foreign material embedded in the grooves. Examine pulley bearings to ensure proper lubrication, smooth rotation; and freedom from flat spots, dirt, and paint spray.
- Check all pulley brackets and guards for damage, alignment, and security.
- Control Surface system – for lubrication.

tension



*2.4.1.6 Engine and Nacelle Group*

- Engine section - for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks.
- Studs and nuts - for improper torque and obvious defects.
- Internal engine - for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances.
- Engine mount - for cracks, looseness of mounting, and looseness of engine to mount.
- Flexible vibration dampeners - for poor condition and deterioration.
- Engine controls - for defects, improper travel, and improper safety.
- Lines, hoses, and clamps - for leaks, improper condition and looseness.
- Exhaust stacks - for cracks, defects, and improper attachment.
- All systems - for improper installation, poor general condition, defects, and insecure attachment.
- Cowling - for cracks, and defects.
- Rudder control system – for lubrication.

*2.4.1.7 Engine*

The inspection performed on the engine at 100 hours is provided by the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series on Chapter 05-20-00 (Maintenance Schedule). The engine service requirements are outlined in section 2.4.2.1 below. To do any work on the Rotax engine and keep warranty on the engine, it is recommended to take the appropriate maintenance course from Rotax Aircraft Engines.

**Consult the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series for more details.**

**Visit [https://www.flyrotax.com/services/technical-documentation.html](https://www.flyrotax.com/services/technical-documentation.html).**

The recommended tasks are:

- All (Alert) Service Bulletins are complied with. If necessary, perform these and document their execution;
- All SI-PAC (Service Instruction Part and Accessories) for additional GENUINE-ROTAX® –parts and accessories used on the relevant aircraft are complied with. If necessary to perform these and document it;
- Check the compression by the differential pressure method;
- Visual inspection of the GENUINE ROTAX® fuel filter for leaks;
- Replacement of the GENUINE ROTAX® fuel filter (exclusive after TSN or TSO <= 100 hour ± permissible tolerance);
- Remove all spark plugs and check for spark plug defects (deposits, melting...) Check if GENUINE–ROTAX® spark plugs are used;

tension



- Replacing spark plugs. (use of leaded fuel more than 30% of operation);
- Check the magnetic plug;
- Remove old oil filter from engine. Cut old filter without producing any metal chips and inspect components for wear and/or missing material;
- General visual inspection of the engine for damage or abnormalities. Check cooling air duct and cooling fins of the cylinders for obstruction, cracks, wear and good condition. Take note of changes caused by temperature influence;
- Inspect temperature sensors and oil pressure sensor for secure fit and signs of wear;
- Inspect all coolant hoses of the engine for damage, including leakage, hardening from heat, porosity, loose connections and secure attachment. Verify routing is free of kinks and restrictions;
- Carry out visual inspection of leakage bore at the base of the water pump for signs of leakage;
- Inspect the expansion tank for damage and abnormalities. Check coolant level, replenish as necessary. Inspect radiator cap. Inspect protection rubber on expansion tank base for correct fit;
- Inspect the overflow bottle for damage and abnormalities. Verify coolant level, replenish as necessary. Inspect line from expansion tank to overflow bottle for damage, leakage and clear passage. Inspect venting bore in cap of overflow bottle for clear passage;
- Inspect all oil lines for damage, leak age, hardening from heat, porosity, security of connections and attachments. Verify routing is free of kinks and restrictions;
- Inspect all fuel lines for damage, leakage, hardening from heat, porosity, security connections and attachments. Verify routing is free of kinks and restrictions. Check steel fuel lines for any cracks and/or scuffing marks;
- Inspect engine suspension and fasteners (GENUINE-ROTAX®-) for secure fit, including damage from heat, deformation, cracks;
- Check the airbox (GENUINE ROTAX®) incl. throttle body actuation. Inspect sensors for tight fit, damage from heat, damage and signs of wear;
- Checking the air filter;
- Inspection of the GENUINE ROTAX® exhaust system included in the standard delivery. Inspect the exhaust system for crack formation and uncharacteristic exhaust stains (leaks). NOTE: If there is no GENUINE ROTAX® exhaust system in use, the specifications of the manufacturer must be observed;
- Drain oil from oil tank;
- Check the oil tank and clean the oil tank if contaminated;
- Refill oil tank with approx. 3 liters of oil. For oil quality, see Operators Manual latest edition;
- Install new oil filter;
- Inspect the fuel system on the engine side for leaks;
- Inspect the fuel system for damages;

tension



- On configurations with auxiliary alternator, check the attachment and the V-belt tension;
- Inspect screws and nuts of all external parts for tight fit. Inspect safety wiring, replace as necessary;
- Check all temperature sensors;
- Check all pressure sensors;
- Check all exhaust gas temperature sensors;
- Check all speed sensors;
- Check the throttle control sensor;
- Check the knock sensor;
- Download the ECU fault memory (fault and data logs);
- Check the ECU wiring;
- Check the throttle valve adjustment;
- Visual inspection of the fuses;
- Engine cleaning;
- Checking the air filter;
- Verify liquid level, replenish as necessary;
- Start the engine and run to operating temperature. Limits see Operators Manual 912/914 Series. Ignition check at _____ rpm engine speed. Speed drop without LANE: A (Off)_____rpm B (Off)_____rpm A/B (difference)_____rpm Checking the idle speed. After engine test run, re-tighten the oil filter by hand (only at cold engine). Checks for leaks;

*2.4.1.8 Landing Gear Group*

- All units - for poor condition and insecurity of attachment.
- Hydraulic lines - for leakage.
- Wheels - for cracks, defects, and condition of bearings.
- Tires - for wear and cuts.
- Brakes - for improper adjustment and pads wear.

*2.4.1.9 Wing Assembly*

- All components of the wing and center section assembly for poor general condition, skin deterioration, distortion, evidence of failure, and insecurity of attachment.
- Control Surface system – for lubrication.

*2.4.1.10 Empennage Assembly*

- All components and systems that make up the complete empennage assembly for poor general condition, skin deterioration, distortion, evidence of failure, insecure attachment, improper component installation, and improper component operation.
- Control Surface system – for lubrication.

tension



*2.4.1.11 Propeller Group*

- Propeller assembly - for cracks, nicks, delamination, binds, and oil leakage.
- Bolts - for improper torque and lack of safety.
- ***See Section 2.4.13.1***

**Note: The inspection performed on the propeller at 100 hours is provided by the Manufacturer's Maintenance Manual. Consult the Propeller Manual for more details:**

- **For Sterna Propeller, Instruction manual Sterna propeller range .**
  **NOTE:**
- **Propeller pitch is set by Texas Aircraft Manufacturing and may not be changed or adjusted.**

*2.4.1.12 Radio Group*

- Radio and electronic equipment - for improper installation and insecure mounting.
- Wiring and conduits - for improper routing, insecure mounting, and obvious defects.
- Bonding and shielding - for improper installation and poor condition.
- Antennas - for poor condition, insecure mounting, and improper operation.

*2.4.1.13 ELT*

- Remove and inspect the ELT installed for :
  - (1) Proper installation;
  - (2) Battery corrosion;
  - (3) Operation of the controls and crash sensor; and
  - (4) The presence of a sufficient signal radiated from its antenna.

- **Servicing of Fluids**

Find the correspondent chapter for each fluid according to the table below.

Table 2.4.4.1. Servicing of fluids, reference chapter.

| Fluids | Chapter |
|---|---|
| Oil | 1.7 |
| Coolant | 1.8 |
| Brake | 2.4 |

tension



- **2 Years Inspection**

According to 14 CFR Part 91.411, all aircraft capable of operating under IFR regulations must undergo an anemometric calibration, as part of the altimeter system and altitude reporting equipment tests and inspections, every two years.

- **2000 hours**

*2.4.1.14 Engine*

Time between Overhaul (TBO) is 2000 hours or 15 years, whichever comes first.

**Visit https://www.flyrotax.com/services/technical-documentation.html and consult the Maintenance Manual (Heavy Maintenance) for Rotax Engine Type 912/914 Series for further details.**

To do overhauls on the Rotax engine and keep warranty, it is recommended to take the heavy maintenance course from Rotax Aircraft Engines.

***Authorized to perform*** – Rotax overhaul authorized companies and A&P.

*2.4.1.15 Propeller*

Factory Inspection required at 1500 Hours.

***See Section 2.4.13.2***

**Note: Consult the Propeller Manual for more details:**

- **For Sterna Propeller, Instruction manual Sterna propeller range .**

**NOTE:**

**Propeller pitch is set by Texas Aircraft Manufacturing and may not be changed or adjusted.**

- **Electric Fuel Pump**

The electric fuel pump is installed on the firewall, between the gascolator and the fuel distributor. Replace as necessary upon indications of improper operation.

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Table 2.4.6.1. Electric Fuel Pump.

| Manufacturer | Model | Voltage | Current |
|---|---|---|---|
| Facet | 40105 | 12V | 9.1 amp |

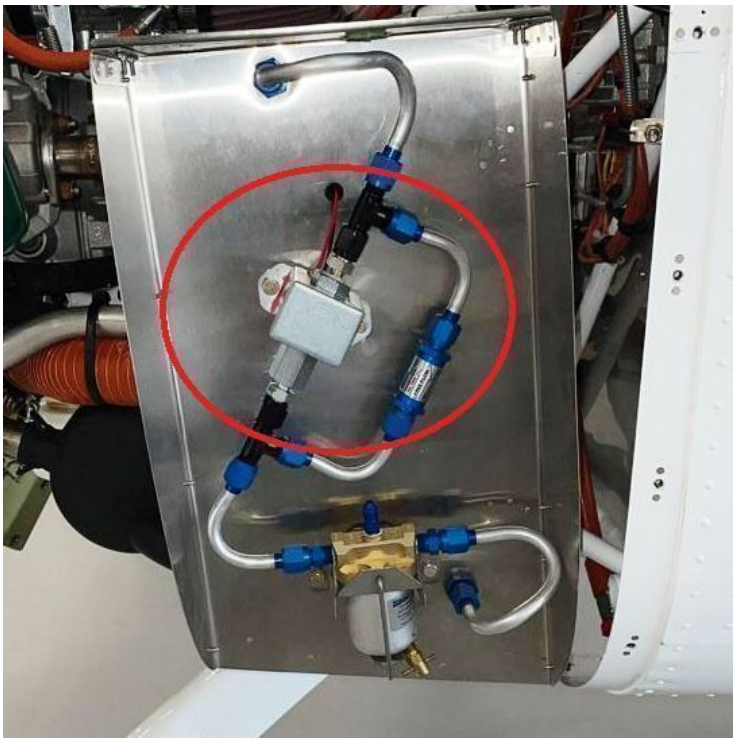


Figure 2.4.6.1. Fuel Pump Installation.

**Removing:**

- Move the Fuel Selector to the OFF position;
- Drain the fuel contained inside the line;
- Disconnect the electrical connection;
- Disconnect the hoses attached to the fuel pump;
- Remove the bolts attached to the firewall.

**Electrical Connection:**

- Connect the hoses;

tension



- Connect the electric plug;
- Install it to the firewall.

**CAUTION**

The aircraft is unairworthy with a defective electric fuel pump.

- **Gascolator**

The gascolator itself has no scheduled maintenance interval and is an On-Condition maintenance component. Deterioration and leaking would indicate replacement. Always sump the fuel at the gascolator during pre-flight inspection to prevent premature corrosion. The gascolator filter screen should be inspected visually for contamination and potential blockages, cleaned and replaced if needed.

Table 2.4.7.1. Gascolator components.

| Component | Model |
|---|---|
| ACS Gascolator | 10580 |
| Gascolator Screen 120 Microns | 10543-1 |
| ACS Bracket Installation | 10371 |

tension



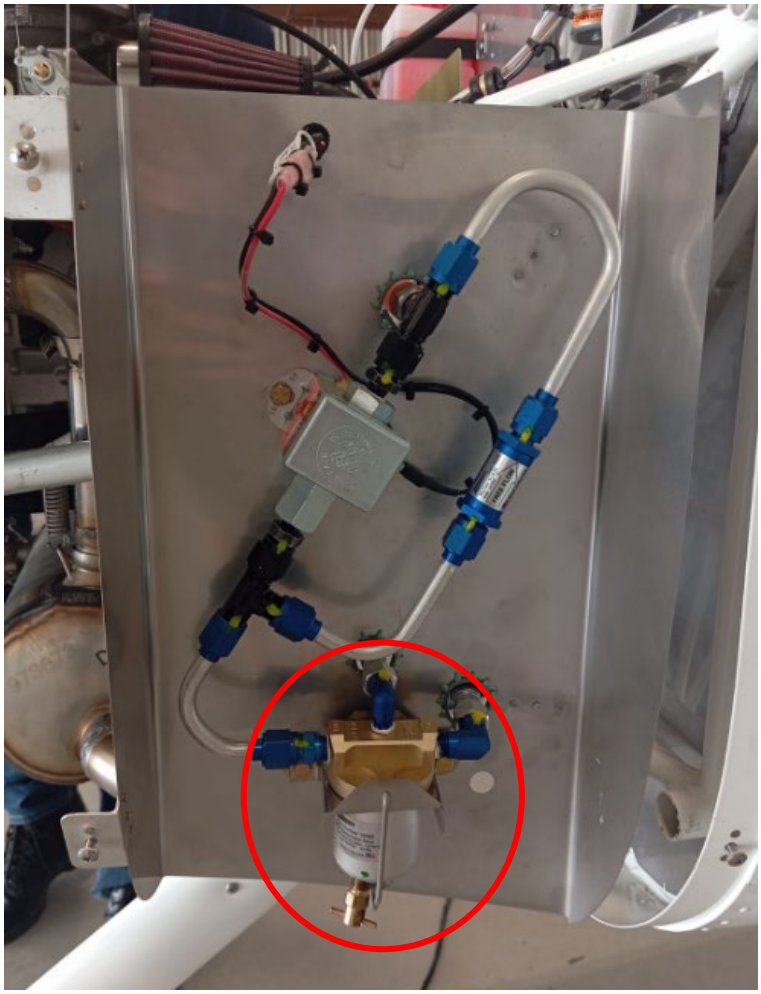


Figure 2.4.7.2. Gascolator installation.

**Removing:**

- Move the Fuel Selector to the OFF position;
- Drain the fuel contained inside the line;
- Disconnect the hoses attached to gascolator;
- Release the wheel nut below the bowl to lose the wire and remove the gascolator.

**Installing:**

- Fit the gascolator into the bracket
- Put the wire and tight the wheel nut;
- Connect the hoses to the gascolator;

tension



- 
    - **Battery**

| Manufacturer | Model | Nominal Voltage | Nominal Capacity |
|---|---|---|---|
| EarthX | ETX900 | 13.2 V | 15.6 Ah |

The battery installed in the Colt 100 has an ETX hundred series Battery and is a maintenance free battery. No inspection or testing is recommended for 24 months after purchase, and thereafter the following is recommended annually:

**Inspecting:**

Visually inspect the battery for signs of damage; the plastic case is warped or swollen. Ensure the terminal screws are tight (properly torqued).

tension



| LED Light | Voltage | Possible Cause | Recommended Action |
|---|---|---|---|
| Continuous Flashing Light | Less than 13.2V | Battery over-discharged (due to faulty charging system) | Charge battery. Once charged, the light will stop flashing. |
| Continuous Flashing Light | Less than 13.2V | Weak or failing cell | Charge battery. If voltage drops below 13.2V within a few days, discontinue use. |
| Continuous Flashing Light | 13.2V-14.6V | Weak or failing cell | Discontinue use. If in flight, this is not an immediate issue unless it is in conjunction with a charging system failure. |
| Continuous Flashing Light | Greater than 15.2V | Over-charging (due to faulty charging system) | If in flight, shutoff charging system immediately. Aircraft over-voltage protection is strongly recommended (i.e. over voltage crowbar circuit) |
| Flashing Light (short periods) | 13.2V – 14.6V | Cell to cell charge levels are not balanced | May come on briefly during periods of high current charging until the cells are automatically balanced. Try charging with a plugin charger, like an Optimate Lithium charger. |
| Solid Light | Any voltage | BMS electronic issue | Discontinue use. If in flight, this is not an immediate issue unless it is in conjunction with a charging system failure. |
| Solid Light that turns off | Any voltage | Short Circuit protection was activated | Nothing needs to be done. |

Figure 2.4.8.1. The table above shows the most common fault conditions and possible causes.

**Removing:**

Remove the old battery, while paying attention to the routing and placement of wires, cables and protective covers.

tension



**Installing:**

Check the battery cables and connectors for corrosion or damage. Pay special attention to the positive battery cable, checking for cuts or wear marks in the insulation. Clean and or replace the battery cables as required.

Place the battery in the support.

Connect the positive cable first. Next, connect the negative cable. Do not connect the battery in reverse polarity (positive to negative or negative to positive).

Install the battery holder and tighten securely.


Figure 2.4.8.2. Final Battery Installation.

tension



- **Switches**

### *2.4.1.16 Dynon avionics system*

The Colt 100 with Dynon avionics system is equipped with a Master Switch group, and a second switch group. Both groups are located at the cockpit panel. See Section 8.2, Avionics and Instruments for more details.

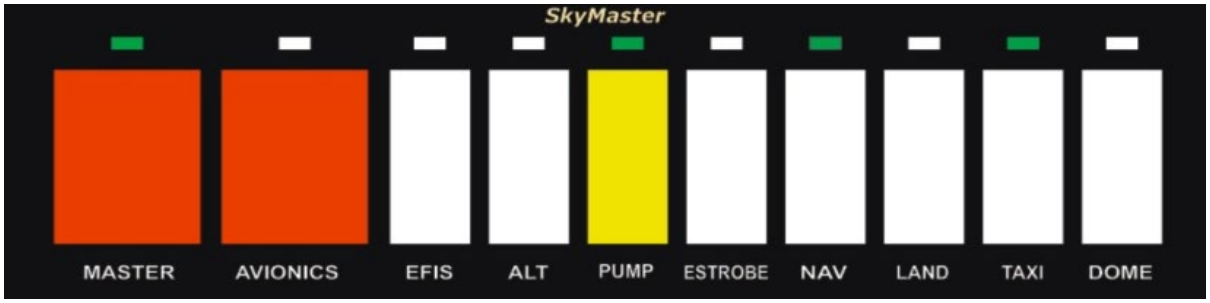



Figure 2.4.9.2.1. Master Switch display


Figure 2.4.9.2.2. Skmaster MultiSwitch display

- **Lights**

The lights have no scheduled maintenance interval and are an On-Condition maintenance component. If replacement is needed for a navigation light, remove the phillips screw and the light will be free to pull out of position. Disconnect electrical wires. To install, connect the electrical wires, position light with the black rubber gasket in place to seal water from infiltrating, then tighten the screw. The same procedure is to be followed to replace the beacon light.

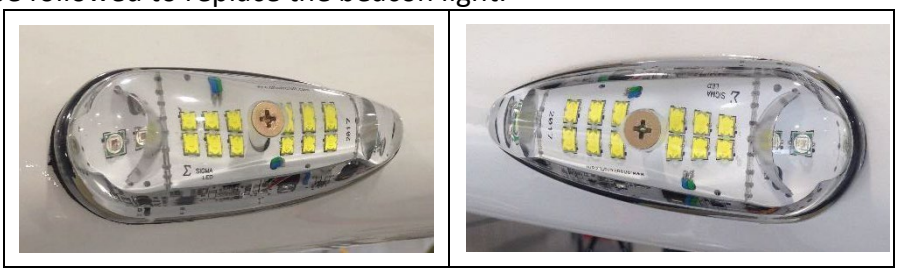


Figure 2.4.10.1. Navigation Lights, LH and RH, respectively.

tension



Figure 2.4.10.2. Beacon Light on the Vertical Stabilizer.

The Taxi and Landing lights are located in the leading edge of the left wing. They are supported by buckets, Philips screws and anchor nuts behind the lenses.

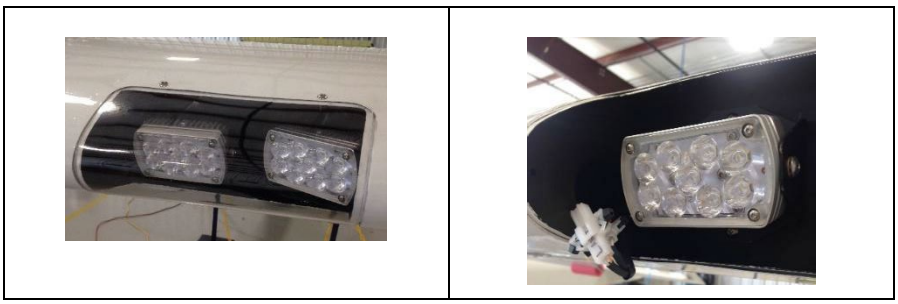


Figure 2.4.10.3. Taxi and Landing Lights.

**Replacing the taxi or landing lights:**

Disconnect the electrical connection, which is behind the main wing spar. Then, remove the light from the bracket. To replace it with a new component, connect the electrical source and install it in the bracket. Adjust the light beam direction to the best pilot position, tighten the screws and reposition the wires and connections behind the main wing spar.

- **Circuit Breaker**

The circuit breaker has no scheduled maintenance interval and is an On-Condition maintenance component. In order to change the circuit breaker, disconnect the wires behind the panel and loosen the circuit break in front of the panel. To replace, install on the panel and reconnect wires.

tension



### *2.4.1.17 Dynon Avionics System*

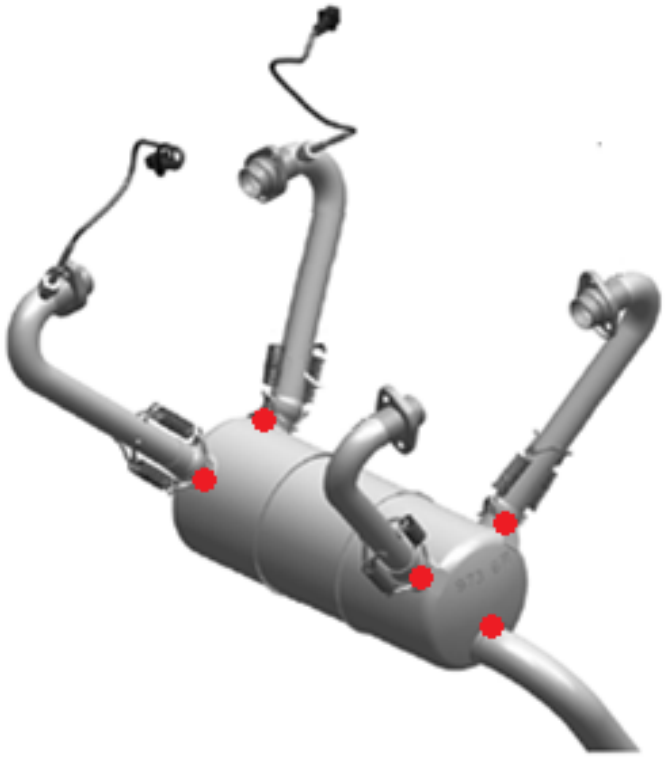
A circuit breaker rated to25A is installed in the electrical system for protection.

Table 2.4.1.17.1.. Circuit breaker – Dynon Avionics System.

| Part Number | Manufacturer | Current Rating |
|---|---|---|
| W58-XC4C12A-25 | Tyco Electronics | 25 A |

- **Exhaust Manifold / Mufflers**

The exhaust system is composed of an exhaust manifold and a muffler. The exhaust manifold is installed to the cylinder heads and muffler. Exhaust gases exit the cylinder into the manifolds into the muffler and then exit the system at the tail-pipe. See figure 2.4.12.1 below for critical system inspection points.



tension



Figure 2.4.12.1. Exhaust Inspection Points.

**Inspection:**

The exhaust should be inspected each 50 hours at all welded joints.

**Repair:**

TIG welding repairs should be used.

**NOTE**

The exhaust gas temperatures (EGT) can be measured by sensors at the initial engine installation and verified in the course of test flights.

More information can be found in the Installation **Manual for ROTAX Engine Type 912/914 Series**.

**Visit https://www.flyrotax.com/services/technical-documentation.html**

- **Propeller**

*2.4.1.18 100 hours or Annual Inspection*

Remove the spinner dome and examine it for damage, and cracks. If necessary, replace the spinner dome. See manufacturer for repairs to the spinner dome.

It's recommended that the attachment bolts (AN5), every 100 hours or 12 months (whichever comes first), should be removed one at a time, not removing the propeller hub, inspected for corrosion and dimensionally checked. Once one bolt is removed, inspected and approved, it should be installed on the hub before removing the next one.

Any bolts that exhibit stretching, corrosion or damage such as cracks or nicks are to be replaced.

The recommended torque value on Sterna Propeller Hub attachment bolts (AN5) should be between 120 and 140 inch-pound.

tension



*2.4.1.19 600 hours Inspection*

Remove the spinner dome and examine it for damage, and cracks. If necessary, replace the spinner dome. See manufacturer for repairs to the spinner dome.

Remove clamp bolts. The bolts should be dimensionally checked against one another.

Any bolts that exhibit stretching, corrosion or damage such as cracks or nicks are to be replaced.

Remove the hub cover half and set aside.

Remove each blade and inspect blade shanks for any wear. A thorough visual inspection is recommended together with a coin tap inspection of each composite blade, including the metal erosion shield on the leading edge. No dents in the Leading Edge (metal erosion shield) should be deeper than 1/8". No dents should puncture the metal erosion shield. There should be no wear through or cracks in the leading edge. If blade damage is beyond Minor Blade Repair instructions below, the blade must either be retired from service or sent to a repair station for evaluation before further service.

**Conditions requiring blade retirement from service**:

Any hole in hollow blade shell (doesn't apply if a replacement metal erosion shield will cover hole)

Any crack or damage deeper than .025"

Any solid tip damage that can't be trimmed off completely within the limits for

minimum diameter

Remove the mounting bolts -- The bolts should be dimensionally checked against one another. Any bolts that exhibit stretching, corrosion or damage such as cracks or nicks are to be replaced.

Remove the hub mount half and spacer. Inspect both hub halves for corrosion. If necessary, carefully remove any flaked or blistered paint from the hub surface, taking care not to scratch the aluminum surface. If there is any corrosion or damage present, please see Minor Hub Repair instructions below.

Remove the rear spinner bulkhead and examine for missing fasteners, damage, and cracks. If damaged or cracked, replace the spinner bulkhead.

Reinstall the assembly per the above installation instructions.

**Note: Consult the Propeller Manual for more details:**

- **For Sterna propeller, Instruction manual Sterna propeller .**
  **NOTE:**

  **Propeller pitch is set by Texas Aircraft Manufacturing and may not be changed or adjusted.**

tension



*2.4.1.20 1500 hours / Major Periodic Inspection*

Remove the spinner dome and examine for damage, and cracks. If necessary, replace the spinner dome.

Remove clamp bolts and washers and retire from service.

Remove the hub cover half and blades.

Remove mount bolts and special lock washers and retire from service.

Remove rear spinner bulkhead and examine for damage, and cracks. If necessary, replace the rear bulkhead.

Remove the hub mount half and spacer (if applicable).

- Sterna - The 1500-hour inspection can be performed by an A&P, IA, approved repairman or it can be sent to the Sterna propeller factory.

Reinstall propeller approved if approved after the major inspection or replace with a new propeller, spacer (if necessary), and spinner per the above installation instructions.

**Note: Consult the Propeller Manual for more details:**

**NOTE:**

**Propeller pitch is set by Texas Aircraft Manufacturing and may not be changed or adjusted.**

- **Spark plug**

The spark plug recommended for the Colt 100 is **DCPR8E NGK SPARK PLUG P/N: 297940**. At the discretion of the mechanic and operator, spark plugs may be replaced per Rotax recommendation.

More information can be found in the Installation **Manual for ROTAX Engine Type 912/914 Series**.

**Visit https://www.flyrotax.com/services/technical-documentation.html**

It's recommended that the spark plugs are installed using **MG Chemicals 860-150G Silicon Heat Transfer Compound**.

**Removing:**

Remove the spark plug, check for mechanical damage and clean the electrode gap. Adjustment of the spark plug gap is not allowed. If gap measurement is over the permissible limit, the spark plug must be discarded.

tension



| Electrode Gap | |
|---|---|
| Min - Max | Wear Limit |
| 0.8 – 0.9 mm (0.031 – 0.035”) | 1.1 mm / 0.043” |

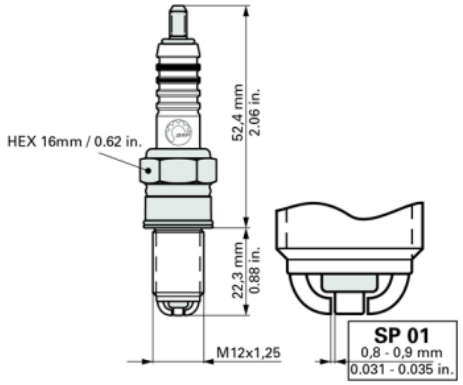



Figure 2.4.14.1. Electrode gap.

**Replacing:**

It’s recommended that the spark plugs be replaced every 100 hours if the use of leaded fuel is more than 30% of the operation time. It’s recommended that the spark plugs be replaced every 200 hours if leaded fuel is used less than 30% of the time.

**Installing:**

Apply a small quantity of heat conduction compound to spark plug thread and tighten spark plug to 16Nm (142 in.lb) on the cold engine.

- **Electrical Ignition**

The ignition unit is completely free of maintenance and needs no external power supply.

**Check:**

Check the two ignition circuits at 4000 RPM.

tension



- Speed drop with only one ignition circuit must not exceed 300 RPM.

115 RPM max RPM difference between both circuits when only one ignition circuit is in operation, A or B.

**Inspection:**

Inspect plug connections between electronic module and ignition coils for corrosion or damage and replace if necessary.

Inspect all 8 ignition cables to spark plug connector for corrosion or damage and tight fit and replace if necessary.

**WARNING**

MAKE SURE IGNITION SWITCH IS IN THE OFF POSITION AND THE KEY IS REMOVED BEFORE ANY MAINTENANCE IS PERFORMED. **ALWAYS ALLOW ENGINE TO COOL DOWN TO AMBIENT TEMPERATURE BEFORE START OF ANY WORK.**

- **Hoses and Linespanel**

Inspect all coolant hoses for damage, including leakage, hardening from heat, porosity, loose connections and secure attachment. Verify routing is free of kinks and restrictions. Rubber hoses should be changed every 5 years.

- The removal of the parachute is prohibited by anyone other than TEXAS AIRCRAFT. Every 6 years, the aircraft MUST be brought to the Texas Aircraft Manufacturing facility for an inspection of the parachute system. During this process, the parachute must be removed and sent to the parachute manufacturer for review, reassembly, and subsequent reinstallation in the aircraft by Texas Aircraft.
- For more information, see the parachute maintenance and installation manual.

https://www.galaxysky.cz/manuals-s16-en

tension



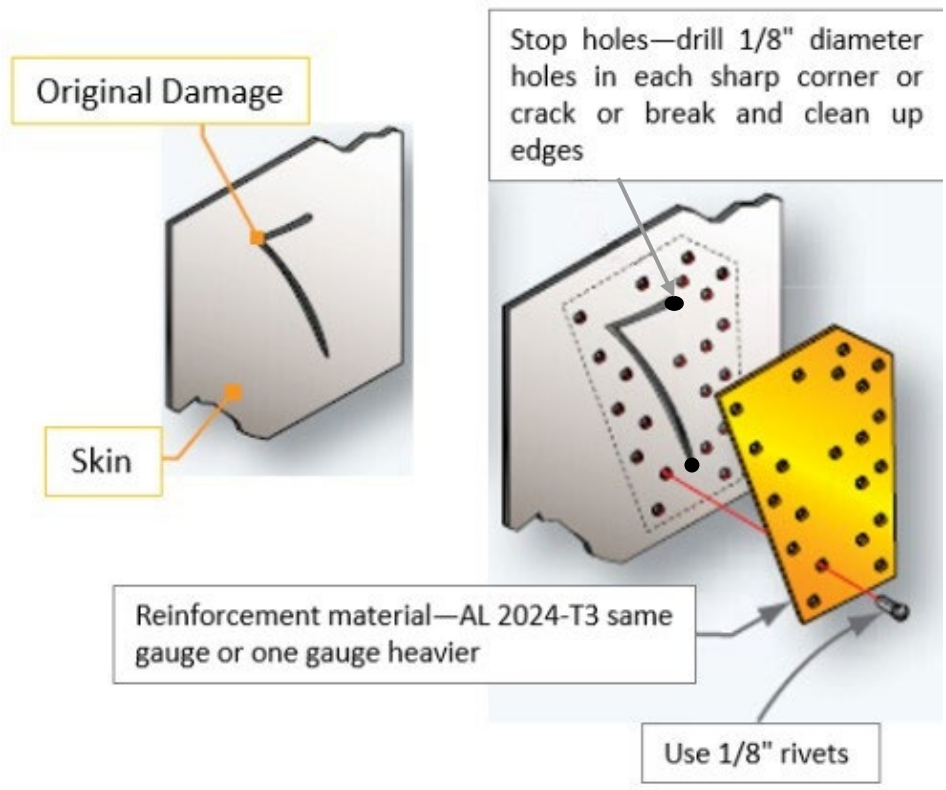
- **Repairs**

Small holes in skin panels or non-structural parts which do not involve damage to the stiffening members may be patched by covering the hole with 2 types of patch plates: Lap Patch or Flush Patch.

### *2.4.1.21 Lap Patch*

The lap or scab type of patch is an external patch where the edges of the patch and the skin overlap each other. The overlapping portion of the patch is riveted to the skin. Lap patches may be used in most areas where aerodynamic smoothness is not important.

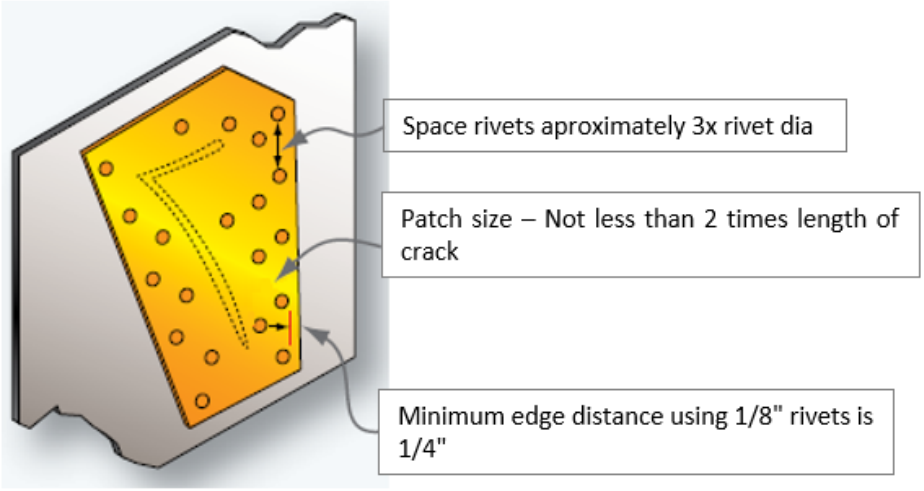
The figure below shows a typical patch for a crack and or for a hole.




- The 1/8“ rivets are solid aluminum rivets
- Seal with SIKAFLEX® or any other similar product. The surface finish can be achieved using automotive polyester putty filler, sanding and repainting the affected area

tension






When repairing cracks or small holes with a lap patch, the damage must be cleaned and smoothed. In repairing cracks, a small hole must be drilled in each end and sharp bend of the crack before applying the patch. These holes relieve the stress at these points and prevent the crack from spreading. The patch must be large enough to install the required number of rivets. It may be cut circular, square, or rectangular. If it is cut square or rectangular, the corners are rounded to a radius no smaller than 1⁄4-inch. The edges must be chamfered to an angle of 45° for 1⁄2 the thickness of the material.

### *2.4.1.22 Flush Patch*

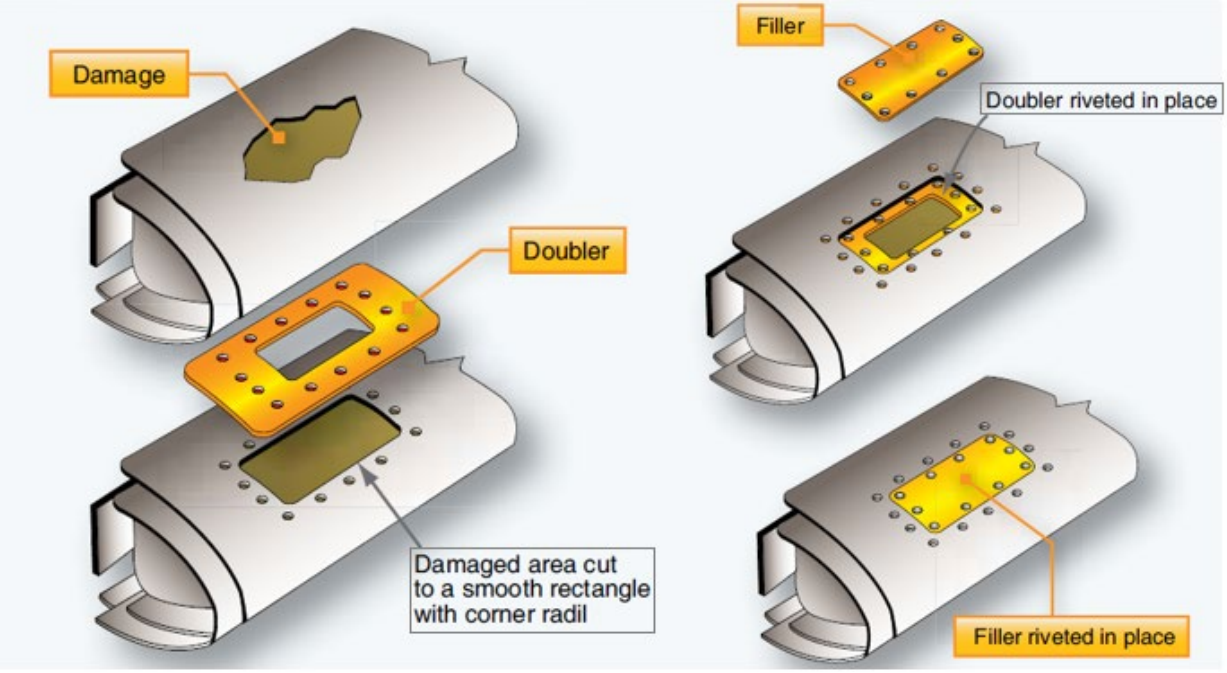
A flush patch is a filler patch that is flush to the skin when applied it is supported by and riveted to a reinforcement plate which is, in turn, riveted to the inside of the skin.

The next figure shows a typical flush patch repair. The doubler is inserted through the opening and rotated until it slides in place under the skin. The filler must be of the same gauge and material as the original skin. The doubler should be of material one gauge heavier than the skin.

The repair needs done using only flush solid aluminum rivets, sealed with SIKAFLEX® or any other similar product. The surface finish can be achieved using automotive polyester putty filler, sanding and repainting the affected area

tension




Damage
Doubler
Damaged area cut to a smooth rectangle with corner radil
Filler
Doubler riveted in place
Filler riveted in place

*2.4.1.23 Stop-Drilling of Cracks*

Small cracks that do not affect the structural integrity of the component may be repaired by stop-drilling the ends of the crack with a # 30 or a 1/8-inch drill.

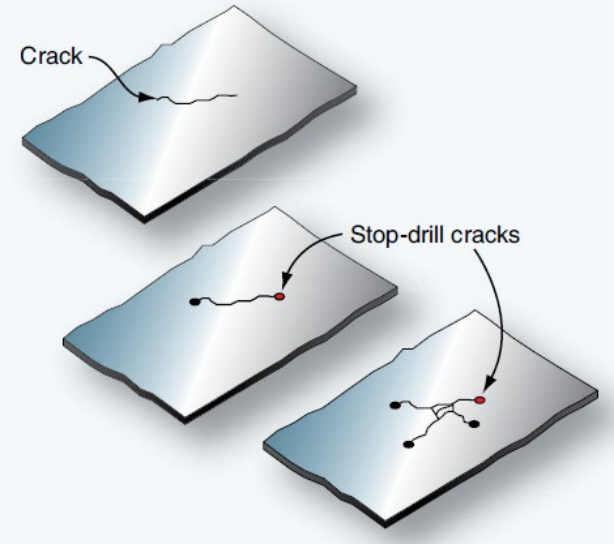



Figure 2.4.18.3.1. Stop-Drilling of Cracks.

Then, proceed with the repair according to 2.4.1.21 as needed.

- **Installation of Communication Radio, Transponder, GPS and Antenna**

The installation guide of Communication Radio, Transponder, GPS and Antenna is provided by the avionics manuals search https://www.dynonavionics.com/skyview-documentation.php, for Dynon system avionics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# 3 Structures

## 3.1 Airplane Profile

| | |
|---|---|
| Type | This special light-sport aircraft is high-wing, strut-braced, designed for two occupants side-by-side, with fixed landing gear, mixed structure of truss type and semi-monocoque, composed by Aluminum Alloy, Chromium-Molybdenum Steel tubes and carbon fiber. Powered by one frontal engine Rotax 912 ULS2-01. The MTOW is 1320lbs, including empty aircraft, fuel, crew and baggage (max 44 lbs). |
| Design | The aircraft has a conventional design, which results in a good behavior in terms of control and flight stability. The flaps are electrically controlled from 0° to 30° via a pilot-controlled cockpit switch. The nominal aileron deflection is 20° upward and 15° downward. The elevator and rudder present a nominal deflection angle of 25° upward and downward for both flight controls. The trim tab is deflected by an electric servo connected to the surface. The main landing gear is constructed by Aluminum Alloy plate equipped with hydraulic brakes, while the nose landing gear is a free-castoring type constructed by Chromium-Molybdenum Steel tubes. To improve the efficiency and performance, all fairings are made of carbon fiber and they are specially made by hand lay-up and vacuum bag techniques. |
| Layout | The aircraft is composed of the following groups: Power Plant, Wings, Fuselage, Tail Cone, Stabilizers, Flight Controls, Landing Gear, Electrical System, Avionic and Parachute System. |

## 3.2 Main Dimensions and Control Surface Deflection Limits

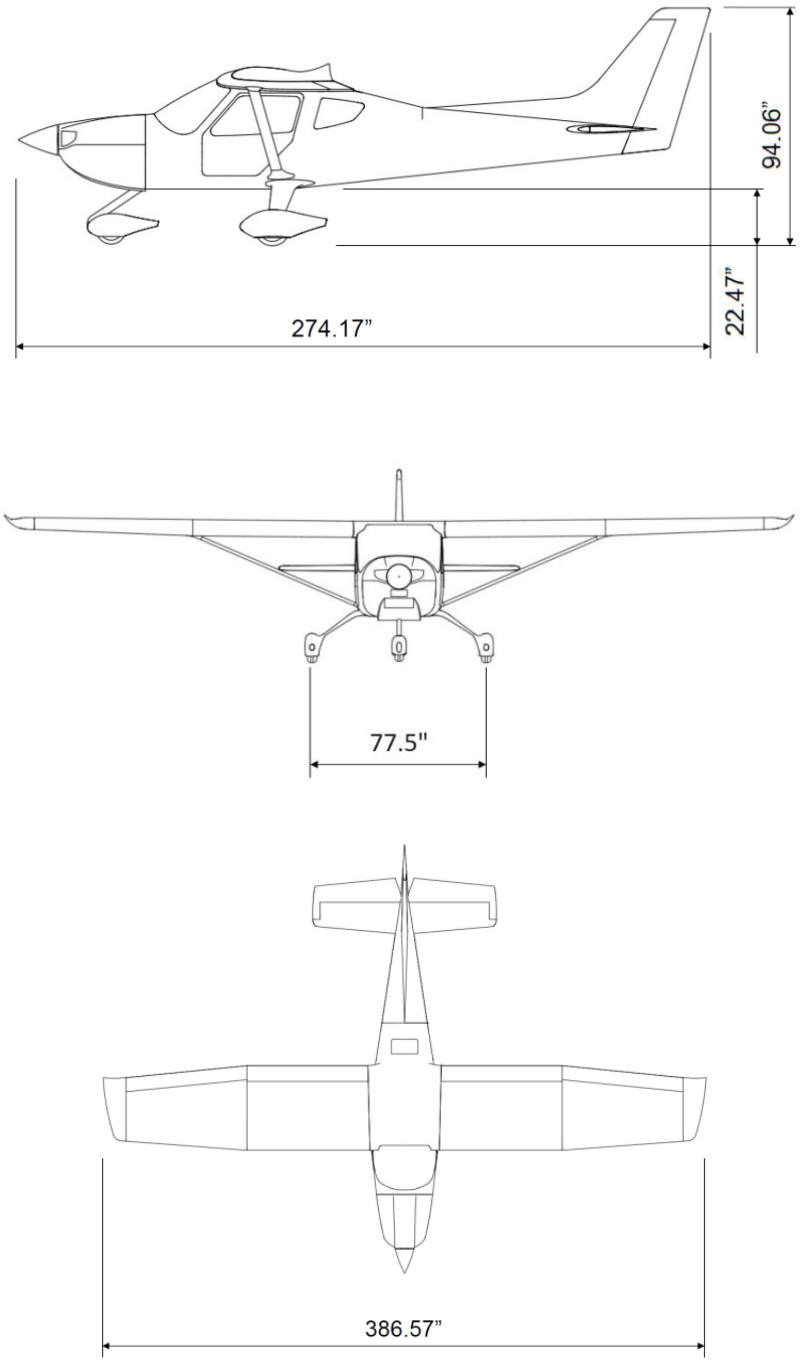


Figure 3.1.1. Three View Drawing

Every Range here described are determined by design and are limited by physical stops.

| | | |
|---|---|---|
| Wing | Area | 12.89 m² / 138.75 ft² |
| | Chord at Root | 1.40 m / 55 in |
| | Chord at Tip | 1.04 m / 41 in |
| | Taper Ratio | 0.74 |
| | Aspect Ratio | 7.48 |
| | Incidence | 3° ± 0.25° |
| | Dihedral | 0.50° ± 0.04° |

| | | |
|---|---|---|
| Aileron | Area | 0.520 m² / 5.60 ft² |
| | Deflection | +20° ± 4° |
| | | -15° ± 4° |

The aileron range is determined by design and measured after the aileron installation using a digital level.

| | | | |
|---|---|---|---|
| Flap | Area | | 0.63 m² / 6.78 ft² |
| | Deflection | Takeoff | 10° |

| | | | |
|---|---|---|---|
| | | Landing | 30° ± 3° |

| | | |
|---|---|---|
| Horizontal Stabilizer | Area | 2.22 m² / 23.90 ft² |
| | Chord at Root | 0.91 m / 35.8 in |
| | Chord at Tip | 0.68 m / 26.7 in |
| | Taper Ratio | 0.75 |
| | Aspect Ratio | 4.15 |

| | | |
|---|---|---|
| Elevator | Area | 1.00 m² / 10.76 ft² |
| | Deflection | +25° ± 5° |
| | | -25° ± 5° |
| Trim Tab | Deflection | +20° ± 2° |
| | | -18° ± 2° |

| | | |
|---|---|---|
| | Area | 1.15 m² / 12.28 ft² |

| | | |
|---|---|---|
| Vertical Stabilizer | Taper Ratio | 0.58 |
| | Sweep angle | 40° |

| | | |
|---|---|---|
| Rudder | Area | 0.6m² / 6.46 ft² |
| | Deflection | +20° ± 4° |
| | | -20° ± 4° |

## 3.3 Wing

The wing assembly is composed of 4 parts: main wing, aileron, flap and wing tip. This section details the main wing.

It is manufactured with Al 2024-T3 sheets which, when built, includes spars, stamped ribs and skins. The main wing is reinforced at the wing root and control surface attach regions. Each main wing has one integral fuel tank with a capacity of (15.85 gallons) usable fuel per side. There are inspection panels located on the wing to inspect and access internal structure and components. Assembly of the main wing structure is accomplished with flush and universal type solid rivets as well as stainless steel blind rivets to close the assembly. To avoid high stress loads concentrations at the root, an exclusive extruded wing strut made of Al 6061-T6 is installed on the bottom wing and connected to the fuselage.

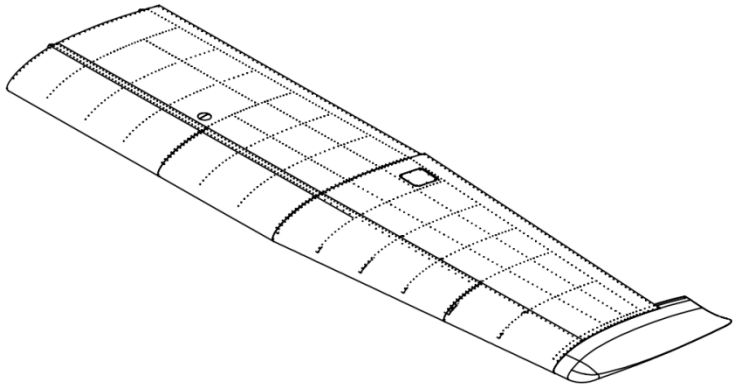


Figure 3.2.1. Main Assembly.

The attachment to the fuselage is done at 3 points: Main Spar (front), Rear Spar and Wing Strut. The next figure shows the wing installation to the fuselage.

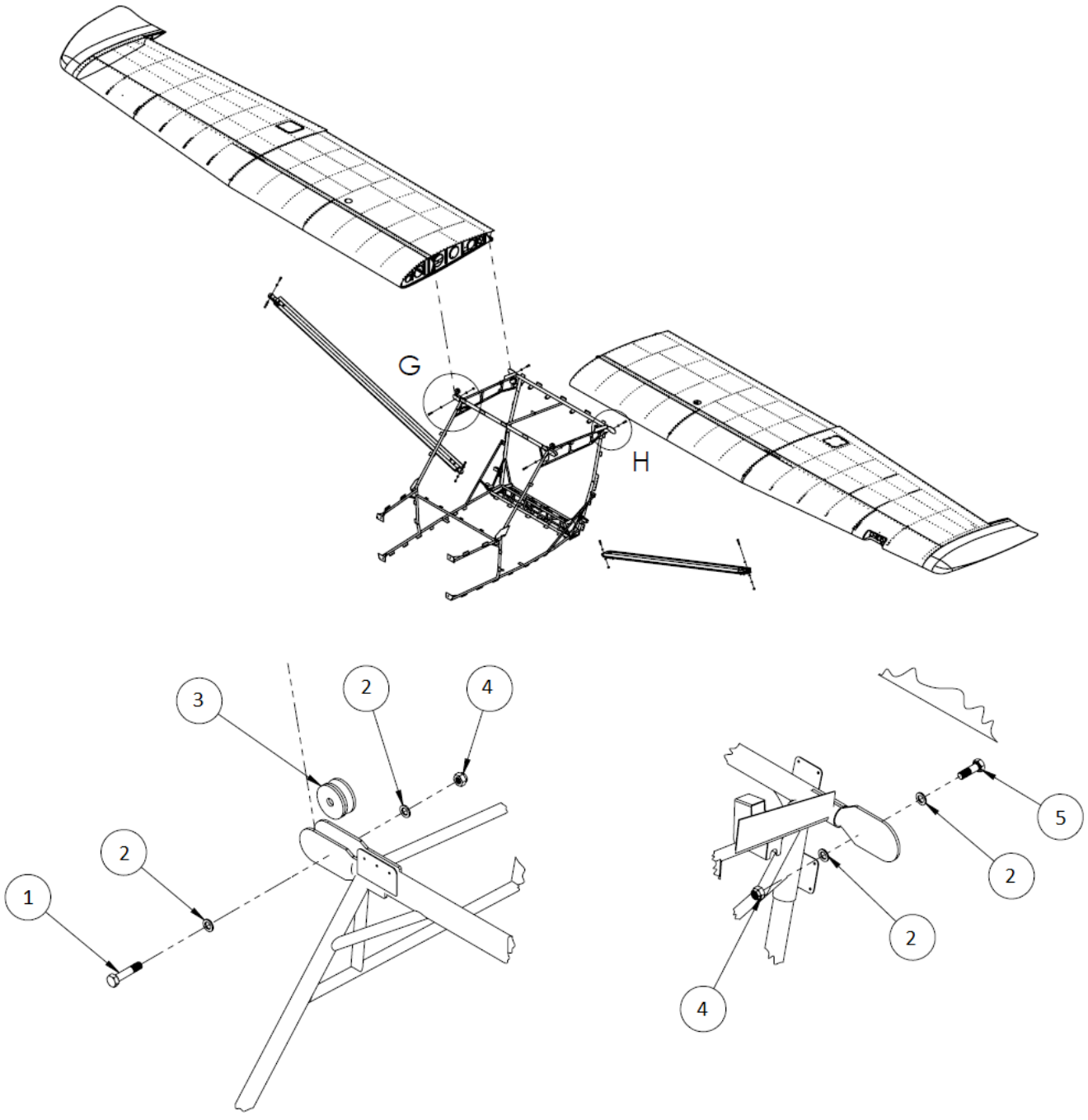
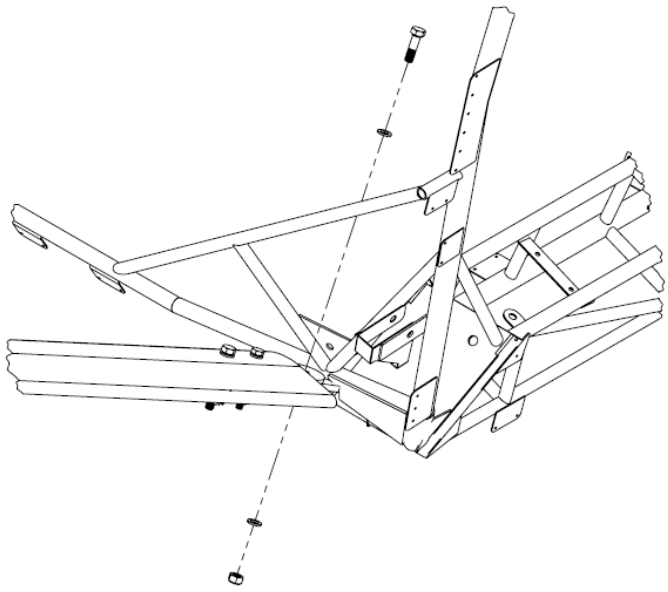



Figure 3.2.2. Main Wing Installation.

Table 3.2.1. Wing installation, Hardware (ref. figure 3.2.2.).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Bolt | AN5-13A | 2 |
| 2 | Washer | AN960-516 | 8 |
| 3 | Spacer | T1.57A.1000.004 | 2 |
| 4 | Nut | AN363-1032A | 4 |
| 5 | Bolt | AN5-7A | 2 |



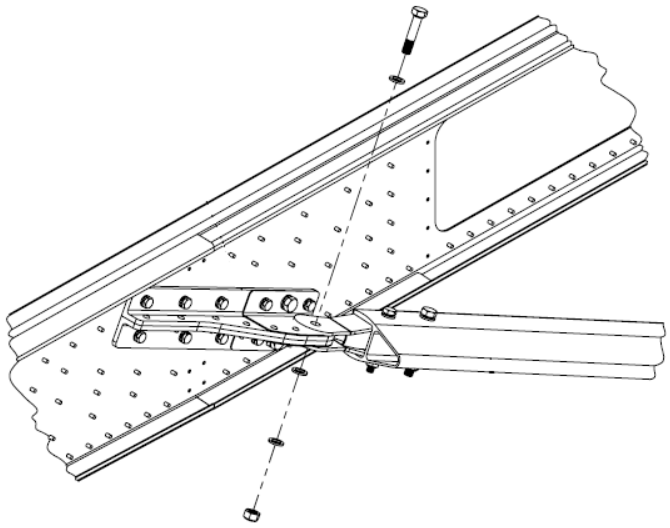


Figure 3.2.3. Wing Strut Installation.

Table 3.2.2. Wing installation, Hardware (ref. figure 3.2.3.).

| Description | Part Number | Quantity |
|---|---|---|
| Bolt Strut to Wing | AN5-13A | 2 |
| Bolt Strut to Fuselage | AN5-10A | 2 |
| Washer | AN960-516 | 10 |
| Nut | AN364-524A | 2 |

- **Flaps**

The flap has a constant chord line and is constructed with Al 2024-T3 aluminum composed of bended ribs and skins. Assembly of the flap components are accomplished with solid and stainless-steel blind rivets at the connection points. The flap is actuated by one electric motor actuator with a 400 foot-pounds force capacity. The actuator motor controls both left and right wing flaps as both flaps are inter-connected by a chrome-moly tube. See figures below.

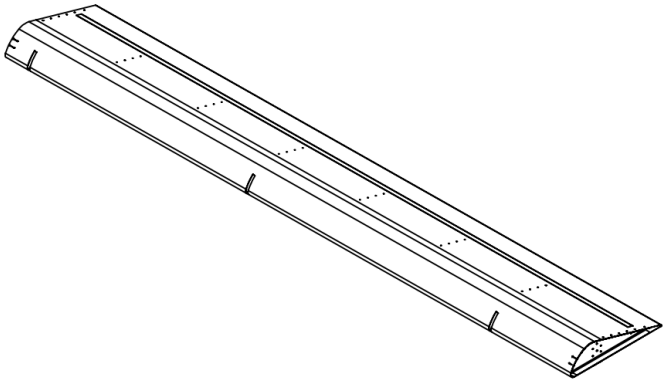
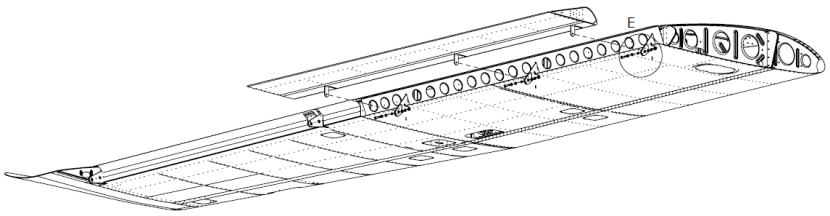


Figure 3.2.1.1. Flap.



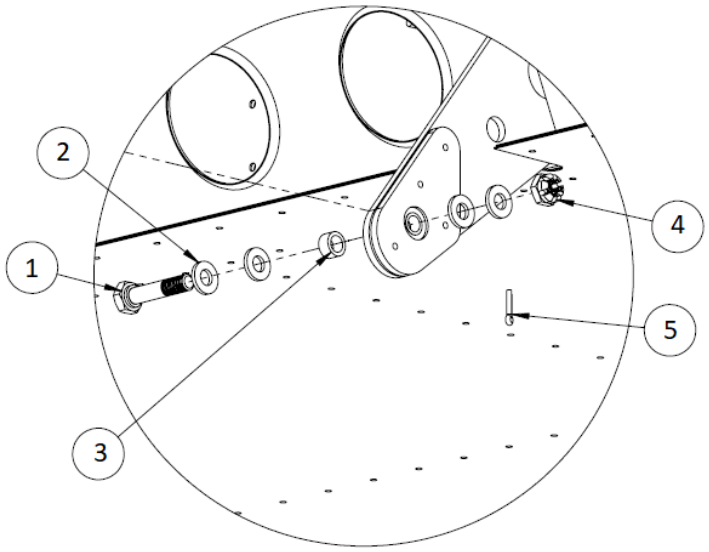



Figure 3.2.1.2. Flap Installation.

Table 3.2.1.1. Flap installation, Hardware (ref. figure 3.2.1.2.).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Bolt | AN4-11 | 3 |
| 2 | Washer | AN960-416 | 12 |
| 3 | Spacer | T1.57A.0000.010 | 8 |
| 4 | Nut | AN310-4 | 3 |
| 5 | Cotter Pin | MS24665-208 | 3 |

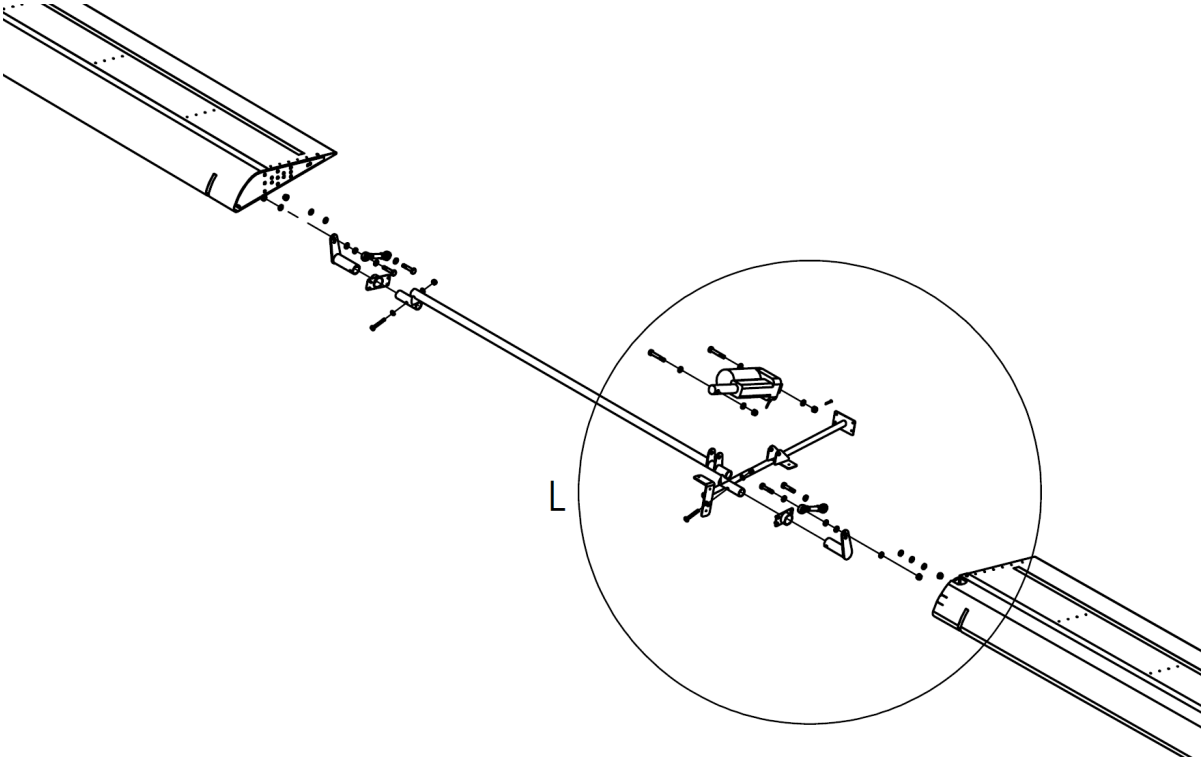



Figure 3.2.1.3. Flap System.

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Rod End 4/16 | CM4 | 4 |
| 2 | NUT AN364-428A | AN364-428A | 4 |
| 3 | WASHER AN960-416 | AN960-416 | 15 |
| 4 | BOLT AN4-11 | AN4-11 | 4 |
| 5 | NUT AN310-4 | AN310-4 | 4 |
| 6 | WASHER AN960-516 | AN960-516 | 4 |
| 7 | Cutter Pin .094 x .75 | MS24665-283 | 4 |

## 3.4 Empennage

The Empennage consists of the horizontal and the vertical stabilizers.

- **Horizontal Stabilizer**

The horizontal stabilizer is made of Aluminum 2024-T3 sheets and assembled by solid rivets. Each side is composed of 5 stamped ribs and 1 skin. The entire component has a main spar (front) and rear spar. The connection to the tail cone is accomplished with a set of bolts, washers and nuts. Sleek carbon fiber tips complete the assembly. Brackets of AISI 4130 are installed behind the rear spar to install the elevator.

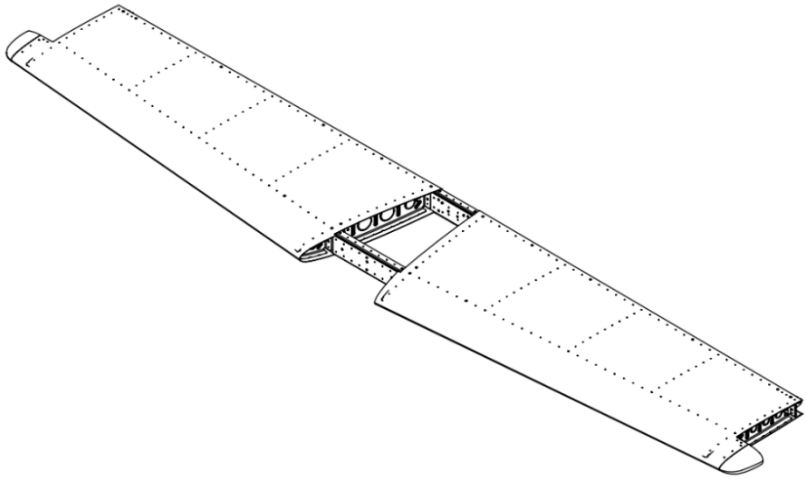


Figure 3.3.1.1. Horizontal Stabilizer.

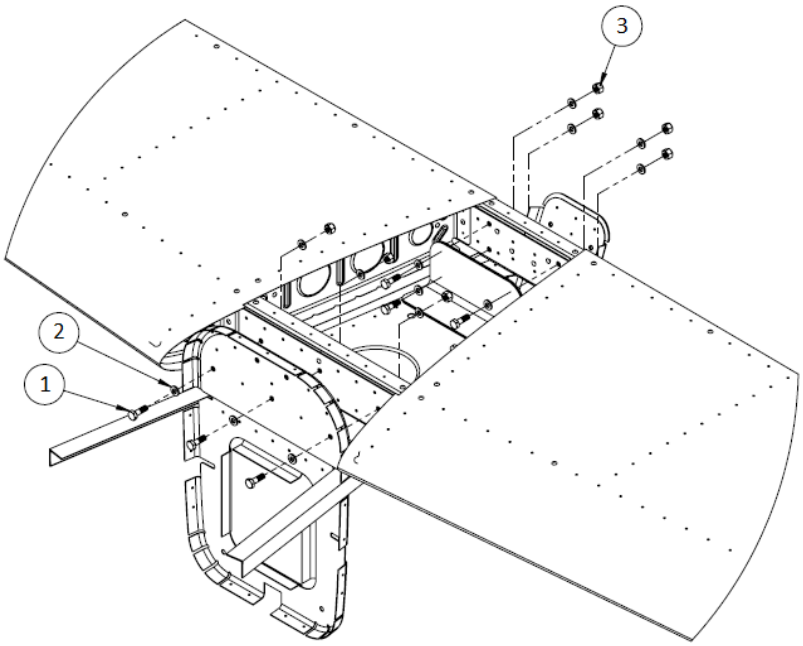



Figure 3.3.1.2. Horizontal Stabilizer Installation.

Table 3.3.1.1. Horizontal stabilizer installation, Hardware (ref. figure 3.3.1.2).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Bolt | AN4-6A | 7 |
| 2 | Washer | AN960-416 | 10 |
| 3 | Nut | AN365-428A | 7 |

- **Vertical Stabilizer**

The vertical stabilizer is made of Aluminum 2024-T3 sheets and assembled by solid rivets. It is composed of 4 stamped ribs, 1 skin, a main spar (front) and rear spar. The installation to the airframe is accomplished with bolts, washers, and nuts. There is a carbon fiber tip that mounts on the top of the Vertical Stabilizer. Brackets of AISI 4130 are installed behind the rear spar to attach the rudder.

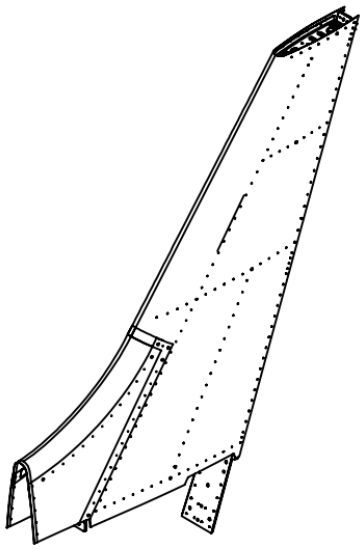


Figure 3.3.2.1. Vertical Stabilizer.

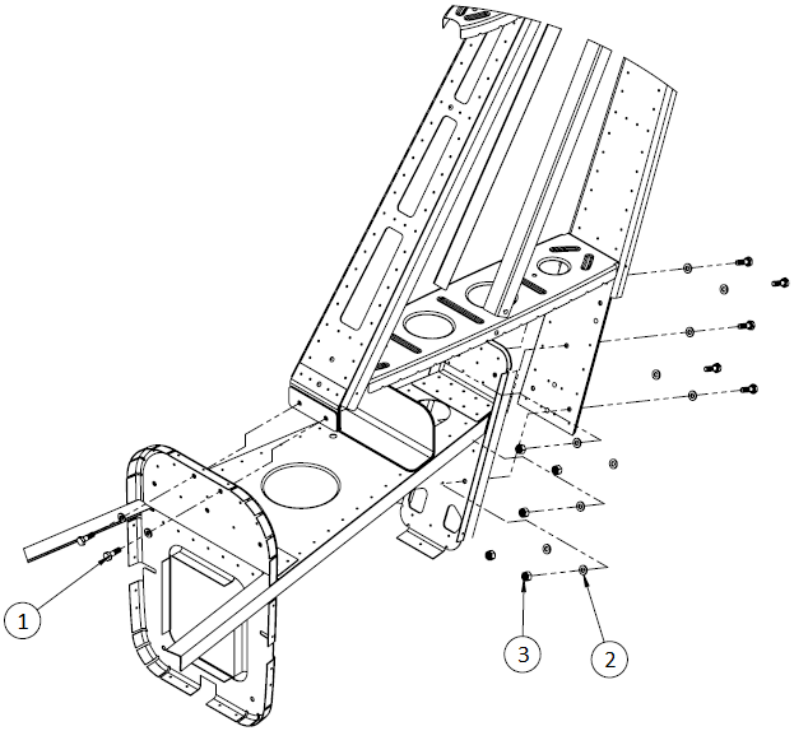



Figure 3.3.2.1. Vertical Stabilizer Installation.

Table 3.3.2.1. Vertical stabilizer installation, Hardware (ref. figure 3.3.2.1.).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Bolt | AN4-6A | 7 |
| 2 | Washer | AN960-416 | 12 |
| 3 | Nut | AN365-428A | 7 |

## 3.5 Landing Gear

The landing gear is composed of the legs, wheels, tires, and brake assemblies. Below is listed the summary of the components used in the landing gear.

Table 3.4.1. Landing Gear.

| | | |
|---|---|---|
| Leg Structure | Main | Manufactured in Aluminum 7075 by CNC Milling Machine |
| | Nose | Chromium-Molybdenum Steel tube |
| Wheel Assembly | Main | Beringer, RF-018(A) |
| | Nose | Beringer, RA-015(A) |
| Tire | Main | 5.00-5 8Ply Michelin Air TL (recommended) |
| | | 5.00-5 6Ply Goodyear Custom III |
| | Nose | 11x4.00-5 8Ply Aero Classic TL |
| Brake Assembly | | Beringer, EA-002.2N(A) |
| Master Cylinders | | Beringer, MP-002.5N(A) |

The installation of the landing gear legs to the fuselage (main and nose) as well as the installation of the wheel and brake assemblies to the main gear legs are shown below in (Figure 3.4.1.). It's recommended to use the Beringer Maintenance and Overhaul Manual.

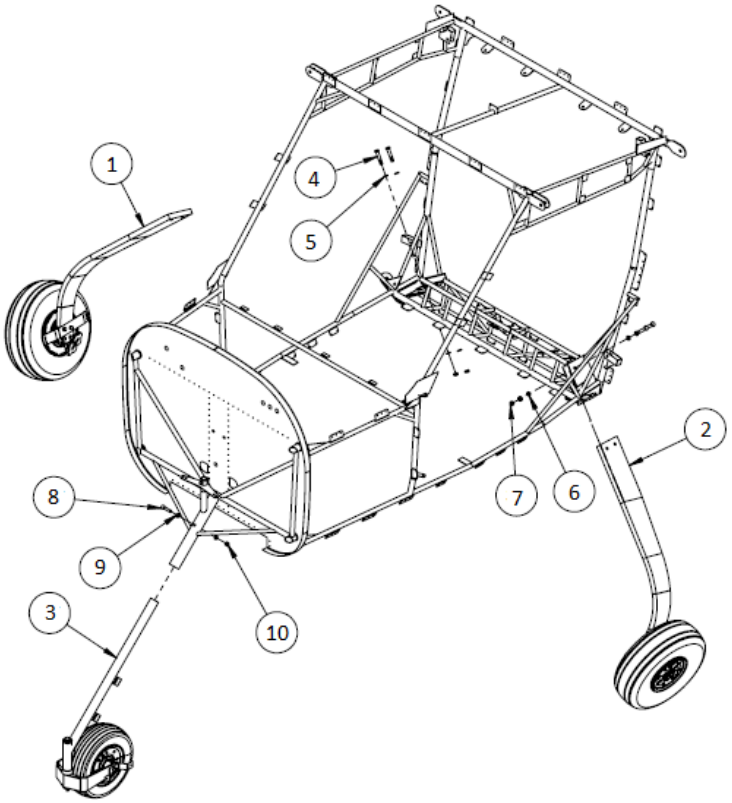



Figure 3.4.1. Landing Gear Legs Assembly.

Table 3.4.2. Landing Gear Legs Assembly (Ref. figure 3.4.1.).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | T1.32R.1000.001 | Right Landing Gear | 1 |
| 2 | T1.32L.1000.001 | Left Landing Gear | 1 |
| 3 | T1.32A.2000.000 | Nose Gear Leg | 1 |

| | | | |
|---|---|---|---|
| 4 | AN6-16A | Bolt AN6-16A | 4 |
| 5 | AN960-616 | Washer AN960-616 | 4 |
| 6 | AN960-616 | Washer AN960-616 | 4 |
| 7 | AN3-13A | Bolt AN3-13A | 2 |
| 8 | AN5-20A | Bolt AN5-20A | 1 |
| 9 | AN960-516 | Washer AN960-516 | 1 |
| 10 | AN364-624A | Nut AN364-624A | 4 |

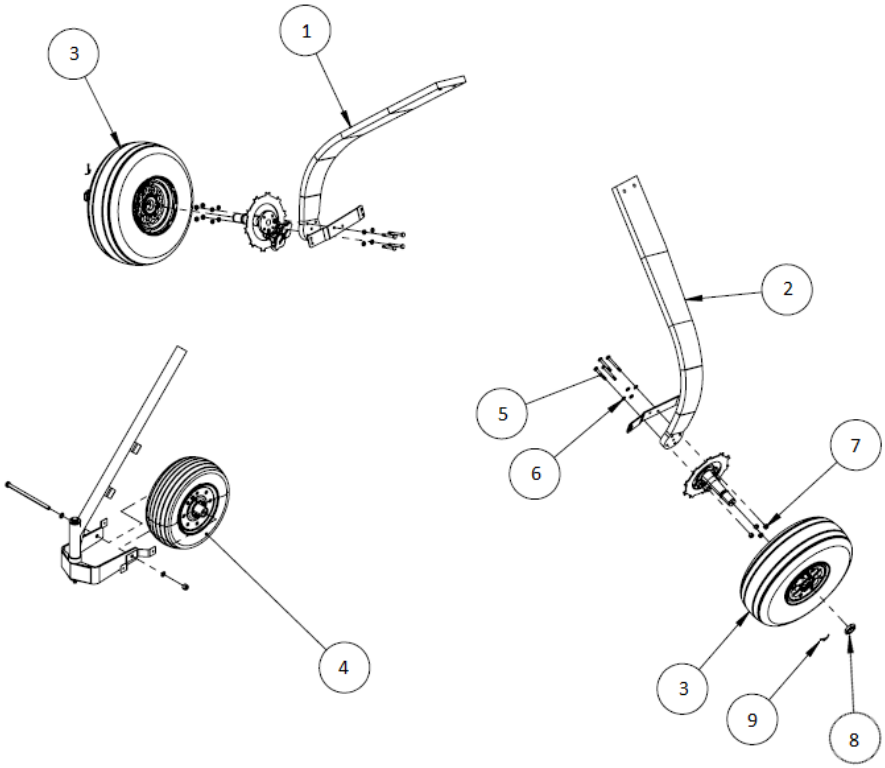



Figure 3.4.2. Wheels Assembly.

Table 3.4.3. Wheels Assembly (ref. figure 3.4.2).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | T1.32R.1000.001 | Right Landing Gear | 1 |
| 2 | T1.32L.1000.001 | Left Landing Gear | 1 |
| 3 | RF-018(A) | 5.00x5” Std Main Wheel Assy | 2 |
| 4 | RA-015(A) | 4.00x5” HL Nose Wheel | 1 |
| 5 | AN4-15A | Bolt AN4-15A | 8 |
| 6 | AN960-416 | Washer AN960-416 | 8 |
| 7 | AN364-524A | Nut AN364-524A | 8 |
| 8 | ECR-002(B) | M25x1.5 Axle Nut | 2 |
| 9 | L-V-004 | 2.5x36 Cotter Pin | 2 |

- **Main Landing Gear**

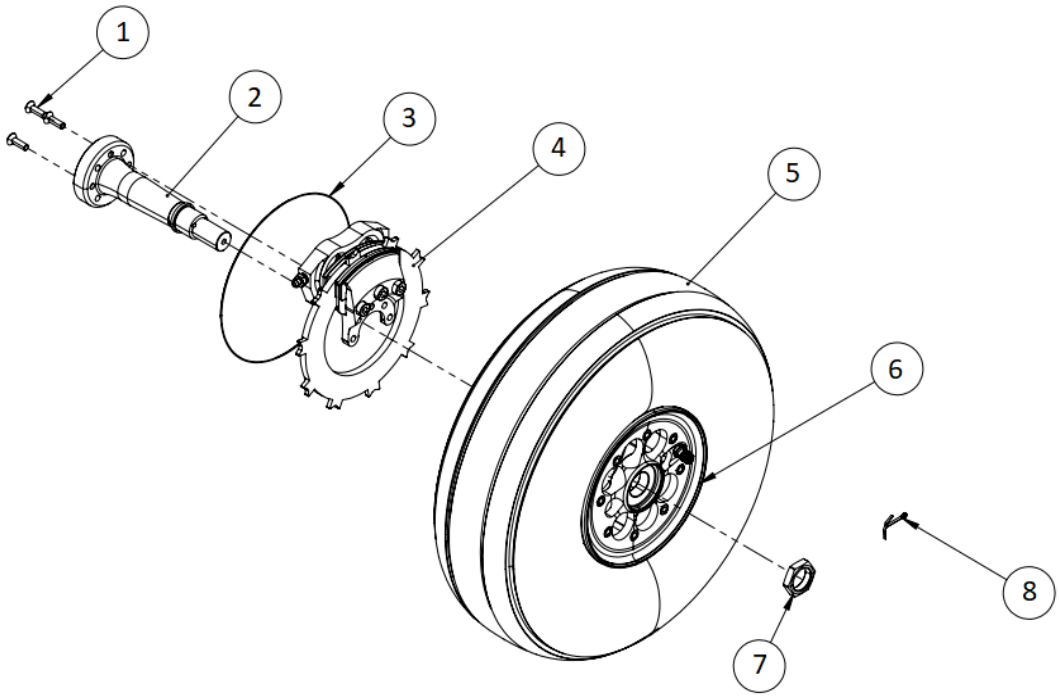



Figure 3.4.1.1 Main Landing Gear Assembly.

Table 3.4.1.1. Main Landing Gear components (ref. figure 3.4.1.1).

| ID | Part Number | Description | QTY |
|---|---|---|---|
| 1 | V-FHC-001 | Screw M6x20 | 3 |
| 2 | FUS-009 | Axle | 1 |
| 3 | ZPA02 | Safety Wire | 1 |
| 4 | EA-002.2N(A) | Brake Caliper | 1 |
| 5 | 070-310-0 | Tire 5.00-5” | 1 |
| 6 | RF-018(A) | 5.00x5” Std Main Wheel Assy | 1 |
| 7 | ECR-002(B) | M25x1.5 Axle Nut | 1 |
| 8 | L-V-004 | 2.5x36 Cotter Pin | 1 |

- **Nose Landing Gear**

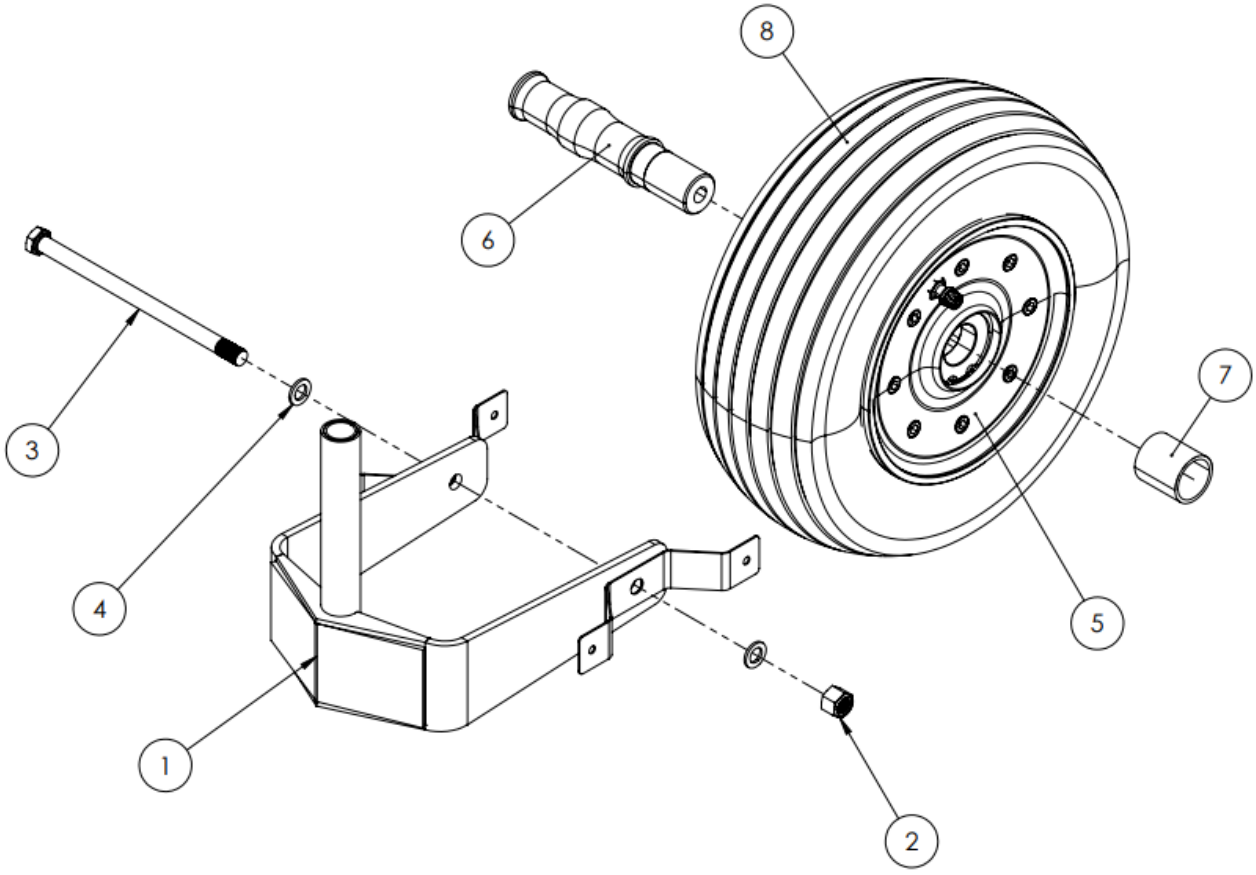



Figure 3.4.2.1. Nose Landing Gear Assembly.

Table 3.4.2.1. Nose Landing Gear components (ref. figure 3.4.2.1).

| ID | Part Number | Description | QTY |
|---|---|---|---|
| 1 | T1.32A.20B0.000 | Nose Gear Fork | 1 |
| 2 | AN365-624A | Nut AN365-624A | 1 |
| 3 | AN6-61A | Bolt AN6-61A | 1 |
| 4 | AN960-616 | Washer AN960-616 | 2 |
| 5 | RA-015(A) | 4.00x5” HL Nose Wheel | 1 |
| 6 | AXP-007.2(A) | 4.00x5” HL L=138 Nose Wheel Axle | 1 |
| 7 | BGE-042.2(A) | 4.00x5” HL L=32 Nose Wheel Bearing Spacer | 1 |
| 8 | DTR5582 | Tire 11x4.00x5” | 1 |

## 3.6 Control Surfaces

Section 3.5 details the ailerons, elevator, rudder, and trim tab, their construction as well as their attachment to the airframe.

- **Aileron**

Each aileron is composed of bent ribs, a main spar (front), a rear spar, and two skins. One skin forms the leading edge and the other forms the trailing edge. The aileron components are assembled with solid aluminum rivets as well as stainless steel rivets blind rivets to close the assembly. The aileron control system connects via a rod end to an attach bracket made of 6061-T6 installed on the aileron assembly. The aileron control system is composed of phenolic pulleys and steel wire cables MIL-W-83420 Comp B (CRES). The pulleys and cables connect the system to the yoke control and the aileron. The Colt 100 that has an autopilot installed uses the SV-32 autopilot servo installed in the aileron system. A welded piece of AISI 4130 with an arm of 12.5 inches is installed on the outboard end of the aileron to balance the flight control.

The balancing is performed during the manufacturing of the part by Texas Aircraft Manufacturing INC

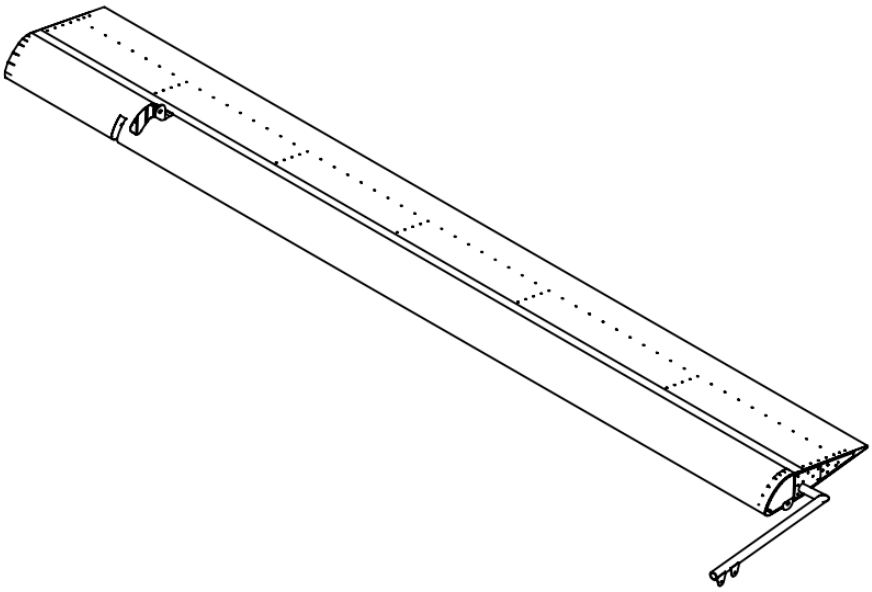


Figure 3.5.1.1. Aileron Assembly.

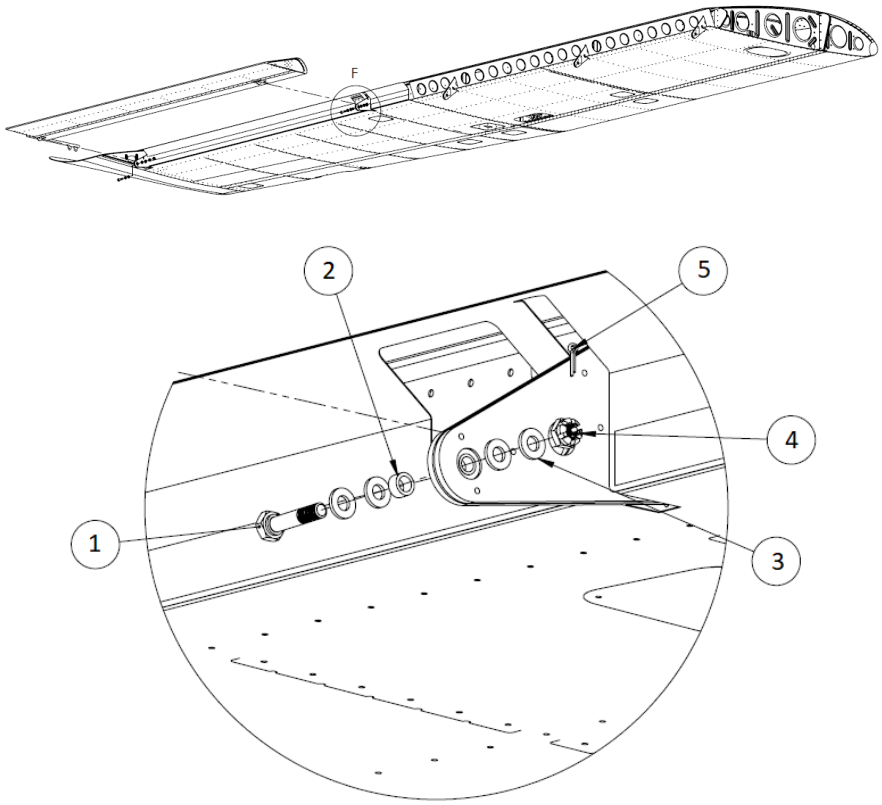



Figure 3.5.1.2. Aileron Installation.

Table 3.5.1.1. Aileron installation, Hardware (ref. figure 3.5.1.2).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Bolt | AN4-11 | 3 |
| 2 | Spacer | T1.57A.0000.010 | 3 |
| 3 | Washer | AN960-416 | 12 |
| 4 | Nut | AN310-4 | 3 |
| 5 | Cotter Pin | MS24665-208 | 3 |

During the installation, the full deflections must be measured at the outboard end of the Aileron, within the ranges described in section 3.2, as the following pictures:

Neutral Yoke Position:


Down Position:


Up Position:

Elevator

The elevator is made of Aluminum 2024-T3 sheets. Both left and right elevator assemblies are composed of three ribs with two on the ends and one in the center. There is a main spar (front) and rear with reinforcements. The elevator components are assembled with solid aluminum rivets and stainless-steel blind rivets to close the assembly. Carbon Fiber tips are installed on the elevator tips.

The elevator is attached to the horizontal stabilizer by bolts, washers, nuts, and safety cotter pins. The elevator horn is welded from AISI 4130 and attached to the elevator by solid rivets. The elevator horn is connected to the elevator control system. The Elevator control system is composed of push-pull tubes and rod end connections. For a Colt 100 with an autopilot installed there is a SV-42 autopilot servo installed in the elevator control system. Small AISI 4130 sheets are installed on the elevator rib tips for balancing the control surface. There are usually two pounds installed on each side

The balancing is performed during the manufacturing of the part by Texas Aircraft Manufacturing INC

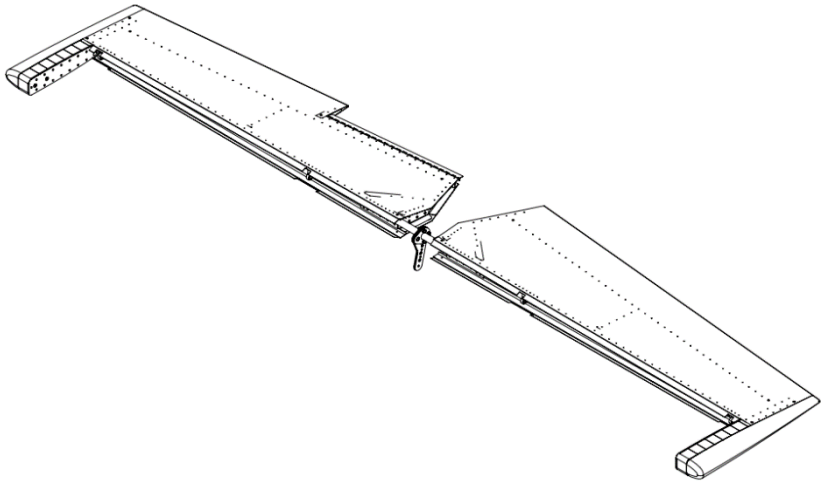


Figure 3.5.2.1. Elevator Assembly.

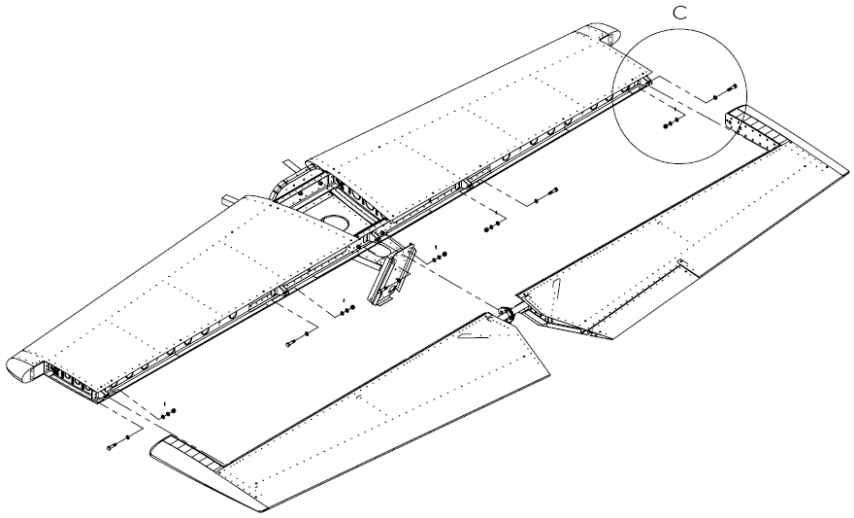



Figure 3.5.2.2. Elevator Installation.

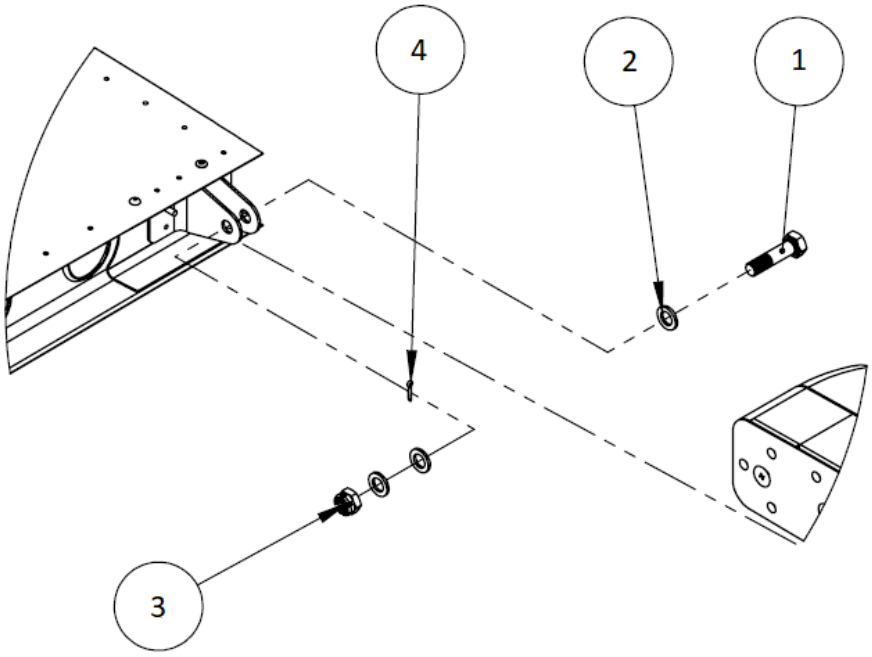



Figure 3.5.2.3. Elevator Installation, Detail C.

Table 3.5.2.1. Elevator installation, Hardware (ref. figure 3.5.2.3).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Bolt | AN4-6A | 5 |
| 2 | Washer | AN960-516 | 10 |
| 3 | Nut | AN310-5 | 5 |
| 4 | Cotter Pin | MS24665-132 | 5 |

The procedure to measure the deflection of the Elevator is done as below:

Put the digital level on the upper surface of the elevator, in the balancing ar region as seen in the picture below:


Figure 3.5.2.4. Elevator angle measurement.

The measurements should be ±25° ±5°

- **Rudder**

The rudder is made of Aluminum 2024-T3 sheets. There are four ribs (two on the ends and the other two centered). There is one front reinforced main spar and a single skin. The rudder components are assembled with solid aluminum rivets and stainless-steel blind rivets to close the structure. There is a carbon fiber tip.

There are three rod ends attached to the rudder that are used to attach the rudder to three support brackets installed on the vertical stabilizer. The rudder attaches to the vertical stabilizer with bolts, washers, nuts, and safety cotter pins. The rudder control system is composed of phenolic pulleys and steel wire cables MIL-W83420 Comp B (CRES). The control system attaches to the rudder at an attachment bracket that is welded to AISI 4130 on one end and is attached to the yoke control system on the other.

There is no balancing arm, or any kind of balancing on the rudder

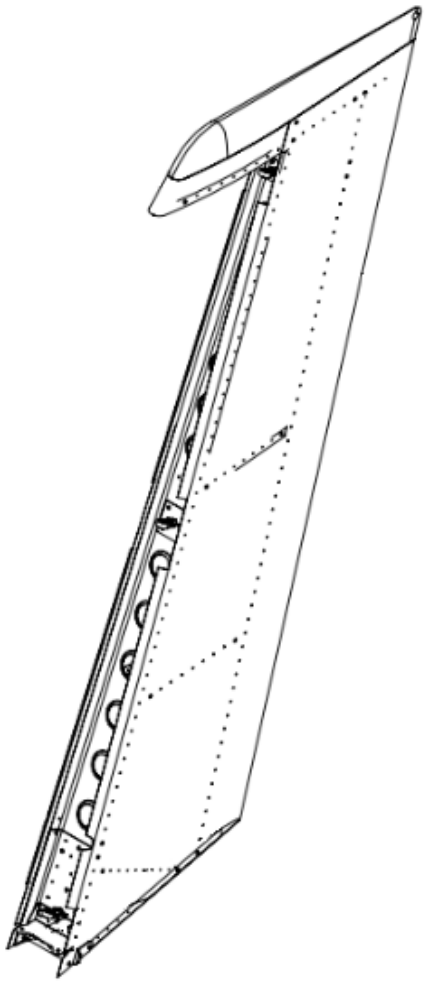


Figure 3.5.3.1. Rudder Assembly.

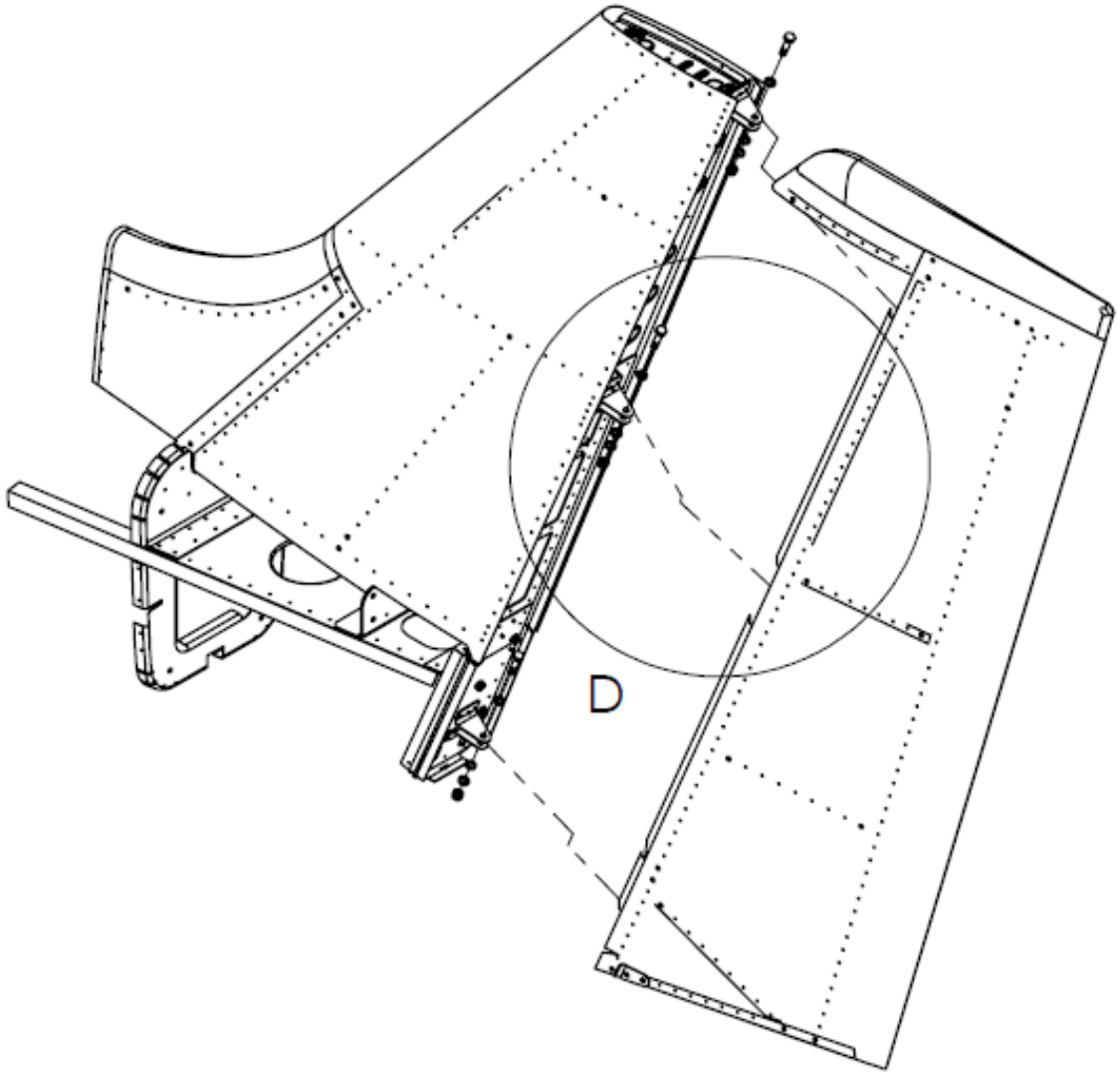



Figure 3.5.3.2. Rudder Installation.

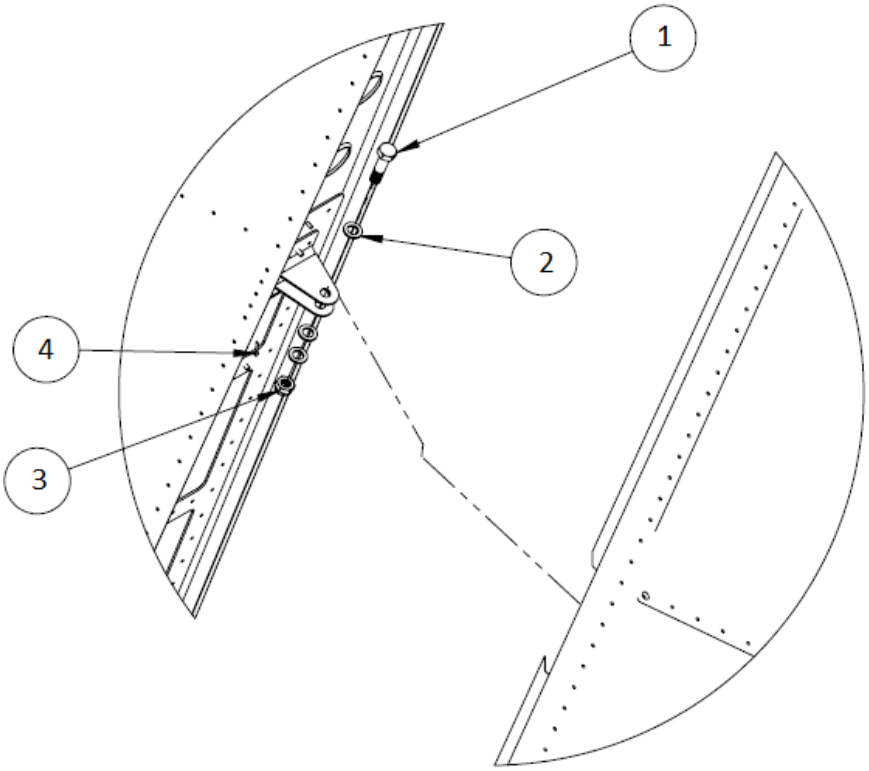



Figure 3.5.3.3. Rudder Installation, Detail D.

Table 3.5.3.1. Elevator installation, Hardware (ref. figure 3.5.3.3.).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Bolt | AN5-11 | 3 |
| 2 | Washer | AN960-516 | 9 |
| 3 | Nut | AN310-5 | 3 |
| 4 | Cotter Pin | MS24665-132 | 3 |

The procedure to measure the deflection of the rudder is done as below:

Put the angle finder aligned to the line of rivets of the vertical stabilizer shown in the image below and while applying full right pedal, measure the angle.

Figure 3.5.3.4. Rivet line measurement

The angle measured should be ± 20° ± 4°,

The other method is measuring the gap between the elevator root and the fully deflected rudder, as shown below:

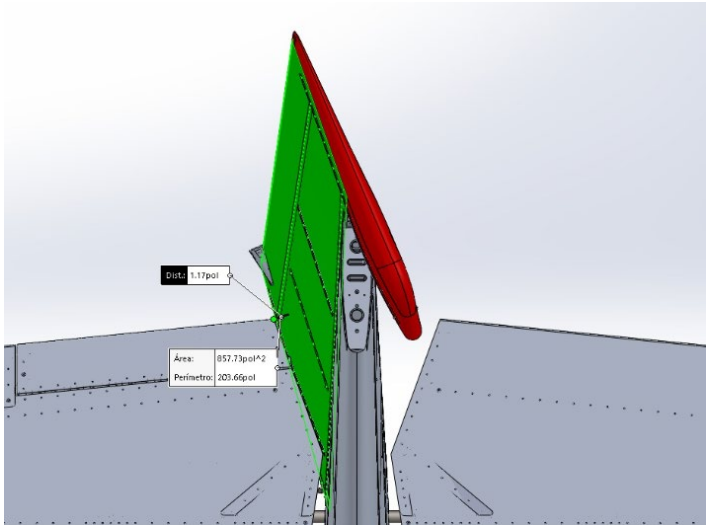



Figure 3.5.3.5. Design gap at full deflection

In terms of design, the rudder deflection is limited by the angle of the stabilizer root in neutral position. Consequently, the design gap in this region is 1.17 inches (approximately 30 mm), with each millimeter corresponding to approximately 0.22 degrees (doing a linear approximation because of the small angles). The limits are 20.3mm and 38.1mm ( $0.22 = \frac{1}{38,1-20,3} * 4$)

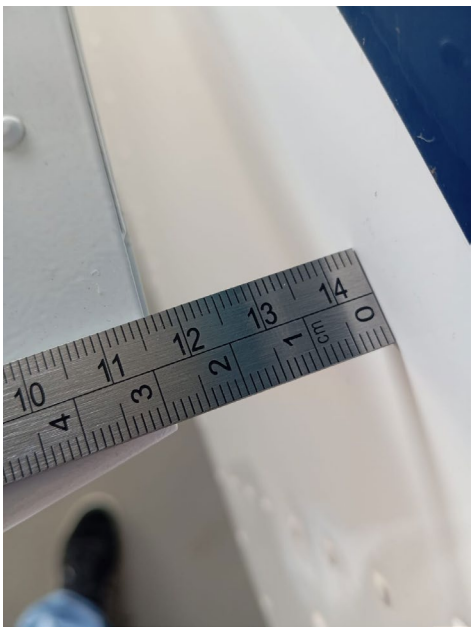


Figure 3.5.3.6. Measured gap at full deflection angle

- **Trim Tab**

The trim tab dimensions are 503.8mm x 92.9mm (19.8in. x 3.7in.) It is installed on the right elevator on the trailing edge. The trim tab attaches to the elevator using an Al 5052 piano hinge. The trim tab assembly is composed of Al 2024-T3 skin assembled with solid aluminum rivets and stainless-steel blind rivets. A T3-12A Ray Allen servo is installed in the trim control system and is electrically controlled by a switch mounted on the control yoke.

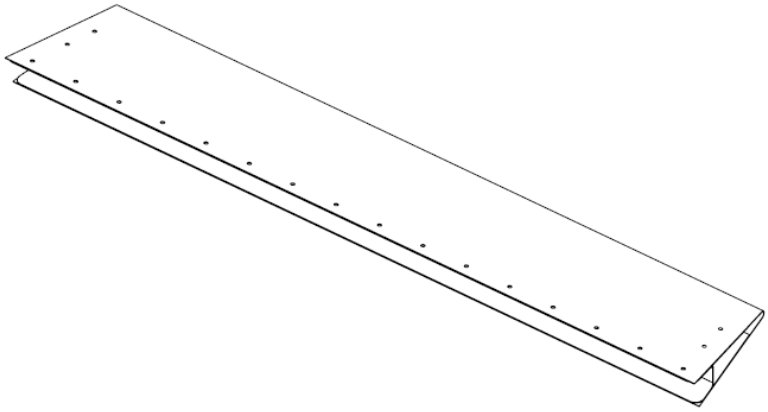


Figure 3.5.4.1. Trim Tab Assembly.

## 3.7 Fuselage

The Colt 100 fuselage is divided into two main parts: tail cone and cockpit. These two structures are described below.

- **Tail-Cone**

The tail-cone is a semi-monocoque structure made of Al 2024-T3 sheets and Al 6061-T6 angle stock. The tail-cone is composed of bended and extruded stringers, stamped frames and shear clips, and skins assembled with solid aluminum rivets to complete the entire structural assembly. The tail-cone houses the elevator and rudder control systems, ELT, and ballistic parachute installations. There are various inspection panels to gain access for inspection and maintenance. The Stabilizers are mounted to the rear of the tail-cone.

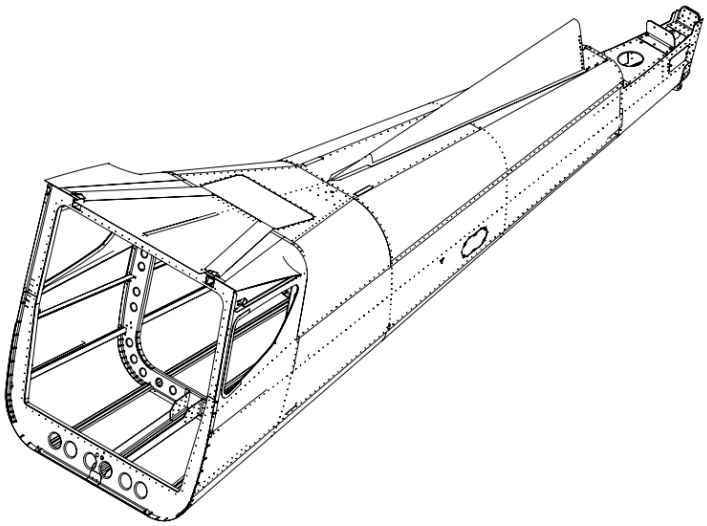


Figure 3.6.1.1. Tail Cone Assembly.

- **Cockpit (Safety Cell)**

The cockpit is semi-monocoque and tubular truss structure. The safety cell is a AISI 4130 (chrome-molybdenum) tubular structure constructed via TIG welds. The wing spars, wing struts, gear legs, and engine mount attach to this steel tubular safety cell. The semi-monocoque structure is composed of Al 2024-T3 skins and stringers and is attached to the AISI 4130 tubular truss structure with solid aluminum rivets. The forward end of the fuselage is the firewall structure constructed from stainless steel AISI 304 .40mm sheet. The floor of the cockpit is composed of bent and stamped aluminum parts with an extruded Al 6061-T6 seat rail. The semi-monocoque and tubular truss structures are joined as shown in figure 3.6.2.1.

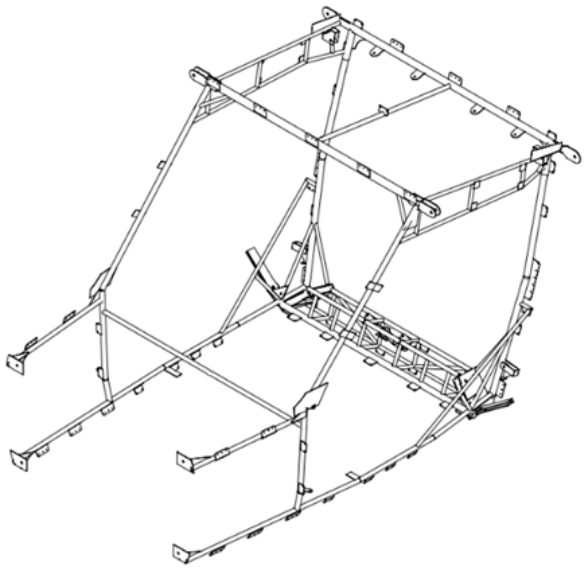


Figure 3.6.2.1. Cockpit Truss Structure.

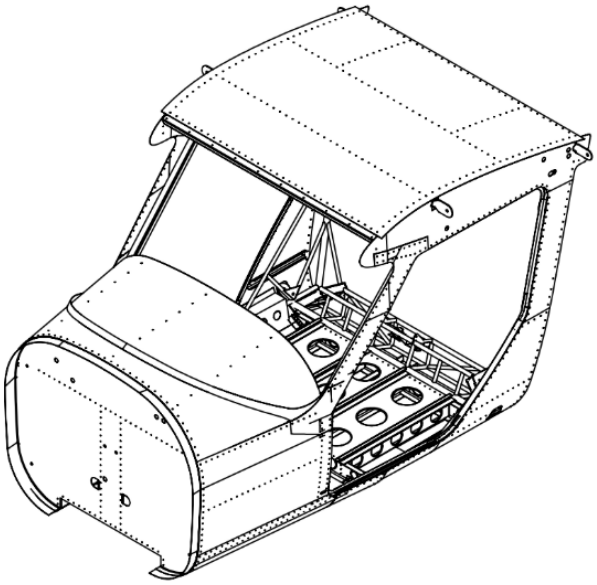


Figure 3.6.2.2. Cockpit Structure.

- **Engine Mount**

The engine mount assembly is composed of two primary components: engine ring and engine mount. Both components are constructed of AISI 4130 tubes of varying diameters of 1/2”, 5/8”, ¾”, 7/8”, and 1.5”. These assemblies are constructed with TIG welding. The engine mount is installed directly to the firewall and the fuselage tubular truss structure. The engine ring supports the engine and is installed to the engine mount. There are four shock mounts for vibration dampening installed between the engine mount and engine ring.

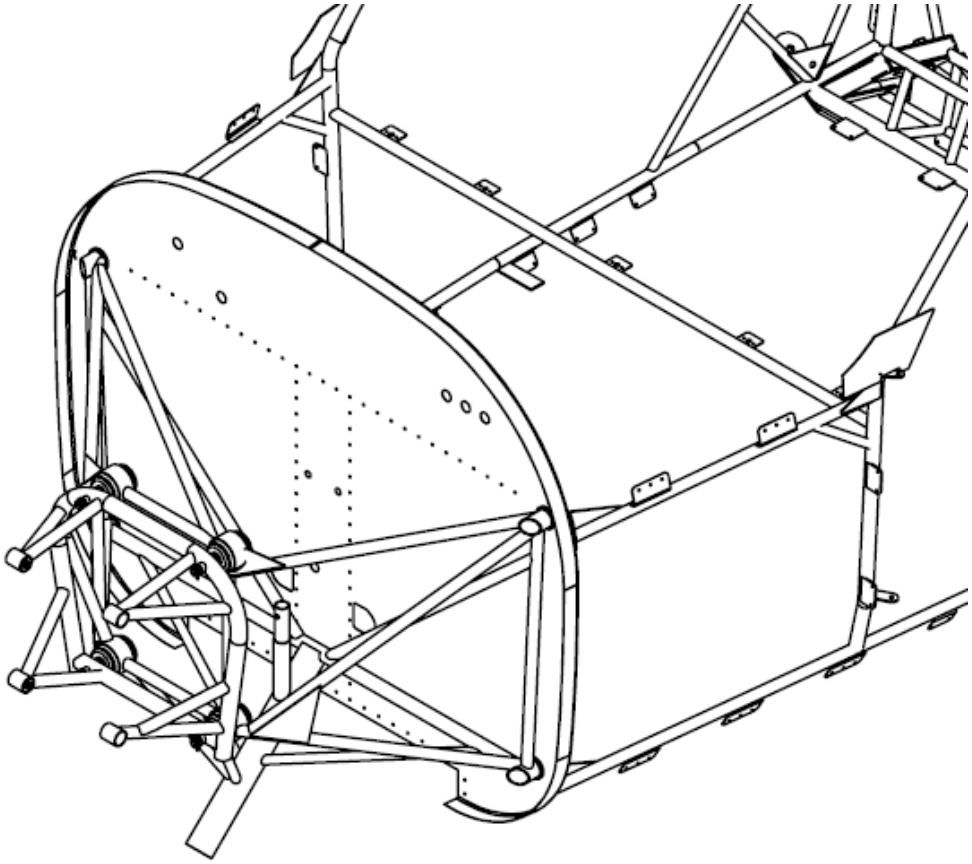


Figure 3.6.3.1. Engine Mount.

See figure below for engine mount and engine ring parts and hardware.

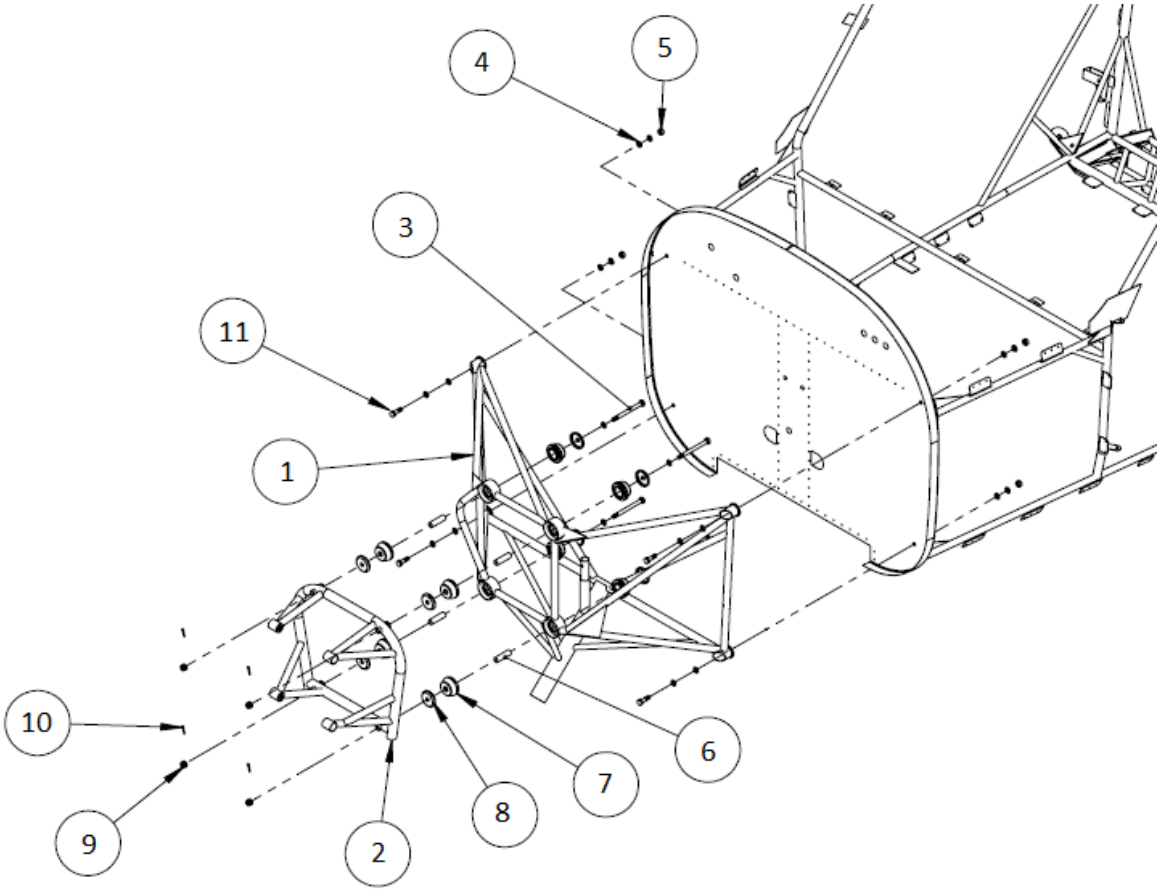



Figure 3.6.3.2. Engine Mount Installation.

Table 3.6.3.1. Engine Mount, parts and hardware (ref. figure 3.6.3.2.).

| ID | Description | Part Number | Quantity |
|---|---|---|---|
| 1 | Engine Mount | T1.71A.20B0.000 | 1 |
| 2 | Engine Ring | T1.71A.20A0.000 | 1 |
| 3 | Bolt AN5-34 | AN5-34 | 4 |
| 4 | Washer AN960-516 | AN960-516 | 18 |
| 5 | NUT AN364-624A | AN364-624A | 4 |
| 6 | AISI 4130 | 2024 T3 - 48x144x040S | 4 |
| 7 | Engine Lord - J-3608-1 | AS-07-01131 | 8 |
| 8 | Lord Engine Washer | ASS-530741 | 8 |
| 9 | Nut | AN363-1032A | 2 |
| 10 | Cotter Pin | MS24665-283 | 6 |
| 11 | Bolt AN5-7A | AN5-7A | 4 |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# 4 Engine

The Colt 100 is equipped with the Rotax® 912 ULS2-01 engine. The standard version is configured as:

- 4 stroke, 4 cylinders horizontally opposed, spark ignition engine, single central camshaft hydraulic tappets - push rods – OHV;
- Liquid cooled cylinder heads;
- Ram air cooled cylinders;
- Dry sump forced lubrication;
- Dual ignition of breakerless, capacitor discharge design;
- Electrical fuel pumps;
- Electric starter (12 V 0.9 kW);
- Integrated AC generator with external rectifier regulator;
- Propeller drives via an integrated gearbox with mechanical shock absorber and overload clutch.

The inspections listed on chapter 2 of this manual are provided by the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series (Maintenance Schedule). The engine service requirements are outlined in section 2.4.2.1 below. To do any work on the Rotax engine and keep warranty on the engine, it is recommended to take the appropriate maintenance course from Rotax Aircraft Engines.

It is the responsibility of the maintainer to check the latest versions of the engine maintenance manual and perform them in accordance with their manufacturer's instructions.

**Consult the Maintenance Manual (Line Maintenance) for Rotax Engine Type 912/914 Series for more details. Visit https://www.flyrotax.com/services/technical-documentation.html and consult the Maintenance Manual (Line Maintenance) for Rotax® Engine Type 912/914 Series for 25, 50, 100, 200, 600 and 1000 hours inspections.**

This engine series offers a time between **Overhauls (TBO) of 2000 hours**.


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# 5 Fuel System

| | |
|---|---|
| Fuel | AVGAS 100 LL (recommended)<br>MOGAS premium (91 octane - EN 228 Super Standard, up to 5% ethanol max)<br>MOGAS could cause sealant deterioration in the wing tank. |
| Usable Fuel | 117 l (30.9 US gal) |
| Total Fuel | 120 l (31.7 US gal) |

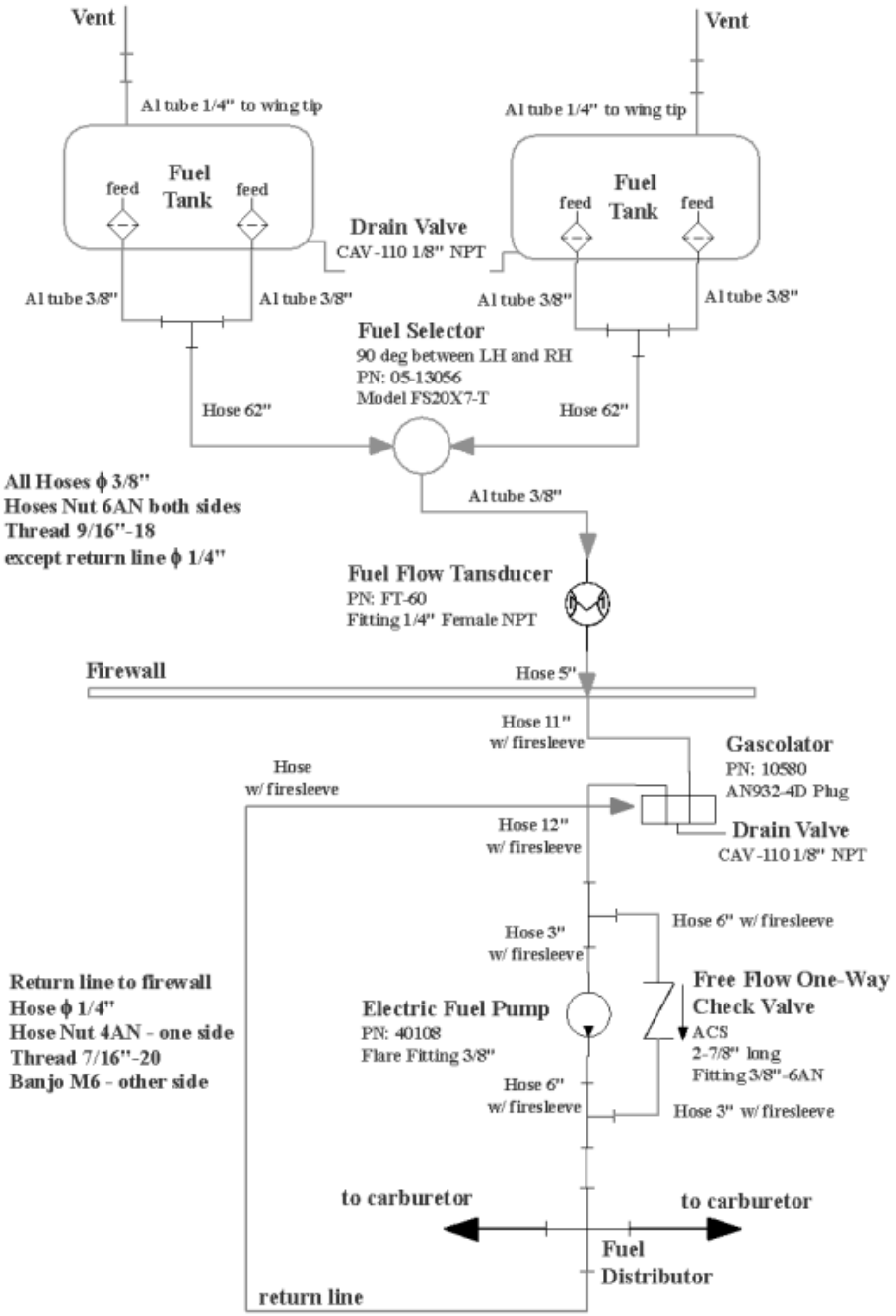


Figure 5.1. Fuel Syst em Diagram.


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# 6 Propeller

It is the responsibility of the maintainer to check the latest versions of the propeller maintenance manual and perform them in accordance with their manufacturer's instructions. Propeller Type S69CBMR-3LE-WR-C // 3-RT-B

## 6.1 Sterna

| | |
|---|---|
| Manufacturer | Sterna propeller |
| Model Blade | S69CBMR-3LE-WR-C |
| Model Hub | 3-RT-B |
| Number of Blades | 3 |
| Weight | 9.955 lb / 4.510 kg |
| Diameter | 69” |
| Pitch adjust | 18 deg / (4900 rpm - 50 rpm) |

**Note:**

- **Consult the Propeller Manual for more details: Instruction manual Sterna propeller range.**
- **Propeller pitch is set by Texas Aircraft Manufacturing and may not be changed or adjusted.**


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# 7 Utility Systems

In this section the air ventilation system is described. On the cockpit panel there are two air vents installed on the pilot and co-pilot (left and right) sides. The vents have no scheduled maintenance interval and are On-Condition maintenance components.

| Item | P/N |
|---|---|
| Plastic EyeBall Air Vent | 05-04079 |


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-

# 8 Instruments and Avionics



## 8.1 Dynon System

The follow equipment and instruments are mounted on the standard cockpit panel:


Figure 8.2.1 Instrument Panel for Dynon System

| | |
|---|---|
| 1- Ignition Switch | 9 - Autopilot Disconnect Button |
| 2- One circuit Breaker 25A | 10- Comm 1 or 2 Transmit Switch |
| 3- Flap Control Switch | 11- Choke Control Knob |
| 4- 12V Receptable | 12- EFIS Data USB |
| 5 - USB Charger | 13- Airspeed Indicator |
| 6- Dimmer Control | 14- Altimeter |
| 7-ELT Remote Switch | 15- Vertical Speed Indicator |
| 8- Air Vents | 16- Inclinometer |

Avionics:

| | |
|---|---|
| 17- Dynon Skyview HDX 10” | 22- SV-INTERCOM-2S Two Place |
| 18- SV-AP-PANEL SkyView Autopilot | 23- Pilot Headset (Mic/Phone/6 pin) |
| 19- SV-KNOB-PANEL Autopilot | 24- Co-pilot Headset (Mic/Phone/ 6pin) |

| | |
|---|---|
| 20. Pilot Headset (Mic/Phone/6 pin) | 25- Skymaster |
| 21- SV-COM-C25 SkyView VHF Com Radio 2 | |

*The circuit breakers and switches may change according to the avionics, instruments and modules installed in the Colt 100 .

## 8.1.1 8.1.1 Initial Preparation

### 8.1.1.1 Documentation Review

Review all technical documentation and manuals for the equipment. Ensure that all required components are present and meet the necessary specifications. For each section, refer to the Dynon SkyView installation manual.

### 8.1.1.2 Electrical Harness Inspection

Inspect the prefabricated wiring harness for any signs of damage. Verify that all connectors are correctly labeled and positioned as per the wiring schemes outlined in this manual. The harness is provided by Texas Aircraft with part number (PN) T1.24A.10A0.000.

### 8.1.1.3 Aircraft Shutdown and Safety

Make sure the aircraft is fully powered down and follow all applicable safety procedures before beginning the installation.

## 8.1.2 8.1.2 Dynon SkyView Display Installation

#### 8.1.2.1 Physical Mounting

Mount the Dynon SkyView display in the designated panel location, ensuring it is securely fastened.

#### 8.1.2.2 Electrical Connection

Connect the SkyView display to the wiring harness, ensuring all connections are secure and follow the wiring diagram specifications.

### 8.1.3 8.1.3 Audio Panel and Communication Radios Installation

#### 8.1.3.1 Audio Panel Installation

Mount the audio panel in the designated position on the instrument panel.

#### 8.1.3.2 Communication Radios Installation

Install both communication radios in their designated compartments.

#### 8.1.3.3 Electrical Connection

Connect the audio panel and communication radios to the wiring harness. Ensure that the power, antenna, and interfaces with the Dynon SkyView system are properly secured.

### 8.1.4 8.1.4 Autopilot Installation

#### 8.1.4.1 Servo Installation

Mount the servos for each control axis (aileron, elevator, rudder) in the appropriate locations within the aircraft structure.

#### 8.1.4.2 Control System Connection

Connect the servos to the autopilot control system using the wiring harness.

#### 8.1.4.3 Electrical Connection and Initial Setup

Connect the autopilot components to the wiring harness. Perform a basic functional check to ensure all connections are operating correctly.

## 8.1.5 8.1.5 Dynon Backup Installation

### 8.1.5.1 Physical Mounting

Install the Dynon backup instrument in the designated panel position.

### 8.1.5.2 Electrical Connection

Connect the backup instrument to the wiring harness, ensuring it receives the correct power and data, and that backup functions are properly configured.

## 8.1.6 8.1.6 Dynon SkyView System Displays Installation

### 8.1.6.1 Installation Preparation

After verifying the installation of all other components, prepare the panel area for the installation of the SkyView displays.

### 8.1.6.2 Physical Mounting of Displays

Install the SkyView displays in the specified panel locations.

### 8.1.6.3 Electrical Connection

Connect the SkyView displays to the wiring harness, ensuring proper data and power connections.

**NOTE:** For any uncertainties, always refer to the specific equipment installation manual or consult an avionics technician for complex or critical procedures.

---

## 8.1.7 8.2 Ground Test Procedure for Avionics Installation

### 8.2.1 Initial Power-Up

After the installation, power on all instruments.

### 8.2.2 Instrument Verification

Confirm that each instrument is powered up. If any instrument fails to power on, troubleshoot following the SkyView installation manual for the specific instrument.

### 8.2.3 Sensor and Parameter Recognition

Verify that all sensors and parameters are detected by the instruments. If a sensor or parameter is not recognized, consult the SkyView installation manual to check sensor/electrical harness connections.

### 8.2.4 Ground Run and Monitoring

Conduct a ground run and monitor all parameters.

- **First Engine Run:** If any sensor shows data outside specified limits, inspect the wiring harness. If unresolved, replace the sensor and repeat the ground run. Persistent anomalies may indicate engine issues—consult the engine manufacturer for assistance.
- **Subsequent Engine Runs:** For recurring anomalies, check the wiring harness or replace the sensor.

### 8.2.5 Final Verification

Ensure that all parameters are within the specified limits. If they are, the procedure is complete.

**NOTE:** When in doubt, refer to the installation manual or consult an avionics technician for critical repairs.

---

## 8.1.8 8.3 Dynon SkyView Software Updates

### 8.3.1 Update Responsibility

The SkyView system is factory-installed with the latest software version. It is the owner's responsibility to check and update the software as needed, even if Texas Aircraft has already performed an update.

### 8.3.2 Database Updates

Maintaining current navigation charts and terrain data is the owner's responsibility. Texas Aircraft may update the system during installation, but ongoing updates should be managed by the owner for safe and effective navigation.

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# 9 Electrical System



## 9.1 Main Power

The main power is supplied by the integrated AC generator of 250W with external rectifier/regulator 14.2 VDC, rated to 22A at 5800 rpm, which recharges the battery in normal operation. The secondary source is supplied by the battery, with capacity of 16 Ah, which feeds the electrical consumption when the engine is turned off or in case of alternator failure. The total electrical load during flight is rated to 17.1 A, allowing the electrical supply only by the battery for a minimum of 45 minutes assuming the battery capacity is 80%. The master relay enables the electrical supply into the circuit, feeding the central multi switch SkyMaster and allowing the engine start-up. A circuit breaker of 25A is installed to protect the electrical system.

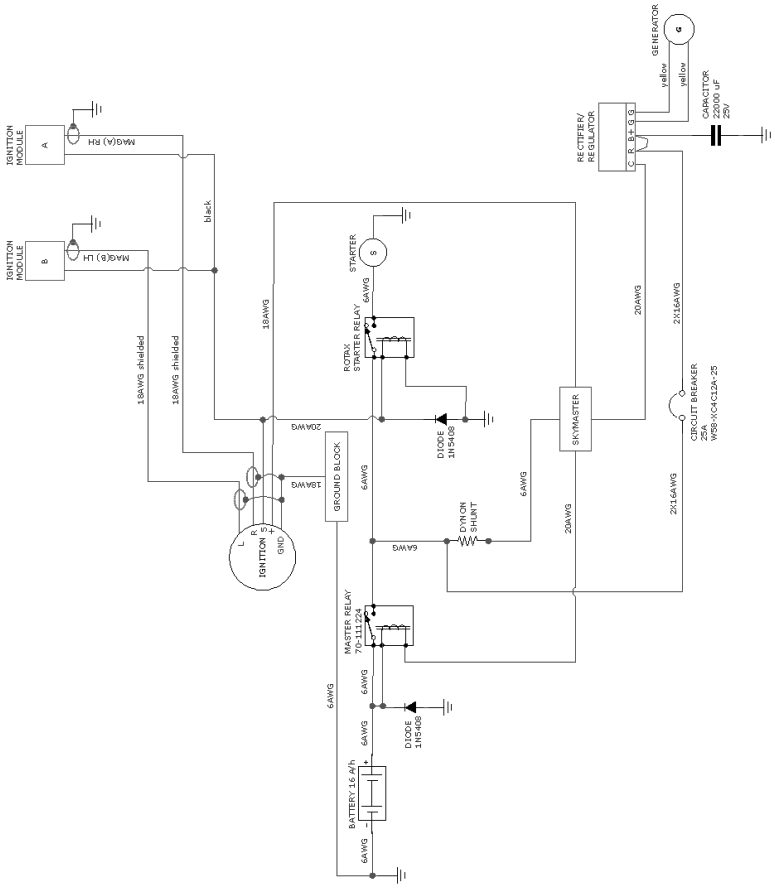


Figure 9.1. Electrical System Diagram.

**CAUTION**

**Before any electrical component substitution, disconnect the battery source from the electrical system.**

## 9.2 ADSB Diagram

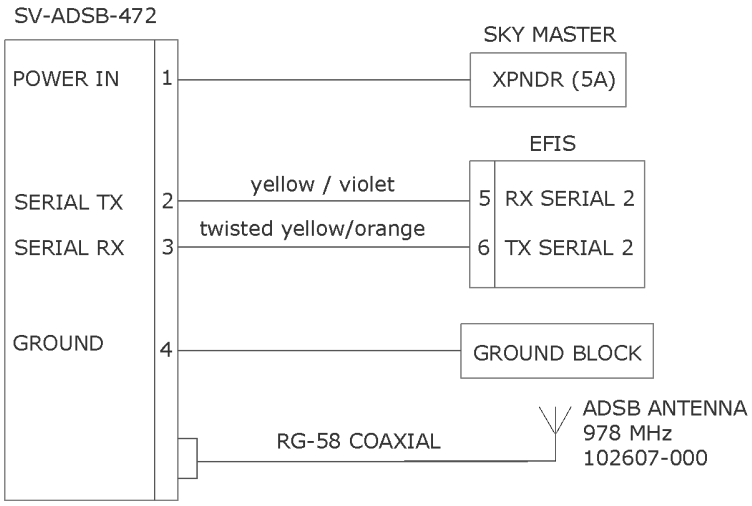


Figure 9.1.1. ADSB Diagram.

## 9.3 Auto Trim Diagram

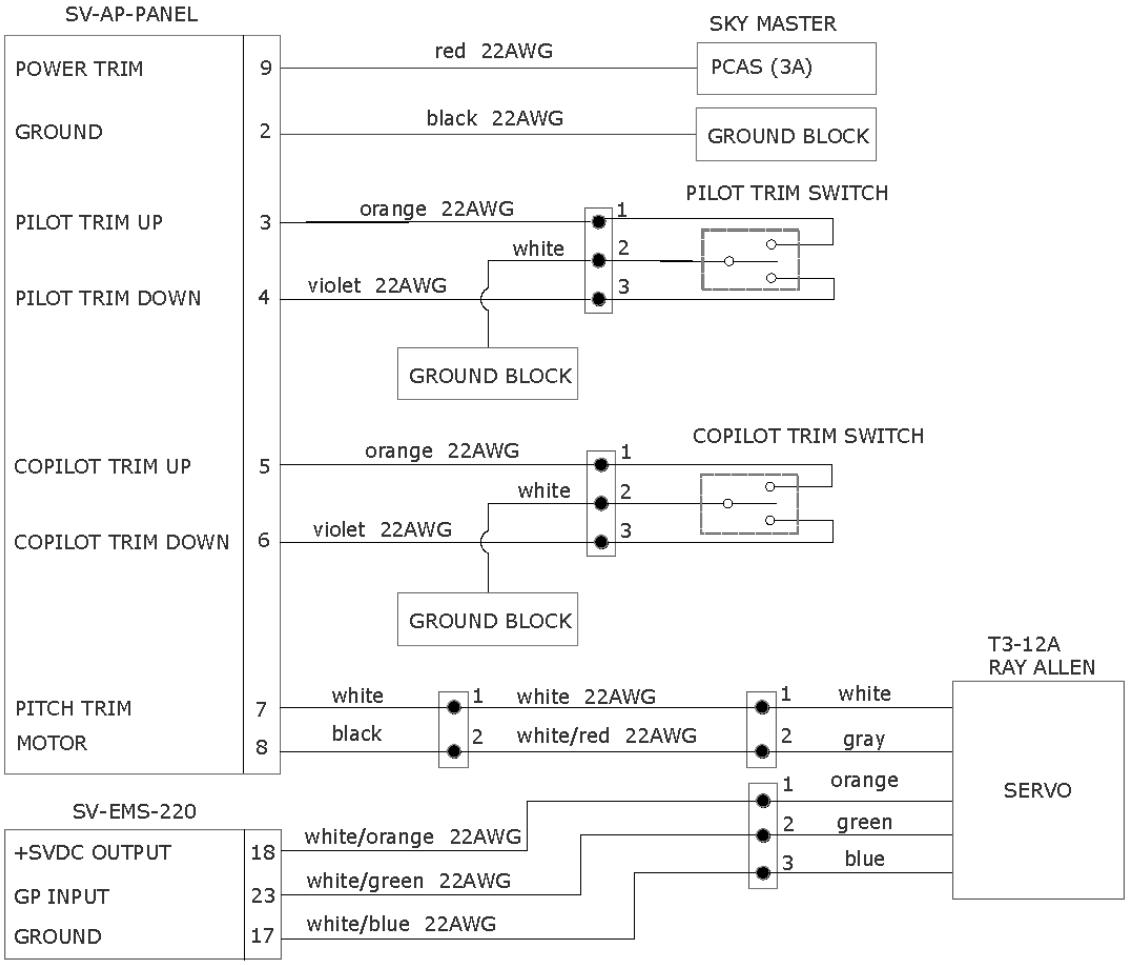


Figure 9.2.1. Auto Trim.

## 9.4 12V Receptable Diagram

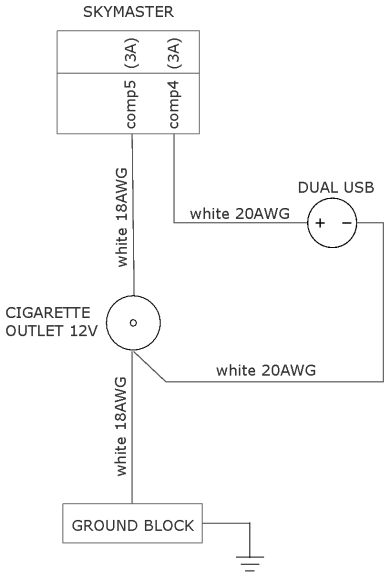


Figure 9.3.1. 12V Receptacle/USB Diagram.

## 9.5 Cockpit Lights Diagram

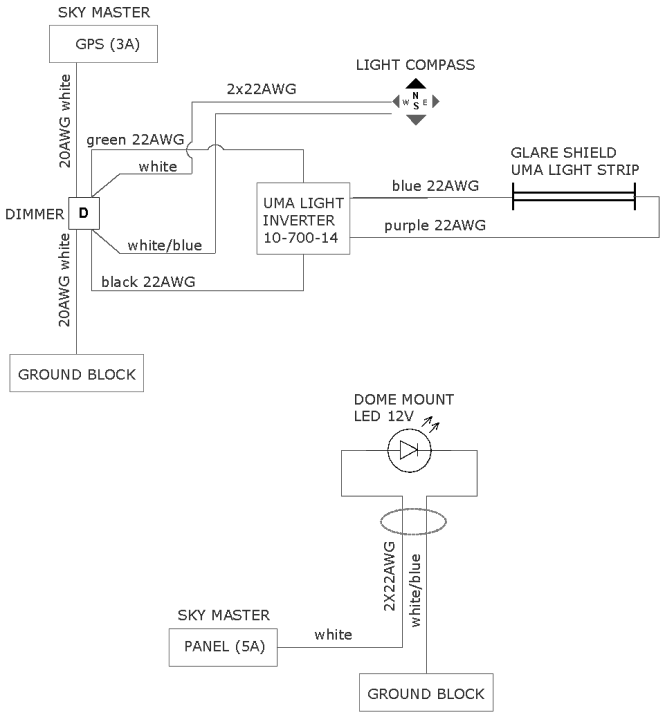


Figure 9.4.1. Cockpit Lights Diagram.

## 9.6 COMM Diagram

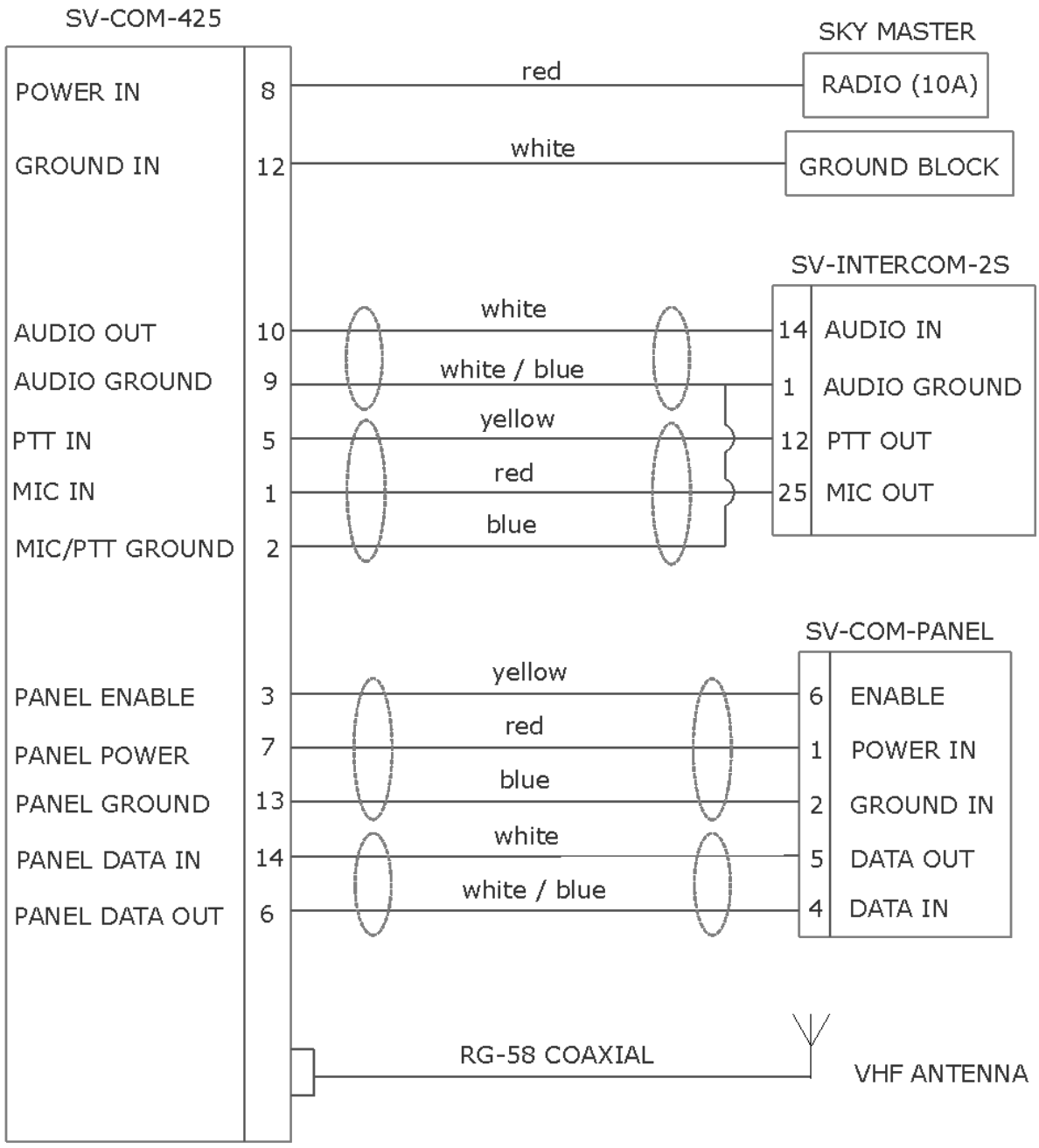


Figure 9.5.1. Comm #1 Diagram.

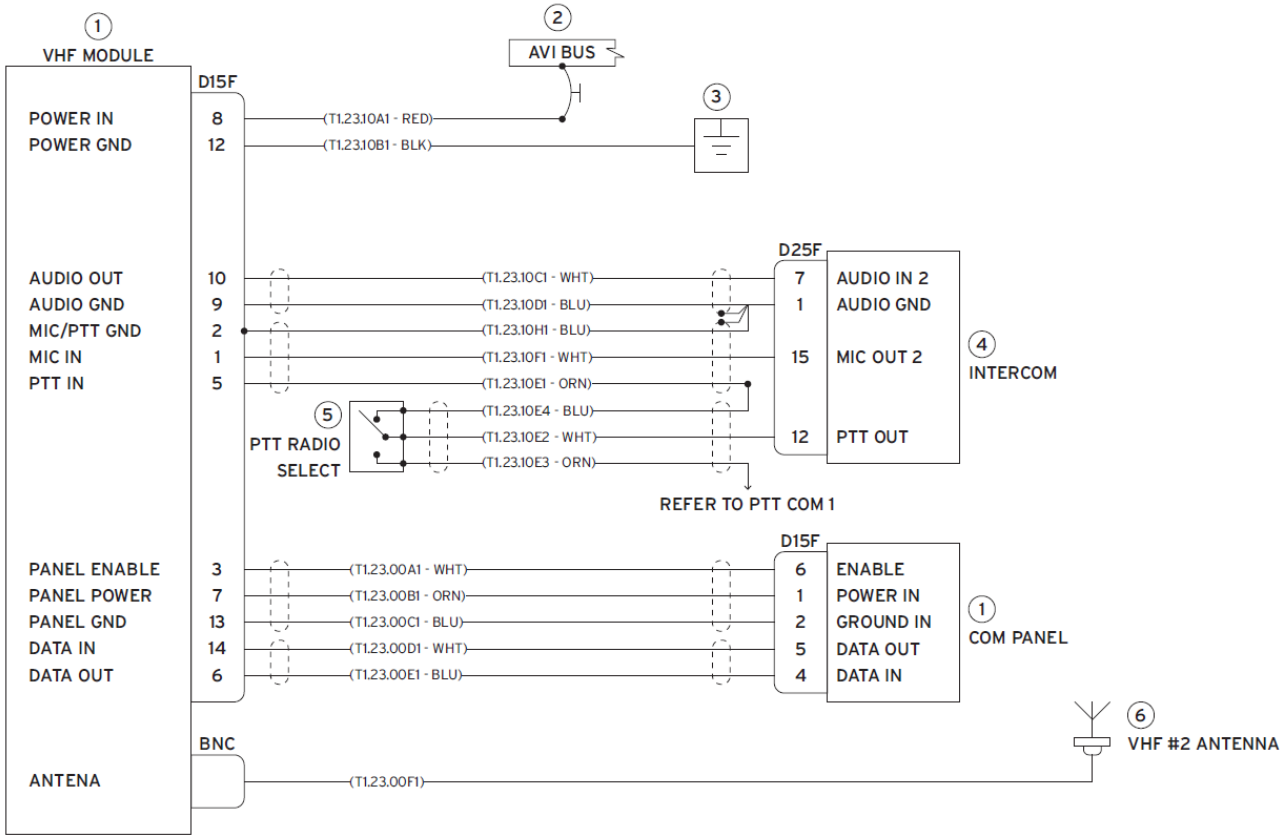


Figure 9.5.2. Comm #2 Diagram.

## 9.7 EFIS Diagram

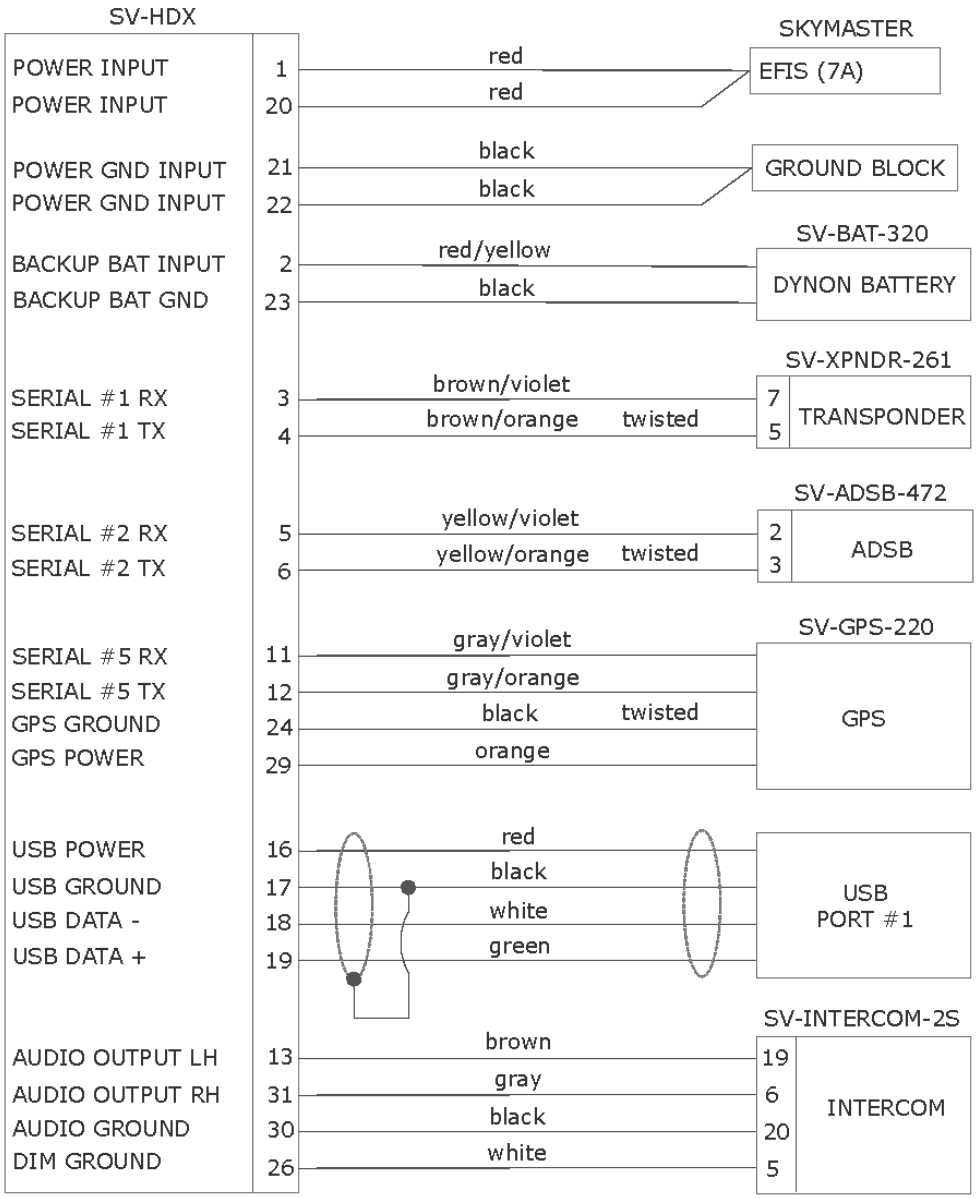


Figure 9.6.1. EFIS Diagram.

## 9.8 ELT Diagram

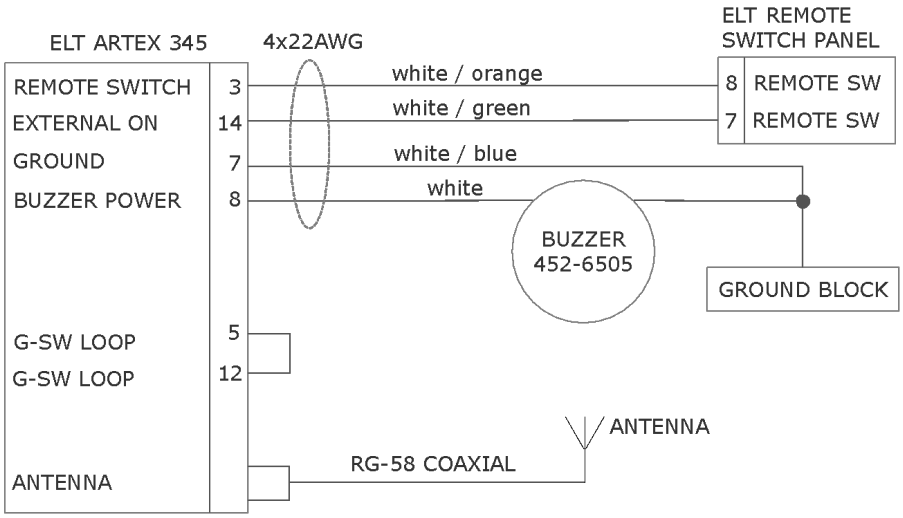


Figure 9.7.1. ELT Diagram.

## 9.9 Flap Diagram

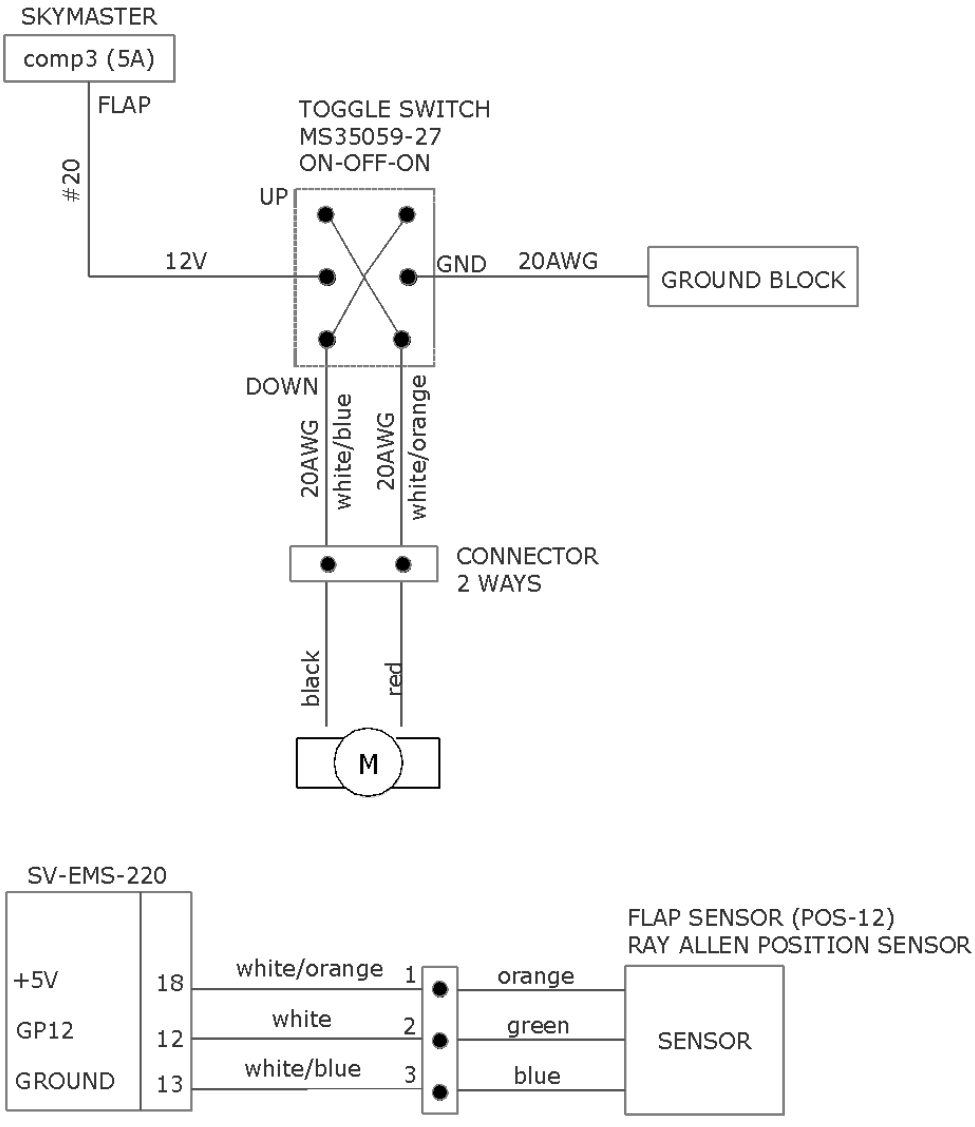


Figure 9.8.1. Flap Diagram.

## 9.10 Intercom Diagram

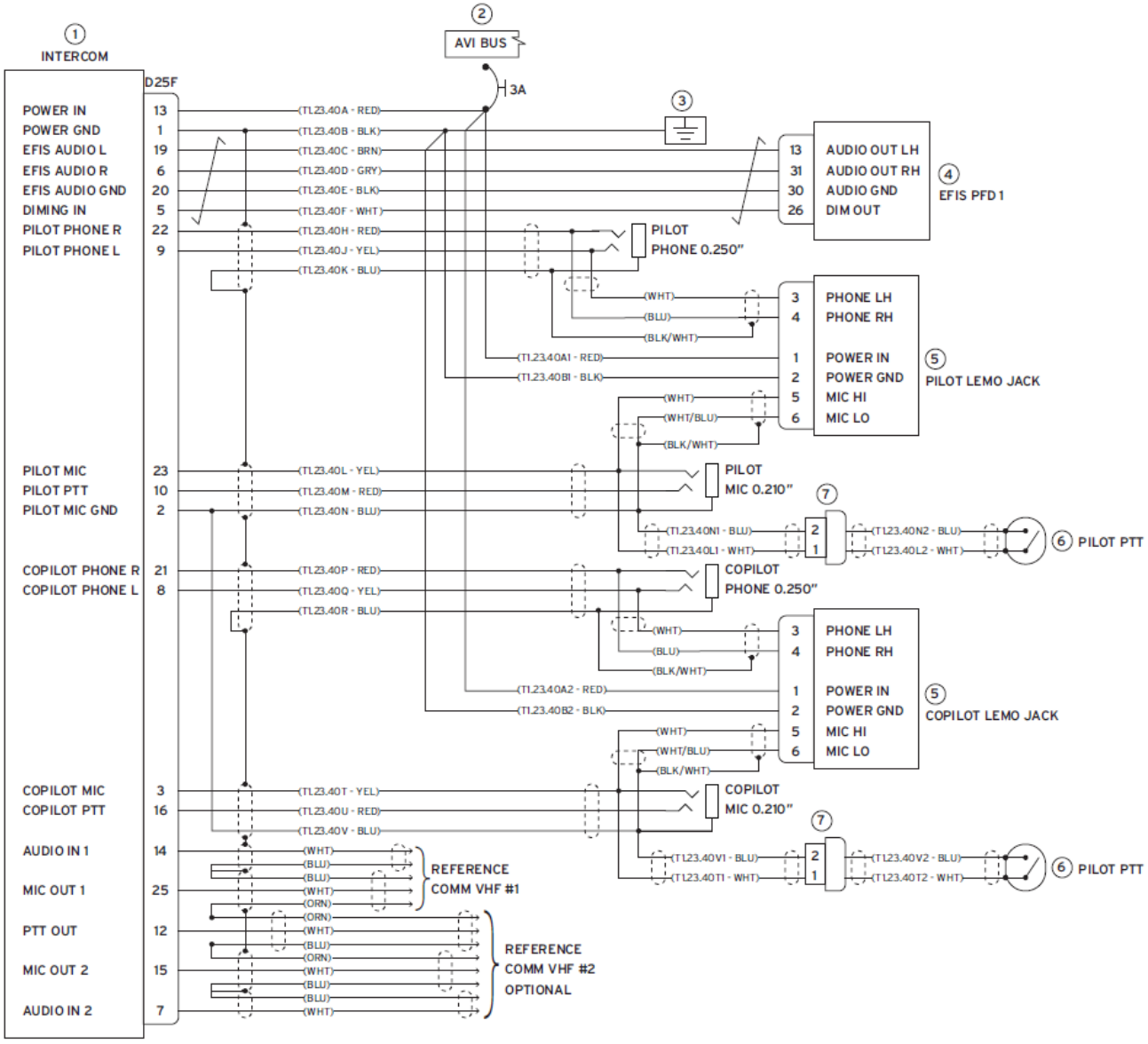


Figure 9.9.1. Intercom Diagram.

## 9.11 Landing / Taxi Lights Diagram

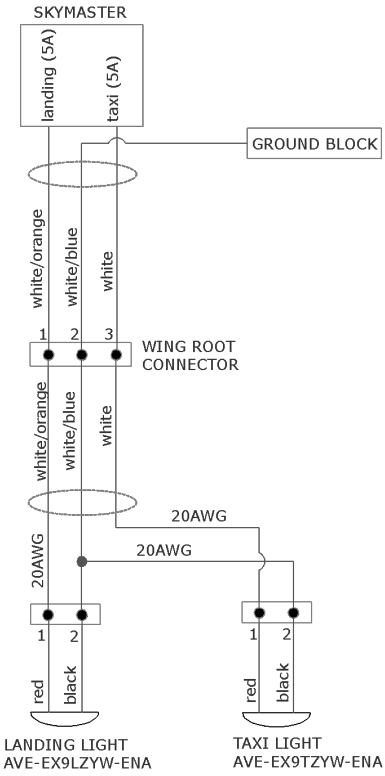


Figure 9.10.1. Landing / Taxi Lights Diagram.

## 9.12 Nav Lights Diagram

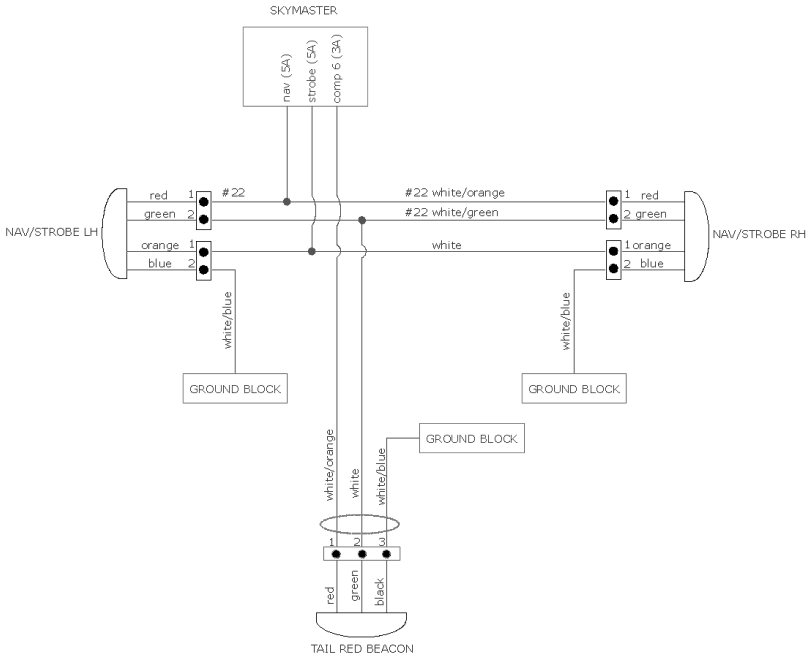


Figure 9.11.1. Nav Lights Diagram.

## 9.13 Sensors Diagram

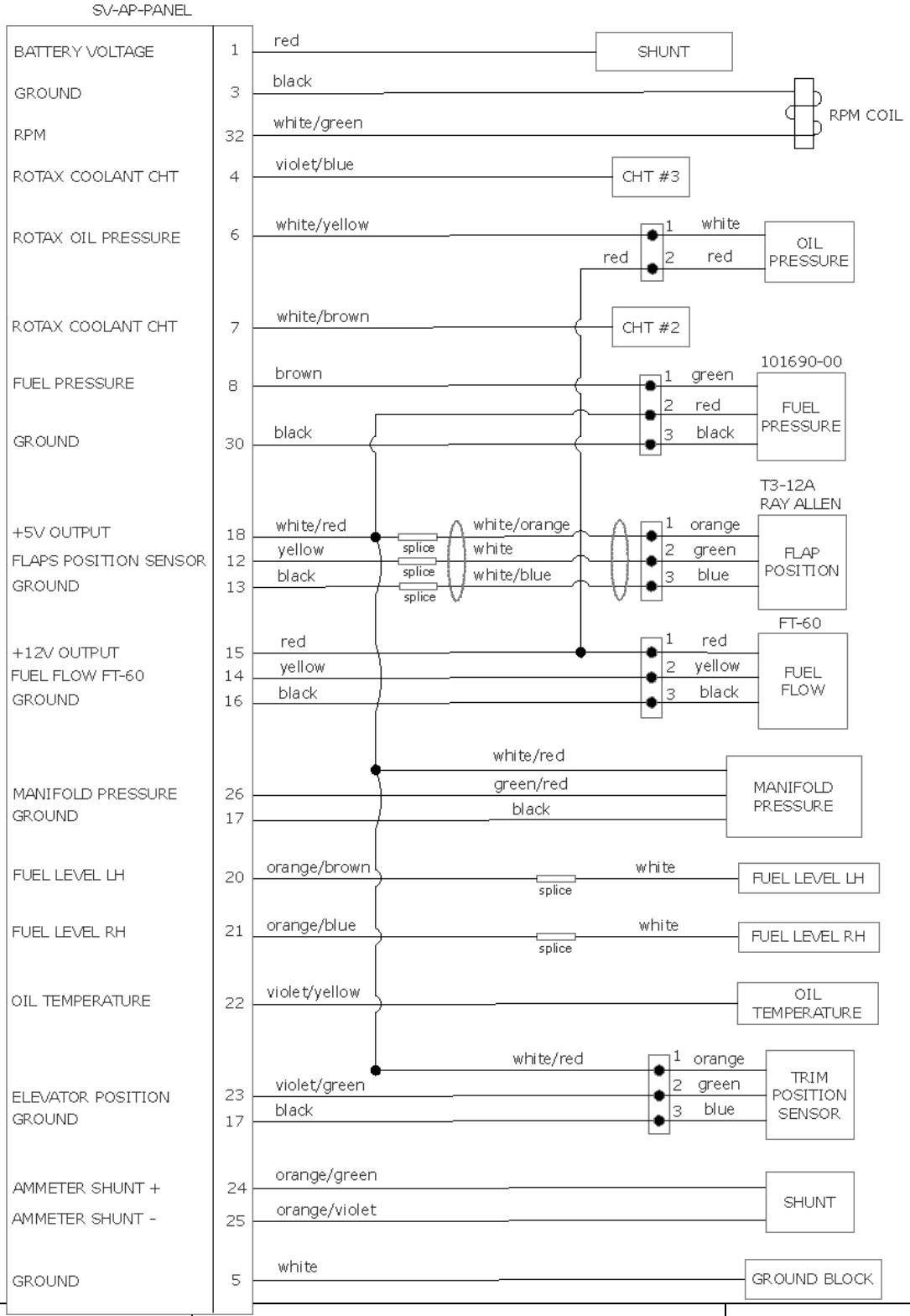
SV-AP-PANEL
BATTERY VOLTAGE 1
GROUND 3
RPM 32
ROTAX COOLANT CHT 4
ROTAX OIL PRESSURE 6
ROTAX COOLANT CHT 7
FUEL PRESSURE 8
GROUND 30
+5V OUTPUT 18
FLAPS POSITION SENSOR 12
GROUND 13
+12V OUTPUT 15
FUEL FLOW FT-60 14
GROUND 16
MANIFOLD PRESSURE 26
GROUND 17
FUEL LEVEL LH 20
FUEL LEVEL RH 21
OIL TEMPERATURE 22
ELEVATOR POSITION 23
GROUND 17
AMMETER SHUNT + 24
AMMETER SHUNT - 25
GROUND 5
red
SHUNT
black
white/green
RPM COIL
violet/blue
CHT #3
white/yellow
white
red
OIL PRESSURE
white/brown
CHT #2
brown
green
red
black
101690-00
FUEL PRESSURE
white/red
yellow
black
splice
white/orange
white
white/blue
orange
green
blue
T3-12A
RAY ALLEN
FLAP POSITION
red
yellow
black
FT-60
FUEL FLOW
white/red
green/red
black
MANIFOLD PRESSURE
orange/brown
white
FUEL LEVEL LH
orange/blue
FUEL LEVEL RH
violet/yellow
OIL TEMPERATURE
violet/green
TRIM POSITION SENSOR
orange/green
orange/violet
SHUNT
white
GROUND BLOCK

Figure 9.12.1. Sensors Diagram.

### 9.14 SkyView Network

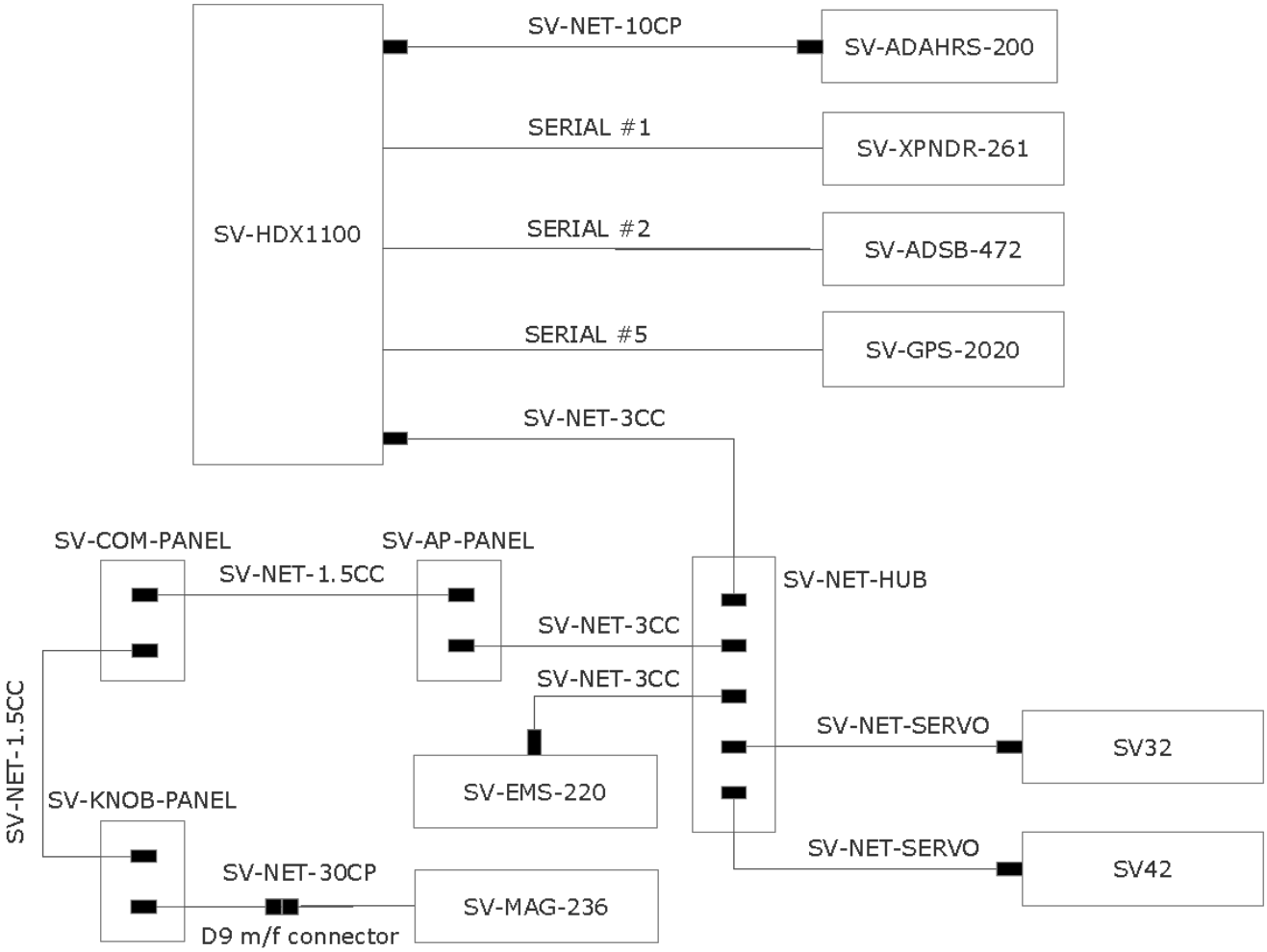


Figure 9.13.1. SkyView Network Diagram.

### 9.15 SkyView WASS

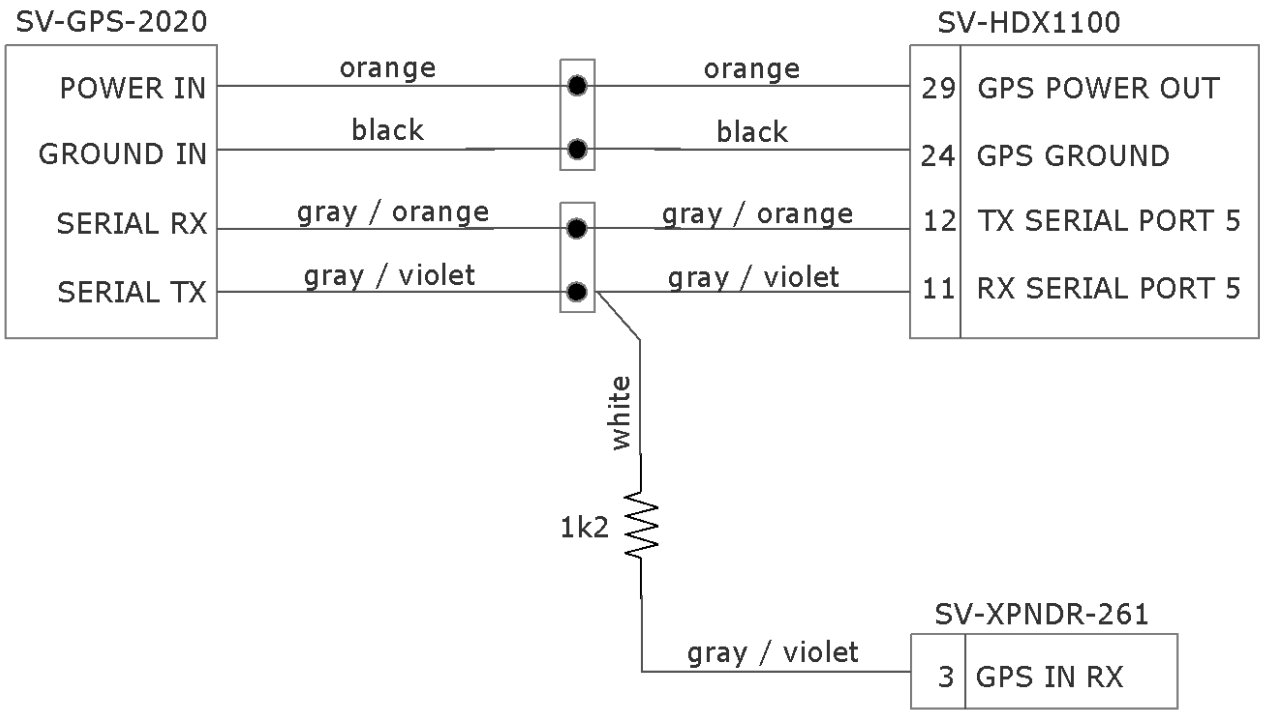


Figure 9.14.1. SkyView WASS Diagram.

## 9.16 Pitot / Static / AOA

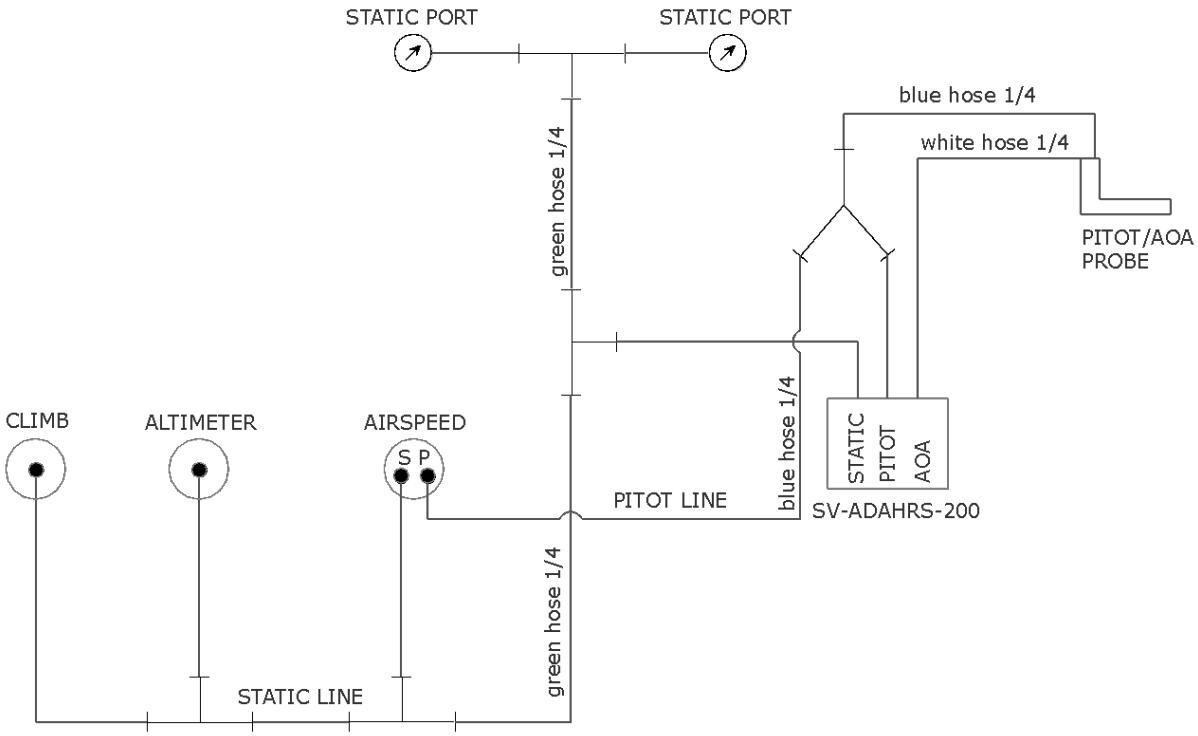


Figure 9.15.1. Pitot/Static/AOA System.

## 9.17 Switches

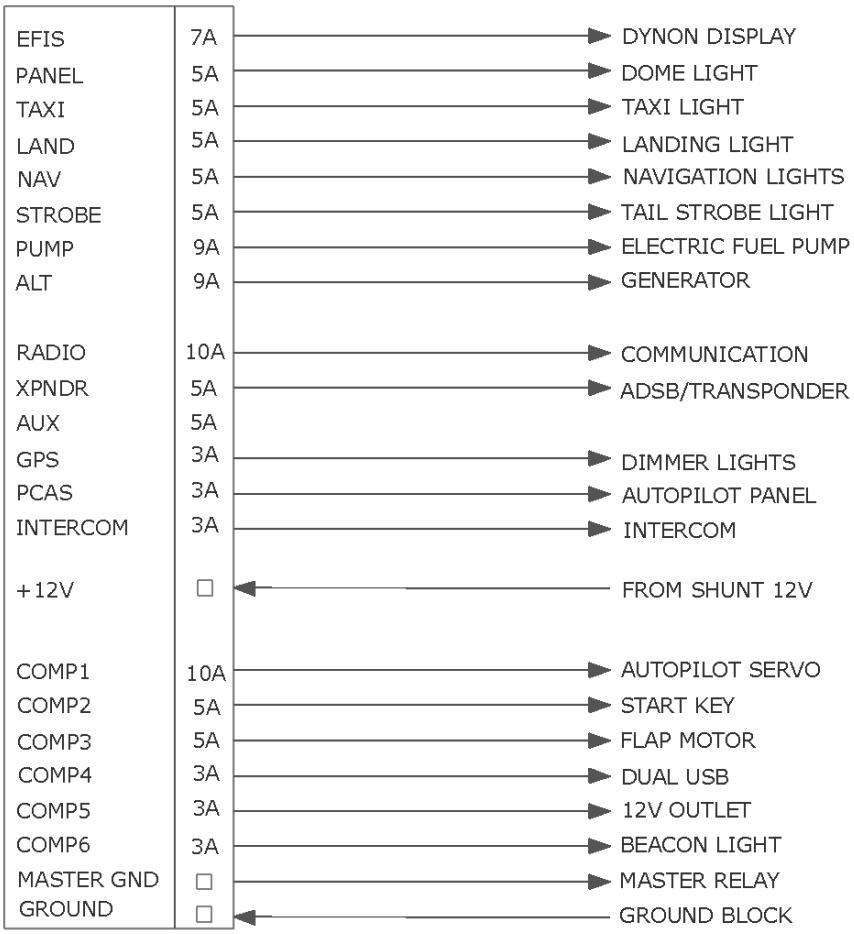


Figure 9.16.1. Internal Switch Diagram.

## 9.18 Transponder Diagram

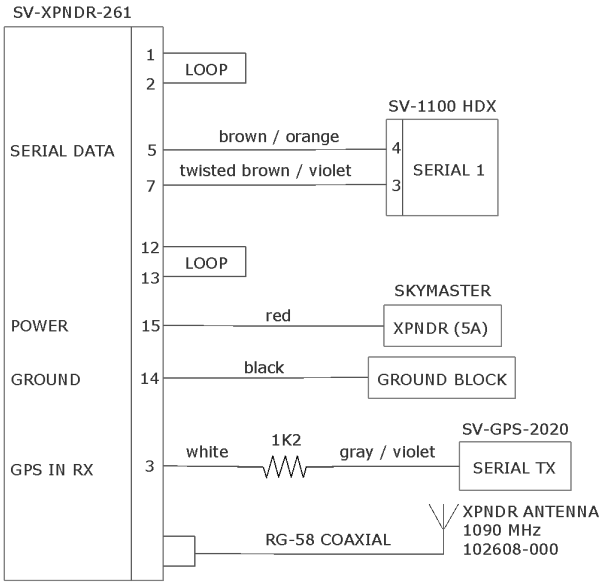


Figure 9.17.1. Transponder Diagram.

## 9.19 ACS Ignition Switch

Check compliance with ACS ignition key bulletin **SB92-01** in aircraft maintenance logbooks.

If it has not been complied with, it is recommended to comply with the instructions in the document provided by the component manufacturer. The manufacturer recommends, for ignition switches which have been operated without a starter solenoid diode, a complete inspection for oxidation and correct lubrication of the device and the installation of a diode in the starter relay. This task is recommended to take place within the next 100 hours or annual aircraft inspection, whichever comes first.

It is the responsibility of the mechanic and operator to consult the most up-to-date technical publications.


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# 10 Heavy Maintenance, Repairs and Alterations

## 10.1 Heavy Maintenance, Repairs, and Alterations

***Authorization to perform*** – Only the Texas Aircraft Manufacturing, INC may perform Heavy Maintenance, Repairs, and Alterations on the Colt 100 aircraft or component, unless Texas Aircraft Manufacturing has issued an approved MRA (Major Repair Authorization) prior to any work being performed.

***Tasks***:

- Complete engine removal and reinstallation in support of an engine overhaul or to install a new engine;
- Removal and replacement of engine cylinders, pistons, or valve assemblies, or a combination thereof;
- Primary flight control cables/components;
- Landing gear assemblies;
- Repair of components or aircraft structure, or both;
- Repainting of control surfaces;
- Structural repairs.

## 10.2 Overhaul

***Authorization to perform*** – Only Texas Aircraft Manufacturing may perform or is authorized to perform the overhaul of an aircraft component directly made by Texas Aircraft Manufacturing.

***Components to be overhauled by third parties:***

Engine and engine components.

***Authorized to perform*** – Rotax overhaul authorized companies and A&P.

## 10.3 Major Repairs and Alterations

A MRA (Major Repair and Alteration) will be issued for any major repairs and alterations. The MRA must be approved by Texas Aircraft Manufacturing INC before any work is preformed.

## 10.4 Structural Repair

Structural repairs should be conducted in accordance with the best practices found in AC 43.13-1B and FAA-H-8083-31. All structural repairs should be made or approved by Texas Aircraft Manufacturing, INC in accordance with the MRA.

## 10.5 Painting and Coatings

Before performing any related work or customization, please contact **Texas Aircraft Manufacturing, INC** by email for written authorization.


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# 11 Contact and Feedback

## 11.1 Texas Aircraft Manufacturing, INC - Contact

For Heavy Maintenance, Overhaul or Major Repairs, please contact Texas Aircraft Manufacturing team by Mail or email, at the following address:

Texas Aircraft Manufacturing, INC

508 Vandenberg Road, Hangar 5

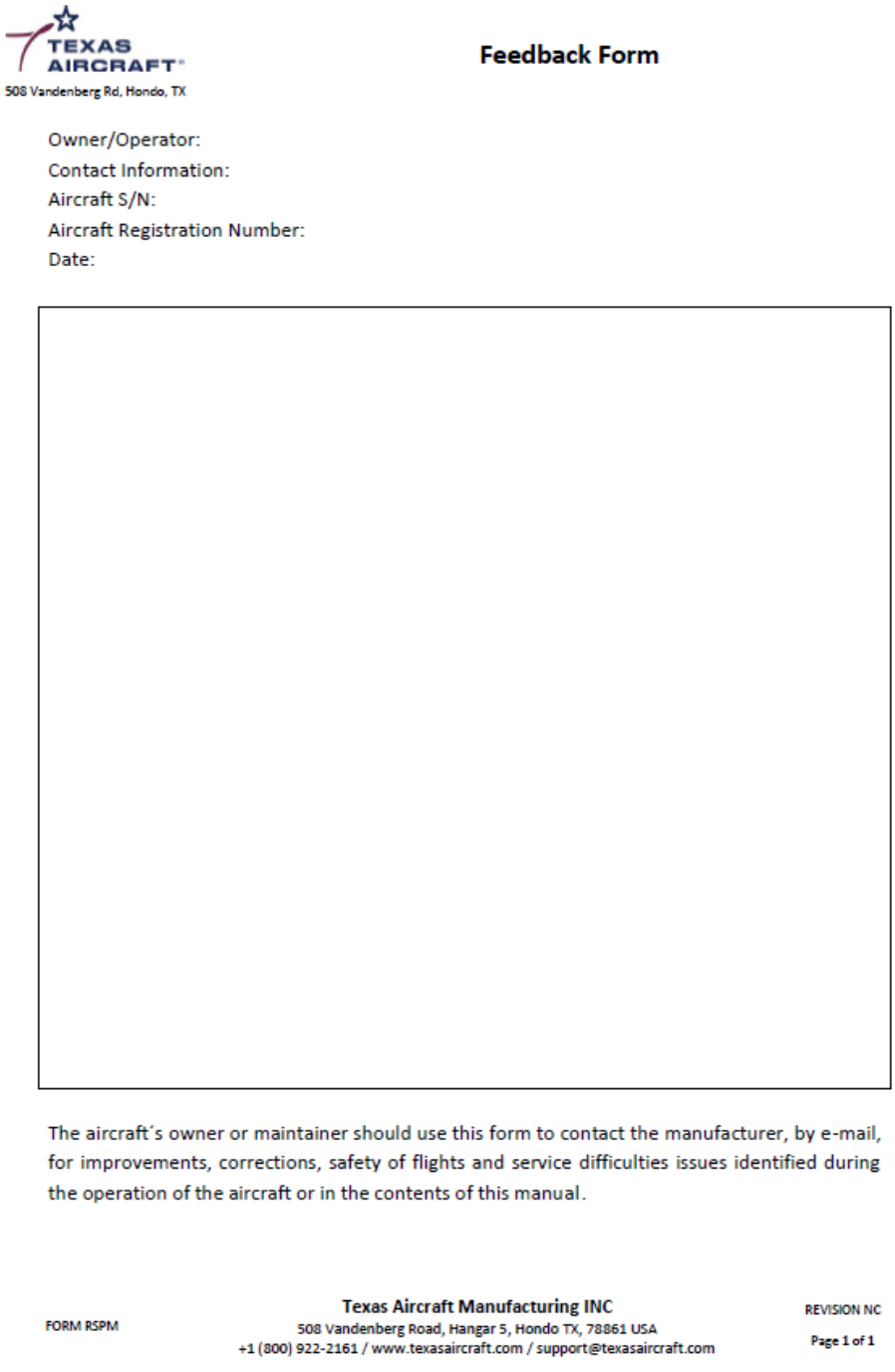
Hondo, TX 78861

800-922-2161

www.texasaircraft.com

support@texasaircraft.com

## 11.2 Feedback Form



TEXAS AIRCRAFT
508 Vandenberg Rd, Hondo, TX

**Feedback Form**

Owner/Operator:
Contact Information:
Aircraft S/N:
Aircraft Registration Number:
Date:

The aircraft´s owner or maintainer should use this form to contact the manufacturer, by e-mail, for improvements, corrections, safety of flights and service difficulties issues identified during the operation of the aircraft or in the contents of this manual.

FORM RSPM

**Texas Aircraft Manufacturing INC**
508 Vandenberg Road, Hangar 5, Hondo TX, 78861 USA
+1 (800) 922-2161 / www.texasaircraft.com / support@texasaircraft.com

REVISION NC
Page 1 of 1

# 12 Appendix A – Inspection Checklist

## 12.1 First 25 hours Inspection

| Group | Points of Inspection | Chapter Reference | Sign-Off |
|---|---|---|---|
| **Wing** | Visual Inspection for cracks on exterior surfaces. | 3.2 | |
| | Evidence of fuel leakage. | 3.2 | |
| **Horizontal Stabilizer** | Visual Inspection for cracks on exterior surfaces. | 3.3.1 | |
| **Vertical Stabilizer** | Visual Inspection for cracks on exterior surfaces. | 3.3.2 | |
| **Rudder** | Visual Inspection for cracks on exterior surfaces. | 3.5.3 | |
| | Looseness of bolts, nuts and rod ends. | 3.5.3 | |
| **Aileron** | Visual Inspection for cracks on exterior surfaces. | 3.5.1 | |
| | Looseness of bolts, nuts and rod ends. | 3.5.1 | |
| **Elevator** | Visual Inspection for cracks on exterior surfaces. | 3.5.2 | |
| | Looseness of bolts, nuts and rod ends. | 3.5.2 | |
| **Flap** | Visual Inspection for cracks on exterior surfaces. | 3.2.1 | |
| | Looseness of bolts, nuts and rod ends. | 3.2.1 | |
| **Landing Gear** | Excessive wear on brake assembly. | 3.4 | |
| **Lights** | Visual Inspection and functionality for Navigation (Red/Green), Strobe, Beacon, Taxi, Landing, Dome, LED Panel | 1.1.5<br>2.4.10 | |
| **Engine** | Same as 100 hours/Annual Inspection | ROTAX 05-20-00* | |

Note: * Check the latest revision.

## 12.2 First 50 hours Inspection

| Group | Points of Inspection | Chapter Reference | Sign-Off |
|---|---|---|---|
| **Wing** | Visual Inspection for cracks on exterior surfaces. | 3.2 | |
| | Evidence of fuel leakage. | 3.2 | |
| **Horizontal Stabilizer** | Visual Inspection for cracks on exterior surfaces. | 3.3.1 | |
| **Vertical Stabilizer** | Visual Inspection for cracks on exterior surfaces. | 3.3.2 | |
| **Rudder** | Visual Inspection for cracks on exterior surfaces. | 3.5.3 | |
| | Looseness of bolts, nuts and rod ends. | 3.5.3 | |
| **Aileron** | Visual Inspection for cracks on exterior surfaces. | 3.5.1 | |
| | Looseness of bolts, nuts and rod ends. | 3.5.1 | |
| **Elevator** | Visual Inspection for cracks on exterior surfaces. | 3.5.2 | |
| | Looseness of bolts, nuts and rod ends. | 3.5.2 | |
| **Flap** | Visual Inspection for cracks on exterior surfaces. | 3.2.1 | |
| | Looseness of bolts, nuts and rod ends. | 3.2.1 | |
| **Landing Gear** | Excessive wear on brake assembly. | 3.4 | |
| **Lights** | Visual Inspection and functionality for Navigation (Red/Green), Strobe, Beacon, Taxi, Landing, Dome, LED Panel | 1.1.5<br>2.4.10 | |
| **Engine** | Change Oil. | ROTAX 05-20-00* | |
| | Change Oil Filter. | | |

| | | | |
|---|---|---|---|
| **Exhaust** | Check for crack/damage or deterioration at welded joints. Welding repairs should be performed as needed. | 2.4.12 | |

Note:

* Check the latest revision.

## 12.3 50 hours Inspection

| Group | Points of Inspection | Chapter Reference | Sign-Off |
|---|---|---|---|
| **Engine*** | Change Oil. | ROTAX 05-20-00* | |
| | Change Oil Filter. | | |

Note:

* Check the latest revision.

## 12.4 100 hours/Annual Inspection

| **Check with the CAA registry that the registration identification (a) is still the same for that serial number, and (b) the owner information is still current.** | | | |
|---|---|---|---|
| **Group** | **Points of Inspection** | **Chapter Reference** | **Sign-Off** |
| **Fuselage** | Skin - for deterioration, distortion, other evidence of failure, and defective or insecure attachment of fittings. | 3.6 | |
| | Systems and components - for improper installation, apparent defects, and unsatisfactory operation. | | |
| | Control Surface system – for lubrication. | 1.10.2.2 | |
| **Cabin and Cockpit** | Generally - for uncleanliness and loose equipment that might foul the controls. | - | |
| | Seats and safety belts - for poor condition and apparent defects. | 3.6.2 | |
| | Windows and windshields - for deterioration and breakage. | 3.6.2 | |
| | Instruments - for poor condition, mounting, marking, and (where practicable) improper operation. | 1.1.1<br>POH | |
| | Flight and engine controls - for improper installation and improper operation. | 1.1.2 | |
| | Batteries - for improper installation and improper charge. | 2.4.8 | |
| | All systems - for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment. | 1.1.1<br>1.1.2<br>1.1.4 | |
| | All control cables - for broken wires strands. | 1.10.2.3 | |

| | | | |
|---|---|---|---|
| | | 1.10.2.4 | |
| | Any cable assembly that has one broken wire strand located in a critical fatigue area must be replaced. Check and adjust the tension according to Section Control Cables. | 1.10.2.3<br>1.10.2.4 | |
| | Inspect pulleys - for roughness, sharp edges, and presence of foreign material embedded in the grooves. Examine pulley bearings to ensure proper lubrication, smooth rotation; and freedom from flat spots, dirt, and paint spray. | Check Aileron and Rudder System | |
| | Check all pulley brackets and guards for damage, alignment, and security. | Check Aileron and Rudder System | |
| | Control Surface system – for lubrication. | 1.10.2.2<br>1.10.2.4<br>1.10.2.5<br>1.10.2.6<br>1.10.2.7 | |
| **Engine and Nacelle** | Engine section – for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks. | - | |
| | Studs and nuts – for improper torque and obvious defects. | - | |
| | Internal engine – for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances. | - | |
| | Engine mount – for cracks, looseness of mounting, and looseness of engine to mount. | 3.6.3 | |

| | | | |
|---|---|---|---|
| | Flexible vibration dampeners – for poor condition and deterioration. | - | |
| | Engine controls - for defects, improper travel, and improper safety. | - | |
| | Lines, hoses, and clamps - for leaks, improper condition and looseness. | - | |
| | Exhaust stacks - for cracks, defects, and improper attachment. | 2.4.12 | |
| | All systems - for improper installation, poor general condition, defects, and insecure attachment. | - | |
| | Cowling - for cracks, and defects. | - | |
| | Rudder control system – for lubrication. | 1.10.2.4 | |
| | Check the oil tank and clean the oil tank if contaminated. | 1.7 | |
| | Consult Maintenance Manual for Rotax Engine Type 912/914 Series | ROTAX 05-20-00* | |
| **Landing Gear** | All units - for poor condition and insecurity of attachment. | 3.4 | |
| | Hydraulic lines - for leakage. | 3.4.1<br>3.4.2 | |
| | Wheels - for cracks, defects, and condition of bearings. | 1.6<br>3.4 | |
| | Tires - for wear and cuts. | 3.4.1 | |
| | Brakes - for improper adjustment. | 1.10.2.1<br>3.4.1 | |
| **Wing** | All components of the wing and center section assembly for poor general condition, skin | 3.2 | |

| | | | |
|---|---|---|---|
| | deterioration, distortion, evidence of failure, and insecurity of attachment. | | |
| | Control Surface system – for lubrication. | 1.10.2.3<br>1.10.2.5 | |
| **Empennage** | All components and systems that make up the complete empennage assembly for poor general condition, skin deterioration, distortion, evidence of failure, insecure attachment, improper component installation, and improper component operation. | 3.3 | |
| | Control Surface system – for lubrication. | 1.10.2.2<br>1.10.2.4 | |
| **Propeller** | Propeller assembly - for cracks, nicks, binds, and oil leakage. | 2.4.3.7 | |
| | Bolts - for improper torque and lack of safety. | 2.4.3.7 | |
| | Perform according to 2.4.13.1. | 2.4.13.1 | |
| **Radio** | Radio and electronic equipment - for improper installation and insecure mounting. | 1.1.4<br>2.4.3.8<br>9.5 | |
| | Wiring and conduits - for improper routing, insecure mounting, and obvious defects. | - | |
| | Bonding and shielding - for improper installation and poor condition. | - | |
| | Antennas - for poor condition, insecure mounting, and improper operation. | - | |
| **ELT** | Remove and inspect the ELT installed for:<br>(1) Proper installation;<br>(2) Battery corrosion;<br>(3) Operation of the controls and crash sensor; and | 2.4.3.9<br>9.7 | |

| | | | |
|---|---|---|---|
| | (4) The presence of a sufficient signal radiated from its antenna. | | |

Note:* Check the latest revision.

## 12.5 1500/2000 hours Inspection

| Group | Points of Inspection | Chapter Reference | Signature |
|---|---|---|---|
| Propeller | Hub, Blade, Spinner and spinner bulkhead: Inspection for damage or cracks and replace as needed. Replace all bolts and washers. | 2.4.13.2 | |
| Engine | TBO: Engine and engine components. | ROTAX 05-20-00* | |

Note: * Check the latest revision.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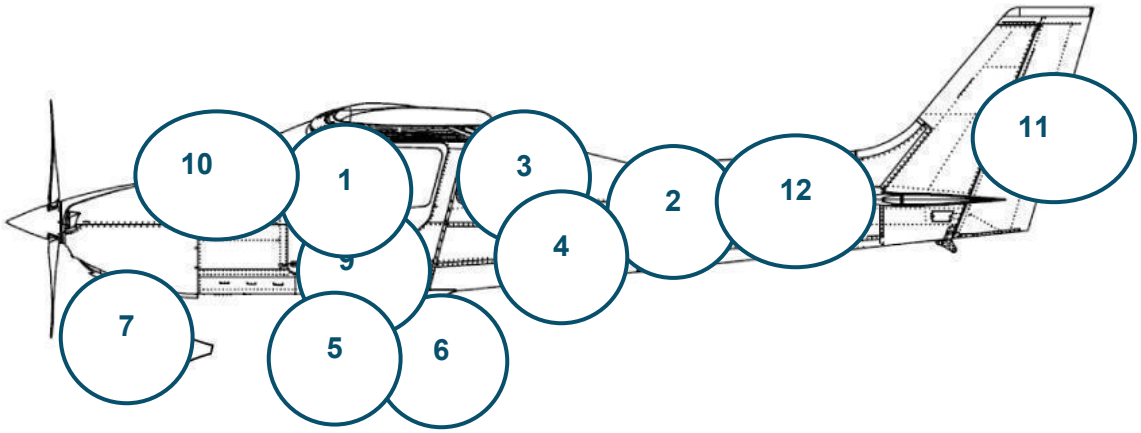
# 13 Appendix B – Placards

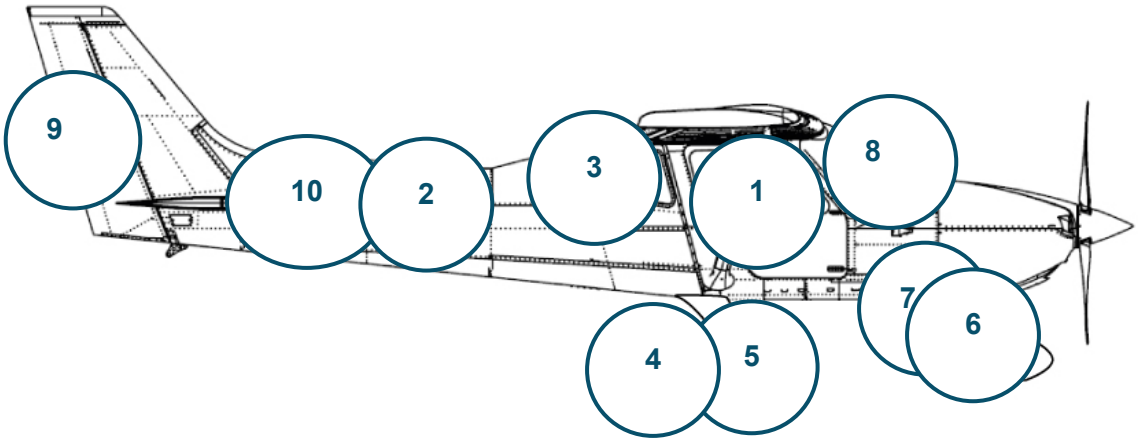
13.1 Left View




| ITEM | DESCRIPTION | POSITION | DESIGN |
|---|---|---|---|
| 1 | Doors Handle and Latch (Lock and Unlock) | Door (Inside and Outside) |  (Outside)<br>  (Inside) |

| | | | |
|---|---|---|---|
| 2 | Static Pressure Port | Fuselage (tail) |  |
| 3 | Aircraft Category - Light Sport | Fuselage near to the Door | LIGHT SPORT |
| 4 | ELT | Fuselage (tail) |  |
| 5 | No Step | Main Landing Gear Fairing | NO STEP |
| 6 | 35 PSI – Main Wheel Calibration | Main Landing Gear Fairing | 35 PSI |
| 7 | 25 PSI – Nose Wheel Calibration | Nose Landing Gear Fairing | 25 PSI |
| 8 | Aircraft Model - Colt | Fuselage | COLT® |
| 9 | No Push | Rudder | NO PUSH |
| 10 | N-Number | Fuselage (tail) | N105TX<br>(Sample) |

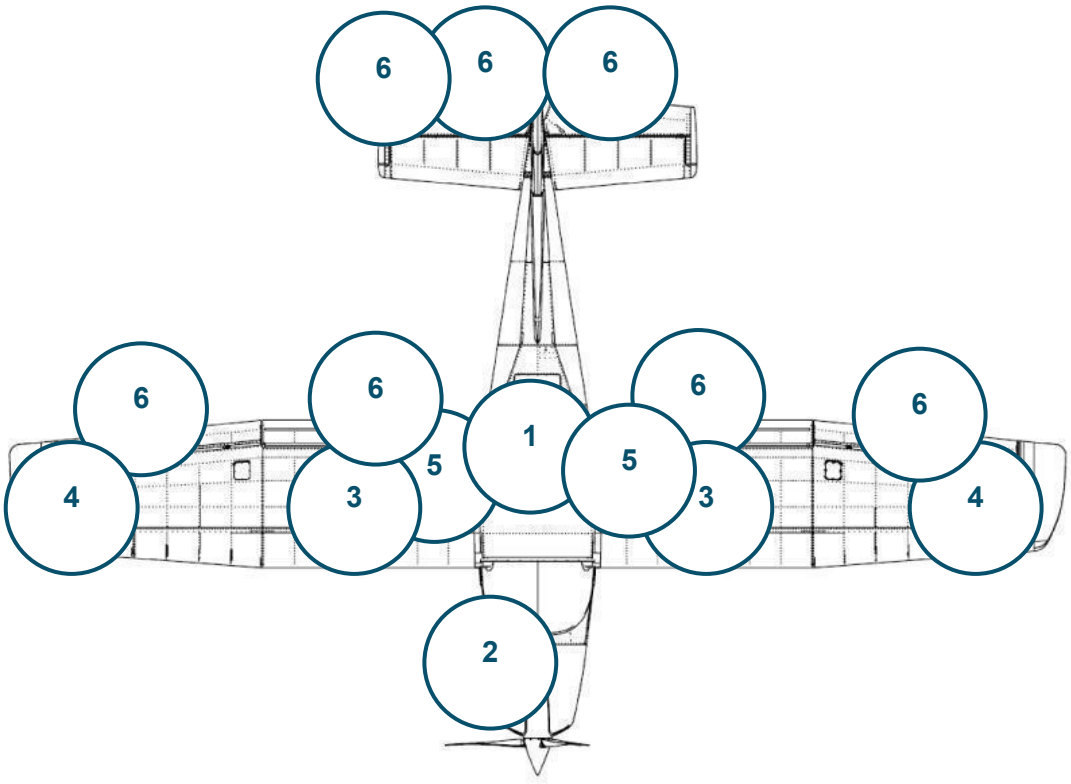
13.2 Right View




| ITEM | DESCRIPTION | POSITION | DESIGN |
|---|---|---|---|
| 1 | Doors Handle and Latch (Lock and Unlock) | Door (Inside and Outside) |  (Outside)<br>  (Inside) |

| | | | |
|---|---|---|---|
| 2 | Static Pressure Port | Fuselage (tail) |  |
| 3 | Aircraft Category - Light Sport | Fuselage near to the Door | LIGHT SPORT |
| 4 | No Step | Main Landing Gear Fairing | NO STEP |
| 5 | 35 PSI – Main Wheel Calibration | Main Landing Gear Fairing | 35 PSI |
| 6 | 25 PSI – Nose Wheel Calibration | Nose Landing Gear Fairing | 25 PSI |
| 7 | Drain (Fuel Line) | Fuselage (Bottom Cowling) | DRAIN  |
| 8 | Aircraft Model - Colt | Fuselage | COLT® |
| 9 | No Push | Rudder | NO PUSH |
| 10 | N-Number | Fuselage (tail) | N105TX (Sample) |

13.3 Top View



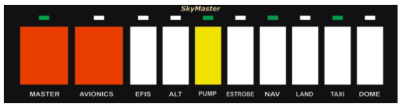
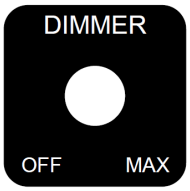
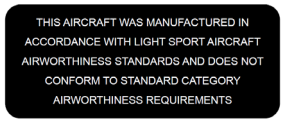

| ITEM | DESCRIPTION | POSITION | DESIGN |
|---|---|---|---|
| 1 | Jack Point | Fuselage (Bottom) | JACK POINT |

| | | | |
|---|---|---|---|
| 2 | Oil Indication | Cowling (Exterior and Oil Compartment) |  <br>(Exterior)<br>  <br>(Oil Compartment) |
| 3 | Fuel Indication | Wing (both - upper) |  <br>MAX. USABLE FUEL 15.45 US GAL |
| 4 | Fuel Vent | Wing (both - lower) |  |

| | | | |
|---|---|---|---|
| 5 | Drain (Fuel Tank) | Wing (both - lower) |   |
| 6 | No Push | Ailerons, Flaps, Elevator, Elevator Trim |   |

13.4 Dashboard

| ITEM | DESCRIPTION | POSITION | DESIGN |
|---|---|---|---|
| 1 | N-Number | Dashboard | N105TX (Sample) |
| 2 | Microphone/Phone/6 Pin | Dashboard | MIC<br>PHONE<br>6 PIN |
| 3 | Microphone/Phone/6 Pin | Dashboard | MIC |

| | | | |
|---|---|---|---|
| | | | PHONE<br>6 PIN |
| 4 | Master Switches | Dashboard |  |
| 5 | Panel Lights | Dashboard |  |
| 6 | Generator Start | Dashboard | GEN |
| 7 | Auto Pilot Disengage | Dashboard | A/P DISC |
| 8 | Parachute Handle | Dashboard |  |
| 9 | Alert – Aerobatic Maneuvers and Spin Phohibition | Dashboard |  |
| 10 | Alert – Light Sport Airworthness Standards | Dashboard |  |

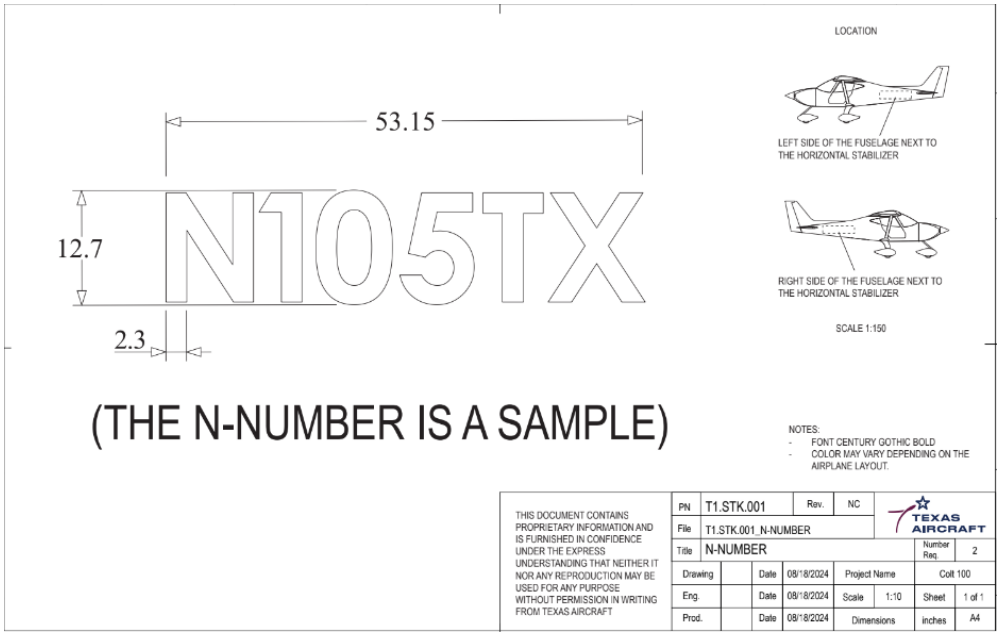
| | | | |
|---|---|---|---|
| 11 | Alert – IMC Flight Prohibition | Dashboard |  |
| 12 | Throttle | Console |  |

**NOTE**

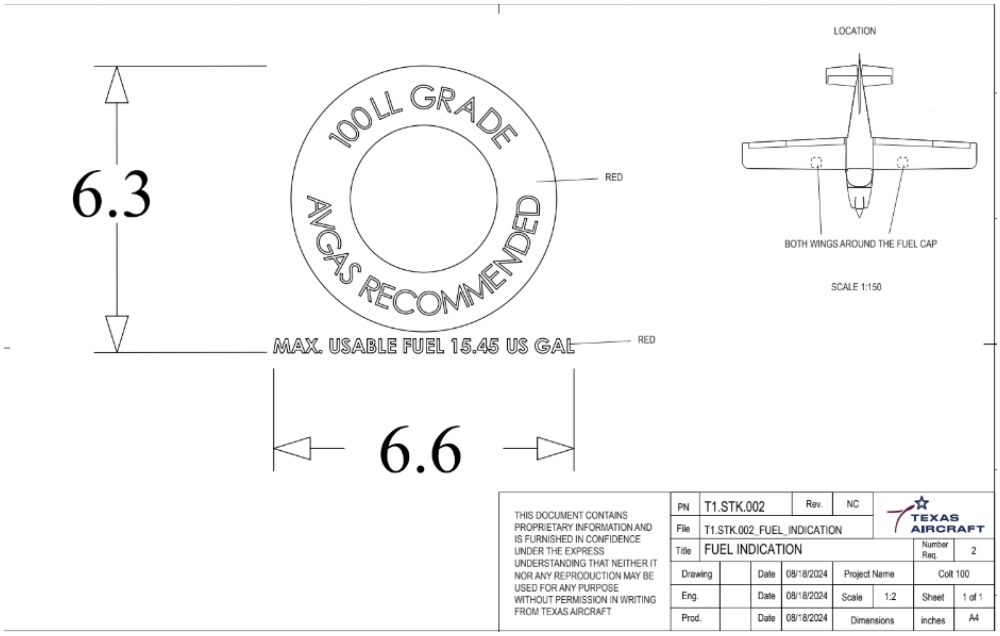
The above placard colors are subject to change depending on exterior and interior color schemes.

13.5 Drawings

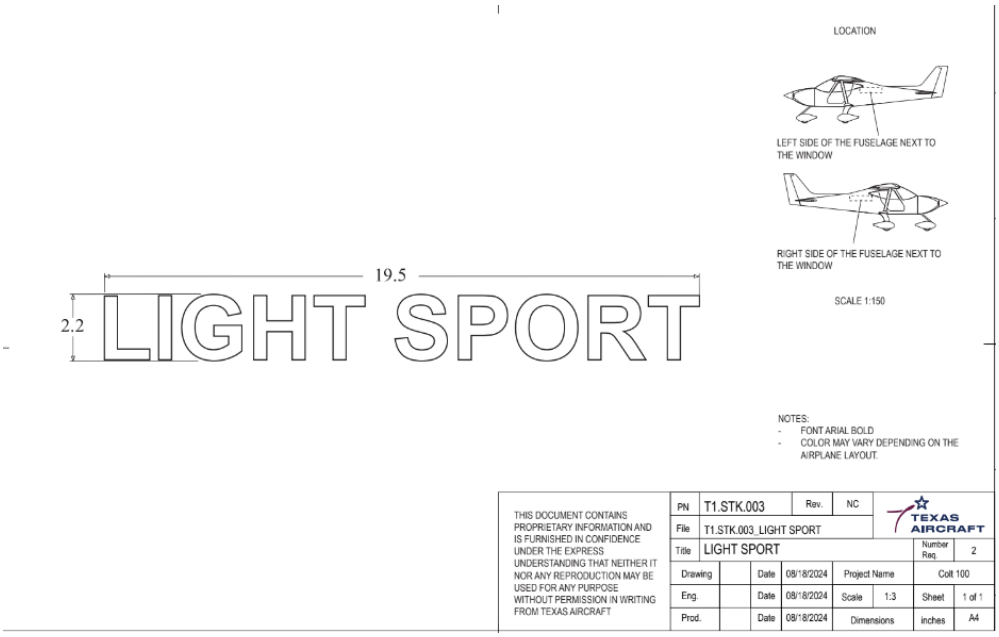
13.5.1 N-NUMBER



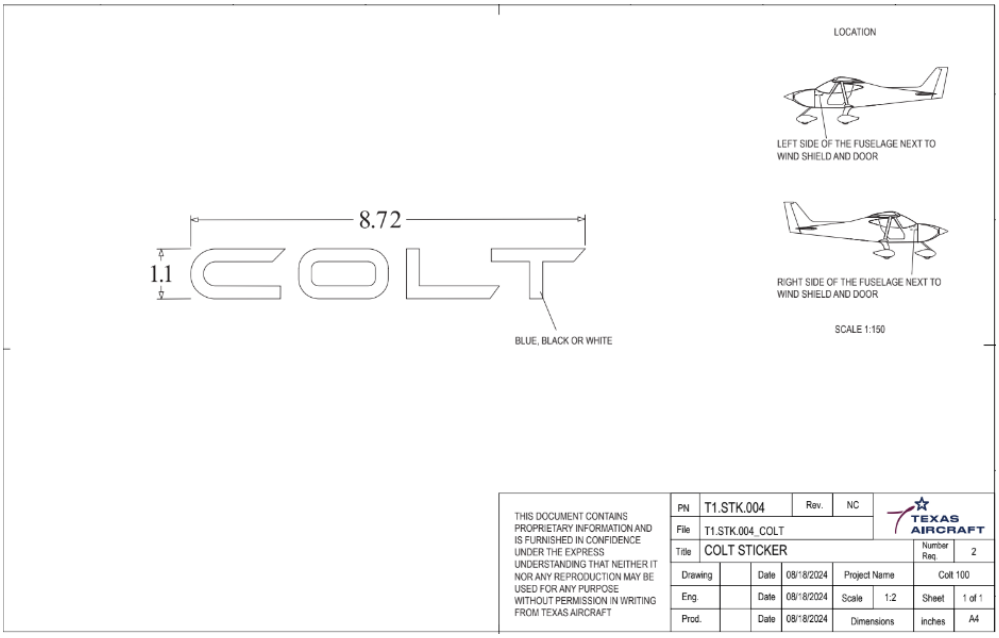

13.5.2 FUEL INDICATION



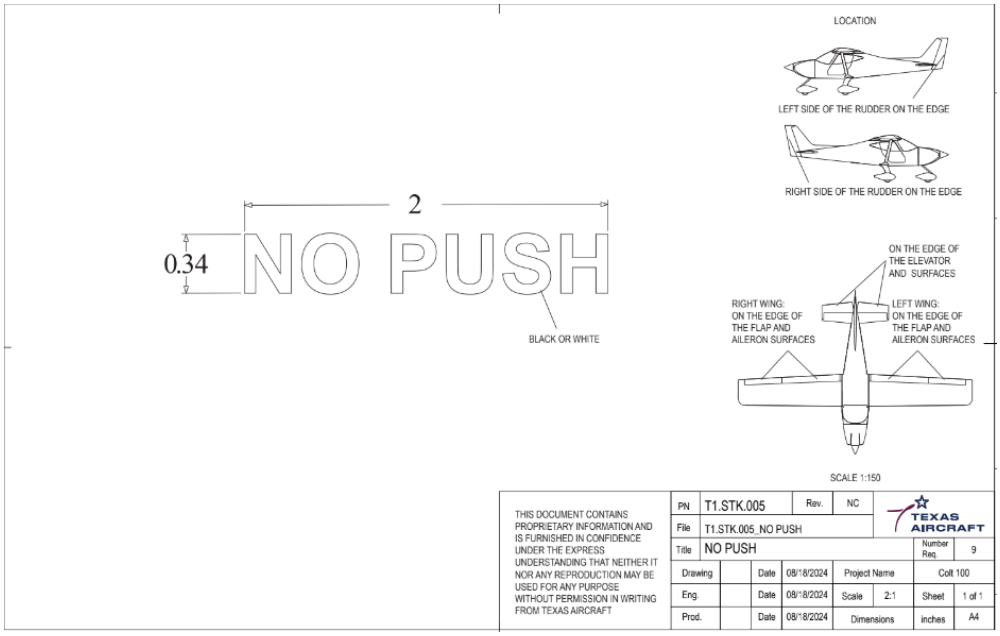
13.5.3 LIGHT SPORT



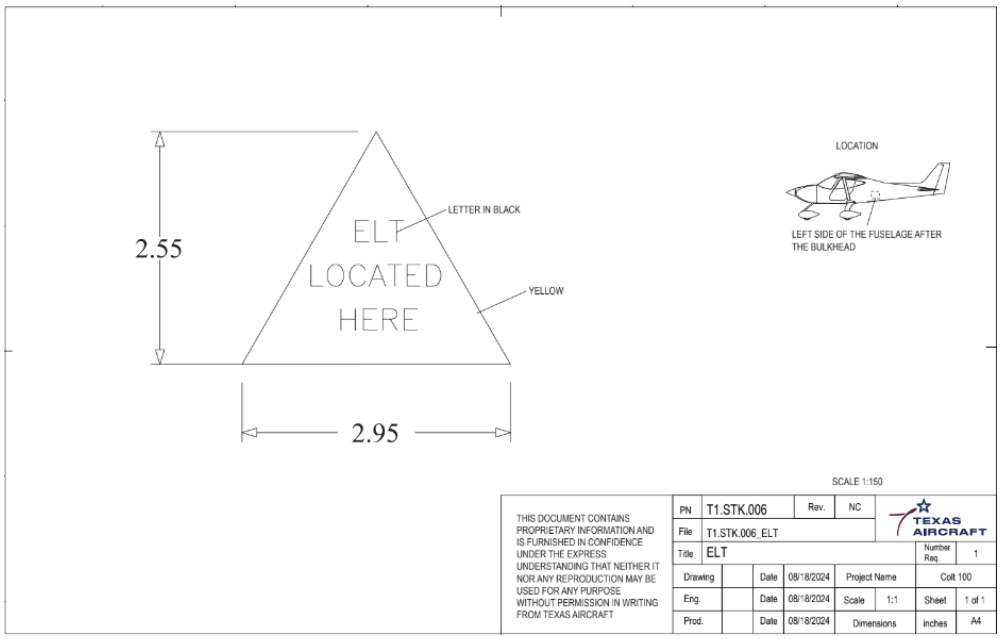

13.5.4 COLT STICKER

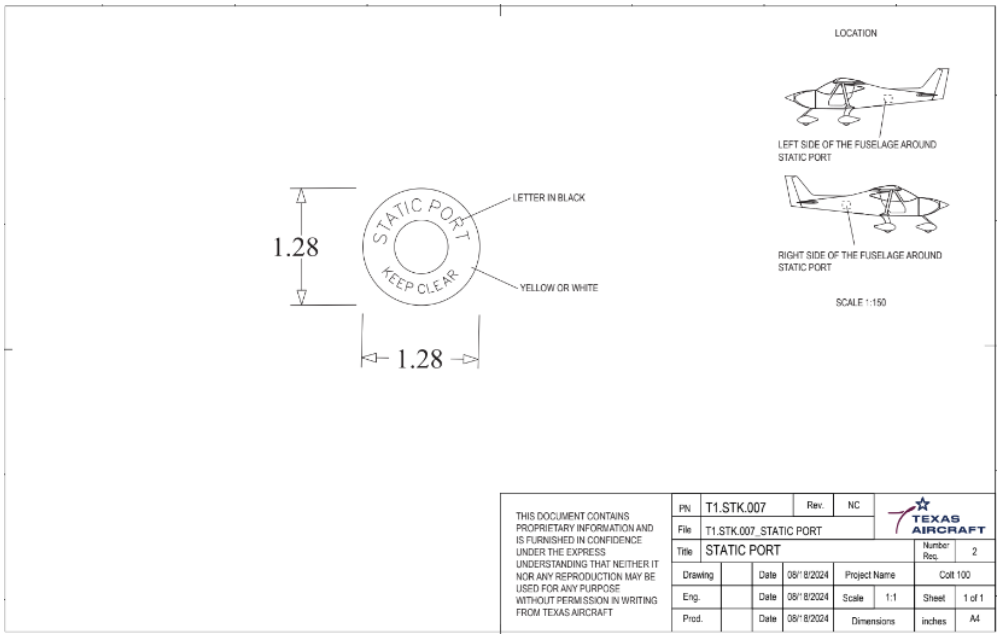
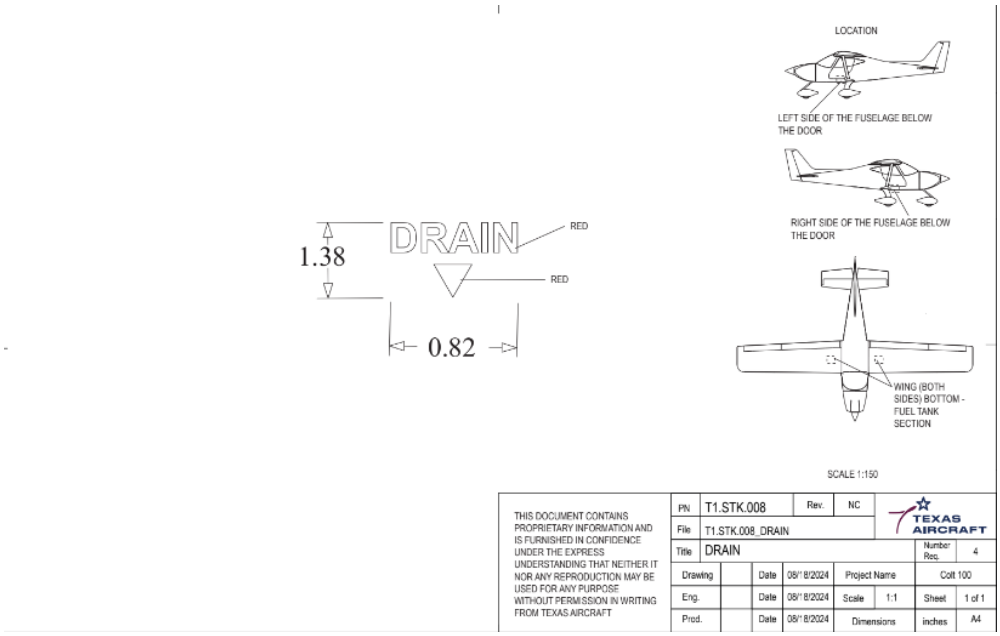


13.5.5 NO PUSH

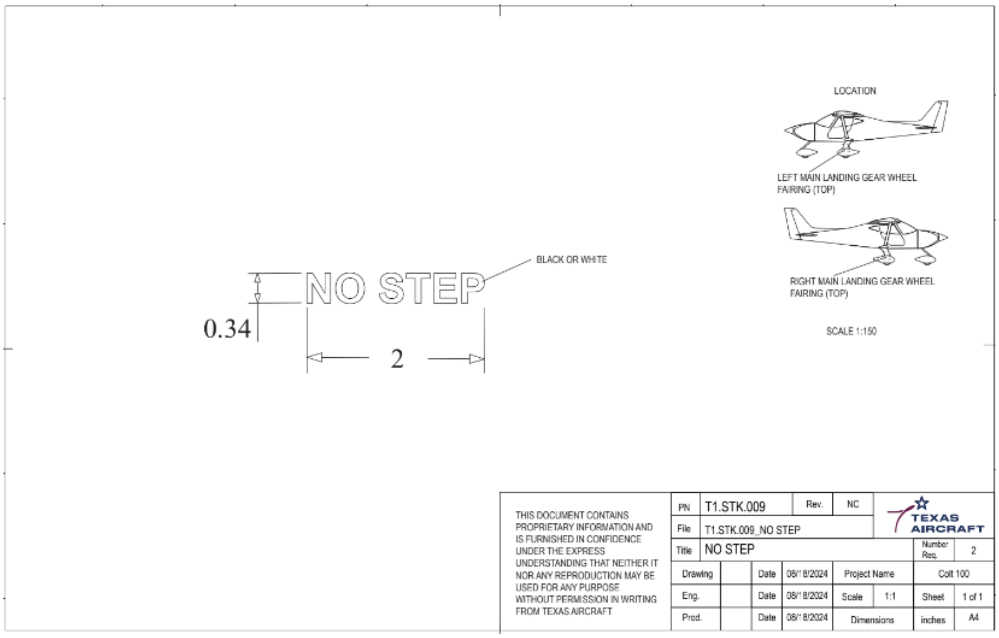



13.5.6 ELT

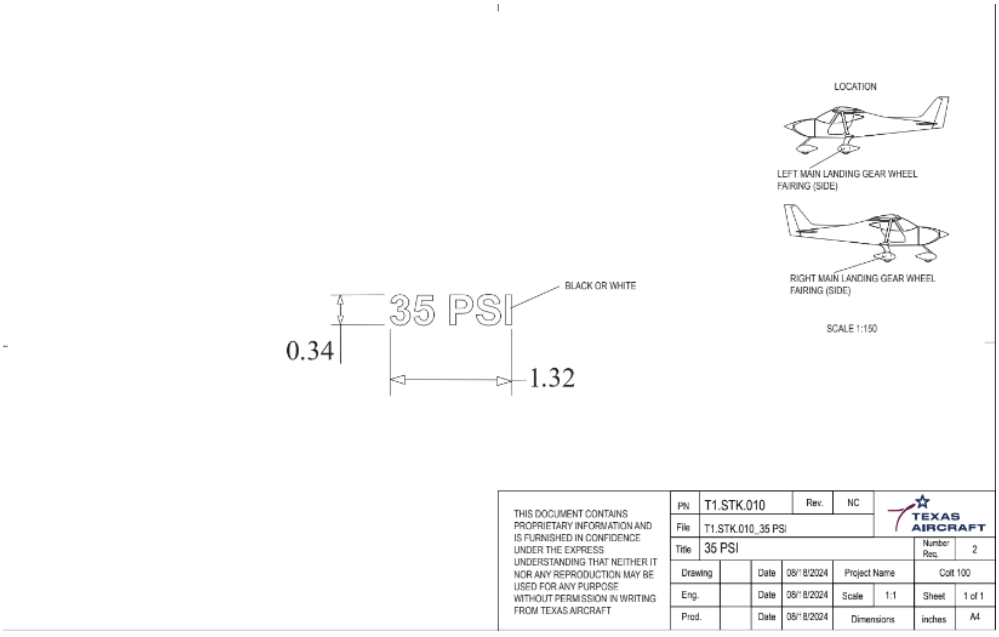


| | |
|---|---|
| 13.5.7 STATIC PORT |  |
| 13.5.8 DRAIN |  |

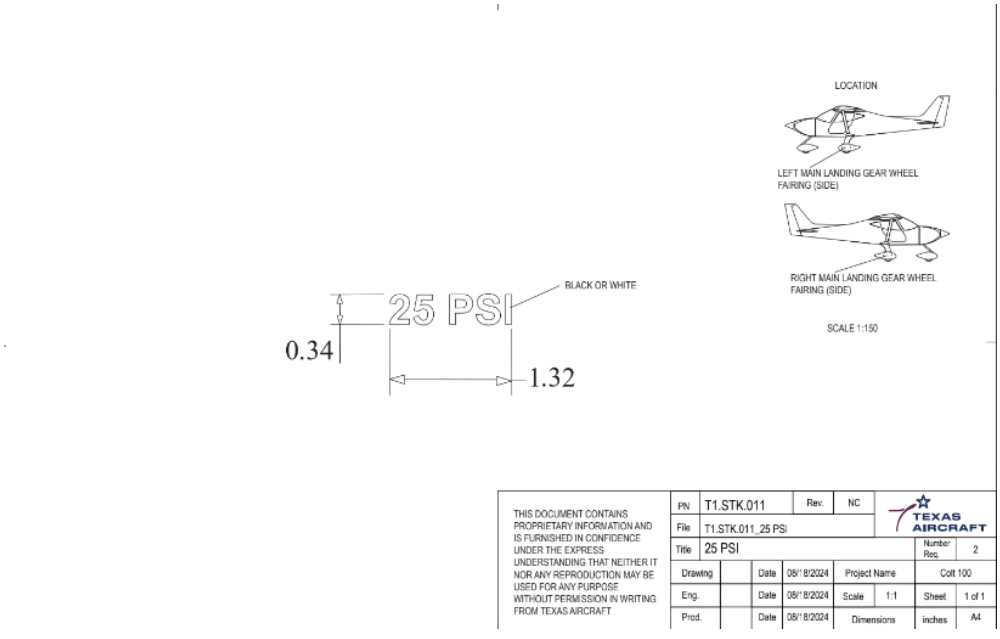
13.5.9 NO STEP



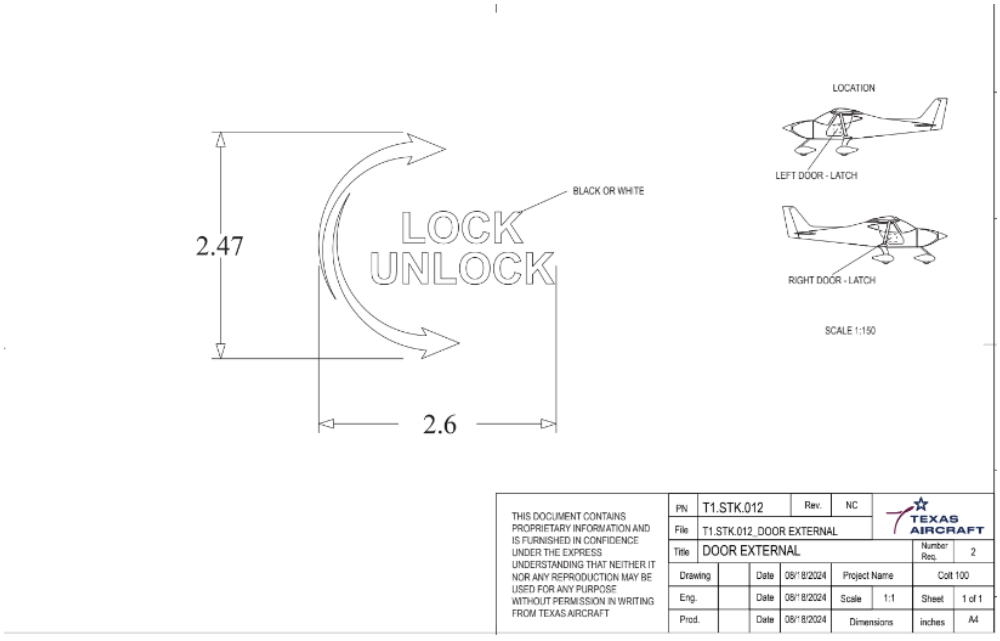

13.5.10 35 PSI

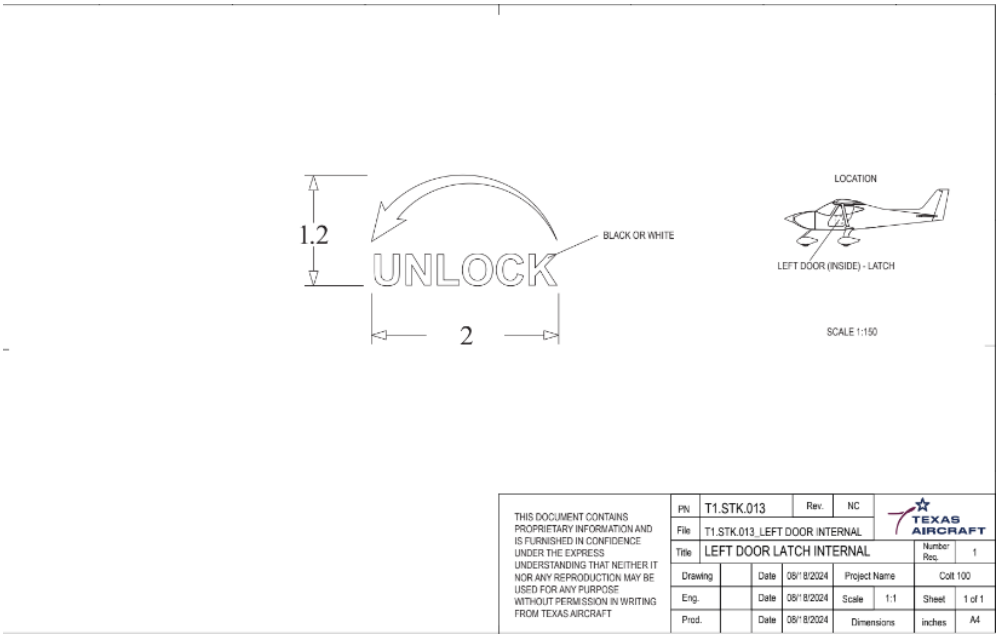
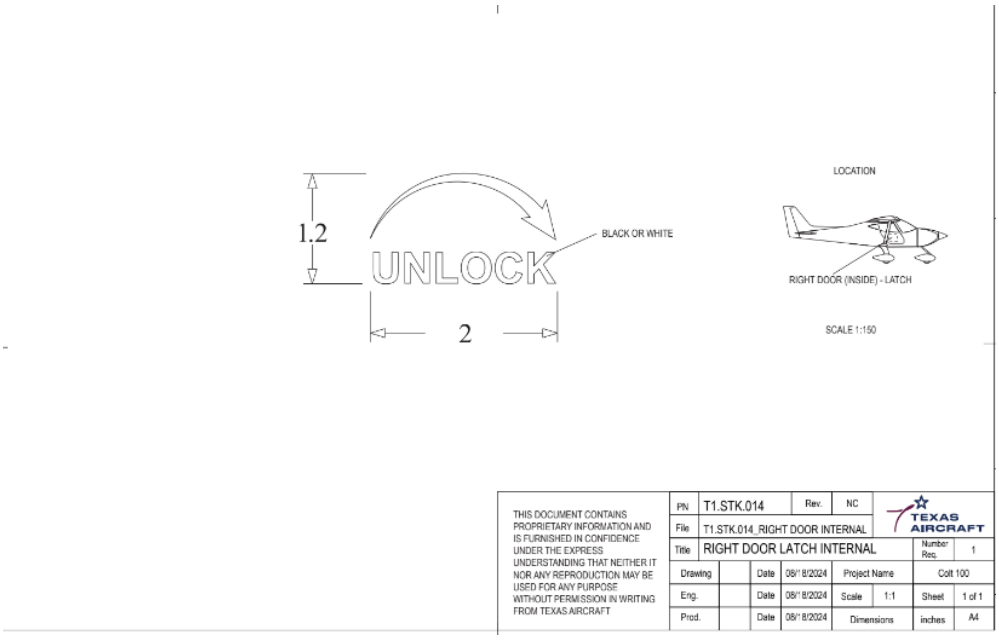


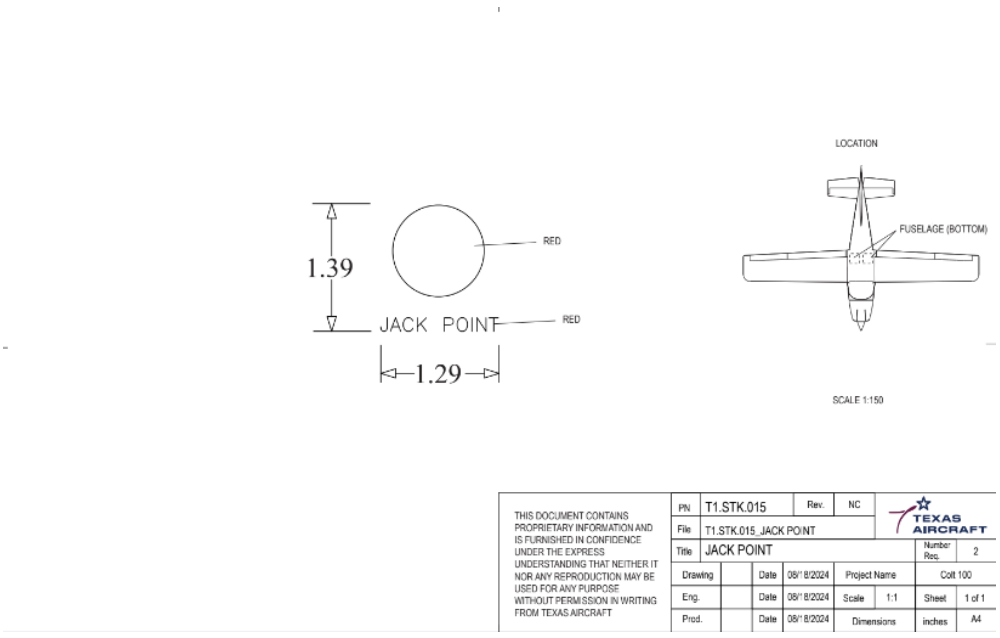
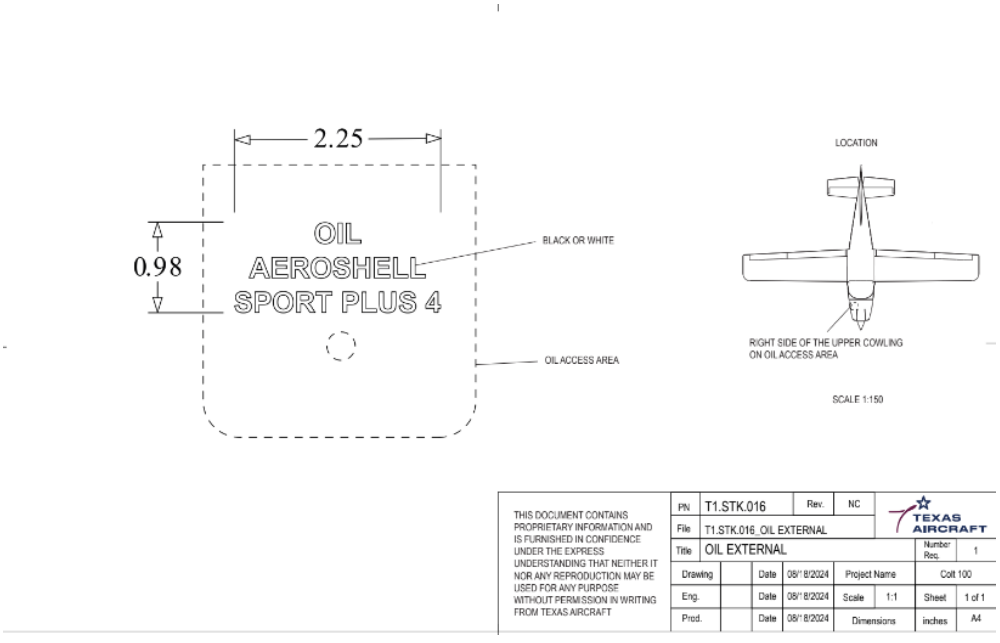
13.5.11 25 PSI

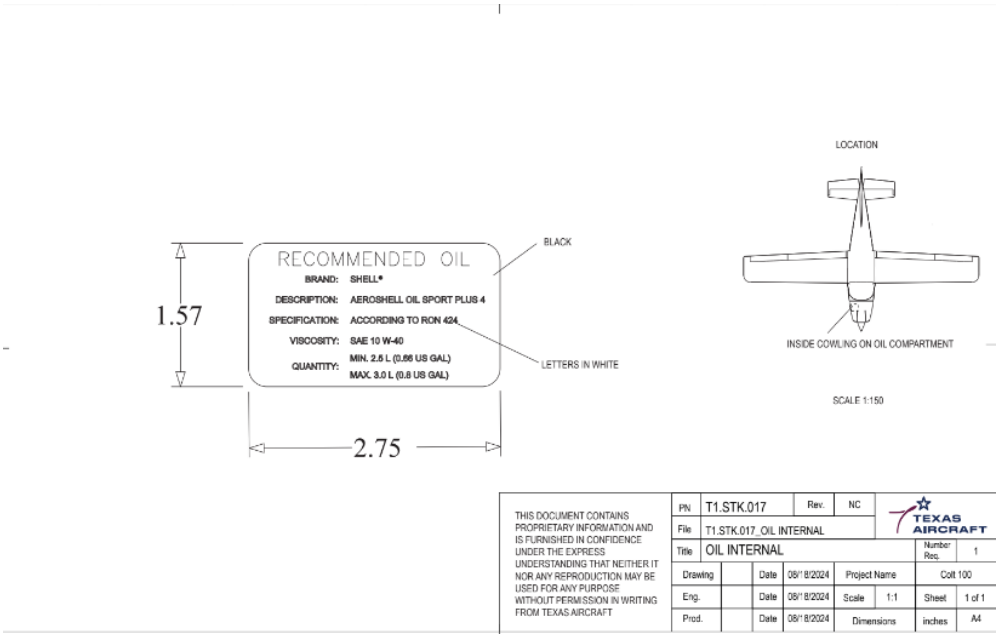
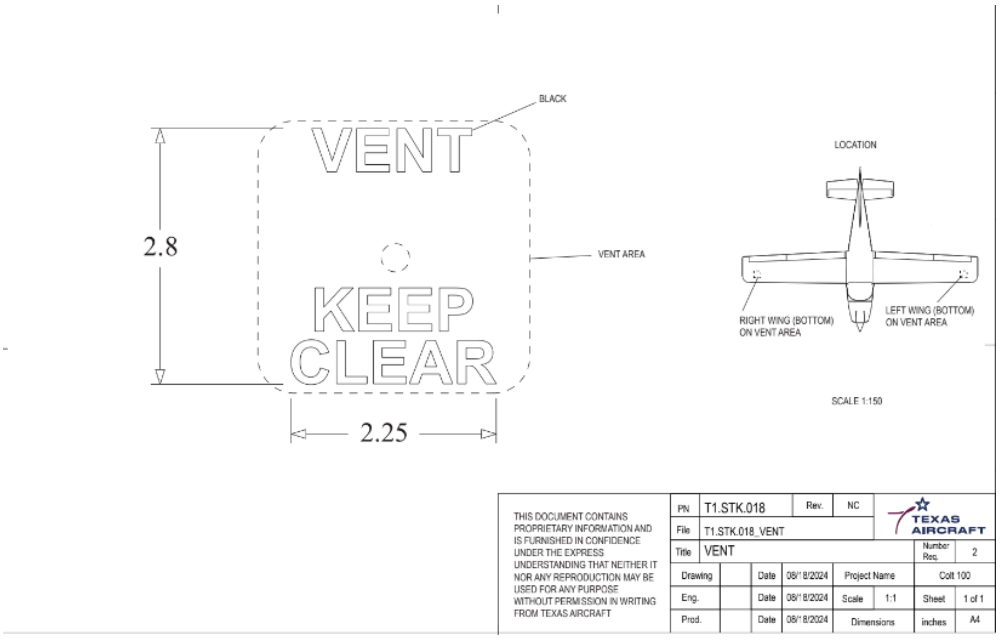



13.5.12 DOOR EXTERNAL

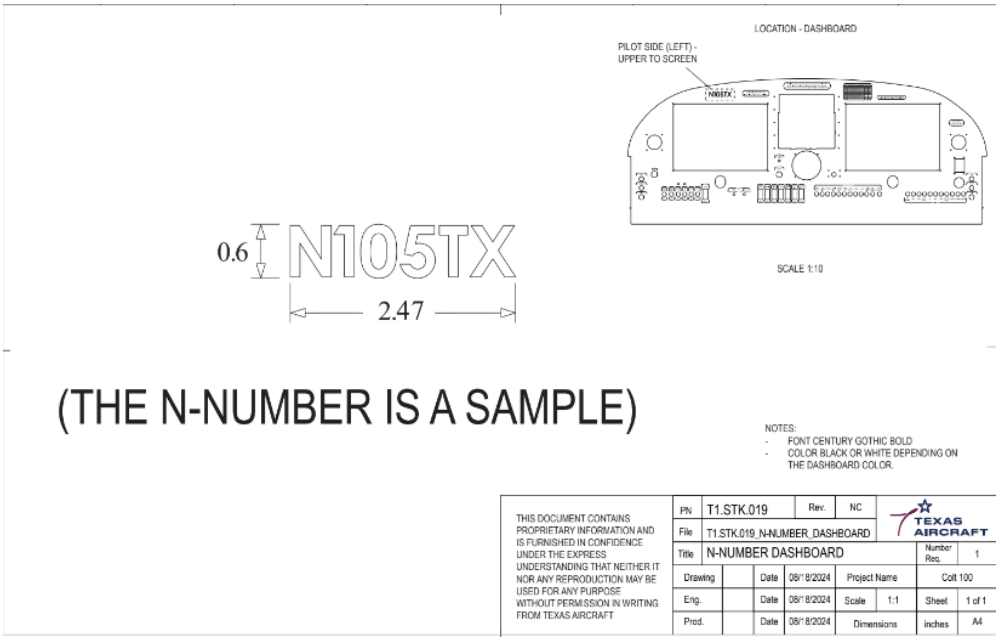


| | |
|---|---|
| 13.5.13 LEFT DOOR LATCH INTERNAL |  |
| 13.5.14 RIGHT DOOR LATCH INTERNAL |  |

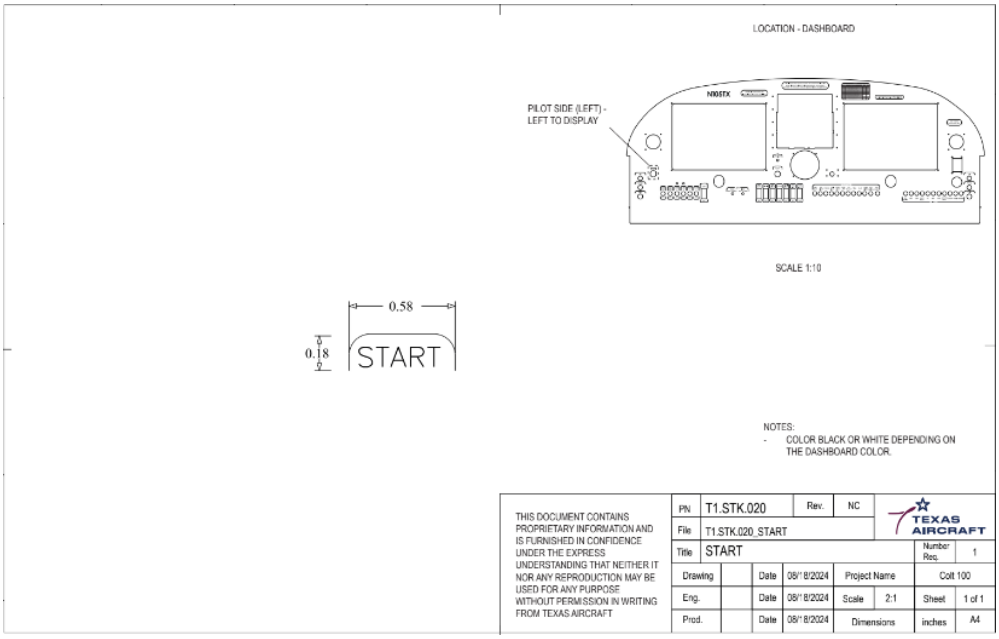
| | |
|---|---|
| 13.5.15 JACK POINT |  |
| 13.5.16 OIL EXTERNAL |  |

| | |
|---|---|
| 13.5.17 OIL EXTERNAL |  |
| 13.5.18 VENT |  |

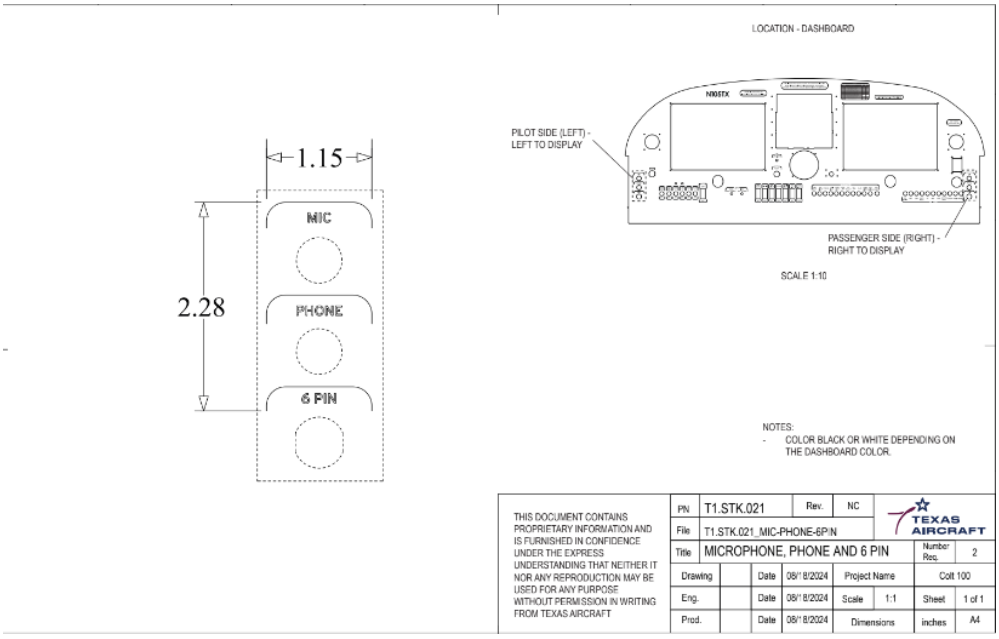
13.5.19 N-NUMBER DASHBOARD



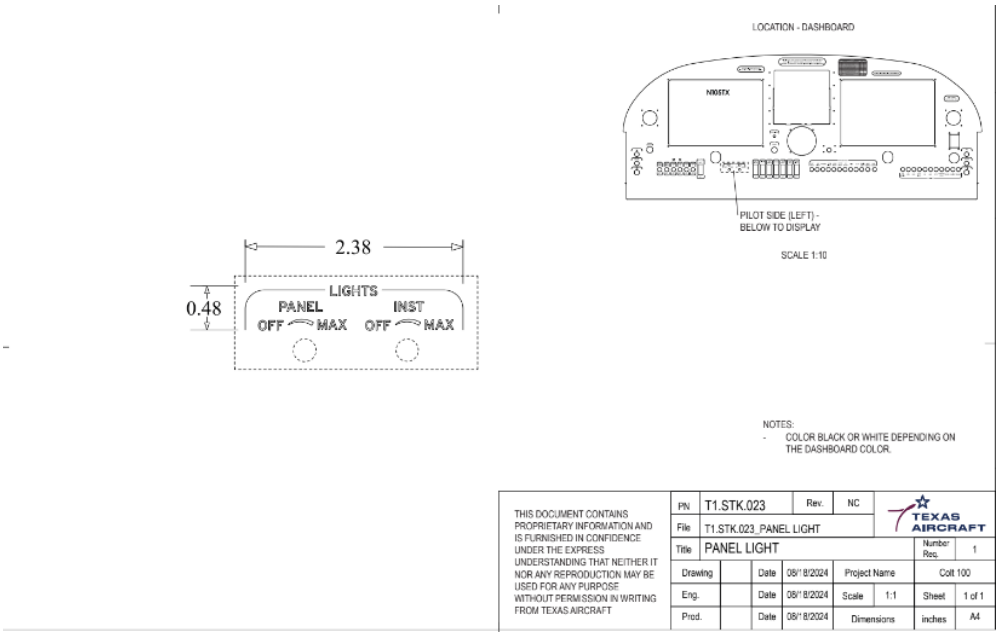

13.5.20 START

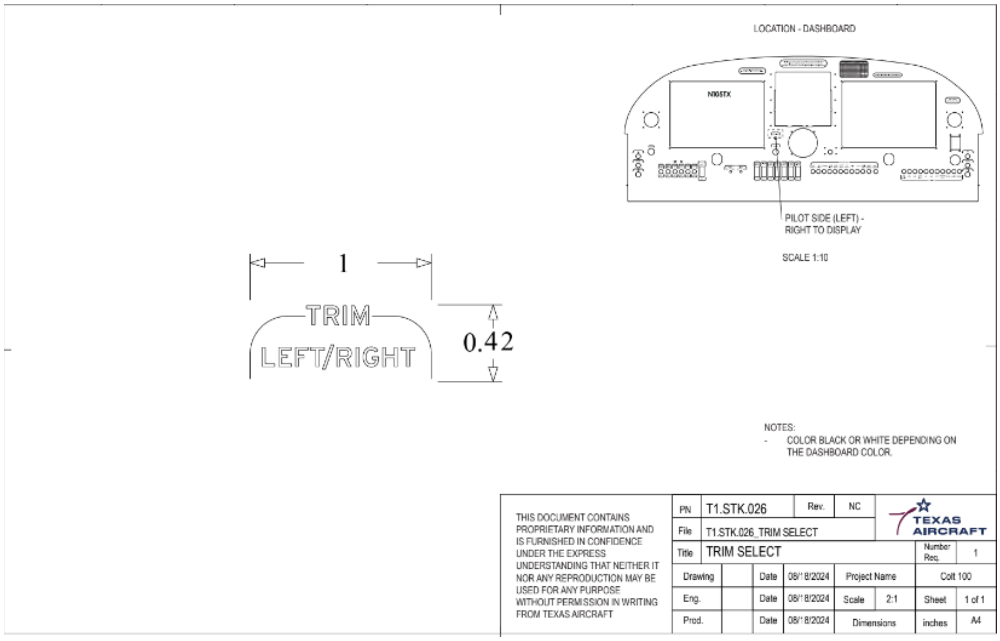
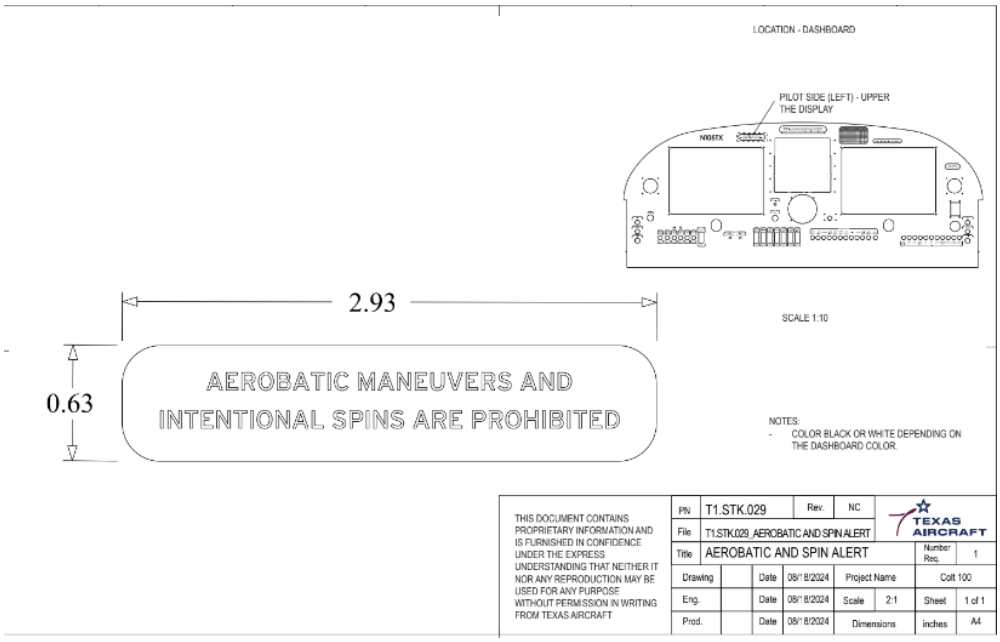


13.5.21 MICROPHONE , PHONE AND 6 PIN

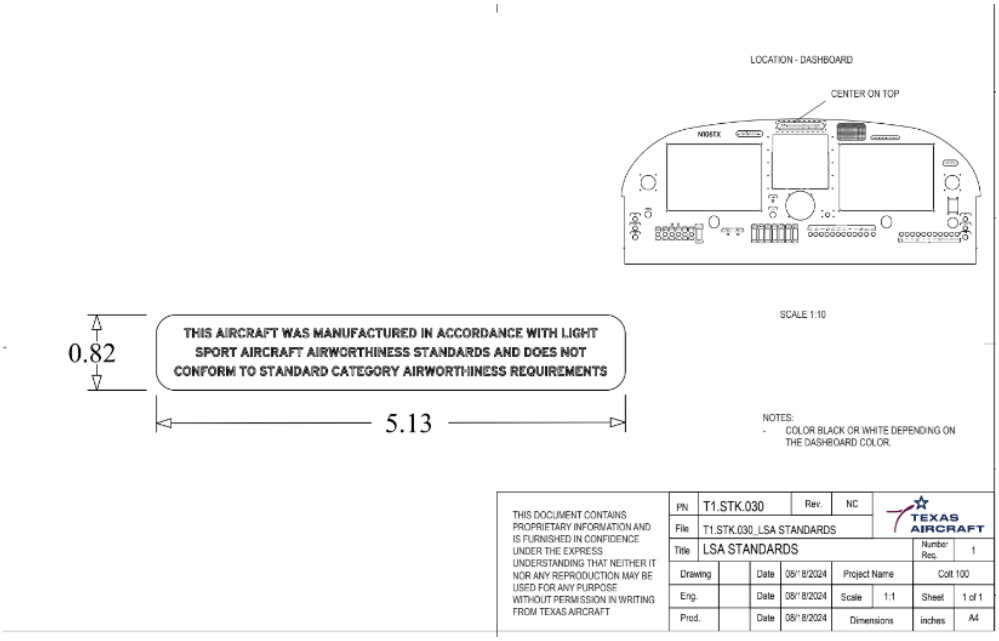



13.5.22 PAINEL LIGHT

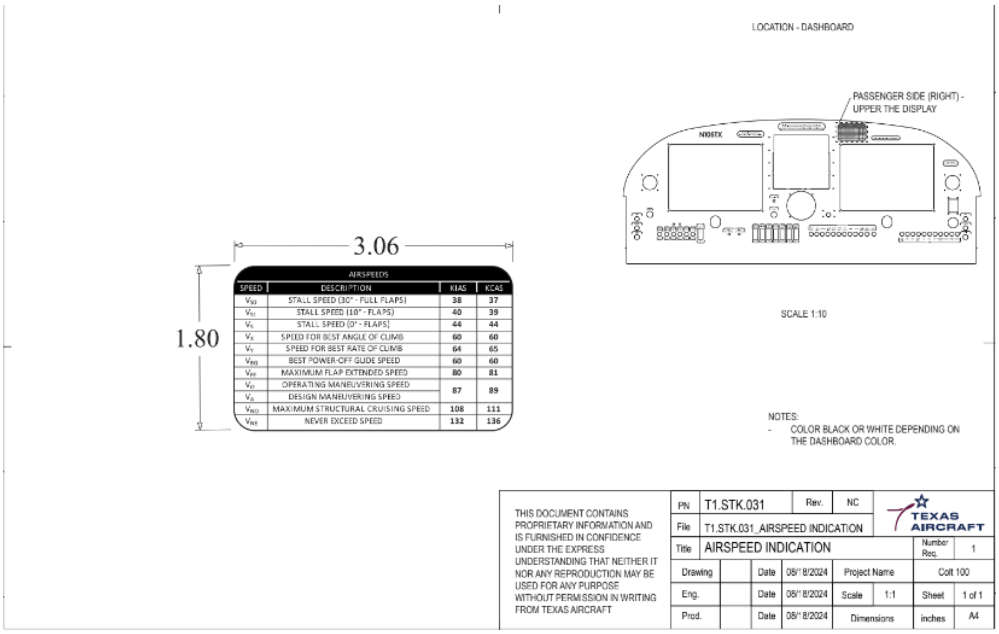


| | |
|---|---|
| 13.5.23 TRIM SELECT |  |
| 13.5.24 AEROBATIC AND SPIN ALERT |  |

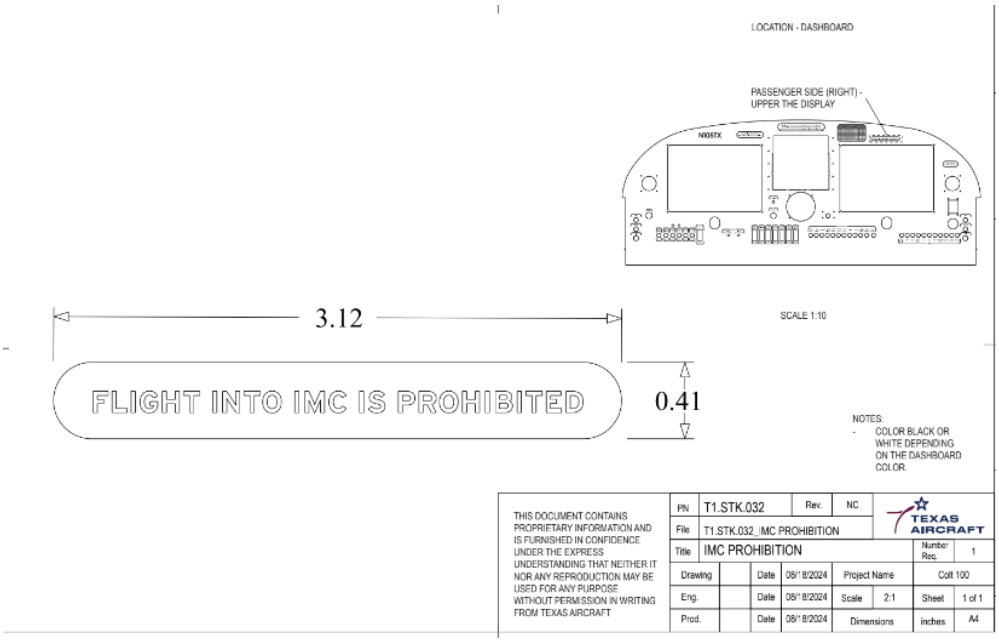
## 13.5.25 LSA STANDARDS



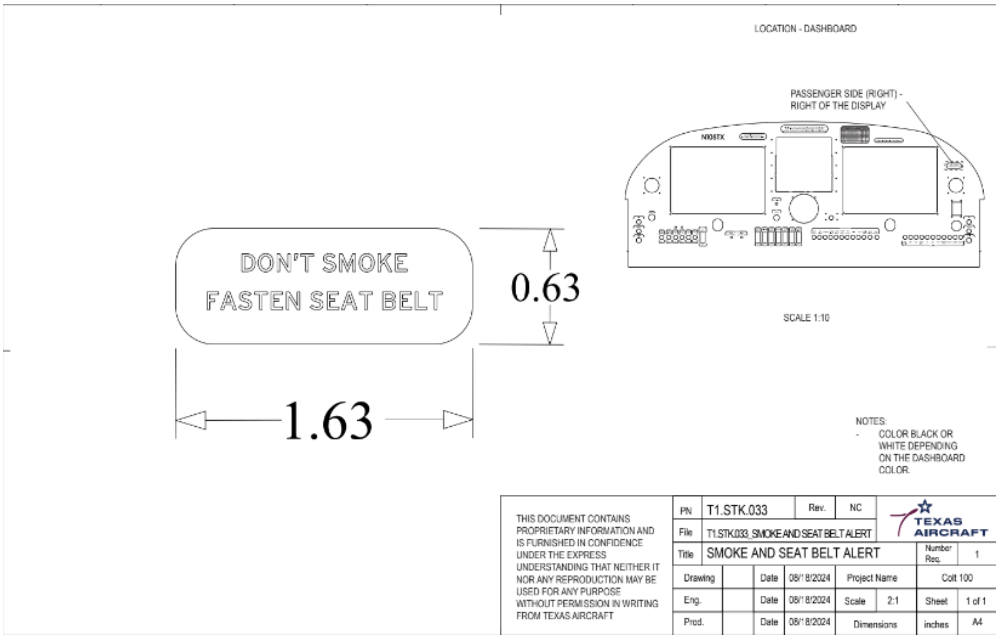

## 13.5.26 AIRSPEED INDICATION



13.5.27 IMC PROHIBITION




13.5.28 SMOKE AND SEAT BELT ALERT



## 13.5.29 THROTTLE