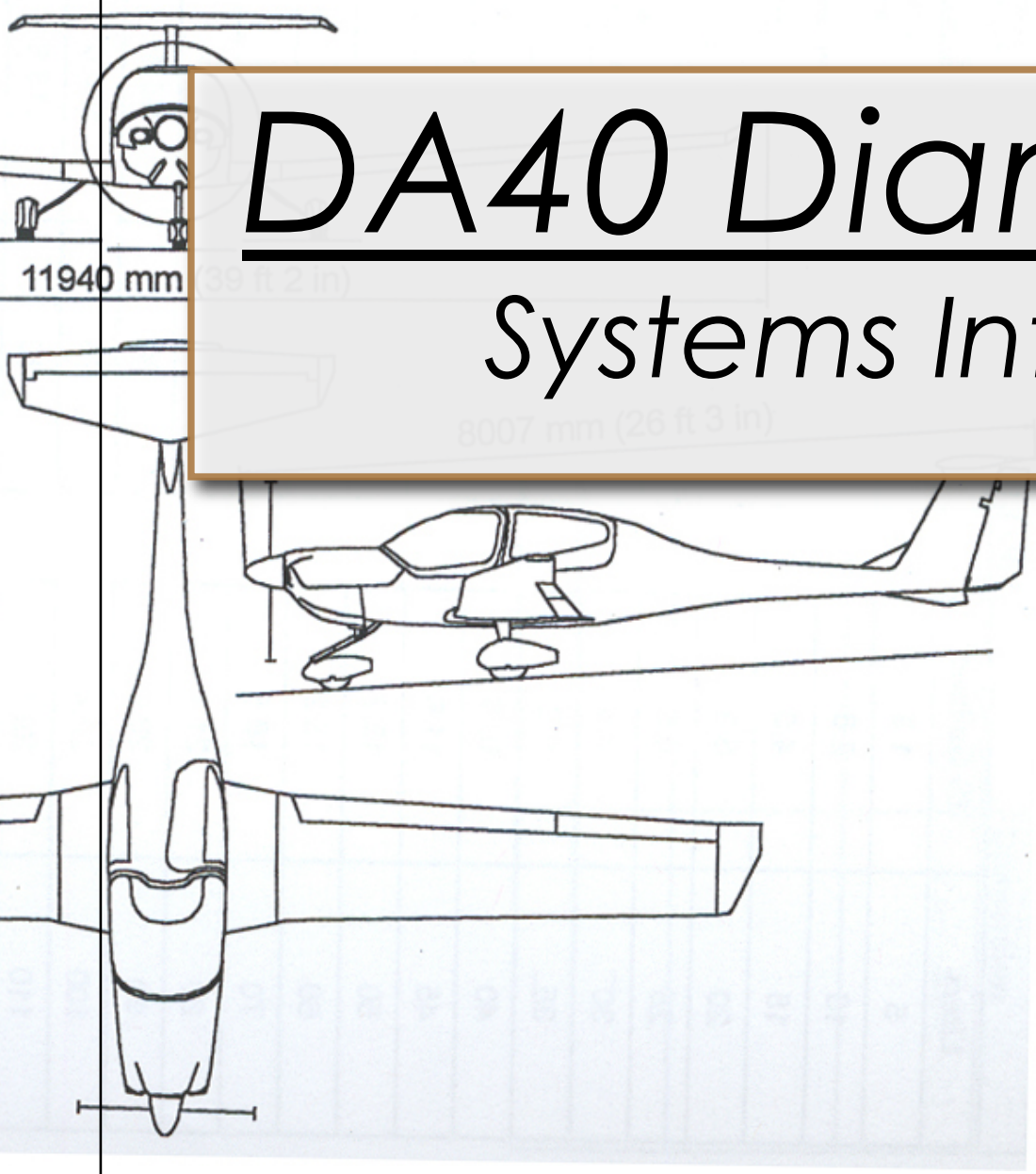
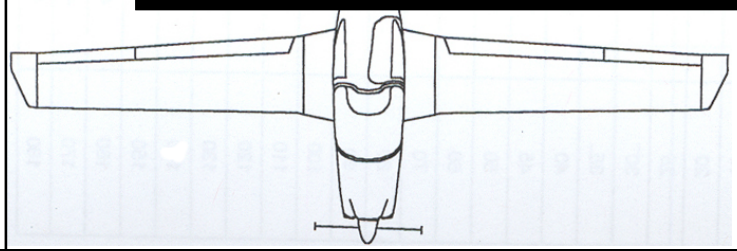
DA40 Diamond Star

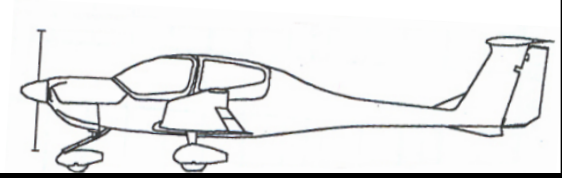
Systems Introduction



DA40 Systems Introduction

- **What we'll look at...**
  - Airframe
  - Flight Controls
  - Landing Gear and Hydraulics
  - Engine and Associated Systems
  - Electric and Navigation Systems
  - Aircraft Operating Limitations
  - Performance Charts
  - Annunciations and Alerts
  - Emergency Procedures





DA40 Airframe

Construction Materials

- Composite aircraft; constructed mostly of Glass Fibre Reinforced Plastic (GFRP), although Carbon Fibre (CFRP) is used to strengthen where needed.

Fuselage

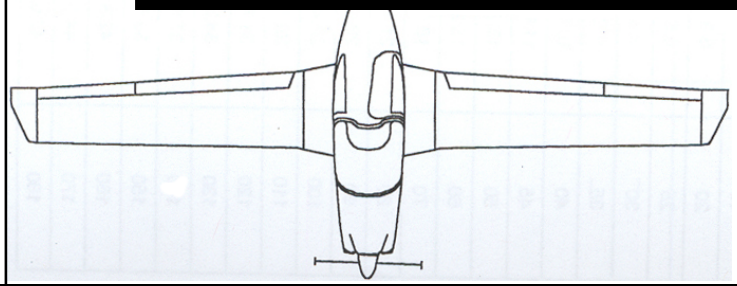
- Semi-monocoque molded construction.
- Fire-resistant matting on cabin side of firewall; stainless steel cladding on engine side.

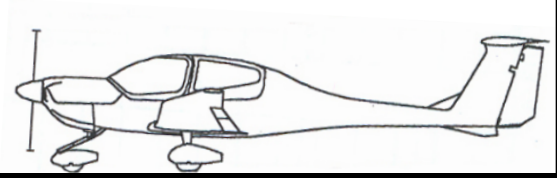
Wings

- Front and rear spar; top shell and bottom shell.
- Principally sandwiched construction; aluminum fuel tank in each wing.

Empennage

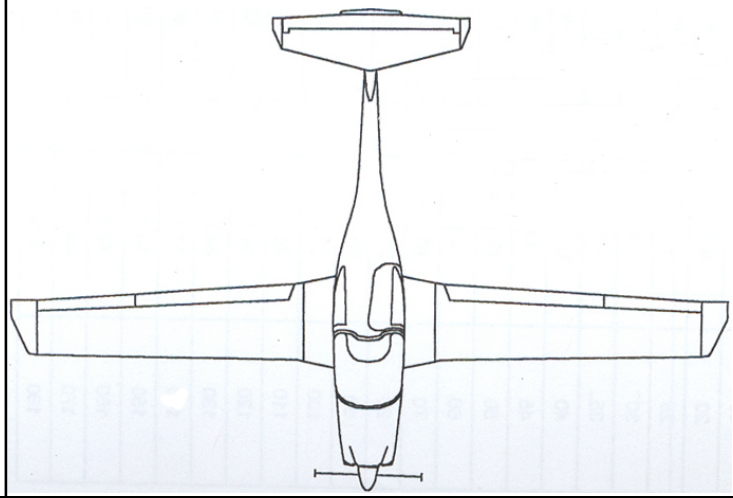
- T-tail design.
- Both stabilizers have twin spars with no sandwich construction.

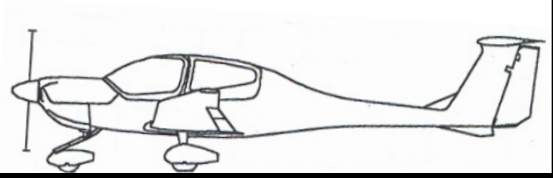




Flight Controls

- Ailerons
- Flaps
- Elevator
- Trim Tab
- Rudder

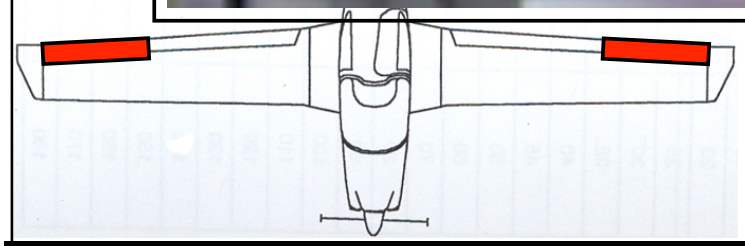


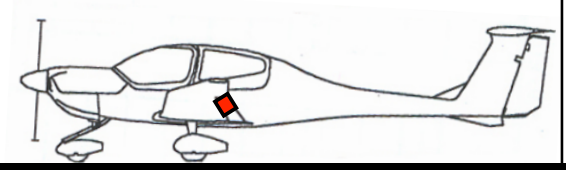


Flight Controls

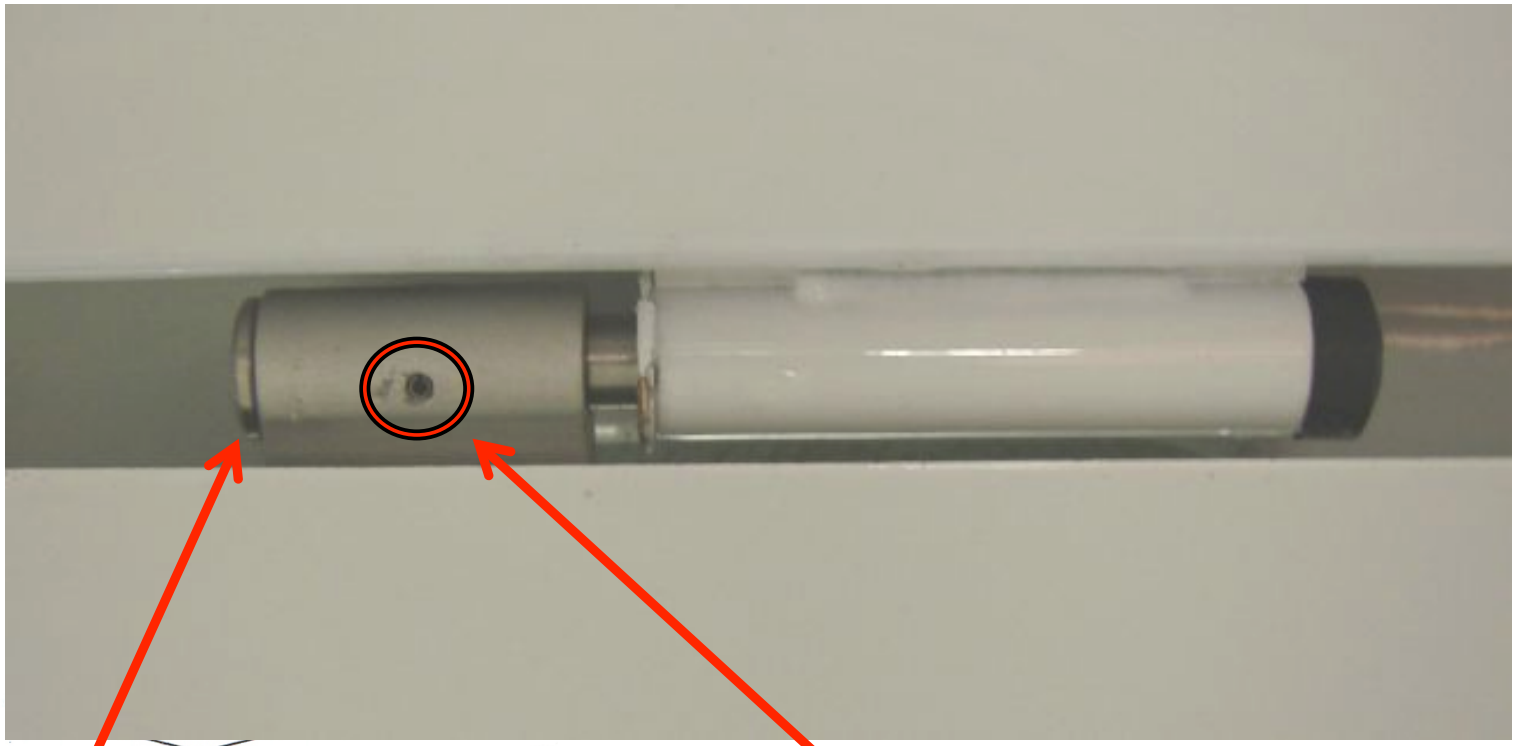
Ailerons

- 4 hinges secured by a roll pin; make sure to check for presence and alignment.
- Aerodynamic balance on bottom of aileron must be checked for debris before each flight.
- The lock nut has varnish applied (called a torque seal) which indicates changes to factory adjustment; if the varnish has been disturbed, flight safety may be compromised.



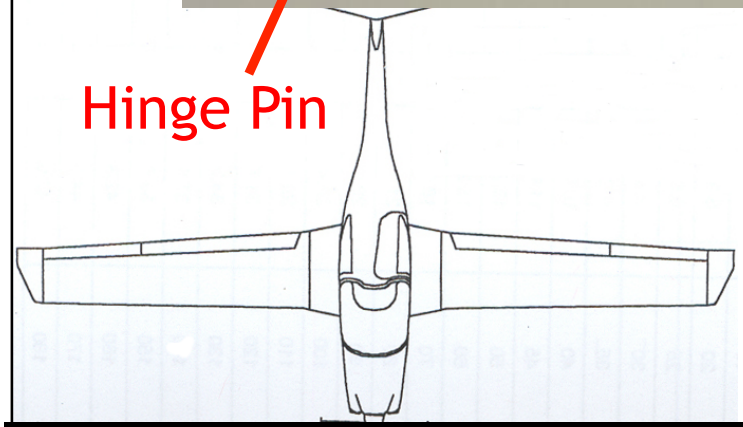


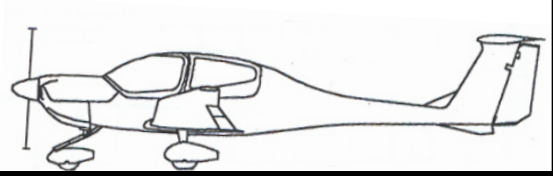
Flight Controls



Hinge Pin

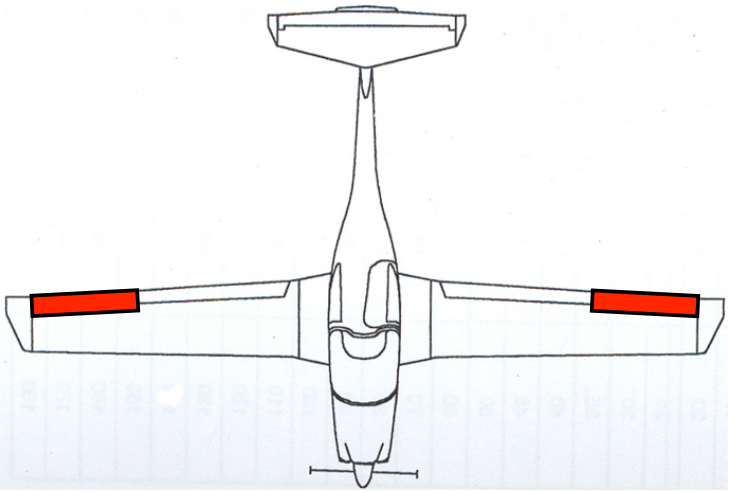
Roll Pin Hole

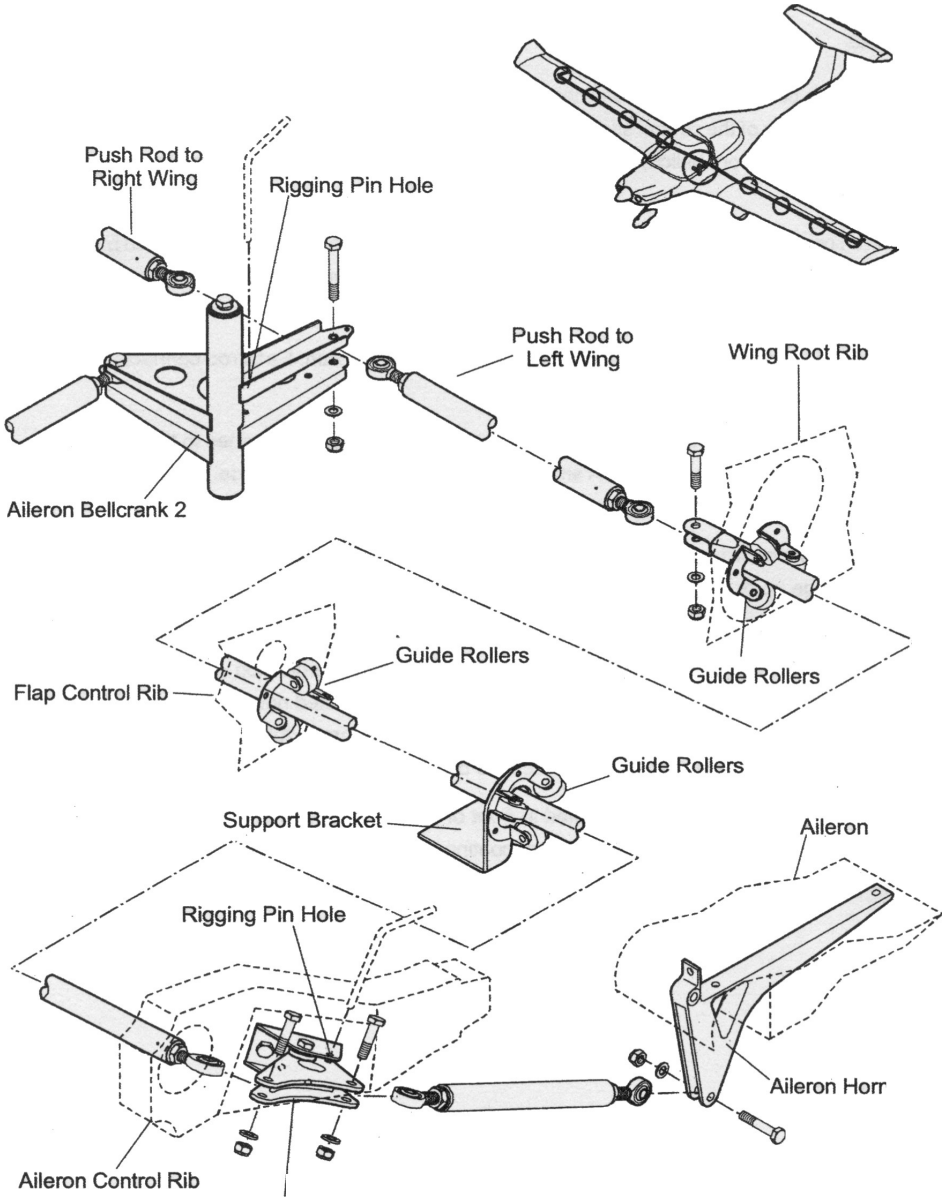




Flight Controls

Aileron Assembly

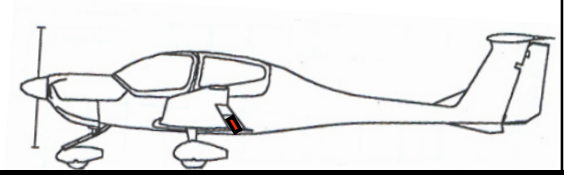




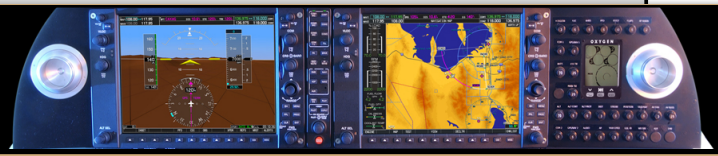
Flight Controls

Flaps

- 6 hinges secured by a roll pin; check for absence.
- Lock nut with lock varnish; check for damage.
- Flap system protected by a circuit breaker.
- Counterbalance to guard against flutter

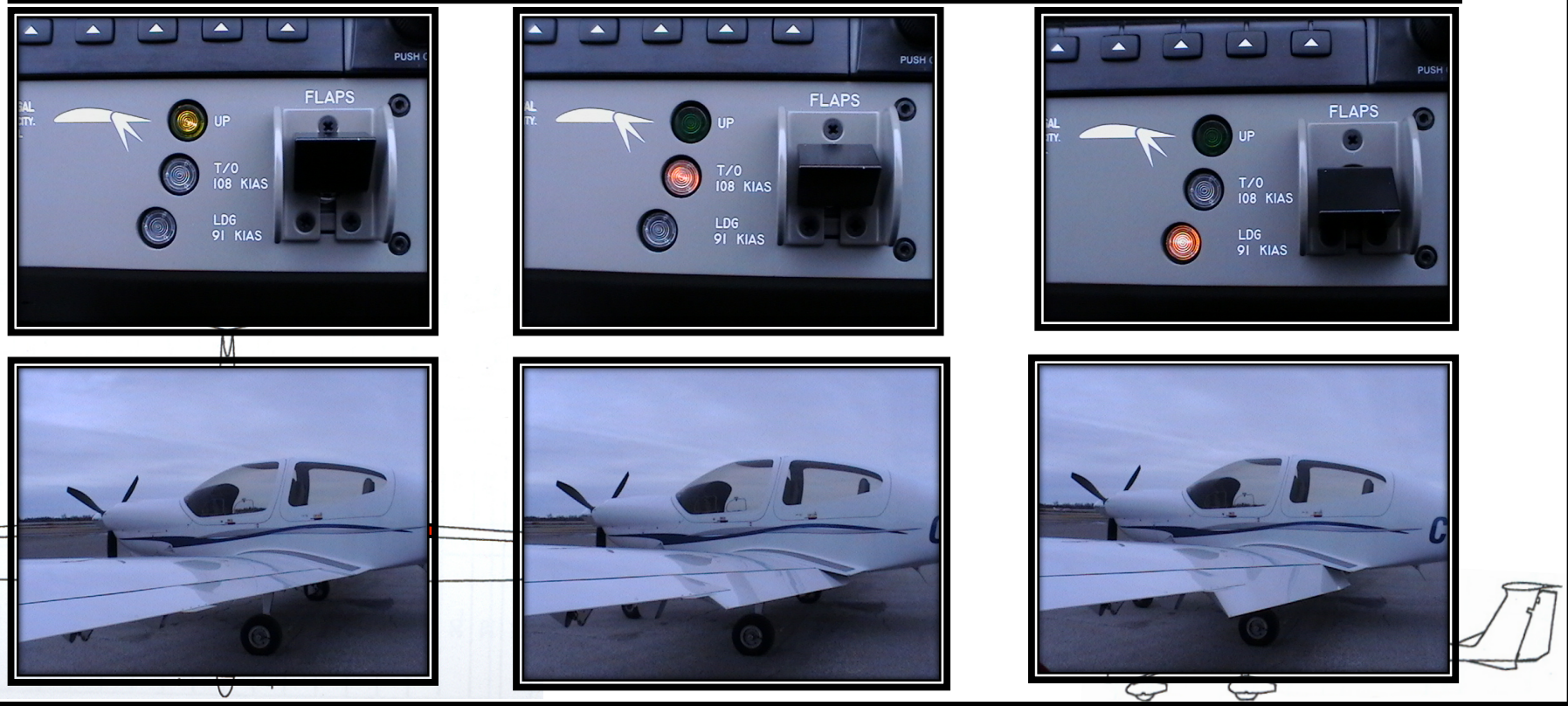


Flight Controls



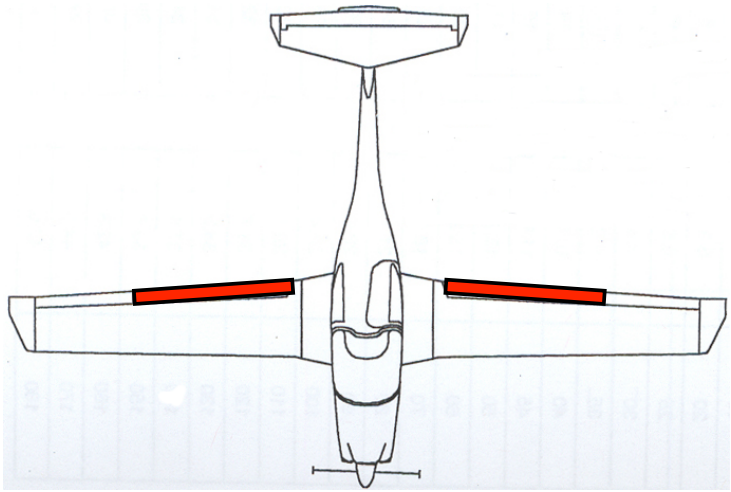
Flap Settings

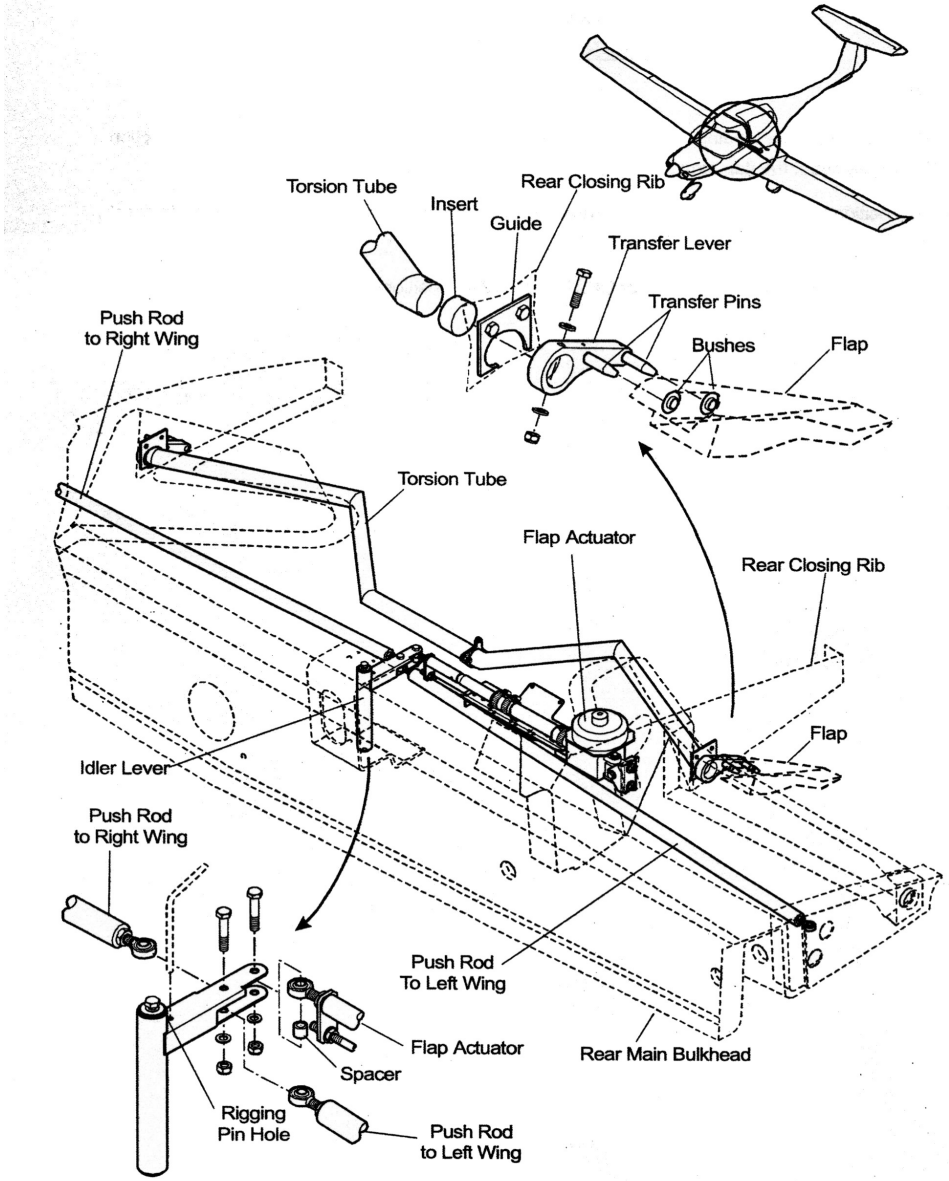
- Flaps electrically operated - 3 settings: cruise (UP), takeoff - 20º (T/O), landing - 42º (LDG).
- Note: when instrument lights are turned on, the flap indicator lights are dimmed



Flight Controls

Flap Assembly

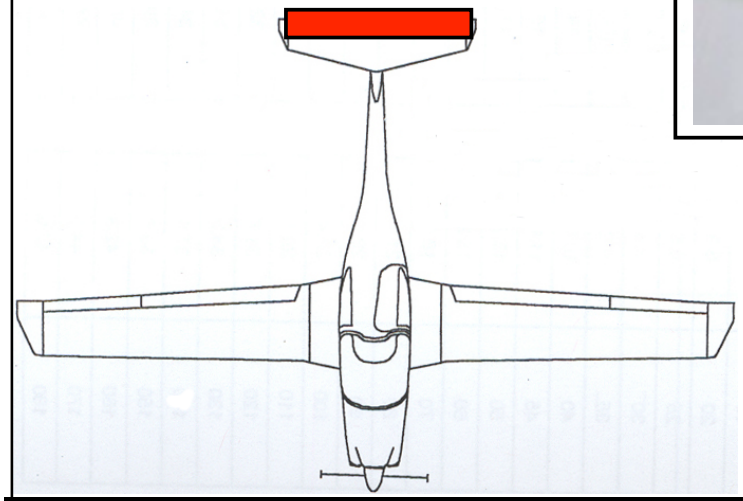


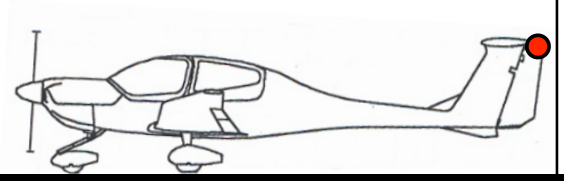


Flight Controls

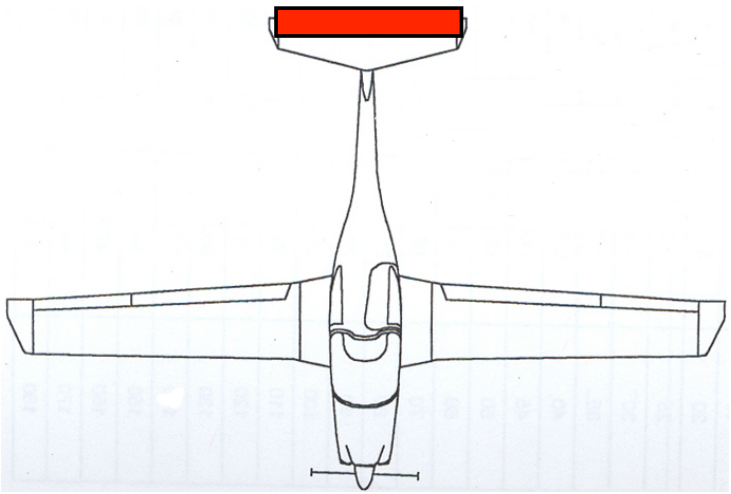
Elevator

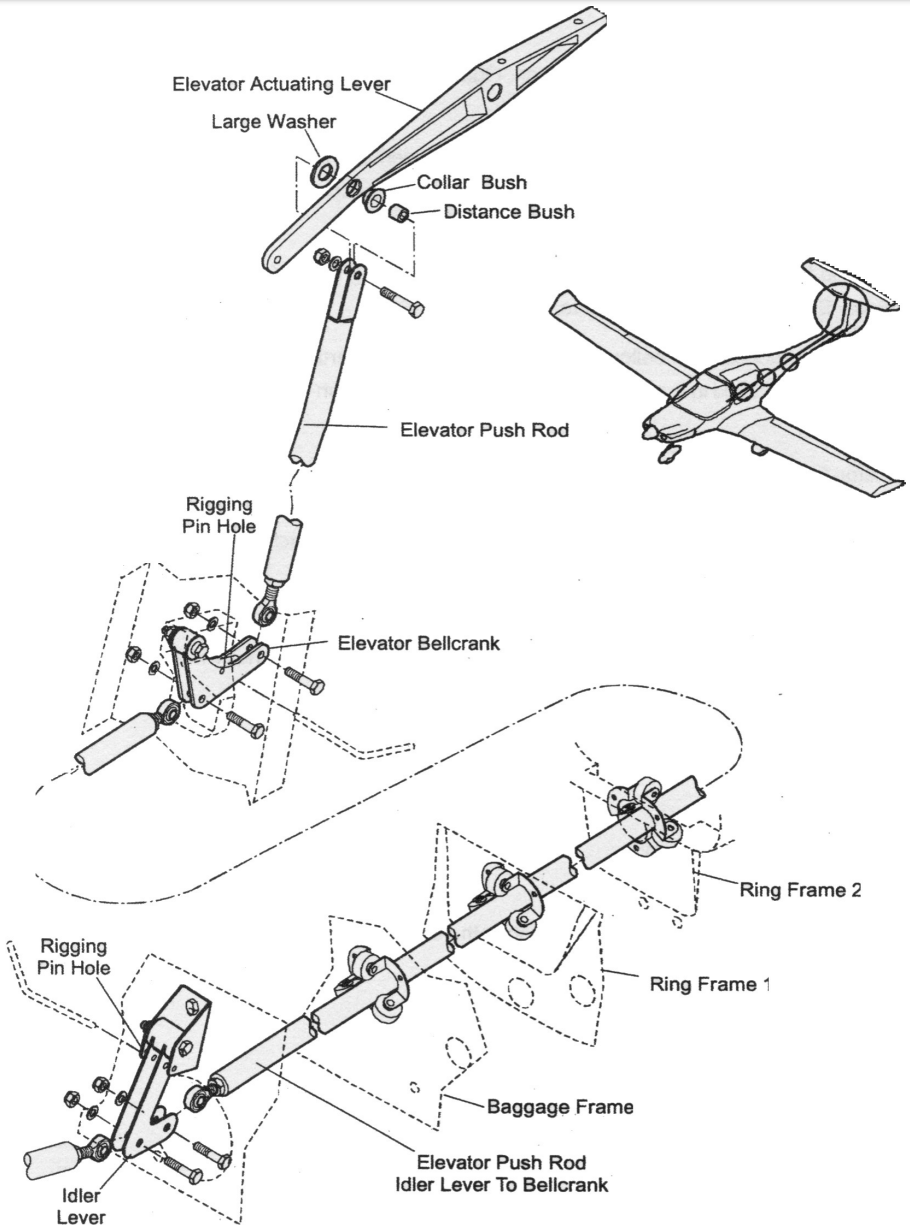
- Steel pushrods.
- Two of the bellcranks are visible next to the lower hinge of the rudder, as well as the elevator horn and its bearings.



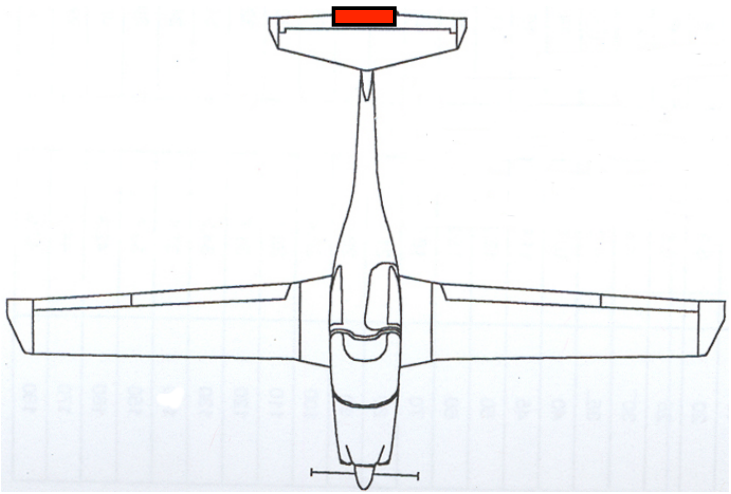


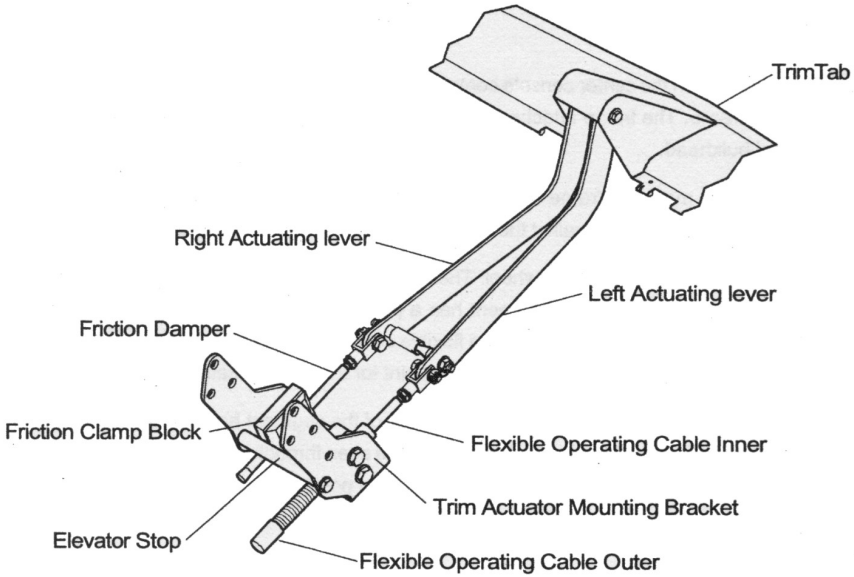
Elevator Assembly

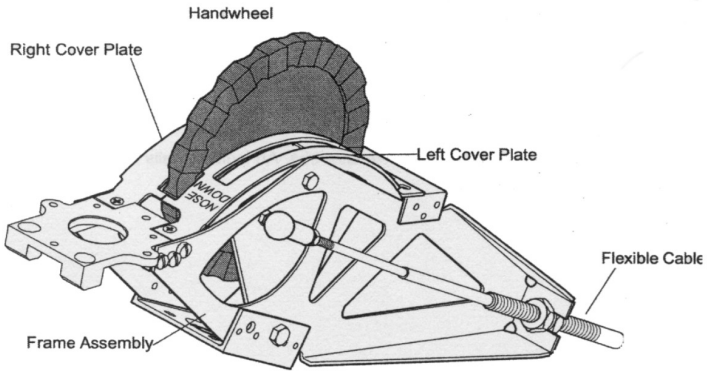




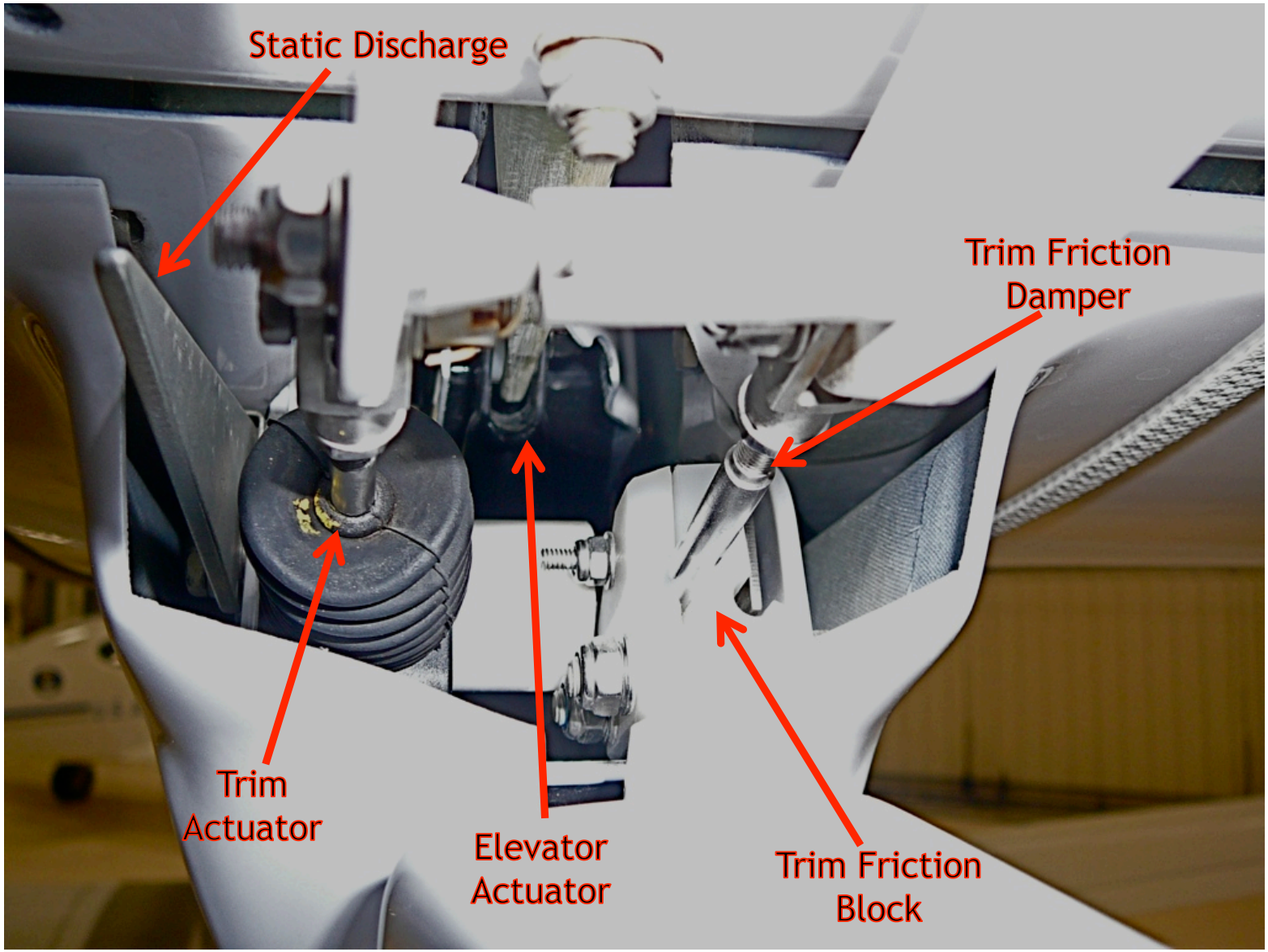
Trim Tab Assembly







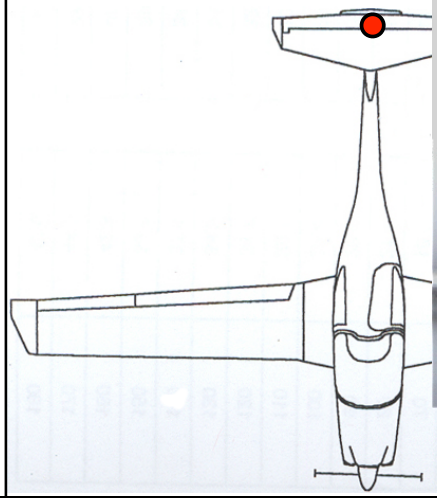
Flight Controls

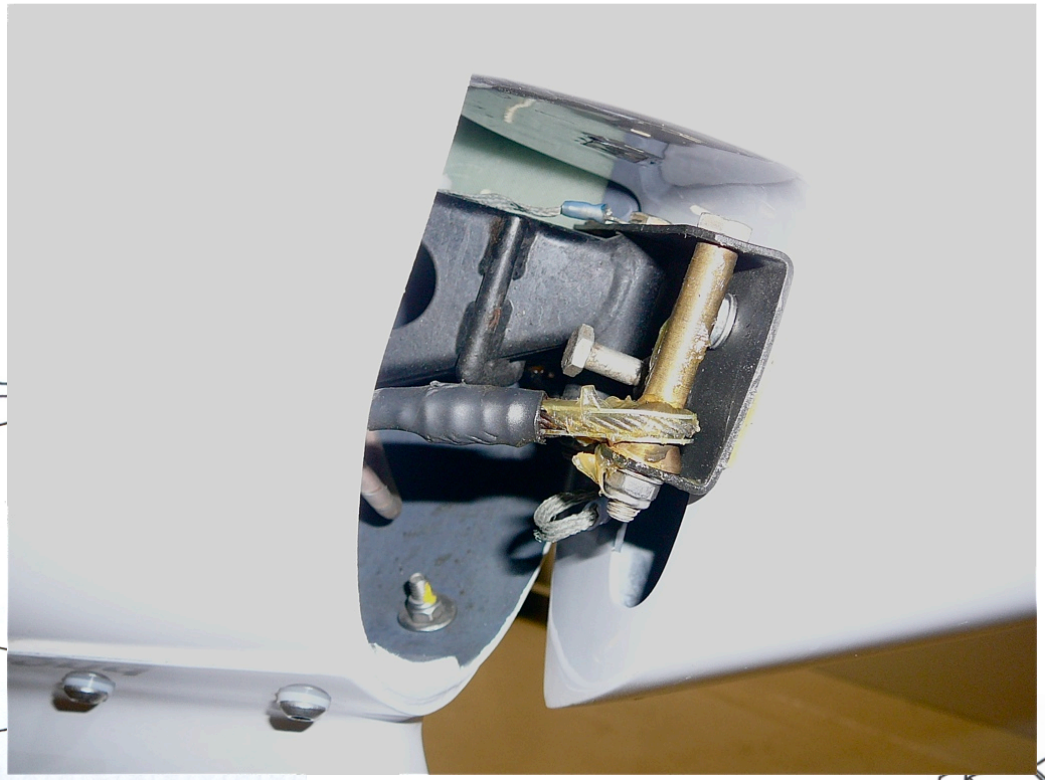


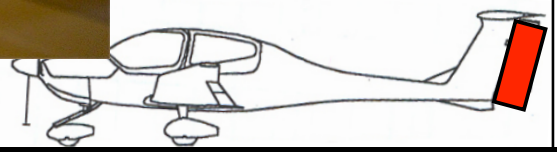
Flight Controls

Rudder

- An upper hinge and a lower hinge with rubber stops; lower hinge is available for visual inspection.
- Connected by cables to the rudder pedals.

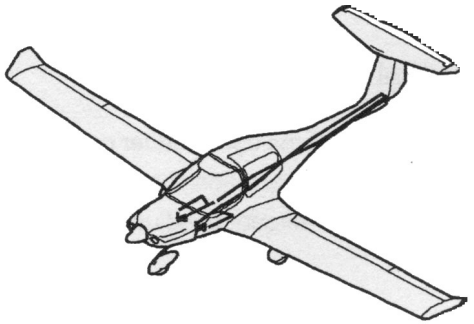


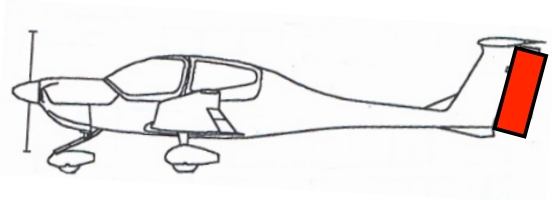


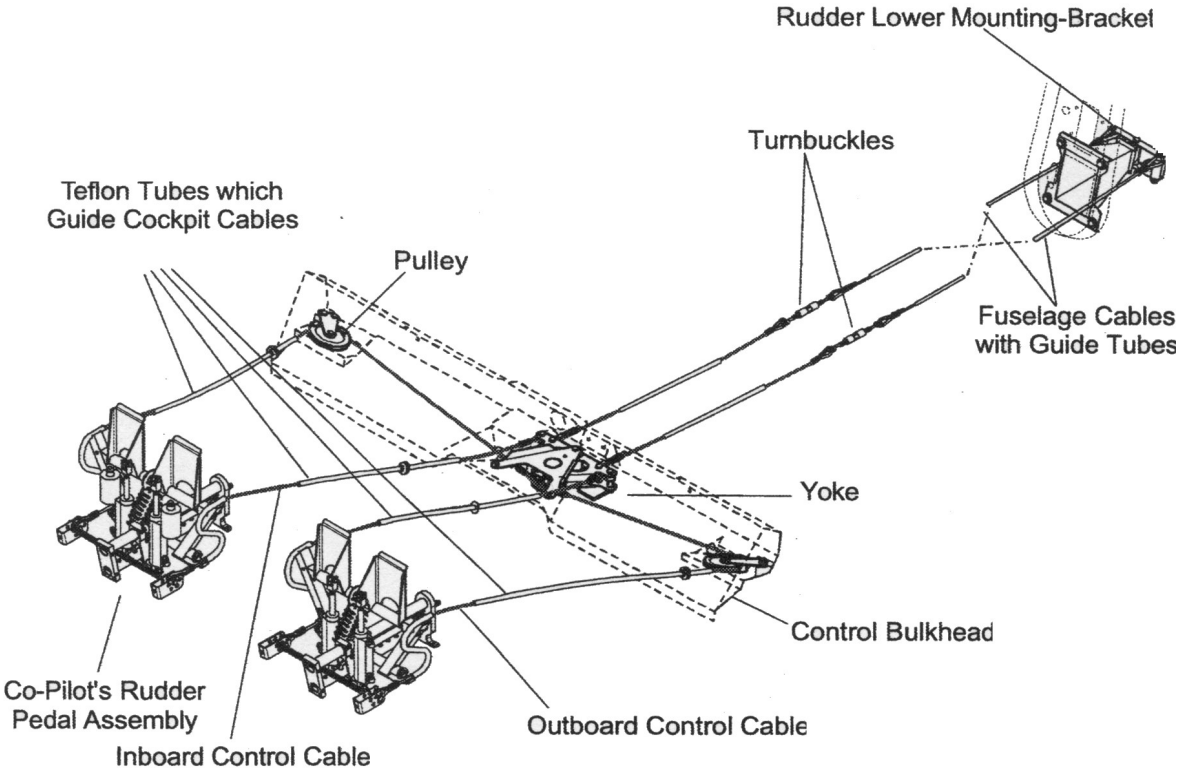


Flight Controls

Rudder Assembly







Flight Controls

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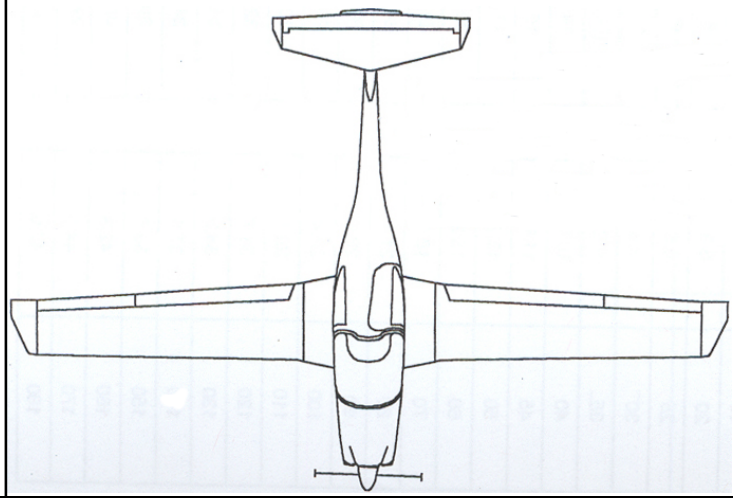
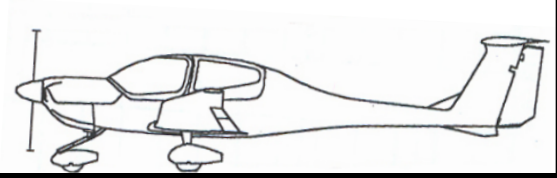
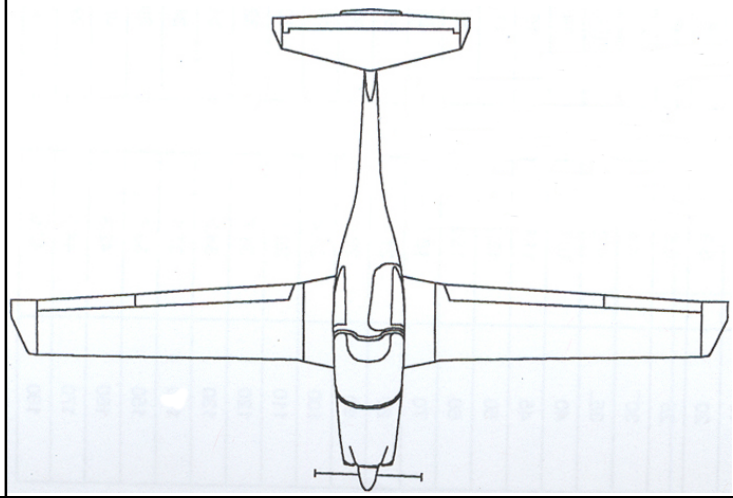
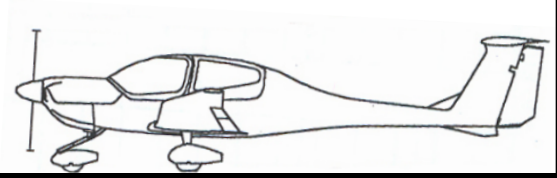




Landing Gear

- Nose Gear
- Main Gear
- Hydraulic System

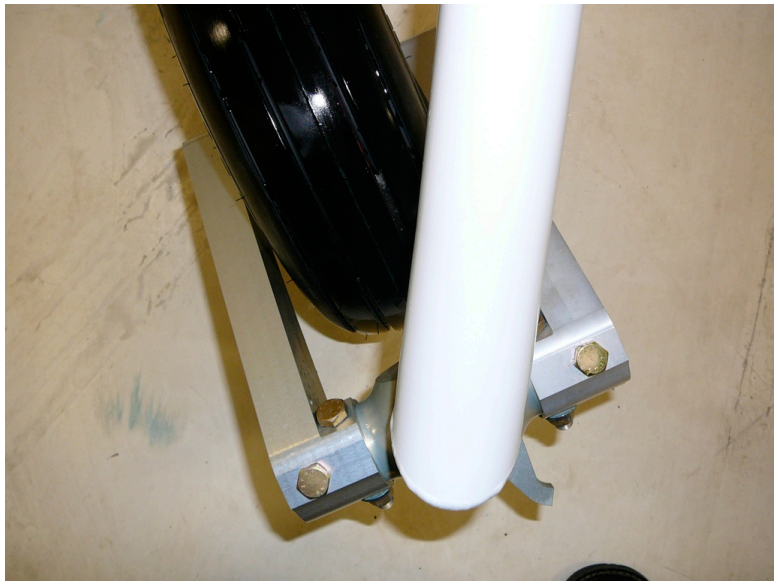


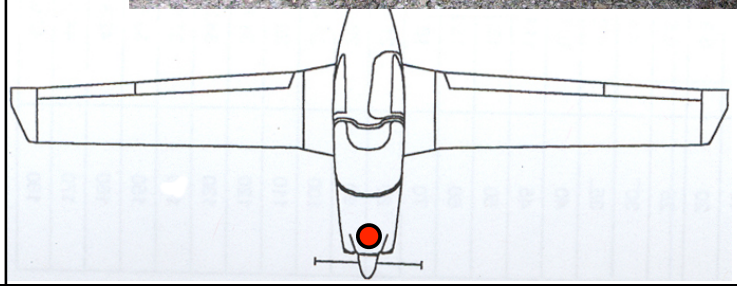


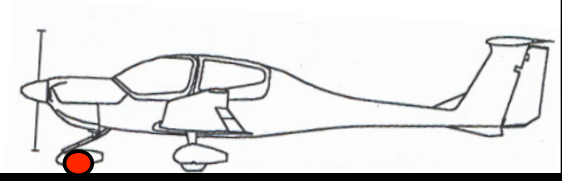
Landing Gear

Nose Wheel

- Free castering nose wheel (+/-30º)
- Sprung by elastomer package.
- Tire pressure 2.0 bar or 29 psi.

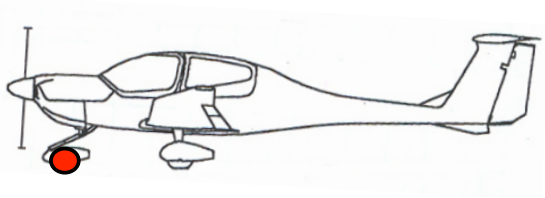


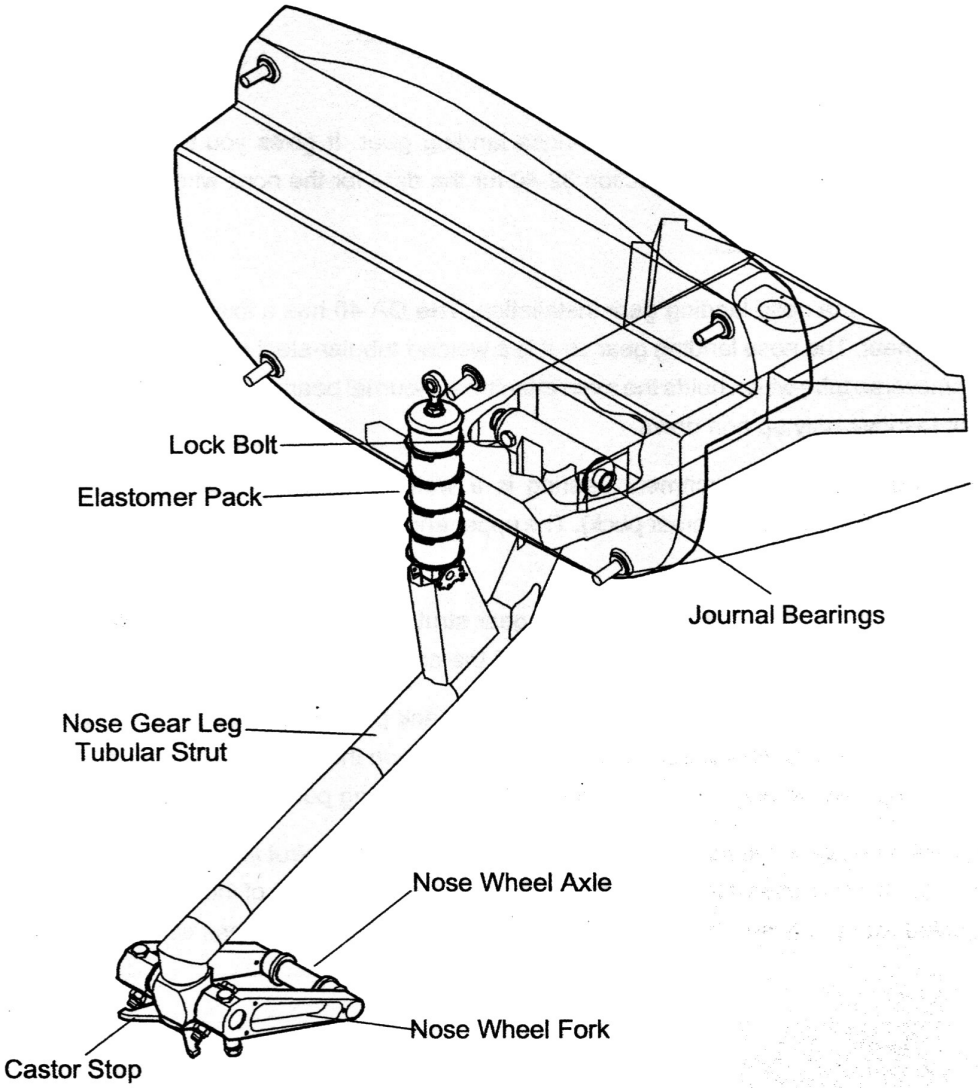




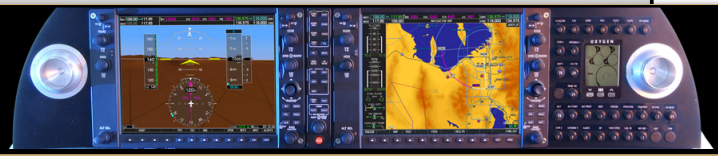
Landing Gear

Nose Gear Assembly



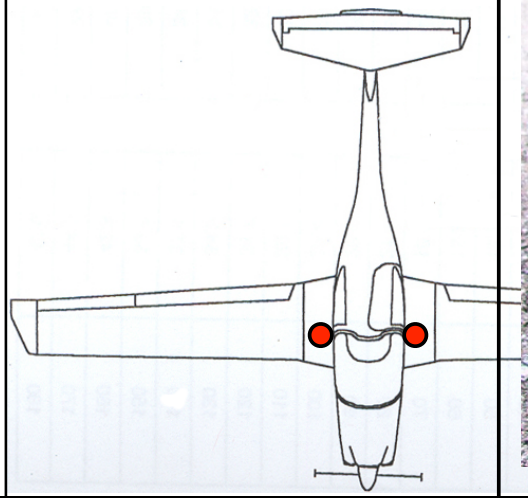


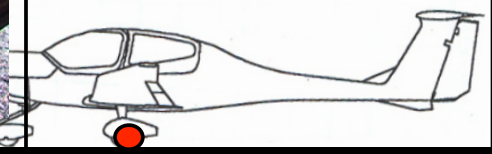
Landing Gear



Main Wheels

- Hydraulically operated disk brakes act on the wheels of the main landing gear.
- Wheel brakes operated individually by means of toe pedals.
- Tire pressure 2.5 bar or 36 psi.

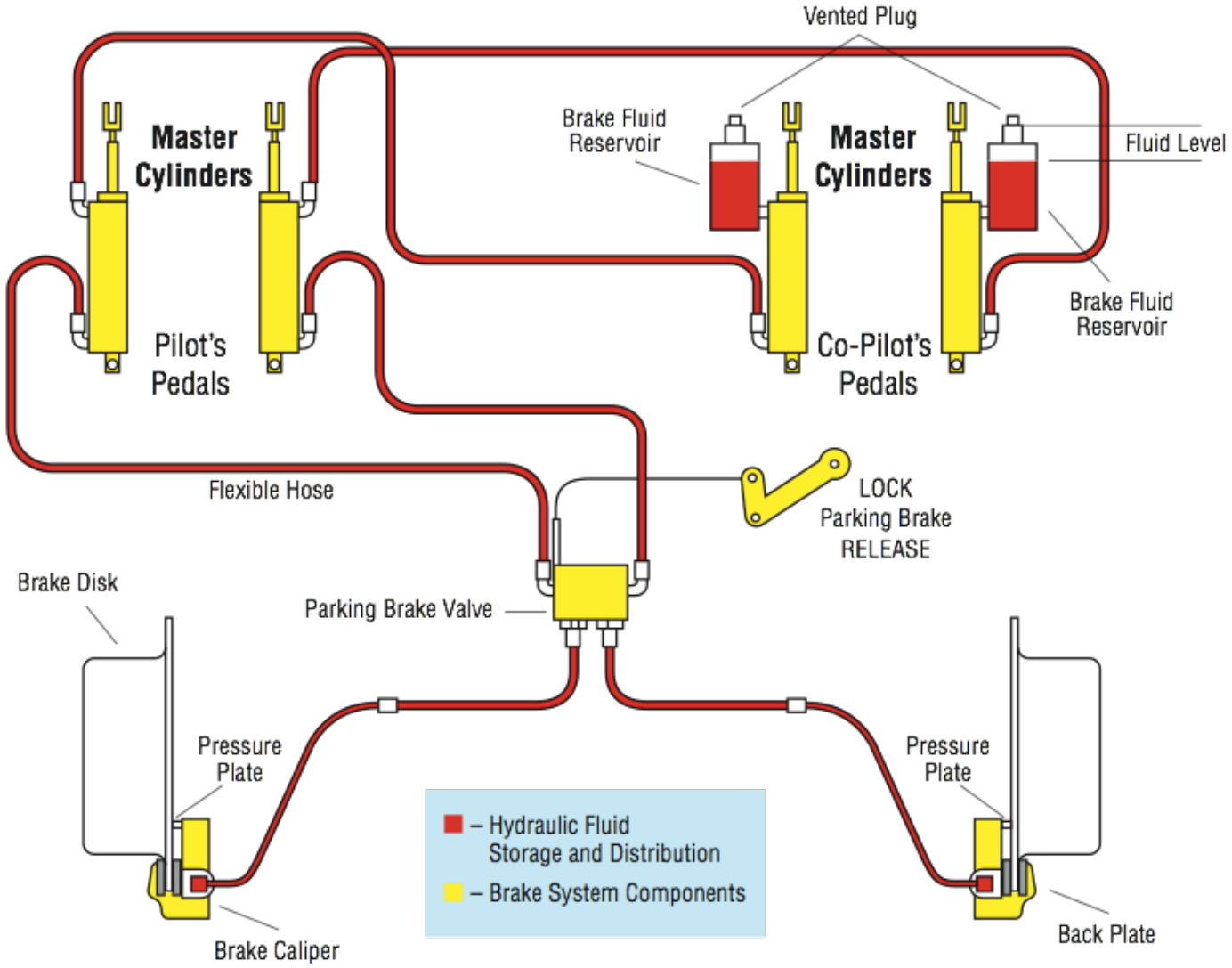




Hydraulic System

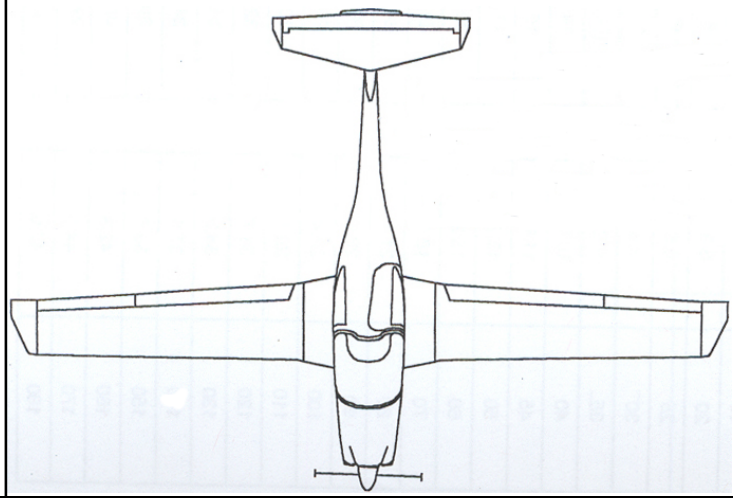
Landing Gear

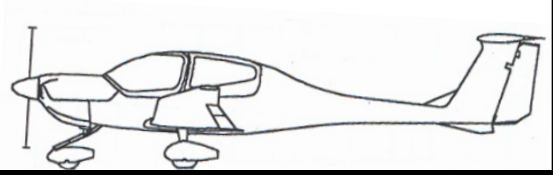
Diamond DA 40 Series



Landing Gear

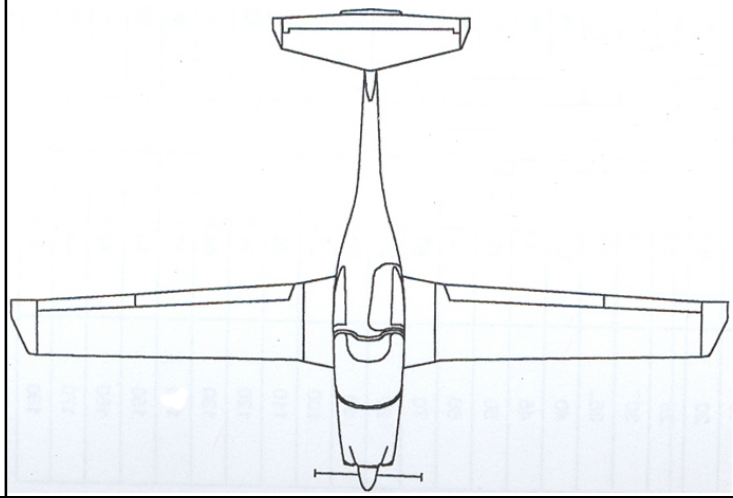
- Nose Gear
- Main Gear
- Hydraulic System

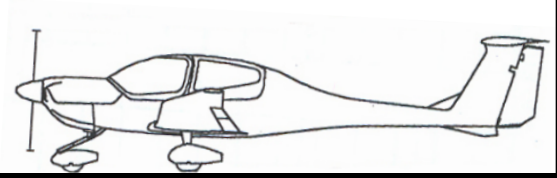




Engine and Associated Systems

- Engine
- Fuel System
- Lubrication System

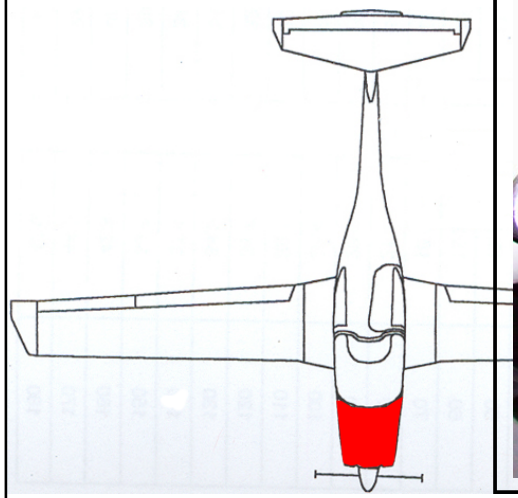


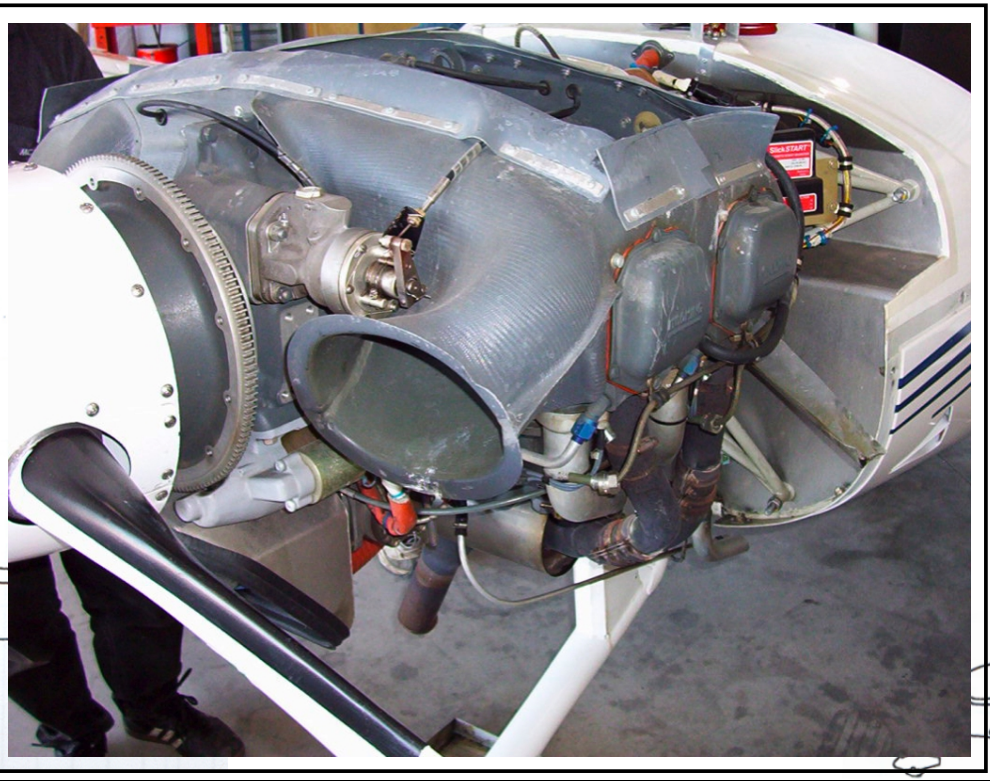


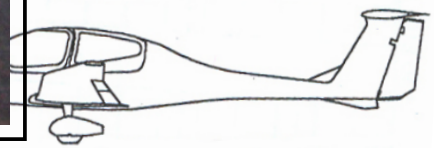
Powerplant

Lycoming IO-360-M1A

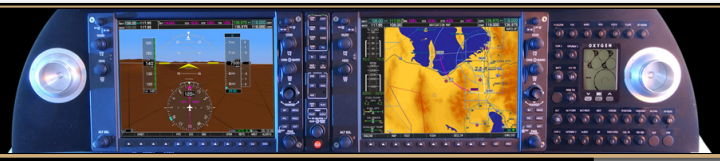
- Air cooled four-cylinder four-stroke engine.
- Horizontally opposed, fuel injected direct-drive engine.
- Max power is 180 HP at 2700 rpm at Sea Level and Standard Atmospere.





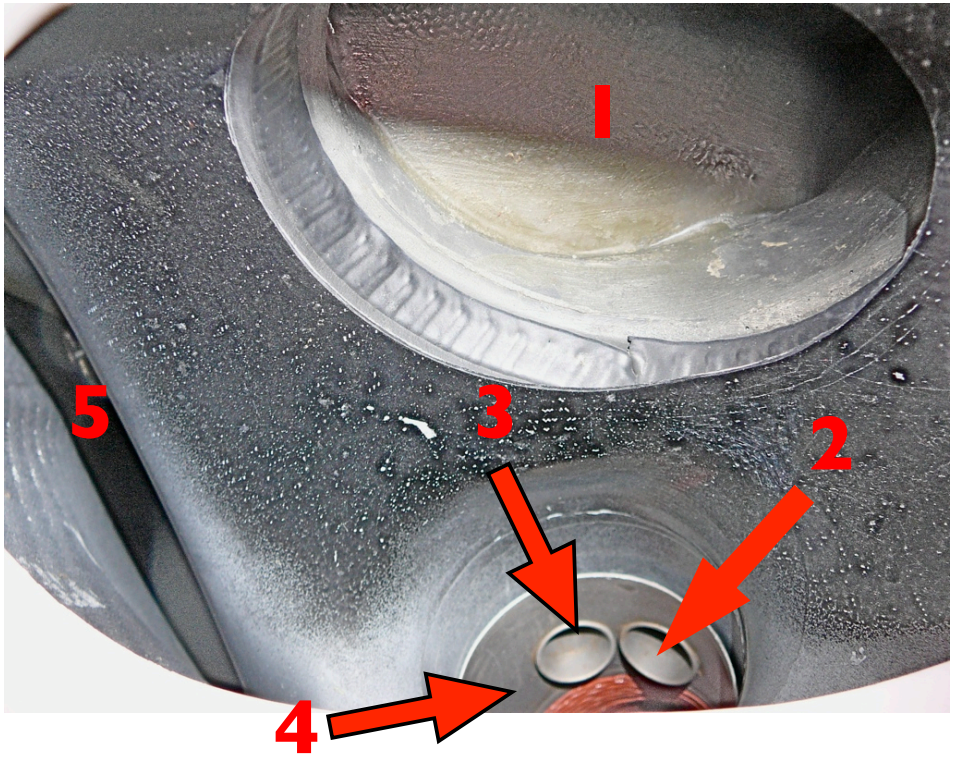


Powerplant

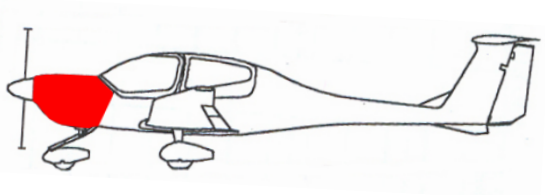


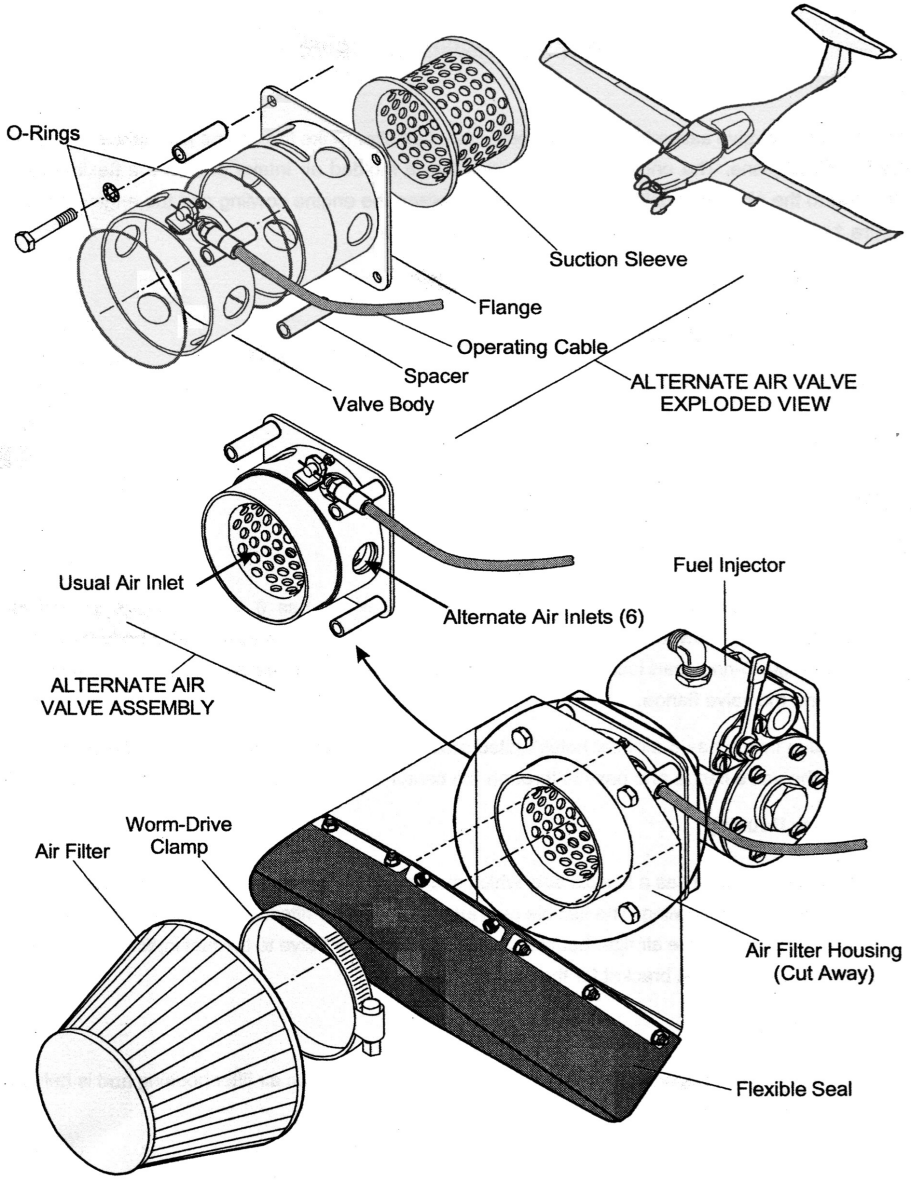
Right Side Cowling Inlet:

1. Cylinder Head Cooling
2. Alternator Cooling
3. Battery Cooling
4. Cabin Heat
5. Oil Cooling



Powerplant-Air Intake





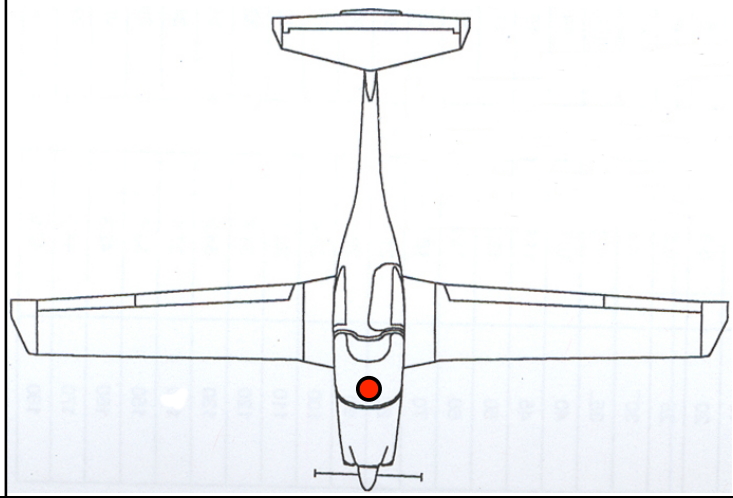
Fuel System

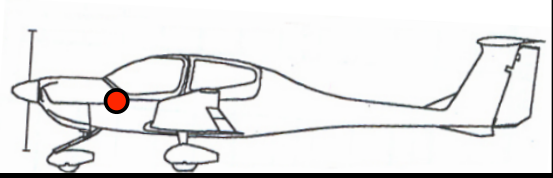
Fuel Pumps

- Equipped with both a mechanical and an electric fuel pump.
- Mechanical pump used for fuel supply during normal operation.
- Electric pump is pilot controlled via the FUEL PUMP switch and should be on at engine start, during takeoff and landing, and when switching fuel tanks.

Fuel Selector

- Three selections; LEFT, RIGHT, OFF.
- OFF is reached by turning the selector to the right while pulling up the safety catch of the selector.

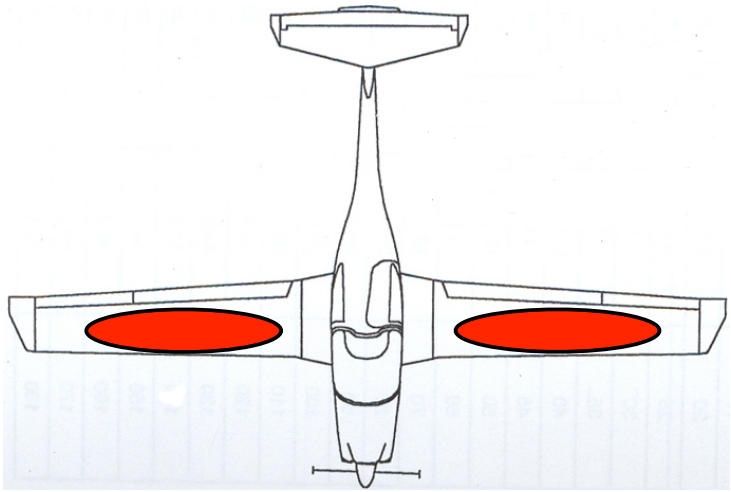


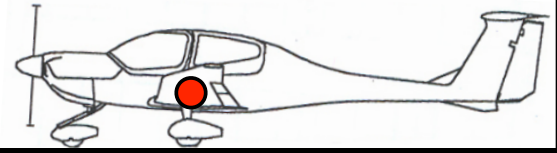


Fuel System

Standard Fuel Tanks

- Each of the two fuel tanks consist of two aluminum chambers, which are joined by a piece of flexible hose and two independent vent hoses.
- Fuel quantity for each tank is 20 US Gallons.
- Maximum difference between tanks is 10 US Gallons.
  Maximum quantity that can be indicated is 17 US Gallons.
- In order to determine the exact quantity above 17 US Gallons, the fuel measuring device must be used.

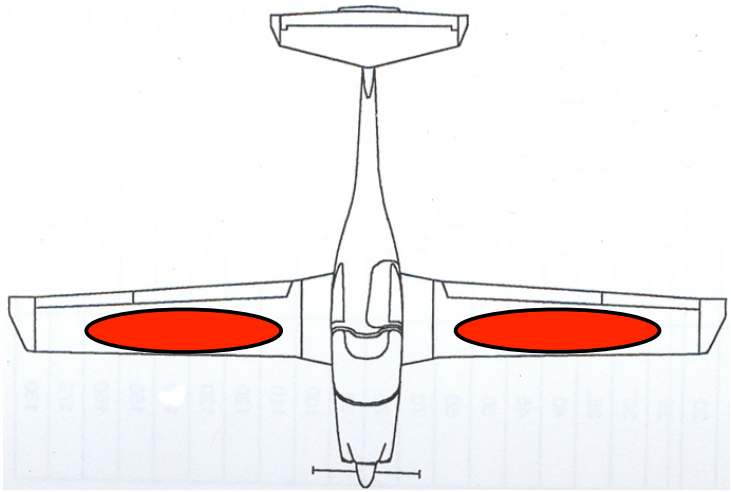


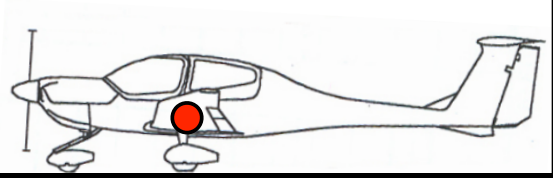


Fuel System

Long-Range Fuel Tanks

- Each of the two fuel tanks consist of three aluminum chambers, which are joined by a pieces of flexible hose and two independent vent hoses.
- Fuel quantity for each tank is 25 US Gallons.
- Maximum difference between tanks is 8 US Gallons.
- A break in the fuel indication shows the ungauged fuel in each tank.

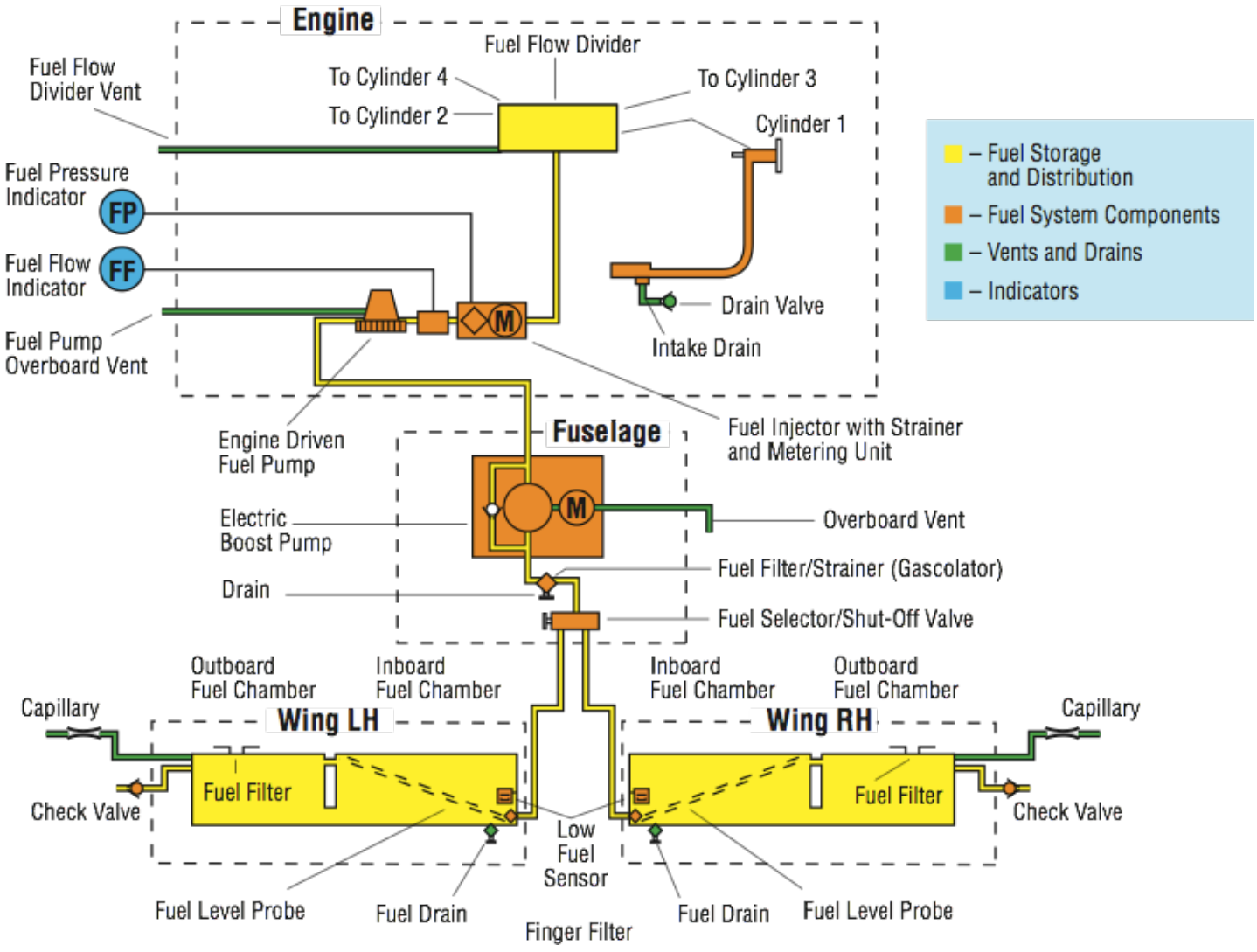




Fuel System

Fuel System

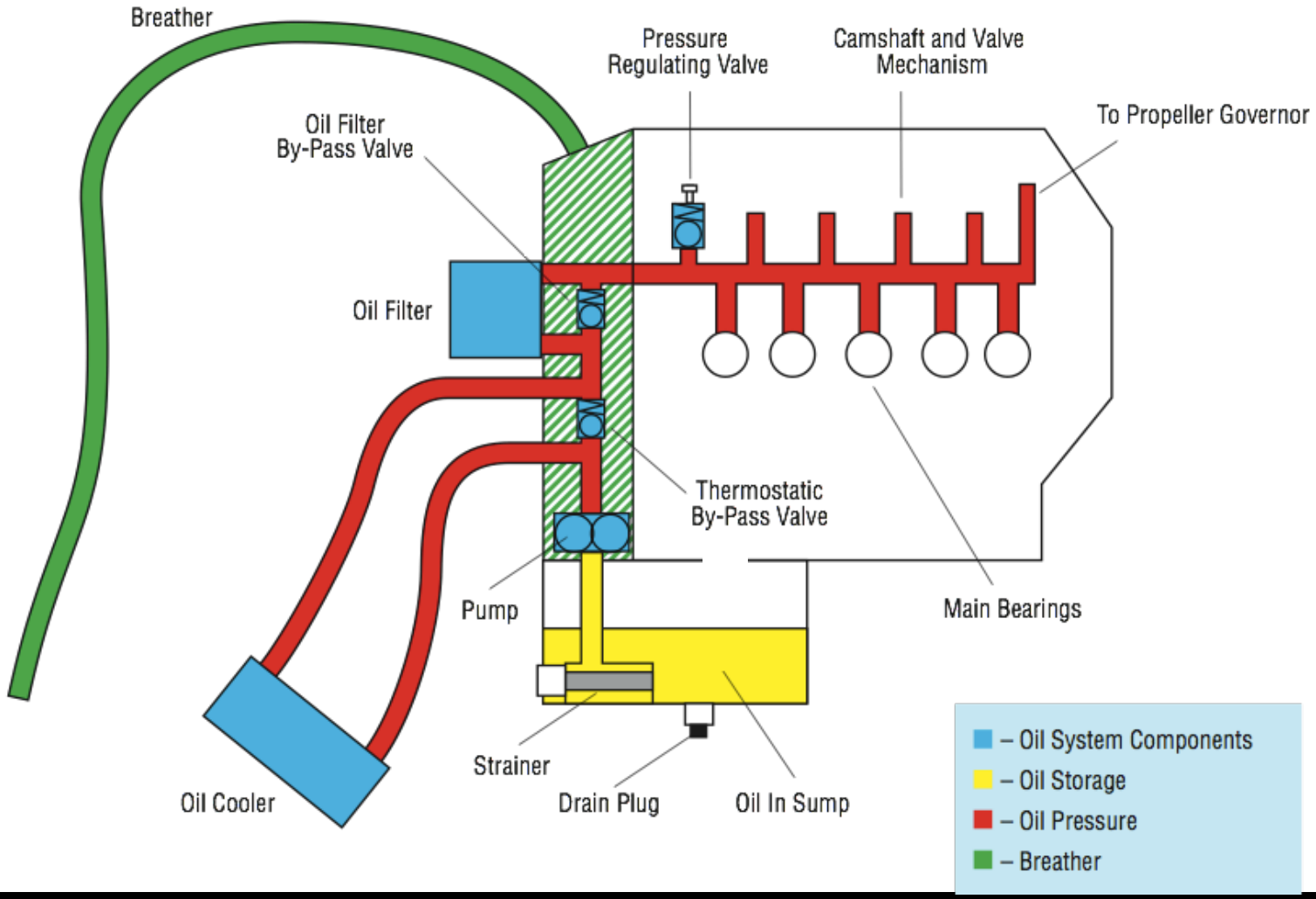
Diamond DA 40 Series



Lubrication System

Oil System

Diamond DA 40 Series



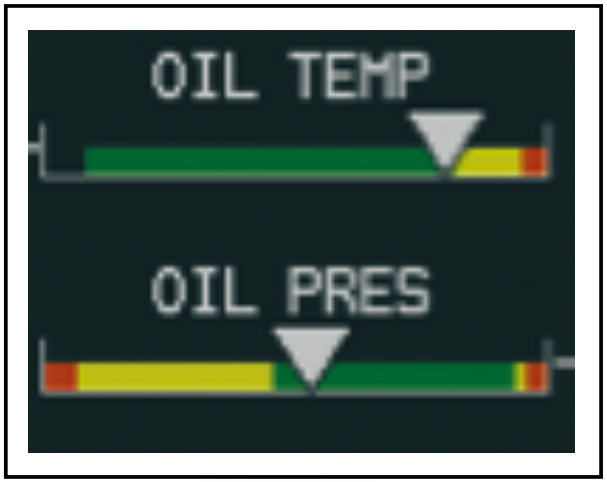
Oil System

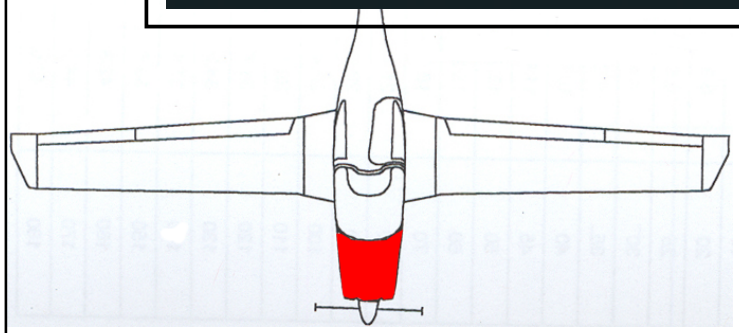
- During the first 50 hours of operation of a new or overhauled engine, mineral oil should be used.
- Oil Quantity:

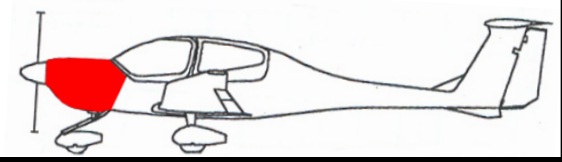
  Minimum 4 Quarts.

  Maximum 8 Quarts.
- Oil Temperature:

  Maximum 245 F.







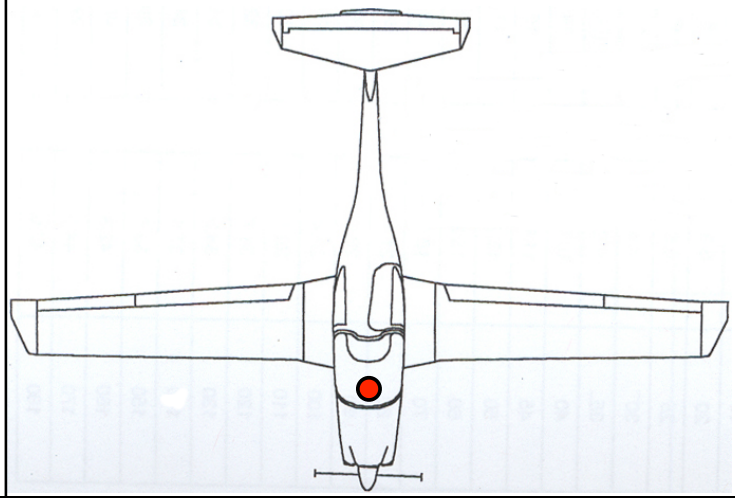
The Propeller and Governor

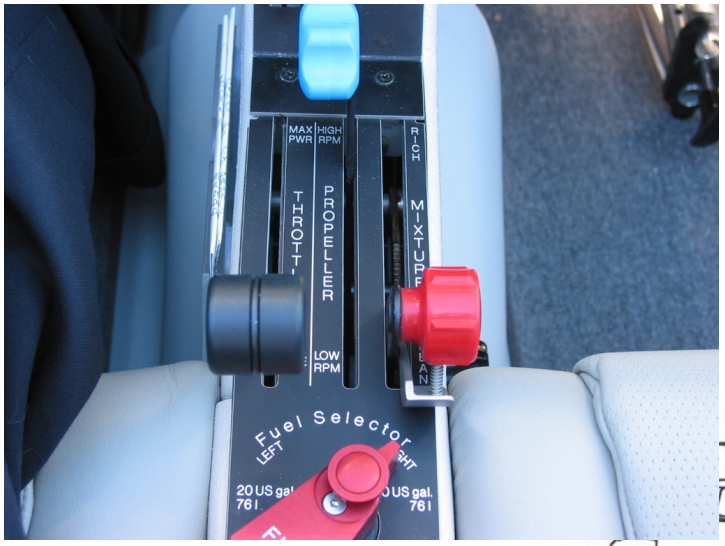
The Propeller

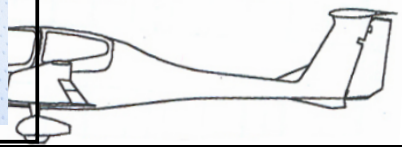
- Hydraulically regulated constant speed propeller.
- Variable pitch blade.

The Governor

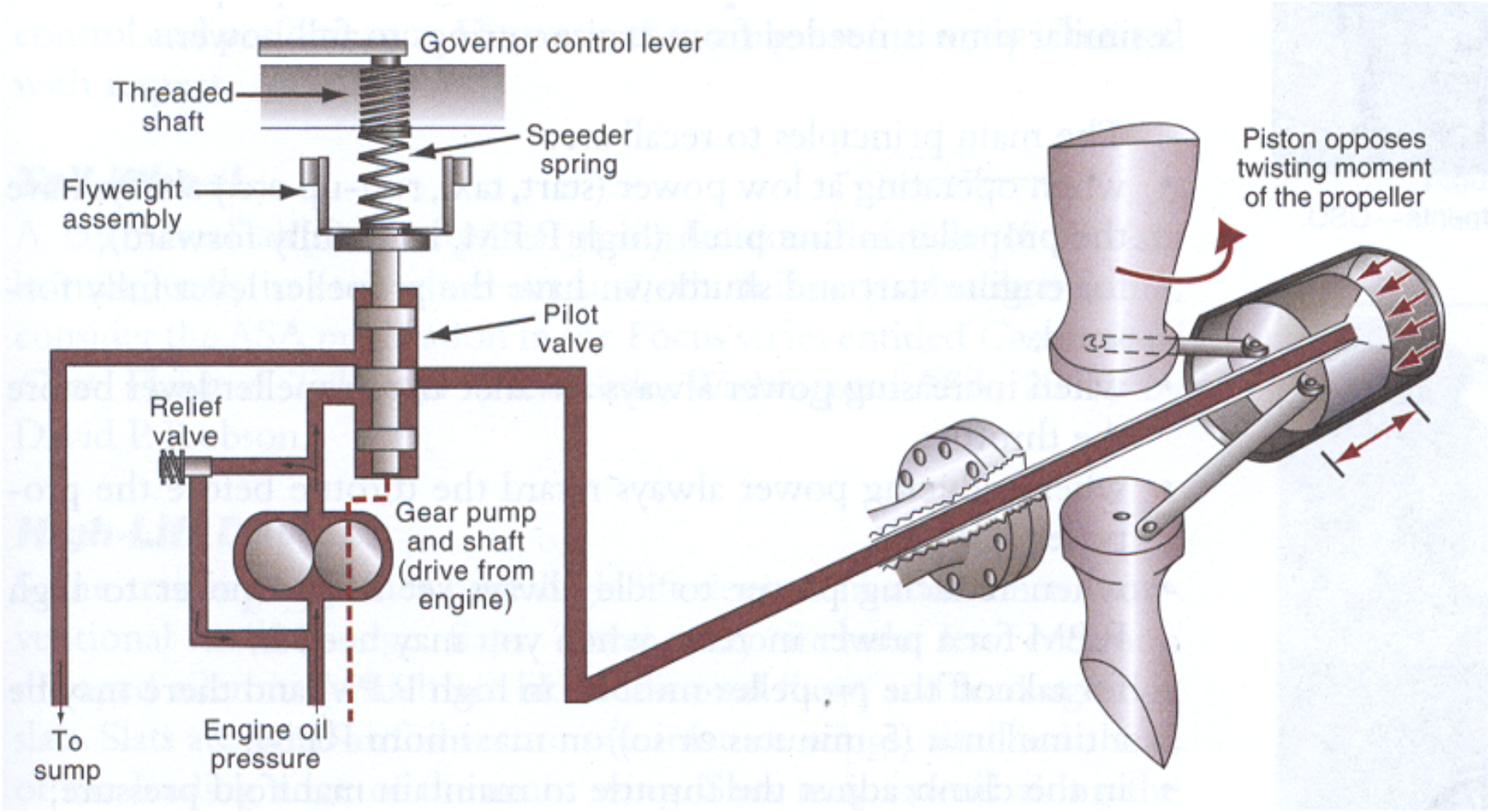
- Changes the pitch angle of the propeller.
- Hydraulic pressure derived from the oil in the engine.
- Following the loss of oil pressure the governor will set a high RPM.





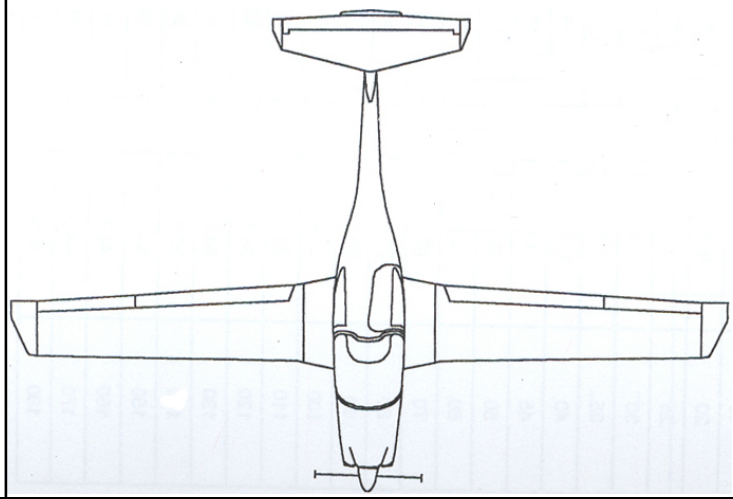


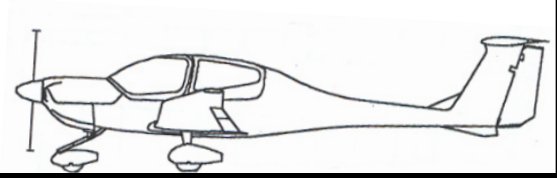
The Propeller Governor



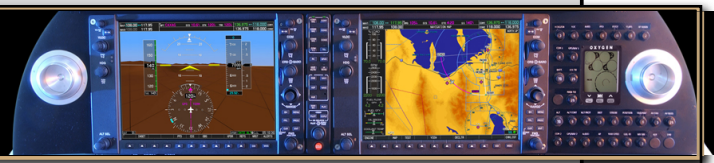
Engine and Associated Systems

- Engine
- Fuel System
- Lubrication System

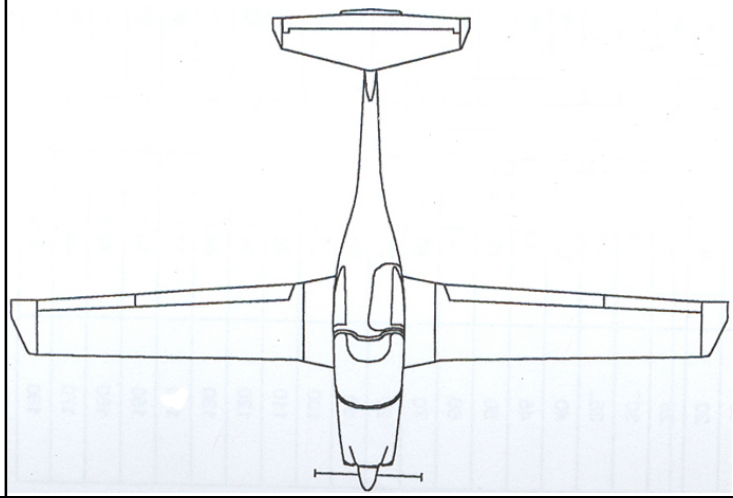


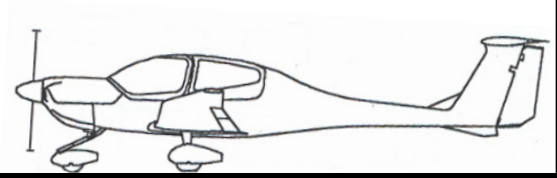


Electrical System



- Battery/Storage
- Alternator/Generator
- Ignition

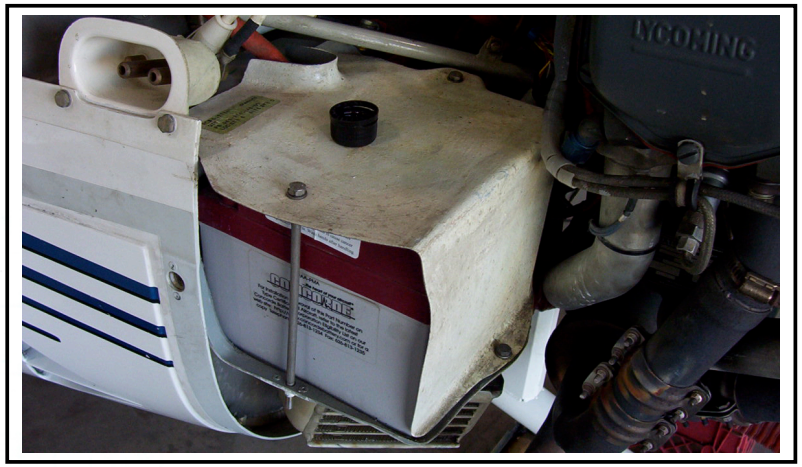


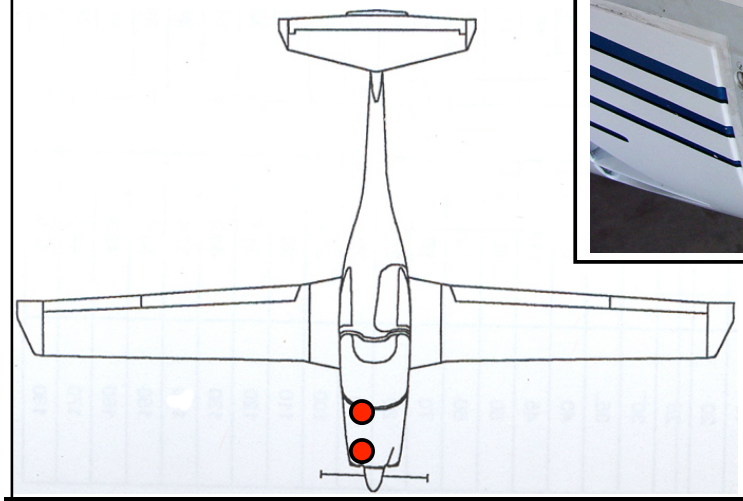


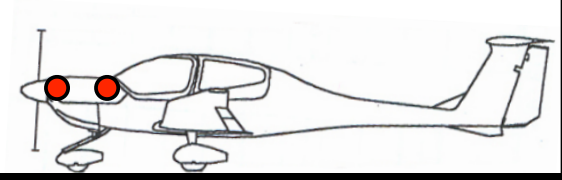
Electrical System

Storage

- Power is stored in an 10 amp-hour or more lead-acid battery, mounted on the right hand side of the engine compartment.
- There is also a lithium ion battery pack behind the instrument panel to provide power to the backup attitude indicator and one floodlight for an hour and thirty minutes in case the main power system fails.



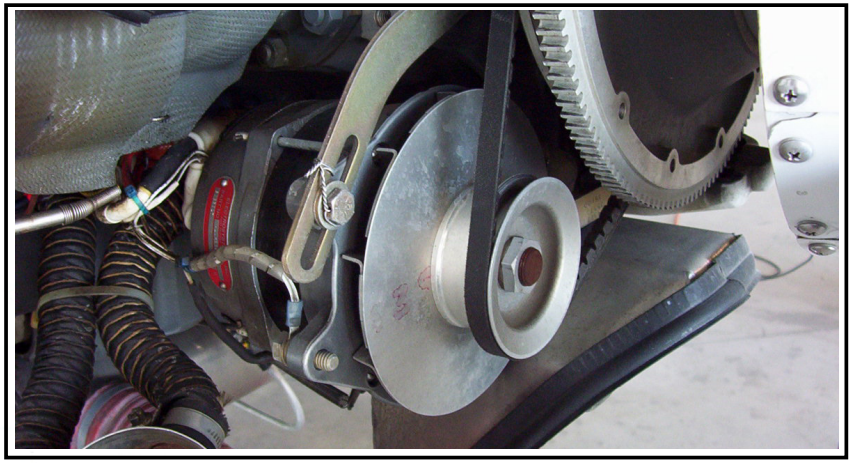


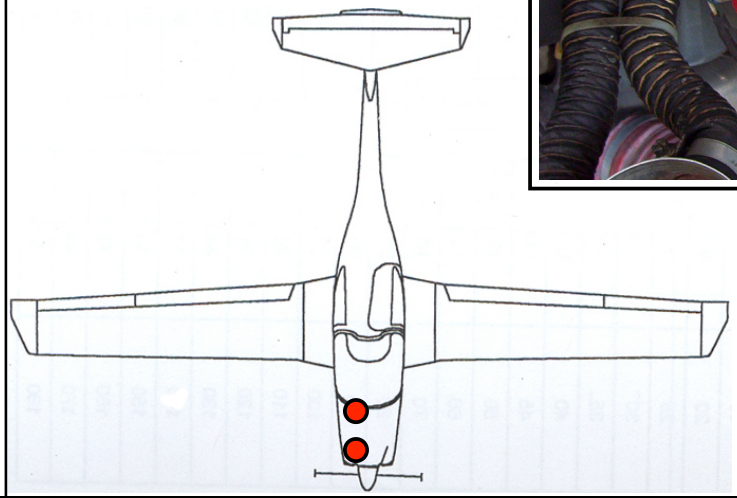


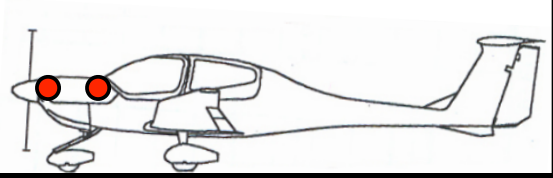
Electrical System

Power Generation

- The DA40 has a 28 Volt DC system.
- Power is generated by a 70 ampere alternator, mounted on the front of the engine.







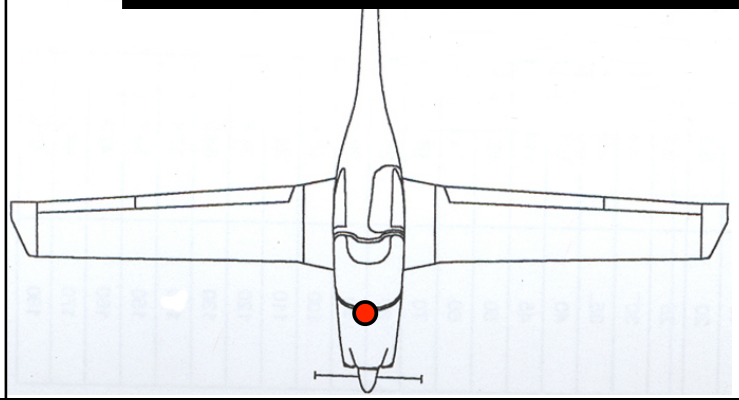
Emergency Electrical System

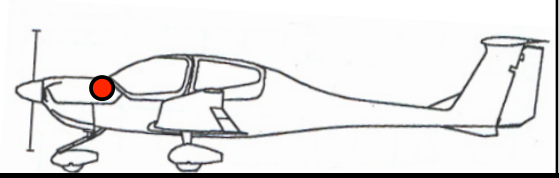
Essential Bus

- Should the alternator fail, it will be necessary to shed as much load from the electrical system as possible in order to prolong battery life.
- The radios are actually one of the largest consumers of electrical power in this airplane, even when Comm2 is off and Comm1 is automatically derated to 10W.
- Judicious use of the radios can extend alternator-off battery life to about 45 minutes.

Emergency Power

- If necessary, the backup battery pack can provide power to the backup AI and one floodlight for a further hour and a half.



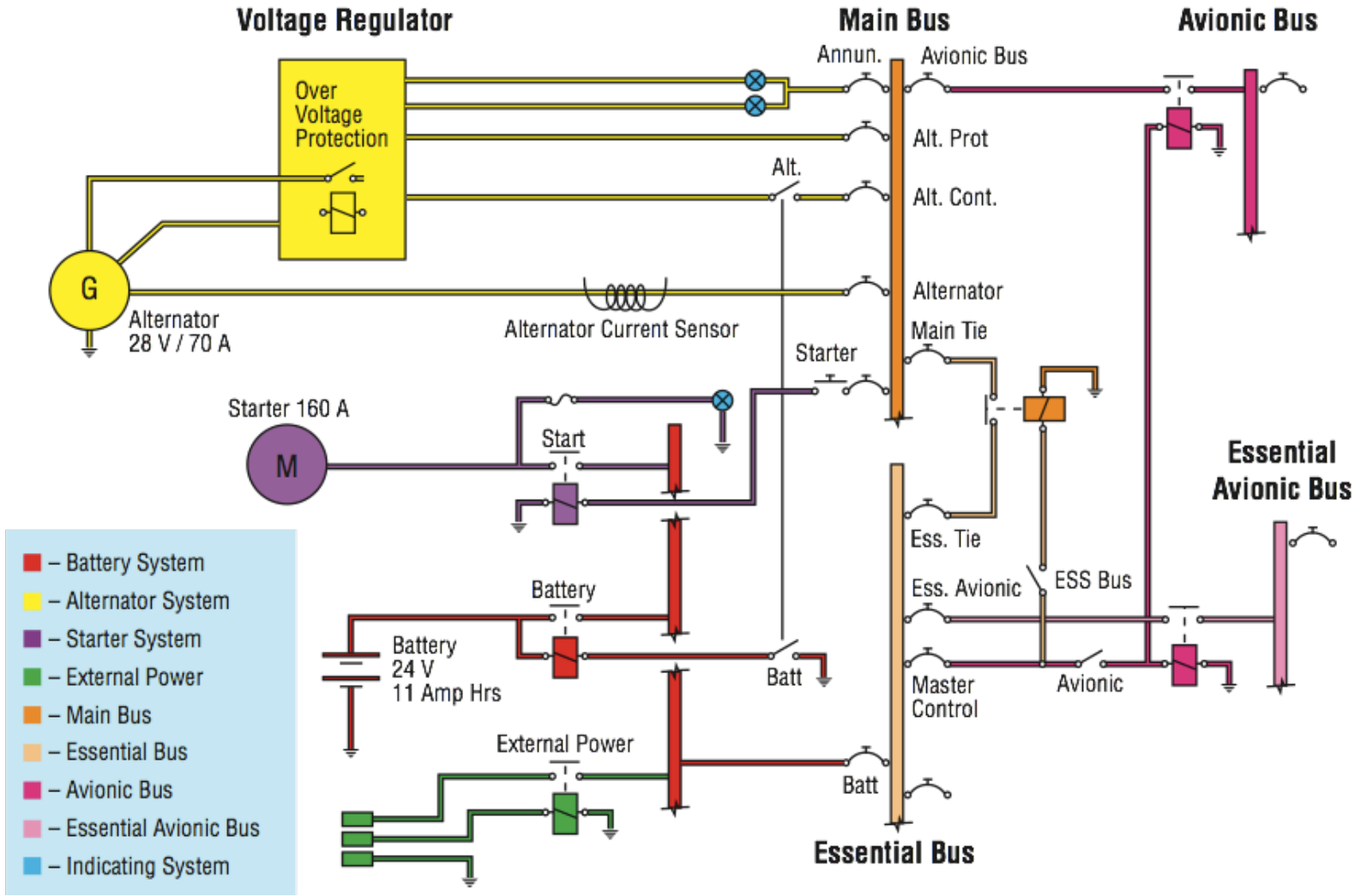


Electrical System

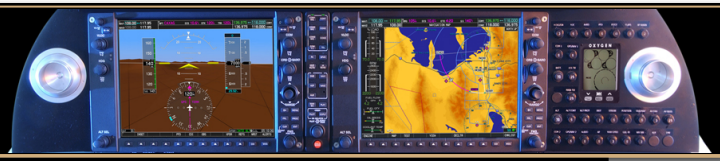
Electrical System

Electrical System 2

Diamond DA 40 Series



Emergency Electrical System



Emergency Power

- If necessary, the backup battery pack can provide power to the backup AI and one floodlight for a further hour and a half.
- Activate using the “Horizon Emergency” switch.
- NOTE: If safety wire on Emergency switch is broken, the lithium battery pack must be replaced.

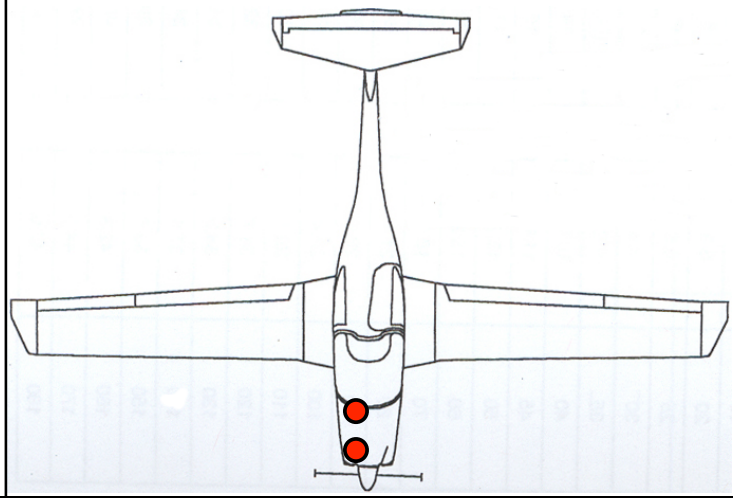
Ignition System

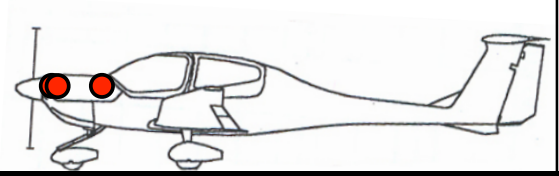
During Start

- System powered by ‘SlickSTART’ electric start boost system.
- Delivers a shower of sparks during the engine start sequence to provide better ignition characteristics.

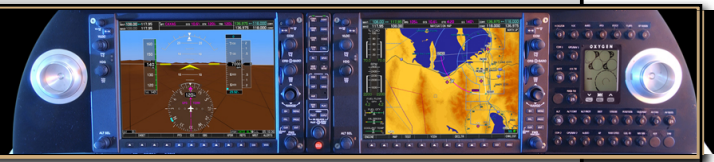
After Start

- Uses a conventional magneto system.

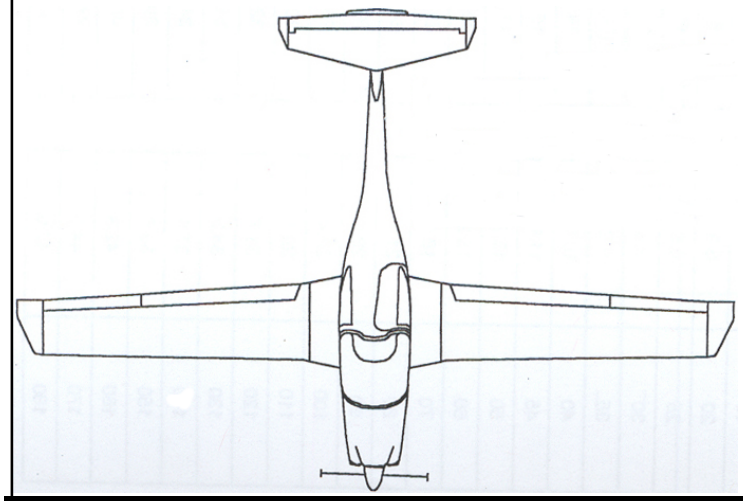


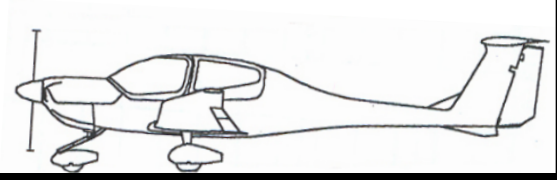


Electrical System



- Battery/Storage
- Alternator/Generator
- Ignition





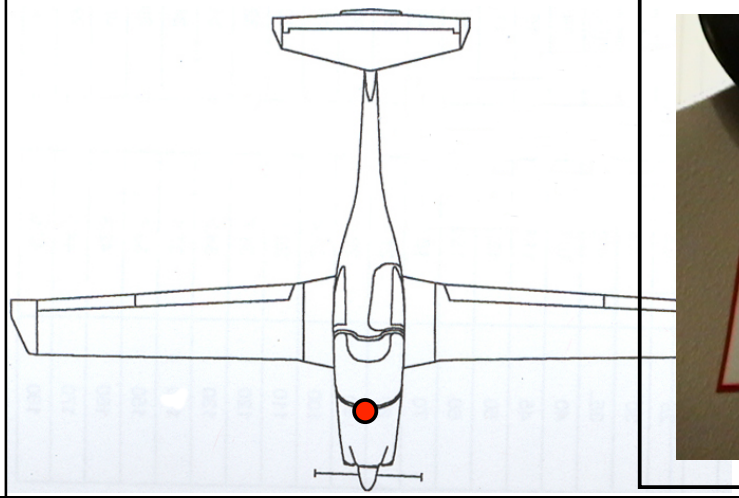
The Pitot Static System

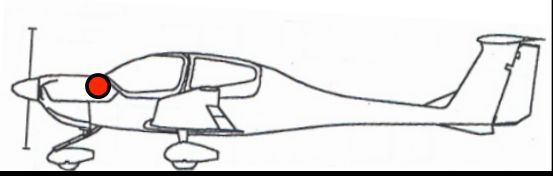
The Air Data Computer

- With respect to the G1000, pitot static measurements are performed by the Air Data Computer.
- The airspeed and altimeter back-up instruments work on the same principle as standard pitot static instruments.

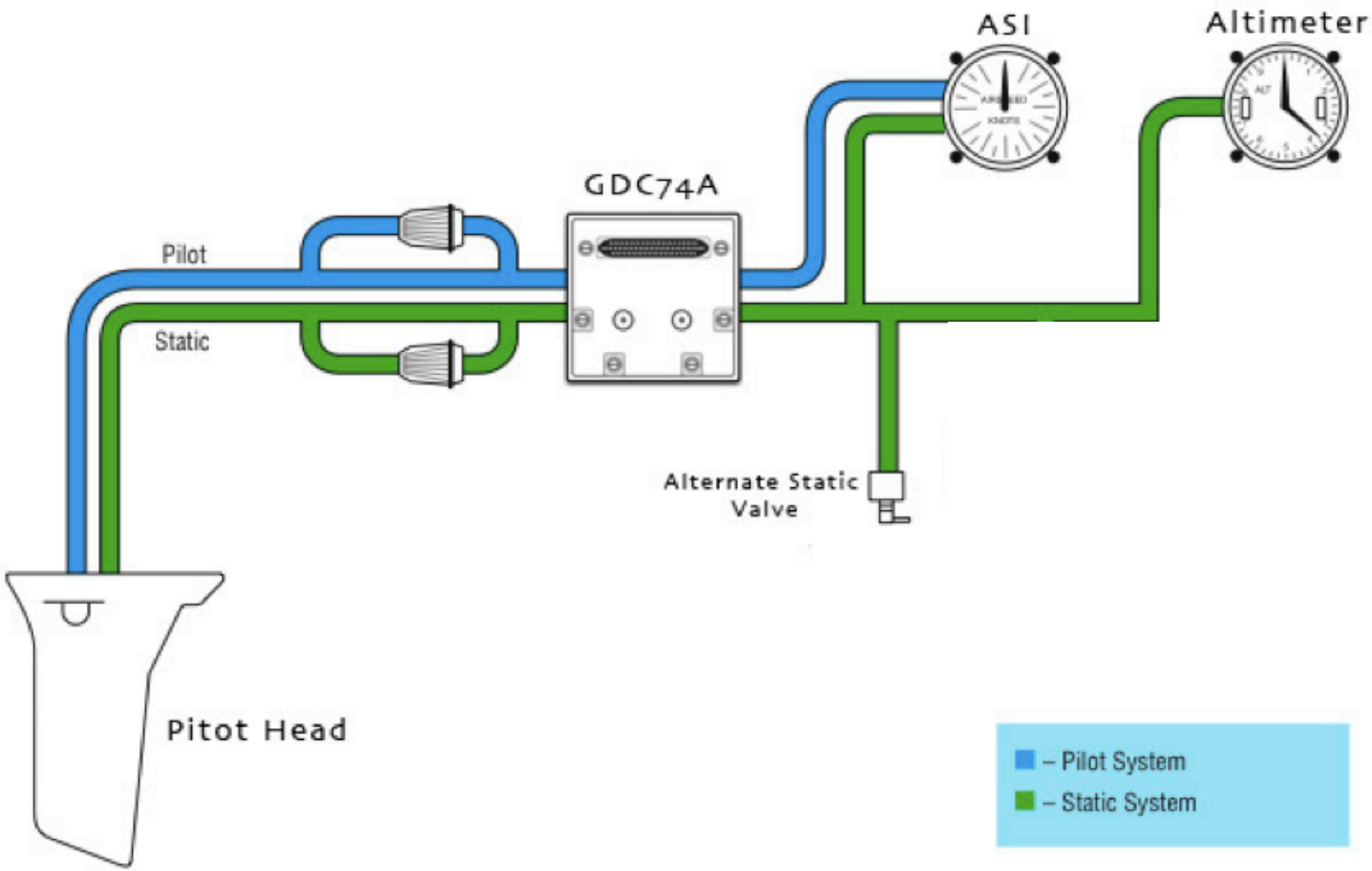
Alternate Static Source

- In the event that the static port becomes blocked, there is an alternate static source vent inside the cabin.



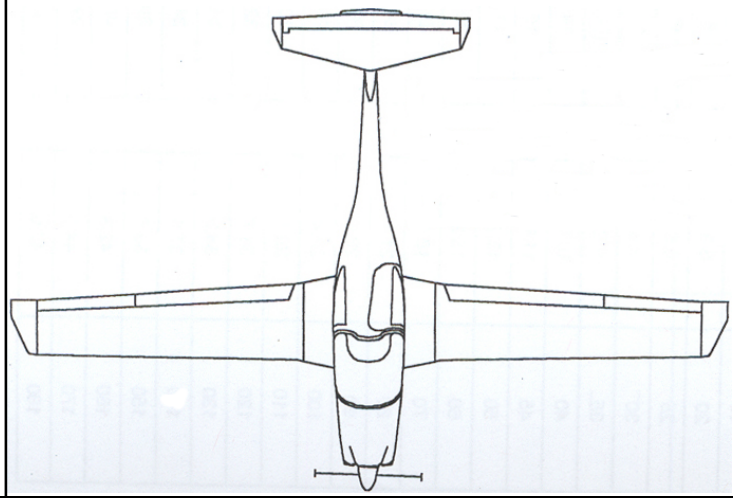


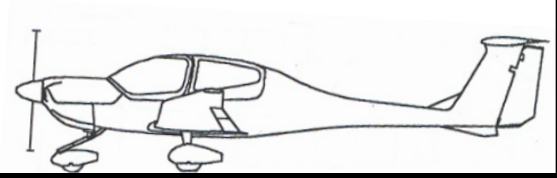
Pitot-Static System



Aircraft Operating Limitations

- Airspeeds for Normal Operations.
- Maximum Crosswind Components.
- Maximum Take-off Weight.

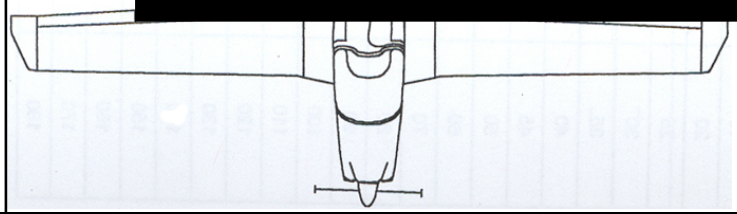


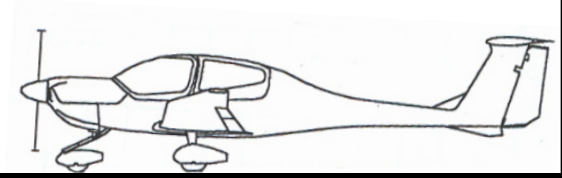


Aircraft Operating Limitations

Airspeeds for Normal Operations

- Rotation Vr - 59 knots.
- Best Angle Vx - 64 knots.
- Best Rate Vy - 67 knots.
- Best Glide Speed - 73 knots.
- Stall Speed Clean - Vs - 53 knots (at 1200kg/2646 lbs).
- Stall Speed in the Landing Configuration - Vso - 52 knots (at 1200kg/2646 lbs).
- Maximum Flaps Extended Speed - Vfe - Landing - 91 knots.
  Vfe - Takeoff - 108 knots.
- Maneuvering Speed - Va - 111 knots (1036kg/2284lbs to 1200kg/2646lbs).
  Va - 94 knots (780kg/1720lbs to 1036kg/2284lbs).
- Maximum Structural Cruising Speed - Vno (Vc) - 129 knots.
- Never Exceed Speed - Vne - 178 knots.





Aircraft Operating Limitations

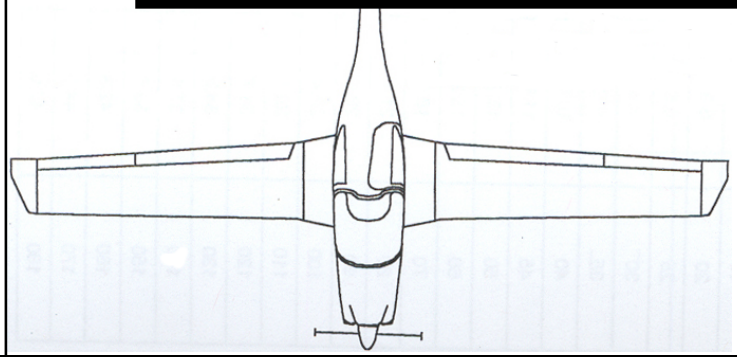
Maximum Crosswind Component

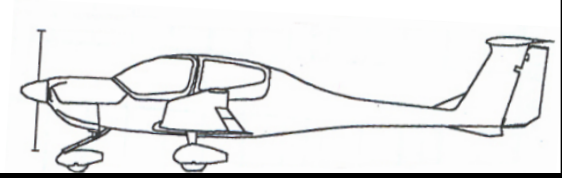
- The maximum demonstrated crosswind component is 20 knots.

Maximum Take-off Weight

- Normal Category: 1200kg/2646lbs.
  All normal flight maneuvers, stalls (except dynamic stalls), lazy eights, chandelles and steep turns with an angle of bank of not more than 60 degrees.

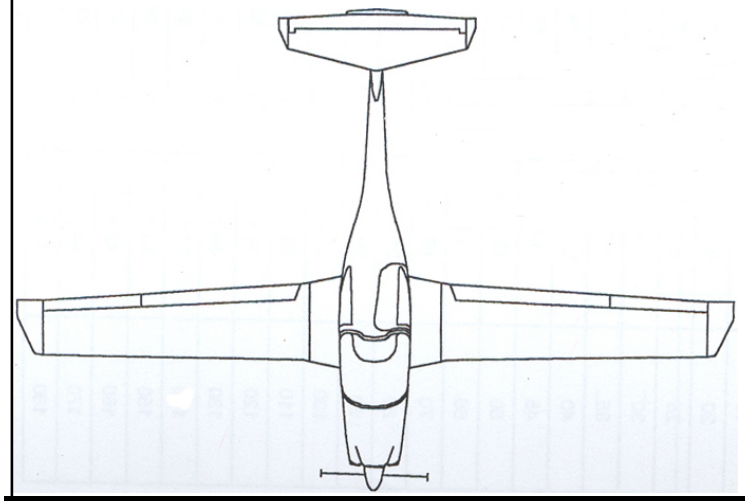
- Utility Category: 980kg/2161lbs.
  All maneuvers listed under Normal Category plus steep turns with an angle of bank of not more than 90 degrees.

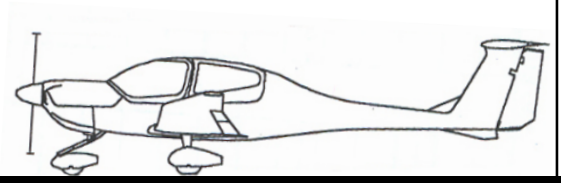




Aircraft Operating Limitations

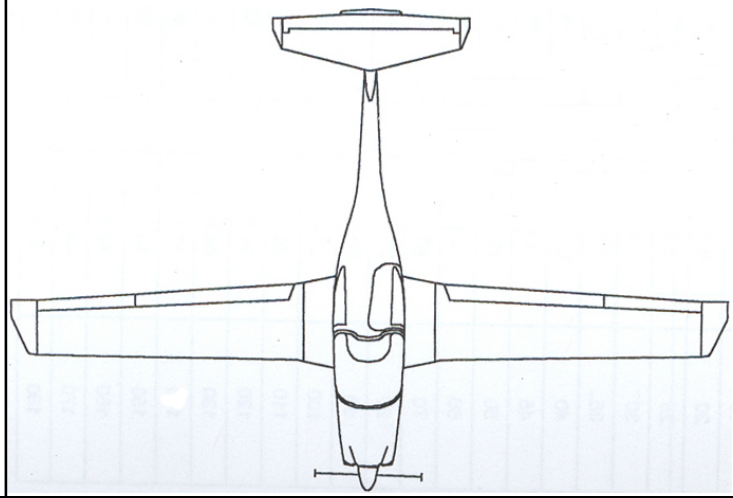
- Airspeeds for Normal Operations.
- Maximum Crosswind Components.
- Maximum Take-off Weight.

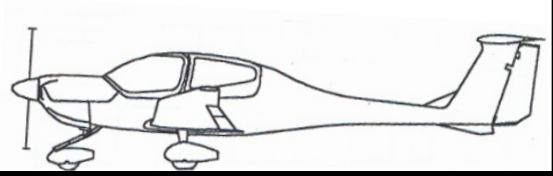




Performance Charts

- Take-off Distance Chart.
- Climb Performance Chart.
- Cruising True Airspeed Chart.
- Airspeed Calibration Chart.
- Landing Distance Chart.
- Engine Performance Chart.
- Wind Component Chart.

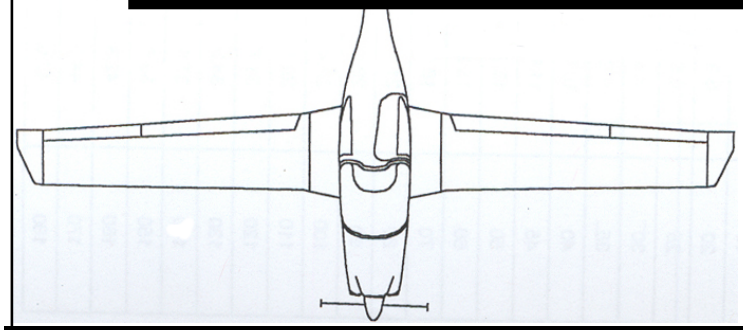


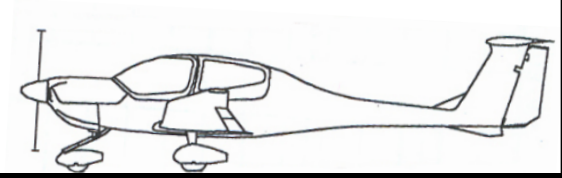


Performance Charts

Flight Planning:

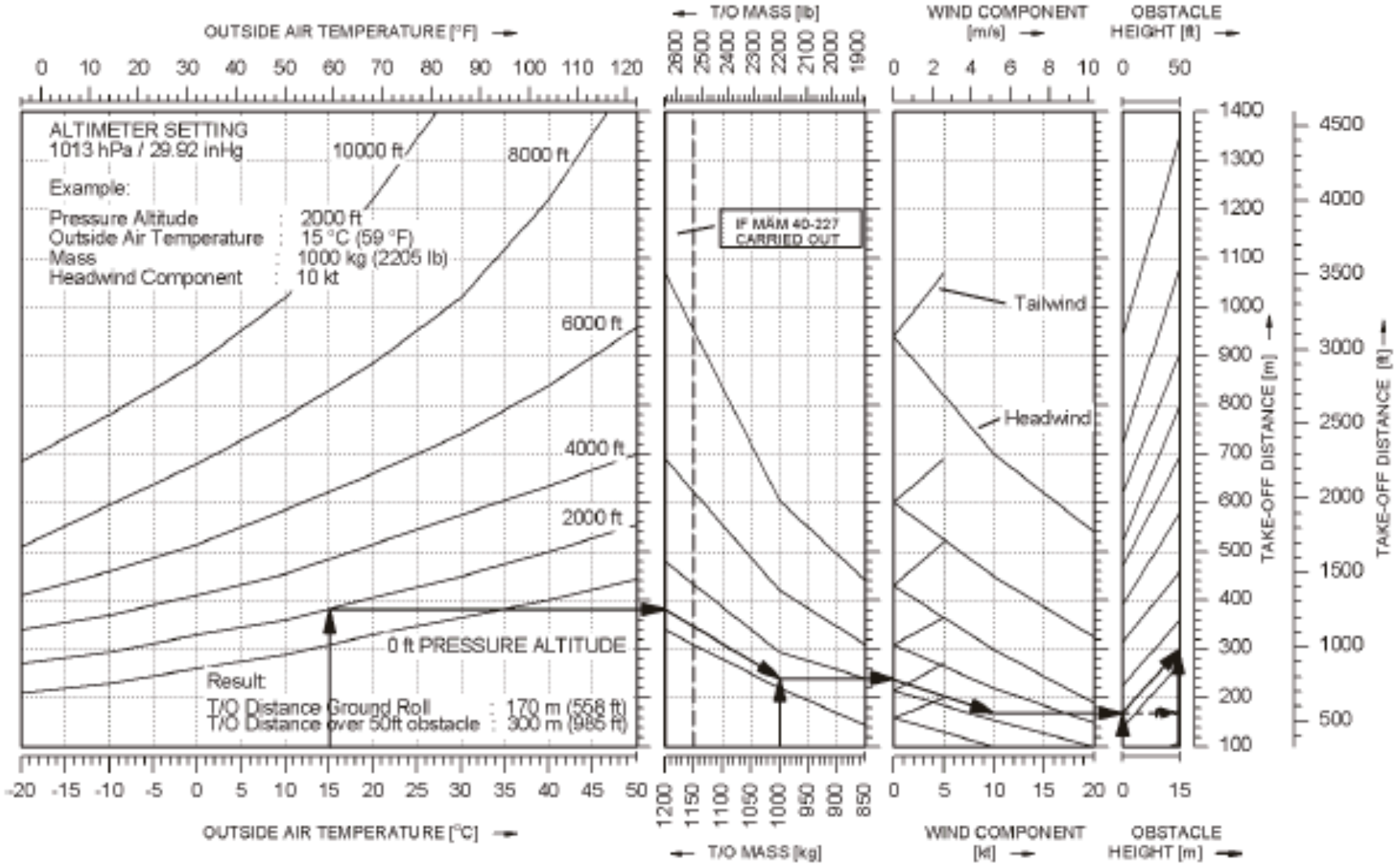
- London(CYXU: 912’ASL) - Windsor(CYQG: 622’ASL) via V98
- Cruising Altitude 6000 feet
- Outside Air Temperature at 6000 feet +15 Degrees Celcius
- T/O weight - 2600 lbs
- Power Setting - Best Power 65% @ 2300 RPM
- Wind At 6000 feet - 30020KT
- Distance - 94 nautical miles
- Add: 5 minutes for climb at 14 GPH
- Add: 1.0 Gallons for Taxi and Run-up
- Metar CYXU - 221500Z 26010KT 8SM OVC090 20/07 A3024 RMK SC8
- Metar CYQG - 221500Z 25008KT 10SM OVC090 25/10 A3024 RMK CF8



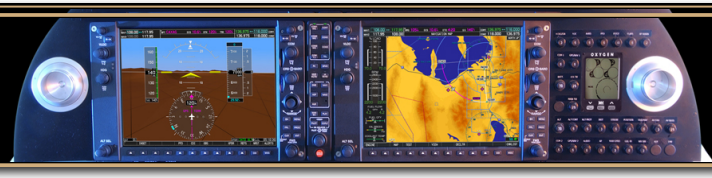


Performance Charts

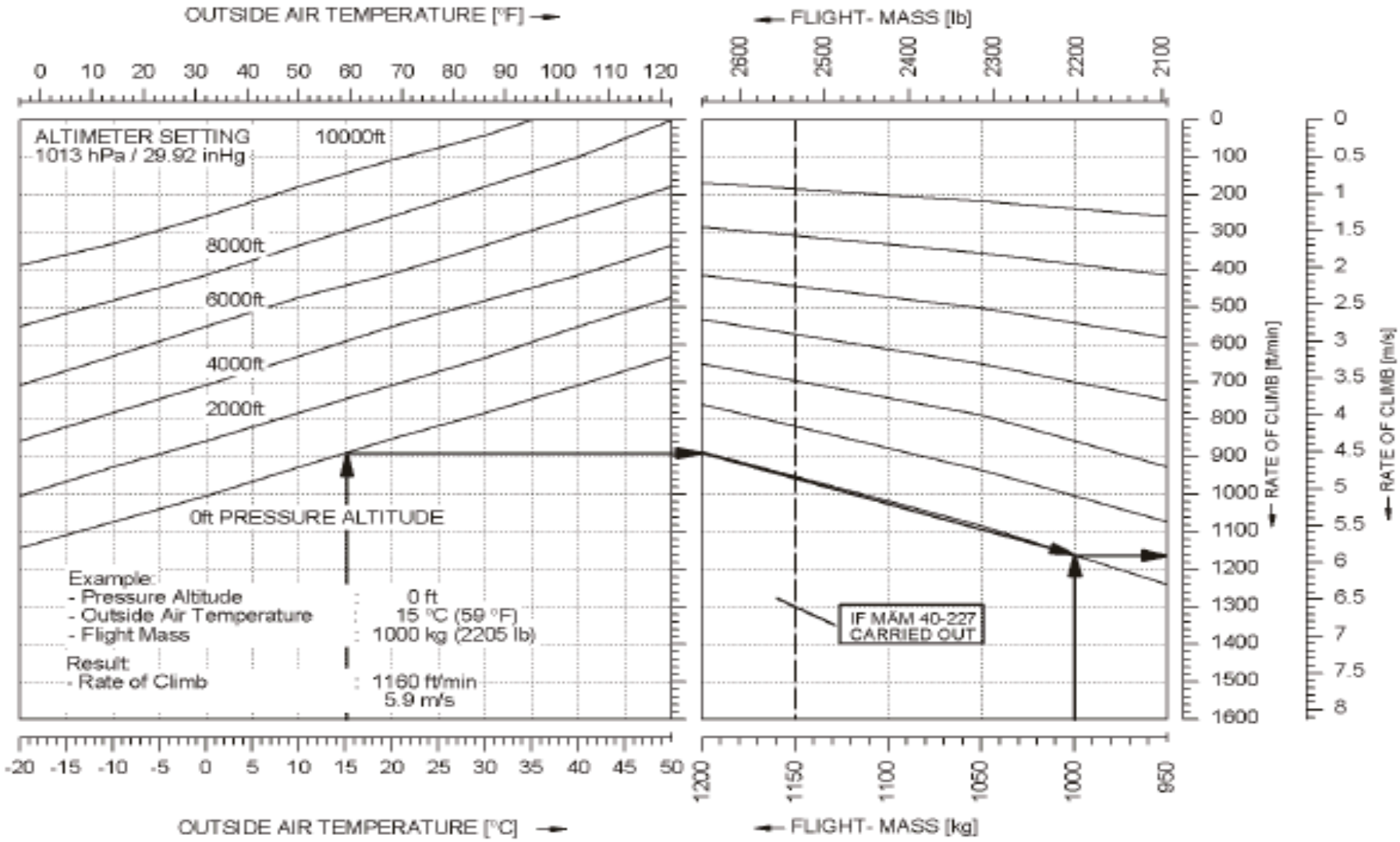
DA 40 - TAKE-OFF DISTANCES



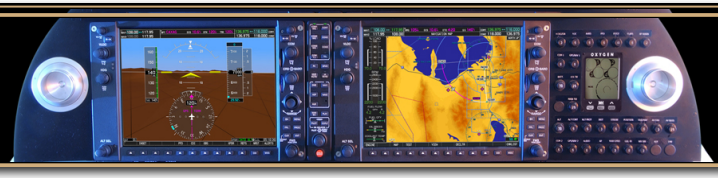
Performance Charts



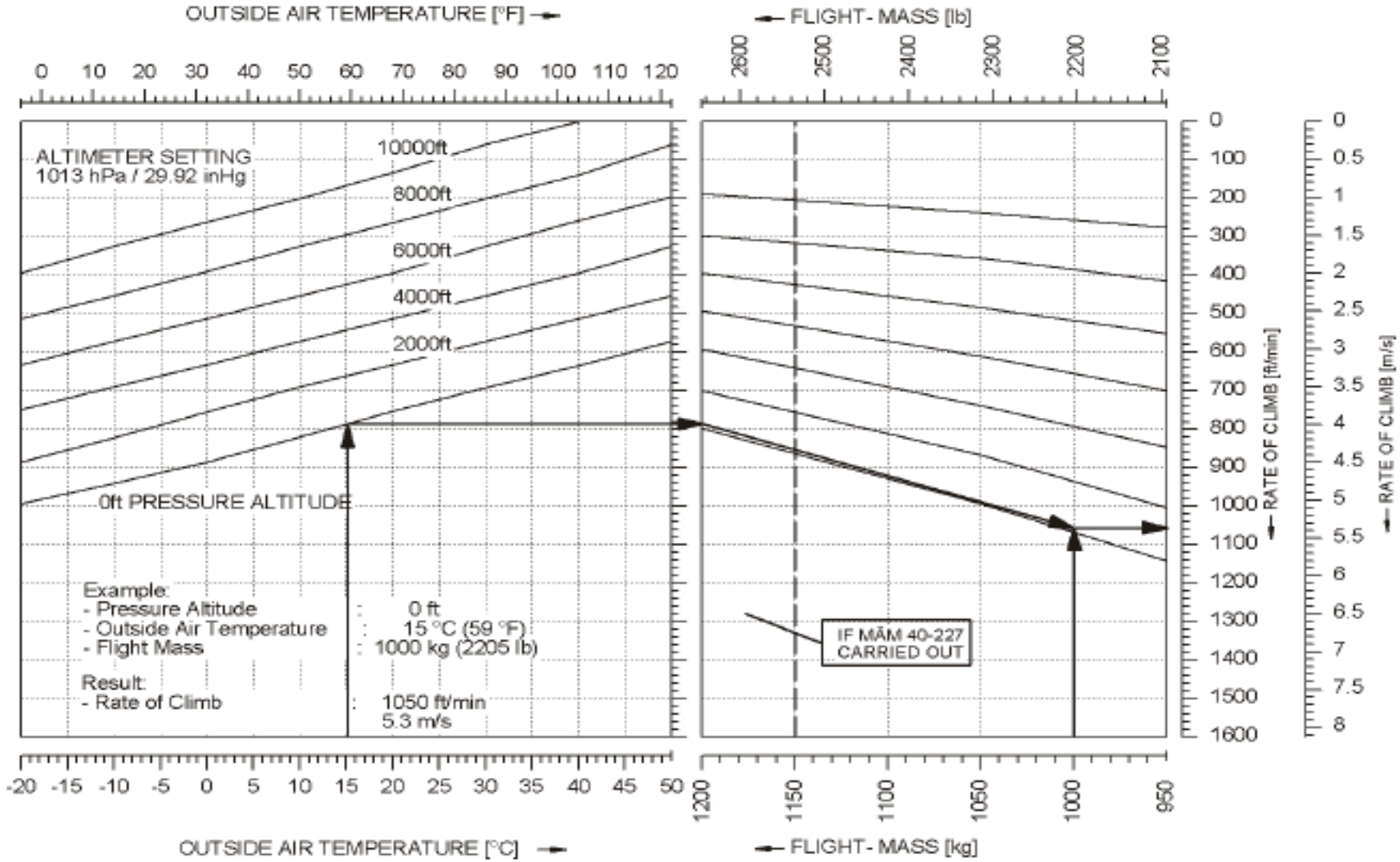
DA 40 - CLIMB PERFORMANCE - TAKE OFF CLIMB



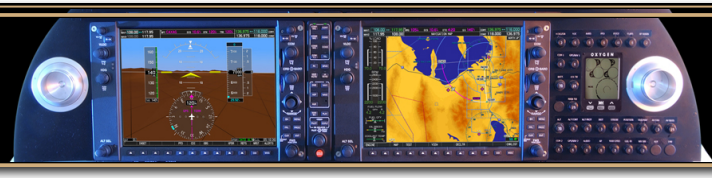
Performance Charts



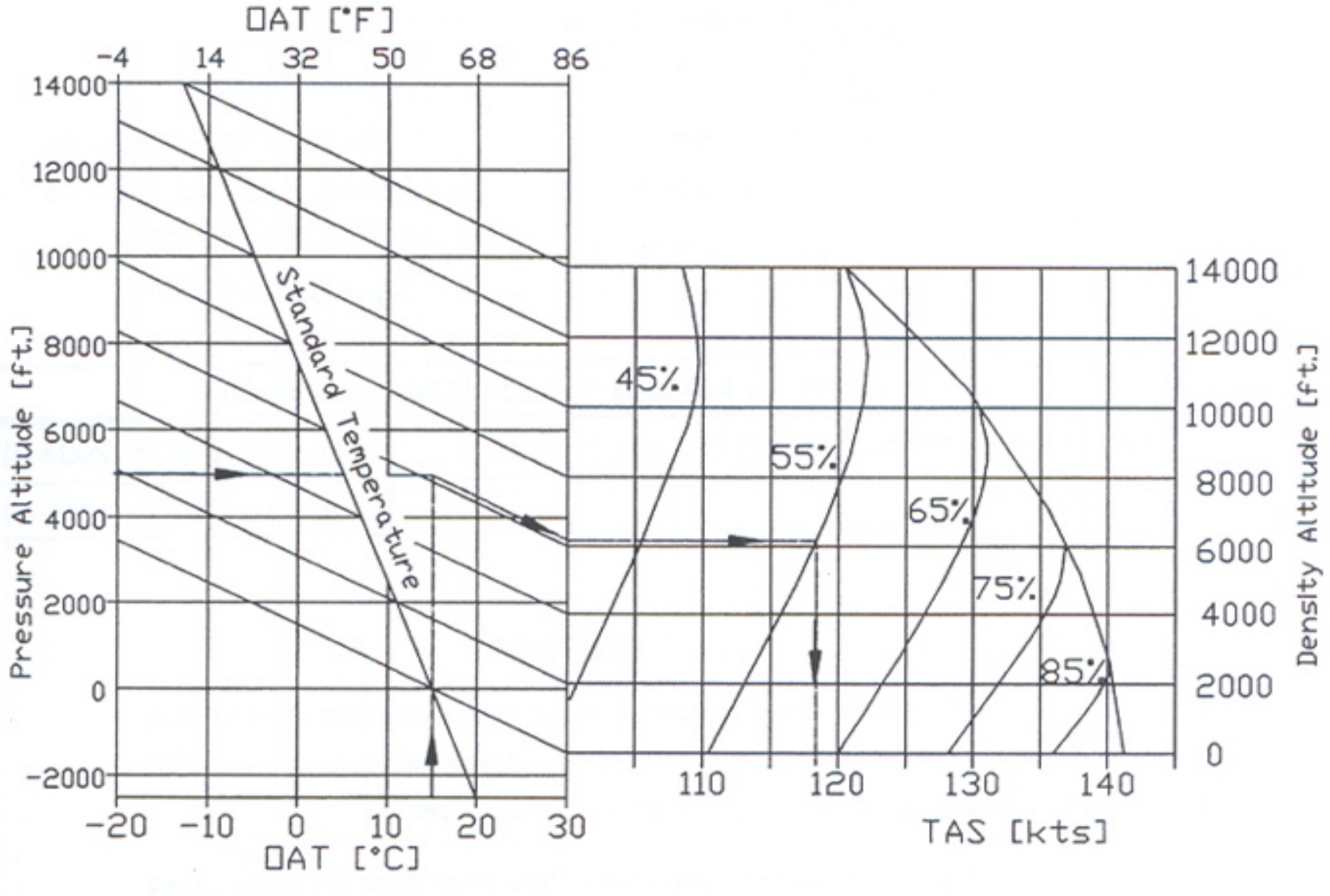
DA 40 - CLIMB PERFORMANCE - CRUISE CLIMB



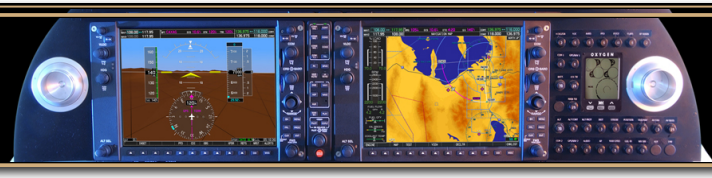
Performance Charts



Cruising TAS



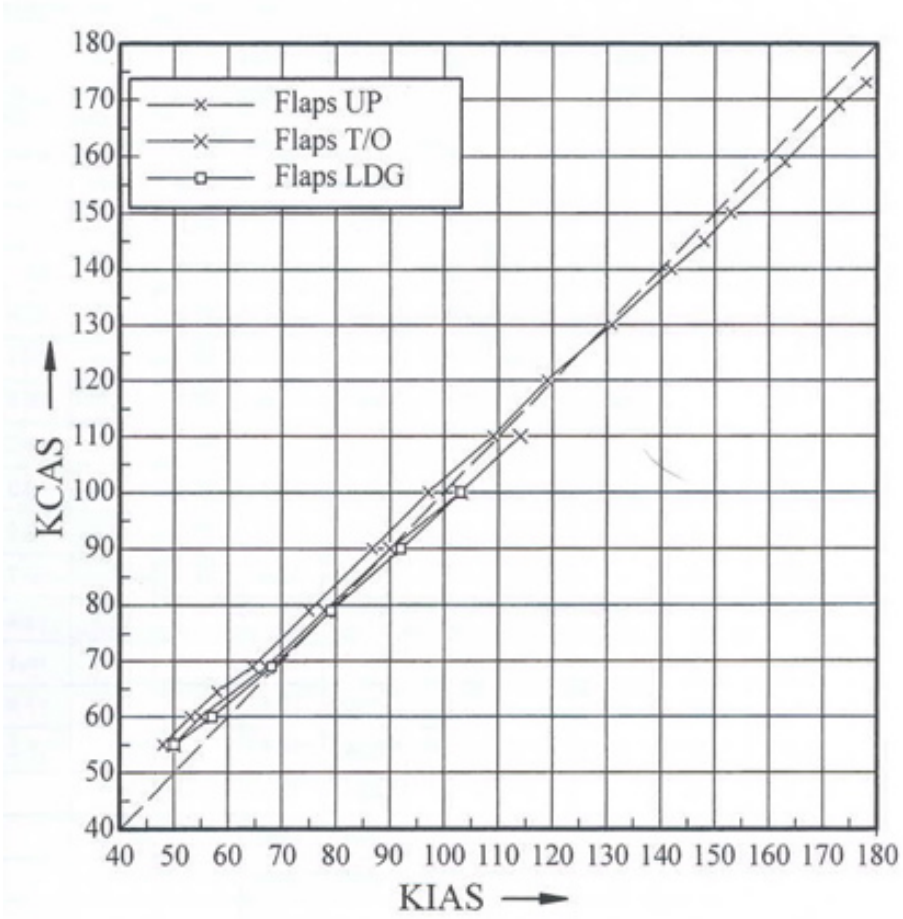
Performance Charts



- **Airspeed Calibration Chart.**

5.3 PERFORMANCE TABLES AND DIAGRAMS

5.3.1 AIRSPEED CALIBRATION



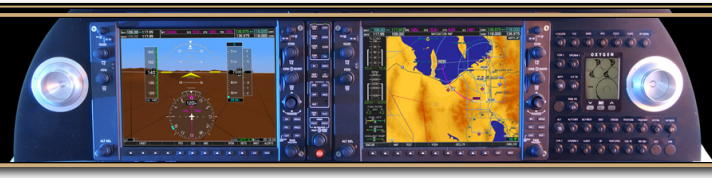
Performance Charts

✈ Engine Performance Chart.

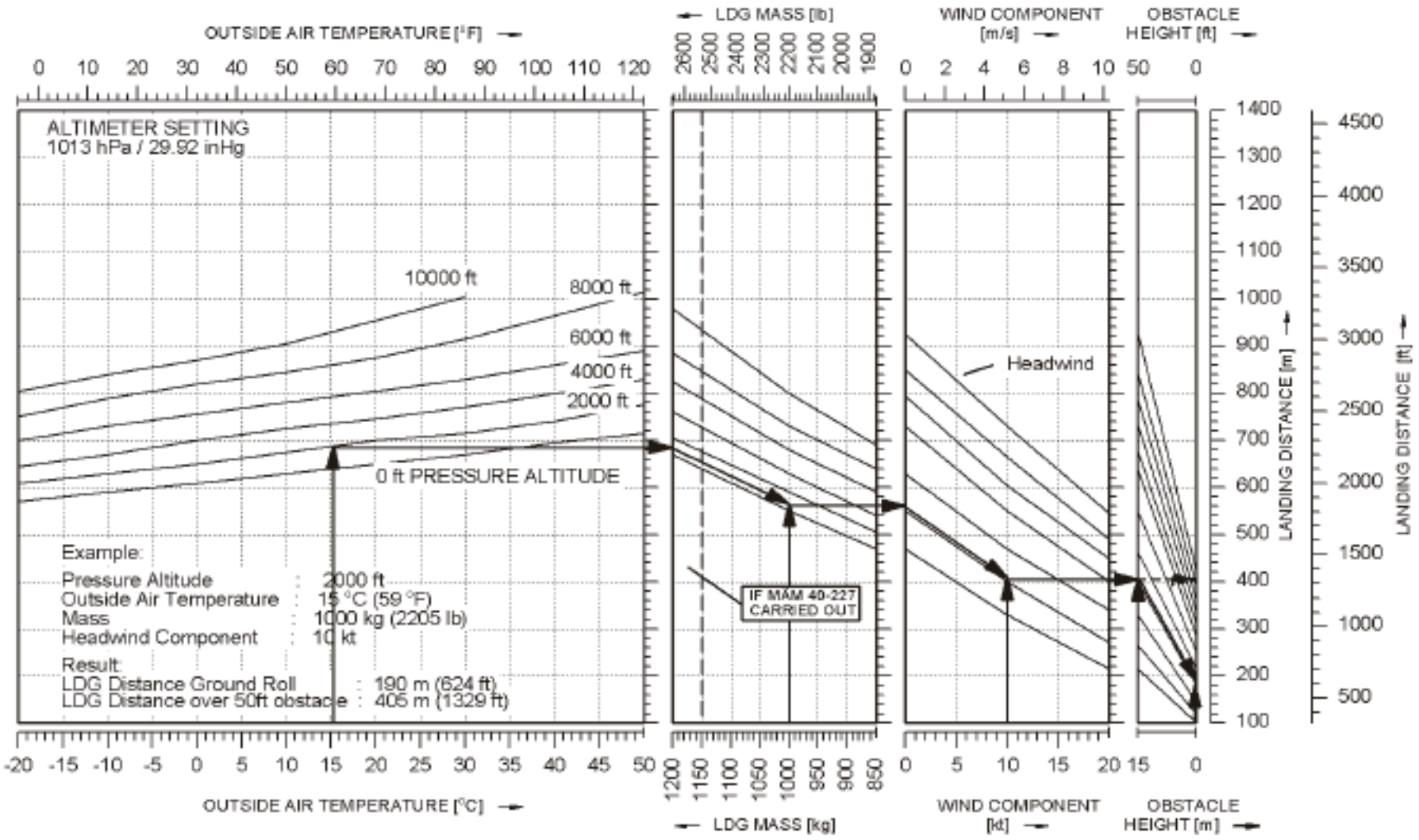
			Engine Power as % of Max. Take-Off Power				
			65 %			75 %	
	RPM		2000	2200	2400	2200	2400
Fuel Flow	Best Economy		7.9	8.2	8.5	9.2	9.5
[US gal/h]	Best Power		-	9.5	9.8	10.7	11
ISA	[°C]	[°F]	Manifold Pressure (MP) [inHg]				
MSL	15	59	26.8	24.9	23.4	27.3	25.8
1000	13	55	26.4	24.5	23.2	26.8	25.5
2000	11	52	26.0	24.2	22.9	26.5	25.2
3000	9	48	25.7	23.8	22.6	26.1	24.8
4000	7	45	25.4	23.5	22.3	-	24.5
5000	5	41	-	23.1	22.0		24.1
6000	3	38		22.8	21.7		-
7000	1	34		22.4	21.4		
8000	-1	31		-	21.0		
9000	-3	27			20.7		
10000	-5	23			-		

Correcting the table for variation from Standard Temperature
- At ISA + 15ºC (lSA + 27 oF) the performance values fall by approx.3 % of the power selected according to the above table.
- At ISA - 15ºC (ISA - 27 'F) the performance values rise by approx.3 % of the power selected according to the above table

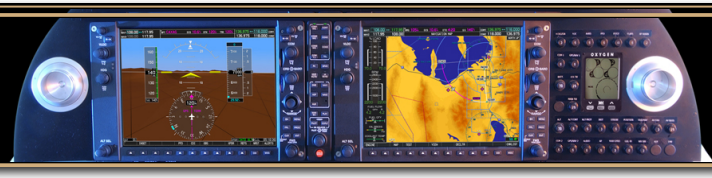
Performance Charts



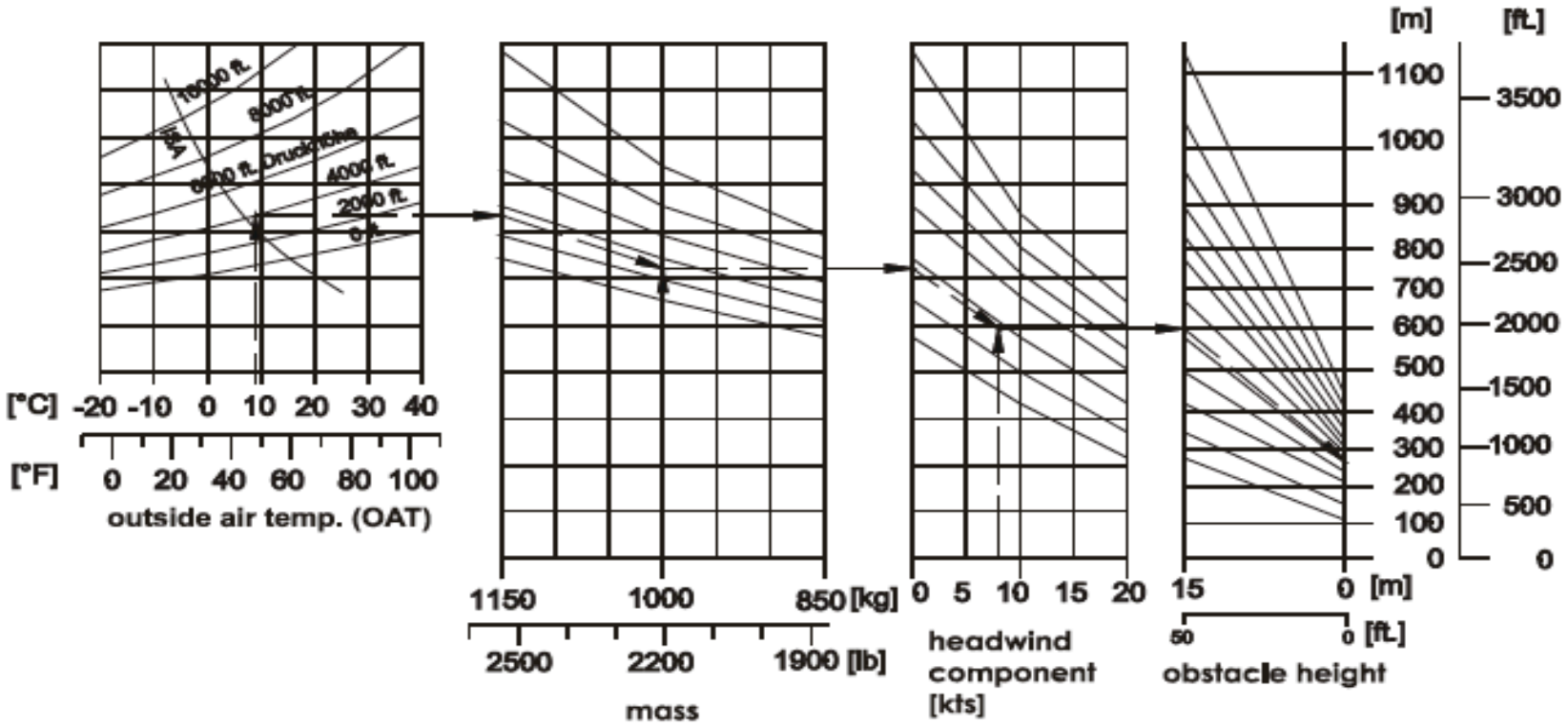
DA 40 - LANDING DISTANCES - FLAPS LDG



Performance Charts



Landing Distance - Flaps UP



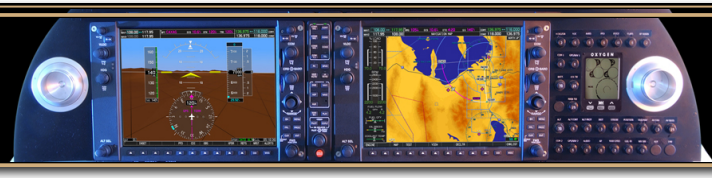
Example:

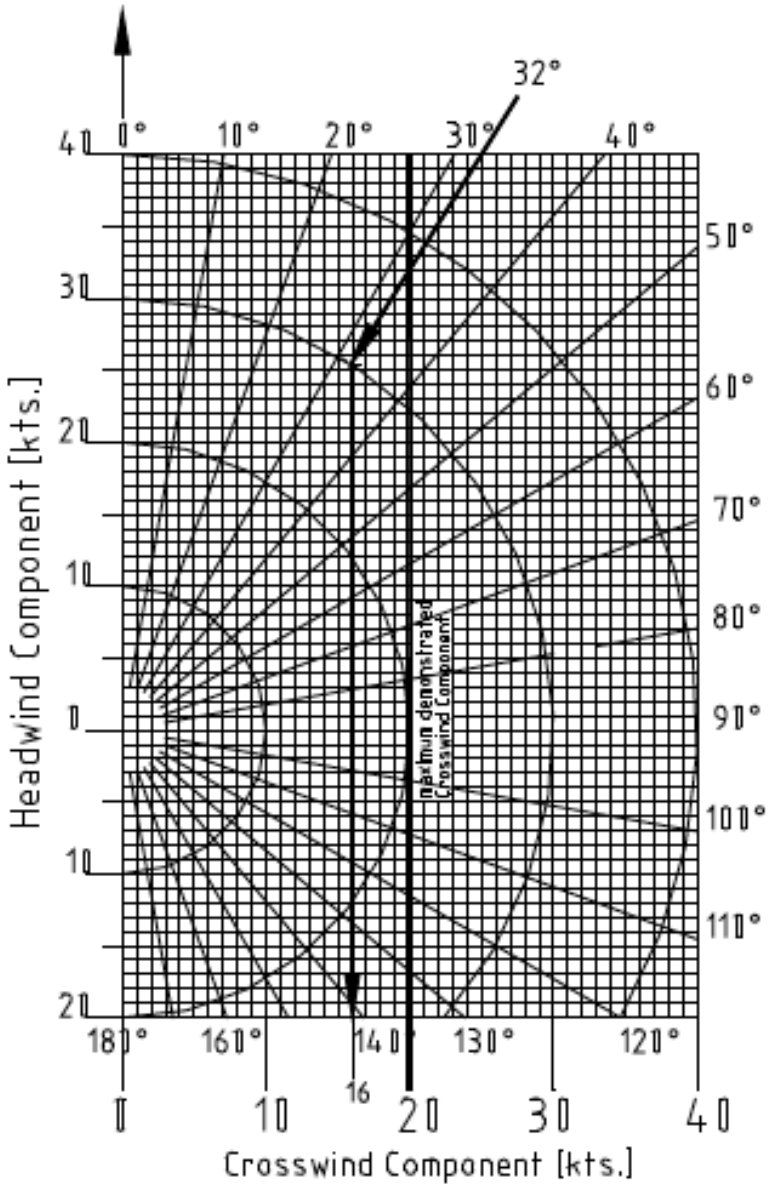
Pressure altitude	:	4000 ft
OAT	:	8 °C (46 °F)
Mass	:	1000 kg (2205 lb)
Headwind comp.	:	8 kts

Result:

Landing distance over 50 ft obstacle	:	approx. 580 m (1903 ft)
Ground roll	:	approx. 270 m (886 ft)

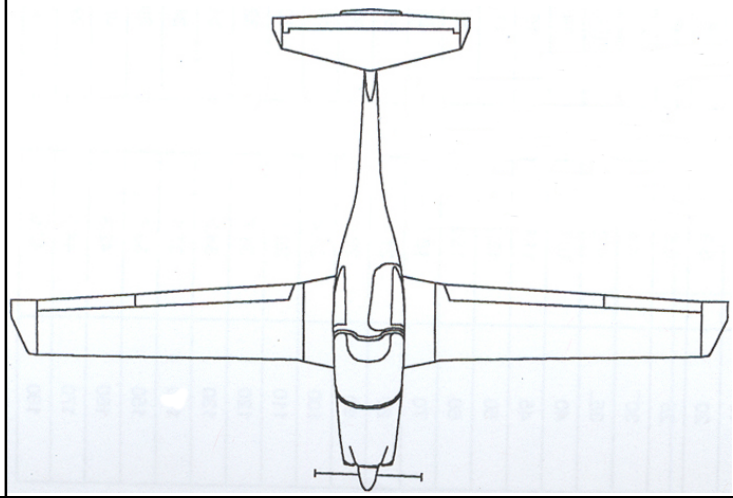
Performance Charts

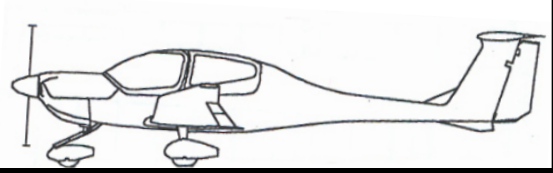




Performance Charts

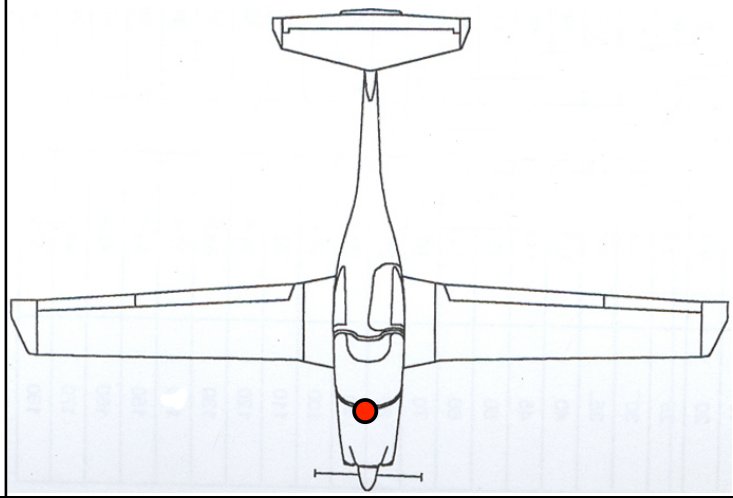
- Take-off Distance Chart.
- Climb Performance Chart.
- Cruising True Airspeed Chart.
- Airspeed Calibration Chart.
- Landing Distance Chart.
- Engine Performance Chart.
- Wind Component Chart.

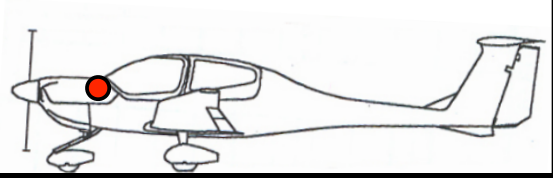




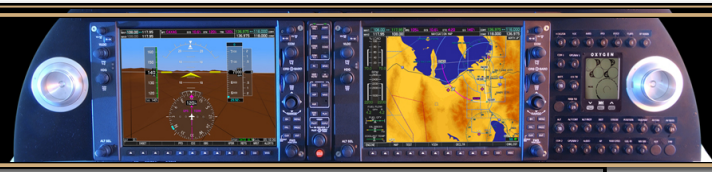
Annunciations and Alerts

- Annunciation Window
- Alerts Window
- Alert Level Definitions
- Warning Alerts
- Caution Alerts
- Advisory Alerts



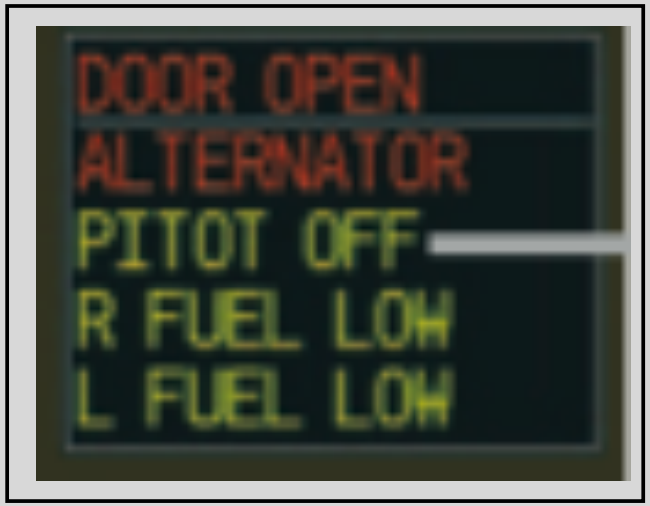


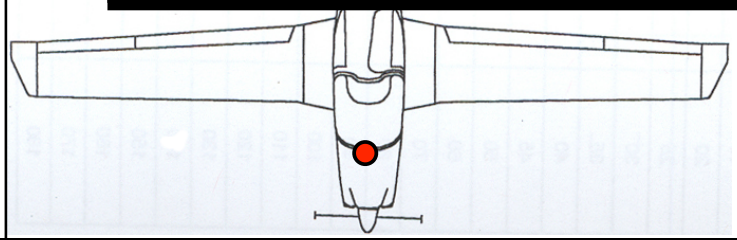
Annunciations and Alerts

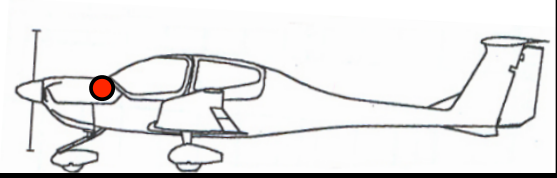


Annunciation Window

- Displays abbreviated annunciation text.
- Twelve annunciations can be displayed simultaneously.
- A white solid line separates annunciations that have been acknowledged from annunciations that are not yet acknowledged.







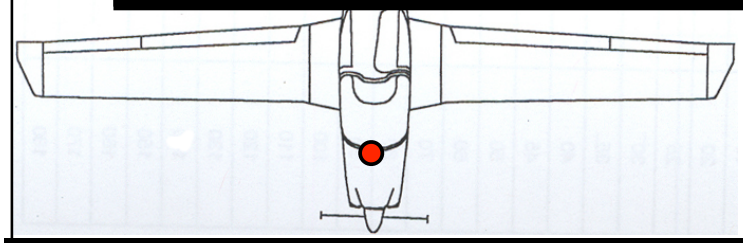
Annunciations and Alerts

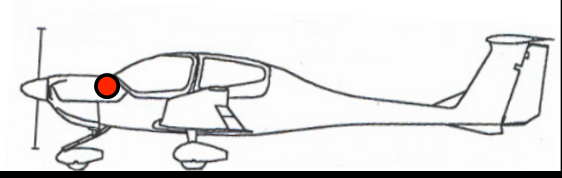
Alerts Window

- Displays up to 64 alert text messages.

Alert Level Definitions

- There are three alert levels:

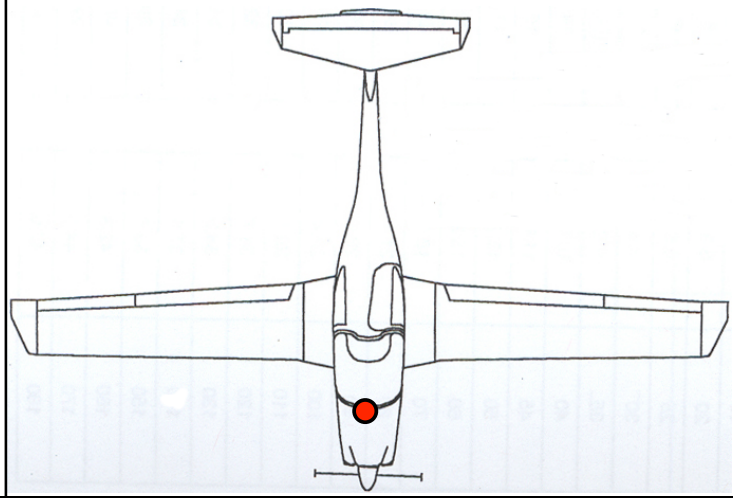


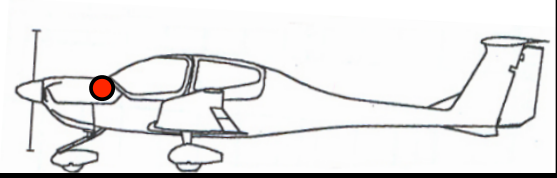


DA40 Aircraft Alerts

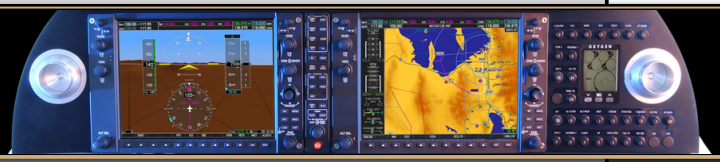
Warning Alerts

Annunciation Window Text	Alerts Window Message	Audio Alert
OIL PRES LO	Oil pressure is less than 25 psi.	Continuous Aural Tone
FUEL PRES LO	Fuel pressure is less than 14 psi.	Continuous Aural Tone
FUEL PRES HI	Fuel pressure is greater than 35 psi.	Continuous Aural Tone
ALTERNATOR	Alternator failed. Battery is only electrical source.	Continuous Aural Tone
STARTER ENGD	Starter is engaged.	Continuous Aural Tone
DOOR OPEN	Canopy and/or rear door is not closed and locked.	Continuous Aural Tone
TRIM FAIL	Autopilot automatic trim is inoperative.	Continuous Aural Tone



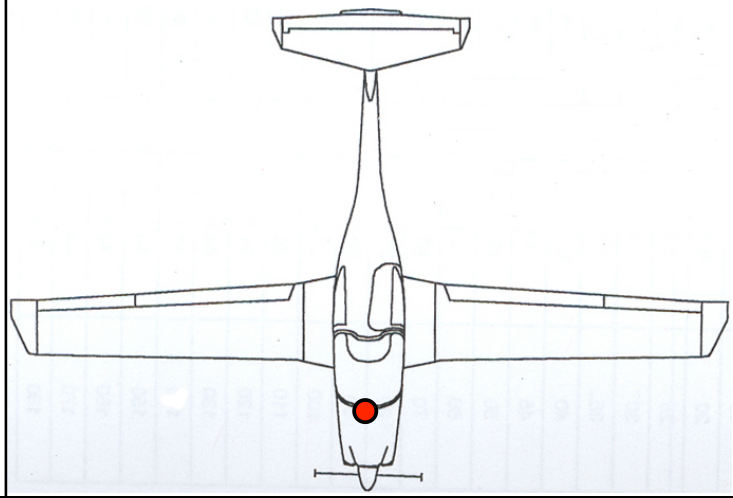


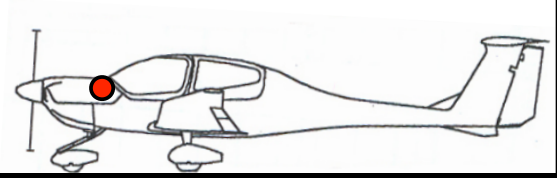
DA40 Aircraft Alerts



Caution Alerts

Annunciation Window Text	Alerts Window Message	Audio Alert
L FUEL LOW	Left fuel quantity is less than 3 gallons.	Single Aural Tone
R FUEL LOW	Right fuel quantity is less than 3 gallons.	Single Aural Tone
LOW VOLTS	On-board voltage is less than 24 V.	Single Aural Tone
PITOT FAIL	Pitot heat is inoperative.	Single Aural Tone
PITOT OFF	Pitot heat is off.	Single Aural Tone

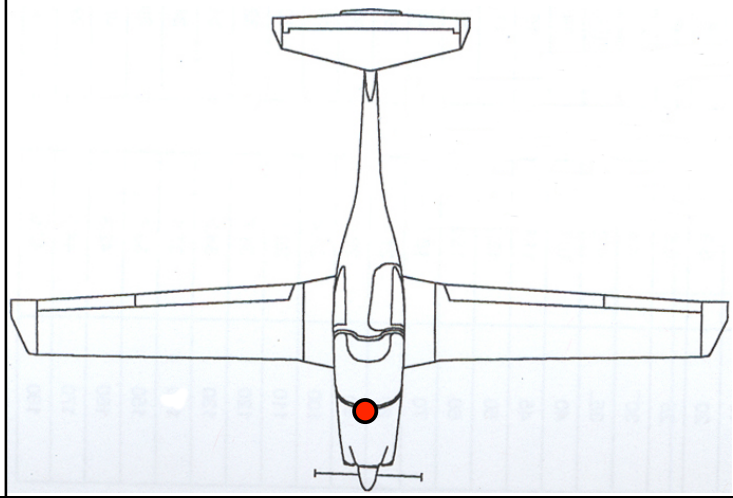


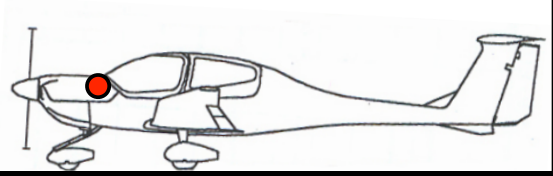


DA40 Aircraft Alerts

Advisory Alerts

Alerts Window Message	Audio Alert
PFD FAN FAIL – The cooling fan for the PFD is inoperative.	None
MFD FAN FAIL – The cooling fan for the MFD is inoperative.	None
GIA FAN FAIL – The cooling fan for the GIAs is inoperative.	None





Annunciations and Alerts

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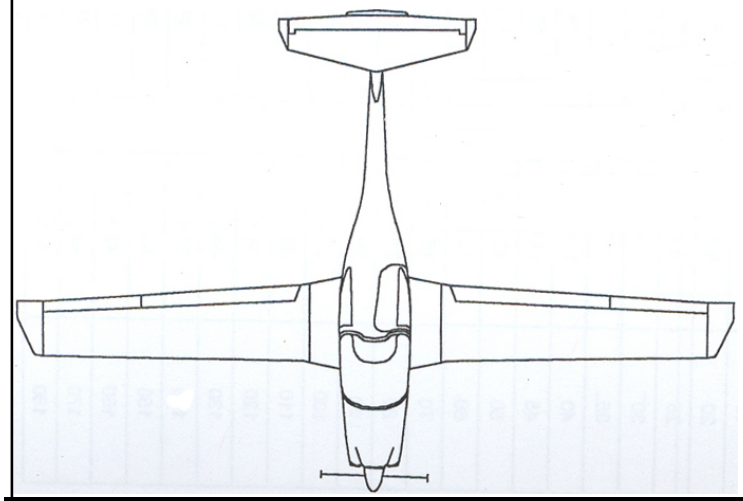
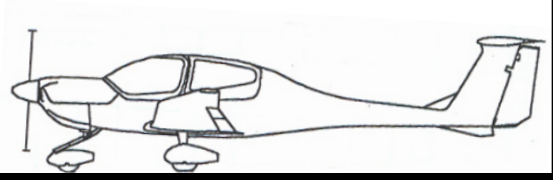
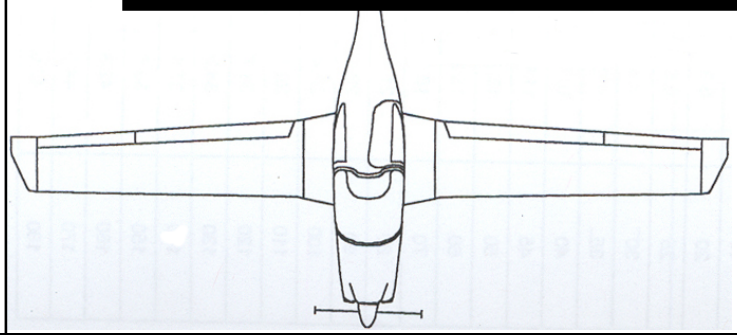
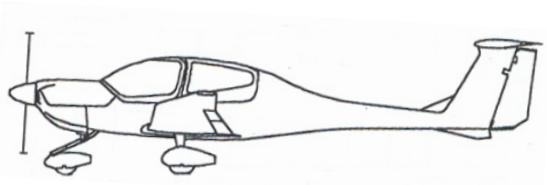




Emergency Procedures

- Emergency Airspeeds
- Rough Running Engine
- Loss of Oil Pressure
- High Oil Pressure
- High Oil Temperature
- High Cylinder Head Temperature
- High RPM/Loss of RPM
- Engine Smoke and Fire - On the ground, during take-off, in flight
- Electrical Fire
- Landing With a Defective Tire, Defective Brakes
- Electrical Failures - Alternator, Overvoltage
- Failure in the Flap Operating System

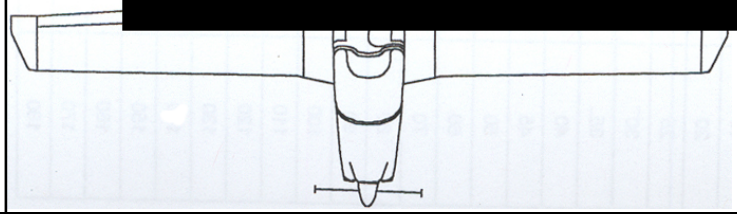


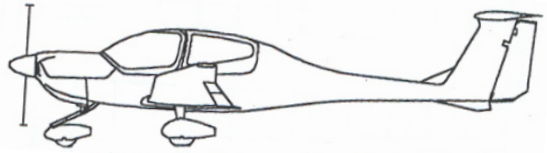


Emergency Procedures

Emergency Airspeeds

Event		2205 lbs	2535 lbs	2646 lbs
Engine Failure after Take-off (Flaps T/O)		66 KIAS	72 KIAS	74 KIAS
Airspeed for Best Glide Angle (Flaps Up)		68 KIAS	73 KIAS	76 KIAS
Emergency Landing with Engine Off	Flaps Up	68 KIAS	73 KIAS	76 KIAS
	Flaps T/O	66 KIAS	72 KIAS	74 KIAS
	Flaps LDG	63 KIAS	71 KIAS	73 KIAS



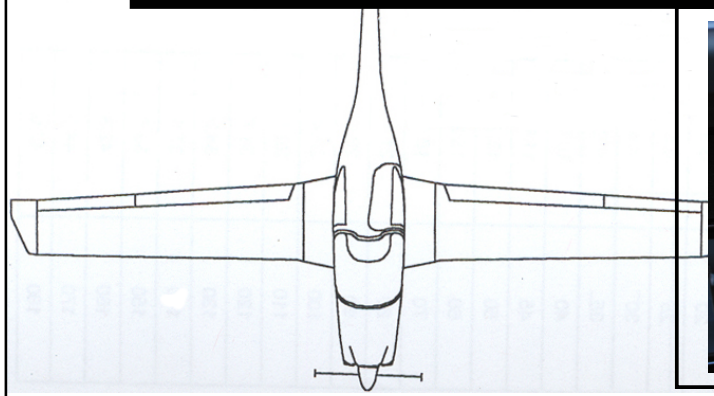


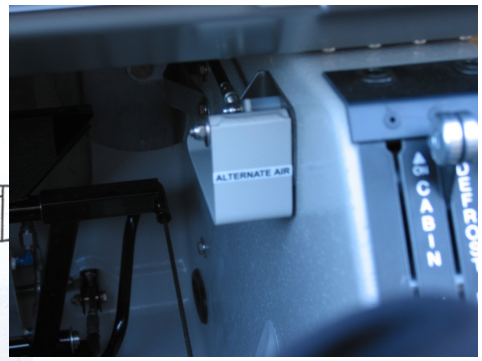
Emergency Procedures

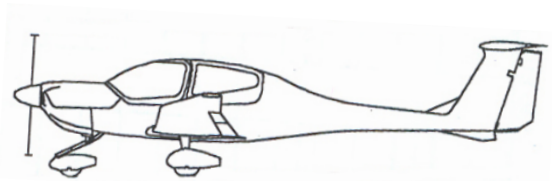
Rough Running Engine

- ✈ A rough running engine can lead to the loss of the propeller.
- ✈ All attempts to remedy this situation should take place quickly.

1. Fuel Pump - on
2. Fuel Tank Selector - Switch Tanks
3. Engine Instruments - Check
4. Throttle - Check
5. RPM Lever - Check
6. Mixture Control - Enrich
7. Alternate Air - Open
8. Ignition Switch - Try the Left or Right Magneto
9. Throttle/RPM/Mixture - Try Various Combinations







Emergency Procedures

Low Oil Pressure

1. Check Oil Pressure Warning.
2. Check Oil Temperature:

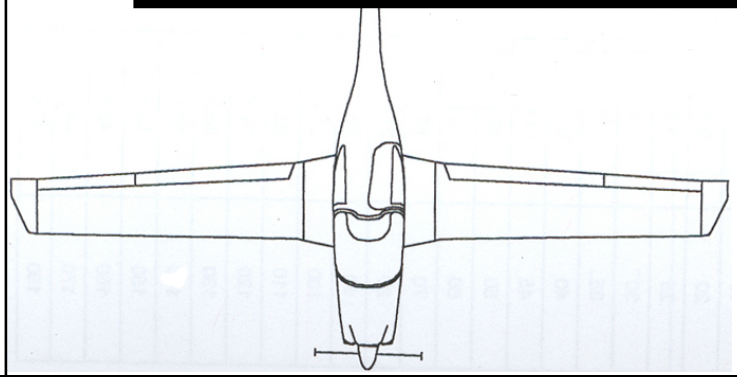
   A) If oil temperature is in the green range - continue to monitor - possible oil pressure sensor malfunction.

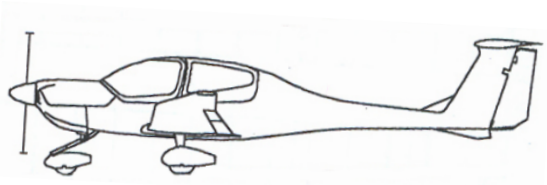
   B) If oil temperature and CHT is rising - reduce engine power to minimum and prepare for a forced approach **and/or** Shut-off engine immediately and execute a forced approach.

High Oil Pressure

1. Check Oil Temperature:

   A) If oil temperature is normal - possible oil pressure sensor malfunction.

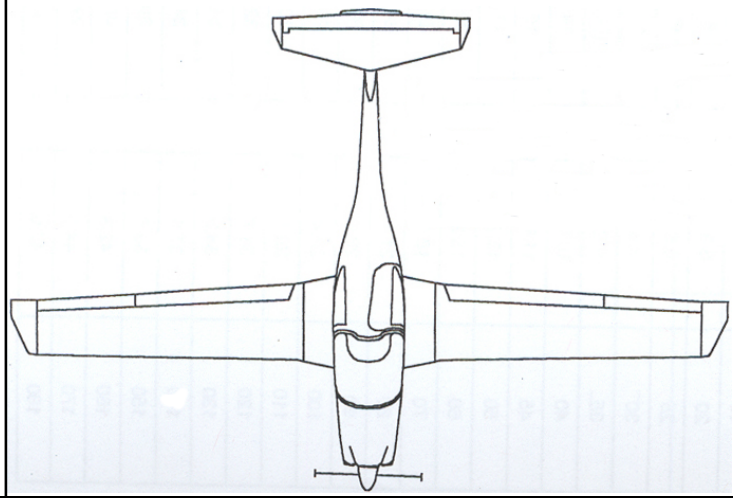


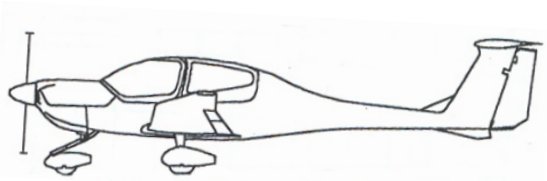


Emergency Procedures

High Oil Temperature

1. Check CHT and EGT Readouts:
   A) If neither is high - continue to monitor - possible oil temperature sensor malfunction.
   B) If CHT and EGT is high:
      i) Check Oil Pressure:
         a) If Oil Pressure is low - proceed as per **Loss of Oil Pressure**.
         b) If Oil Pressure is normal - enrich mixture/reduce power.

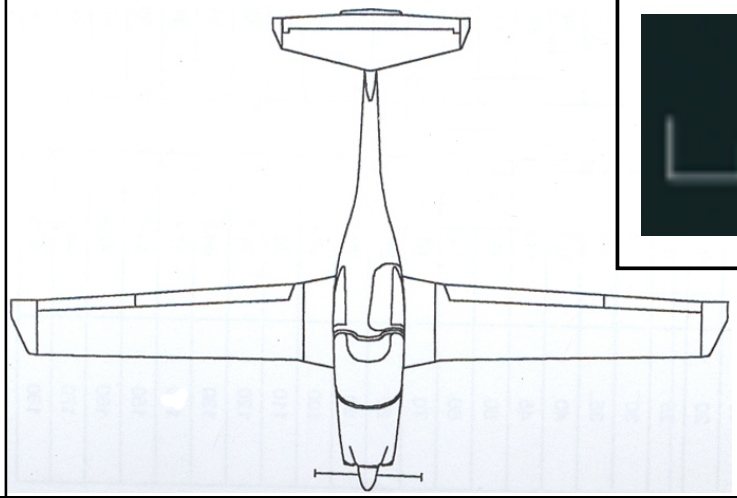


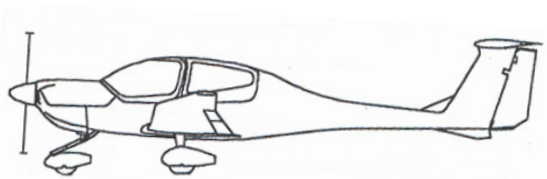


Emergency Procedures

High Cylinder Head Temperature

1. Check Mixture Setting
    A) Enrich Mixture if necessary.
2. Check Oil Temperature
    A) If Oil Temperature is also high:
        i) Check Oil Pressure:
            a) If Oil Pressure is low - proceed as per **Loss of Oil Pressure**.
            b) If Oil Pressure is normal - reduce power and land A.S.A.P.





Emergency Procedures

High RPM

1. Check Throttle Quadrant Friction.
2. Check Oil Pressure.

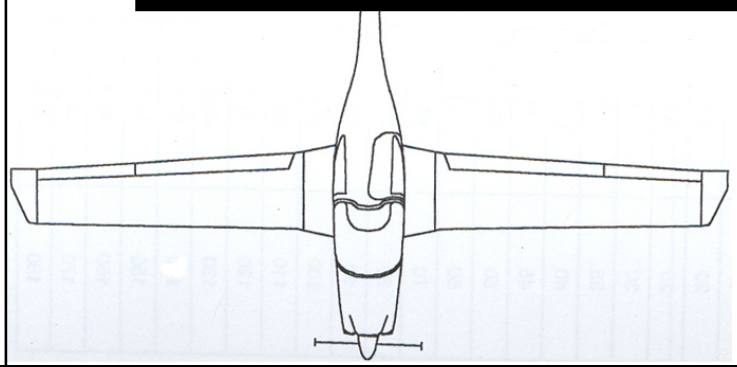
A) If there is a loss of oil pressure:

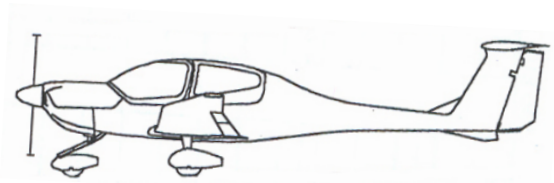
i) Following a loss of oil pressure, the propeller governor sets a high RPM. Regulate RPM with throttle and proceed to Loss of Oil Pressure.

B) If Oil Pressure is normal:

i) Pull RPM lever back and listen for an associated drop in RPM. If tach. does not change in spite of audible drop - service the aircraft.

ii) If no audible drop: defective governor system. Regulate RPM with throttle.





Emergency Procedures

Loss of RPM

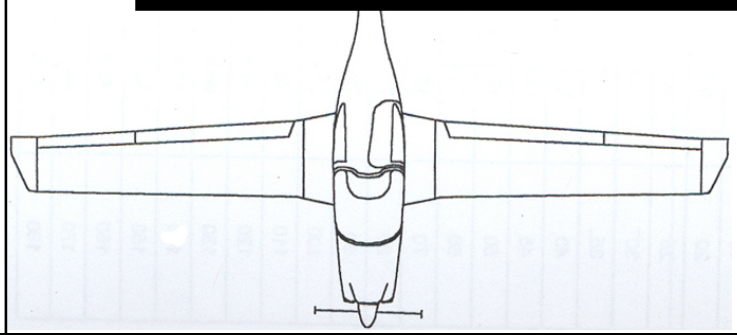
1. Fuel Pump - On.
2. Check Fuel Selector.
3. Check Throttle Quadrant Friction.
4. Propeller - Full forward and listen for a rise.

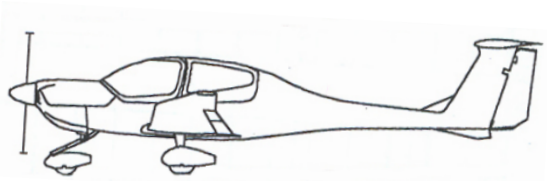
    A) If there is no audible rise in RPM, it is probable that the governor system is defective. In this case the RPM can be regulated within certain limits using the throttle:

        i) Land at the nearest appropriate airfield.

        ii) Be prepared for a possible emergency landing.

        iii) If the indication does not change in spite of an audible rise in RPM, it is probable that the RPM indication is defective - service the aircraft.





Emergency Procedures

Engine Smoke and Fire

1. Engine Fire When Starting:

A) Fuel selector - off.

B) Cabin heat - off.

C) Brakes - apply.

After Standstill:

D) Throttle to max power.

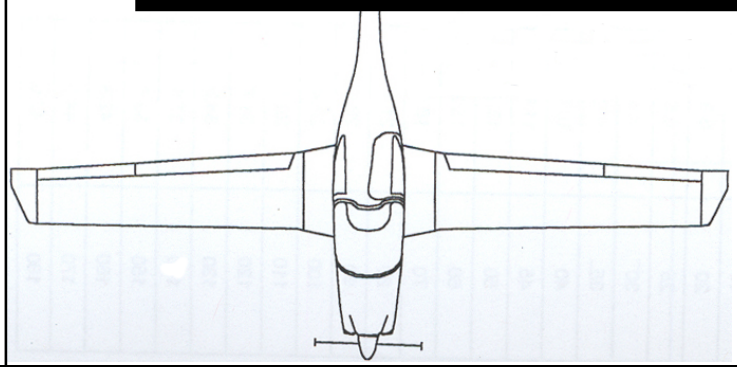
E) Master switch - off.

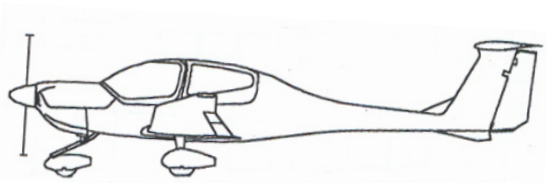
When Engine Has Stopped:

F) Ignition switch - off.

G) Canopy - open.

H) Airplane - Evacuate immediately.





Emergency Procedures

Engine Smoke and Fire

2. Engine Fire During Takeoff:

If take-off can still be abandoned:

A) Throttle to idle.

B) Cabin Heat - off.

C) Brakes - apply.

When Aircraft Has Stopped:

D) Shut down aircraft as in Engine Fire or Electrical Fire on the Ground.

If take-off cannot be abandoned:

A) Cabin Heat - off.

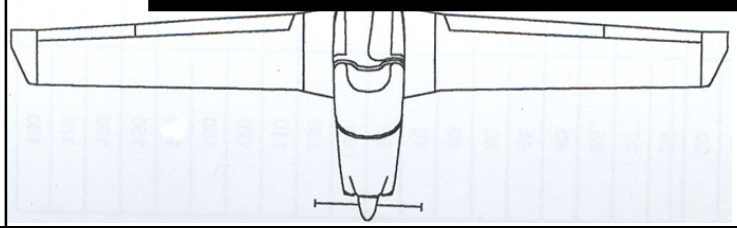
B) If altitude permits - land on the airfield.

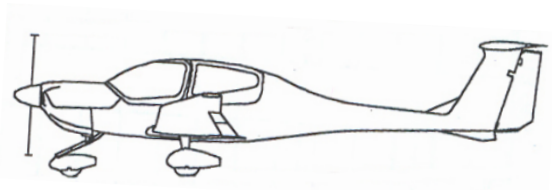
C) Fuel selector - off.

D) Fuel pump - off.

E) Master switch - off.

F) Emergency windows - open if required.





Emergency Procedures

Engine Smoke and Fire

3. Engine Fire In Flight:

A) Cabin Heat - off.

B) Select appropriate emergency landing field. When landing is assured:

C) Fuel selector - off.

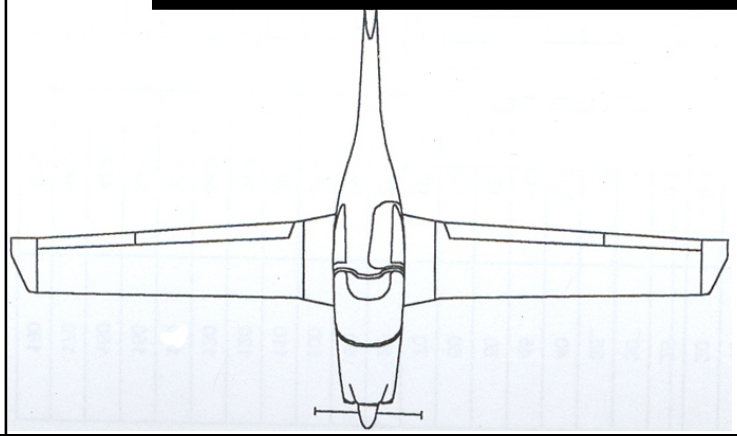
D) Throttle - max power.

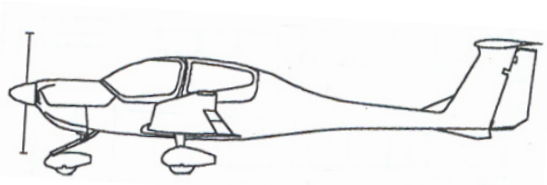
E) Fuel pump - off.

F) Master switch - off.

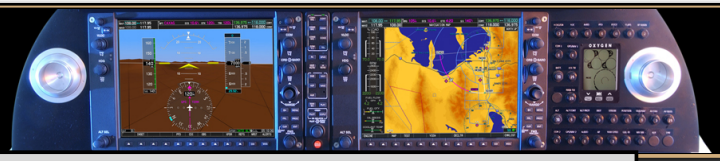
G) Emergency windows - open if required.

H) Carry out emergency landing with engine off.





Emergency Procedures



Electrical Fire

Electrical Fire with Smoke:

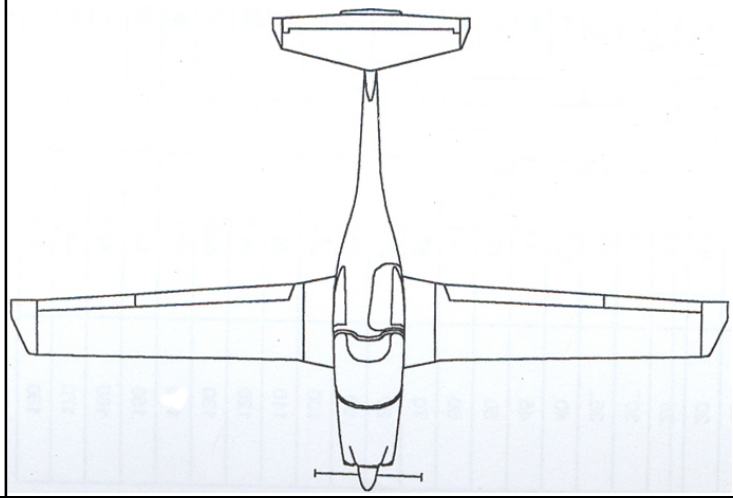
A) Master switch - off.

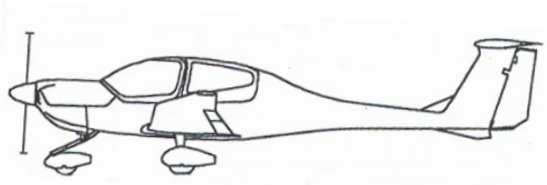
B) Cabin heat - off

C) Emergency windows - open if required.

D) Emergency switch - on (if necessary).

E) Land at an appropriate airfield as soon as possible.





Emergency Procedures

Landing With a Defective Main Tire

A) Air Traffic Control - advise.

B) Land on the same side of the runway as the good tire.

C) Land with one wing low on the same side as the good tire.

D) Maintain directional control with rudder and brake.

Landing With Defective Brakes

A) Land on the longest runway.

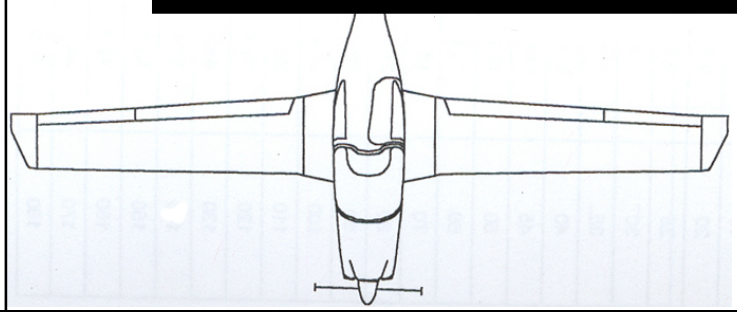
If sufficient time remaining:

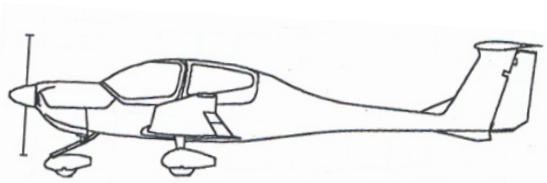
B) Fuel selector - off.

C) Mixture - idle cut-off.

D) Ignition switch - off.

E) Master switch - off.





Emergency Procedures

Electrical Failures

Alternator Failure:

A) Check circuit breakers; if okay then proceed to B.

B) Electrical equipment - all unnecessary electrics off.

C) Essential Bus switch - on.

D) Emergency switch - on as necessary.

E) Voltmeter - check regularly.

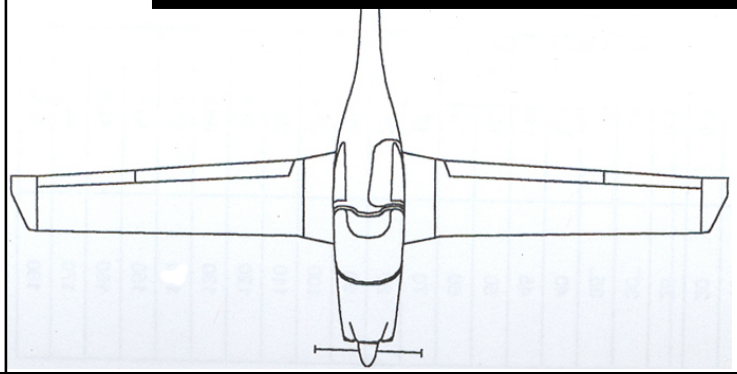
Over-voltage (above 32 volts):

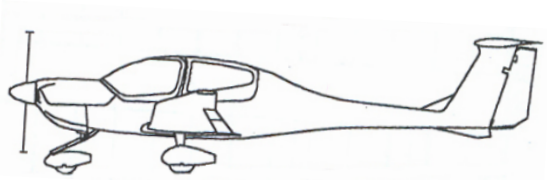
A) Essential Bus - on.

B) Master Switch - alternator side - off.

C) Unnecessary equipment - off.

D) Land at nearest airfield.





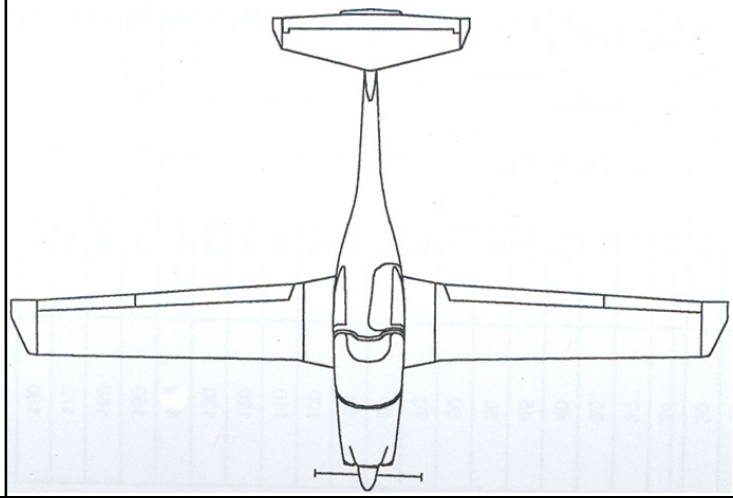
Emergency Procedures

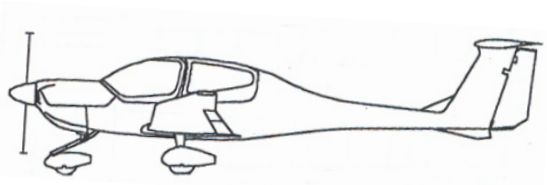
Flap Operating System Failure

A) Check the flap position visually.

B) Airspeed - Keep in white arc.

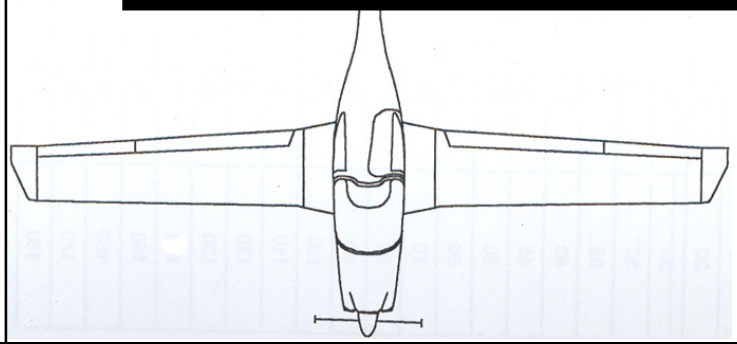
C) Flap switch - re-check.

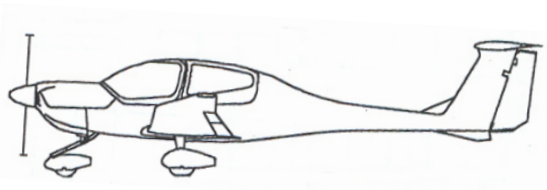




Emergency Procedures

- Emergency Airspeeds
- Rough Running Engine
- Loss of Oil Pressure
- High Oil Pressure
- High Oil Temperature
- High Cylinder Head Temperature
- High RPM/Loss of RPM
- Engine Smoke and Fire - On the ground, during take-off, in flight
- Electrical Fire
- Landing With a Defective Tire, Defective Brakes
- Electrical Failures - Alternator, Overvoltage
- Failure in the Flap Operating System





DA40 Systems Introduction

- **What we've looked at...**
  - Airframe
  - Flight Controls
  - Landing Gear and Hydraulics
  - Engine and Associated Systems
  - Electric and Navigation
  - Aircraft Operating Limitations
  - Performance Charts
  - Annunciations and Alerts
  - Emergency Procedures