

# Flight Planning

<b>Date:</b>	
<b>Callsign:</b>	<b>HB-LZR</b>
<b>AC Type:</b>	<b>DA42</b>

<b>Time Referenz</b>	
<b>UTC=LT +/-</b>	

<b>Departure:</b>	
<b>OAT:</b>	
<b>Elevation:</b>	
<b>QNH hPa:</b>	
<b>Wind:</b>	
<b>RWY Length:</b>	

<b>EOBT:</b>	
<b>ETOT:</b>	

<b>Enroute</b>	
<b>OAT:</b>	
<b>Temp -&gt; ISA:</b>	
<b>FL:</b>	
<b>Wind:</b>	

<b>ETE:</b>	
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<b>Destination:</b>	
<b>OAT.:</b>	
<b>Elevation:</b>	
<b>QNH hPa:</b>	
<b>Wind:</b>	
<b>RWY Length:</b>	

<b>ETA:</b>	
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# Flight Planning

<b>Personenbezogene Dokumente</b>		Check
Amtlicher Lichtbildausweis	persönlich	
Flugplatz Ausweis	persönlich	
Pilotenlizenz, gültiges Rating	persönlich	
Language Proficiency	persönlich	
Funkerzeugnis	persönlich	
Medizinisches Tauglichkeitszeugnis	persönlich	
Flugbuch – 90 Tage Regel beachten:	persönlich	

<b>Luftfahrzeugbezogene Dokumente</b>		Check
Eintragungsschein	Bordtasche	
Lufttüchtigkeitszeugnis	Bordtasche	
Nachprüfbescheinigung der Lufttüchtigkeit	Bordtasche	
Lärmschutzzeugnis	Bordtasche	
Versicherungsnachweis	Bordtasche	
Fernmeldebehördliche Bewilligung Funkstelle	Bordtasche	
Flughandbuch	Bordtasche	
Checklisten	griffbereit	
Bordbuch	Bordtasche	

<b>Flugbetriebliche Dokumente Flugvorbereitung</b>		Check
NOTAMs / DABS für die geplante Flugroute	Papier	
Flugwetterberatung	Papier	
Flugplanung Route inkl. Karten, Anflugblätter usw.	Papier	
Flugplanung Alternate, Route inkl. Karten, Anflugbl.	Papier	
ATC-Flugplan (falls notwendig)	elektronisch	
Zollanmeldung (falls notwendig)	elektronisch	
Weight & Balance	Papier	
Performance	Papier	
Fuel Calculation	Papier	

# Speeds

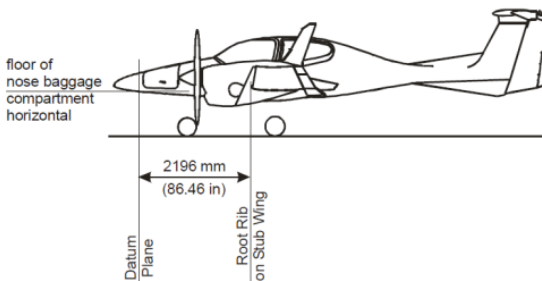
$V_R$	Rotation Speed	76 KIAS
$V_Y$	Best Rate of Climb Speed	82 KIAS
$V_{YSE}$	Best ROC Speed Single Eng.	85 KIAS
$V_{GA}$	Go around Speed	85 KIAS
$V_G$	Best Glide Speed	85 KIAS
$V_A$	Maneuvering Speed	117 KIAS up to 1542kg 123 KIAS above 1542kg
$V_{MCA}$	Minimum Control Speed	71 KIAS 75 KIAS in Ice
$V_{FE}$	Max Speed Extended Flap	113 KIAS @ Flaps LDG 133 KIAS @ Flaps APP
$V_{LO}$	Max LDG Gear Operating Sp.	188 KIAS Extension 152 KIAS Retraction
$V_{LE}$	Max LDG Gear Extended Sp.	188 KIAS
$V_{REF}$	Landing Reference Speed (>1700kg)	88 KIAS @ Flaps UP 83 KIAS @ Flaps APP 82 KIAS @ Flaps LDG
$V_{NO}$	Max Struct. Cruising Speed	151 KIAS
$V_{NE}$	Never Exceed Speed	188 KIAS
$V_{S1}$	Stalling Speed Clean	69 KIAS @ 1785kg
$V_{S0}$	Stalling Speed LDG Conf. Operating Speed in Ice	62 KIAS @ 1785kg 118 – 156 KIAS

# Weight & Balance

!!! Dimensions in m !!!

JET A1 @ 0.80kg/l 3.03kg/USG

De-Icing Fluid @ 1.1kg/l



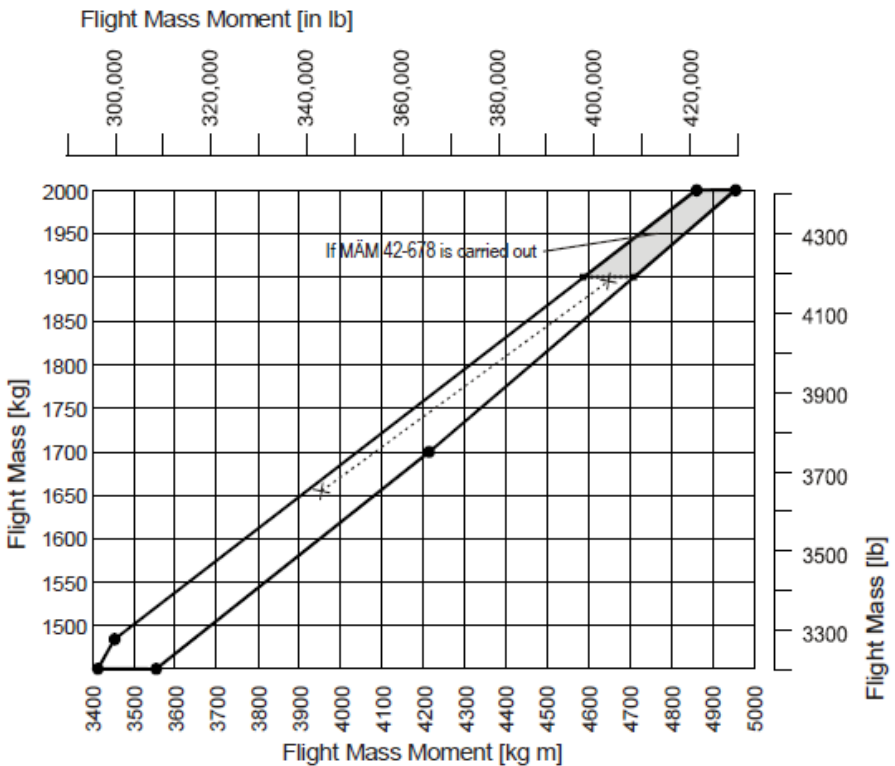
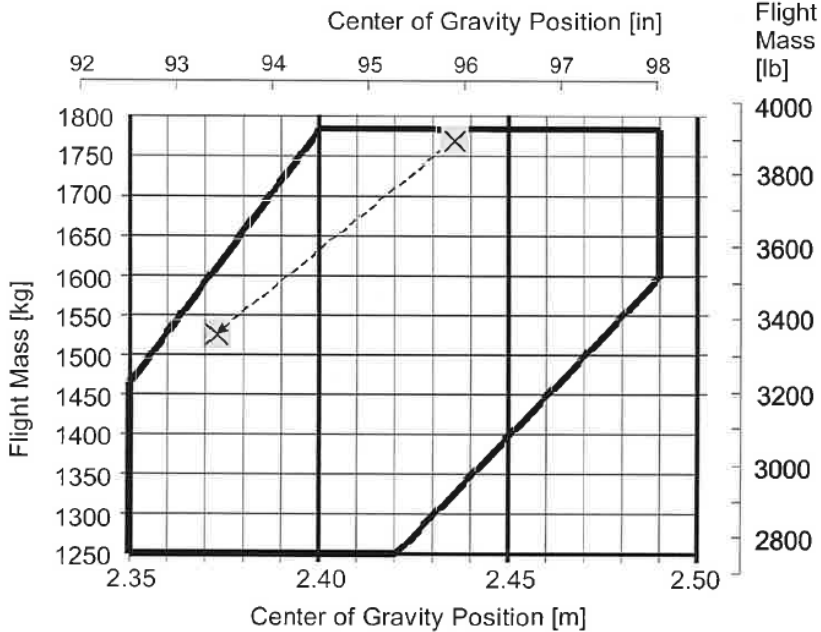
	Mass [kg]	Arm [m]	Moment [kgm]
Basic Empty Mass HB-LZR	<b>1364</b>	<b>2.42</b>	<b>3305</b>
Front Seats		<b>2.30</b>	
Rear Seats		<b>3.25</b>	
Nose Baggage Comp. (max 30)		<b>0.60</b>	
Cabin Baggage Compartment		<b>3.89</b>	
Baggage Extension		<b>4.54</b>	
De-Icing Fluid <sup>3)</sup>		<b>1.00</b>	
<b>Zero Fuel Condition (max 1650)</b>			
Usable Fuel Main Tanks <sup>1)</sup>		<b>2.63</b>	
Usable Fuel Auxiliary Tanks <sup>1)</sup>		<b>3.20</b>	
<b>Total TO Condition (max 1785)</b>			

Less Fuel to Dest. Main Tanks <sup>2)</sup>		<b>2.63</b>	
Less Fuel to Dest. Aux Tanks <sup>2)</sup>		<b>3.20</b>	
<b>Total LDG Condition (max 1700)</b>			

1) Use "Final Block Fuel" on Board from Page 11

2) Use "Trip Fuel" from Page 11

3) Max 30l -> 33kg



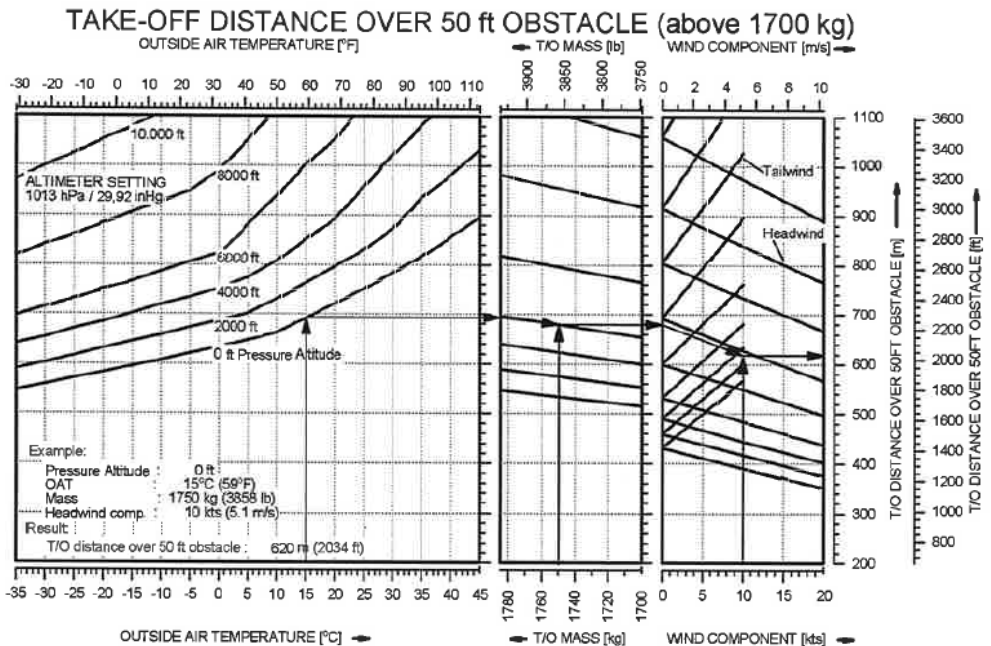
# Performance

## Take-off Distance



- Conditions:
- Power Lever both MAX @ 2300 RPM
  - Flaps UP
  - Nose wheel lift-off
  - Airspeed for initial climb
  - Runway level, hard paved surface (concrete, asphalt)
- $V_R = 75$  KIAS up to 1700kg  
 $V_R = 76$  KIAS above 1700kg  
 $81$  KIAS up to 1700kg  
 $82$  KIAS above 1700kg

Caution: For a safe take-off the available runway length must be at least equal to the take-off distance over a 50ft (15m) obstacle. For take-off ground roll calculation -> use flight manual.



- Note:
- Correction for Grass RWY:
    - Grass up to 5cm : 10% increase
    - Grass up to 10cm : 15% increase
    - Longer than 10cm : at least 25%
  - Correction for Wet Grass: 10% increase
  - Correction for Uphill slope of 2% : at least 10%

# Climb Performance – Take off Climb

ft/min

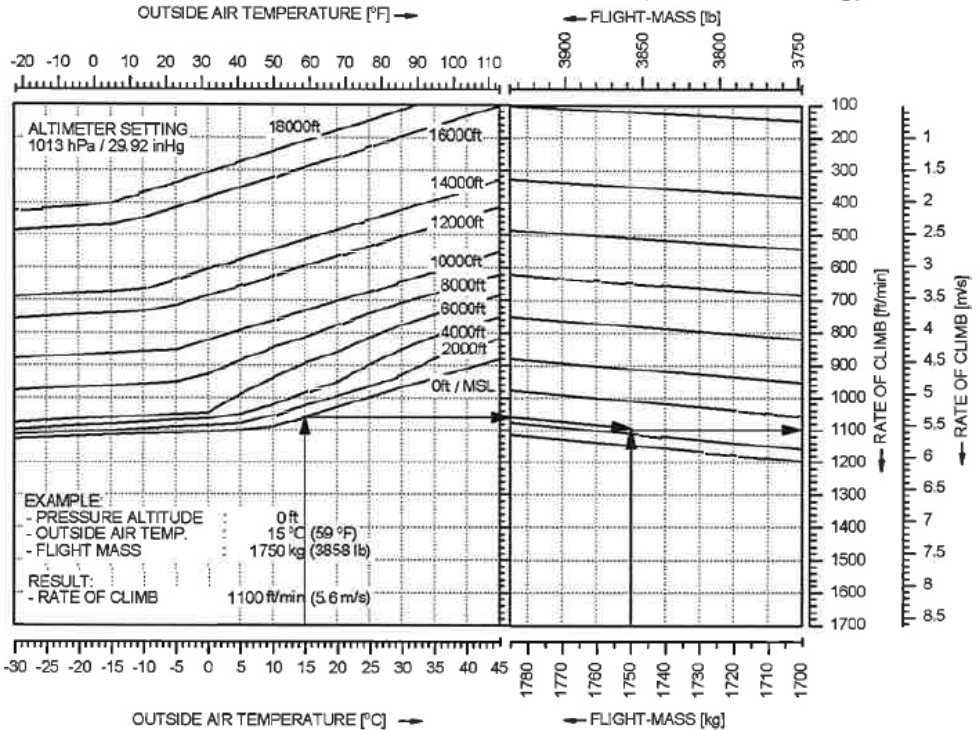
- Conditions:
- Power Lever both MAX @ 2300 RPM
  - Flaps UP
  - Landing Gear retracted
  - Nose wheel lift-off
  - Airspeed 81 KIAS up to 1700kg
  - 82 KIAS above 1700kg

Note: The following graph shows the **Rate of Climb**. For the Calculation of the **Gradient of Climb** use the following formula:

$$\text{Gradient [\%]} = \frac{\text{ROC [fpm]}}{\text{TAS [KTAS]}} \cdot 0.95$$

$$\text{Gradient [\%]} = \frac{\text{ROC [m/s]}}{\text{TAS [KTAS]}} \cdot 190$$

## CLIMB PERFORMANCE - TAKE-OFF CLIMB (above 1700 kg)

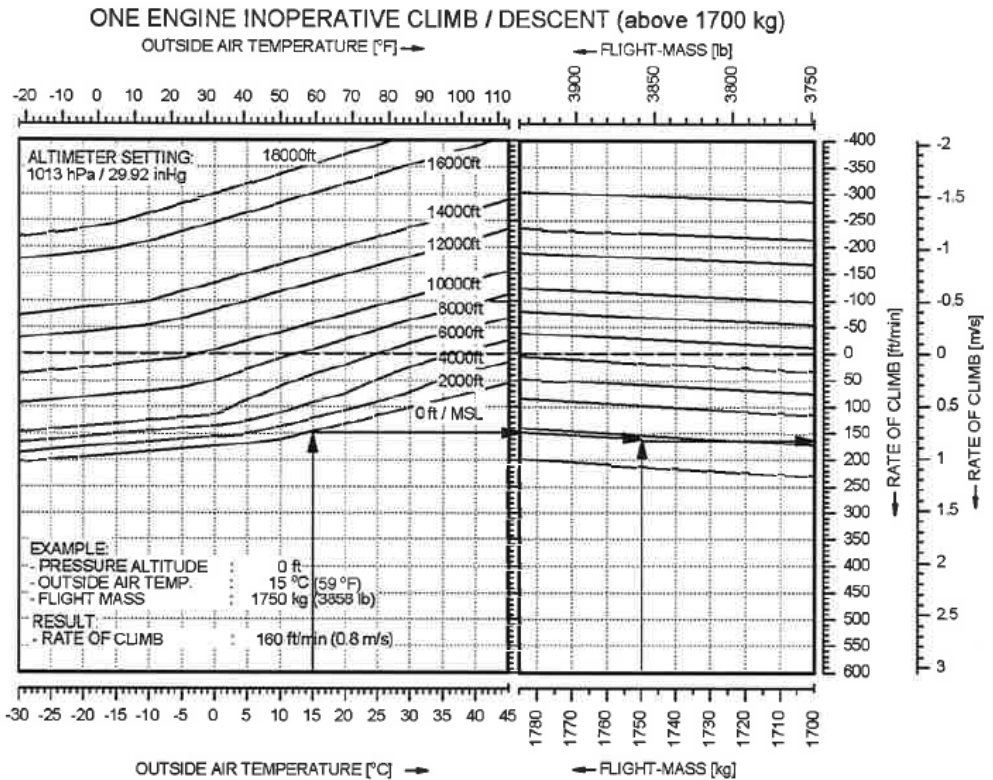


# Climb Performance – One Engine inop.

ft/min

- Conditions:
- Remaining Engine MAX @ 2300 RPM
  - Dead Engine feathered and secured
  - Flaps UP
  - Landing Gear retracted
  - Airspeed 85 KIAS
  - Zero Sideslip established

Note: With respect to handling and performance, the **left-hand engine** (Pilots view) is considered to be the **critical engine**.



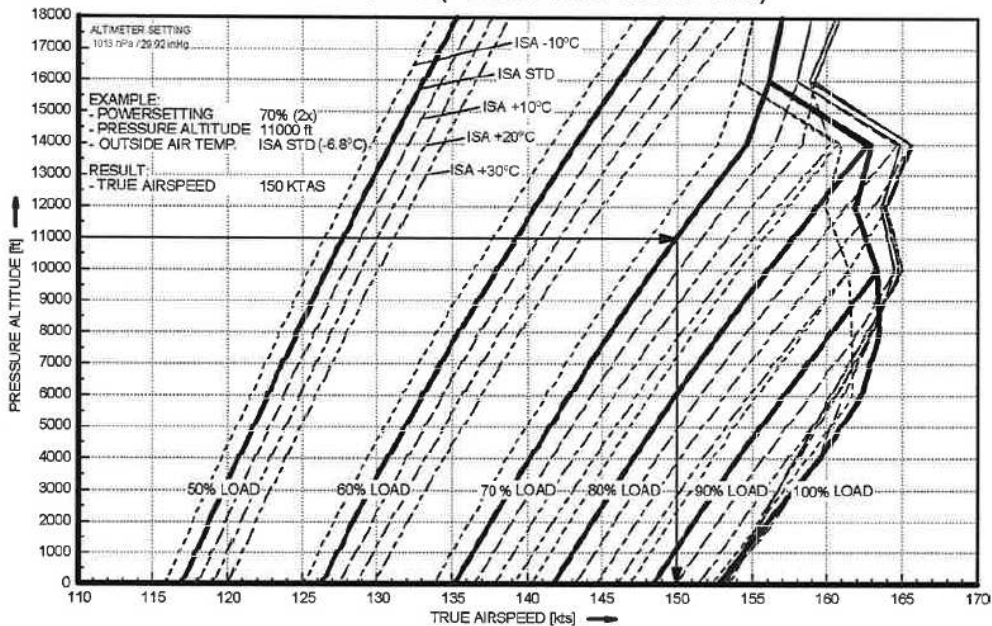


# Cruise Performance



- Conditions:
- Engines all operating
  - Power Lever as required
  - Flaps UP
  - Landing Gear retracted

## CRUISING (TRUE AIRSPEED / TAS)



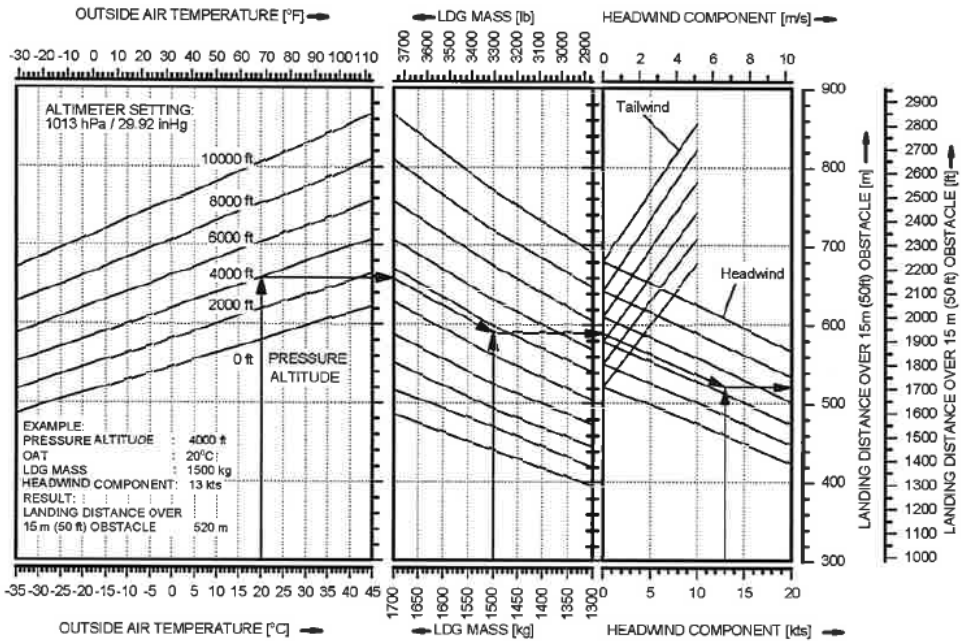
# Landing Distance



- Conditions:
- Power Lever both IDLE
  - Flaps LDG
  - Approach speed 79 KIAS @ 1700kg
  - Runway level, asphalt surface, dry

Caution: For a safe landing the available runway length must be at least equal to the landing distance over a 50ft (15m) obstacle. For landing ground roll calculation -> use flight manual.

## LANDING DISTANCE OVER 15 m (50 ft) OBSTACLE



- Note:
- Correction for Grass RWY:
 

Grass up to 5cm	5% increase
Grass up to 10cm	15% increase
Longer than 10cm	at least 25%
  - Correction for Wet Grass: 10% increase
  - Correction for downhill slope of 2%: at least 10%

# Fuel Calculation

Taxi Fuel				<b>3 USG</b>
Trip Fuel	1)	-----	-----	<b>USG</b>
Contingency 10%	5)	<b>h</b>	<b>USG/h</b>	<b>USG</b>
Alternate Fuel	5)	<b>h</b>	<b>USG/h</b>	<b>USG</b>
45min Reserve Fuel	5)	<b>h</b>	<b>USG/h</b>	<b>USG</b>
Additional Fuel	5)	<b>h</b>	<b>USG/h</b>	<b>USG</b>
<b>Minimum Block Fuel</b>				<b>USG</b>
Extra Fuel				<b>USG</b>
<b>Final Block Fuel</b>	2)			<b>USG</b>
			<b>AUX Tank</b>	<b>MAIN Tank</b>
<b>Final Block Fuel</b>	3)		<b>USG</b>	<b>USG</b>

- 1) Use "Trip Fuel" from Table below
- 2) Max 52 USG in Main Tanks, Max 16.4 USG in Aux Tanks
- 3) MAIN Tank max 52 USG, AUX Tank max 16.4 USG

## Trip Fuel

Initial Climb Fuel	4)	<b>min</b>	<b>USG/h</b>	<b>USG</b>
Enroute Fuel	5)	<b>h</b>	<b>USG/h</b>	<b>USG</b>
Descent Fuel	6)	<b>min</b>	<b>USG/h</b>	<b>USG</b>
<b>Trip Fuel</b>				<b>USG</b>

- 4) Use 90% Load for Initial Climb Calculation ~ 18 USG/h
- 5) Use 70% Load in Cruise Performance Calculation ~ 12 USG/h
- 6) Use 50% Load for Descent Calculation ~ 8 USG/h

