

Flight Planning

Date:	
Callsign:	HB-LWA
AC Type:	DA42-VI

Time Referenz	
UTC=LT +/-	

Departure:	
OAT:	
Elevation:	
QNH hPa:	
Wind:	
RWY Length:	

EOBT:	
ETOT:	

Enroute	
OAT:	
Temp -> ISA:	
FL:	
Wind:	

ETE:	
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Destination:	
OAT.:	
Elevation:	
QNH hPa:	
Wind:	
RWY Length:	

ETA:	
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Flight Planning

Personenbezogene Dokumente		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	

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

Flugbetriebliche Dokumente		Check
Flugvorbereitung		
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_{50}	Initial Climb Speed	83 KIAS
V_Y	Best Rate of Climb Speed	92 KIAS
V_{YSE}	Best ROC Speed Single Eng.	85 KIAS
V_{GA}	min. Go around Speed	92 KIAS @ Flaps UP
V_O	Maneuvering Speed	112 KIAS up to 1700kg 119 KIAS 1700-1800kg 122 KIAS above 1800kg
V_{MCA}	Minimum Control Speed	71 KIAS @ Flaps UP 68 KIAS @ Flaps APP
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	92 KIAS @ Flaps UP 88 KIAS @ Flaps APP 86 KIAS @ Flaps LDG
V_{NO}	Max Struct. Cruising Speed	151 KIAS
V_{NE}	Never Exceed Speed	188 KIAS
V_{S1}	Stalling Speed Clean	72 KIAS @ 1999kg
V_{S0}	Stalling Speed LDG Conf.	64 KIAS @ 1999kg
	Operating Speed in Ice	118 – 156 KIAS

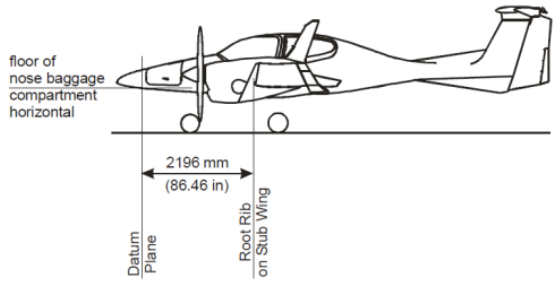
For other speeds operating in ice refer to AFM.

Weight & Balance

!!! Dimensions in m !!!

JET A1 @ 0.80kg/l 3.03kg/USG

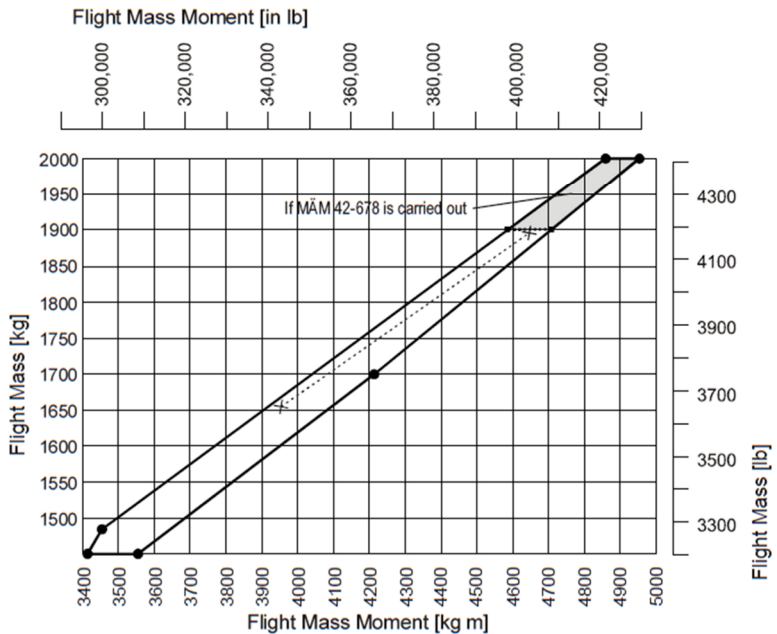
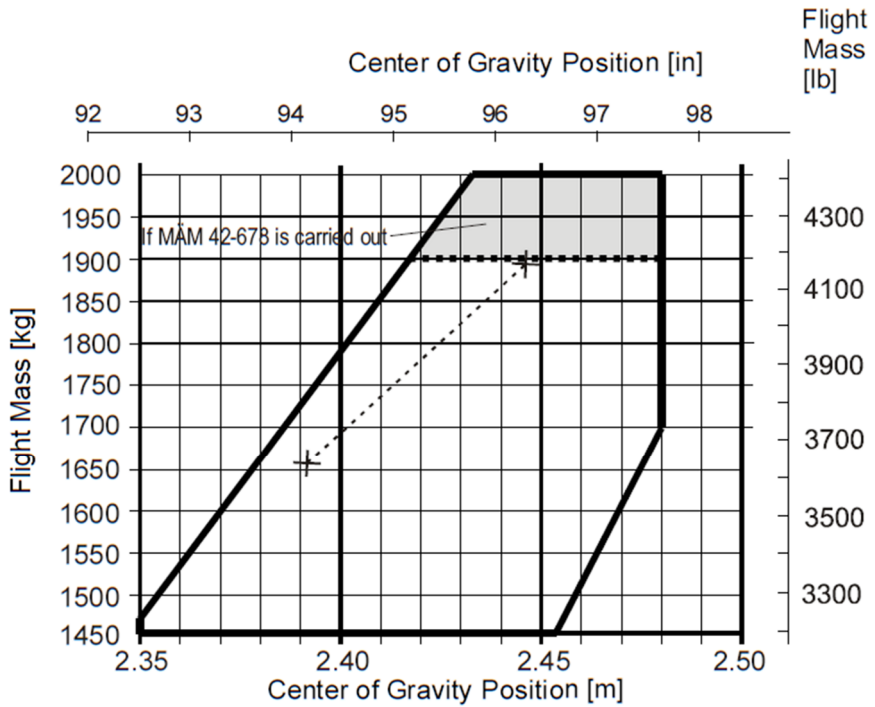
De-Icing Fluid @ 1.1kg/l



	Mass [kg]	Arm [m]	Moment [kgm]
Basic Empty Mass HB-LWA	1492	2.405	3588
Front Seats		2.30	
Rear Seats		3.25	
Nose Baggage Comp. (max 30)		0.60	
Cabin Baggage Comp. (max 45) ⁴⁾		3.89	
Baggage Extension (max 18) ⁴⁾		4.54	
De-Icing Fluid ³⁾		1.00	
Zero Fuel Condition (max 1835)			
Usable Fuel Main Tanks ¹⁾		2.63	
Usable Fuel Auxiliary Tanks ¹⁾		3.20	
Total TO Condition (max 1999)			

Less Fuel to Dest. Main Tanks ²⁾		2.63	
Less Fuel to Dest. Aux Tanks ²⁾		3.20	
Total LDG Condition (max 1999)			

- 1) Use "Final Block Fuel" on Board from Page 11
- 2) Use "Trip Fuel" from Page 11
- 3) Max 30l -> 33kg
- 4) Max. cabin baggage comp. and baggage extension together: 45kg



Performance

Take-off Distance



Warning: For a safe take-off the available runway length must be at least equal to the take-off distance over a 50ft (15m) obstacle.

Take-Off Distance - Normal Procedure - 1999 kg / 4407 lb								
Weight: 1999 kg / 4407 lb				Flaps: UP				
V _R : 76 KIAS				Power: MAX				
V ₅₀ : 83 KIAS				Runway: dry, paved, level				
Press. Alt. [ft] / [m]	Distance [m]	Outside Air Temperature - [°C] / [°F]						ISA
		0 / 32	10 / 50	20 / 68	30 / 86	40 / 104	50 / 122	
SL	Ground Roll	400	420	440	470	560	680	424
	15 m / 50 ft	730	760	790	870	1050	1330	776
1000 305	Ground Roll	420	440	470	510	610	730	444
	15 m / 50 ft	760	800	840	930	1150	1450	804
2000 610	Ground Roll	440	460	500	540	660	790	462
	15 m / 50 ft	800	840	890	1000	1260	1570	836
3000 914	Ground Roll	460	490	520	590	710	860	485
	15 m / 50 ft	840	880	940	1080	1360	1710	869
4000 1219	Ground Roll	490	520	560	640	780	930	505
	15 m / 50 ft	880	920	1000	1170	1490	1850	906
5000 1524	Ground Roll	520	550	600	690	840		531
	15 m / 50 ft	920	980	1070	1280	1620		944
6000 1829	Ground Roll	550	580	640	760	920		556
	15 m / 50 ft	970	1030	1140	1400	1760		986
7000 2134	Ground Roll	580	620	680	820	990		582
	15 m / 50 ft	1030	1100	1220	1530	1910		1029
8000 2438	Ground Roll	620	660	730	900	1080		611
	15 m / 50 ft	1090	1170	1320	1660	2080		1078
9000 2743	Ground Roll	660	710	800	980	1180		642
	15 m / 50 ft	1150	1240	1450	1840	2280		1128
10000 3048	Ground Roll	700	770	900	1100			676
	15 m / 50 ft	1230	1360	1640	2110			1182

For the distance in [ft] divide by 0.3048 or multiply by 3.28.

The following factors are to be applied to the computed take-off distance for the noted condition:

Headwind: Decrease by 10% for each 14 kt headwind
 Tailwind: Increase by 10% for each 3 kt tailwind
 Uphill slope: Increase the ground roll by 9%
 for each 1% slope

Note: Take-off on grass and soft ground is not recommended for this aircraft and only permitted in agreement with the operator. For Take-off performance calculation -> use flight manual

Climb Performance – Take off Climb

ft/min

Note: The following tables show the **Rate of Climb**. For the calculation of the **Gradient of Climb** use the following formula:

$$\text{Gradient [\%]} = \frac{ROC [\text{ft/min}]}{TAS [\text{kTAS}]} \cdot 0.98$$

All Engines Operating Climb - Flaps UP											
Flaps: UP		Power: 92%									
v _r : 92 KIAS above 1900 kg (4189 lb)		Gear: retracted									
90 KIAS up to 1900 kg (4189 lb)											
Weight [kg] / [lb]	Press. Alt. [ft]	Press. Alt. [m]	Rate of Climb - [ft/min]								
			Outside Air Temperature - [°C] / [°F]								
			-20 -4	-10 14	0 32	10 50	20 68	30 86	40 104	50 122	ISA
1999 / 4407	SL		1120	1120	1120	1110	1110	1100	1040	880	1114
	2000	610	1120	1110	1110	1100	1090	1090	970	820	1103
	4000	1219	1110	1100	1090	1090	1080	1050	900	760	1092
	6000	1829	1090	1090	1080	1070	1070	990	840		1081
	8000	2438	1080	1070	1060	1050	1040	930	780		1069
	10000	3048	1060	1050	1040	1040	990	820			1052
	12000	3658	1040	1030	1020	1020	850	680			1033
	14000	4267	1020	1020	960	830	660	520			1021
	16000	4877	1010	940	820	680	540				1007
18000	5486	890	800	700	560	410				895	
1900 / 4189	SL		1210	1210	1200	1200	1200	1190	1130	960	1203
	2000	610	1200	1200	1200	1190	1180	1180	1050	890	1193
	4000	1219	1200	1190	1180	1170	1170	1140	98	830	1181
	6000	1829	1180	1170	1170	1160	1150	1080	920		1169
	8000	2438	1170	1160	1150	1150	1130	1010	860		1158
	10000	3048	1150	1140	1130	1130	1080	900			1144
	12000	3658	1130	1120	1120	1110	930	750			1124
	14000	4267	1110	1110	1050	920	740	590			1113
	16000	4877	1100	1030	910	760	610				1102
18000	5486	980	890	780	630	480				986	
1700 / 3748	SL		1380	1380	1380	1380	1370	1370	1290	1100	1378
	2000	610	1380	1380	1370	1360	1360	1350	1210	1030	1368
	4000	1219	1370	1360	1360	1350	1340	1320	1130	960	1357
	6000	1829	1360	1350	1340	1340	1330	1240	1060		1345
	8000	2438	1340	1340	1330	1320	1310	1170	1000		1334
	10000	3048	1330	1320	1310	1300	1250	1050			1320
	12000	3658	1310	1300	1290	1290	1080	890			1299
	14000	4267	1290	1290	1220	1070	870	710			1289
	16000	4877	1280	1200	1070	900	730				1278
18000	5486	1140	1040	930	760	590				1151	

For the rate of climb in [m/s] divide by 196.8 or multiply by 0.00508.

Climb Performance – One Engine inop.

ft/min

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

Note: The following tables show the **Rate of Climb**. For the calculation of the **Gradient of Climb** use the following formula:

$$\text{Gradient [\%]} = \frac{\text{ROC} [\frac{\text{ft}}{\text{min}}]}{\text{TAS} [\text{KTAS}]} \cdot 0.98$$

One Engine Inoperative Climb												
Flaps: UP						Power: feathered / 92%						
V _{YSE} : 85 KIAS						Gear: retracted						
Weight [kg] / [lb]	Press. Alt. [ft]	Press. Alt. [m]	Rate of Climb - [ft/min]									
			Outside Air Temperature - [°C] / [°F]									ISA
			-20 -4	-10 14	0 32	10 50	20 68	30 86	40 104	50 122		
1999 / 4407	SL		270	255	245	235	225	210	185	120	230	
	2000	610	245	235	220	210	200	190	140	80	212	
	4000	1219	225	210	200	185	175	160	95	40	193	
	6000	1829	200	185	175	160	150	120	55	/	170	
	8000	2438	175	160	145	130	120	75	15	/	147	
	10000	3048	145	130	115	100	80	10	/	/	123	
	12000	3658	115	95	85	70	0	-70	/	/	97	
	14000	4267	85	70	35	-30	-105	-160	/	/	75	
	16000	4877	55	10	-50	-120	-180	/	/	/	50	
	18000	5486	-25	-75	-135	-195	-255	/	/	/	-19	
1900 / 4189	SL		305	295	285	270	260	250	225	155	269	
	2000	610	285	270	260	250	240	225	175	110	250	
	4000	1219	260	250	235	225	210	195	130	70	231	
	6000	1829	235	225	210	195	185	155	90	/	208	
	8000	2438	210	195	180	165	155	110	45	/	184	
	10000	3048	180	165	150	140	115	40	/	/	160	
	12000	3658	150	135	120	110	30	-45	/	/	134	
	14000	4267	120	105	70	0	-75	-135	/	/	111	
	16000	4877	90	45	-20	-90	-155	/	/	/	86	
	18000	5486	10	-45	-105	-170	-235	/	/	/	14	
1700 / 3748	SL		390	375	365	355	345	330	300	220	350	
	2000	610	365	355	340	330	320	305	245	170	331	
	4000	1219	340	330	315	305	290	275	200	125	311	
	6000	1829	320	305	290	275	265	225	150	/	287	
	8000	2438	290	275	260	245	230	180	105	/	263	
	10000	3048	260	245	230	215	190	100	/	/	237	
	12000	3658	225	210	195	185	95	10	/	/	210	
	14000	4267	195	180	140	65	-25	-90	/	/	186	
	16000	4877	165	115	45	-35	-110	/	/	/	161	
	18000	5486	80	20	-45	-120	-195	/	/	/	83	

CAUTION: Dark grey shaded areas indicate a climb rate of less than 50 ft/min.
For the rate of climb in [m/s] divide by 196.8 or multiply by 0.00508.

Cruise Performance

KTAS	GAL/hr
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- Conditions:
- Engines all operating
 - Power Lever as required
 - Flaps UP
 - Landing Gear retracted
 - Weight: 1'999kg

Cruise Performance																
Press. Alt. [ft] / [m]		Outside Air Temperature - [°C]														
		ISA-10			ISA			ISA+10			ISA+20			ISA+30		
		Pwr [%]	FF [US gal/h]	TAS [kt]	Pwr [%]	FF [US gal/h]	TAS [kt]	Pwr [%]	FF [US gal/h]	TAS [kt]	Pwr [%]	FF [US gal/h]	TAS [kt]	Pwr [%]	FF [US gal/h]	TAS [kt]
2000 610	92	16.6	164	92	16.6	166	92	16.6	168	92	16.7	170	89	16.3	169	
	75	13.2	152	75	13.2	153	75	13.2	155	75	13.2	157	75	13.2	158	
	60	10.3	138	60	10.3	139	60	10.3	141	60	10.3	142	60	10.3	144	
	35	6.5	102	35	6.5	103	35	6.5	103	35	6.5	104	35	6.5	104	
4000 1219	92	16.6	168	92	16.6	169	92	16.6	171	92	16.7	173	90	16.5	173	
	75	13.2	154	75	13.2	156	75	13.2	158	75	13.2	159	75	13.2	161	
	60	10.3	140	60	10.3	142	60	10.3	143	60	10.3	145	60	10.3	146	
	35	6.5	103	35	6.5	104	35	6.5	104	35	6.5	104	35	6.5	105	
6000 1829	92	16.6	171	92	16.6	173	92	16.6	175	92	16.7	176	90	16.4	176	
	75	13.2	157	75	13.2	159	75	13.2	161	75	13.2	163	75	13.2	164	
	60	10.3	143	60	10.3	144	60	10.3	146	60	10.3	147	60	10.3	149	
	35	6.5	104	35	6.5	104	35	6.5	105	35	6.5	105	35	6.5	105	
8000 2438	92	16.6	174	92	16.6	176	92	16.6	178	92	16.7	180	92	16.8	181	
	75	13.2	160	75	13.2	162	75	13.2	164	75	13.2	166	75	13.2	167	
	60	10.3	145	60	10.3	147	60	10.3	149	60	10.3	150	60	10.3	151	
	40	7.3	117	40	7.3	118	40	7.3	118	40	7.3	119	40	7.3	120	
10000 3048	92	16.6	177	92	16.6	179	92	16.6	181	92	16.7	183	90	16.4	183	
	75	13.2	163	75	13.2	165	75	13.2	167	75	13.2	169	75	13.2	170	
	60	10.3	148	60	10.3	150	60	10.3	151	60	10.3	153	60	10.3	154	
	45	8.1	128	45	8.1	129	45	8.1	130	45	8.1	131	45	8.1	131	
12000 3658	92	16.6	181	92	16.6	183	92	16.6	185	92	16.8	187	90	16.2	184	
	75	13.2	166	75	13.2	168	75	13.2	170	75	13.2	172	75	13.2	173	
	60	10.3	151	60	10.3	152	60	10.3	154	60	10.3	155	60	10.3	157	
	45	8.1	129	45	8.1	130	45	8.1	131	45	8.1	132	45	8.1	131	
14000 4267	92	16.7	184	92	16.7	186	92	16.8	188	85	15.4	184	80	14.5	182	
	75	13.2	169	75	13.2	171	75	13.2	173	75	13.2	175	75	13.2	177	
	60	10.3	153	60	10.3	155	60	10.3	156	60	10.3	158	60	10.3	159	
	45	8.1	131	45	8.1	132	50	8.8	142	50	8.8	143	50	8.8	144	
16000 4877	92	16.8	188	92	16.8	190	90	16.5	189	85	15.5	186	80	14.5	183	
	75	13.2	173	75	13.2	175	75	13.2	176	75	13.2	178	75	13.2	180	
	60	10.3	156	60	10.3	157	60	10.3	159	60	10.3	161	60	10.3	162	
	50	8.7	142	50	8.7	143	50	8.7	144	50	8.7	145	50	8.7	146	
18000 5486	85	15.4	185	85	15.5	188	85	15.5	189	80	14.5	186	80	14.0	184	
	75	13.2	176	75	13.2	178	75	13.2	180	75	13.2	182	75	13.5	183	
	60	10.3	159	60	10.3	160	60	10.3	162	60	10.3	163	60	10.3	165	
	50	8.7	144	50	8.7	145	50	8.7	146	50	8.7	147	50	8.7	148	

Landing Distance



Warning: For a safe landing the available runway length must be at least equal to the landing distance over a 50 ft (15 m) obstacle.

Landing Distance - Flaps LDG - 1999 kg / 4407 lb								
Weight:		1999 kg / 4407 lb			Flaps:		LDG	
V _{REF} :		86 KIAS			Power:		IDLE	
Runway: dry, paved, level								
Press. Alt. [ft] / [m]	Distance [m]	Outside Air Temperature - [°C] / [°F]						ISA
		0 / 32	10 / 50	20 / 68	30 / 86	40 / 104	50 / 122	
SL	Ground Roll	370	380	400	410	440	500	387
	15 m / 50 ft	620	640	660	680	730	820	647
1000 305	Ground Roll	380	400	410	420	470	530	399
	15 m / 50 ft	640	660	680	700	770	860	662
2000 610	Ground Roll	400	410	430	440	490	550	411
	15 m / 50 ft	660	680	700	720	810	900	680
3000 914	Ground Roll	410	430	440	460	520	580	422
	15 m / 50 ft	680	700	720	750	840	940	697
4000 1219	Ground Roll	430	440	460	490	550	610	435
	15 m / 50 ft	700	720	750	790	890	990	715
5000 1524	Ground Roll	440	460	480	510	580	/	449
	15 m / 50 ft	730	750	770	830	930	/	734
6000 1829	Ground Roll	460	480	490	540	610	/	461
	15 m / 50 ft	750	770	800	870	980	/	753
7000 2134	Ground Roll	480	500	520	580	650	/	479
	15 m / 50 ft	780	810	830	930	1030	/	780
8000 2438	Ground Roll	510	530	550	630	700	/	507
	15 m / 50 ft	820	850	880	990	1110	/	818
9000 2743	Ground Roll	550	570	610	690	770	/	542
	15 m / 50 ft	870	900	950	1070	1200	/	862
10000 3048	Ground Roll	600	620	670	750	/	/	584
	15 m / 50 ft	930	960	1040	1160	/	/	913

For the distance in [ft] divide by 0.3048 or multiply by 3.28.

The following factors are to be applied to the computed take-off distance for the noted condition:

- Headwind: Decrease by 10% for each 14 kt headwind
- Tailwind: Increase by 10% for each 3 kt tailwind
- Downhill slope: Increase the ground roll by 9% for each 1% slope

Note: Take-off on grass and soft ground is not recommended for this aircraft and only permitted in agreement with the operator. For Landing performance calculation -> use flight manual

Fuel Calculation

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

- 1) Use "Trip Fuel" from Table below
- 2) Max 52.0 USG in Main Tanks, Max 26.4 USG in Aux Tanks
- 3) MAIN Tank max 52.0 USG, AUX Tank max 26.4 USG

Trip Fuel

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

- 4) Use 92% Load for Initial Climb Calculation ~ 18 USG/h
- 5) Use 75% Load in Cruise Performance Calculation ~ 14 USG/h
- 6) Use 50% Load for Descent Calculation ~ 9 USG/h

NAV Flightplan

Checkpoint	ALT	MC	DIST	EET	ETO	ATO	Remark

Document Info

Fliegerschule St. Gallen – Altenrhein AG, Version 1.0, 21.03.2023

Print as Booklet

No responsibility is taken for the correctness of this information. The Airplane Flight Manual is reference for flight planning and airplane operation.