

LOAD DATA SHEET - PAGE 1 OF 3 - AEROPLANE WEIGHT

Aeroplane Type:..... DIAMOND DA 42 NG

Registration Marking:..... **VH-VMX**

Serial No: 42.N139

ISSUE:.... TWO

DATE:..... 3-Apr-20

EXPIRY:..... INDEFINITE

AEROPLANE WEIGHT AND CENTRE OF GRAVITY DATA:

ITEM	WEIGHT (Kg)	ARM (mm aft of datum)	MOMENT (Kg.mm)	CABIN CONFIGURATION
EMPTY	1411.3	2392.5	3376567	FOUR SEATS TOTAL
STANDARD CABIN CONFIGURATION AUSTRO ENGINES & MT PROPELLERS				
THE FOLLOWING IMPERIAL UNITS ARE FOR USE WITH THE PILOTS HANDBOOK SECTION SIX				
	(lb)	(in)	(in.lb)	
EMPTY	3111.5	94.19	293073	FOUR SEATS TOTAL

NOTE: The above empty weights include:-

EMPTY - unusable fuel and full oil

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CALCULATION OF LOADING CONDITION	DA 42 NG (Example)		Your DA 42 NG	
	Mass [kg] [lb]	Moment [kgm] [in.lb]	Mass [kg] [lb]	Moment [kgm] [in.lb]
1. Empty mass (from Mass and Balance Report)	1450 3197	3488.0 302,747		
2. Front seats Lever arm: 2.30 m (90.6 in)	160 353	368.0 31,982		
3. Rear seats Lever arm: 3.25 m (128.0 in)	0 0	0.0 0,0		
4. Nose baggage compt. Lever arm: 0.60 m (23.6 in)	0 0	0.0 0,0		
5. Cabin baggage compt. Lever arm: 3.89 m (153.1 in)	10 22	38.9 3,368		
6. Baggage extension Lever arm: 4.54 m (178.7 in)	8 18	36.3 3,217		
7. Standard baggage compartment Lever arm: 3.65 m (143.7 in)	0 0	0.0 0,0		
8. Short baggage extension (if OÄM 42-207 is carried out) Lever arm: 3.97 m (156.3 in)	0 0	0.0 0,0		
9. De-icing fluid (if only OÄM 42-160 is installed; see NOTE on previous page) (1.1 kg/liter) (9.2 lb/US gal) Lever arm: 1.00 m (39.4 in)	27.5 61	27.5 2,403		

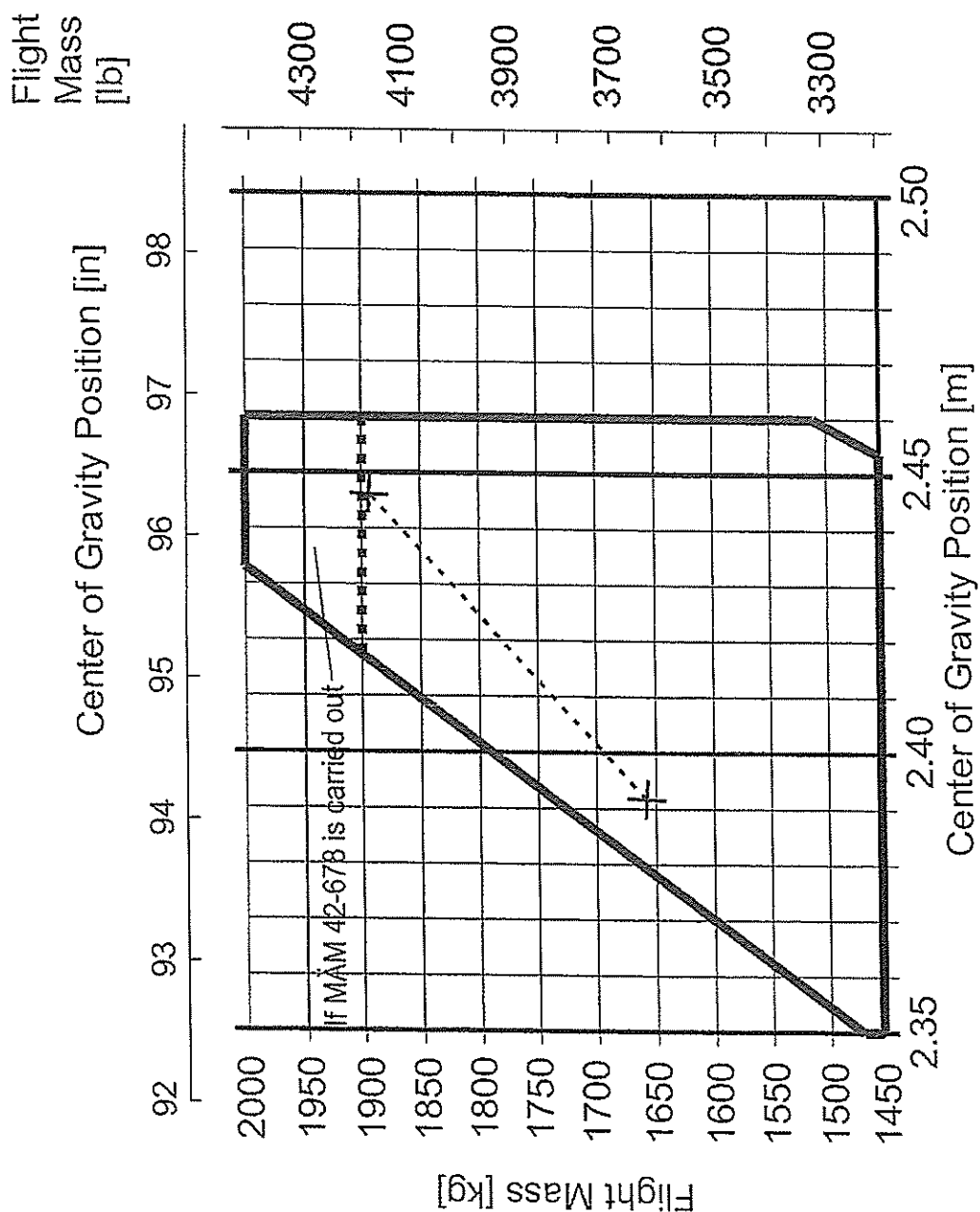
CALCULATION OF LOADING CONDITION	DA 42 NG (Example)		Your DA 42 NG	
	Mass [kg] [lb]	Moment [kgm] [in.lb]	Mass [kg] [lb]	Moment [kgm] [in.lb]
10. De-icing fluid (if OÄM 42-160 AND OÄM 42-203 are installed; see NOTE on previous page) (1.1 kg/liter) (9.2 lb/US gal) Lever arm: 4.52 m (178.0 in)	0 0	0.0 0.0		
11. Total mass & total moment with empty fuel tanks (Total of 1.through 10.)	1655.5 3651	3958.7 343,717		
12. Usable fuel, main tanks (0.84 kg/liter) (7.01 lb/US gal) Lever arm: 2.63 m (103.5 in)	159 351	418.2 36,329		
13. Usable fuel, auxiliary tanks (if installed) (0.84 kg/liter) (7.01 lb/US gal) Lever arm: 3.20 m (126.0 in)	84 185	268.8 23,310		
14. Total mass & total moment with fuel & de-icing fluid (Total of 11. through 13.)	1898.5 4187	4645.7 403,356		

The CG's shown in the following diagrams are those from the example in Section 6.4.3 - CALCULATION OF LOADING CONDITION, rows 11 and 14.

6. MASS AND BALANCE

6.4 FLIGHT MASS AND CENTER OF GRAVITY

6.4.4 PERMISSIBLE CENTER OF GRAVITY RANGE



5.3.6 TAKE-OFF DISTANCE

Conditions:

- Power lever both MAX
- Flaps UP or APP
- Runway dry, paved, level
- Nose wheel lift-off @ V_R
- Airspeed for initial climb @ V_{50}

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 (7.2 m/s) headwind.
- Tailwind: Increase by 10% for each 3 kt (1.5 m/s) tailwind.
- Grass runway, dry, 5 cm (2 in) long: Increase the ground roll by 10%.
- Grass runway, dry, 5 cm (2 in) to 10 cm (3.9 in) long: Increase the ground roll by 15%.
- Grass runway, dry, 25 cm (9.8 in) long: Increase the ground roll by 25%.
- Grass runway, longer than 25 cm (9.8 in): A take-off should not be attempt.
- Grass runway, wet: Increase the dry grass runway distance calculation by 10%.
- Soft ground: Increase the ground roll by 45% (in addition to the grass runway distance calculation, if applicable).
- Uphill slope: Increase the ground roll by 9% for each 1% (1 m per 100 m or 1 ft per 100 ft) slope.

If brakes are not held while applying power, distances apply where full power setting is complete.

WARNING

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

WARNING

Poor maintenance condition of the airplane, deviation from the given procedures, uneven runway, as well as unfavorable external factors (rain, unfavorable wind conditions, including cross-wind) will increase the take-off distance.

CAUTION

The factors in the above corrections are typical values. On wet ground or wet soft grass covered runways the take-off roll may become significantly longer than stated above. In any case the pilot must allow for the condition of the runway to ensure a safe take-off.

The above corrections for runway slope should be used with caution since published runway slope data is usually the net slope from one end of the runway to the other. Runways may have positions at their length at greater or lesser slopes than published slope, lengthening (or shortening) the take-off roll estimated with these tables.

NOTE

The effect of 50% of the headwind component and 150% of the tailwind component is already incorporated in the head- and tailwind factors.

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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.								

5.3.7 CLIMB PERFORMANCE (ALL ENGINES OPERATING)

Conditions:

- Power lever both 92%
- Flaps UP or APP
- Landing gear retracted
- Airspeed V_Y

The climb performance tables show the rate of climb. The gradient of climb can be calculated using the following formula:

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

NOTE

Rate of climb at MTOM (1900 kg / 4189 lb) with a power setting of 100% at MSL and ISA conditions:

- 1337 ft/min (6.8 m/s) with flaps UP
- 1267 ft/min (6.4 m/s) with flaps APP

NOTE

If MÄM 42-678 is installed, the rate of climb at MTOM (1999 kg / 4407 lb) with a power setting of 100% at MSL and ISA conditions:

- 1243 ft/min (6.3 m/s) with flaps UP
- 1183 ft/min (6.0 m/s) with flaps APP

All Engines Operating Climb - Flaps UP

Flaps: UP

Power: 92%

V_Y: 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]								ISA
			-20 -4	-10 14	0 32	10 50	20 68	30 86	40 104	50 122	
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

5.3.8 ONE ENGINE INOPERATIVE CLIMB PERFORMANCE

Conditions:

- Remaining engine 92% load
- Dead engine feathered and secured
- Flaps UP
- Landing gear retracted
- Airspeed $V_{YSE} = 85$ KIAS
- Sideslip one ball out, max. 5° bank

NOTE

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

The climb performance tables show the rate of climb. The gradient of climb can be calculated using the following formula:

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

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

5.3.12 GO-AROUND CLIMB PERFORMANCE

Conditions:

- Power lever both MAX
- Flaps LDG
- Landing gear extended
- Airspeed:
 - Up to 1900 kg (4189 lb) $V_{REF} = 84$ KIAS
 - Above 1900 kg (4189 lb) $V_{REF} = 86$ KIAS

The climb performance charts show the rate of climb. The gradient and angle of climb can be calculated using the following formula:

$$Gradient [\%] = \frac{ROC [fpm]}{TAS [KTAS]} \cdot 0.98$$

NOTE

The angles of climb at MSL and ISA condition are:

4.7° for Maximum Take-Off Mass (1900 kg / 4189 lb)

5.1° for Maximum Landing Mass (1805 kg / 3979 lb)

If MÄM 42-678 is carried out:

3.9° for Maximum Take-Off Mass (1999 kg / 4407 lb)

Go-Around Climb Performance

Flaps: LDG

Power: MAX

V_{REF}: 86 KIAS above 1900 kg (4189 lb)

Gear: extended

84 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]								ISA
			-20 -4	-10 14	0 32	10 50	20 68	30 86	40 104	50 122	
1999 / 4407	SL		635	620	600	585	570	505	375	240	580
	2000	610	605	585	570	550	515	425	280	155	552
	4000	1219	570	550	530	510	450	340	200	80	517
	6000	1829	530	505	485	455	380	250	120		480
	8000	2438	485	460	440	400	310	170	45		443
	10000	3048	440	415	380	310	190	40			405
1900 / 4189	SL		735	715	700	685	670	605	470	325	678
	2000	610	700	685	665	650	620	525	375	240	652
	4000	1219	670	650	635	615	555	440	290	160	622
	6000	1829	635	610	590	560	485	345	210		585
	8000	2438	590	565	545	505	410	265	135		548
	10000	3048	545	520	485	415	290	135			509
1805 / 3979	SL		794	777	760	744	728	659	518	366	735
	2000	610	761	744	726	710	675	578	420	276	708
	4000	1219	727	709	693	671	611	488	330	193	677
	6000	1829	693	670	647	614	536	390	244		640
	8000	2438	647	623	600	557	462	304	165		602
	10000	3048	599	574	539	465	333	169			562

5.3.11 LANDING DISTANCES

Conditions:

- Power lever both IDLE
- Flaps LDG, APP or UP
- Runway dry, paved, level
- Approach speed V_{REF}

The following factors are to be applied to the computed landing distance for the noted condition:

- Headwind: Decrease by 10% for each 14 kt (7.2 m/s) headwind.
- Tailwind: Increase by 10% for each 3 kt (1.5 m/s) tailwind.
- Paved runway, wet: Increase by 15%.
- Grass runway, dry, 5 cm (2 in) long: Increase the ground roll by 10%.
- Grass runway, dry, 5 cm (2 in) to 10 cm (3.9 in) long: Increase the ground roll by 15%.
- Grass runway, dry, longer than 10 cm (3.9 in): Increase the ground roll at least by 25%.
- Grass runway, wet or soft runway: Increase the ground roll by 10%.
- Downhill slope: Increase the ground roll by 9% for each 1% (1 m per 100 m or 1 ft per 100 ft) of slope.

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.

WARNING

Poor maintenance condition of the airplane, deviation from the given procedures, uneven runway, as well as unfavorable external factors (rain, unfavorable wind conditions, including cross-wind) will increase the landing distance.

CAUTION

The factors in the above corrections are typical values. On wet ground or wet soft grass covered runways the landing distance may become significantly longer than stated above. In any case the pilot must allow for the condition of the runway to ensure a safe landing.

The above corrections for runway slope should be used with caution since published runway slope data is usually the net slope from one end of the runway to the other. Runways may have positions at their length at greater or lesser slopes than published slope, lengthening (or shortening) the landing roll estimated with these tables.

NOTE

The effect of 50% of the headwind component and 150% of the tailwind component is already incorporated in the head- and tailwind factors.

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.								