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*		

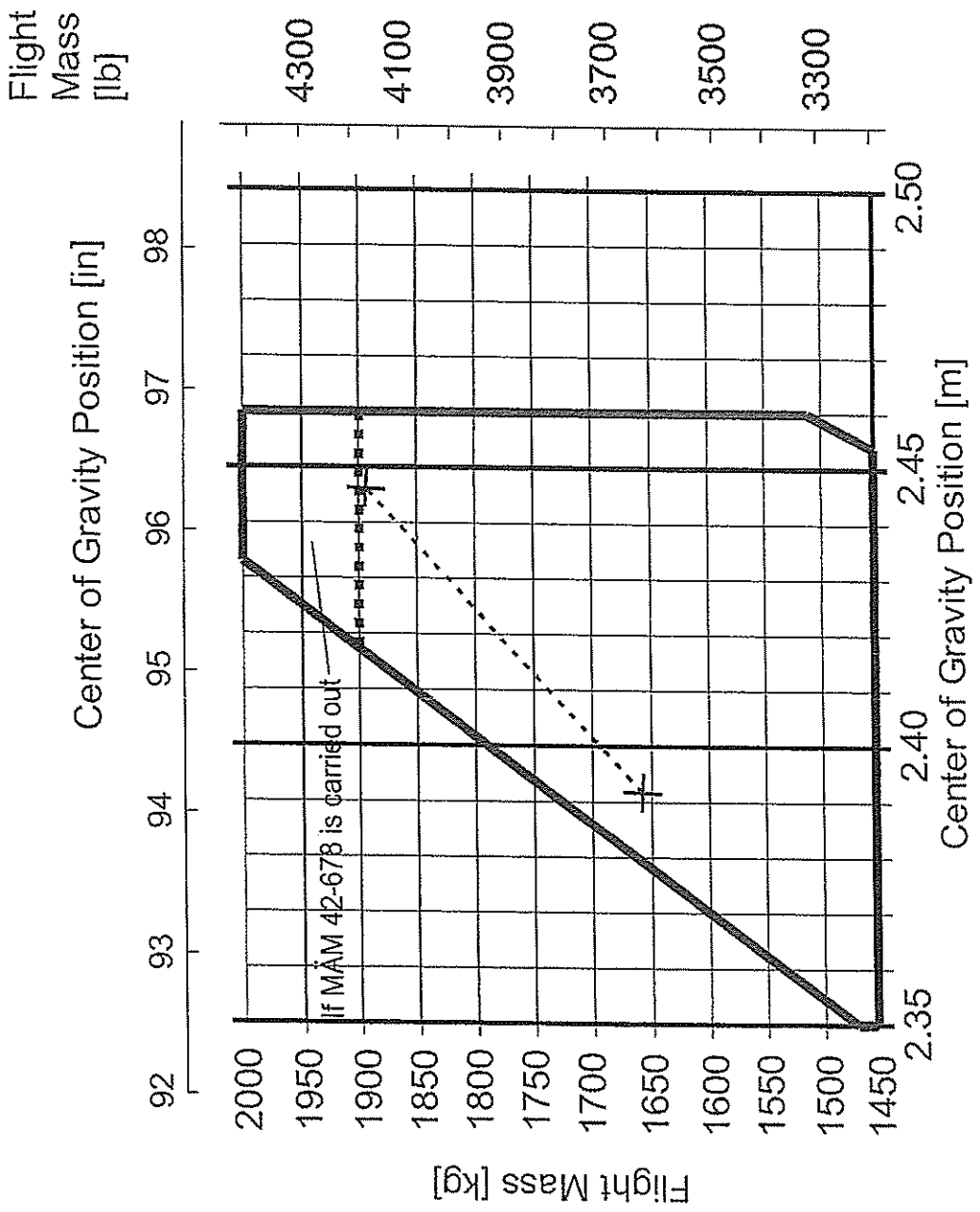
CALCULATION OF LOADING CONDITION	DA 42 NG (Example)		Your DA 42 NG	
	Mass [kg] [lb]	Moment [kgm] [in.lb]	Mass [kg] [lb]	Moment [kgm] [in.lb]
10. De-Icing fluid (if OÄM 42-160 AND OÄM 42-203 are installed; see NOTE on previous page) (1.1 kg/liter) *(9.2 lb/US gal)* Lever arm: 4.52 m *(178.0 in)*	0 *0*	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.

Take-Off Distance - Normal Procedure - 1700 kg / 3748 lb

Weight: 1700 kg / 3748 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]						
		0 / 32	10 / 50	20 / 68	30 / 86	40 / 104	50 / 122	ISA
SL	Ground Roll	330	350	360	390	460	560	350
	15 m / 50 ft	580	600	630	680	810	1010	613
1000 305	Ground Roll	350	360	390	420	500	600	367
	15 m / 50 ft	598	630	670	730	890	1100	633
2000 610	Ground Roll	370	390	410	450	540	650	384
	15 m / 50 ft	630	660	700	780	970	1190	661
3000 914	Ground Roll	390	410	440	480	590	710	401
	15 m / 50 ft	660	700	740	840	1050	1290	689
4000 1219	Ground Roll	410	430	460	530	640	770	420
	15 m / 50 ft	700	730	790	910	1140	1390	717
5000 1524	Ground Roll	430	460	490	580	700		439
	15 m / 50 ft	730	770	840	1000	1240		748
6000 1829	Ground Roll	460	490	530	630	760		461
	15 m / 50 ft	770	820	900	1090	1340		779
7000 2134	Ground Roll	480	520	560	680	820		483
	15 m / 50 ft	810	870	960	1180	1450		815
8000 2438	Ground Roll	520	550	610	740	890		507
	15 m / 50 ft	860	920	1030	1290	1570		853
9000 2743	Ground Roll	550	590	670	810	970		532
	15 m / 50 ft	910	980	1130	1410	1740		891
10000 3048	Ground Roll	590	640	740	910			560
	15 m / 50 ft	980	1070	1270	1600			935

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:

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

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)
90 KIAS up to 1900 kg (4189 lb)

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	
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.

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:

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

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	
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.

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)
84 KIAS up to 1900 kg (4189 lb) — **Gear: extended**

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	
1700 / 3748	SL		865	845	830	810	795	725	575	410	805
	2000	610	830	810	795	775	740	640	470	315	777
	4000	1219	795	775	760	735	675	545	375	225	746
	6000	1829	760	735	710	680	595	440	285		707
	8000	2438	710	685	665	620	520	350	200		667
	10000	3048	660	635	600	520	380	205			626

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

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 - 1700 kg / 3748 lb

Weight: 1700 kg / 3748 lb
Flaps: LDG
V_{REF}: 84 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	320	340	350	360	390	430	335
	15 m / 50 ft	550	570	590	600	650	730	577
1000	Ground Roll	340	350	360	370	410	460	346
305	15 m / 50 ft	570	590	610	620	680	760	591
2000	Ground Roll	350	360	370	380	430	480	356
610	15 m / 50 ft	590	610	630	640	720	800	605
3000	Ground Roll	360	370	380	400	450	500	367
914	15 m / 50 ft	610	630	640	670	750	840	621
4000	Ground Roll	370	380	400	420	480	530	376
1219	15 m / 50 ft	630	650	660	700	790	880	636
5000	Ground Roll	390	400	410	450	500		388
1524	15 m / 50 ft	650	670	690	740	830		652
6000	Ground Roll	400	410	430	470	530		401
1829	15 m / 50 ft	670	690	710	780	870		670
7000	Ground Roll	420	440	450	500	560		417
2134	15 m / 50 ft	690	720	740	820	920		693
8000	Ground Roll	450	460	490	550	610		445
2438	15 m / 50 ft	740	760	790	890	990		731
9000	Ground Roll	490	510	540	610	680		481
2743	15 m / 50 ft	790	810	860	960	1070		775
10000	Ground Roll	530	550	600	670			522
3048	15 m / 50 ft	850	870	940	1050			828

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

Landing Distance - Flaps LDG - 1805 kg / 3979 lb

Weight: 1805 kg / 3979 lb
Flaps: LDG
v_{REF}: 84 KIAS
Power: IDLE
Runway: dry, paved, level

Press. Alt. [ft] / [m]	Distance [m]	Outside Air Temperature - [°C] / [°F]						
		0 / 32	10 / 50	20 / 68	30 / 86	40 / 104	50 / 122	ISA
SL	Ground Roll	334	347	360	370	401	451	353
	15 m / 50 ft	573	590	607	625	672	753	598
1000 305	Ground Roll	347	360	371	384	423	473	364
	15 m / 50 ft	590	608	626	644	705	790	613
2000 610	Ground Roll	360	371	385	399	445	500	373
	15 m / 50 ft	608	627	645	663	741	827	629
3000 914	Ground Roll	372	386	400	415	470	528	385
	15 m / 50 ft	628	646	665	691	777	866	645
4000 1219	Ground Roll	386	401	413	440	494	553	397
	15 m / 50 ft	647	667	687	726	816	909	661
5000 1524	Ground Roll	399	414	429	463	522		407
	15 m / 50 ft	668	689	709	764	856		679
6000 1829	Ground Roll	415	431	444	490	552		420
	15 m / 50 ft	690	710	732	803	898		696
7000 2134	Ground Roll	435	451	465	523	588		437
	15 m / 50 ft	719	741	764	852	952		721
8000 2438	Ground Roll	466	484	503	571	638		465
	15 m / 50 ft	760	783	814	917	1025		758
9000 2743	Ground Roll	506	522	556	626	703		500
	15 m / 50 ft	809	835	884	995	1109		802
10000 3048	Ground Roll	550	570	615	694			540
	15 m / 50 ft	868	894	964	1082			855

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