National Weather Association
Aviation Meteorology Committee

View “Bookmarks” for Table of Contents.

NAVIGATION

START (From Beginning)

PAUSE

PLAY (After Pause)

STOP (At End)

Note

Allow animation to finish or “Click” STOP to diable audio before preceeding to another page.

Weather Theory for Pilots

Although, specifically intended for new or low-time pilots, Aircraft Performance provides those without formal recurrent training programs with primary and refresher training in the fundamental of determining aircraft performance and its application to flight operations.

probable cause(s)—NTSB probable cause is NOT a legal determination and may NOT be used in any suit or action. Only a Court can determine cause and assign liability.

Introduction

Weather Theory for Pilots

Aircraft Performance

Weather Theory for Pilots

Determining Pressure Altitude

Airport Elevation = 400 ft.

Weather Theory for Pilots

Runway Gradient/Crosswind

Magnetic Wind Direction

The only time pilots can expect to receive “official” wind direction in relation to magnetic north is from a control tower, an FSS providing Local Airport Advisory (LAA), ATIS recording/broadcast, or AWOS/ASOS radio broadcast.

Weather Theory for Pilots

Performance Calculations

AIRCRAFT: N738ZL PILOT: P. Pilot DATE: 1-4-20XX

PERSONAL MINIMUMS:

CEILING	VISIBILITY	WIND	X/WIND	FUEL

ENVIRONMENTAL CONDITIONS (TAKEOFF):

TIME	WIND	VIS	SKY	TEMP	DP	ALSTG	ELEV	RY	LENGTH	SLOPE

GO ❑ NO GO ❑

DEPARTURE CALCULATIONS:

ELEVATION	± PA COR	PRESS ALT	HD/WIND	X/WIND

GO ❑ NO GO ❑

AIRCRAFT PERFORMANCE:

	GROUND RUN	CLEAR 50' OBSTL	CLIMB @ 1000' AGL
TAKEOFF			

GO ❑ NO GO ❑

Weather Theory for Pilots

Weight & Balance

LOADING	WEIGHT	MOMENT/1000
EMPTY WT. (POH)		
FUEL @ 6 lbs/gal		
OIL @ 7.5 lbs/gal		
PILOT & PASSENGER		
REAR PASSENGERS		
BAGGAGE AREA 1		
BAGGAGE AREA 2		
RAMP		
TAXI ALLOWANCE		
TAKE OFF		
ENROUTE (-)		
LANDING		

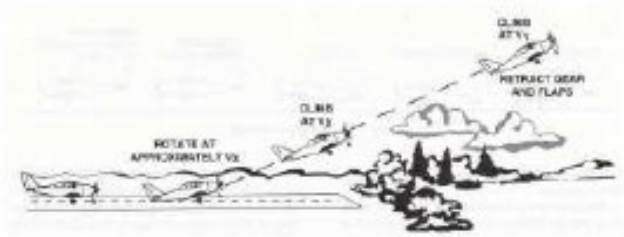
WEIGHT AND BALANCE CALCULATIONS?

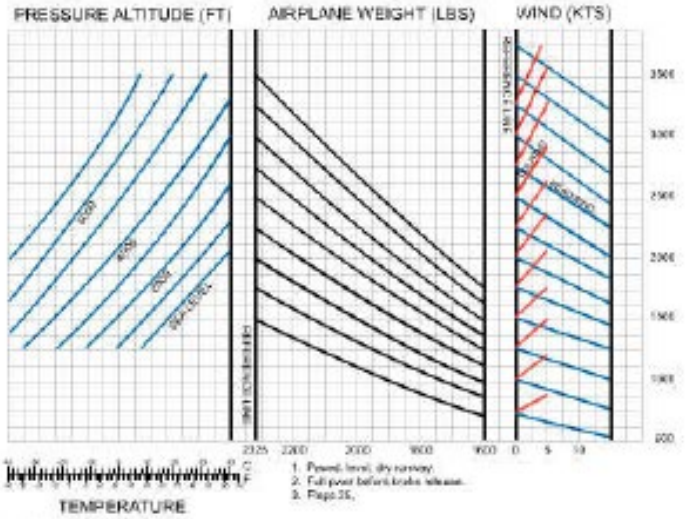
GO ☐ NO GO ☐

CHECK BY: _____ DATE: _____
(CFI/DISPATCHER)

Weather Theory for Pilots

Takeoff Performance



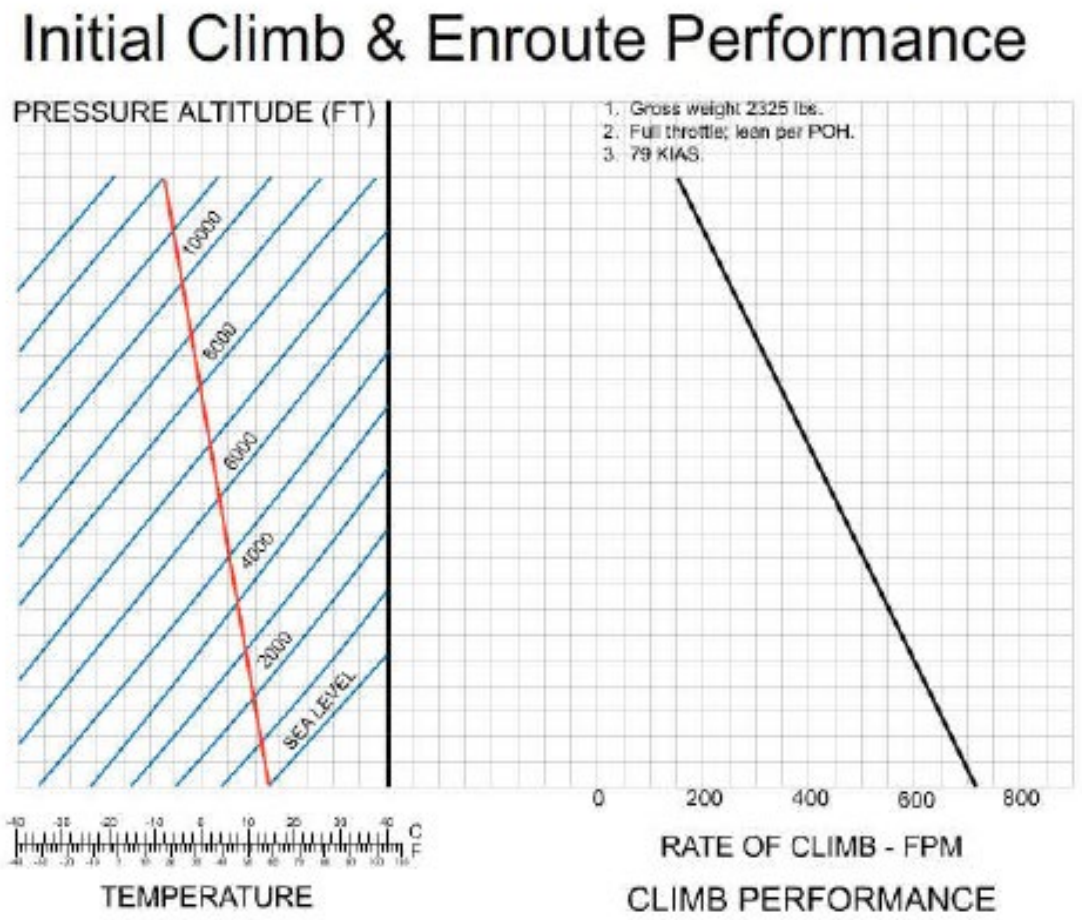


CONDITIONS:
Flaps 15°
Full Throttle Prior to Brake Release
Paved, Level, Dry Runway

WEIGHT (LBS)	PRESS ALT (FT)	0°C GND ROLL	0°C 50' OBS	10°C GND ROLL	10°C 50' OBS	20°C GND ROLL	20°C 50' OBS	30°C GND ROLL	30°C 50' OBS	40°C GND ROLL	40°C 50' OBS
2300	S.L.	690	1290	745	1340	850	1440	885	1540	925	1655
	1000	780	1370	820	1475	880	1585	950	1705	1020	1830
	2000	835	1510	900	1625	970	1750	1045	1885	1125	2030
	3000	930	1670	990	1800	1070	1940	1150	2095	1235	2260
	4000	1010	1850	1080	2000	1160	2165	1270	2340	1365	2535
	5000	1115	2060	1205	2235	1300	2425	1405	2635	1510	2860
	6000	1235	2310	1335	2515	1440	2740	1555	2995	1675	3265
	7000	1370	2610	1480	2850	1600	3125	1730	3430	1865	2773
	8000	1520	2975	1645	3270	1780	3610	1925	4030	2080	4465

NOTES:
1. Decrease distance 10% for each 9 knots headwind.
2. For tailwinds up to 10 knots, increase distance by 10% for each 2 knots.
3. For operation on dry, grass runway, increase distance by 15% for the "ground roll" figure.

Weather Theory for Pilots



Refer to the Altimetry module in the Application of Weather Theory block for additional discussion, and calculating density altitude.

Weather Theory for Pilots

Landing Performance

Performance Calculations

AIRCRAFT: N738ZL PILOT: P. Pilot DATE: 1-4-20XX

PERSONAL MINIMUMS:

CEILING	VISIBILITY	WIND	X/WIND	FUEL
4000 ft	5 SM	20 GUSTS 5	10 KT	2+30

ENVIRONMENTAL CONDITIONS (LANDING): ATIS "U"

TIME	WIND	VIS	SKY	TEMP	DP	ALSTG	ELEV	RY	LENGTH	SLOPE
2025Z	2911G16	10	CLR	22	00	29.89	400	25R	5253	0

GO ☑ NO GO ☐

ARRIVAL CALCULATIONS:

ELEVATION	± PA COR	PRESS ALT	HD/WIND	X/WIND
400 ft	+30 ft	≈ 500 ft	≈10 KT	10 KT

GO ☑ NO GO ☐

AIRCRAFT PERFORMANCE:

	GROUND RUN	CLEAR 50' OBSTL	CLIMB @ 1000' AGL
LANDING			

GO ☐ NO GO ☐

Weather Theory for Pilots

Acknowledgements