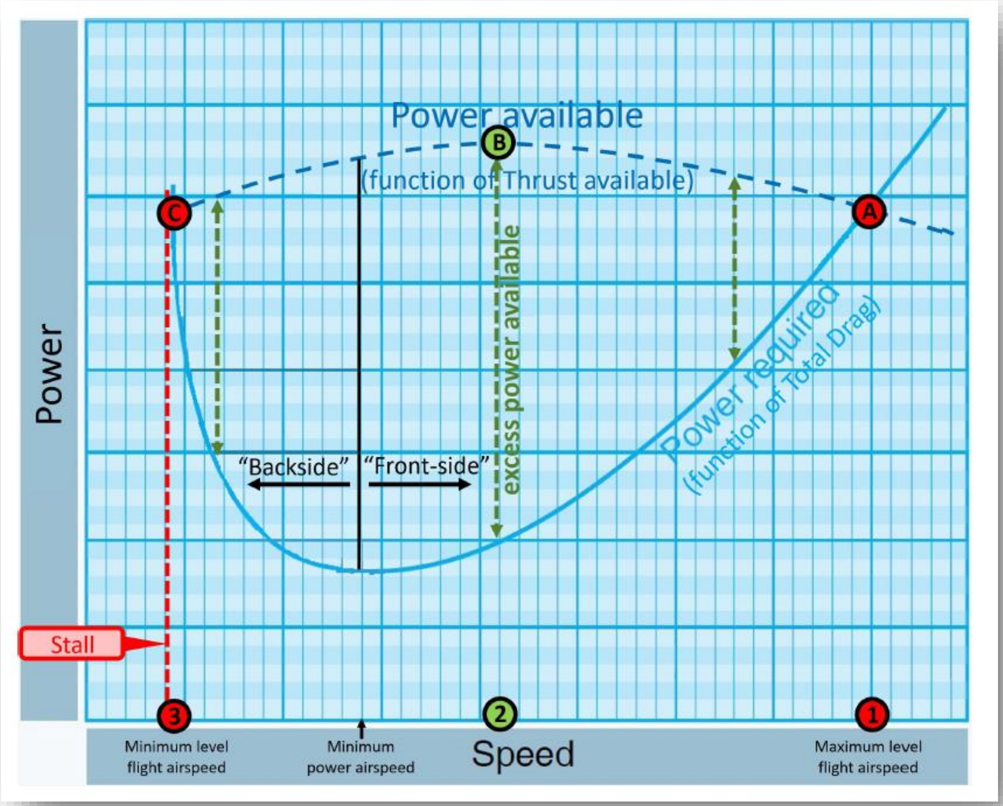
The National FAA Safety Team Presents

Federal Aviation Administration

Topic of the Month—May 2024

Energy Management—Part 2 (of 2)



Presented to: Safety Minded Aviators, Everywhere…

By: Stephen Bateman, CFI, Chocks Away Aviation, LLC

Date: Tuesday 21st May 2024

Produced by:
The National FAA Safety Team (FAASTeam)

Welcome

- **Steve Bateman, CFI; Chocks Away Aviation, LLC**
- **Instructor, Professional Pilot Program, COCC, Bend, OR**
- **FAASTeam Lead Rep Portland FSDO; *WINGS*Pro**
- **Thanks for AOPA You Can Fly**

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- **Contact Info:**

  sbateman7799@gmail.com

- ***Do not try to communicate using Reply To:***

WINGS PRO

Not Recorded, But Even Better…

- **PDF of these slides available for further study and use**
- **Actual slides post on the third Sunday of every month**
- **https://bit.ly/ToMSafetyArticle**

- **Select the safety article (month) of interest**
- **Open and save the PDF**
- **I'LL SHOW THIS INFO AGAIN AT THE END OF THE PRESENTATION**

- **Thanks to the AOPA Flying Clubs Initiative**

YOU CAN FLY
FLYING CLUBS

Energy Management – In Two Parts (April and May TOM)

- **April Part-1: Some background and theory**

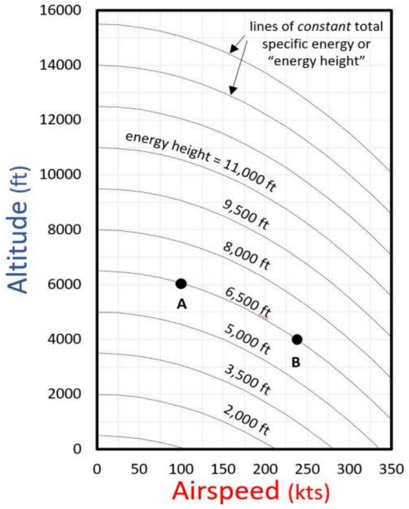
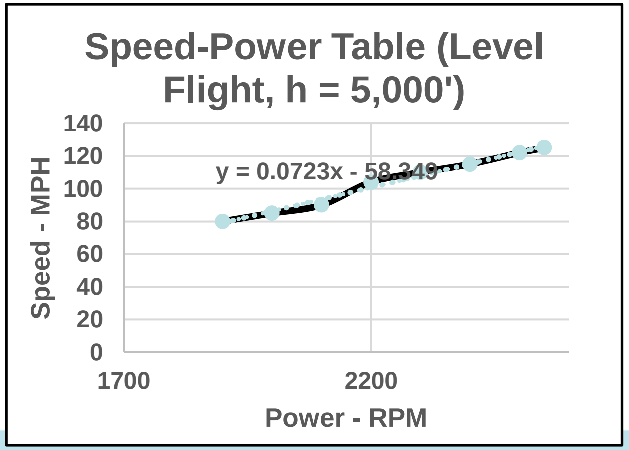


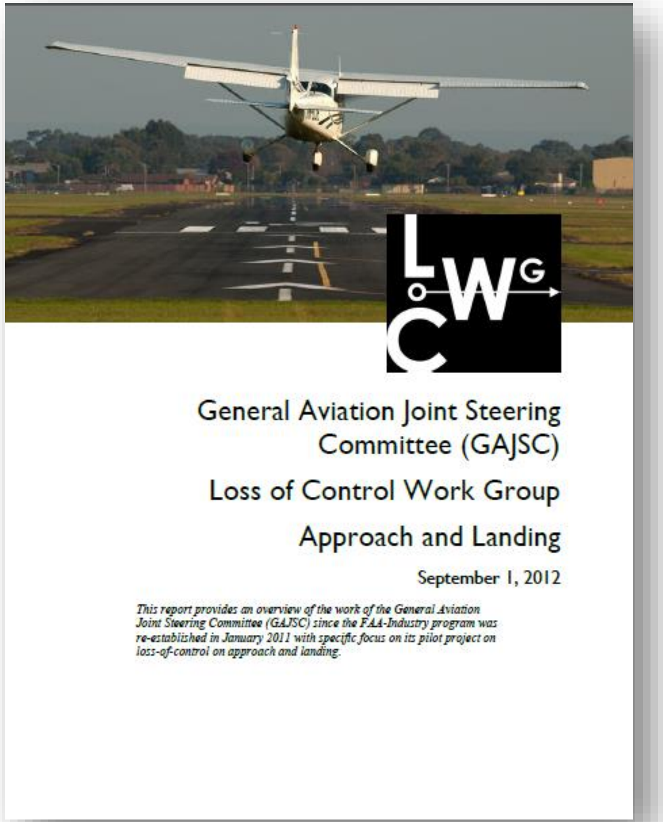
Figure 4-6. *The altitude-speed "map" showing lines of constant energy height.*

- **May Part 2: Putting it together in real world situations**



Overview

- **Aircraft Performance Awareness**
  - GAJSC: Many aircraft incidents are the results of a lack of understanding of energy management:
    - Hard landings
    - Stall on take-off
    - Stall-spin situations
    - Slow flight/moose turns
    - High DA operations
    - “Trying” aerobatics
- **Aircraft Energy Terminology**
  - Total energy
  - Energy exchange
  - Adding energy
- **Managing Energy**
- **Solving Energy Problems**
- **Energy Scenarios**


General Aviation Joint Steering Committee (GAJSC)

Loss of Control Work Group

Approach and Landing

September 1, 2012

This report provides an overview of the work of the General Aviation Joint Steering Committee (GAJSC) since the FAA-Industry program was re-established in January 2011 with specific focus on its pilot project on loss-of-control on approach and landing.

***GAJSC – General Aviation Joint Safety Committee**

Part 2: Energy Scenarios and Examples

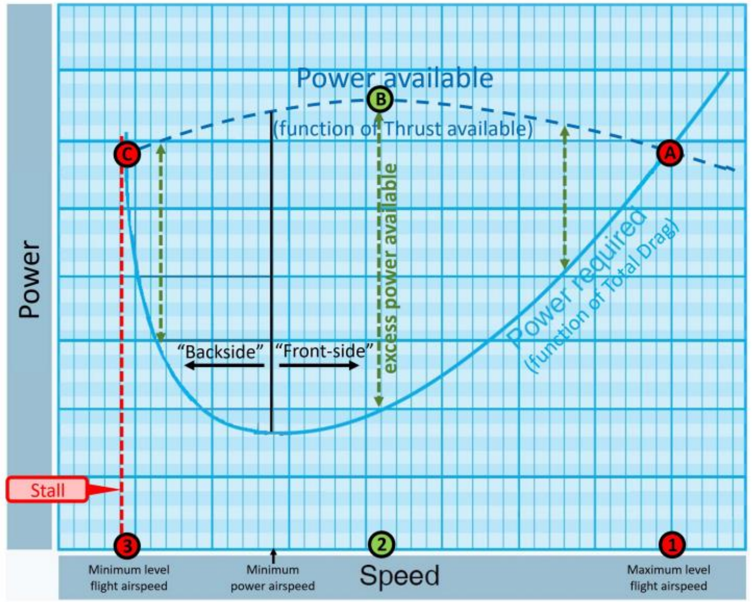
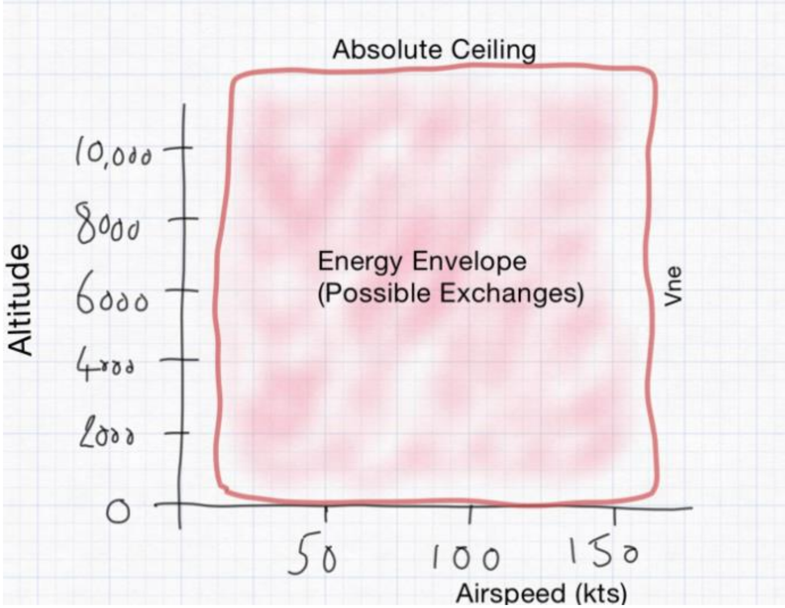


Figure 4-4. *The front side and backside of the power required curve, the power available curve, and the relative excess power available (power available - power required) at different speeds.*



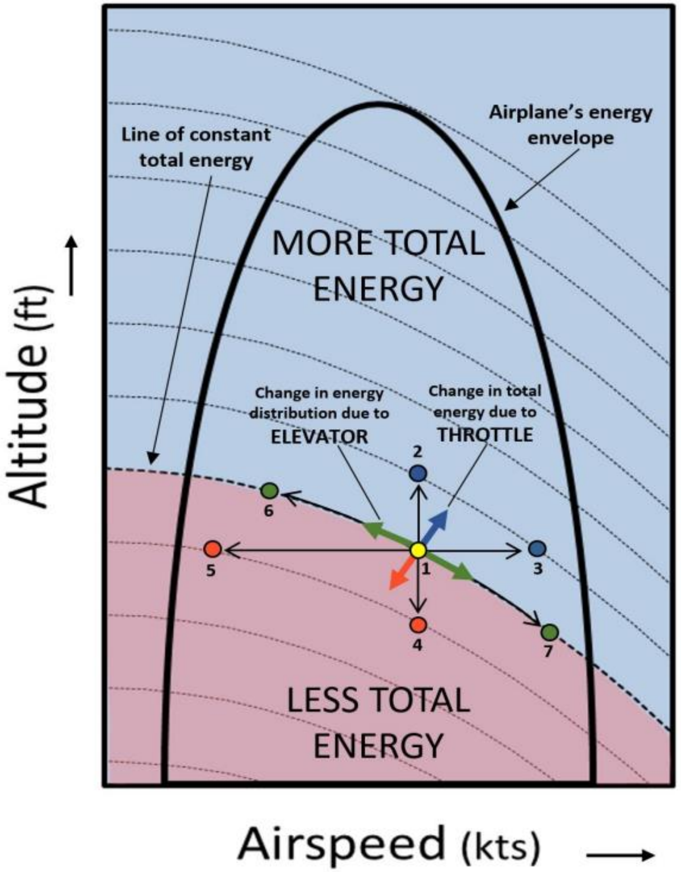


Figure 4-8. *The energy-control map helping to visualize the basic energy control rules.*

Energy controls

- **Throttle**
  - Total energy regulator

- **Elevator**
  - Energy exchanger

Energy instruments

- Airspeed and Altimeter

- Tach and Manifold Pressure

Risks Mitigation From Energy Mismanagement

- **Know your aircraft**
- **Read and understand the PoH…especially Limitations and Performance**
- **Then calibrate *your actual* aircraft**
- **Remember:**
- **Throttle = Total Energy control/regulator (how much)**
- **Elevator = Energy Allocation control (exchange)**
- **Mismanagement occurs when energy demands exceed energy availably in different situations**
- **May have to add energy or redistribute existing energy**

Risks Mitigation From Energy Mismanagement

- **Unintended airspeed or altitude deviations**
  - Conditions (DA, weight) demanding more energy then “normal” or available
  - Hot, high, humid, heavy climb requirement exceeding capability
  - If total energy is maximum (full power), only recourse is energy exchange
  - PE to KE (trade altitude for airspeed)
  - KE to PE (trade airspeed for altitude)

Risk and Actions

- **We must be able to identify, assess and mitigate two risks associated with energy mismanagement;**

1. **Unwanted deviations from the desired energy state**
   a. Unintended speed-altitude deviations
   b. Example scenario:
      - Unintentionally descending below the glide slope on approach to landing and failing to make the proper corrections. Pitch up, throttle up…or both?

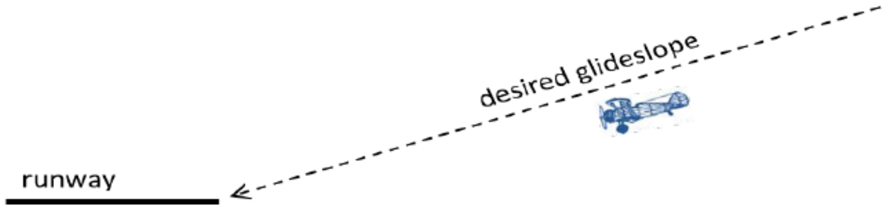


Figure 4-9. *Descending below the desired glideslope.*

2. **Unintentional, deceleration and/or sink rate causing rapid depreciation of mechanical energy**
   a. Unforeseen, continuous energy loss coupled with little or no excess power
   b. Example scenario:
      - Taking off in high DA conditions towards rising terrain, with nowhere to turn. What can be done?

Managing Energy Errors

1. **Unwanted deviations from the desired energy state**
   a. Unintended speed-altitude deviations
   b. Example:
      - Unintentionally descending below the glide slope on approach to landing and failing to make the proper corrections. Pitch up, throttle up…or both?
      - Goal is to get back to target energy state

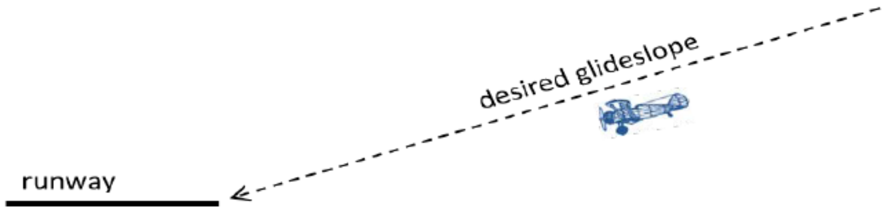


Figure 4-9. *Descending below the desired glideslope.*

Energy Error Situations

- **Two types of energy errors:**
  - Total energy errors
  - Energy distribution errors
- **Instruments:**
  - ASI
  - Altimeter
- **Senses**
  - Pitch attitude
  - Wind noise
  - Control feel

Energy Error Situations

- **Total energy issues:**
  - Blue boxes = too much total energy
  - Red boxes = too little total energy
  - Speed and altitude deviate in the same direction
    - High and fast (box 7)
    - Low and slow (box 3)

- **Energy distributions issues:**
  - Green boxes = total energy okay, but speed and altitude deviate in different directions
    - High and slow (box 1)
    - Low and fast (box 9)

Airspeed

Altitude	Slower	Desired Airspeed	Faster
Higher	(1) Total Energy: OK Potential energy: high Kinetic Energy: low	(4) Total Energy: high Potential energy: high Kinetic Energy: OK	(7) Total Energy: very high Potential energy: high Kinetic Energy: high
Desired Altitude	(2) Total Energy: low Potential energy: OK Kinetic Energy: low	**(5) Desired Energy State** Total Energy: OK Potential energy: OK Kinetic Energy: OK	(8) Total Energy: high Potential energy: OK Kinetic Energy: high
Lower	(3) Total Energy: very low Potential energy: low Kinetic Energy: low	(6) Total Energy: low Potential energy: low Kinetic Energy: OK	(9) Total Energy: OK Potential energy: low Kinetic Energy: high

Figure 4-11. *An energy state matrix that translates the main altitude-speed deviations into energy errors relative to the desired energy state (5).*

Correcting Energy Error Situations

Altitude \ Airspeed	Cautions when Very Slow	Slower	Desired speed	Faster
Higher	Relatively safe. Surplus altitude is available to gain speed by pushing the elevator forward.	(1) Exchange energy by pushing the elevator forward to accelerate and descent simultaneously. Maintain the throttle setting.	(4) Reduce throttle setting to reduce total energy. Use elevator to maintain correct airspeed and allow the airplane to descend.	(7) Reduce throttle setting significantly to decrease total energy. Pull back on elevator gradually to decelerate to correct airspeed and then descend.
Desired altitude	Risky. Consider gaining speed at the expense of some altitude initially to improve climb performance with full throttle.	(2) Increase throttle setting to gain total energy by accelerating. Use elevator to maintain the desired altitude.	(5) DESIRED ENERGY STATE Maintain both throttle and elevator (trim) settings.	(8) Reduce throttle setting to decelerate. Use elevator to maintain the desired altitude.
Lower	Dangerous! Apply full throttle to resolve this condition. Avoid pitching up, which would increase drag and reduce or impede climb performance when on the backside of the power required curve.*	(3) Increase throttle setting significantly to gain total energy. Push elevator forward gradually to accelerate to correct airspeed and then climb.	(6) Increase throttle setting to gain altitude and pull back on elevator to maintain correct airspeed.	(9) Exchange energy by pulling the elevator back to climb and decelerate simultaneously. Maintain the throttle setting.

* Depending on aircraft type, as full throttle is applied at the start of correction maneuver, slight forward or aft elevator pressure may be needed to maintain a constant pitch attitude. As the airplane gains total energy, use the elevator to accelerate to correct airspeed and then climb.

Figure 4-12. *The control skills needed to correct total energy and energy distribution errors identified in Figure 4-11 with an additional column giving caution to the "very slow" condition where careful AOA management is needed in addition to energy management.*

Scenario 1:

- **Below the glide slope::**
  - Unintentionally descending below the glide slope on approach to landing and failing to make the proper corrections. Pitch up, throttle up…or both?
  - Three below glide slope situations shown here – B, C, D
  - Low, but now check airspeed against target:
  - B – Low and slow
    - Increase throttle to regain total energy (climb)
    - Assumes sufficient excess power to climb…may not be the case if very slow and behind the power curve
    - Further pitch will increase drag and reduce speed even more
    - May have to *push* forward stick (reduce AOA and induced drag) and use the extra energy to speed up, before attempting the climb.
    - !!DANGER!! Watch out for obstacles and hard deck!
  - D – Low and fast.
    - Up elevator to regain speed and altitude
    - If not too far below, level off and regain the glide slope

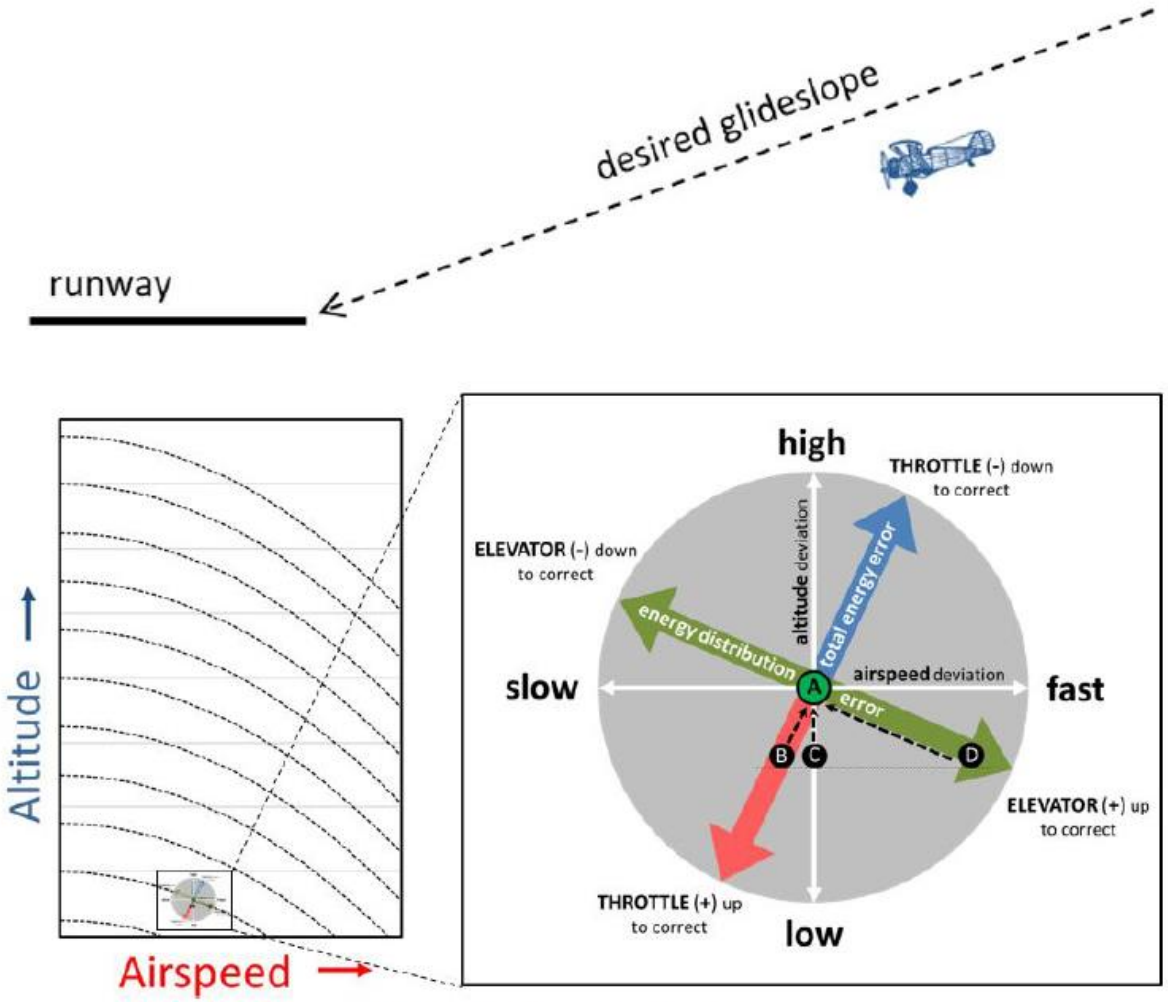


Figure 4-13. *Energy error management.*

Scenario 1:

- **Below the glide slope::**
  - Low, but now check airspeed against target:
  - C – Low and on speed
    - Combo of total energy and distribution errors
    - Must increase throttle to climb, and pull back on yoke to maintain target airspeed
    - Reduce throttle and push forward when back on glide slope.
    - Generally, throttle and elevator, simultaneously
    - Trim and throttle tweaks to maintain required glide slope gradient, whilst on target speed (will require monitoring ground speed)
    - FPM required to maintain gradient = FRNM * GS/60
    - Example: Maintaining a 3-degree glide slope requires 318 feet per NM gradient.
      - At GS = 60 kts, rate of descent= 318 FPM
      - At GS = 90 kts, rate of descent= 477 FPM
    - Now have a third instrument to help stay stabilized – the VSI
    - Use the table at the back of the Terminal Procedures Publication or make your own

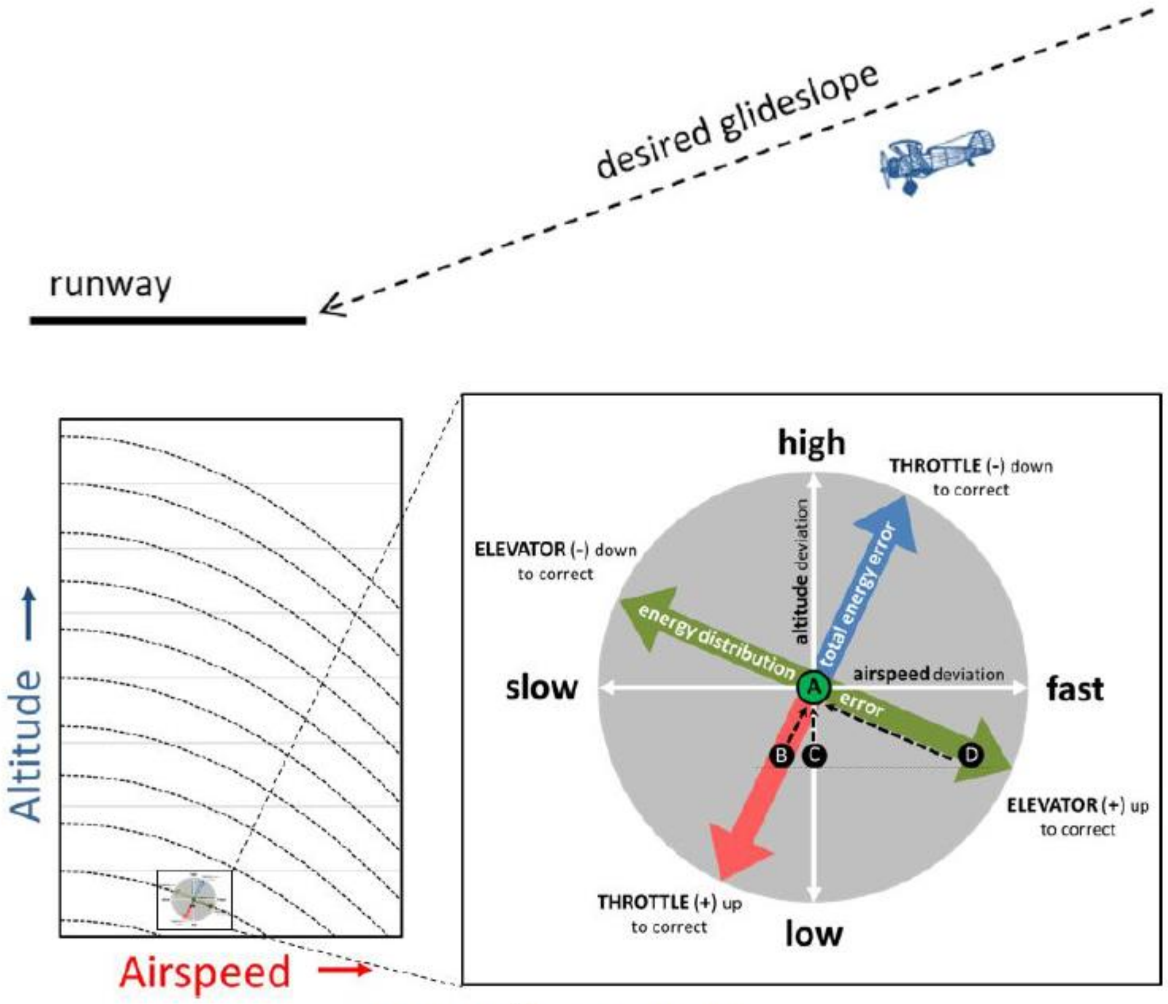


Figure 4-13. *Energy error management.*

Back Page of TPP

INSTRUMENT TAKEOFF OR APPROACH PROCEDURE CHARTS
RATE OF CLIMB/DESCENT TABLE
(ft per min)

A rate of climb/descent table is provided for use in planning and executing climbs or descents under known or approximate ground speed conditions. It will be especially useful for approaches when the localizer only is used for course guidance. A best speed, power, altitude combination can be programmed which will result in a stable glide rate and altitude favorable for executing a landing if minimums exists upon breakout. Care should always be exercised so that minimum descent altitude and missed approach point are not exceeded.

ft/NM	%	GROUND SPEED (knots)											ANGLE
		60	90	120	150	180	210	240	270	300	330	360	
152	2.50	150	230	300	380	460	530	610	680	760	840	910	1.43
200	3.29	200	300	400	500	600	700	800	900	1000	1100	1200	1.89
210	3.46	210	320	420	530	630	740	840	950	1050	1160	1260	1.98
220	3.62	220	330	440	550	660	770	880	990	1100	1210	1320	2.07
230	3.79	230	350	460	580	690	810	920	1040	1150	1270	1380	2.17
240	3.95	240	360	480	600	720	840	960	1080	1200	1320	1440	2.26
250	4.11	250	380	500	630	750	880	1000	1130	1250	1380	1500	2.36
260	4.28	260	390	520	650	780	910	1040	1170	1300	1430	1560	2.45
270	4.44	270	410	540	680	810	950	1080	1220	1350	1490	1620	2.54
280	4.61	280	420	560	700	840	980	1120	1260	1400	1540	1680	2.64
290	4.77	290	440	580	730	870	1020	1160	1310	1450	1600	1740	2.73
300	4.94	300	450	600	750	900	1050	1200	1350	1500	1650	1800	2.83
310	5.10	310	470	620	780	930	1090	1240	1400	1550	1710	1860	2.92
320	5.27	320	480	640	800	960	1120	1280	1440	1600	1760	1920	3.01
330	5.43	330	500	660	830	990	1160	1320	1490	1650	1820	1980	3.11
340	5.60	340	510	680	850	1020	1190	1360	1530	1700	1870	2040	3.20
350	5.76	350	530	700	880	1050	1230	1400	1580	1750	1930	2100	3.30
360	5.92	360	540	720	900	1080	1260	1440	1620	1800	1980	2160	3.39
370	6.09	370	560	740	930	1110	1300	1480	1670	1850	2040	2220	3.48
380	6.25	380	570	760	950	1140	1330	1520	1710	1900	2090	2280	3.58
390	6.42	390	590	780	980	1170	1370	1560	1760	1950	2150	2340	3.67
400	6.58	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	3.77
450	7.41	450	680	900	1130	1350	1580	1800	2030	2250	2480	2700	4.24
500	8.23	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	4.70
550	9.05	550	830	1100	1380	1650	1930	2200	2480	2750	3030	3300	5.17

Scenario 2:

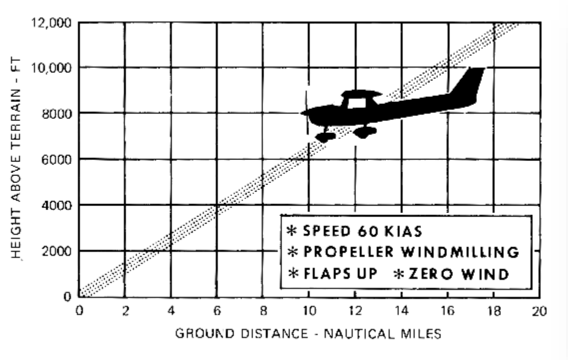
- **Take off on high DA day, surrounded by increasing terrain:**
  - Aircraft takes longer distance to reach rotate speed
  - Climb is lackluster (due to lower available power at high DA)
  - Temptation is to pitch up to “help the climb”…speed drops…climb rate decrease even more
  - Stall horn blares…
  - MUST now reduce AOA below critical…watch out for those mountains…
  - Better techniques:
    - Wait for cooler temperatures
    - Shed some weight
    - If space permits, lower initial pitch and climb rate to maintain a safe flying speed
    - Orbit the departure airport to gain altitude before proceeding on course
  - For a more complete treatment using energy diagrams, see the Airplane Flying Handbook, Pages 4-1 – 4-17

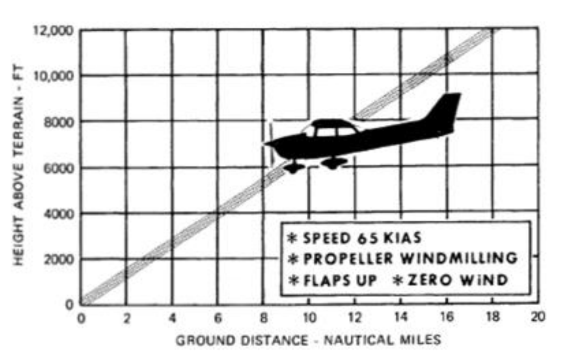
Energy Facts to Know

- **Best glide speed descent details**
  - Glide distance from different AGL?
  - Descent angle?
  - Feet per NM descent?
  - Feet per minute at best glide?
  - Altitude lost in a standard rate turn descent?

  - A152:
    - Slope = 19NM in 12,000’
    - Glide slope (ratio) = 19*6072/12000 = 9.7:1
    - Descent angle = $Tan^{-1}(1/9.7) = 5.9^{o}$
    - Feet per NM descent = 12000/19 = 631 ft/NM
    - FPM at 60 Kts = 631 FPM
    - Altitude lost in a standard rate turn = 1,262 ft
      - Go out and test this!

  - C172:
    - Slope = 18NM in 12,000’
    - Glide slope (ratio) = 18*6072/12000 = 9.1:1
    - Descent angle = $Tan^{-1}(1/9.7) = 5.9^{o}$
    - Feet per NM descent = 12000/18 = 667 ft/NM
    - FPM at 60 Kts = 667 FPM
    - Altitude lost in a standard rate turn = 1,334 ft
      - Go out and test this!





A152 Glide Performance	
Glide Ratio:	**9.7**
AGL (feet)	**NM Glide**
2000	3.2
4000	6.4
5000	8.0
6000	9.6
8000	12.8
10000	16.0

C172 Glide Performance	
Glide Ratio:	**9.1**
AGL (feet)	**NM Glide**
2000	3.0
4000	6.0
5000	7.5
6000	9.0
8000	12.0
10000	15.0

Energy Facts to Know

- **Best rate of climb speed V_Y**
  - Speed at max excess power
- **Best angle of climb speed V_X**
  - Speed at max excess thrust
- **V_Y and V_X vary with altitude**
- **V_A**
  - Wing lift capability vs structural limits
  - Varies with actual weight
  - $V_{Aw} = V_{Am} * \text{SQRT(Actual W/Max Weight)}$
    - $V_{Aw} = V_A$ at actual weight
    - $V_{Am} = V_A$ at max weight
  - Plot your aircraft V_{Aw} curve:

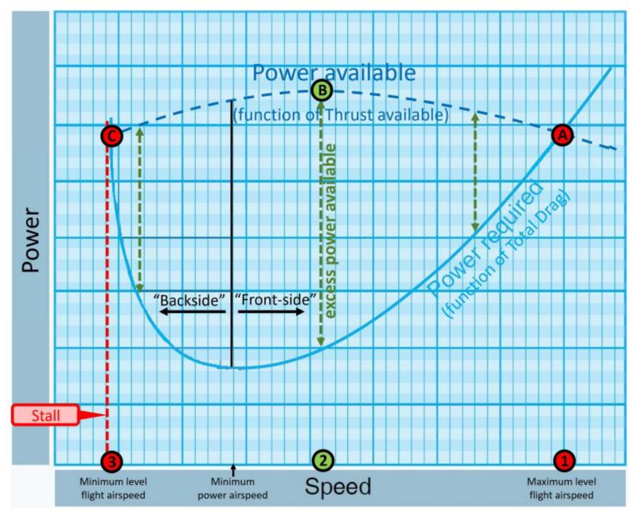
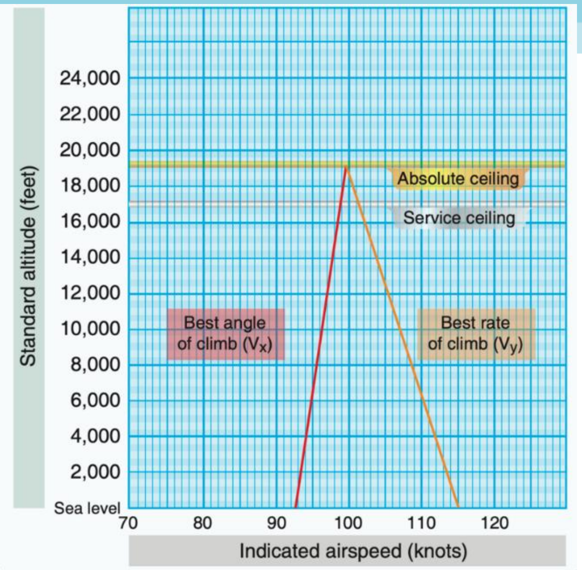
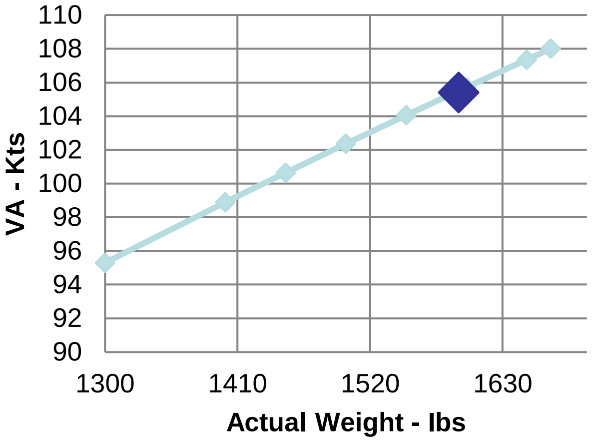


Figure 4-4. *The front side and backside of the power required curve, the power available curve, and the relative excess power available (power available - power required) at different speeds.*



V_A Verses Weight A152



Calibrate Your Aircraft and Energy Contours

- **This is a two-person job**
- **ALWAYS:**
  - Person flying (essentially like instrument flying)
  - Person looking (traffic and writing)
- **Produce the energy contours for your plane**
- **Why…? Because it is a fun flying exercise!**
- **Will need precise flying technique**
- **Helps you understand you aircraft in different configurations**
- **Earn WINGS credit if flying with a CFI**

Calibrate Your Aircraft

- **This is a two-person job**
- **ALWAYS:**
  - Person flying (essentially like instrument flying)
  - Person looking (traffic and writing)
- **Calibrate your plane**
- **Why…? Because it is a fun flying exercise!**
- **Will need precise flying technique**
- **Helps you understand your aircraft in different configurations**
- **Earn *WINGS* credit if flying with a CFI**

Pitch, Power, Performance Tables

Aircraft type:	Tail #: N
Pilot:	Date:

Level Flight No Flaps		
RPM	Pitch Angle	IAS
2500		
2400		
2300		
2200		
2100		
2000		
1900		
1800		
1700		
1600		
1500		

500FPM Descent No Flaps		
RPM	Pitch Angle	IAS
		80
		70
		65
		60

Altiude Loss Per Turn Standard Rate Best Glide =		
Turn #	Altitude	Alt Lost
0		
1		
2		
3		
4		

Power Idle Best Glide = Kts		
Flaps	Pitch Angle	Descent FPM
0		
1		
2		
3		

500FPM Descent First Flap		
RPM	Pitch	IAS
		80
		70
		65
		60

Pattern Numbers (3° approach, zero wind)				
	DW	Abeam	Base	Final
RPM				
IAS				
FPM				
Flaps				
Pitch				

Slow Flight. Level Full Flaps		
RPM	Pitch Angle	IAS
		70
		65
		60
		55
		50
		45

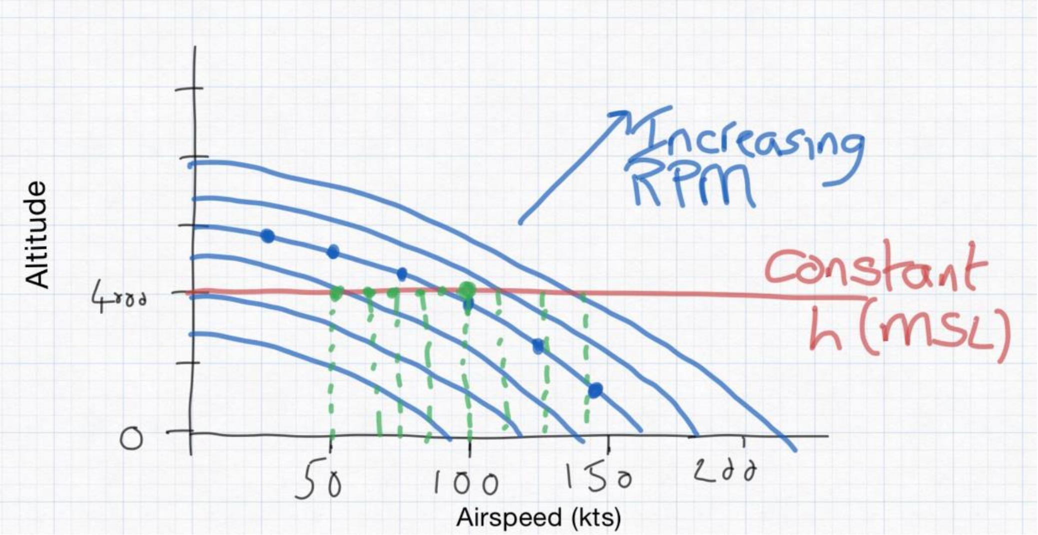
500FPM Descent Full Flaps		
RPM	Pitch Angle	IAS
		80
		70
		65
		60
		55

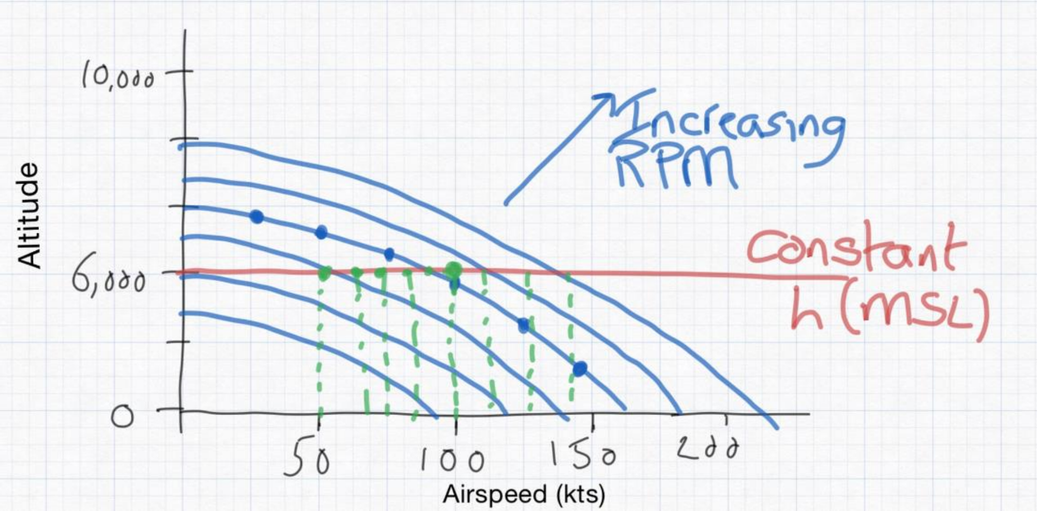
Altiude Lost in "Impossible" Turn Best Glide =		
Turn to:	Altitude	Alt Lost
90°		
180°		
270°		
180°		

Calibrate Your Energy Contours-1

- Determine impact of power on speed, in level flight
- In level flight at h MSL
- Record IAS at different RPM
- Can repeat at different h...

Level Flight at MSL = (No Flaps)		
RPM	IAS	Pitch Angle
2500		
2400		
2300		
2200		
2100		
2000		
1900		
1800		
1700		
1600		
1500		

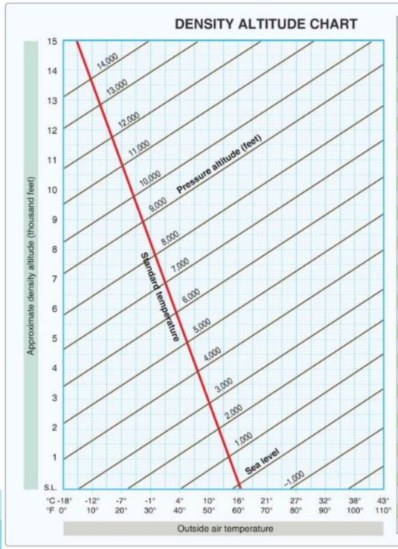




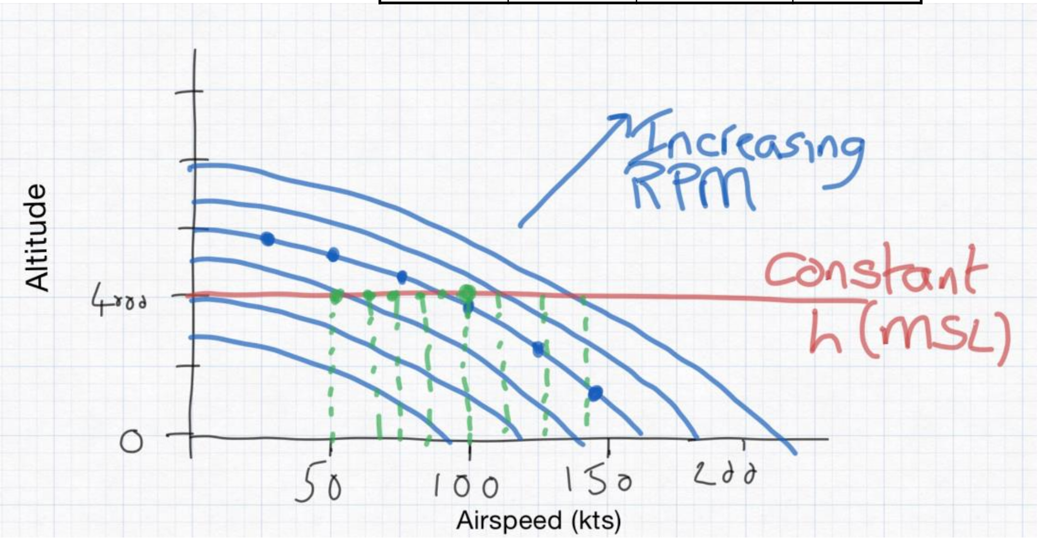
Calibrate Your Energy Contours-1a

- Strictly, KE is due to TAS not IAS, so should take into account DA
- PE is mgh, where h is MSL
- Don't sweat it – convert IAS to TAS for the graph…
- How to determine DA…?
- At each h, record PA (at 29.92") and T
- Use the DA graph, look-up table, equation, etc., to determine TAS

Level Flight at MSL = (No Flaps)			
RPM	IAS	DA	TAS
2500			
2400			
2300			
2200			
2100			
2000			
1900			
1800			
1700			
1600			
1500			

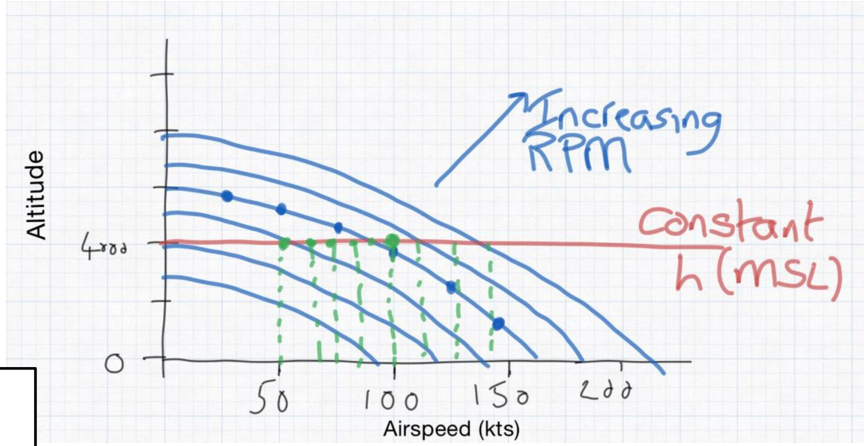


Altimeter setting ("Hg)	Pressure altitude conversion factor
28.0	1,824
28.1	1,727
28.2	1,630
28.3	1,533
28.4	1,436
28.5	1,340
28.6	1,244
28.7	1,148
28.8	1,053
28.9	957
29.0	863
29.1	768
29.2	673
29.3	579
29.4	485
29.5	392
29.6	298
29.7	205
29.8	112
29.9	20
29.92	0
30.0	-73
30.1	-165
30.2	-257
30.3	-348
30.4	-440
30.5	-531
30.6	-622
30.7	-712
30.8	-803
30.9	-893
31.0	-983

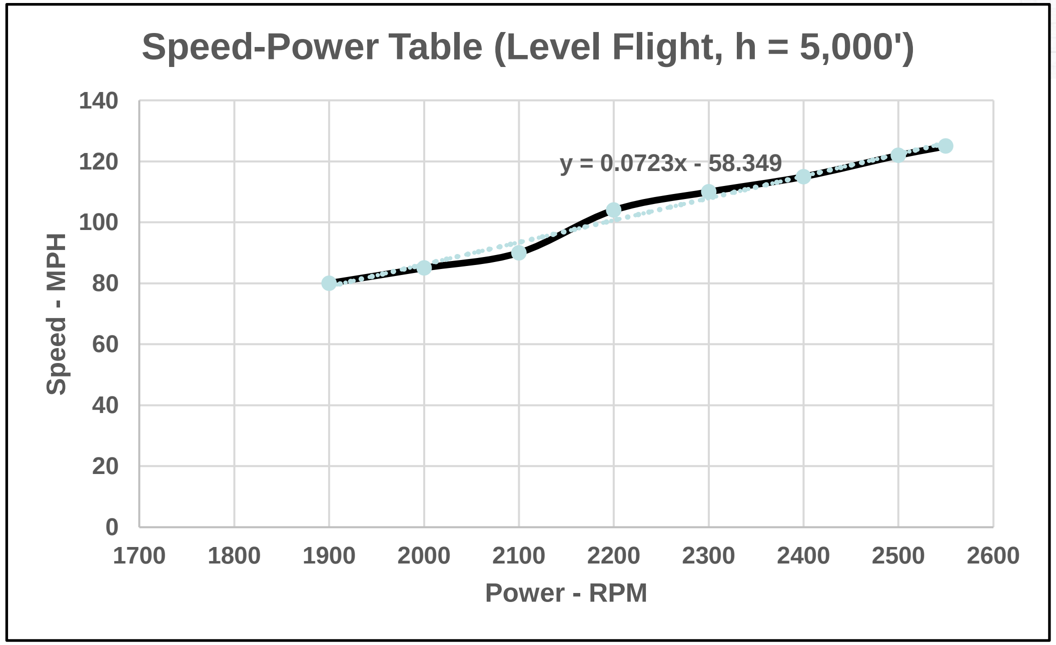


Calibrate Your Energy Contours-1b

- Example: 1974 Cherokee PA-28-180
- Data at 5,000' MSL



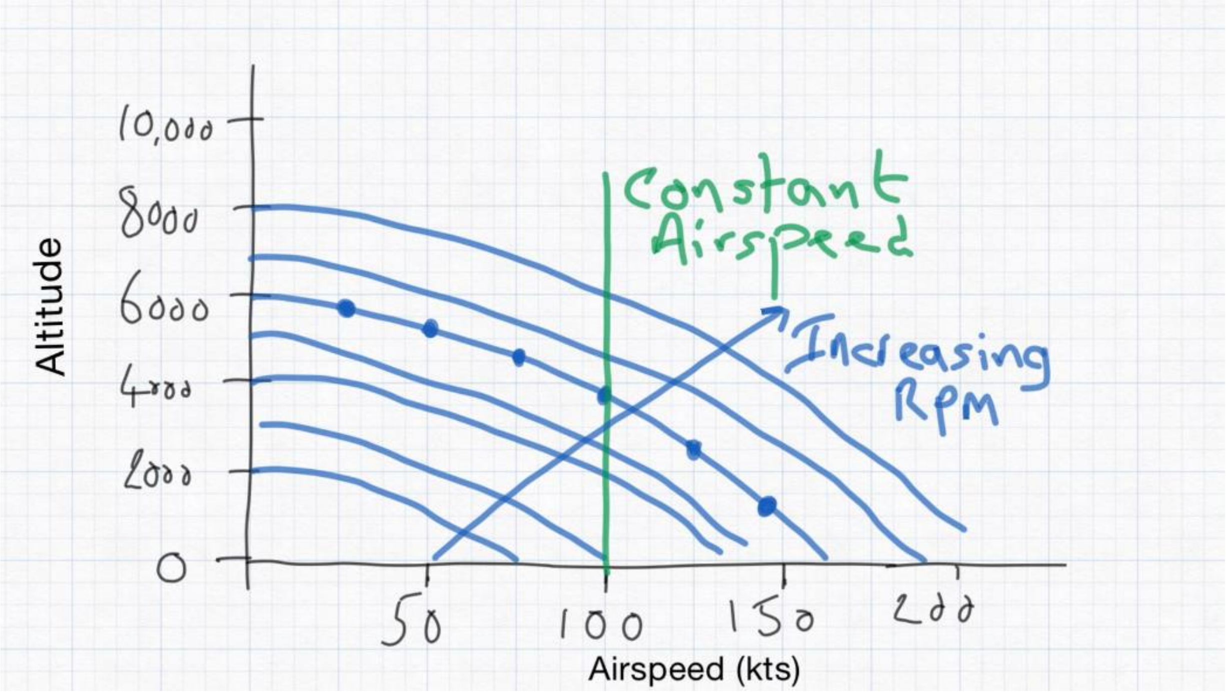
Level Flight	
h = 5,000'	
TAS (MPH)	Power (RPM)
80	1900
85	2000
90	2100
104	2200
110	2300
115	2400
122	2500
125	2550



- Straight-line approximation
- Approx. 7 MPH per 100 RPM under these conditions
- Handy to know!

Calibrate Your Energy Contours-2

- Determine impact of power on ROC, in level flight
- At constant airspeed
- Record ROC at different RPM
- Can repeat at different airspeeds...



Calibrate Your Energy Contours-3

- **Calibrate cruise and climb performance, full power at different Density Altitudes**

Conditions:

Full-Throttle
Mixture - Peak EGT
Note Altimeter setting | 30.13

Operations:

At indicated altitude - MSL | Weight: 2055
Mixture - Peak EGT
Set Alt to 29.92"
Note PA
Note OS air temperature
Estimate Density Altitude from graph if have time
Note S&L cruise speed
Note climb rate FPM at Vy
Note pitch angle

Analysis:

Calculate Pressure Altitude from: PA = MSL + (29.92-SLP)*1000
Compare measured with calculated PA.
Calculate standard temp at that MSL from: TSTD = 15 – (MSL*2)/1000
See that actual temp is hotter than standard - resulting in the high density altitude
Calculate Density Altitude from: DA = PA + (TMSL – TSTD)*120 (or same thing: DA = MSL*1.24 + (29.92-SPL)*1000 + (TMSL -15)*120)
Calculate TAS from estimate equation: TAS ~ IAS + 1 % per 600 ft +/- 1 % per 5°C diff with ISA
Calculate TAS using rule of thumb: TAS ~ IAS + 2% of IAS per 1000' of PA
Compare the two TAS estimates
Note best rate of climb (FPM) and speed at which it was obtained (Vy).
Note that Vy theoretically reduces at ~ 1% per 1000'
Note hours flown = 1.3 and fuel used = 10 galls - so GPH = 7.7

Calibrate Your Energy Contours-3a

- **Calibrate cruise and climb performance, full power at different Density Altitudes**

MSL Altitude	Mixture Leaned	Set 29.92	PA Measured	OS Temp C	Std Temp C	Calc DA	Cruise IAS MPH	Calc TAS MPH	TAS Est (+2% per1000)	RPM (Max)	FPM at Vy	At . of	Pitch Angle (Degrees)
0				29	15	1462							
1468				26	12	2930				2700	900	85	10
3000			2950	18	9	3870	135	143	143	2700	800	85	9
4000			3850	14	7	4630	135	145	145	2700	700	85	8
5000			4775	12	5	5630	128	140	140	2650	700	85	7
6000			5700	11	3	6750	127	141	142	2600	650	85	7
7000			6800	10	1	7870	125	141	142	2550	500	85	6
8000			7800	7	-1	8750	120	138	139	2525	500	80	7
9000			8800	5	-3	9750	120	140	141	2525	400	75	5
10000			9850	5	-5	10990	115	136	138	2525	350	75	4
11000			10825	4	-7	12110	110	132	134	2525	300	75	4
11500				3	-8	12610	100	121	123	2400	250	75	4
12000				2	-9	13110	95	116	117	2400	200	75	4

Other Energy Scenarios to Ponder:

- **On the approach**
  - On speed
  - Below glidepath
- **On the approach**
  - Too fast
  - Below the glideslope
- **On the approach**
  - Too slow
  - Above the glideslope
- **On the approach**
  - Too slow
  - Below the glideslope
- **The impossible turn**
  - Little to do with skill
  - All about energy deficit
- **Level off from a climb/descent**
- **Go around**
- **Low pass**
- **Landing**
  - Out of ground effect
  - In of ground effect
- **Slow flight**
  - Level
  - Climbing
  - Descending
- **Short take off/landing**
- **Soft take off/landing**
- **Getting away quickly from a threat**
- **Canyon turn (1g descending steep turn)**
- **Level turn at 60º bank**
  - Hint: 1g becomes 2g in energy equations

Performance Data :

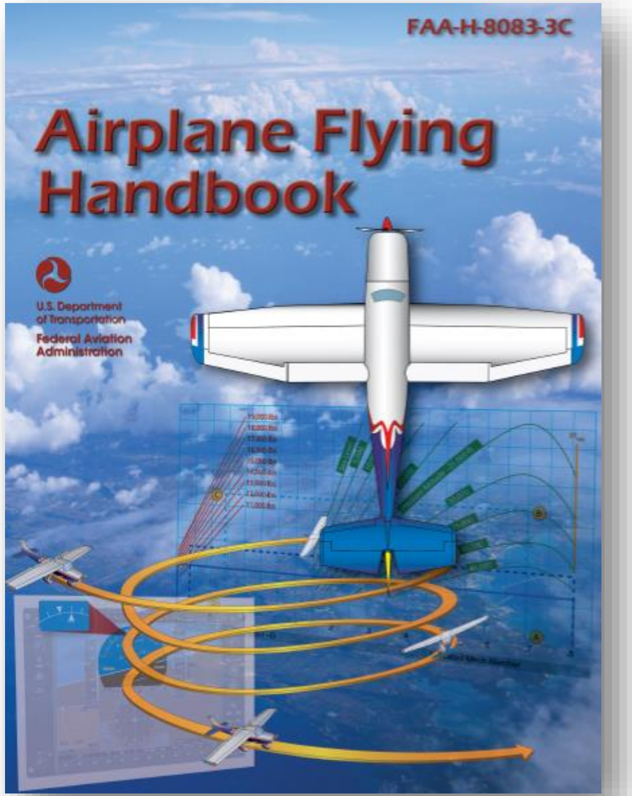
- **Rebuild, by using data collected in-flight, all graphs and tables in the Performance Section of your PoH**
  - Determine what your plane actually does

- **Experimental? Create graphs and tables for your aircraft**
  - Determine what your plane actually does

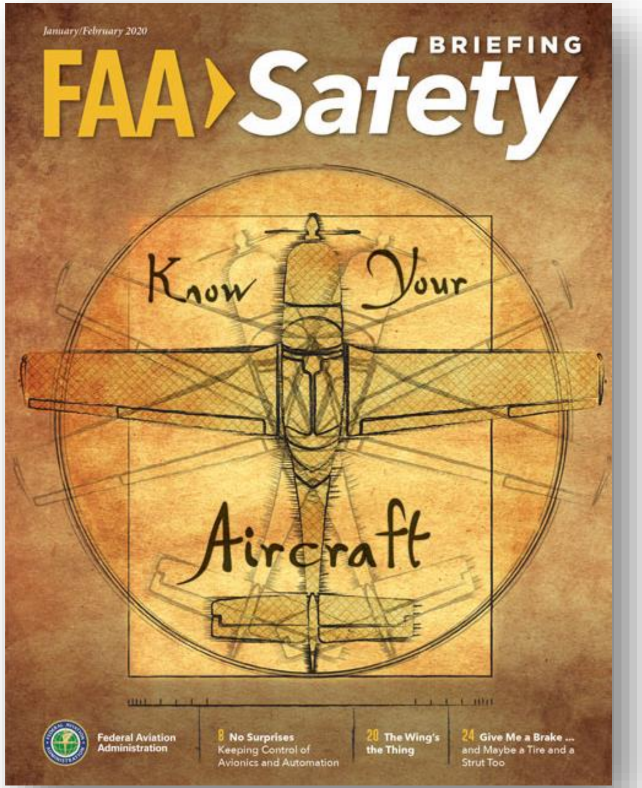
SECTION 5
PERFORMANCE

TABLE OF CONTENTS

For more information



https://tinyurl.com/mr2jux65



https://tinyurl.com/2s42pxmm

References

- **AOPA Energy Management**
  - https://www.aopa.org/news-and-media/all-news/2015/august/flight-training-magazine/energy-management
- **FAA Airplane Flying Handbook – Chapter Four**

Why *WINGS*?

5. ***WINGS* Training yields rewards!**
4. ***WINGS* Proficiency training works!**
3. ***WINGS* coaching gets results!**
2. ***WINGS* broadens your horizons!**
1. *WINGS* pilots are:
  – Competent!
  – Confident!
  – Safe!

Next Month's TOM:

The National FAA Safety Team Presents

Federal Aviation Administration

Topic of the Month – June 2024

After Market Equipment

Presented to:	Safety Minded Aviators, Everywhere…
By:	Stephen Bateman, CFI, Chocks Away Aviation, LLC
Date:	Tuesday 18th June 2024

Produced by AFS-850
The FAA Safety Team (FAASTeam)

Homework-1: GA Proficiency

- https://youtu.be/3o8_f57828U

Homework- 2: Resources - General

- **Spend some quality time with these resources:**
- Perfecting Your Preflight Inspection
- A Closer Look at Personal SMS
- https://www.aopa.org/training-and-safety/air-safety-institute
- Safety to Go
- faasafety.gov
- Pilot Minute
- 57 Seconds To Safer Flying
- FAA Safety Briefing Magazine
- From the Flight Deck
  - https://www.youtube.com/playlist?list=PL5vHkqHi51DSNpsBC8nb8Q8gFcGVmWhGA
  - https://www.youtube.com/watch?v=303Pd_2UAmU

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Homework-3: Post-Flight SLAP

After every flight, *SLAP* yourself and create actions for the next flight. Self evaluation:

S: **How were my *S*kills today?**

L: **What did I *L*earn today?**

A: **How was my *A*DM today?**

P: **How was my *P*lanning today?**

Thank you for attending!

You are vital members of our GA safety community!

Not Recorded, But Even Better…

- PDF of these slides available for further study and use
- Actual slides post on the third Sunday of every month
- https://bit.ly/ToMSafetyArticle

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