“Lost is Slow”- (Very Slow) - Preparing to Navigate in the Task Area

Efficient Navigation is Essential to To Flying Cross Country –

To fly tasks efficiently, you will need the following –

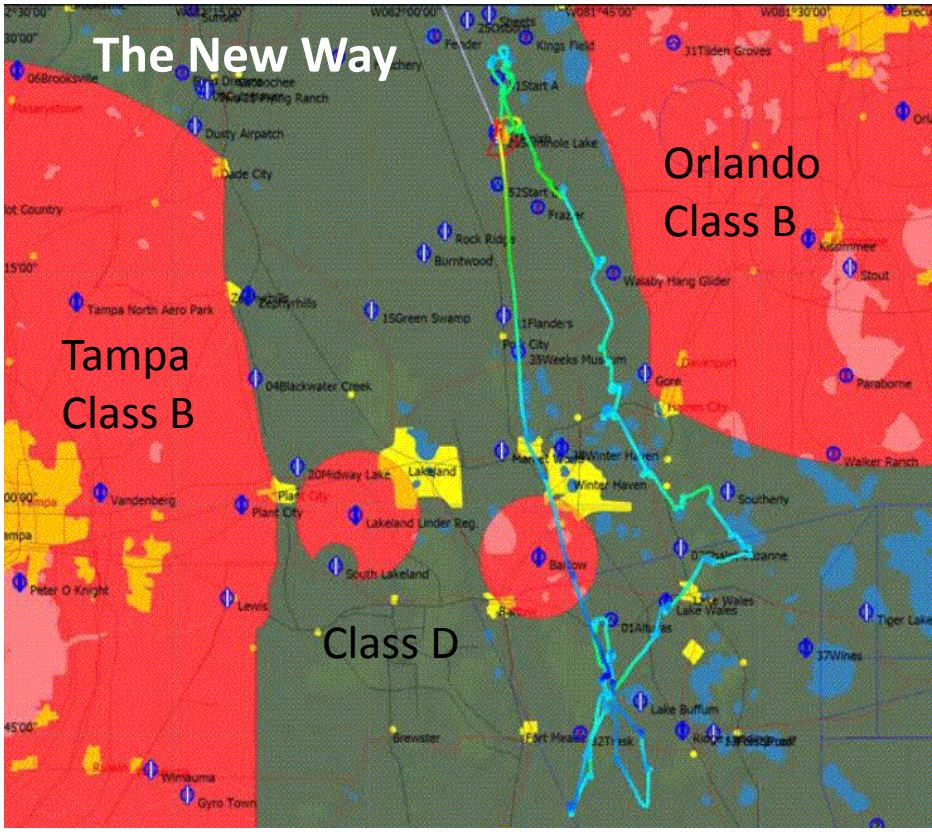
- Current Sectional (FAR 91.103) – There are, of course, opinions about “current”

- GPS based Flight Computer with the latest, correct turnpoint database.
- *Be very sure the computer is using the correct units (statute miles, feet, knots)*

- Your flight computer should be able to display Special Use Airspace (Class B, C, and D airspace). A display is not absolutely needed, but makes life a lot easier.

- Other useful aids which can be derived from the turnpoint databases

Visual Flight Rules and Electronic (GPS)



Marking Your Sectional

- In spite of all your electronic toys, you will need to carry a current sectional (FAR 91.103) For some reason, task areas are never covered with one sectional ……..

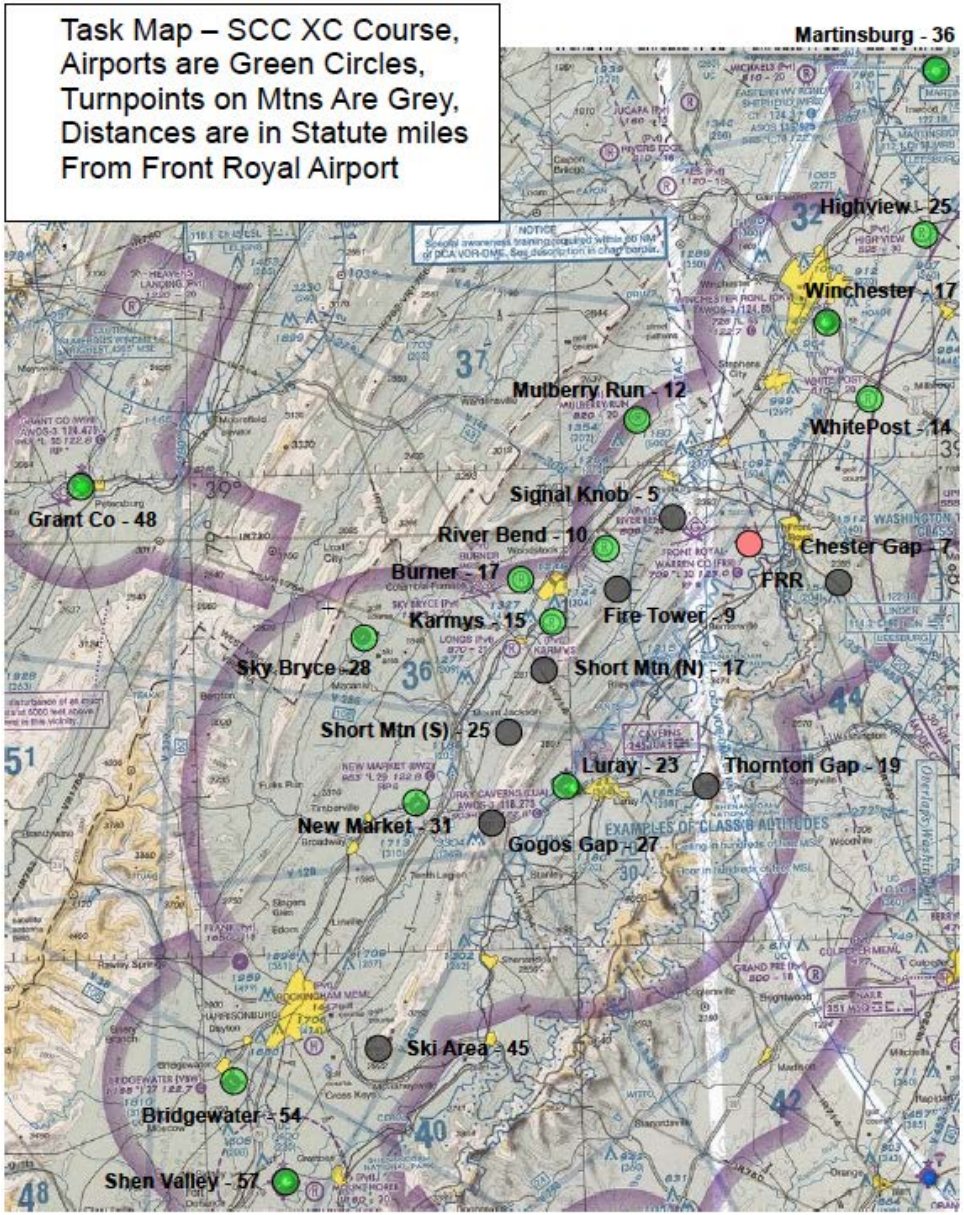
- Make a composite sectional from current sectionals (Usually, the XC area will require more than 1 sectional. If you get north of MASA or wish to fly at Mifflin – you will want 4 sectionals – it takes Washington, Cinci, NY and Detroit to cover the Mifflin Area)

- Mark each turnpoint in yellow or orange and label it with the turnpoint number or name . (Hint - Mark turnpoints before taping pieces together - Highlighter does not stick well to tape)

- Cut the composite sectional to be a useful size. Do not cut it too close to the outside turnpoints. This document now has most of the useful aviation information for the task area summarized in one place. It will work fine if your electrical system fails.

- I like to make a small, half size sectional with turnpoints numbered and named for daily use.

A Half Scale Sectional – Useful for Marking Daily Tasks



The one for the XC Course -

This one is about ¾ scale

The digital sectional came from the Sky Vector website

Electronic Data From the World Wide Turnpoint Exchange

Control Points [103.3 kB] , or [14.1 kB].

Other Waypoints [335.7 kB]

Files formatted for downloading and importing into your programs

Map [8.2 kB] , [34.3 kB], Google Maps, or Google Earth [10.1 kB]

Task planner

Airspace

You will need 5 of these files to prepare for big flights: Control Points, Other Waypoints, Files, Map and Airspace.

A Portion of the Mifflin, Pa. Turnpoint Database

ID	NumberName		Codes	Links	Latitude ° ' "	Longitude ° ' "
1	Honey Grove	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 24 08 N	77 33 12 W
2	Orbisonia	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 14 27 N	77 53 49 W
3	Mifflin	TA	Q,I,Z,R,A,T,F,O,g,S,L,m,V,W,N,M,G		40 40 34 N	77 37 43 W
4	Belleville	T	Q,I,Z,R,T,O,g,S,V,M,G		40 34 46 N	77 43 35 W
5	Mifflintown	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 35 51 N	77 24 39 W
6	Penns Cave	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 53 18 N	77 36 26 W
7	Keystone Gliderport	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 52 52 N	77 54 43 W
8	Saw Mill	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 47 00 N	77 16 00 W
9	Mill Creek	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 25 50 N	77 53 07 W
10	Woodward	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 53 55 N	77 21 22 W
11	Raystown Dam	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 25 07 N	78 00 16 W
12	Spruce Creek	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 36 03 N	78 07 43 W
13	Mid-State	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 52 40 N	78 05 40 W
14	Lock Haven	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		41 08 07 N	77 25 45 W
15	Clarks Ferry	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 24 06 N	77 00 38 W
16	Turnpike Tunnels	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 08 17 N	77 40 21 W
17	Kettle Reservoir	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 30 24 N	78 21 00 W
18	Selingsgrove	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 48 56 N	76 51 42 W
19	Waggoner's Gap	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 16 34 N	77 16 46 W
20	Blair County	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 17 19 N	78 19 24 W
21	Nisbet	T	Q,I,Z,R,r,T,O,g,S,V,M,G		41 13 07 N	77 07 00 W
22	McConnellsburg	T	Q,I,Z,R,r,T,O,g,S,V,M,G		39 55 57 N	77 59 58 W
23	Northumberland	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 50 09 N	76 33 31 W
24	Breezewood	T	Q,I,Z,R,r,T,O,g,S,V,M,G		39 59 07 N	78 14 37 W
25	Bedford	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 05 20 N	78 31 05 W

These Codes Link to Other Useful Data

ID	NumberName		Codes	Links	Latitude ° ' "	Longitude ° ' "
1	Honey Grove	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 24 08 N	77 33 12 W
2	Orbisonia	T	Q,I,Z,R,r,T,O,g,S,V,M,G		40 14 27 N	77 53 49 W
3	Mifflin	TA	Q,I,Z,R,A,T,F,O,g,S,L,m,V,W,N,M,G		40 40 34 N	77 37 43 W
4	Belleville	T	Q,I,Z,R,T,O,g,S,V,M,G		40 34 46 N	77 43 35 W
5	Mifflintown	TA	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G		40 35 51 N	77 24 39 W

AirNav.com

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KRVL **Mifflin County Airport**
Reedsville, Pennsylvania, US

GOING TO REEDSVILLE?

FAA INFORMATION EFFECTIVE 31 MAY

Location

FAA Identifier: RVL
Lat/Long: 40-40-38.6000N / 077-37-36.6000W
40-40.643333N / 077-37.610000W
40.6773889 / -77.6268333
(estimated)
Elevation: 819 ft. / 249.6 m (surveyed)
Variation: 10W (1995)
From city: 5 miles NW of REEDSVILLE, PA
Time zone: UTC -4 (UTC -5 during Standard Ti
Zip code: 17084

Airport Operations

Airport use: Open to the public
Sectional chart: DETROIT
Control tower: no
ARTCC: NEW YORK CENTER
FSS: WILLIAMSPORT FLIGHT SER
NOTAMs facility: IPT (NOTAM-D service availab
Attendance: APR 1 - OCT 31 MON-FRI 080
CLSD
OPEN BY APPOINTMENT.
OPEN BY APPOINTMENT.
Wind indicator: lighted
Segmented circle: yes
Lights: ACTVT MIRL RY 06/24; PVASI
Beacon: white-green (lighted land airpor
DUSK-DAWN. ACTVT MIRL R

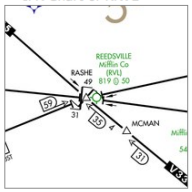
SkyVector Aeronautical Charts — Airports | Charts | Forum | Help Video

RVL **Mifflin County Airport**

Airport/Facility Directory
MIFFLIN CO (RVL)
819 B FUEL 100
RWY 06-24: H5001X75
RWY 06: REIL. PVASI
RWY 24: REIL. PVASI

VFR Chart of KRVL

IFR Chart of KRVL



Satellite View of KRVL

Location Information for KRVL
Coordinates: N40°40.64' / W77°37.61'
Located 05 miles NW of Reedsville, Pennsylvania on 125 acres of land. View all Airports in Pennsylvania.
Surveyed Elevation is 819 feet MSL.
Magnetic Variation from 1995 is 10° West

Operations Data

Airport Use:	Open to the public	A.R.T.C.C.:	NEW YORK
Status:	Operational	F.S.S.:	WILLIAMSPORT
Control Tower:	No	NOTAMs Facility:	IPT (NOTAM-D available)
Seg-Circle:	Yes	Sectional Chart:	DETROIT
Beacon:	Clear-Green (Lighted Land Airport)	AirspaceAnalysis:	NO OBJECTION
Wind Indicator:	Yes, Lighted	Attendance:	APR 1 - OCT 31/MON-FRI/0800-1700 APR 1 - NOV 1/SAT/0800-1200 APR 1 - NOV 1/SUN/CLSD NOV 1 - APR 1/MON-FRI/0800-1600 NOV 1 - APR 1/SAT/0800-1200 NOV 1 - APR 1/SUN/CLSD OPEN BY APPOINTMENT.
Lighting Schedule:	SEE RMK		

Airport Communications

AWOS-3:	123.85 Tel. 717-667-3993
UNICOM:	122.700
CTAF:	122.700
ATIS at UNV (14.4 NW):	127.65
AWOS-3 at UNV (14.4 NW):	127.65 814-865-8799
ASOS at SEG (35.8 E):	123.975 570-374-4099

Remarks:
- APCH/DEP SVC PROVIDED BY NEW YORK ARTCC ON FREQS 134.8/338.3 (PHILIPSBURG RCAG).

Nearby Navigation Aids

ID	Name	Freq	Radial / Range		ID	Name	Freq	Bearing / Range	
PSB	PHILIPSBURG	115.50	140°	22.0	UN	PENUE	388	349°	14.9
TON	TYRONE	114.90	102°	32.3	MD	ENOLA	204	137°	42.1
HAR	HARRISBURG	112.50	321°	34.0	BZJ	BELLGROVE	328	116°	51.2
SEG	SELINSGROVE	110.40	266°	34.6	PIX	PICTURE ROCKS	344	058°	55.0

Runway 06/24

From the World Wide Turnpoint Exchange

Control Points [103.3 kB] , or [14.1 kB].

Other Waypoints [335.7 kB]

Both sets of waypoints are included in the file for a given task area which are downloaded into your flight computer from the download link

Files formatted for downloading and importing into your programs

Map [8.2 kB] , [34.3 kB], Google Maps, or Google Earth [10.1 kB]

Task planner

Airspace ---- You will want the special use airspace files as well

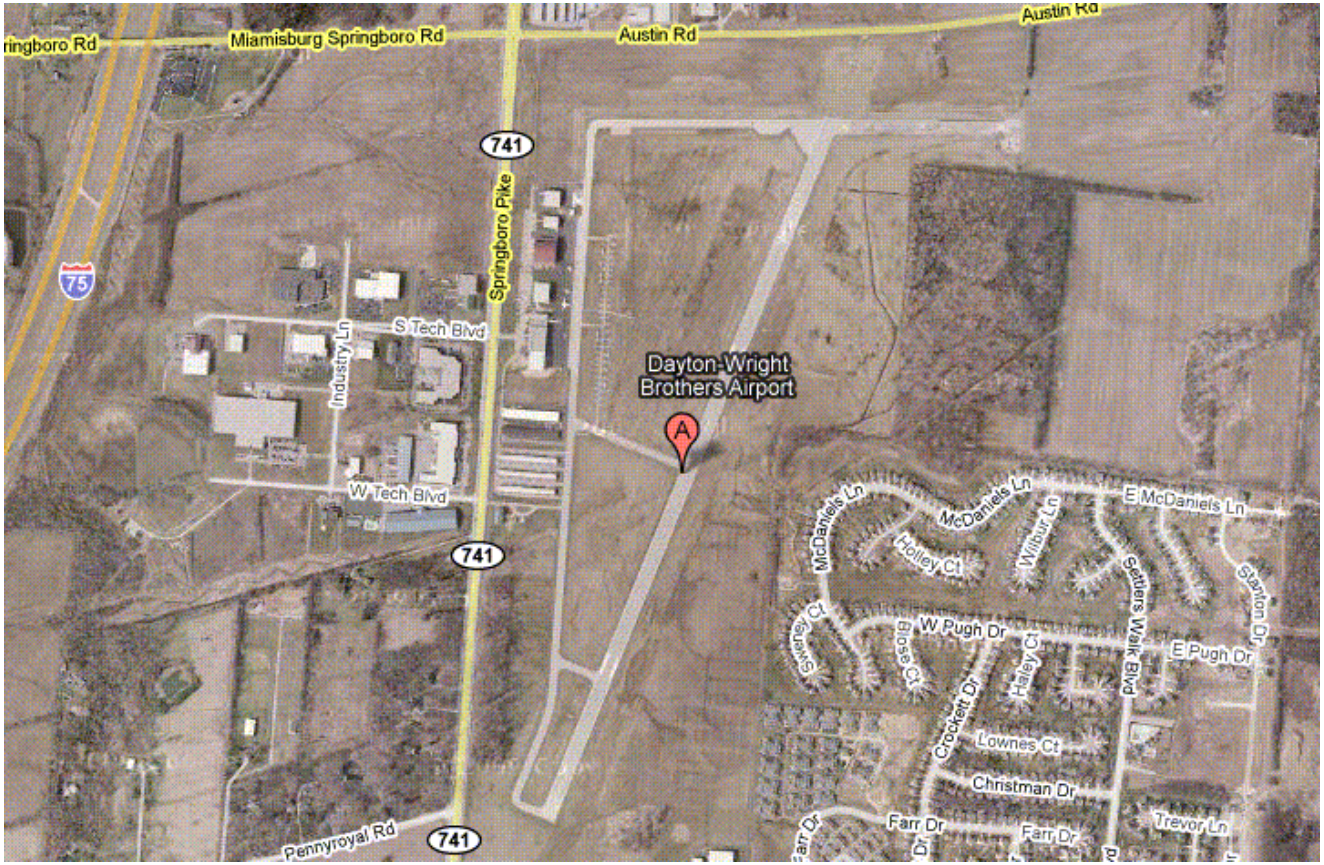
It is Wise to Examine the "Other Waypoints" Section of Any Database

Ebensburg	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G	40 27 40 N	78 46 31 W	or	40 27.673 N	78 46.515 W	2099	A	62	267	07/25 32A
Farmers Pride	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G	40 26 34 N	76 26 30 W	or	40 26.572 N	76 26.498 W	495	A	64	115	10/28 34T
Fauser	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G	41 06 10 N	76 48 20 W	or	41 06.172 N	76 48.331 W	565	zP	52	66	09/27 5T
Grimes	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G	40 29 05 N	76 15 49 W	or	40 29.089 N	76 15.814 W	582	A	73	111	[illegible]
Hartman	Q,I,Z,R,r,A,T,F,O,g,S,L,m,V,W,N,M,G	39 51 37 N	78 59 19 W	or	39 51.622 N	78 59.318 W	2350	AP	91	243	03/21 26T

Beware -- This does not look much like a 2600 foot turf strip

Is this the Airport ??

Using the Databases To Make Airport Reference Guides

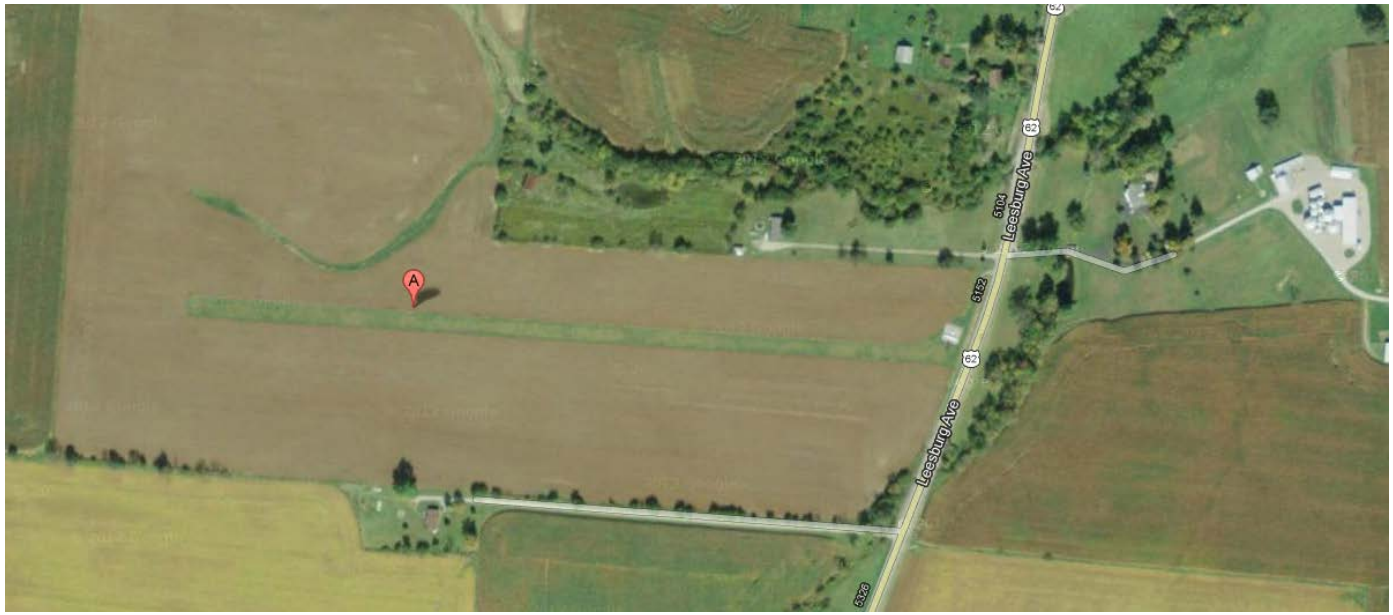


9 – Dayton-Wright
Pub. Airpt – Elev 957 ft
Unicom – 122.8
Runway – 5000 x 100
Direct – 2 / 20
Dist. Home – 10.4 mi
Notes --

Can make a document with 3 airports to a page – and take in the cockpit.
This little “Airport Book” can be very useful when low and searching for an airport

Very Useful for Small Grass Strips

Pictures of paved public airports may be redundant, but this strategy is very helpful for finding private grass airports. They really help pick out a turf field from all the similar looking surrounding fields. Even though your GPS says it is there, when low, you often do not have much time to find the field.



26 - Merritt
Pvt. Apt. Elev – 990 ft
Unicom – none
Runway - 9/27 2000 ft
Width ?

Dist. Home - 32 mi
Notes -

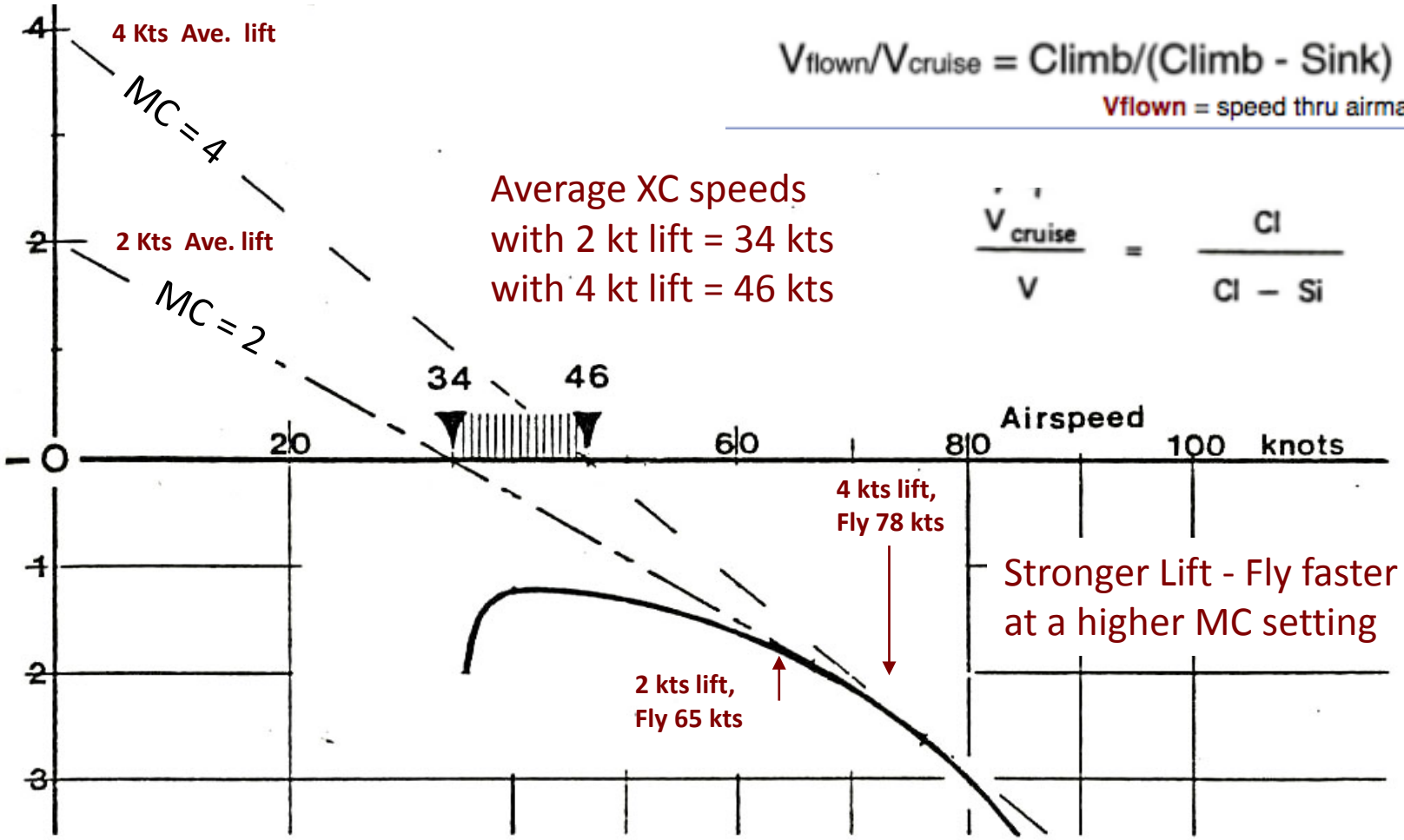
Be sure to include some useful objects or land marks to aid in establishing you are in the right place.

Flight Computer Also Tells - Speed to Fly From MC Theory

V_{flown}/V_{cruise} = Climb/(Climb - Sink)

Vflown = speed thru airmass

$$\frac{V_{cruise}}{V} = \frac{Cl}{Cl - Si}$$



112. Increasing the achieved rate of climb from 2 to 4 knots can give an increase in average speed of over 10 knots.

Strict MC theory argues that you spend ½ time cruising and ½ time climbing

Inter-thermal Speeds

Most competition pilots do not strictly adhere to the speed directions from their flight computer. Constant changes in speed induce losses and can be shown to result in slower XC speeds as compared to flying a single speed that is “about right” for the conditions.

So -- What is the Right Speed ??

The answer obviously depends on the polar of your ship, but for a modern flapped ship the speeds are pretty fast. :

	Dry ASW 27			
Mc	Speed	Avg	L/D	Ft/mi
0	55	0	48	109
1	65	31	46	116
2	73	44	41	129
3	80	53	36	146
4	87	60	32	163
5	93	65	29	181
7	104	74	24	218
9	114	82	21	254

Strong Conditions	(6-8 kts lift)	-	90 – 100 kts +
Medium Conditions	(4-6 kts lift)	-	80 – 90 kts
Weaker Conditions	(2-4 kts lift)	-	65 – 80 kts
Survival Conditions	(~1 kt lift)	-	50 – 55 kts

MC Speeds for a Dry and Ballasted ASW-27

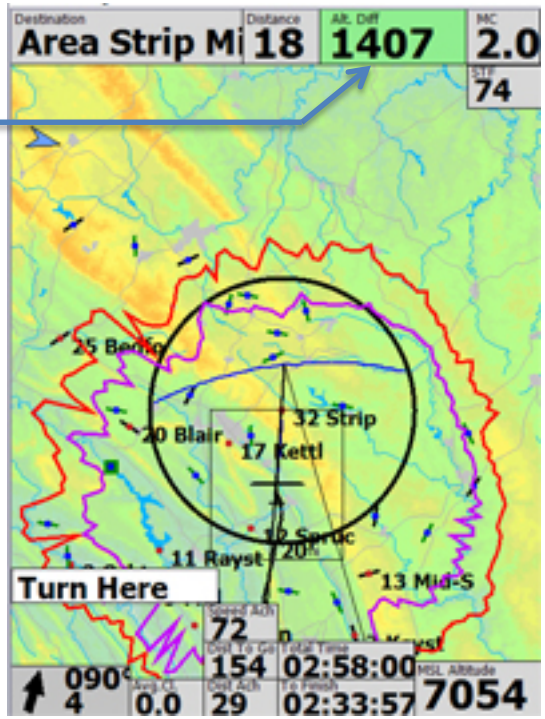
	Dry ASW 27				Wet ASW 27			
Mc	Speed	Avg	L/D	Ft/mi	Speed	Avg	L/D	Ft/mi
0	55	0	48	109	67	0	48	112
1	65	31	46	116	79	35	45	117
2	73	44	41	129	89	51	41	127
3	80	53	36	146	97	62	37	141
4	87	60	32	163	105	69	34	156
5	93	65	29	181	113	76	31	170
7	104	74	24	218	127	85	26	201
9	114	82	21	254	139	93	23	230

XC Speed | L/D At Speed | Sink Rate

XC Speed | L/D At Speed | Sink Rate

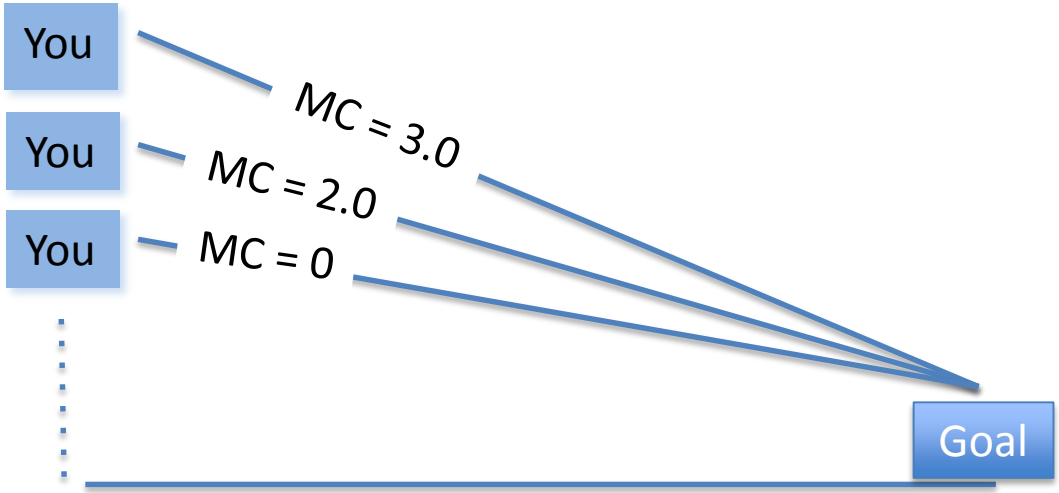
Computers Show the Differential Altitude to a Goal

A very useful bit of data from your flight computer is how much above (or below) you are from the glide slope to your goal.



The accuracy of this data is critically dependent on having a valid polar for your ship programed into the computer

Your current MacCready setting will change the numerical value of the differential altitude shown. The differential in slope comes from the different speeds (sink rates) dictated by MC theory and your polar.

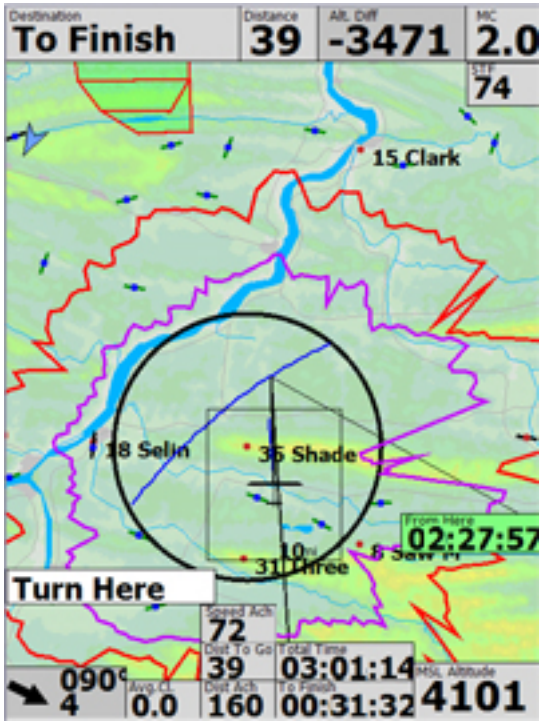


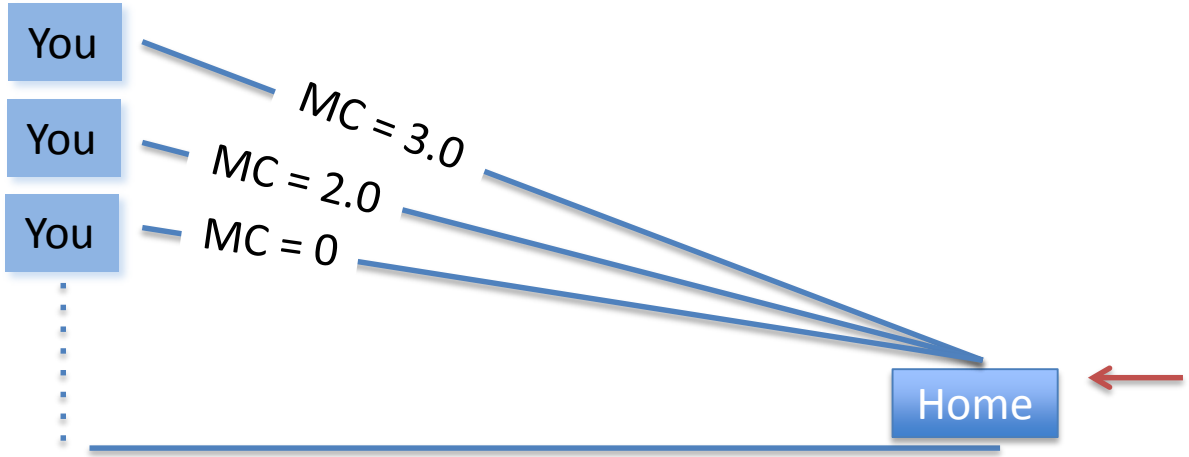
Final Glide to Finish

The Polar and chosen MacCready value are very important in developing your strategy for the final glide to the finish.

At some point on task, your computer will tell you that you have enough altitude to begin your final glide to the finish. The altitude differential displayed to the finish depends on the MC value selected.

Be conservative – Set your MC value for a final glide to about 3. Final glides at MC = 0 rarely work. (The altitude differential shown at MC=0 means your ship is performing exactly to the polar and you will encounter no sink during the glide to the finish – *this is not a likely event*).





1000 feet AGL above HOME

END