

CPA FLIGHT LINES

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CPAer Walt Bell of Denver wins Class C of the 1989 Denver-to-Jackpot Air Classic in his Ray Jay turboed 1964 Mooney S21.



COLORADO PILOTS ASSOCIATION, INC.

P. O. Box 38555 Denver, CO 80238

PRESIDENT'S MESSAGE

by Walt Barbo

The annual Denver-to-Jackpot Air Classic always seems to be characterized by a short sleepless night before the event, a mad dash over a course of nearly 600 miles covering three states, a long wait for rooms at the other end, another short sleepless night, and another mad dash back to Colorado so as to arrive before the afternoon thunderstorms.

Of course, the event is one terrific bash. But it is tiring. This led to a suggestion in one of our program planning sessions to add a couple of days to the event to allow participants to unwind. The extension was planned as a Post Jackpot Air Tour for those interested in a few stops on the return flight to Colorado. Stops were tentatively planned for Jackson Hole, West Yellowstone, or Cody in Wyoming.

For some reason, there didn't seem to be a great deal of interest in the tour. Perhaps it was my fault. I had been having a DME problem on our T210 and was not anxious to navigate in potential weather over unfamiliar terrain without this aid. So my lack of enthusiasm may have spilled over to others.

Delays in getting the DME repaired didn't help. Avionics shops were inundated with work installing Mode C transponders to meet the July 1 deadline. It wasn't until July 11 that I got someone to look at it. But two days later the equipment was repaired. The problem, a loose nut on the tuning cap for the oscillator. I lucked out. Terry and I were now ready for the Post Jackpot Air Tour . . . but no one else was. So we ended up as a flight of one aircraft.

Our destination was West Yellowstone. We wanted to take a personal look at the forest fire damage of last year. However, we took the long way around via Ellensburg, Washington and didn't arrive at Yellowstone until Monday afternoon.

It was a shock! The fire damage to the park is unbelievable! It appeared that the fires had leapfrogged around a great deal. Some areas were relatively untouched. But large areas were totally devastated. The damage extends over hundreds of square miles. We understand that experts argue that the damaged areas are regenerating themselves. From the air, however, there is no indication of this. It looked so depressing that we decided against staying overnight. Would we recommend a

PRESIDENT

Walt Barbo
303-367-0670

VICE PRESIDENT

Robert Henley
303-771-6092

SECRETARY

Tony Miller
790-1863

TREASURER

Don Vander Ploeg
303-757-1310

PUBLISHER

Colorado Pilots
Association
P.O. Box 38555
Denver, CO 80238
EDITOR
Terry Barbo
303-367-0670

TYPOGRAPHY BY

George Ferguson, Inc.

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CPA FLIGHT LINES editor

Terry Barbo
12579 E. Cedar Ave.
Aurora, CO 80012

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(Con't on p. 4)

HEARD ALONG THE FLIGHTLINE

Recall the "Point of View" article by ARNOLD GOLDBURG entitled "AOPA and the Private Pilot" which appeared in the June issue of FLIGHT LINES. Arnold was critical of AOPA's confrontative approach to issues because of a concern about potential backlash to the pilot community from regulatory agencies. He tells us he sent a courtesy copy of the article to AOPA, and received a brief reply from Richard Collins of AOPA Pilot saying "... while I don't agree with what you had to say, I admire the thought you put into the piece and we will keep your observation in mind."

*

Ever noticed that life rewards those who procrastinate? CPA member ROBERT SUMNER's experience with Mode C is a good example. He recognized that there was no way he could comply with the requirement to have the equipment installed in his Nesmith Cougar (based at Aurora Airpark) prior to the July 1 deadline. The run on equipment was so great there was no way the radio shops could meet the demand. So Robert diligently contacted Denver Tower well in advance of the deadline and was one of the early ones to be granted a written waiver from the FAA. The waiver provided that he enter and exit the area of the 30 mile veil by the most direct route on a course south of I-70 and at an altitude of less than 1000 feet AGL. In effect, this is a direct course between Aurora Airpark and the town of Byers. Robert notes that those who procrastinated can get an unrestricted 90 day waiver over the telephone by simply providing a name and aircraft N number to Denver Tower.

*

The appearance of Denver Tower Representative STEVE HARLESS at the June 29 CPA/FAA sponsored Wings Program at the Clarion Southeast Hotel brought out some information worth sharing. For example, he pointed out that one can legally fly VFR at 11,500 feet over the Denver TCA, but it is not the place to be . . . for the reason that departures coming up through the TCA and conflicting with VFR traffic on top are the most frequent cause of "near misses" in the Denver area. He noted that IFR westbound departures from the Denver area could save time lost in vectoring by requesting a VFR climb when visibility of terrain permits. ATC is not permitted to volunteer the procedure. On the issue of Mode C in the 30 mile veil, he said it was a misconception that ATC turns off alpha numeric displays for VFR traffic. He also shared that ATC gets a lot of calls these days for transponder checks. And he acknowledged that those who at this late date still don't have Mode C can get a 90 day waiver to operate in Denver's 30 mile veil by calling the Operations Office at Denver Tower, phone 355-1610.

*

AOPA Air Safety Foundation Staff Member ANDY SERRELL joked about his personal aircraft at an Accident Prevention Program on June 26 at the Northglenn Holiday Inn. He described it as so slow . . . it was the only aircraft he knew of that was subject to birdstrikes from the rear.

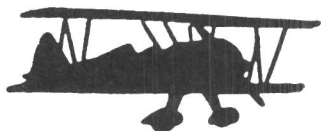
*

ANDY briefed that the LORAN C ground stations needed to fill in the mid-continent gap are currently under construction and that the system is scheduled to be operational next year.

Andy also gave a status report on the new Global Positioning System (GPS) of navigation. He described this as a system that will provide latitude, longitude, and altitude information to a degree of accuracy that will permit precision approaches to almost every runway in the country. It is dependent on 18 communication satellites for navigation information. However, the Challenger shuttle disaster disrupted the program to place satellites in orbit. As a result, the program is now about 1 1/2 years behind schedule. However, alternative methods of launching satellites are currently being used, four satellites are currently in orbit, and the remaining are expected to be in place by late next year. Aircraft receivers needed to operate in the system are expected to have both LORAN and GPS capability. Andy noted that their high cost (estimated at approximately 10 grand) will probably dissuade most aircraft owners from using GPS in the first few years. As with any new technology, however, costs will eventually drop. For those who can afford them, it looks like a fantastic way to go!

★

HOMER LYLE shared with us a problem he encountered with his Bonanza. An oil analysis revealed unreasonable levels of water vapor trapped in the oil. Homer also noticed water droplets on the inside of the oil filler cap during preflight inspections. The problem was relieved by removing the filler cap following each flight. Apparently this allows the water vapor to escape. We haven't heard of a similar problem in other aircraft types.



PRESIDENT'S MESSAGE (Con't from p. 2)

trip there? Probably not! But I was glad we took the tour.

And did the DME prove necessary? As it turned out, we were on top of a 15,000 foot overcast over mountainous terrain in Oregon and Idaho for about two hours on the way to Yellowstone. Perhaps not necessary, but it added a great deal of comfort to the trip.

MEMBERS: PLEASE NOTE...

Our new computer program for generating address labels permits us to show membership expiration dates.

This information is provided as a reminder in planning your membership renewal. Dues are \$20 for one year; \$38 for two years; or \$55 for three years. A membership renewal form is provided for your convenience inside the back cover of FLIGHT LINES. Thanks for your help



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BOARD OF DIRECTORS MEETING REPORT

The July 6 meeting was again held in the Colorado Room of Centennial Airport's Jet Center. Attendance was somewhat light, however, the presence of Board Members Don VanderPloeg, Robert Henley, Walt Bell, Vanita Gallo, Frank Gallo, and Mark Meyer was sufficient to constitute a quorum.

Much of the meeting consisted of a workshop to develop recommendations of pilot interest for submission to the new State Aeronautics Office. Dennis Roberts, Director of the new office, will be attending the board meeting of August 3 and the recommendations will be presented to him at that time. The substance of the items developed is too preliminary to share with members at this writing, however, coverage will be provided in the next newsletter.

Frank Gallo introduced a proposal to maintain a "CPA Hospitality Tent" at the Front Range Airshow on August 26-27. The hospitality area would consist of a 30 X 30 foot tent with approximately 100 chairs and a roped off viewing area on the flight line near show center. It would also provide area for display of a couple of member-owned aircraft. A decision on whether to proceed was deferred until the economics of the proposal could be further evaluated. A decision is expected in late July.

Frank also solicited proposals for aviation related legislation for consideration in the next session of the State Legislature. As a suggestion, he noted that we may wish to propose a change in legislation which sets mileage allowances for private aircraft of state employees. The state currently limits reimbursement on use of privately owned aircraft to 20 cents per each air mile flown. This is the same rate reimbursed for use of private automobiles. The policy does not recognize the efficiency in use of aircraft and certainly does not recognize the higher cost of operating a personal aircraft. The effect of the policy is to discourage use of small aircraft and use of the state's air transportation system. Views on this proposal and other aviation related issues of member interest should be sent to Frank.

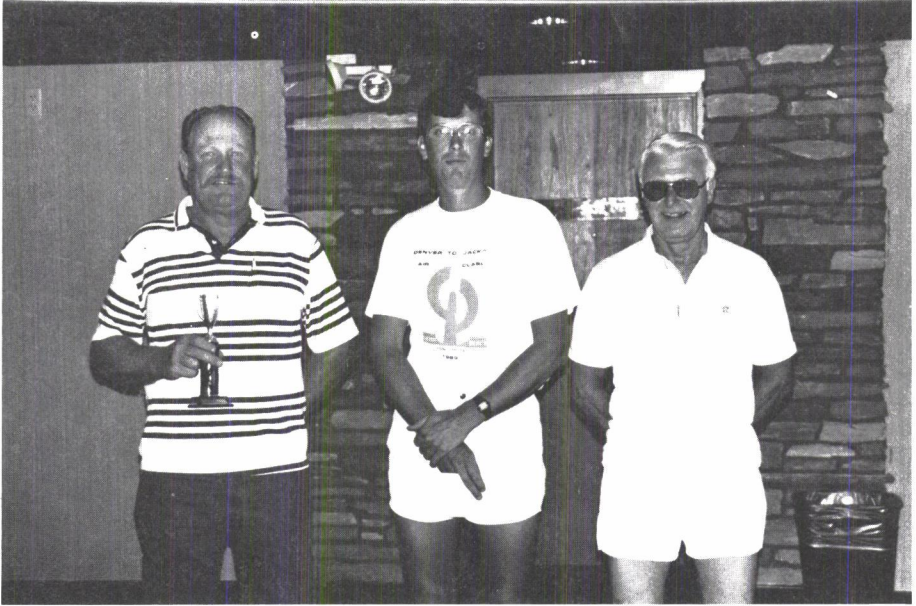
In other matters reported it was noted that CPA member Greg Isbill was honored in a ceremony on July 7 at Neil Keddington's ranch for accomplishments in 25 years of work in airport development. And it was noted that member Delford Bowman was honored on May 22 by a fly-in of Flying Farmers at Wray, Colorado on the occasion of his 82nd birthday. Delford flies a Beech 36TC and has over 14,000 hours of flight time.



Have you tried the

CPA HOTLINE (303) 266-6266

1989 DENVER-TO-JACKPOT AIR CLASSIC



CLASS A — Fixed Gear Winners: Ron Lewark, 1st; Richard Harless, 2nd; Cliff Malmquist, 3rd; and Tom Bein, 4th (not pictured).



CLASS B — Retractable Gear Winners: Chet Jewell, 1st; Mike Seavall, 2nd; Dave Burke, 3rd; and Paul Nunn, 4th.



CLASS C Winners — Turbo-Charged: Walt Bell, 1st; Tom Daly, 2nd; Tom Koehler, 3rd; and Evan Slack, 4th.



FUEL ESTIMATE Winners: Walt Bell, 1st; Paul Nunn, 2nd; Larry Merkowitz, 3rd; and Sonny Elgin, 4th.

	N #	MFG	YEAR/TYPE	PILOT NAME	HANDI CAP	TOTAL TIME	AVERAGE SPEED	% OF MAX SPEED
	---	---	---	---	---	---	---	---
CLASS A - FIXED GEAR								
1	70006	CESSNA	1971 185 E	RON LEWARK	178	03:22:26	165.09	92.7480%
2	7082T	CESSNA	1959 172	RICHARD HARLESS	135	04:36:02	121.07	89.6832%
3	55031	PIPER	1973 PA 28-235	CLIFF MALMQUIST	161	03:52:46	143.58	89.1784%
4	8554T	CESSNA	1960 182C	TOM BEIN	170	03:40:49	151.35	89.0278%
5	8718T	CESSNA	182	BILL FIGGIE	170	03:41:43	150.73	88.6664%
6	4037F	CESSNA	1958 172	GARY SELF	135	04:52:00	114.45	84.7793%
7	5024R	BELLANCA	1978 DECATHALON	ED CUTLER	158	04:10:54	133.20	84.3041%
8	2150R	PIPER	1969 PA 28-180D	FRED WEHRLI	152	04:26:57	125.19	82.3631%
9	8392S	CESSNA	1965 182 H	FRANK GALLO	170	04:04:54	136.46	80.2729%
10	5503T	CESSNA	1964 172	BILL TOTTON	139	05:01:36	110.81	79.7187%
11	2524X	CESSNA	1965 206	DON VANDERPLOEG	174	04:06:53	135.37	77.7975%
12	2400Q	CESSNA	1966 182J	PAUL ROSSMAN	170	04:31:30	123.09	72.4082%
CLASS B - RETRACTABLE GEAR								
1	7463N	BEECH	1968 V-35 A	CHET JEWELL	210	02:49:26	197.25	93.9265%
2	9461S	BEECH	1966 S-35	MIKE SEAVALL	212	02:48:51	197.93	93.3619%
3	201WN	MOONEY	1978 M20J 201	DAVE BURKE	201	02:58:37	187.10	93.0869%
4	5476P	PIPER	1958 PA 24-250	PAUL NUNN	190	03:13:32	172.68	90.8860%
5	5672Q	MOONEY	1965 M20C	PAUL ADAMS	176	03:33:42	156.39	88.8565%
6	7519P	PIPER	1961 PA 24-180	KEN WITHERBY	167	03:47:44	146.75	87.8746%
7	5737K	BEECH	1964 S35 BONANZA	LARRY MACK	212	03:02:35	183.04	86.3395%
8	719SG	BEECH	1968 V35 BONANZA	BRUCE PRESTIEN	210	03:05:09	180.50	85.9535%
9	6140P	PIPER	1959 PA 24-250	JIM PORTER	190	03:24:44	163.24	85.9141%
10	9520E	BELLANCA	1976 17-30A	SONNY ELGIN	191	03:28:26	160.34	83.9471%
11	5245U	CESSNA	1980 172RG	WILLIAM JONES	166	04:00:19	139.07	83.7750%
12	9541T	CESSNA	1960 210	ROBERT BILLINGS	199	03:57:36	140.66	70.6817%
CLASS C - TURBO-CHARGED								
1	19054	MOONEY	1964 S21 RAY JAY	WALT BELL	197	03:07:38	178.11	90.4129%
2	4649S	CESSNA	1980 T182RG	TOM DALY	215	02:53:38	192.47	89.5231%
3	3467Q	PIPER	1978 PA28-R201T	TOM KOEHLER	204	03:03:48	181.83	89.1314%
4	5254G	MOONEY	1988 M20K	EVAN SLACK	252	02:42:19	205.89	81.7039%
5	1811D	BEECH	1981 A36TC	LARRY MERKOWITZ	246	02:46:56	200.20	81.3820%
6	83164	PIPER	1981 PA 28-201T	JACK ROBERTS	204	03:22:44	164.85	80.8074%
7	6641D	BEECH	1979 B58P BARON	JOE THIBODEAU	300	02:29:16	223.89	74.6315%

1989 DENVER-JACKPOT FUEL RESULTS

PLACE	CLASS	N #	PILOT NAME	AIRCRAFT	YEAR/TYPE	FUEL EST	TOTAL FUEL PURCHASED	FUEL DIFF	% FUEL DIFF
1	C	19054	WALT BELL	MOONEY	1964 S21 RAY J	38.00	38.0620	0.0620	0.1632%
2	B	5476P	PAUL NUNN	PIPER	1958 PA 24-250	44.20	44.6380	0.4380	0.9910%
3	C	1811D	LARRY MERKOWITZ	BEECH	1981 A36TC	60.00	59.1080	0.8920	1.4867%
4	B	9520E	SONNY ELGIN	BELLANCA	1976 17-30A	51.20	52.0920	0.8920	1.7422%
5	A	8554T	TOM BEIN	CESSNA	1960 182C	47.50	45.9000	1.6000	3.3684%
6	B	5737K	LARRY MACK	BEECH	1964 S35 BONAN	31.60	30.5310	1.0690	3.3829%
7	B	5672Q	PAUL ADAMS	MOONEY	1965 M20C	35.40	36.7290	1.3290	3.7542%
8	A	2524X	DON VANDERPLOEG	CESSNA	1965 206	55.00	57.2220	2.2220	4.0400%
9	A	5503T	BILL TOTTON	CESSNA	1964 172	46.22	44.0980	2.1220	4.5911%
10	A	7082T	RICHARD HARLESS	CESSNA	1959 172	50.20	47.6670	2.5330	5.0458%
11	A	55031	CLIFF MALMQUIST	PIPER	1973 PA 28-235	50.25	47.4890	2.7610	5.4945%
12	B	5245U	WILLIAM JONES	CESSNA	1980 172RG	34.00	35.9950	1.9950	5.8676%
13	B	7463N	CHET JEWELL	BEECH	1968 V-35 A	49.30	46.2070	3.0930	6.2738%
14	C	5254G	EVAN SLACK	MOONEY	1988 M20K	59.00	54.8950	4.1050	6.9576%
15	B	9461S	MIKE SEAVALL	BEECH	1966 S-35	80.00	73.9590	6.0410	7.5512%
16	A	70006	RON LEWARK	CESSNA	1971 185 E	52.20	48.2200	3.9800	7.6245%
17	C	4649S	TOM DALY	CESSNA	1980 T182RG	57.00	52.4950	4.5050	7.9035%
18	A	5024R	ED CUTLER	BELLANCA	1978 DECATHALO	48.10	52.5230	4.4230	9.1954%
19	A	8718T	BILL FIGGIE	CESSNA	182	50.50	45.2250	5.2750	10.4455%
20	B	7519P	KEN WITHERBY	PIPER	1961 PA 24-180	37.50	41.5540	4.0540	10.8107%
21	A	8392S	FRANK GALLO	CESSNA	1965 182 H	53.10	45.8020	7.2980	13.7439%
22	A	2150R	FRED WEHRLI	PIPER	1969 PA 28-180	46.00	52.6460	6.6460	14.4478%
23	B	719SG	BRUCE PRESTIEN	BEECH	1968 V35 BONAN	53.00	45.0660	7.9340	14.9698%
24	A	4037F	GARY SELF	CESSNA	1958 172	35.00	40.9670	5.9670	17.0486%
25	B	201WN	DAVE BURKE	MOONEY	1978 M20J 201	47.20	38.4850	8.7150	18.4640%
26	B	6140P	JIM PORTER	PIPER	1959 PA 24-250	58.50	45.5530	12.9470	22.1316%
27	B	9541T	ROBERT BILLINGS	CESSNA	1960 210	53.50	39.7960	13.7040	25.6150%
28	A	2400Q	PAUL ROSSMAN	CESSNA	1966 182J	48.50	64.5920	16.0920	33.1794%
29	C	3467Q	TOM KOEHLER	PIPER	1978 PA28-R201	50.20	29.5560	20.6440	41.1235%

ADDITIONAL JACKPOT WINNERS

Clear blue skies, great flying weather and a total of 31 contestants combined to make the 13th Annual Denver-to-Jackpot Air Classic a huge success. The event was held on Saturday, July 15 and commenced again this year at Front Range Airport.

The Awards Cocktail Party was held indoors in a large hospitality suite in the hotel because of the strong wind that kicked up in the afternoon making a pool-side party impossible.

Ten dollar bills (many of them!) were donated by **Cactus Pete's** as prizes; also, merchandise from **Jeppesen Sander-son**, **Dodd Insurance Services**, **Ports of Call**, and **Univair**.

The lucky winners were: Bill OBrien, Walt Barbo, Gretchen Jahn, Bev Totten, Michael Martin, Betty Roberts, Sharrie Nunn, Carl Sutterfield, Donna Lewark, Bob Brodbertz, Linda Harless, Nick Seavall, Rod Harrison, Fred Wehrli, Sheila Rossman, Tom

Keithley, Marlene Keithley, Mike Clarke, and Kevin Karr.

Also Terry Barbo, Ted Jobe, Doyle Stauffer, Steve Harless, Paul Rossman, Bruce Bosshardt, Leslie Porter, Susan Hutchinson, Lyn Dague, Mary Schafer, Jack Roberts, Paul Nunn, Jean VanderPloeg, Ron Lewark, Don Moore, Bob Figgie, Eloise Denison, Tom Daly, Claudia Harrison, Debbie Martin, Tom Koehler, Paul Adams, Chuck Schafer and Bill Totten.

A log book was won by Don VanderPloeg. Others winning prizes were: Rich Harless, Evan Slack, Mike Seavall, Sandy Prestien, Pat Abe, Larry Mack, Sue Burke, Sherrie Mack, Lee Porter, Bevin Barbo and Gary Self.

The master of ceremonies was **Frank Gallo** with assistance from wife **Vanita**. Young **Nick Seavall** (son of Mike) performed the task of drawing the winning names.



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FLIGHT PLANNING WITH SPREADSHEETS

Part 2

by Tony Miller

In the July issue of FLIGHT LINES, we discussed some basics of computer-based spreadsheets and how they can be used for aircraft weight and balance computations. This article shows how to use a spreadsheet for cross-country flight planning. It's a little more difficult, so brace yourself for some trigonometry.

Figure 1 shows a sample cross-country spreadsheet for a flight from Centennial to Santa Fe. Rows 1 through 3 contain some of the information we need to plan the flight. Variance is included because winds aloft are reported in true coordinates instead of magnetic; we'll let the spreadsheet handle the conversion for us. Remember, "east is least, west is best," so the easterly variance for this trip is negative. If you fly rental air-

craft, you can include the hourly rate in this section and let the spreadsheet compute the approximate cost of the trip. Omit it if it's too depressing.

Rows 8 through 12 list the waypoints. We enter columns A through D, the spreadsheet computes columns E through I. The equation for the magnetic headings in column E is:

$$H = C - \arcsin((S \sin(D + V + 180 - C)) / T)$$

where

H = magnetic heading
C = magnetic course
S = wind speed
D = wind direction
V = variance
T = true airspeed

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
(1)	Fuel Cap.		24.5	Wind Dir		300	Variance		-11.5
(2)	Fuel Flow		5.8	Wind Speed		11	TAS		105
(3)				Hourly Rate		\$32.50			
(4)									
(5)	From	To	Mag	Dist	Mag	Ground-	Hrs	Min	Fuel
(6)			Crs		Hdg	speed			
(7)									
(8)	APA	COS	155	39	159	112.3	0	21	2.0
(9)	COS	PUB	153	40	157	112.6	0	21	2.1
(10)	PUB	CIM	178	110	184	108.3	1	1	5.9
(11)	CIM	LVS	181	52	187	107.8	0	29	2.8
(12)	LVS	SAF	249	46	253	96.3	0	29	2.8
(13)									
(14)				----			---	---	----
(15)	Totals			287			2	41	15.6
(16)									
(17)	Reserve Time			1.55					
(18)	Reserve Range			162					
(19)	Cost			\$86.67					

Figure 1: Example Cross-Country Spreadsheet

The number "180" is in the equation because reported wind direction indicates where the wind is coming from; we need the direction the wind is blowing us to.

Using trigonometric functions on a spreadsheet is not always straightforward. With mine (Saturn-Calc), I ran into the following problems:

1. I had no "arcsin" function. However, I did have an "arctan" function, so I was able to use the identity "arcsin(X) = arctan (X/sqrt(1-X*X))."

2. My trig functions needed angles in radians, not degrees, so I had to do some conversions. At least Saturn-Calc automatically defined the value of pi for me.

After allowing for these quirks, the Saturn-Calc formula for the magnetic heading in slot E8 is:

```
C8-ATAN((F2*SIN((F1+I1+180-
C8)*PI/180)/I2)/SQRT(1-(F2*
SIN((F1+I1+180-C8)*PI/180)
/I2)^2))*180/PI
```

Similar formulas go into slots E9 through E12. If you're using a spreadsheet package other than Saturn-Calc your formulas will probably differ slightly.

The equation for the groundspeeds in column F is:

Saturn-Calc has problems doing the "sin" computation if the angle is outside the range -180 to 180; the fudge factor F prevents this. The Saturn-Calc formula for the groundspeed in slot F8 is:

```
I2*SIN((180-ABS(C8-E8)-ABS
(F1+I1-C8+IF((F1+I1-C8) 0,
180,-180)))*PI/180)/SIN(ABS
(F1+I1-C8+IF((F1+I1-C8)<0,180,
-180))*PI/180)
```

The leg time is split into two columns G and H containing hours and minutes, respectively. The equation for the hours figure is

$$H = \text{int}(D / G)$$

where

H = Hours
int represents "the integer portion of"
D = Distance
G = Groundspeed

For the minutes figure, the equation is

$$M = ((D / G) - H) * 60$$

where

M = Minutes
D = Distance
G = Groundspeed
H = The hours figure calculated above

$$G = \frac{T \sin(180 - \text{abs}(C - H) - \text{abs}(D + V - C + F))}{\sin(\text{abs}(D + V - C + F))}$$

where

abs = absolute value function
H = magnetic heading
C = magnetic course
D = wind direction
V = variance
T = true airspeed
F = quadrant adjustment factor of either 180 or -180

The Saturn-Calc formula for slot G8 is "INT(D8/F8)," and for slot H8 the formula is "((D8/F8)-G8)*60." The fuel calculation is just the leg time multiplied by the fuel flow rate, so slot I8's formula is "D8/F8*C2."

Line 15 contains the trip totals. Slots D15 and I15 are

simple totals, "SUM(D8..D12)" and "SUM(I8..I12)", respectively. Slots G15 and H15, however, are complicated by the fact that we've split the time into hours and minutes. The formulas for G15 and H15 are "SUM(G8..G12)+INT(SUM(H8..H12)/60)" and "SUM(G8..G12)*60+INT(SUM(H8..H12))-(G15*60)."

Rows 17 through 19 contain some approximate figures that are nice to know: the reserve time, reserve range, and trip cost. The Saturn-Calc formulas for these are stored in slots D17, D18, and D19 as "C1-I15)/C2," "I2*D17," and "(G15+(15/60))*F3."

Some other implementation notes:

1. These equations don't account for takeoff and climb to cruise altitude. You may want to add appropriate fudge factors to the equations for the initial leg.

2. Reserve figures are computed based on zero wind.

3. Your computer may complain about an "overflow error" if you have a direct tailwind or headwind on one of the legs. If this happens, just increase your variance by 0.1 degrees. Your figures will still be accurate and the computer will be much happier.

Although it's a little complicated, setting up a cross-country spreadsheet is cheap and gives you the flexibility of including whatever information you like. My printer can print 132 columns for VOR frequency, station ident, ETA, and ATA. Whether you build one or buy one, a flight planning program makes the process easy enough that most pilots may actually choose to do it!



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THE SILVER WINGS FRATERNITY

by Peter Luce

Silver Wings was started about a dozen years ago by a guy called Russ Brinkley in Harrisburg, Pennsylvania. It has grown to be a national organization with local chapters in most states. Anyone can join who soloed a powered aircraft 25 OR MORE years ago. So . . . if you started flying, let's say, in the summer of 1964 and soloed about this time that year, you would be eligible to join the Silver Wings Fraternity. Note, there is no membership requirement for a private pilot's license nor any other rating--all you need to have done is soloed a powered aircraft . . . way back then.

As you can probably imagine, we are proud to have among our membership many of aviation's greats, like Captain E. B. Jeppesen and Harry Combs. Of course, some of them soloed much more than 25 years ago, and that's part of what makes it fun.

The annual dues are \$15, of which \$10 goes to national and \$5 to our local Colorado chapter. We have four or more meetings a year in the greater Denver-Colorado Springs area, where most of our chapter members are located. With membership comes, of course, an invitation to all our functions, and a subscription to SLIPSTREAM, the Silver Wings newspaper. And new members get the distinctive Silver Wings lapel pin to wear.

All those eligible to join should contact our hard working Secretary/Treasurer:

Mr. Ed Gerhardt
2060 Kingston Street
Aurora, CO 80010

or call me at (303) 447-2525 during the day, or at (303) 781-1078 evenings, and I will send you an application form.

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