



PUTTING WINGS ON

YOUR DREAMS

VOLUME XIV

ISSUE 8

**Submitted by Jim Hudson
Membership and Safety Director**

Altitudes

A question came up by one of our members about the altitude reported in our newer ADS-B Transponders; whether or not it gets its signal from the GPS, or has a GPS built in. Also, a question on why the Altimeter seemed to be off a couple of hundred feet and didn't match the pressure setting reported by ASOS. Great questions. It's always good to get questions about our aircraft.

Gordon Hall found a great explanation on Avweb about transponders.

"The altitude-reporting capability of your transponder transmits your aircraft's PRESSURE ALTITUDE (rounded off to the nearest 100 feet) whenever it receives a Mode C interrogation and is switched to ALT mode. You might recall from your private pilot groundschool that pressure altitude is what the altimeter reads if you set it to 29.92" Hg. Because the transponder reports

pressure altitude, the altimeter setting that you dial into your altimeter's Kollsman window has absolutely no effect on the Mode C altitude the transponder reports. It is this fact that makes "blind encoders" (which are mounted behind the panel and have no setting knob at all) practical. The transponder depends on an external altitude encoder to provide the digitized pressure altitude that the transponder needs for its Mode C replies. The encoder is connected to the same static air line as the altimeter and is wired electrically to the transponder. "

Now you might ask, "if my altimeter is set at 30.23 and the Mode C is putting out altitude referenced to 29.92, won't the controller see my altitude incorrectly?" No, because ATC's ground equipment automatically adjusts your Mode C readout for the local altimeter setting (which its computer knows about). That's why it's important always to make sure your altimeter is set to the altimeter setting that ATIS reports, or that ATC gives you. That way the controller will be verifying the same altitude that you're seeing.

For those interested to learn more about our newest transponders, click the link:

[Garmin 335/345 Transponder User Manual](#)

Differences in Altimeter reading from ASOS/ATIS reports.

When one sets the pressure setting reported by ASOS or ATIS in the Kollsman window, why does the altimeter reading not agree with the known field elevation in most cases? Or setting the altimeter to the known field elevation, why does the pressure reading in the Kollsman window not match that reported by ASOS?

I have usually found agreement within +/- 50' and it varies from time to time. If it's off more than 100' over a period of time, I'd suspect the altimeter. With our birds with the Garmin G5 units, I've found differences in the conventional altimeter and the G5, usually with 50'. If consistently off more than that, I'd be suspect of the altimeter.

Several factors can cause discrepancies between ASOS/ATIS reports and altimeter settings.

One factor is the ASOS/ATIS equipment error of reporting barometric pressure. The accuracy of the pressure reporting is +/- 0.02", or +/- 20' in elevation. For those interested to learn more about ASOS, see: [ASOS User Guide](#)

Another factor is the timeliness of ATIS/ASOS reports. ATIS is normally reported hourly, unless significant weather changes. There could be changes in pressure from the beginning of a report to the at the end of a report. ASOS is updated every minute, which will track rapid pressure changes in the weather more frequently. However, if you get a ASOS report from the internet, or apps such as ForeFlight, they could be 20 minutes to several hours

difference from a current report if not updated. It's best to get a report off the radio.

Error in setting the Kollsman window. With the conventional altimeter, there could easily be 30'-40' error in setting the pressure setting, or reading the altimeter altitude from the known field elevation. With the new Garmin G-5's, one can dial in the exact altimeter setting, and read the altitude to the nearest 20". I've found these to be within 40' of the reported pressure setting compared to the field elevation.

Altimeter Accuracy.

Altimeters are broadly required to comply with [FAR 43 Appendix E](#) limits for accuracy. Technically this is regulatory for IFR flight, but TSO'd "sensitive altimeters" will generally meet these requirements - at least when they left the factory. VFR aircraft are not required to have the pitot static system checked.

The accuracy requirements provided in FAR 43 are based on mechanical altimeters, and are subject to a number of requirements (friction error limits, hysteresis limits, etc.), but the test tables there are a good guide to the accuracy of "typical" altimeters. One of the specs allow +/- 30' at 3,000' elevation and as much as +/- 80' tolerance at 10,000'.

So, combining all of this together - If we have two aircraft flying along indicating the same altitude (say 10,000 feet) and both altimeters are perfect there will be zero feet of vertical separation between them (the static ports of each aircraft will be at the exact same altitude). On the other hand if both aircraft are at the outer edge of tolerance (one +80ft, one - 80ft) there will be 160 feet of vertical separation between them (discounting visual "slop" in the analog altimeter and assuming

the pointer is perfectly on the line and the pressure setting is perfectly dialed in). Knowing this should make one cautious if you "think" you have the same altimeter setting of another aircraft close by, and "think" you are at the same altitude, or separated by a safe vertical distance apart.

GPS Altitude.

GPS altitude can be off as much as +/- 400' for non WAAS gps reported altitudes compared to the altimeter reading.

From Garmin

"GPS heights are based on an ellipsoid (a mathematical representation of the earth's shape), while USGS map elevations are based on a vertical datum tied to the geoid (or what is commonly called mean sea level). Basically, these are two different systems, although they have a relationship that has been modeled. The main source of error has to do with the arrangement of the satellite configurations during fix determinations. The earth blocks out satellites needed to get a good quality vertical measurement. Once the vertical datum is taken into account, the accuracy permitted by geometry considerations remains less than that of horizontal positions. It is not uncommon for satellite heights to be off from map elevations by +/-

400 ft. Use these values with caution when navigating"

I rely on the barometric settings on the altimeter if I've received a recent ASOS report, however the GPS altitude would be a good back-up if it's been a while since getting a ASOS report, such as in the Backcountry. If however I'm on the ground In the BC, I set the altimeter to the known field elevation and use the Fly Idaho runway profile to get the correct altitude depending which end of the runway I'm at.

I hope this clears up some things on Altimeter settings, and makes one aware of some of the errors one might expect if you're in close proximity to another aircraft when you "think" you're good because you have the same pressure setting. If all else fails, look out the window and avoid colliding with terra firma!!.

Have fun, Fly safe and Don't do anything Stupid,
Jim

September 2017

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Calendar of Events:

After a summer of no member ship meetings, there will be a General membership meeting Tuesday, September 26, 7:00 PM in the Hanger.

- 09/10/2017 – Accounts due
- 09/12//2017 - Board Meeting
- 08/20/2017 - Accounts past due
- 09/26/2017 General membership meeting

If you have any ideas for safety meeting presentations or would like to arrange a presentation, contact Membership/Safety Director Jim Hudson

The T-Craft telephone number is 208-546-4128.

Fuel Reimbursement

\$4.17 per gallon.

Ratings

17` Student Pilots
66 Private Pilots
01 Recreational Pilots
13 Commercial Pilots
08 Air Transport Pilots
30 Instrument Rated Pilots

Closure of KMAN

KMAN will be closed September 11 through September 16. Ben will move some of the aircraft to KEUL. Bert will have 13686 at the Payette airport. If you want to fly during that period of time, you will have to come to the hangar, get the key, log in, fly, return to the hangar, replace the key and log out. If you want to fly 686 call Bert and he will make the key available to you at the Payette airport.

Member Statistics:

105 Members (3 LSA only)
16 on the wait list.
40 Class I Members (39%)
65 Class II Members (61%)
08 Inactive (voluntary suspension)
10 Suspended (BFR/Med/Attend/Billing)
10 Social Members (non flying, not included in "Members")

BFR

James Eyre
Chris Rood

Events to remember:

Plane Wash Saturday October 7th.
Boise Air Show Thunderbirds and Canadian Snowbirds October 14th and 15th.
Idaho Division of Aeronautics - Aviation Safety Stand down - Saturday October 28th

Club statistics*

The top three flyers for the month were:

Jon Miller	19.3
Lan Smith	17.4
Mike Eicher	16.4

The top three aircraft flown were:

4464R	59.7
13686	51.2
67375	39.7

The top billing aircraft were:

7593S	4,362
4464R	4,239
1891X	3,784

*these numbers are reported 30 days prior to the newsletter.

Hangar progress

The board voted to go forward with the hangar project. T-Craft will be purchasing a C172 aircraft to replace 1227G and another aircraft to expand the number of aircraft owned by the club to eight. This will give us space for the new aircraft and in the event of future expansion, the club will have a place to locate additional aircraft. Economies of scale somewhat dictate the size of the hangar. It will be large enough to house our aircraft and allow us to rent space in the old hangar to offset the cost. The location will be where the old FBO building is located which is close to the wind sock. This will be a through the fence hangar and will have a restroom in it. This is a prime location. We were not permitted to expand at the present location because the grassy area to the west is somehow considered a French drain. There should be no impact on member dues. For all the details please attend the Membership meeting September 26

Basic Med

What documents does T-Craft Need for Basic Med? We have Six members who have obtained completed their Basic Med requirements.

1. We need the AOPA Basic Med Course Completion Certificate,
2. The Physician's Signature and Declaration page from the Comprehensive medical Examination Checklist,
3. Copy of your Driver's license showing the expiration date.

REMEMBER A SUPER EVENT

REALLY CLOSE TO HOME

October 14 and 15. Gowen Thunder Airshow, Gowen Field, Boise

Attendance Policy

As you know, the club has an attendance policy that requires members to attend a club function within a 90 day period or their scheduling and flying privileges are suspended. The intent of the policy is to encourage participation, camaraderie and involvement in the club. One of the great attributes of our club is the involvement and participation of members. That's what has made our club strong from the beginning and continues to keep it strong, vibrant and growing today.

Like any organization there are a few outliers, who skirt around the edges of the policy, are forgetful and look for excuses for not meeting the attendance requirements. Some of these members are habitually late and some get upset when informed they've exceeded the limit. Fortunately, this is a small minority, but causes me, the membership director, lots of grief.

In the past I've sent out reminders, and given some breaks in the policy. However, going forward, there will not be reminders or exemptions to the policy.

I'll continue to track attendance after every meeting and when a member exceeds the 90 days, they will be notified that their privileges have been suspended and any future schedules will be canceled. If a member feels there is a valid reason they cannot fulfill this policy, a written request must be made to the board of director's approval for an exception. The club calendar of events lists club meetings and events most of which provide credit for attendance.

Board Meetings and some non-club sponsored events satisfy the attendance policy. Members are encouraged to attend and participate in board meetings for the latest updates on the status of the club.

If a situation presents itself where a member is unable to fly or participate in the club for an extended period of time, there is the option to go on inactive status. Inactive status requires the monthly dues of \$60/month, but not the use-it-or-loose-it flying charge. A member may petition the board to go on inactive status.

October 2017 Plane Wash

The T-Craft Board approved Jim Hudson's proposal that we have the October plane wash on Saturday, October 7, 2017. Several of the members had commented that they couldn't make the plane wash because of work. The board accepted the proposal and the plane wash will be Saturday, the 7th starting at 8:00 a.m. There will be a barbecue when the plane wash is completed.

HOURLY RATES



N67375
\$60.00



N4464R
\$71.00



N13686
\$73.00



N1891X
\$106.00



N9989E
\$112.00



N7593S
\$116.00

SQUAWKS

James Eyre, Director of Maintenance.

7593S - Nothing to report.

9989E - Partial blockage of the Pitot tube. Cleaned out.

1891X - The CHT gauge was acting erratically. That was caused by a chafed wire running through the fire wall.

4464R - 100 hour inspection has been completed. The crank shaft seal was leaking the crank shaft was turning in the race. Those items were repaired. Maintenance replaced the left main and both brake linings.

13686 - The primer has been lubricated and operates more easily. The new pilot side harness has been installed. The passenger side harness was not up to standards and will be installed this week.

67375 - Nothing to report.

Remember to report squawks on schedule master. The old clip boards for reporting squawks have been retired.

CARE OF YOUR AIRCRAFT

Please remember that after landing club policy requires us to clean the leading edges and the windscreen of bugs and foreign debris. There should be no need for any such requirements. As a matter of common courtesy we should leave an aircraft in a clean condition after we have flown it. We learned as early as first grade, if we create a mess, we clean it up. That's the grown up thing to do. PLEASE, after you land, clean the bugs off the leading edges and windscreen. Then use the furniture polish on the leading edges.

Even though we don't need to pre-heat the engines because of warmer weather, always allow the engines to warm up before starting your run-up. That means temperature gauges should be in the green before the run-up. As DOM Jim always reminds us, if we take care of the engines, they will last a long time and serve us well.

MEMBERSHIP DUES

Effective February 1, 2016 membership dues were established at \$60.00 per month. At the Annual meeting this year membership approved continuing dues at the rate of \$60.00 per month. That rate combined with the low hourly charges for the airplanes made available because of the well timed fuel purchases and the great maintenance under the watchful eye of Maintenance Director Jim Eyre makes T-Craft the leader in high quality, low cost flying. Upgrades will not impact the hourly cost of flying an aircraft.

PLEASE REMIT PAYMENT IN FULL BY THE 10TH OF THE MONTH.

Your account will be PAST DUE if not received by the 20th and there will be a \$10.00 late fee. There will be a finance charge if your account is over 30 days past due and flying privileges will be suspended.

OFF FIELD FUEL REIMBURSEMENT

If you purchase fuel off site you will be reimbursed at the club rate per gallon, currently at \$4.17 per gallon. In order to get the reimbursement, send your receipt(s) to the club mail address to the attention of Reggie Sellers, or scan a legible copy and email to Reggie Sellers. DO NOT put your receipt in the club pouch, these are for Nampa fuel receipts only and your personal receipt will probably get lost.

Remember. You use your credit card to purchase your fuel offsite. Submit the bill to Reggie and he will give you property credit.

THE CHAMP 1227G

The Champ is no longer with us. The Board brought the Champ on board to grow T-Craft through the LSA program. With BasicMed, there is no reason to fear failing a 3rd class medical so the need for an LSA program has pretty much disappeared. T-Craft has 3 LSA members and is offering them a full refund of their investment if they want to leave or allowing them to meet club requirements and become regular members.

LETTER TO THE EDITOR - FROM A MEMBER

Ken Kaae

Good newsletter!

I was amazed to see on page 12, the Litton Guidance and Controls LN-3 inertial navigation system. My dad was one of the engineers on that system! It was used in the F-104G model that was sold into Europe. Variations of that basic system was used in the Navy A-6 Intruder and the mother of all aircraft, the A-12/SR-71 . I have a notebook of my Dad's that shows initial production dates and block diagrams for a special system that uses the Kollsman Astrotracker for a classified system called the LN-7. I can't find ANY info on that system other than it's still a classified system. Amazing for something that was designed and built in the very early 60's.

Ken Kaae

Pictures of Dennis Wheeler and Reggie Sellers at the Orcas Island fly in.





From James Eyre, our Director of Maintenance.

It's big and to some it's an ugly fellow. Some call it the BUFF. But it's one of the most adaptable aircraft flown in the past 60 years.

1) The B-52's first flight was April 15, 1952 - Over 63 years ago. It was first flown the grandfathers of today's pilots.



[Wikipedia](#)

2) The B-52 was designed to carry nuclear weapons during the Cold War, but it has only carried conventional ordnance in combat.

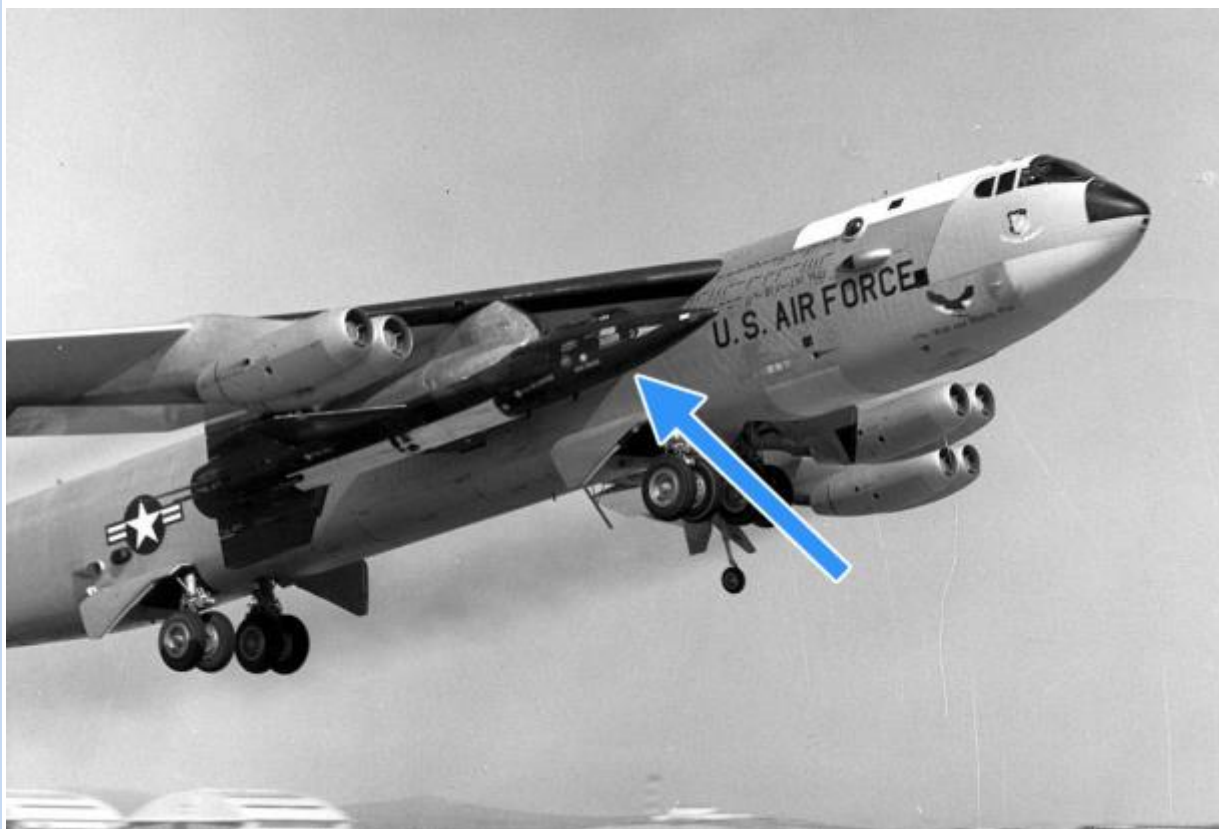


3) There were huge leaps in aviation happening when the B-52 was being designed, and it went through 6 major redesigns during the 5 year design period. The YB-52 pictured below was the second-to-last major redesign.



[Wikipedia](#)

4) A B-52A was used to carry the North American X-15. The X-15 achieved the record for fastest manned powered aircraft, with a speed of Mach 6.72.



[Wikipedia](#)

5) There have been 744 B-52s built, but currently there are only 85 in active service, with 9 in reserve.



[USAF](#)

6) The B-52 can carry up to 70,000 pounds of ordnance, or the equivalent of 30 fully-loaded Cessna 172s.



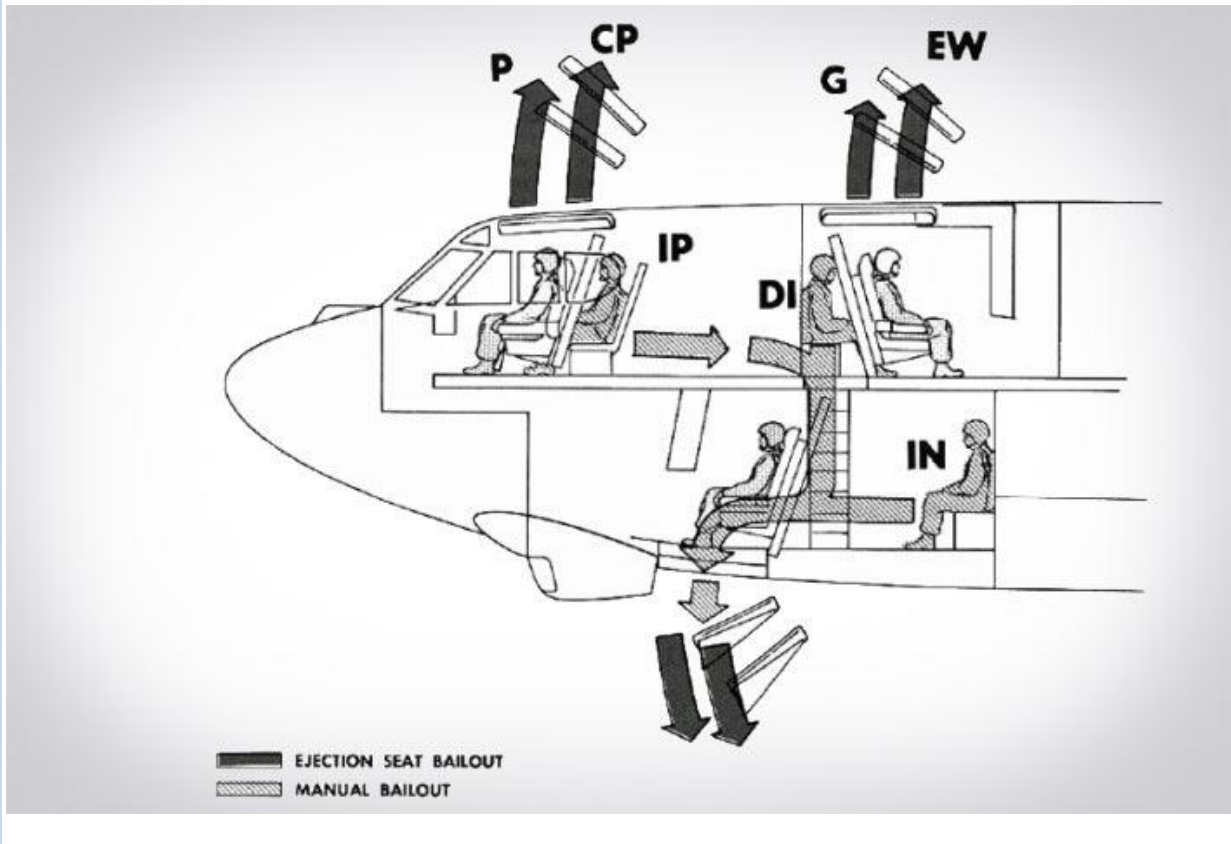
[Wikipedia](#)

7) Production ended in 1962, which means the youngest B-52 is 53 years old.



[USAF](#)

8) The jet has a unique ejection system; the lower deck crew eject downward. Which may cause a real problem if an ejection is required at a low altitude.



9) The B-52 is expected to serve until the 2040s. That's over 90 years of service.



[USAF](#)

10) In 1964, a B-52 configured as a testbed to investigate structural failures flew through severe turbulence, shearing off its vertical stabilizer. The aircraft was able to continue flying, and landed safely.



[Wikipedia](#)

11) The navigator and radar navigator sit in the lower deck of the aircraft. These are the two seats that eject downward.



[Wikipedia](#)

12) To comply with the SALT II Treaty requirements, cruise missile-capable aircraft had to be identifiable by spy satellites. To comply, the B-52 "G" models were modified with a curved wing root fairing.



[Wings Over The Rockies Museum](#)

13) Early models had cabin temperature problems; the upper-deck would get hot, because it was heated by the sun, while the navigation crew would sit on the cold fuselage floor.



[Wikipedia](#)

14) In 1961, a B-52G broke up in midair over Goldsboro, NC. Two nuclear bombs on board were dropped in the process, but didn't detonate. After the bombs were recovered, the Air Force found that five of the six stages of the arming sequence had been completed.



[Wikipedia](#)

15) In 1972, B-52 tail-gunner Albert Moore shot down a MiG-21 over Vietnam. It was the last recorded bomber-gunner to shoot down an enemy aircraft.



[Texas Aviation Online](#)

16) After the Soviet Union fell in 1991, 365 B-52s were destroyed under the START treaty. The aircraft were stripped of usable parts, chopped into 5 pieces with a 13,000 pound steel blade, and sold for scrap at 12 cents per pound.



[Span Online](#)

[Media](#)

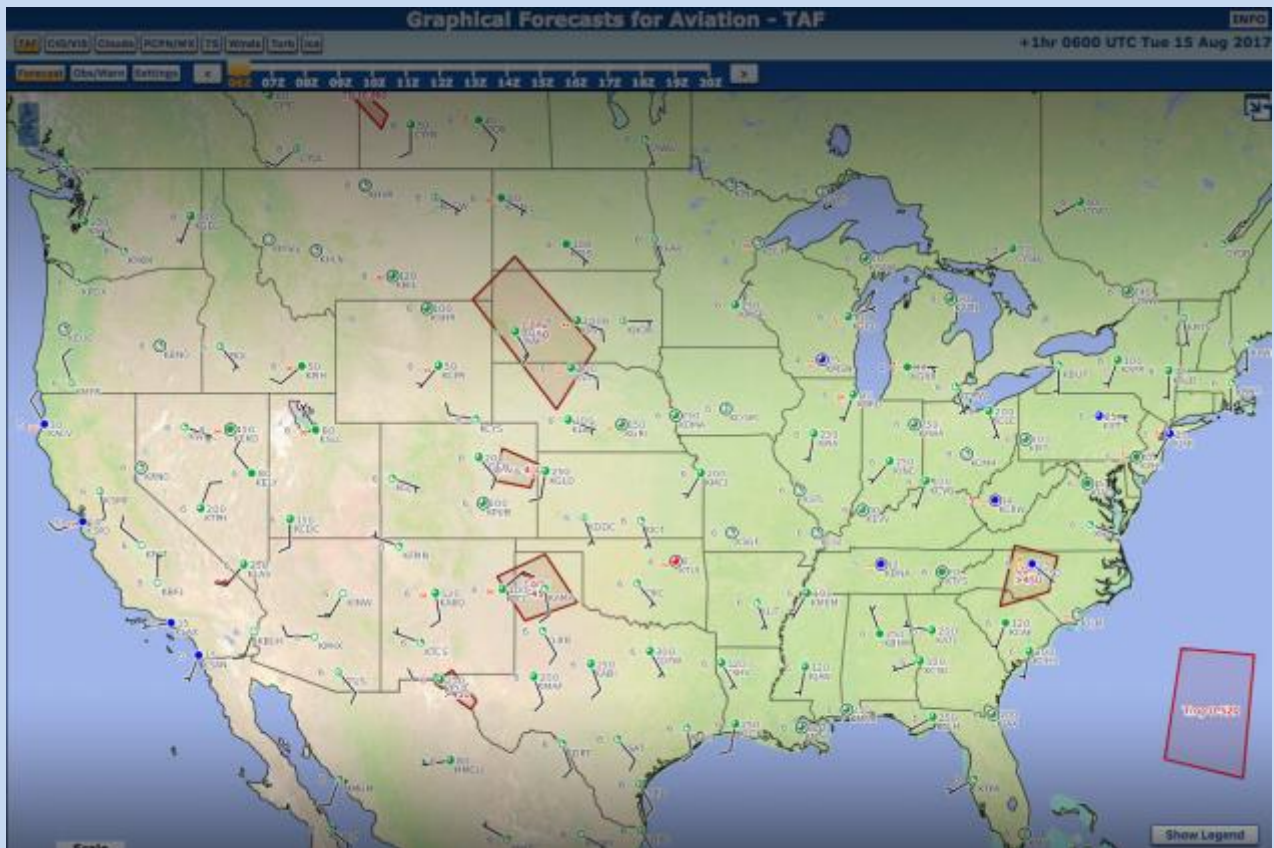
17) During Operation Desert Storm, B-52s delivered 40% of the weapons dropped from the air.

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FROM OTHER SOURCES

Area Forecasts Go Away In 2 Months, And It's Time To Get Used To Their Replacement

- By [Colin Cutler](#)



Aviation Weather Center

When it comes to aviation weather products, very little changes. But two months from now, Area Forecasts (FA) are gone for good.

Now would be a good time to get used to their replacement: the [Graphical Area forecast](#).

Look How Far We've Come: The Old Area Forecast

For most pilots, there's not a lot of love lost for the Area Forecast.

The FA is a jumbled group of weather contractions, along with different effective times for the synopsis, VFR clouds and weather, and the outlook.

The hard-to-read format originated in the 1930s, when character-count limitations required short hand format. Along with that, extremely large geographical areas covered in the forecast meant broad forecasts with limited value.

Say Goodbye To This

```
0100 FA 150245
SYNOPSIS AND VFR CLDS/WX
SYNOPSIS VALID UNTIL 152100
CLDS/WX VALID UNTIL 151500...OTLK VALID 151500-152100
ID MT WY NV UT CO AZ NM
.
SEE AIRMET SIERRA FOR IFR CONDS AND MTN OBSCN.
TS IMPLY SEV OR GTR TURB SEV ICE LLWS AND IFR CONDS.
NON MSL HGTS DENOTED BY AGL OR CIG.
.
SYNOPSIS...03Z TROF SE AB-NRN ID-ECNTRL OR. OCFNT SW SASK-LOW
PRES NR GCC. STNR FNT GCC-LOW PRES OVR SLC-CNTRL NV. STNR FNT
NERN WY-CNTRL NE. HI PRES WRN CO-ECNTRL AZ. TROF FM LOW PRES NR
SNY-LOW PRES NW TX-SW NM. 21Z HI PRES NW WY. CDFNT FM NCNTRL
NE-NCNTRL CO THEN STNR TO WCNTRL UT. TROF NERN CO-LOW PRES SE
CO-SE NM. HI PRES NERN AZ.
.
ID
PNHDL...BKN CI. OTLK...VFR.
CNTRL MTNS...SCT-BKN150 TOP FL250. WDLY SCT -TSRA. CB TOP FL320.
04Z SCT-BKN CI. OTLK...VFR.
SWRN...SCT100. 04Z SCT-BKN CI. OTLK...VFR.
SERN...BKN120 TOP FL240. WDLY SCT -SHRA/ISOL -TSRA. CB TOP FL320.
05Z SCT070 BKN100 WDLY SCT -SHRA 09Z SCT050-060 BKN100 CNTRL
```

What Exactly Is Going Away?

Like a bad comic book villain, Area Forecasts aren't **completely** dead.

The seven Area Forecasts that are going away are: Boston, Miami, Chicago, Dallas, Salt Lake City, San Francisco, and Hawaii.

But the FAs for Alaska, the Caribbean, and the Gulf of Mexico won't be affected (at least not yet).



Good Riddance, Except...

While Area Forecasts aren't anyone's favorite weather product, there is one thing that IFR pilots are going to miss: **cloud top forecasts**.

Until recently, the Area Forecast was the only weather product with cloud top forecasts. And for an IFR pilot flying in the mid-altitudes, those cloud-top forecasts are a big deal.

Sure, there are PIREPs reported during the busiest flying hours of the day, but even those can be hard to come by in the less-traveled parts of the US. And having a solid plan to get out of icing conditions is critical for turbo-piston and turboprop pilots.

What's The Replacement?

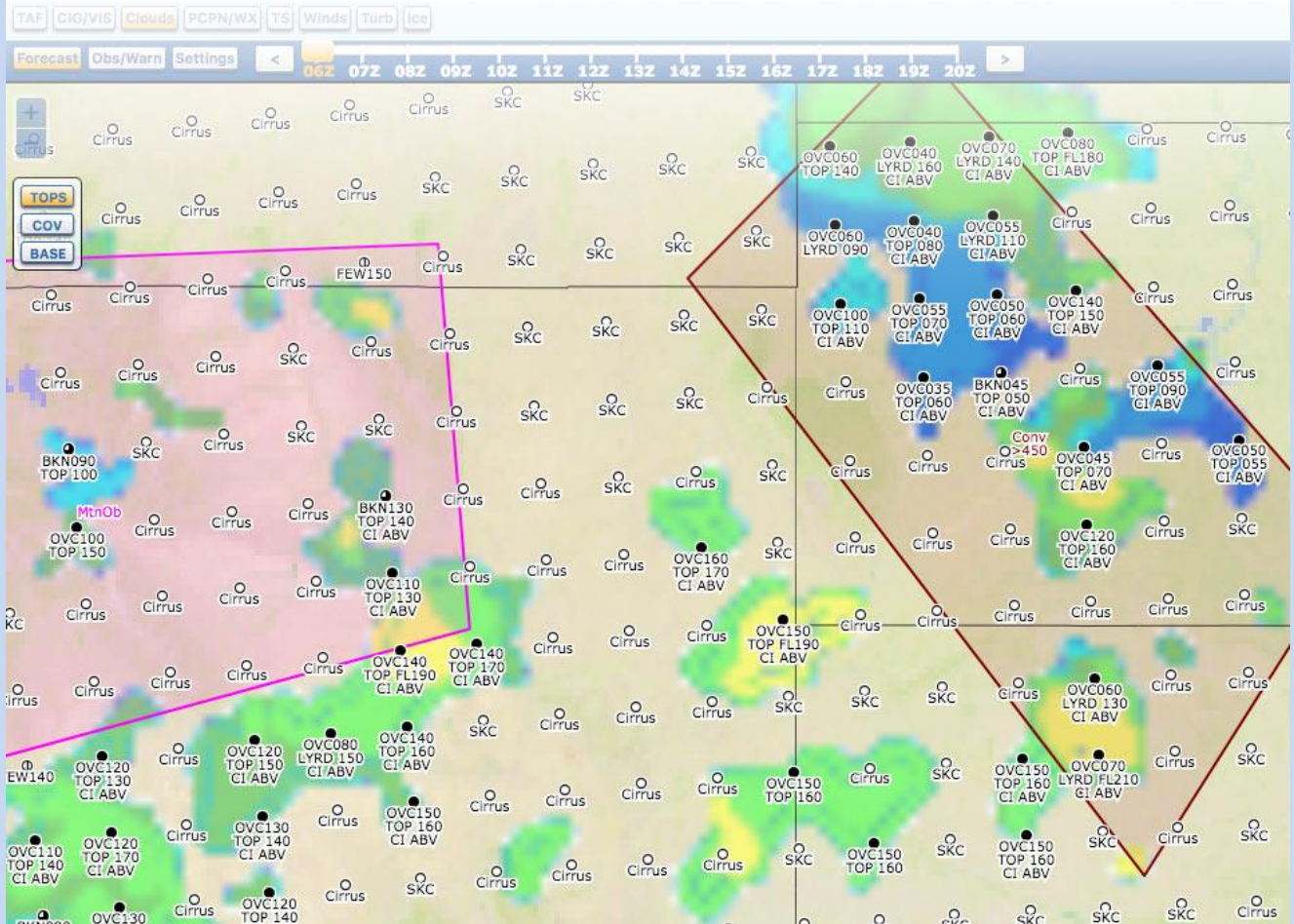
The new Graphical Area Forecast tool has cloud top forecasts too, but there's a catch.

The new cloud top forecasts are computer model generated, and they're almost completely automated. When it comes to a gray stratus-cloud type of day, it works pretty well.

But when you're dealing with a humid, convective day (the type of day you'd expect to see a lot of ice), things get a little iffy. The same is true around frontal systems.

In the old forecast, input from human forecasters helped fix the cloud-top problem areas. In the new system, that isn't the case, because computers are doing nearly all the work. And because of that, you need to spend a little time double-checking to make sure the cloud tops are what they say they are.

Cloud Tops Aren't Always Reliable

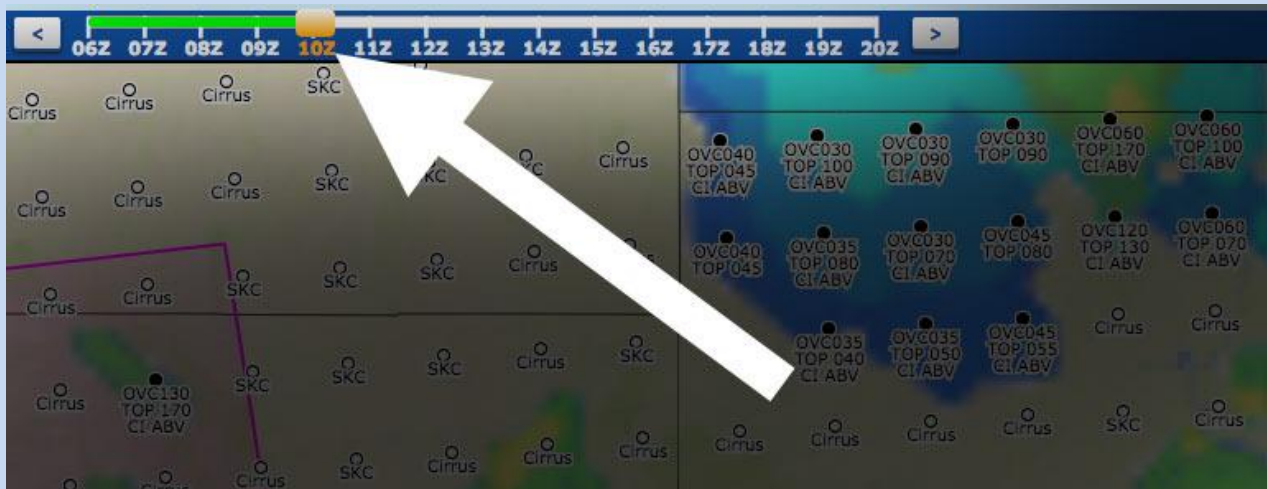


Graphical Area Forecast: There's A Lot More To It

Aside from the cloud top problem, the new Graphical Area Forecasts is a pretty big step forward.

You can overlay TAFs, ceilings and visibility forecasts, cloud and precip forecasts, thunderstorm probability, winds, turbulence, and ice forecasts over a map in the new product.

And with a handy slider bar, you can zoom through the current hour, up to 15 hours in the future for each one of the forecasts. That's a lot better than the text-based Area Forecast could ever do.

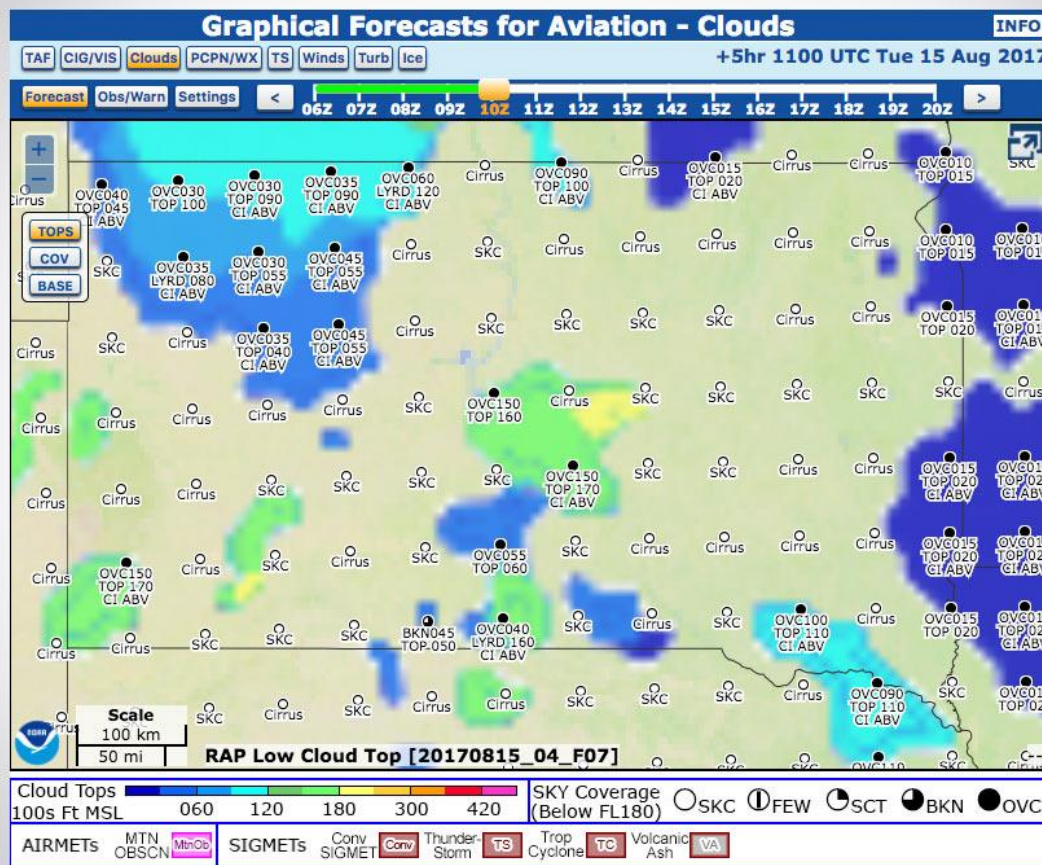


Information Overload?

But with so much information, the GFA presents another problem: how much is too much?

It takes time to move through the different menu configurations, then pan and zoom to your route of flight. And once you get configured, depending on the screen, there's *a lot* of information. If you're new to it, it's easy to get lost, or not know how far out in the forecast you are.

How Much Is Too Much Info?



What About EFBs?

The GFA tool was built specifically for the Aviation Weather Center, and because of that, no one is quite sure how the new forecasts are going to be displayed in Foreflight, Garmin Pilot, or any other electronic flight bags out there. For that, only time will tell.

Love It Or Hate It, Graphical Area Forecasts Are Here To Stay

It's easy to bad-mouth change, especially when it isn't perfect. But the Graphical Area Forecast is a big step in the right direction, giving you more

weather info in one product than anything offered before. And whether you're planning a local flight, or a 1,000 mile cross-country, it's one of the most powerful weather tools you can use.