

## *“Riveting Reading”*

Civil Air Patrol  
North Carolina Wing  
Aircraft Maintenance

Dec 1, '20. Vol #37

By Major Martin ‘Stryker’ Heller



## **Foaming at the Prop:**

N938CP covered in suds during its bi-annual airplane wash. N7360C, N98426, N726CP, N716CP were washed too. N9930E was washed on 6 Oct. Now, all the NCWG’s fleet is clean.

To: NCWG Commanders, Operations Officers, Crew Chiefs & Aircrews;

**1. Motivational Quote:** “The capacity to learn is a gift; The ability to learn is a skill; The willingness to learn is a choice.”  
“Brian Herbert”

**1a. NCWG Director of Operations (NCWG/DO) Comments: ‘Hope is not a Method’** See Attachment 1.

**1b. NCWG/AMO Editorial: ‘Commanders—the Middle Bun in a Guano Big Mac.’** See Attachment 3.

**1c. Nov Highlights:** NCWG flew ~255 hours in Nov; slightly less than October. **Top Hour Squadrons were the usual few:** NC-019/KAVL/N99885: (28), NC-022/KBUY/N262CP: (27.7), NC-145/KLHZ/N938CP: (25.1), NC-048/KRDU/N726CP (23.5) and NC-170/KSUT/N179CP: (21). Not a great month; 9 NCWG aircraft didn’t fly 15 hours and 3 of those aircraft didn’t even fly 10 hours. Note: N819CP, N93CP & N741CP had maintenance excuses. **November’s NCWG Top Left Seat time pilots were:** Lt Wendy ‘Taz’ Peters/NC-048, (~20), Capt Cody Gutierrez (~13.5) and 1<sup>st</sup> Lt Gregory Brown (~11.3) both from NC-145/KLHZ.

**1d. USAF-CAP Compliance Inspection:** NCWG walked away with an effective rating and very few discrepancies; the two goals that leadership wants. Some might be disappointed that the wing, or even some areas didn’t earn the ‘highly effective’ rating, especially since NCWG is #1 in operations in CAP and #1 in ES east of the Mississippi, outstanding Cadet Programs, etc.... Area after area received ‘Clean Sheet’ reviews; a testimony to our Chief of Staff riding herd on the entire process. NCWG’s Educating and Training program is so squared away that NHQ is offering our POC up to assist other wings. But the ‘effective rating’ is a blessing in disguise; if you’re rated tops, the only place to go is down. It’s more a reflection on the system and inspection team than on NCWG.

The downside is that we didn’t earn any ‘commendables’ despite submitting 8-pages worth. Besides patting ourselves on the back, “Commendables” document actions other wings could benchmark. From Total Force initiatives, to saving big dollars in maintenance costs, from new technology that saved lives, to documentation that can save both time & effort, these CAP improvements help make NCWG stand out. Similar to tax returns, inspections are a lot of work and sweat: But once done and accepted, we just move on to other challenges...until next time.

**2a. Maintenance Month in Review:**

**2b. Aircraft in Annuals:** N963CP: **Gumby** started its annual on 26 Oct. Both fuel tanks needed new sending units, right tire and brake pad replaced and both sets of magnetos are due a 500-hr overhaul. All sparkplugs were placed and the nose strut was serviced with Nitrogen (due to cold weather). N726CP: **Betty’s** windshield needed re-sealing, the tail tie down needed tightening, and new brake pads. A landing light seemed dim and costs \$1,100 to replace. →→

**2c. More Maintenance Actions:** N741CP (**Blue**) needed a new magnetometer (GMU44), as the artificial horizon kept failing. The G-1000 Reversionary mode button kept falling off and was stuck back on. There was a slight grinding/ratcheting noise coming from the right wing near where the AP Aileron servo is located when moving the right-wing aileron; turned out to be exactly that. You just don’t hear it in flight. The pilot’s Rosen visor needed tightening, and N741CP got an oil change which is why she was in the shop in the first place. N99885 had an oil change, replaced its turn and bank indicator, had both magnetos sent out for their 500-hour overhaul, had corrosion removed from a wingtip strobe, and then had tachometer cable replaced -- Some things don’t last 6,800 hours/35-years anymore. N437BA’s (**glider**) brake cable broke; getting fixed very soon.

**N819CP** had both its propeller and propeller governor overhauled. Things got sideways with the overhaul and the engine was opened up to replace the propeller governor drive shaft and the idler gear. In doing so, they discovered damage to the crankshaft. NHQ ordered the engine be sent to CAP's contracted engine overhaul facility for repairs. So, **N819CP** will be out of service; probably until late January. In better propeller governor news, all NCWG aircraft, sans N405CV, are through the **AD 2020-19-06** (see Attachment 2).

### 3. Aviation Maintenance Support Information:

**3a. GPS database current cycle (2013) starts Dec 3<sup>rd</sup>.** Remember to update AMRAD; both changed & next due dates. There has been a change to the magnetic variation file on the G1000 aircraft which requires Windows 7 and a 2GB SD card to upload. Some units have had success. Others are awaiting a Textron fix (which NHQ has requested).

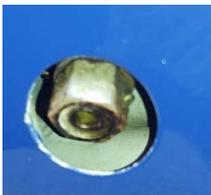
**3b. Prop Stop:** More and more, C-182 aircrews are noticing their three-bladed propellers no longer stop propeller blade up. The propeller blade stopped in the down position gets in the way of the tow bar, and could lead to prop damage if hit by a tug. In consultation with three maintenance shops and a propeller overhaul facility we learned that, *'yeah, it happens over time.'* More technically, as the engine and components wear, especially as cylinders get changed, the initial engine balancing disappears. The solution is to 'turn the prop to blade up' but only after you confirmed the keys have been removed from the ignition. We want to prevent damage to the propeller, and to your hands as well.

**3c. Ferry Permits:** The recent propeller governor AD has us work with the FAA in determining if a ferry permit was necessary. One FAA FSDO team member shared FAA order 8620.2B, **Applicability and Enforcement of Manufacturer's Data** which we forwarded to NHQ/LG. In this situation, a permit wasn't necessary, because our issue wasn't an FAA (AD) non-compliance issue, but a recommended overhaul which was overdue. There's a new ferry permit on-line application, but some questions require system familiarity to get through it, and it's not mandatory for General Aviation. Only because we had an FAA safety team member in our organization, was I able to get an answer within days.

My initial FSDO phone-calls didn't get return for nearly three weeks because the FAA is busy. While talking to this FAA inspector, I took the opportunity to discuss another issue that comes up from time-to-time, regarding anti-collision lights. Many sharp and experienced pilots have spent plenty of time debating this topic, interpreting regulations, researching aircraft operating manuals and even AOPA lawyer opinions. **The specific issue is, "do we need a ferry permit because one of the six → nine exterior lightbulbs is not working?"** (It has come up before with the aircraft beacon, and a few times with one of the three strobes lights out.) We clarified that the flight would be in daytime, under Part 91, to maintenance. His response, **'No: We need to use some common sense.'** Since he is our local FAA manager for this program, I'm going with his answer. If you feel differently, you can try to process the permit. For all I care, that plane can sit until NCWG/DO re-assigns it to another unit, or perhaps my replacement processes it. Capisce?



(Left) Fuel drain in center under cowling serving fuel selector valve: Won't drain much if fuel selector set to 'off.' (Right) Drain for gas-collator (on old & new Cessnas. Drains until the Gascolator is empty.



**3d. Fuel Drains:** Ever wonder why our older Cessna aircraft have only 3 drains; yet the newer ones have 13? And why don't other new aircraft (Piper, Beechcraft, etc...) have as many? Clearly, the answer isn't safety... Its legal liability. Cessna got tired of going to court and fighting the 'trapped fuel in outer wing areas could have water which became free and moved to the engine, causing engine stoppage' issue. Their answer was to add another 10 fuel drains. The real critical ones are the original three; one on each rear wing root, & one under the gascolater. If one drains slow; it's not a grounding item.

**Per Aircraft Operations**

**Manual:** (pictured right)  
Fuel drain under fuel (right tank) return line. It's located on copilot side. If fuel valve is set on both or right, it will run a lot; on 'left' it runs out & stops.



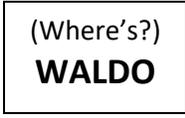
**FUEL RETURN SYSTEM**

A fuel return system was incorporated to improve engine operation during extended idle operation in hot weather environments. The major components of the system include an orifice fitting located in the top of the fuel servo, a dual stack fuel selector and a drain valve assembly. The system is designed to return fuel/vapor back to the main fuel tanks at approximately 7 GPH. The dual stack fuel selector ensures that fuel/vapor returns only to the fuel tank that is selected as the feed tank. For example, if the fuel selector is positioned to use fuel from the left fuel tank, the fuel return system is returning fuel/vapor to the left fuel tank only.

**3e. FRO – Bro Talk:** Your flight release officer (FRO) is part of your Crew Resource Management (CRM) team: While out of the cockpit, they are your guardian; so please help them help you. In the briefing section, fill out the Base phone # for the FBO if a mission base hasn't been established. That's the next phone call the FRO will make (after reaching out to the aircrews) if you don't report in as scheduled. Also, remember to populate and use 'Air 2' as the air-to-air frequency; it's our CAP company frequency in case another aircrew (or command) needs to get a hold of you. Of course, you need to monitor it too. More and more I see briefing sections with less and less; so please fill that area out too.

**3f. CO2 Detectors:** Did you know you're supposed to check that little brown circle before every flight? It's part of CAP Standard 73-1, para 3-2, right after the part about checking the aircraft tire pressure at the start of each flying day.

**3g. Aircraft Nicknames:** Program is complete; decals are on all of NCWG's aircraft fleet.



**4.** Thank you all for the support & for taking the time to read this. Riveting Reading can also be found on the new Wing website (NCWGCAP.org) under 'Members/Operations/Aircraft Maintenance.' If you have questions, call 703-732-3264.

*- Stryker -*

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**3 Attachments**

- 1. NCWG/DO Comments
- 2. FAA Advisory Directive (AD) Tracking
- 3. Editorial: Commanders -- The Center Bun in a Guano "Big Mac"

# NCWG Director of Operations Guidance

## Attachment 1

General Sullivan, 32<sup>nd</sup> Chief of Staff of the US Army, used to say '*Hope is not a method*', and taught many us in the Army the difference between capability and intent.

This month's message is all about our intent and your capability. The intent of Lt Col Bailey, Major Stange, Major Heller, Major Stevens, and myself is to ensure you pilots have every opportunity to enhance your capability as aviators, thereby providing the NCWG a ready source of legally qualified personnel for aviation operations.

Your capability, your legal qualified capability, however, rests entirely in your hands. The rules, regulations, and capabilities for flight within this nation remain with the FAA. No one but the FAA issued you your pilot's license, and no one else can take it away. Protecting your capability, regardless of health, legal documented qualification in flight, or organization, has never been more important.

In the event you are involved in an accident or incident, the FAA, and their big brother NTSB, are not going to be interested in what the Ops team said, did, or thought. They will come for you, and you don't want to know their capabilities. Our situation in air operations continues to test the patience of all of us. Stay sharp and do not hesitate to ask us questions. Please remember, we don't 'hope' you will do the right thing, we know you will; because you always have.

***M***

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**Attachment 2**  
**NCWG Fleet Compliance with recent Advisory Directives (Ads)**

**AD 2020-19-06**, effective Nov. 3, Affects propellor governors' idler gear bearing. Complete within 50 hours or next oil change or 100-hour, whichever comes first.

Status	Tail #	CAP Acft Model	Tach Time hours to next mx as of: (Oct 20)	Based	Plan	Remarks (Prop Governor)
Pending	N405CV	C-182T	30	KINT	Scheduling oil change & Need logbook & prop gov stamped at 100HR	Eval at H&H Triad in Jan/Feb
cleared <sup>1,2</sup>	N741CP	C-182T	19	KECG	H&H rebuilt prop & Governor - 16 Nov 20	Rebuilt: HH Triad 8 Mar 16 under WO 21396 (B4 service bulletin) Situation snowballed; engine needs new crankshaft.
cleared	N819CP	C-182T	12	KSVH	Need logbook & prop gov stamped at 100HR	Rebuilt: HH Triad 8/14/2020 Under WO # 24185

<sup>1</sup> Prop Governor rebuilt by H & H Triad who doesn't use affected bearings. (Have H&H Triad letter).

<sup>2</sup> Still need logbook entry to close out the discrepancy by acknowledging that AD 2020-19-6 is N/A

**AD 2020-18-01:** Cracks found in the lower area of the forward cabin doorpost bulkhead. This AD requires repetitively (every 36 months) inspecting the lower area of the forward cabin doorposts at the strut attach fitting for cracks and repairing any cracks. The NCWG aircraft affected are the C-172Ps; N99832, N99885, N98426, N4813C, and our lone C-182R; N9930E.

Status	Tail No	Year	CAP Aircraft Model	Tach Time to next mx (as of 20 Oct)	Based	Plan	Remarks
Open	N9930E	1985	C-182R	40	KIXA	Next 100 hr @ KLHZ	Est Feb 2021
Open	N4813C	1986	C-172P	86	KFAY	Next 100 hr @ KSUT	Est Mar 2021
Open	N98426	1986	C-172P	70	KEWN	Next 100 hr @ KSUT	Est Apr 2021
Open	N99832	1986	C-172P	38	KINT	Next 100 hr @ TBD	Est Jan/Feb 2021
Open	N99885	1986	C-172P	70	KAVL	Next 100 hr @ KAVL	Est early Jan 2021

### Attachment 3

## Commanders: “The Middle Bun in a ‘Guano’ ‘Big Mac’”

As part of the ‘Total Force’, CAP is their all-volunteer, unpaid military component. Outside the National Headquarters, its volunteer force runs on dedication, guilt, comradeship, and perhaps a little bit of ego. Without pay, retirement, or benefits, on any day people can leave. And they’ll take their expertise and hours of service with them. It behooves us to treat those we don’t want to lose, with appreciation. This especially applies to unit commanders.

The middle bun: Commanders took their thankless position because the rest of us don’t (understatement) want the job. Many Commanders will tell you that they took command, so the organization would not fold. From unit level, to the national commander, they have to deal with problems and issues from above and below. Most of these compilations of problems can perhaps be described as ‘guano’ patties. It’s not why they accepted the position, but when you have a people organization, you’re going to have people problems. Some are good challenges, and Commanders take pride in helping another out of a bind, through knowledge, resources, or just even an ear to lend. Other people problems might best be resolved with what the Navy refers to as a ‘Seabat’. “See bat?... whack.... Unfortunately, it’s not the CAP way of doing business.

Special Sauce - what holds the sandwich together is their staff. From Vice or Deputy commanders, to subject matter leads, these are the volunteers that deal with all the ingredients. Without a doubt, the secret to the sauce are the cadet commanders. Some people barely tolerate their own kids, let alone others. If it wasn’t for Deputy Commanders for Cadets (DCC), there probably won’t be a CAP. If anyone shows appreciation the most to the DCC’s, it’s the unit commander who knows he/she doesn’t want that job as well.

Cadets are the lettuce; green, and going in all directions. As they age out or just lose interest, they fall off the sides. DCC’s and unit commanders have an ongoing struggle to hold it together.

Seniors are the pickles. The newer (but not necessarily younger, we have some Lieutenants older than our Colonels) bring the spice and new ideas. Some of more senior seniors are full of salt, and that crinkled look, but add that unique flavor and are but another key ingredient of the sandwich.

Pilots are the onions... a few are great, but too many grouped together are overpowering, don’t smell great, and can make some people cry.

Higher headquarters is the cheese; you can’t have a Big Mac without cheese, and it’s what sticks the whole sandwich together. It tries to cover everything, and perhaps a bit over-processed. While trying to protect the middle bun from the guano patties, it is so intertwined with these patties that it’s hard to separate the two. But it needs to be over the pickles and onions...like the jingle says...and make no mistake, the cheese is uniquely ‘American.’

The top bun is the collective of the USAF, CAP, Board of Governors; the bottom bun, our foundation, are the families.

Sesame seeds are the success stories. Be it a cadet getting into a college/career/military, an aircraft save, or successful mission. We can never have enough of them and part of what makes the sandwich truly special, and one that has lasted more than 50 years.

What we don’t need is gristle. Found in the middle of a guano patty, it detracts from the sandwich but usually is digestible. Only when they break something, are they spit out. If you don’t think you are gristle, ask the folks around you. If you are afraid to ask, you might know your answer.

Wrapping it up is all the paperwork; despite incredible efforts and improvements to make documentation electronic, forms abound everything in the organization.

The take-out portion of this article can best be summarized as **“take care of your commanders so they don’t just quit.”**

→ First, take a job or two off their plate. It takes a lot of effort to run an organization; just blessing us with your presence isn’t enough. Even in the USAF, pilots have jobs. Busy? Yeah, us too.... But nothing like the Commander.

→ Second, do your job well. Commanders have too much to do already, without having to follow up on your job. The corollary to that is ‘Reduce Butt Pain.’ An USAF Major shared this philosophy. If you have a task and a suspense, get it done early. It avoids people (e.g. Commanders) having to hound you. Maybe a better way to express it comes from Larry the Cable Guy...‘Get R’ Done.’ Even without a suspense, get it accomplished and let the boss know. (i.e. end of month reports).

→ Higher headquarters has a role in this too. They need to prioritize their concerns; seems their biggest concerns are media posts. They should be more concerned about processing end of tour medals in time for the Change of Command Ceremony; taking care of the people that took care of business. If everything is important, then nothing really is.

Commanders are the lifeblood on our organization. Take care of them so they stay, and CAP can still be around.