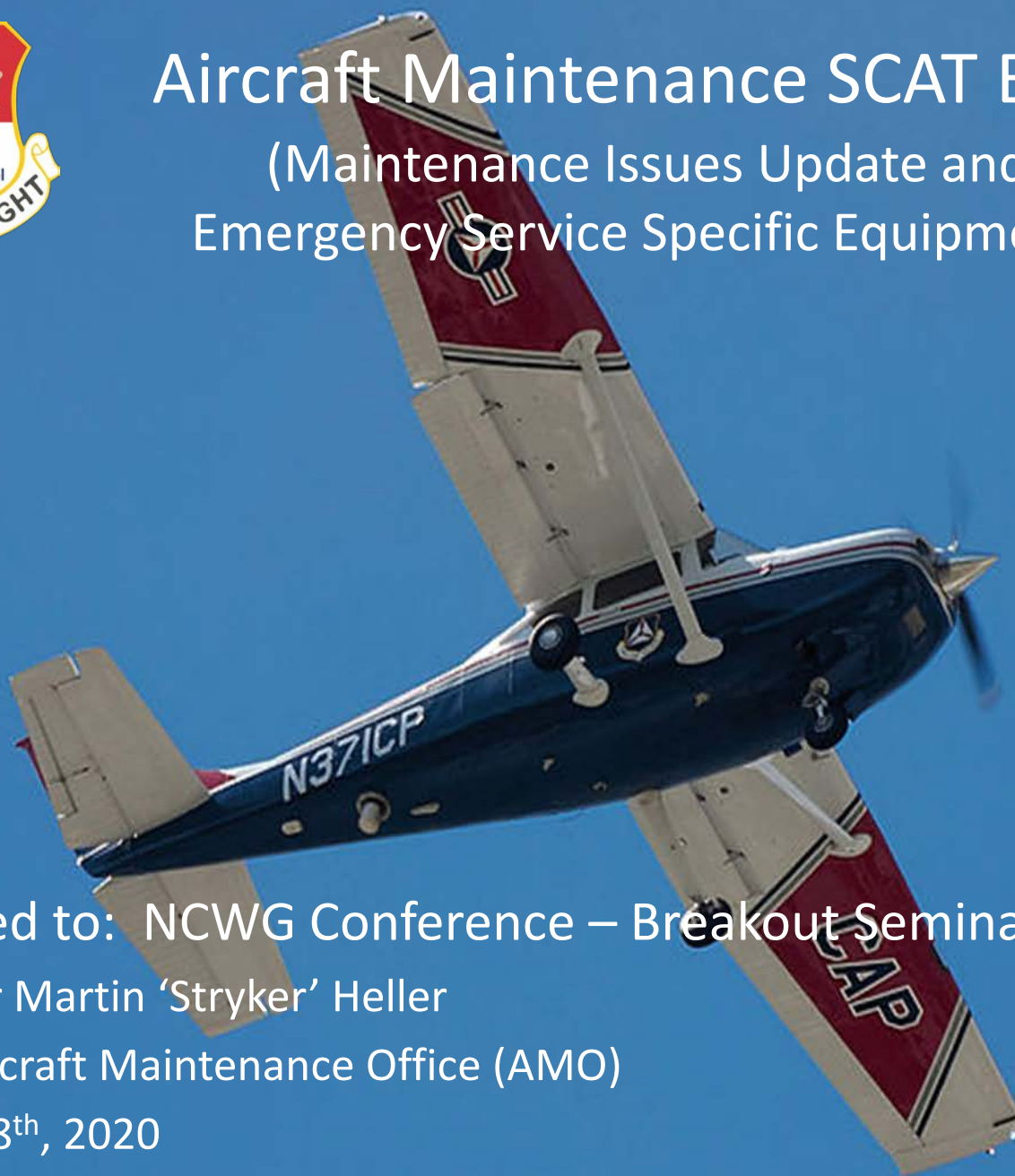




Aircraft Maintenance SCAT Brief

(Maintenance Issues Update and
Emergency Service Specific Equipment)



Presented to: NCWG Conference – Breakout Seminar

By: Major Martin 'Stryker' Heller

NCWG Aircraft Maintenance Office (AMO)

February 8th, 2020



AA

capnhq.gov



The Brunswick County Arpt, North Carolina Aviation Weather Report and Forecas...



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CIVIL AIR PATROLCITIZENS SERVING
COMMUNITIES

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CAPID

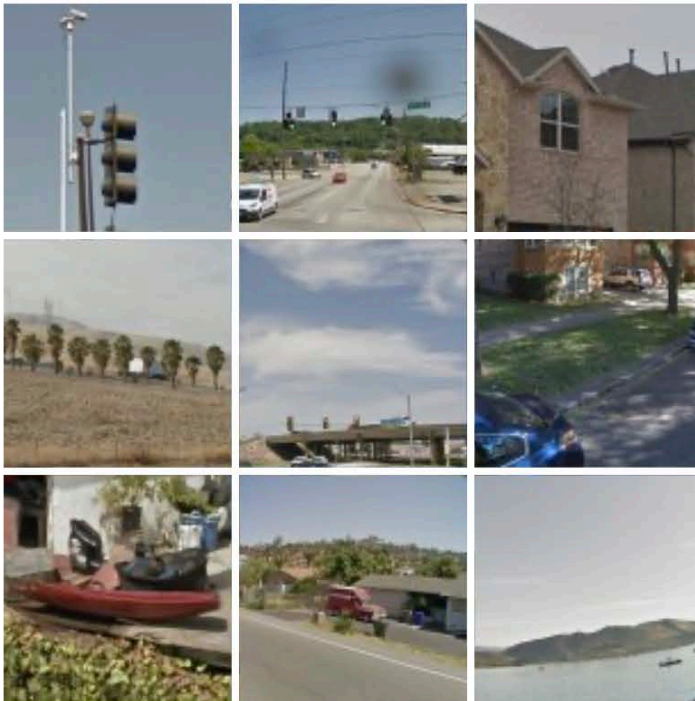
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Sign

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mountains or hills

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TIME USERS?

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[vilairpatrol.com](#)[members.com](#)[Now](#)[Cadet Special Activities](#)[eabase](#)[tion](#)

R PATROL



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**eSERVICES**
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COMMUNITIES**SIGN IN**

CAPID or US

320559

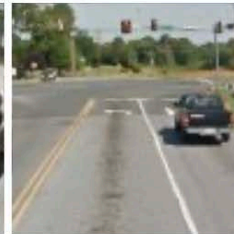
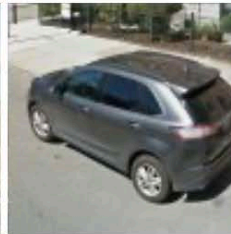
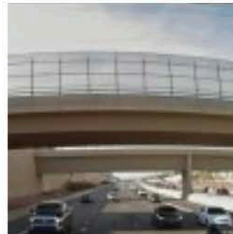
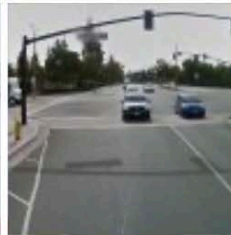
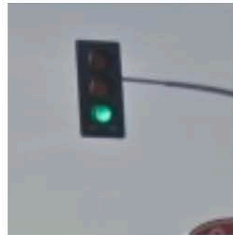
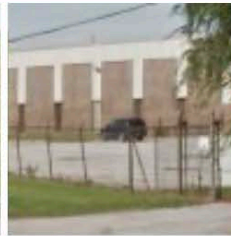
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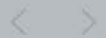


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Sign In

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traffic lights

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AA

capnhq.gov



Panthers owner David Tepper on Ron...

Washington Post: Breaking News, Wo...

Civil Air Patrol eServices Sign In

**eSERVICES**
CIVIL AIR PATROLCITIZENS SERVING
COMMUNITIES**SIGN IN**

CAPID or US

320559

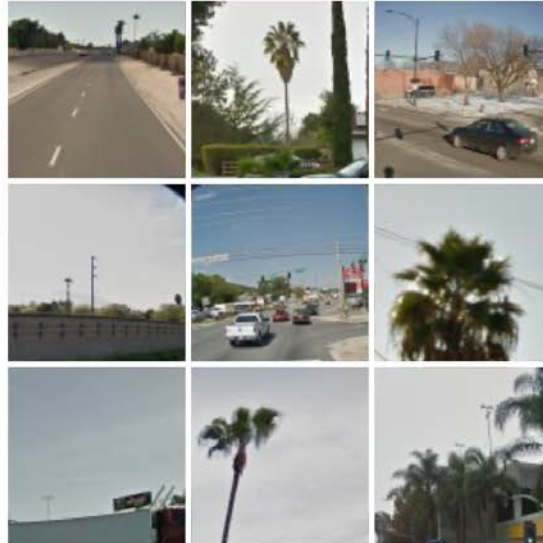
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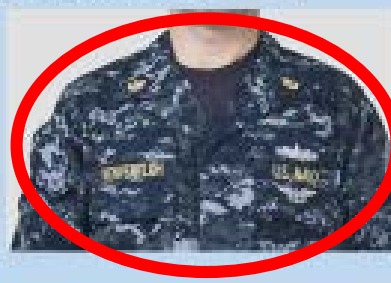
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[Helpdesk](#)

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The American Flag

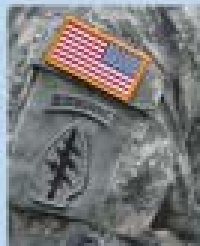
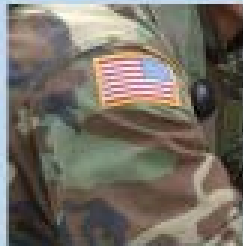
USAF



US Navy



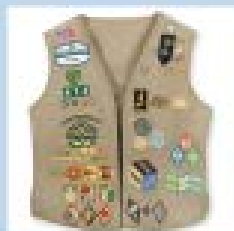
US Army



Other



Boy Scouts



Girl Scouts

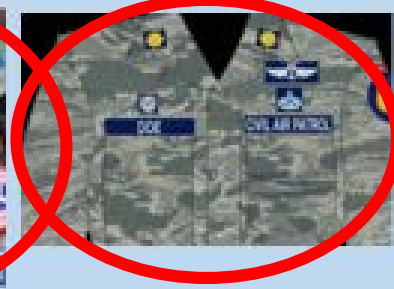


Wilderness
Explorer

US Marines



Civil Air Patrol



US Coast Guard



Changes in 2019

- Aircraft Maintenance Repair and Documentation (AMRAD)
 - Replaced nearly all WMIRS Support / Maintenance Modules
 - Ties in all repairs to part orders and billing payment
 - Single (findable) source for repairs instead of un-trackable emails
- Fleet Changes:
 - Several aircraft basing changes made; no change in tail #s (yet)
 - 10 of our 17 aircraft have 'official nick-names'
- Aircraft & AIF Changes/Updates:
 - New plastic credit card holders, checklists, survival kits, ladders

But First, Recognition

- Crew Chief with the Longest Drive: Lt Col Ray Davis – KAVL/NC-019
→ Engraved divot tool
- Crew Chief closest to the hole-tel: Capt Robert Call – NC-022/KBUY
→ Ball Marker (from Hawaiian golf course)
- Crew Chief with the 'Neatest' Monthly log submissions: Lt Col Rheta Courtney – KAVL/NC-019
→ Engraved pen for 'penmanship'
- Remaining DIP-Stick Awards:

NC-160/Beaufort

NC-307/Greensboro

NC-048/Raleigh-Wake



- NCWG's Most Prolific Pilot for 2019:

Capt Morris 'Cliff' (a.k.a. 'Beast')

Herring -- KFAY/NC-171

FY19: (272 hours) 224 hours left seat;

48 hours in other crew roles

- Was also # 1 for 2018 and 2017
(when counting total Hours)

→ Double base to mount below statue



Late Breaking News.....

C-172 Rear window break

→ Believe ladder popped up in turbulence

→ Replacing 66 qt plastic pins with a
29 quart (wet stuff) & 15 quart (dry)

→ Allows more room for ladder & to put
under the cargo net.



Aircraft Maintenance Repair and Documentation (AMRAD)

- Under eServices “Logistics”
- Tracks all airplane maintenance
 - If mx action creates a bill, there needs to be a ‘Discrepancy’ to corollate the payment
- Crew Chiefs should be in AMRAD at least monthly for GPS updates, any maintenance, aircraft washes, oil change, aircraft basing, annual updates, etc...
- AMRAD’s Sort functions takes some practice – but can see entire fleet
- WMIRS Maintenance & Reports modules still exists and used for end of month submissions.
- Can now see ‘Hours flown in last 30-days’ without pulling aircraft log.

[illegible]

Emergency Service Specific Equipment in NCWG Aircraft

- FM Radio (TDFM 136)
- VIPER Radio
- Becker Radio
- FM Repeater & 800mhz Repeater Capable
- Photo Window
- VIRB Camera
- DAART
- WALDO
- FLIR

G1000 – 2nd Audio Panel for CAP



FM Radio

- All CAP aircraft & ground vehicles equipped
- Secure Communications with CAP
- Actually two radios; Main & Guard
 - Listen both; talk on one
- Channelized Frequencies
 - Set by computer input. Know how to find/change/ manual tune channels
- General Service VHF High Band (136 to 174 MHz).
- Analog and Digital frequencies
 - e.g. Air 2 on both channel 4 & 11 (Air 2P)
 - Digital frequencies 'cleaner' but less range
- Set for Comm 3; sometimes shared with VIPER
- ADS-B has reduced some reporting calls
 - Used for two way comms; sometimes need to probe AOB for info



VIPER Radio

- 8 aircraft equipped
- NC funded
- Provides communication with Law Enforcement, Fire & Rescue
- Similar to other radios; has 6 zones and 16 channels.
- Channel Guide in AIF, Tab 8
- Shares the 'Comm 3' controls
 - Additional buttons on Console



		CAP VIPER XTS1500 CHANNEL GUIDE					
CHAN #	1 - EVT A-D	2 - EVT E-H	3 - STATEWIDE	4 - NPS / NC	5 - HRT1	6 - HRT2	
1	EVT ALPHA 1	EVT ECHO 1	CAP 1	8CALL90	H60 OPS	RESC1RPT	
2	EVT ALPHA 2	EVT ECHO 2	CAP 2	8TAC91	H72 OPS	RESC1DIR	
3	EVT ALPHA 3	EVT ECHO 3	CAP 3	8TAC92	AIR CMN	HOTEL 1	
4	EVT ALPHA 4	EVT ECHO 4	CAP 4	8TAC93	AIR BOSS	8TAC91D	
5	EVT BRAVO 1	EVT FOX 1	SW CALL	8TAC94	AIOPS1	RESC2DIR	
6	EVT BRAVO 2	EVT FOX 2	SW LAW	7CALL70	AIOPS2	RESC2RPT	
7	EVT BRAVO 3	EVT FOX 3	SW FIRE	7TAC71	AIOPS3	RESC3DIR	
8	EVT BRAVO 4	EVT FOX 4	SW EMS	7TAC72	AIOPS4	RESC4DIR	
9	EVT CHARLIE 1	EVT GOLF 1	SW GEN	7TAC73	AIOPS5	RESC5SW	
10	EVT CHARLIE 2	EVT GOLF 2	EM EBO	7TAC74	AIOPS6	RESC4DIR	
11	EVT CHARLIE 3	EVT GOLF 3	EM CBO	7TAC75	AIOPS7	RESC3DIR	
12	EVT CHARLIE 4	EVT GOLF 4	EM WBO	7TAC76	AIOPS8	RESC2RPT	
13	EVT DELTA 1	EVT HOTEL 1	EM EOC	7NCDIR1	AIOPS9	RESC2DIR	
14	EVT DELTA 2	EVT HOTEL 2	LZ EAST	7NCDIR2	AIOPS10	HOTEL 1	
15	EVT DELTA 3	EVT HOTEL 3	LZ CENT	7NCDIR3	PEDRO	RESC1DIR	
16	EVT DELTA 4	EVT HOTEL 4	LZ WEST	7NCDIR4	USCG	RESC1RPT	
Purple Side Button:		Direct	Switch - A	INOP	Orange Button:		Channel Announcement
Upper Side Button:		Zone Up	Switch - B	INOP			
Lower Side Button:		Zone Down	Switch - C	INOP			

*** DO NOT REMOVE THIS GUIDE FROM AIRCRAFT ***

Becker Direction Finder

- Airplane Version of the 'L-Per'
 - You can use it on ground while taxiing
 - Can also train on ground with practice beacon being move around airfield.
- Need to be familiar with functions and pages before mission.
 - Have limited time to select proper freq.
 - Has pre-tuned 406MHz stations; need to know how to change between frequencies
- 'Bread and Butter Mission!!!'
- Alternate option is 'Wing Null method'



All NCWG aircraft except:

- N726CP
- N99885 – LTronics
- N99832—Ltronics pulled

Repeaters - Fixed (Ground) & Air

- Echo your broadcasts to increase range
Practice to understand & know range
- Ground Stations – if doesn't work, MO does
 - MER Repeater Channel Guide in AIF, Tab 8
- Air Repeaters mobile – sits in back seat
- ~50#s w/o shipping case; 73# with.
- Antenna & power connectors in aircraft
- 4 NCWG units: KAVL, KBUY, KSUT & KLHZ



Civil Air Patrol, North Carolina Wing
United States Air Force Auxiliaries

HOME SUBSCRIBE SQUADRONS CALENDAR

Home » Communications » Technical Information » Fixed Repeaters

Fixed Repeaters

UNCLASSIFIED // FOR OFFICIAL USE ONLY

Here are the statuses of our repeaters:

Site	Channel	Status
Chapel Hill	R50	Narrowband
Concord	R48	Narrowband
Cowee Bald	R50	Narrowband
Edenton	R58	Narrowband
Farmville	R37	Narrowband
Fayetteville	R39	Narrowband
Fisher's Peak	R57	Narrowband
Gastonia	R49	Narrowband
Hibritten	R20	Narrowband
Mt. Pisgah	R41	Narrowband
New Bern	R49	Narrowband
	R48	
Wilmington	R61	Narrowband

If you must work with an out-of-state CAP station over a repeater, give them the "R" channel designator for the repeater. For instance, if you want to use the Chapel Hill repeater, you can set their radio to "R50" and it will work as intended.

Map of NC Wing Repeater Locations

Tactical Repeater Information

Location	Channel
Asheville (AVL)	R67
Southport (SUT)	R70
Raleigh Durham (RDU)	R63-R70
Burlington (BUY)	R63-R70

**All NCWG aircraft:
N4813C & N99885
also have 800MHZ
Repeater capability**

Photo Windows & Cameras

Aerial Photography (AP) is newer, real world mission.

- Most squadrons issued Nikon D7100 cameras
- Often funded by FEMA, so meet FEMA standards.
- Photos geographically stamped
- Uploading FEMA website sorts by coordinates
- Uploading imagery takes time & bandwidth; have non-crew member help with workload.
- Camera 'Pre-flight' tasks > G1000 tasks
- New training for MO as well.
 - IOC can 'push KML files' to provide target lists and locations; readable & manipulated in 'ForeFlight.'



VIRBs

VIRB (by Garmin)

- 9 NCWG aircraft capable
- VIRB needs to see GPS satellites
- Controlled by MO using tablet
- Need to ensure Allen head screws tight;
-- else photographing behind aircraft.
- Not getting much tasking, nor training
- Some use mount for GoPros on O-rides



DAART

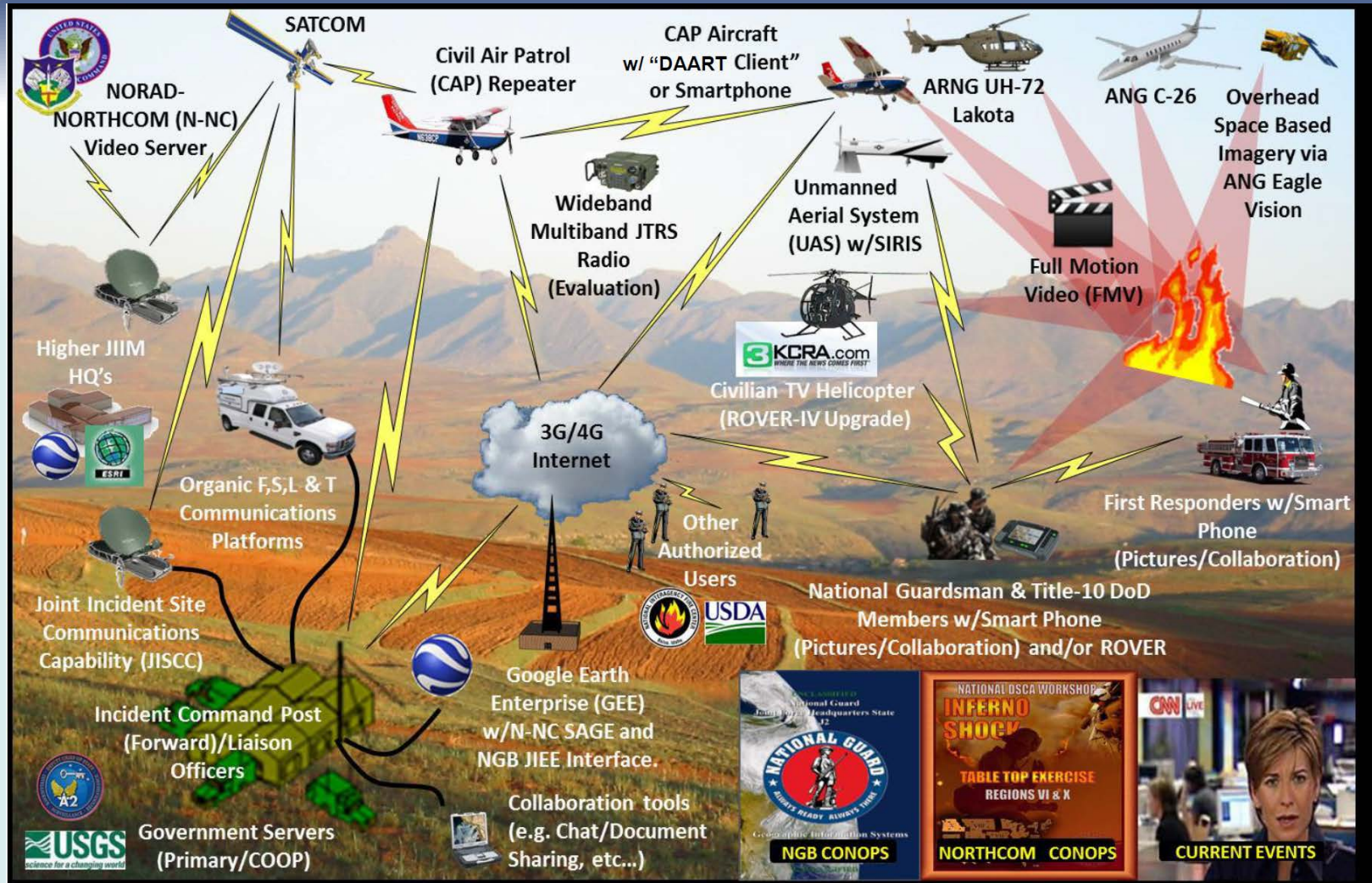
Domestic Awareness and Assessment Response Tool

- DAART provides Imagery, Video, Geospatial, C2, Situational Awareness, Document Management, and Collaboration Capabilities
- Used by Aircrew, Ground Teams, and Mission Base Staff → own ops qual
- Used by more than just CAP...
- N7360C is NCWG's platform due to cabin space – Col L. Ragland – POC
- Datalinks with other air and ground assets; Uses Cellular towers. Also, some CAP repeater aircraft can extend range ~ NCWG systems compatible?
- CAP PowerPoint Presentation at: ["gocivilairpatrol.media.cms....."](http://gocivilairpatrol.media.cms.....)

Comments from users?



DAART Capabilities



ONE CIVIL AIR PATROL, EXCELLING IN SERVICE TO OUR NATION AND OUR MEMBERS!

Forward Looking Infra-Red (FLIR)

- NC \leftrightarrow NCWG Agreement
- Equip Two CAP C-182s; CAP provide NC on-call service
- Assigned KAVL (N963CP) & KLHZ (N938CP). Both aircraft hangered
- Added ~80#s to each aircraft
- MS position becomes system operator
- Lose remaining cargo space
- Planned to become initial operations capable on 1 Feb 20.

Comments from users?



WALDOAIR Aerial Imagery System

National Program

- NCWG testbed squadron – KFAY
- Surface tablet mission planning and flight control system
- Strut-mounted dual-camera pod
- “Grid” and overlapping circles “slinky” patterns yield hi-res 3D imagery
- Deployed for Matthew and Florence hurricane response
- If permanent program, we’ll look to hardwire cable points.

Comments from users?



Questions?



NCWG Conference Aircraft Maintenance SCAT Brief

By: Major Martin 'Stryker' Heller

NCWG Aircraft Maintenance Office (AMO)

mheller@ncwgcap.org

703-732-3264

SCAT: "Selected Crap
and Trivia"

Remember to submit your Conference Surveys

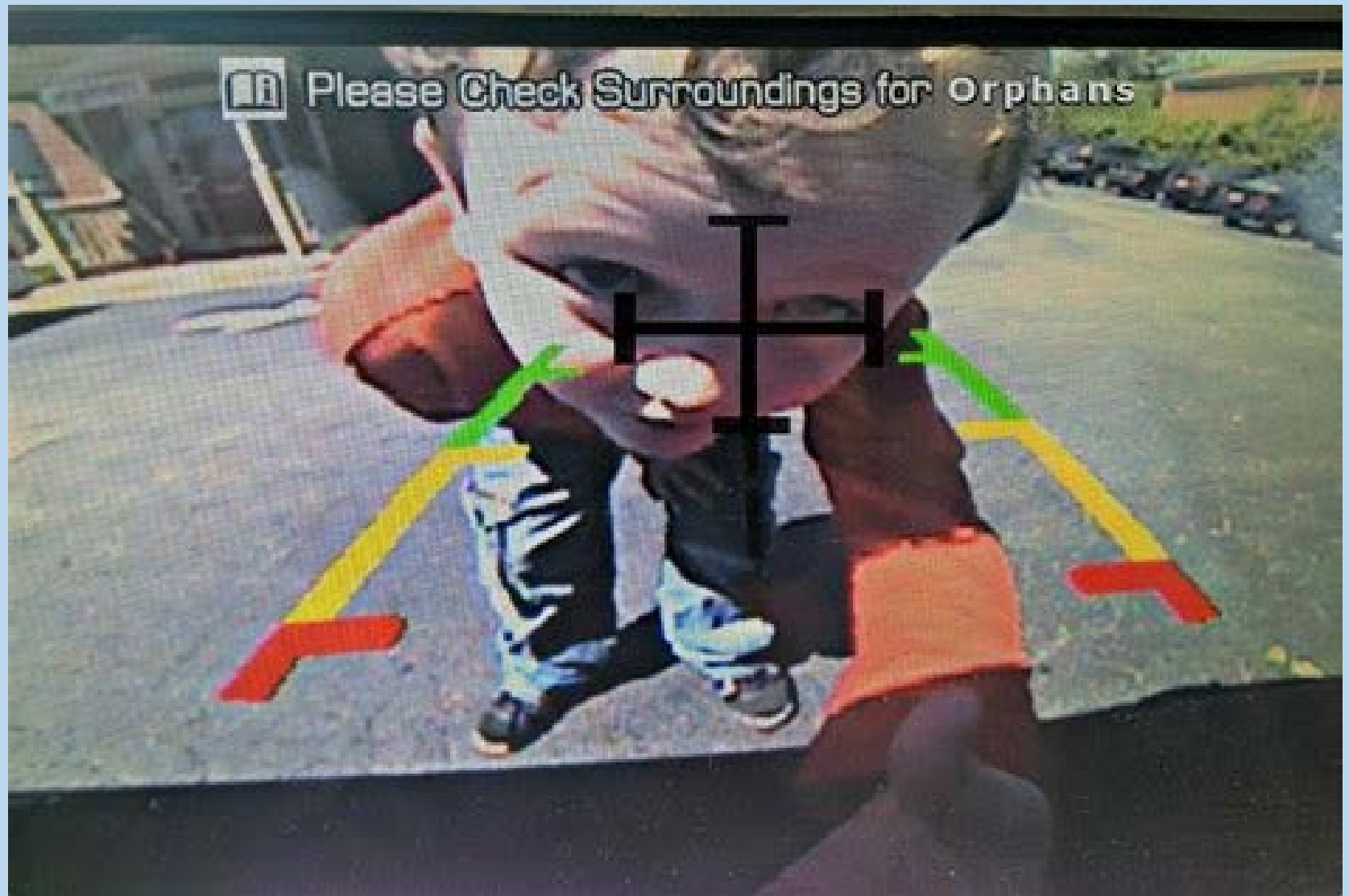
Drawing for \$50 Amazon gift Card

Another drawing
For a graphite shaft, 3-wood
Golf club (Left & Right)

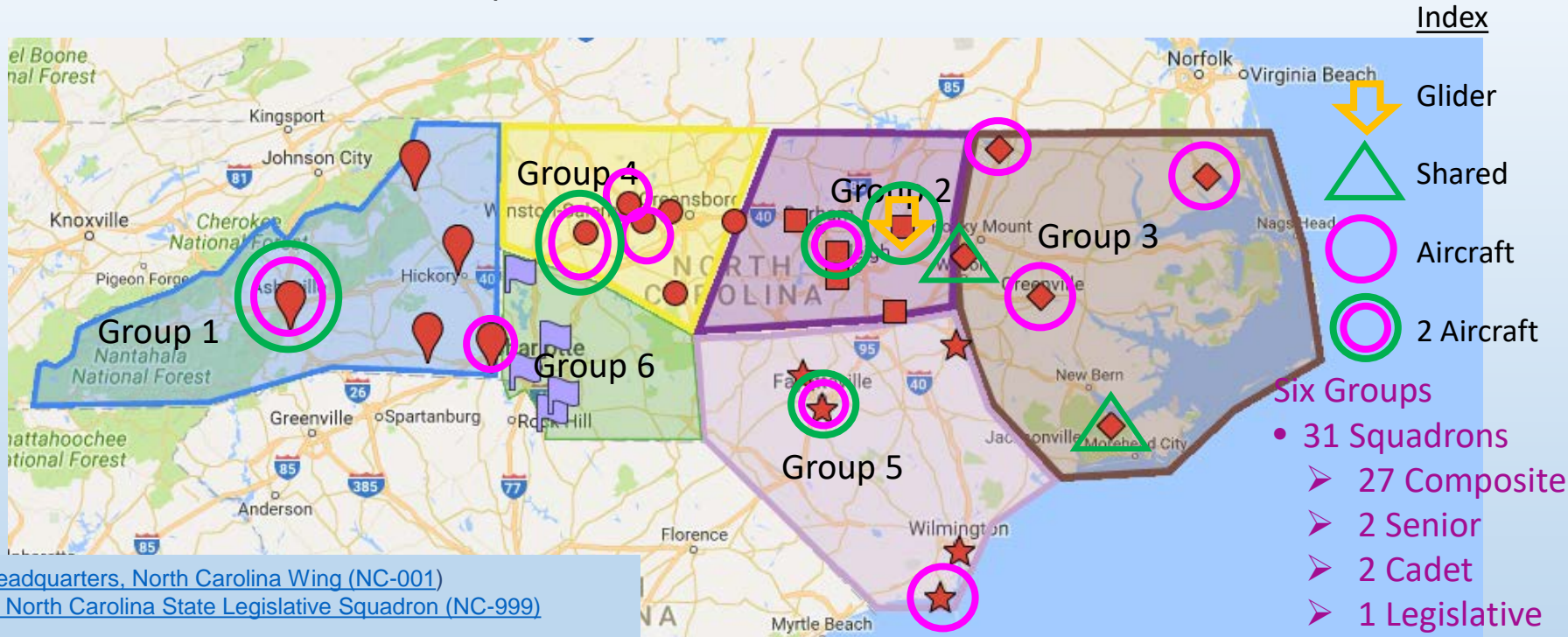
Need to comment
“Major Heller was Very* Funny”
(please designate ‘lefty’ if appropriate)

*** Every ‘Very’ gets another chance**

Backup Slides:



NCWG Squadron and Plane locations



Headquarters, North Carolina Wing (NC-001)

- North Carolina State Legislative Squadron (NC-999)

Group 1 Hq (NC-011)

- Asheville Composite Sqdn (NC-019)
- Gastonia Composite Sqdn (NC-024)
- Shelby Composite Sqdn (NC-050)
- Hickory Composite Sqdn (NC-124)
- Boone Composite Sqdn (NC-153)

Group 2 Hq (NC-002)

- Raleigh-Wake Composite Sqdn (NC-048)
- Johnston County Composite Sqdn (NC-143)
- Franklin County Composite Sqdn (NC-145)
- Orange County Composite Sqdn (NC-150)
- Apex Cadet Sqdn (NC-301)

Group 3 Hq (NC-003)

- Tar River Composite Sqdn (NC-057)
- Pitt-Greenville Composite Squadron (NC-079)
- Cunningham Field Composite Sqdn (NC-160)
- Halifax Composite Squadron (NC-169)
- Elizabeth City Comp Sq (NC-305)

Group 4 Hq (NC-004)

- Burlington Composite Sqdn (NC-022)
- Sugar Valley Composite Squadron (NC-052)
- Winston Salem Composite Sqdn (NC-082)
- Guilford Composite Squadron (NC-307)
- The NCLA Cadet Squadron (NC-825)

Group 5 Hq (NC-005)

- Fayetteville Composite Sqdn (NC-007)
- Cape Fear Composite Sqdn (NC-023)
- Goldsboro Composite Sqdn (NC-126)
- Brunswick County Composite Squadron (NC-170)
- Sandhills Senior Squadron (NC-171)

Moore County Comp Sq (NC-031)

Group 6 (NC-006)

- 111th Search & Rescue Composite Sqdn (NC-111)
- Charlotte Senior Squadron (NC-121)
- Iredell Composite Sqdn (NC-162)
- Composite Squadron of the Waxhaws (NC-300)
- Randolph Composite Sqdn (NC-107)

Our Fleet: Newer & Nicer

10 of 18 aircraft
Newer than 2000

10 – C-182's
6 – C-172's
1– C-206
1 – Glider

8 - G1000s

Average age:
2001 (18 yrs)

As of: 27 Jan 2020

Nbr	N-Number	Type	Year	Based At:	Nickname	Remarks
1	N262CP	182T	2018	BUY	George	G1000 /WAAS
2	N405CV	182T	2017	INT		G1000 /WAAS
3	N938CP	182T	2015	LHZ	Max	G1000/WAAS
4	N726CP	172S	2015	RDU	Betty	G1000/WAAS
5	N179CP	182T	2012	SUT	Sandy	G1000/WAAS
6	N727CP	182T	2010	JQF	TEXAS	G1000/WAAS
7	N963CP	182T	2007	AVL	Gumby	G1000/WAAS
8	N741CP	182T	2006	ECG		G1000
9	N819CP	182T	2006	SVH	Dixie	Round Gauge/GNS 625
10	N716CP	182T	2005	FAY		G1000
11	N437BA	L23	2002	LHZ	n/a	Glider
12	N908CP	172S	1999	ILM		Garmin 500 / GTN650
13	N99885	172P	1986	AVL	Echo	Round Gauge / GNS 400
14	N98426	172P	1985	RWI	Sara	Aspen
15	N4813C	172P	1985	FAY	Frank	Round Gauge – Aspen/GNS 430
16	N9930E	182R	1985	IXA	Thor	Round Gauge / GNS 430 /glider tow
17	N99832	172P	1985	INT		GNS 400 / Glider tow
18	N7360C	U206G	1977	LHZ	Lola	Round Gauge – Aspen 500

Who gets an Aircraft (so how does my squadron get one)?

Meet CAP needs by Respond to planned and no-notice taskings;

- No-notice: Search and rescue, aerial photography, transport, etc....
- Planned: Cadet orientation flights, local, other sqdns, encampment, training, exercises, special missions, Region and NHQ taskings, etc....

Squadron minimum requirements to qualify for an aircraft

- Minimum 6 Mission Pilots
- Expectation of flying 22+hrs/mnth
- Local maintenance available
- Crew chief to manage aircraft
- Flightline access for aircrews
- CAP aircraft available
- Could share an aircraft, can have aircraft re-assigned from unit

→ NCWG/Director of Operations (leadership) decision

Is this written anywhere?



WMIRS Reports

WMIRS - Reports

Home > Support > Reports

- About
 - Getting Started
 - Automatic Permissions
 - Video Tutorials
 - CAP Helpdesk
- WMIRS 1.0 Links
- Command
 - Enter New Mission
 - Current Missions
 - Enter Chaplain Mission
 - Channel Plan
 - Mission Facilities
 - Unit Log
 - Comm Log
 - Status Board
- Operations
- Planning
- Logistics
- Finance & Admin
- Support
 - Request/Close Out RON
 - Misc. Expenses
 - Unit Log
 - Time Zone
 - Reports
 - Maintenance Module
 - Scheduling Module
 - Unread Critical Items
 - Read Critical Items
- Logs
- Symbols

* - Required Field

[AC Fuel Report](#)

[AFAM/Corporate/CAP-USAF Comparison](#)

[AF JROTC Status Report By State](#)

[AF JROTC Status Report All Dets](#)

[Aircraft Log](#)

[Budget Report](#)

[Cadet Orientation Flights](#)

[e108 45 Day Alert Report](#)

[e108 Batch Reports](#)

eFlight Release Reports

[My Pending Flight Releases](#)

[All Pending Flight Releases For My Wing](#)

[Flights Not eReleased Report](#)

[Flights Released By FRO](#)

[Monthly Flight Release Summary](#)

[Flight Release Totals](#)

[Wing FRO List](#)

Form 18 - Glider Aircraft Utilization

[Form 18 - Glider Wing Fiscal Year Report](#)

[Form 18 - Glider Region Fiscal Year Report](#)

[Form 18 - Glider Fiscal Year Report](#)

[Form 18 - Glider Fiscal Year Summary By Tail No](#)

[Form 18 - Glider Fiscal Year Reporting Status](#)

[Form 18 - Glider Fiscal Year Wing Rankings](#)

Form 18 - Powered Aircraft Utilization

[Form 18 - Wing Monthly Report](#)

[Form 18 - Powered Wing Fiscal Year Report](#)

[Form 18 - Powered Region Fiscal Year Report](#)

[Form 18 - Powered Fiscal Year Report](#)

[Form 18 - Fiscal Year Reporting Status](#)

[Form 18 - Fiscal Year Wing Rankings By Aircraft Hours](#)

[Form 18 - Fiscal Year Wing Rankings By Pilot Hours](#)

[Mission Participation Log](#)

[Mission Reimbursement Report](#)

[Pilot Summary Report](#)

[Vehicle Fuel Report](#)

[Wing Report](#)

[Average ORM Report](#)

[Latitude / Longitude Report](#)

- Aircraft Logs: where you compare the pilot written aircraft log pages
- With what's been put into WMIRS
- Must agree (so you adjust as needed)
- Add "CMX" (Consolidated Maintenance) times (often omitted on paper logs)
- You can see the missions you participated in, and can use as documentation for awards i.e. Homeland Security, Cadet Orientation rides, etc....

Top 10 Wastes of MX Funds (Costs)

- #10: Not coordinating maintenance requirements within squadron
- #9: Calling in squawks after airplane turned over to maintenance
- #8: Overstuffing seat back pockets requiring re-gluing: (\$37.50 to re-glue)
- #7: Sending really dirty airplanes to maintenance. (\$75/hr to clean)
- #6: Yanking window shades out; instead of gentling handling them. (\$90)
- #5: Landing with feet on the brakes. (Two new tires & install: \$150+)
- #4: Landing with nose attitude above 12 degrees (tail strike) (>\$200 & up)
- #3: Leaving/opening Pilot or Pax window inflight (or during run-up. (New Window Hinge install: ~\$300)
- #2: Taxiing Over Ropes: Could cost destroyed prop & engine teardown
- #1: Landing on a C-182 nosewheel; depending on the damage.... \$\$\$\$\$