FY05 AVIATION SAFETY REPORT

The purpose of the Annual Aviation Safety Report is to inform and raise the awareness of Coast Guard aircrew members regarding aviation mishaps. Improving safety awareness is essential to improving operational performance and preventing aviation mishaps. Your ideas and suggestions related to this report or other safety issues are valuable. Please pass them to your unit Flight Safety Officer (FSO) or contact the Aviation Safety Staff at Headquarters (see last page for telephone numbers and email addresses). This report contains fiscal year 2005 mishap information as well as prior year and DOD data for comparison. We hope everyone will use this report to evaluate our aviation mishap experience and become more involved in mishap prevention.

NOTE: Unless otherwise indicated, only flight mishaps are used for the annual statistics, instead of all mishaps (flight, flight-related and ground). This is the traditional way of reporting annual numbers within the aviation industry. Using only flight mishaps for the annual statistics also eliminates some of the fluctuations in the mishap numbers due to reporting variations. The other categories of mishaps are still important, and are reviewed separately.

THE YEAR IN REVIEW, FROM THE HEADQUARTER'S PERSPECTIVE

FY05 CG Aviation experienced its first Class A in over 3 years in December of this year, followed by another only 9 months later. Though both could be characterized as one of a kind events both brought hazards to the forefront that had been there but at a frequency that kept them below the radar. Among the things we take from these mishaps is the lesson that aviators know best how to identify the hazards that threaten our crews. So take the time to adjust that Safety radar, make sure its pointing down our trackline not just our courseline. The challenge of facing and conquering the unknown is what draws some to military aviation and Aviation Safety in particular. This year proves the unknown hazard or more accurately, the unidentified hazard, can still reach out and touch us. Old hazard or new the consequences don't change. Identify the hazard - avoid the consequences.

DISCLAIMER: Before you review this data rich periodical please allow me a disclaimer. We are not about accident rates but risk identification and accident prevention. This report contains the data that helps to make course corrections….but our real goal is to prevent the data! The low rates we have enjoyed historically will stay with us and so will our shipmates if we do the daily work of keeping each other focused on Proficiency, Risk Management and the key principles of MRM and CRM. Having said that, there is some excellent data here we can use to note trends, justify training needs and identify how we can improve our Aviation Safety program.

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CHALLENGES AHEAD. It could be argued that this period in CG Aviation is characterized by more change than we have ever experienced. In FY05 we saw the introduction of Sectors, AUF expansion, RWAI/NCR train up in both rotor wing aircraft, the continuing development of the H60 MSRT, the H65 "C" upgrade while still amidst the "A" to "B" conversion, the purchase of a new fixed wing aircraft, a draw down and sustainment of the HU25 and the discovery of the C130 Wing Box issue. New equipment and new missions, while a natural part of our multi-mission nature bring with them the likelihood for greater risk exposure.

It's the FSO who should be constantly monitoring the unit's Safety preparedness, culture and compliance with procedures. At the FSO level we must be fully engaged with the other air station "Tri-P" members to ensure CRM and MRM are woven into the fabric of every CG aviation process. We must look out for and identify negative trends, and killer norms in the aircraft, on the hangar deck and within the wardroom culture. We must engage the FEB/FSB to vet issues, suggest improvements or to verify suspected/possible hazards. We should push initiatives up the chain that have a proven track record of improving the unit's safety posture such as vicarious learning sessions (hangar flying). Its a great tool to vent issues and train pilots young and old. Some units have gone as far as putting weekly sessions on the flight schedule to ensure collateral loads don't completely absorb study time.

CHANGE WILL CONTINUE. Angst is a natural part of anticipating change and grumbling is a natural response to angst. Encourage your fellow pilots to keep their eyes on the mission at hand and the threats/hazards they personally can control. A mishap is a very personal thing, they tend to put things in perspective quickly. That is to say, all this change anxiety will mean little if we take our eye off the basics and a mishap occurs. One thing not changing is our propensity for human error. Some may mitigate (error trap) better, but all fall victim in time. One thing we can do to reduce our chances of human factor error is remove those errors we commit intentionally, e.g., shortcutting a procedure, failing to properly supervise a junior, or violating a regulation. Often at the basis of these mistakes is an artificial timeline based on a perception that things need to get done quickly. Perceived pressure from a shop chief, OPS or the CO is a natural outflow of our mission oriented culture and I am never surprised about the role it plays in "intentional errors" and "intentional non-compliance with procedure". Communication plays such a huge role in setting the right expectations and creating a healthy command climate. One method of getting the communication started on the right foot is publishing a Command Safety Policy. In this policy statement the CO can make it clear what his/her safety philosophy is, make sure the other leaders in the unit are aligned and deal with the role of perception within the command's safety climate and culture. I encourage you to review this subject with your command and if appropriate help craft the policy.

MISHAP CLASS COST BREAKDOWN

FY02-FY06

Class A	$1,000,000 or greater or death
Class B	$200,000 to $999,999 or serious injury
Class C	$20,000 to $199,999 or minor injury
Class D	Less than $20,000
Class E	Engine damage only, regardless of cost

FY89-FY01

Class A	$1,000,000 or greater or death
Class B	$200,000 to $999,999 or serious injury
Class C	$10,000 to $199,999 or minor injury
Class D	Less than $10,000

MISHAP CATEGORIES

Flight Mishaps--Mishaps involving damage to Coast Guard aircraft and intent for flight existed at the time of the mishap. There may be other property damage, death, injury, or occupational illness involved.

Flight-Related Mishaps--Mishaps where intent for flight existed at the time of the mishap and there is **NO** Coast Guard aircraft damage, but there is death, injury, occupational illness, or other property damage.

Ground Mishaps--Mishaps involving Coast Guard aircraft or aviation equipment where **NO** intent for flight existed and the mishap resulted in aircraft damage, death, injury, occupational illness, or other property damage (e.g., towing, maintenance, repairing, ground handling, etc.)

Auxiliary Aviation Mishaps--Injuries or property damage sustained by an Auxiliarist while under official orders.

NOTE: Dollar values of mishap costs are actual annual costs -- not adjusted for inflation.

Table 1

PROFICIENCY and TRAINING. Use the aviation proficiency tools available in the Readiness Management System (RMS) to track aircrew and pilot proficiency in real time, don't let a known lack of proficiency be a latent cause of

a mishap. If your unit is not using this metric, it's time to show your command it's utility. As we add missions and equipment our training burden will grow. ATC, G-RCA, CG-41 and CG-1131 are engaged in a working group tasked with determining if our training requirements are adequate. In the mean time it would be wise to assist OPS in identifying areas where training is being logged but not really flown. Every training hour will be scrutinized as the training piece of the flying hour program grows. Improperly logging training hours will make it more difficult to justify future training needs.

E-AVIATRS continues to improve our reporting capability. Miss Cathie Zimmerman has done a fantastic job making improvements to that system and continues to work daily on improving its ability to facilitate easier data mining. As always a call or e-mail to CZ is worth your flight gear's weight in gold. I am very impressed with the quality of mishap messages coming from the fleet. Clearly the field FSO's are working hard to provide an outstanding product to their respective commands and perhaps more importantly to the rest of the fleet. BZ!

VFDR. Progress continues regarding fleetwide voice and flight data recorder (VFDR) recapitalization. Thanks to LCDR Steve Pruyn, CDR (select) Jeff Kotson and civilian Tony Simpson for their monumental effort in keeping this project moving along. Its been a bumpy road and we are all grateful for your diligence and perseverance. BZ!

No review of 05 could be complete without mentioning the phenomenal job CG aviation did during the Katrina/Rita response. As one AST was quoted "I think we knocked it out of the park". I think the American Public agrees. Congrats to all who contributed and know you made us all proud to call ourselves CG aviators. For those who are still feeling the impacts of those storms we hope and pray for your complete recovery.

One of the issues that operation brought to the forefront is Crew Endurance Management (CEM). CEM testing and data collecting will be rolled into the stand up of the NCR mission via CG-1131 cooperation with our resident CEM expert Dr. Tony Carvalhais. Dr. Carvalhais possesses superb human factor knowledge especially as it pertains to fatigue. He is also an outstanding presenter. Though he is a busy guy he can make himself available to visit your unit, schedule permitting. Better knowledge of CEM and how it impacts the human system (human factors are responsible for 80% of all aviation mishaps) will benefit your unit immensely. With Dr. Carvalhais' help CG-1131 hopes to upgrade the current CRM curriculum with more CEM information this year. Have a great 2006. SNFS.

Decide Safe…..CDR Tom Farris
Chief Aviation Safety Division (CG-1131)

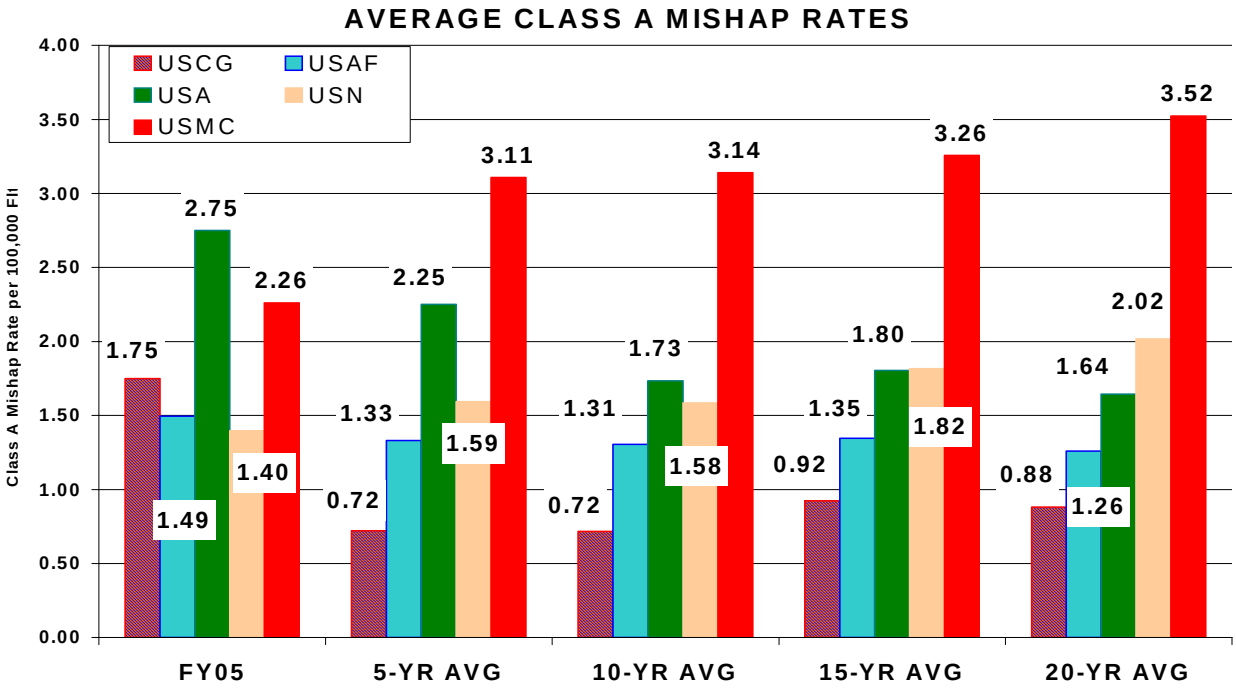

AVERAGE CLASS A MISHAP RATES
USCG
USAF
USA
USN
USMC
Class A Mishap Rate per 100,000 Fl
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1.75
1.49
2.75
1.40
2.26
0.72
1.33
2.25
1.59
3.11
0.72
1.31
1.73
1.58
3.14
0.92
1.35
1.80
1.82
3.26
0.88
1.26
1.64
2.02
3.52
FY05
5-YR AVG
10-YR AVG
15-YR AVG
20-YR AVG

Figure 1

ANNUAL RECAP

In FY05, we experienced our first two Class A aviation mishaps in three years, fortunately there were no CG fatalities. The first was CG6020 (Kodiak, AK) in December 2004 and the second was CG6590 at the American Eurocopter plant (Columbus, MS) in September 2005. Both mishaps are still in the review process but are summarized on page 8. We also had our first Class B Flight Mishap since FY02 (see page 8). CG2136 (Corpus Christi, TX). Table 1, on page 2, displays aviation mishap class and category definitions.

Coast Guard Aviation has averaged one Class A mishap a year for the last twenty years. Our 10 and 20-year Class A Flight mishap rates per 100,000 fight hours are 0.92 and 0.88 respectively. Figure 1 on the previous page compares Coast Guard 5, 10, 15 and 20-year average Class A Flight mishap rates with the DOD services. Those numbers are excellent and since they include enough hours to compare us with annual DOD rates they are a better measure of our Safety program's effectiveness.

CG Auxiliary Aviation reported no Class A or B mishaps for the fourth year in a row. Note: Auxiliary Aviation flight hours and mishaps are not used in figuring CG mishap rates in this report (See page 10 for more on the AUXAIR program).

Flight mishap costs for FY05 were $22,504,114 up considerably from past years (close to triple FY04 costs). However, without the two Class A mishaps ($16,156,007) the FY05 Flight mishaps costs would have only been $6,348,107, less than FY04 costs (see Table 2 below and Figure 2 on the next page). The number of reported mishaps this year was about the same as last year (698). Total Aviation mishap costs (Flight, Flight-Related and Ground) for FY05 were $23,183,939 the highest since 1990 (see Figure 3 on page 5). Again, without the Class A mishap costs, total mishap costs for FY05 would have been less than last year. Of the 807 aviation mishaps reported this year, 71 were Ground and 38 were Flight-Related.

We feel the increase in mishap numbers, the last few years is an indication of more conscientious and thorough reporting, not necessarily more frequent mishaps. This is what helps us achieve our low mishap rate, since the lessons learned from increased reporting of low/no cost incidents can greatly assist in averting high-cost incidents ("cost" being in terms of both injuries and dollars). Anecdotal indicators are that many of these mishaps were happening before, but were not always being reported. Now, with reporting mishaps easier, and the field is seeing the value of reporting the low/no cost mishaps, more of these mishaps are being reported.

Maintenance Resource Management (MRM) training and awareness has contributed to the increased reporting of minor incidents and to keeping the overall Class ABC mishap statistics down. Only twelve of the 95 MRM events had mishap costs over $10,000 and accounted for 72% ($361,550) of the total MRM costs ($499,319). These higher cost MRM incidents include four engine incidents totaling $162,024 and six ground handling mishaps totaling $154,798. See page 14 for a discussion of the MRM program.

GRAND TOTALS				
CLASS	# MISHAPS	COST	FATALS	INJURIES
A	2	$16,156,007	0	0
B	1	$287,379		0
C	46	$1,862,699		10
D	386	$921,203		11
E	372	$3,956,651		2
TOTAL	807	$23,183,939	0	23

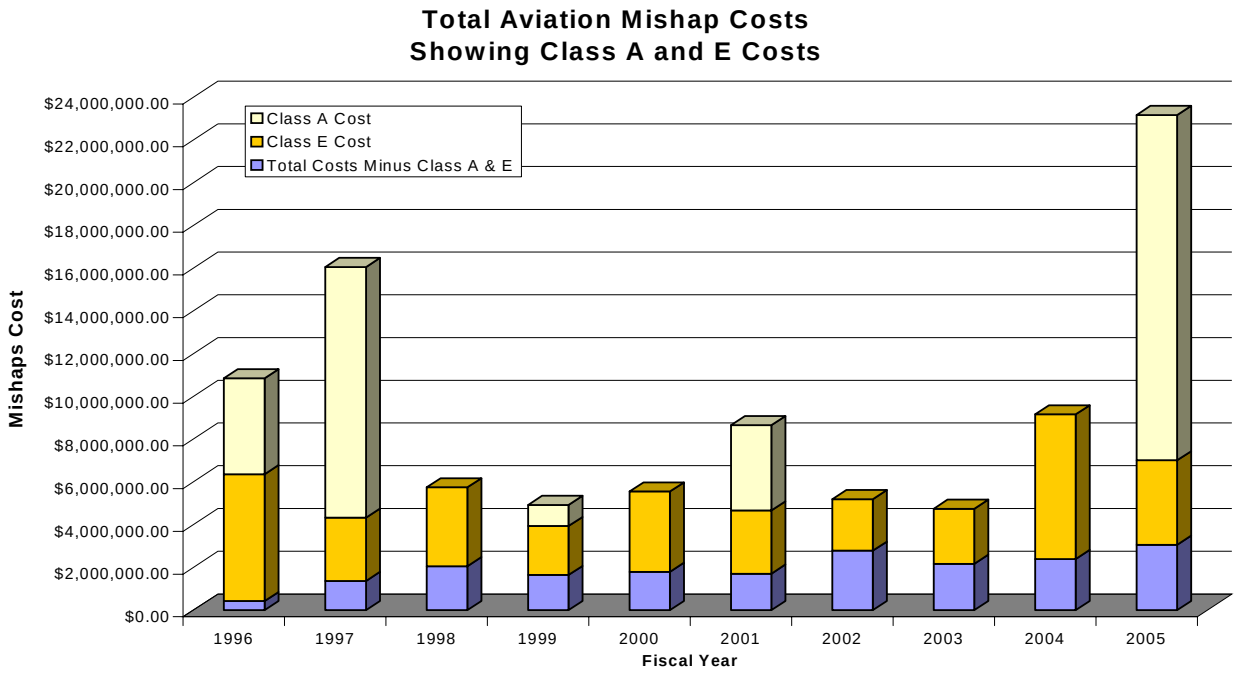
TOTAL FLIGHT HOURS	114,389
CLASS A FLIGHT MISHAP RATE PER 100,000 FLIGHT HRS	1.75
FLIGHT MISHAPS PER 100 FLIGHT HOURS	0.61
COST PER FLIGHT MISHAP	$32,241
COST PER FLIGHT HOUR	$197

FLIGHT MISHAPS			
CLASS	# MISHAPS	COST	INJURIES
A	2	$16,156,007	0
B	1	$287,379	0
C	35	$1,749,339	1
D	300	$682,320	0
E	360	$3,629,070	1
TOTAL	698	$22,504,114	2

GROUND MISHAPS			
CLASS	# MISHAPS	COST	INJURIES
A	0	$0	0
B	0	$0	0
C	3	$90,812	2
D	60	$209,412	1
E	8	$280,261	1
TOTAL	71	$580,484	4

FLIGHT-RELATED MISHAPS			
CLASS	# MISHAPS	COST	INJURIES
A	0	$0	0
B	0	$0	0
C	8	$22,549	7
D	26	$29,472	10
E	4	$47,320	0
TOTAL	38	$99,341	17

Table 2



Note: Class E mishap cost are broken out to show the portion of Class E (engine only) mishaps costs related to the total mishap costs for each year.

Figure 2

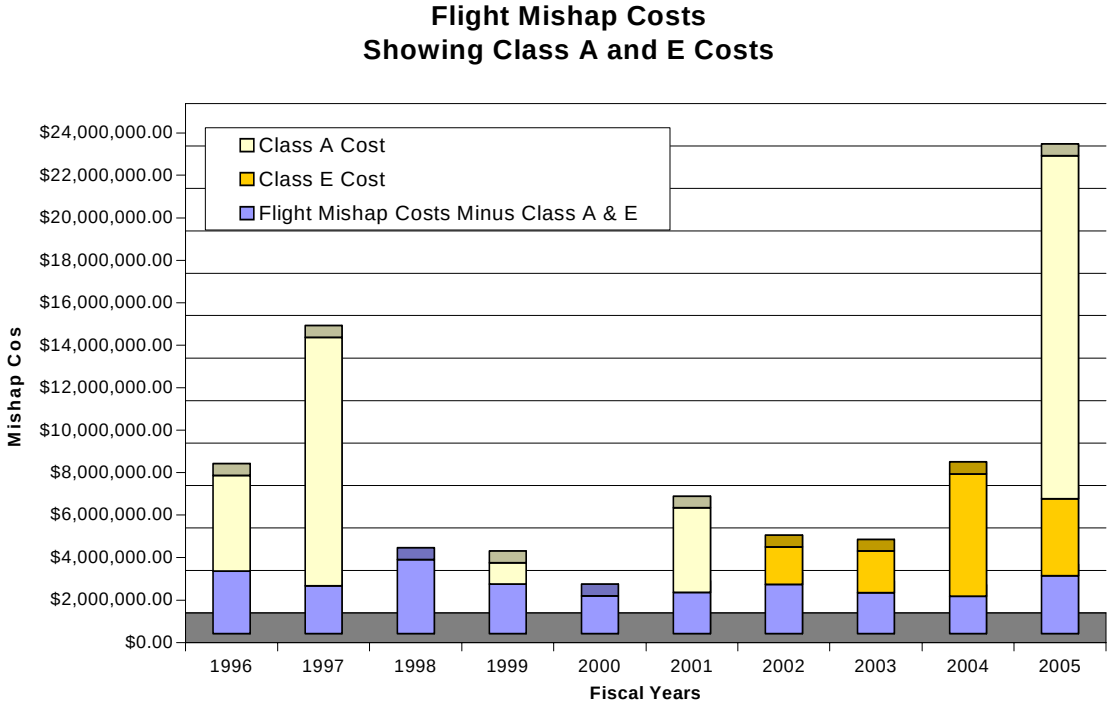


Figure 3

AVIATION FLIGHT MISHAP SUMMARY (A, B, C, D and E Mishaps)							AVIATION FLIGHT MISHAP SUMMARY (A, B and C Mishaps)						
ABCDE	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR	ABC	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR
FY01	181	$5,867,411	103,685	0.17	$32,417	$57	FY01	46	$5,583,617	103,685	0.04	$121,383	$54
FY02	197	$4,071,357	108,693	0.18	$20,667	$37	FY02	16	$1,790,951	108,693	0.01	$111,934	$16
FY03	202	$3,884,702	113,586	0.18	$19,231	$34	FY03	26	$1,431,049	113,586	0.02	$55,040	$13
FY04	677	$7,528,100	114,451	0.59	$11,120	$66	FY04	20	$983,277	114,451	0.02	$49,164	$9
FY05	698	$22,504,133	114,338	0.61	$32,241	$197	FY05	38	$18,192,725	114,388	0.03	$478,756	$159

Table 3

Table 2 on page 4, displays the FY05 Aviation mishap summary data. Figures 2 and 3 (on the next page) display mishap cost data for the last ten years for Flight mishaps and for Total Aviation mishaps (Flight, Flight-Related and Ground). These two figures have the Class A and Class E costs broken out.

The Class ABC flight mishap rate (per 100 flight hours) increased to 0.03. It has fallen steadily from 0.08 in FY94. This rate has been below 0.05 for the last nine years and below 0.10 since FY90. The relative stability of ABC flight mishap rate also indicates that our increase in mishaps is at the Class D and E. This is good sign since these mishaps are generally low cost and demonstrate that our vigilance and mishap prevention efforts are paying off.

Of the 698 Flight mishaps reported, 87% (604) were below the Class C threshold of $20,000 and accounted for less 6% of the Flight mishap costs. Similarly, looking at Total mishap numbers (Flight, Flight-related and Ground), only 12% (98) of the 807 mishaps reported exceeded the $20,000 threshold and accounted for 22% of the Total Aviation mishap costs.

Over half (360) of the flight mishaps reported this year were Class E, and accounted for only 16% ($3,629,070) of the FY05 aviation mishap costs ($22,504,114). 84% (304) of the Class E mishaps cost less than $20,000, and almost half, 48% (173) cost less than $1,000. Only 5 of the Class E mishaps had costs over $100,000, but these 5 incidents represented 28% of the total Class E costs for FY05. Many of these incidents would have been reported as Flight-Related mishaps before we added the Class E mishap category in FY02.

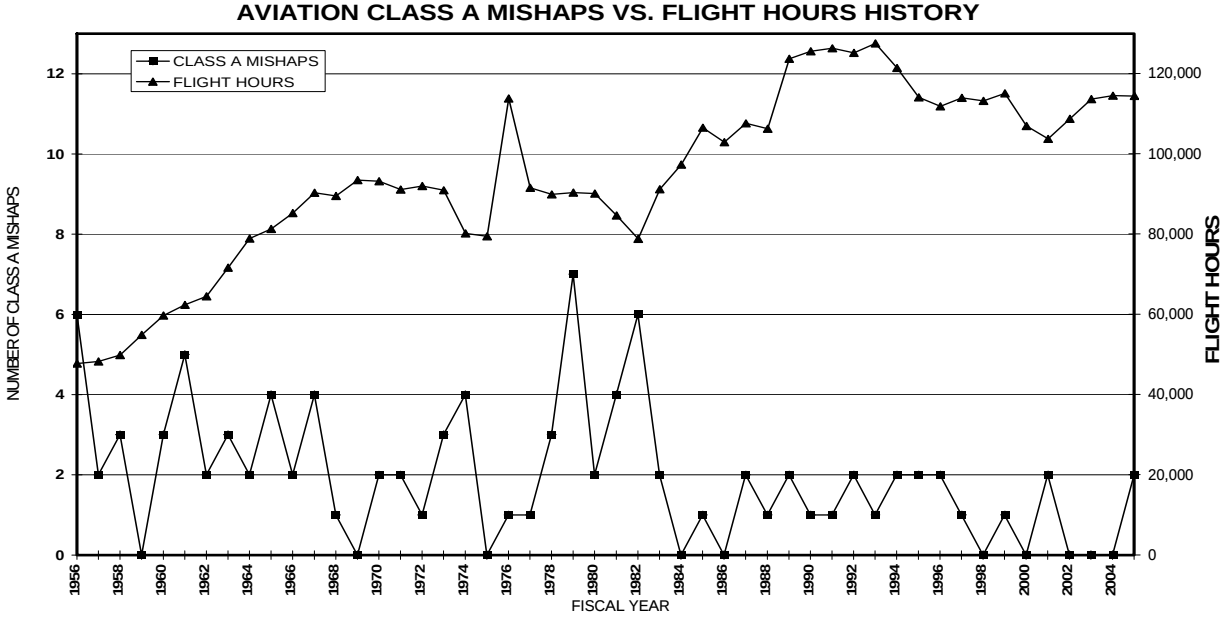


Figure 4

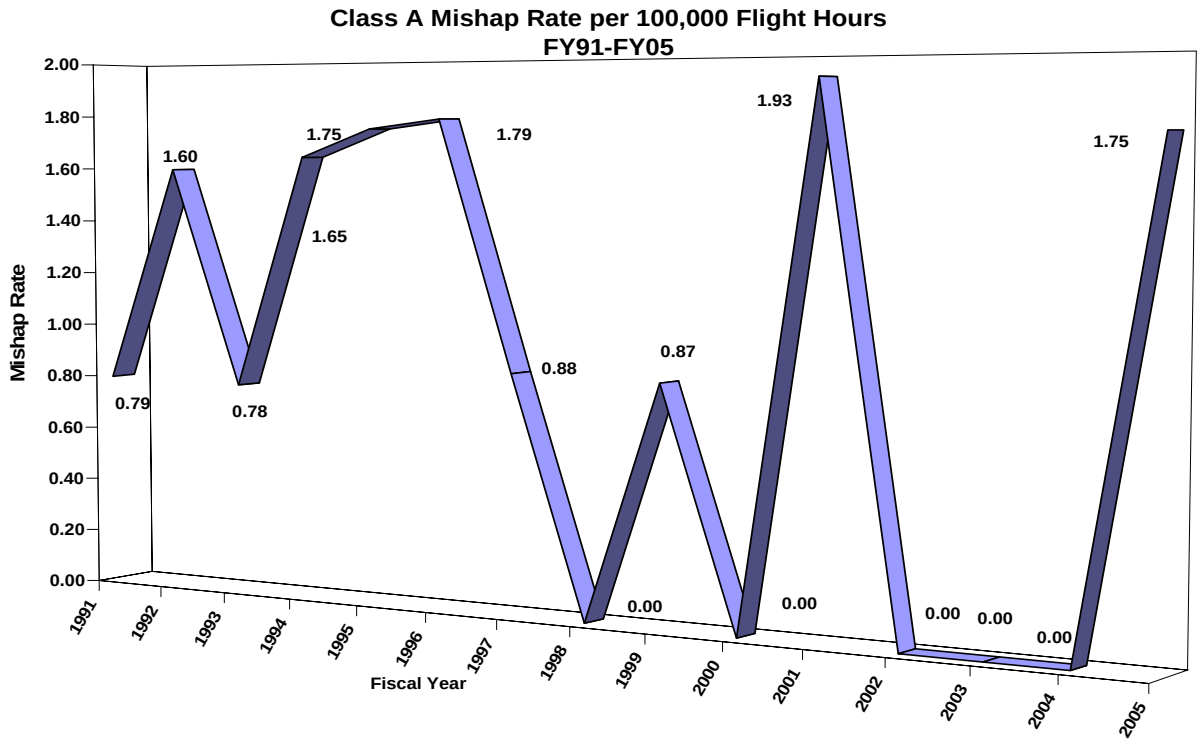


Figure 5

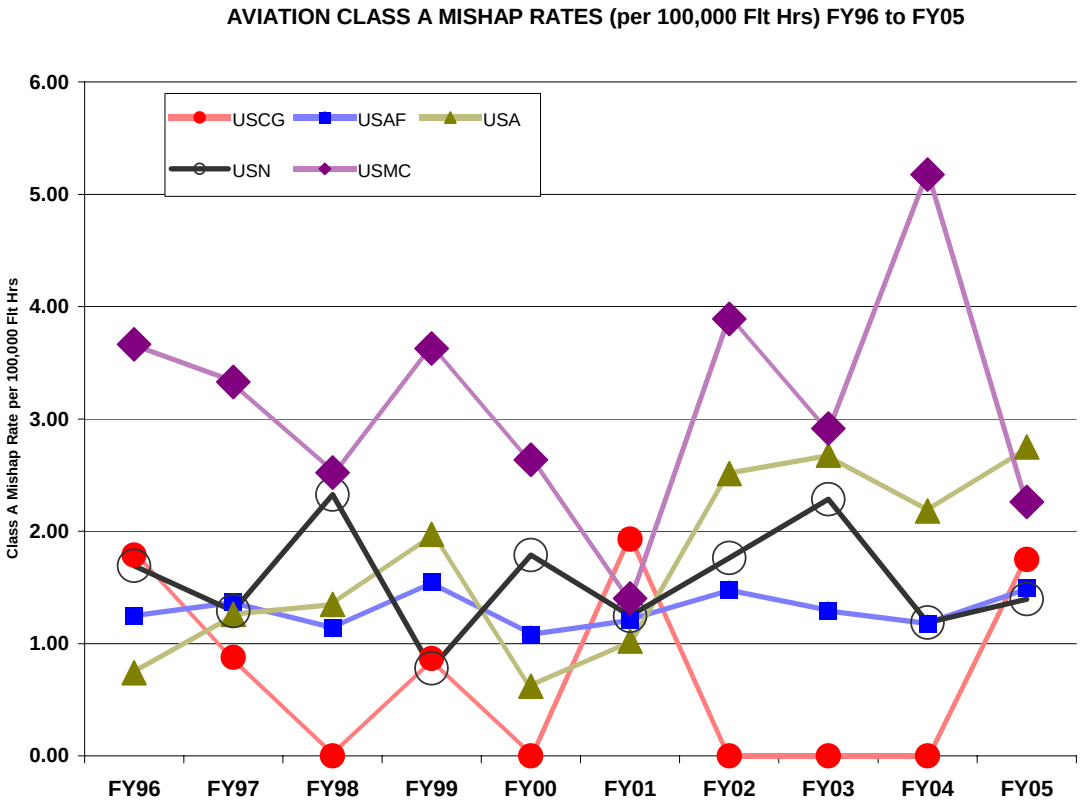


Figure 6

Figure 4 on page 6 displays our Class A Flight mishap history along with total flight hours since 1956. Figure 5 on the previous page, displays the Coast Guard aviation Class A Flight mishap rates for the past fifteen years. Also page 7, Figure 6 provides a comparison of Coast Guard aviation Class A Flight mishap rates to the DOD military services for the last ten years

FY05 CLASS A MISHAPS

Kodiak 6020 Mishap

On the morning of 7 December 2004, the M/V SELENDANG AYU with 26 persons on board, was adrift, after suffering an engine casualty, near Bogoslof Island, Alaska and in danger of running aground in high winds and heavy seas. Arriving on scene on 8 December CG 6020 was initially tasked to deliver immersion suits to the vessel. That tasking was overcome by events once they arrived on scene. 6020 hoisted nine crewmembers from SELENDANG AYU and transferred them to CGC ALEX HALEY. 6020 then proceeded to Dutch Harbor to drop those passengers and refuel.

While the 6020 was in Dutch Harbor refueling, the SELENDANG AYU ran aground and the master requested immediate evacuation of the remaining eight crewmembers. 6020 was launched to conduct the hoists as 6021 had already departed scene for fuel. CGC ALEX HALEY launched HH-65 CGNR 6513 to assist in the evacuation. The two aircraft

commanders agreed that 6020 was the best asset to conduct the evacuation. With conditions worsening, 6020 deployed their rescue swimmer to expedite hoisting of the remaining eight crewmembers. During the seventh hoist, 6020 was engulfed by sea water that had erupted from a large sea swell as it struck the bow of SELENDANG AYU. 6020 departed controlled flight and crashed into the water. The incident was witnessed by the vessel's master and 6020's rescue swimmer aboard the SELENDANG AYU and the crew of 6513, hovering above and behind 6020.

The crew of 6020 and one vessel crewmember were rescued by 6513. After refueling, 6513 returned to SELENDANG AYU, hoisted the rescue swimmer and vessel's master, and conducted a search for survivors with negative results.

6590 Mishap

On 01 September 2005 during a maintenance ground run on the American Eurocopter Corporation (AEC) ramp in Columbus, MS., HH-65C CGNR 6590 spun clockwise on deck and rolled onto its left side. The crew consisted of a pilot and basic aircrewman (BA) and three AEC technicians (two inside the cabin and one outside the sliding cabin door). The mishap crew had just finished the first tail rotor balance verification and was preparing for the second run. The aircraft became light on the main landing gear and began a right yaw. The mishap BA (in the left pilot seat) shutoff the Emergency Fuel Shutoff Levers (EFSLs) and the Emergency Electrical Cutoff.

During the second revolution, the right main tire departed the ramp as the aircraft pivoted on the left main tire and rim. The left horizontal stabilizer and vertical fin, and the main rotor blades contacted the ground. The aircraft continued to spin to the right and roll left until it came to rest on its left side approximately 225 degrees from the original heading. The AEC technician outside the aircraft was struck by the nose of the aircraft during the first rotation and thrown clear of the airframe (sustaining minor injuries). The remaining crew were uninjured and egressed the airframe unassisted after all motion stopped. The mishap pilot egressed with assistance from ground crew.

FY05 CLASS B MISHAP

Corpus Christi 2136 Mishap

While conducting an IFR warm-up syllabus flight in local area, crew observed an unsafe right MLG indication during approach. Execution of the landing gear emergency procedures did not change the unsafe indications and a tower fly-by was requested to confirm all 3 landing gear assemblies were down.

After reviewing the emergency procedures and briefing the upcoming landing, 2136 re-entered the landing pattern and requested crash/fire rescue. While turning on final, flaps were lowered to 40 degrees and landing gear warning horn sounded and would not silence. Landing was aborted and crew discussed the meaning of the warning horn internally and with air station personnel. All concluded that it could be caused by either failure of the landing gear microswitch that provides down-and-

locked indication, or by a landing gear that was down but not locked. The crew pulled the warn horns circuit breaker and turned final again.

Aircraft was landed as briefed. Pilot finished the landing roll with a gradual left turn toward the taxiway. During the turn the right MLG collapsed underneath the airframe, causing the right wing tip to scrape the runway. The right inboard gear door broke off and was found approximately 20 feet behind the aircraft. All 6 aircrew egressed safely with no injuries. Mishap investigation found the right MLG actuator would not hold sufficient pressure to allow gear downlock release or retraction.

AVIATION SAFETY POSTGRADUATE TRAINING

This year marks yet another successful endorsement and full funding of our Aviation Safety Management Postgraduate Training Allowance Billet (TAB), making the 2007 TAB our fourth consecutive award and fifth TAB overall. Members selected for the CG-1131 TAB will attend one of two Aviation Safety Management postgraduate programs; the Master of Science in Safety Science (MSSS) at Embry Riddle Aeronautical University, Prescott, AZ, or the Master of Science in Aeronautics (MSA) with specialization in Aviation/Aerospace Safety Systems at Embry Riddle Aeronautical University, Daytona Beach, FL. Program information can be found at:
http://www.erau.edu/pr/index.html
http://www.erau.edu/db/index.html

The MSSS curriculum provides in-depth knowledge of industrial safety practices as they apply specifically to an aviation/aerospace environment. In all, the MSSS program is most ideally suited for graduates serving in the TAB coded FSO billets at ARSC and/or ATC Mobile. Our first graduate, LCDR Jeff Kotson, Flight Safety Officer at ARSC, continues to provide outstanding oversight of our Voice and Flight Data Recorder (VFDR) budget and programs, which include the multi-year/multi-million dollar contracts for HH65C/HH60T VFDR upgrades and the C130 and HU25 Flight Data Acquisition Unit (FDAU) purchase and VFDR upgrades. Our second Aviation Safety Management TAB recipient, LCDR Tony Nygra, has just defended his thesis and will be graduating from ERAU Prescott this spring. He will be in charge of the at ATC Mobile safety program.

The MSA with Aviation/Aerospace Safety System specialization provides a Human Factors and Safety System-centered curriculum that is aptly suited for the CG-1131 staff billets. We hope to leverage the knowledge and expertise gained in this curriculum to enhance our ability to forecast and integrate emerging aviation safety system technologies such as Terrain Awareness Warning Systems (TAWS) and Military Flight Operations Quality Assurance (MFOQA) programs. The CG-1131 staff is actively engaged in these efforts, but we're in a "learn-as-we-go" mode. We're confident that Coast Guard aviation will be better served by staffing the CG-1131 O-4 billets with seasoned aviators knowledgeable of leading edge aviation safety systems technologies. A further appealing aspect of the MSA program is its flexible curriculum which enables graduates to complete the degree within a 15 to 18 month cycle. Though this may seem insignificant, in the long-term it reduces the total time away from mainstream Coast Guard (which can equate to relevant OER input during critical promotion periods), and it lessens the gap in operational flying time which can affect an officer's aviation career gates.

In a fiscally constrained environment, ongoing endorsement of our TAB reflects highly upon Coast Guard Aviation and the significance of our aviation safety program/culture. Expanding the program options provides tailored graduate study to best serve the unique demands of the safety TAB coded billets, and creates greater flexibility for those with a strong interest in aviation safety and graduate education.

VOICE AND FLIGHT DATA RECORDERS

Significant progress was made this past year as we moved closer to achieving full VFDR capability on all of our aircraft. On the HU25 front, the installation of the L-3 Communications FA-2100 "combi-box" (digital Voice and Flight Data Recorder) is nearly complete. Only four HU25 aircraft are left to modify. The FA-2100 records a minimum of 25 hours of flight data and two hours of voice data. The decision was made this past year to expand the planned C130H Flight Data Acquisition Unit (FDAU) solicitation to include the HU25. The FDAU and related sensors will be used to convert existing analog and discrete instrument signals to a digital medium acceptable for use by the FA-2100 flight data recorder. By installing the FDAU in the HU25, the HU25's current Engine Health Monitoring System (EHMS) system will no longer be

necessary.
Once installed, the FDAU will not only provide the information that the EHMS previously sent to the VFDR, it will also capture the information that is now available from the avionics upgrade to provide even more flight data to the crash survivable memory unit (CSMU) of the VFDR (voice is already wired to the CSMU.) When the full FDAU/VFDR upgrade is complete, the system will provide superior flight data fidelity for mishap analysis. The data can also be employed to support detailed analysis of aircraft systems performance and maintenance troubleshooting. The FDAU solicitation was recently closed and is in source selection stage. As of this writing, there were three vendors submitting proposals to the solicitation.

The FA-2100 recorder was also selected for the C130H VFDR upgrade project. To date, only one HC130H remains to be modified with the FA-2100. The entire VFDR modification for the C130H is an extensive project which has been divided into three separate efforts; voice data, which can be accomplished as a unit-level TCTO, area microphone replacement, which can also be accomplished at the unit level, and the Flight Data Acquisition Unit (FDAU), which will require depot-level installation. Replacing the aircraft's obsolete magnetic tape voice recorder was our most urgent requirement, and the installation of the FA-2100 per TCTO 130-T31030.0 proved straightforward, resolving the voice recording deficiency.

It was also determined that the new VFDR required a new area microphone for digital fidelity reasons. To date only the prototype aircraft, CG 1707, has been modified, however, kits are currently being readied for fleet distribution. Integration of the flight data recorder portion of the FA-2100 is a far more complex effort. Like the HU25, it requires the installation of a FDAU to convert analog signals to digital.

On the rotary wing side, we are upgrading the VFDR systems to meet the integration requirements of the HH65C and HH60T. Delivery of the first 83 units is currently scheduled for May 2006, with the final 73 units following in July. The new recorder, the Smith's Industries VADR K3, will be installed in the HH65C, HH60J and HH60T. The VADR K3 will record 25 hours of flight data and 4 hours of voice. In addition, it will have imbedded Operational Flight Profile (OFP) data sets for all three platform types and is configured to immediately identify the host aircraft upon connection and power-up. This achieves a "single box" solution for the rotary wing fleet and ultimately reduces the number of spares ARSC will need to maintain.

Our rotary wing contract also required the integration of a non crash hardened supplemental recorder, known as the Data Storage Unit (DSU). The DSU will record 25+ hours of flight data and 6 hours of voice. The DSU will be used for flight data downloads in support of aeronautical engineering maintenance analysis and provides a pathway toward development of Health Usage Monitoring System (HUMS) and Military Flight Operations Quality Assurance (MFOQA) applications. Voice data will be fully partitioned, codified and protected to ensure compliance with existing "Safety Privilege" policies of the Safety and Environmental Health Manual, COMDTINST M5100.47.

In addition to the aforementioned capabilities, the new VADR K3 will come with Smiths' Integrated Ground Software (IGS), which will enable analysis of engine performance data at the unit level. Providing an easily accessible data source to support engineering MFOQA applications. Voice data access will not be available at the unit level. Only designated personnel at ARSC and Headquarters are authorized access to voice data.

As of this writing, the first 4 prototype VADRs have been delivered and preliminary testing of the Operational Flight Profiles (OFP) will commence soon. Special thanks go to LCDR Jeff Kotson and Mr. Tony Simpson of ARSC for their tremendous efforts in managing the VFDR recapitalization projects.

AUXILIARY AVIATION

In June of 2003, the Commandant's Aviation Safety Board (CASB) final action message was issued regarding the Auxiliary Aviation mishap aircraft N99WD, that took the lives of two Auxiliarists. After the CASB recommendations were published, the Auxiliary Aviation Standardization Team went to work implementing the many needed changes within the Auxiliary Aviation program. The team has completed all recommended action items directed by the Chief of Staff. These actions include an inaugural Auxiliary Liaison Officer/Auxiliary Air Coordinator/District Flight Safety Officer training course at the 2005 Auxiliary National Conference and National Training Conference, Commandant Instruction

Manual revisions, and liaison with Coast Guard aviation safety and training commands to maintain a healthy working relationship with the Coast Guard.

The Auxiliary Liaison Officer/Auxiliary Air Coordinator and the District Flight Safety Officer training courses allowed both Active Duty and Auxiliary the opportunity to share safety information between Air Stations. Communications between the "Gold Side" and "Silver Side" is essential to flight safety and efficient use of Auxiliary air facilities.

The Auxiliary has worked diligently to revise the Auxiliary Operations Policy and Aviation Training Manuals, both signed in 2005. The aviation annex of the Operations Policy Manual outlines the risk assessment matrix, the two pilot rule, and chain of leadership issues. The training manual guides both active duty and Auxiliary members on proper training procedures and techniques for the aviation program. Although the recommendations from the mishap have been implemented, the Auxiliary Aviation Standardization Team continues its focus to creating a valuable, safe force multiplier for the Coast Guard.

	CY02	CY03	CY04	CY05
Total Hours Flown	24,204	26,886	32,375	35,605
Total Missions Flown	3689	7532	8,067	9,908
# Acft (End Of Year)	191	280	294	289
# Pilots – all (EOY)	257	431	442	486
# Aircrew (EOY)	81	123	150	153
# Observers (EOY)	210	454	551	573

Table 4

Auxiliary Aviation Statistics for the last four calendar years clearly indicate growth and increased demand for services. This is shown in Table 4 above. Figure 7 below, illustrates this growth by showing the continued increase in flight hours and missions flown. (Thanks to LT Justin Harper of G-PCX for writing this article)

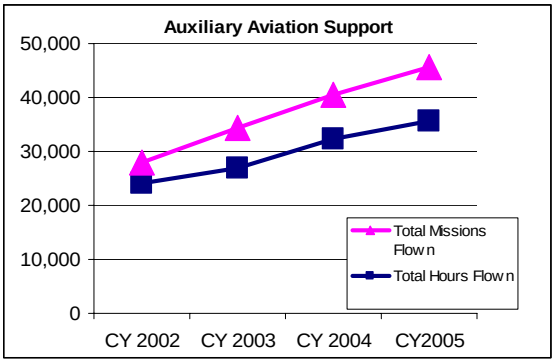


Figure 7

FLIGHT RELATED MISHAP REVIEW

Although not included as part of the annual aviation mishap rates, flight-related mishaps are important. Flight-related mishaps are mishaps where there was intent for flight, but no aircraft damage. Included in this category are injuries (with no aircraft damage), near midair collisions, and other close calls or near mishaps. Flight-related mishap reports include no cost lessons learned and any incident having value to the rest of the fleet. These reports are valuable mishap prevention tools.

Aviation Injury

There were 23 reported aviation related injury mishaps in FY05 involving injury to 20 aviation personnel, 2 boat crew and 1 "fast roper" (helicopter vertical insertion training). Once again, over half of these injuries involved improper procedures, the wrong tool or improper/poorly designed equipment. Inattention, complacency, awareness and motivation were factors in over half of these incidents as well, and 30% listed lack of training or experience as a cause factor.

Seventeen people were hurt during hoisting ops (thirteen Rescue Swimmers, two boat crew, one Flight Mech and one fast roper). Nine Rescue Swimmers suffered bruises, strains or sprains during deployment or recovery (two during freefall deployment). Three swimmers suffered lacerations, one experienced static discharge shock and one mech reported back injury after recovering the swimmer.

There were no HAZMAT incidents or reports of personnel being sprayed by or otherwise exposed to fuels or fluids this year. We had

two reports of possible exposure from the weather radar. There were no reports of blocked ears and sinuses. Other reports included electric shock, lacerations to the hand and head, bruises, bumped heads, one amputated finger, sprained/strained arms, leg, knees and backs, but no broken bones.

Birdstrikes

There were eighteen birdstrikes reported in FY05. Reported cost of birdstrike damage was $530,948. Damage involved one HU25 and three C130 engines and two HH65 main rotor blades. Birdstrikes damaged one herc and two Dolphin windscreens as well as wings on two HU25's and one Herc. Other damage included four Jayhawks, one Stingray and one Dolphin. Figure 8 shows a breakdown of the FY05 birdstrikes.

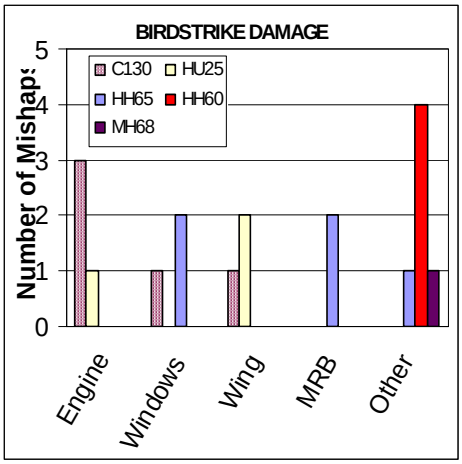


Figure 8

Near Midair Collision

There were eight near midair collisions (NMAC) reported in FY05. Reported NMAC's have decreased since Traffic Collision Avoidance Systems (TCAS) were installed in Coast Guard aircraft in the mid-nineties. NMAC's involved four HH65, two Falcons and one HH60 and one C130 and involved two civil, one commercial and two helos, one military aircraft and two unidentified aircraft.

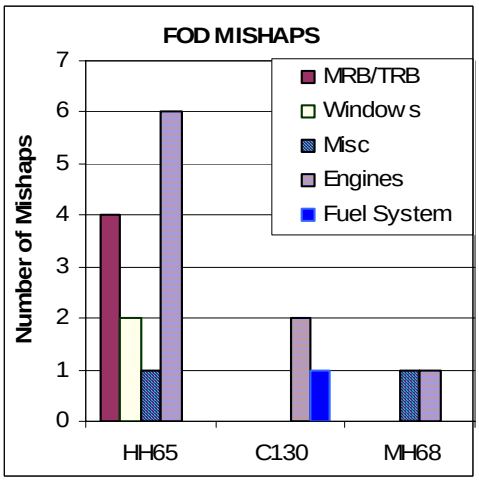


Figure 9

FOD Mishaps

There were eighteen Foreign Object Debris (FOD) incidents reported this year resulting in $263,736 in damage. Figure 9, shows a breakdown of the reported FOD incidents. Foreign object debris mishaps involved two windscreen, three tail rotors, nine engines, one fuel cell, and one rotor system. Thirteen HH65's, three C130's and two MH68's were involved in FOD mishaps this year. Seven incidents involved birdstrike and eight involved parts, tools or other maintenance supplies left in the aircraft.

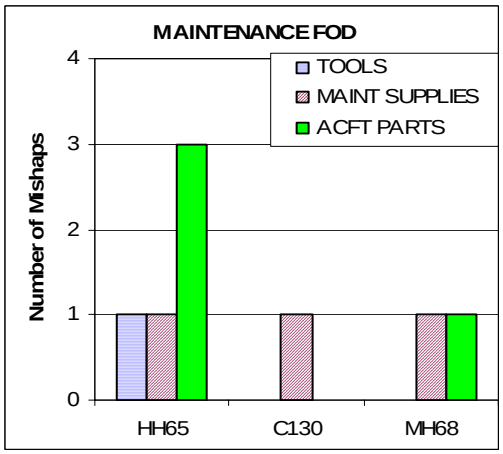


Figure 10

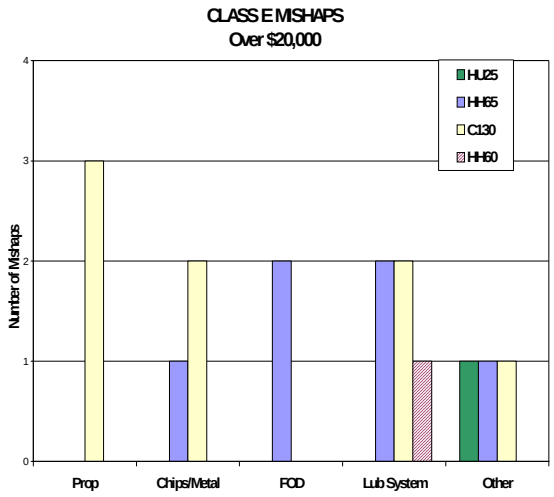


Figure 11

ENGINE MISHAPS

Class E mishaps accounted for 46% (372) of the reported Total (807) mishaps and 17% ($3,956,651) of the Total mishap costs in FY05 (56% without the cost of the two Class A mishaps) Engine mishaps historically account for half the mishaps and half the mishaps cost each year. There were sixteen engine replacements, inflight shutdowns or flameouts reported with mishap costs over $20,000 reported, resulting in $1,175,141 of mishap costs (this does not include partial power losses/torque-splits). Figure 11 shows a breakdown by mishap and aircraft type.

SHIP-HELO MISHAP REVIEW

There were 42 mishaps reported in FY05 involving ship-helo operations, totaling $316,075 in mishap costs. Only seven (17%) of these mishaps were unique to the ship-helo environment (e.g., aircraft damage due to ship movement, portable hangar, HIFR mishaps, flight deck issues and tiedowns). The remaining 35 were not the result of the ship-helo interface (e.g., landing gear problems, FOD, engine problems, indicator problems, etc.).

Ship-helo mishaps normally account for 5 to 10% of the total mishaps reported and less than 5% of the total costs. This year they accounted for 6% of the mishaps and 2% of the total mishap costs.

WEATHER RELATED MISHAPS

Weather contributed to seventeen reported mishaps resulting in $313,024 in damage. These incidents included electronic malfunctions due to moisture, parts prematurely failing due to corrosion, and airframes damaged by wind and lightning.

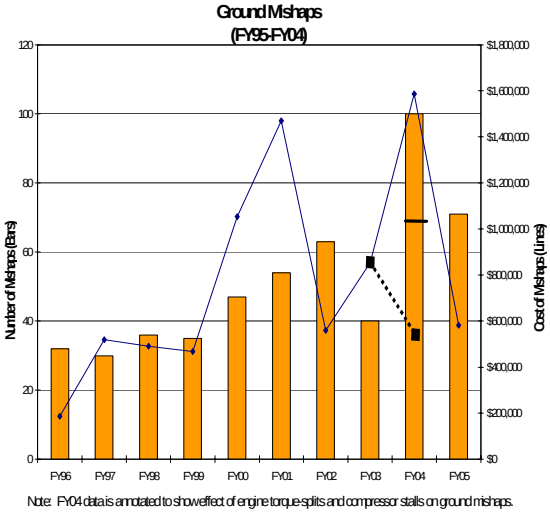


Figure 12

GROUND MISHAP REVIEW

Seventy-one aviation ground mishaps were reported in FY05. Total cost for these mishaps was $582,101. (See Figure 12). Of the 63 non-engine related ground mishaps, ground handling (ground support equipment (GSE), towing, blade folding, fueling, washing or jacking) accounted for 46% of mishaps (31), and 36% of the costs ($386,287). Virtually all of the ground mishaps listed some form of human factors as one of the cause factors.

At least nine aircraft were damaged by ground equipment, checkstands or carts while parked, accounting for $21,966. Twelve towing mishaps accounted for $19,503 of the mishap costs. The wrong part, tool, equipment or incorrect procedures were factors for a 44% (31) of the ground mishaps.

Insufficient Q/A, review or supervision was cited in a quarter (18) of the mishaps. Twenty-nine (40%) of the mishaps listed awareness, complacency or inattention as a factor. Of the 71 ground mishaps reported this year, 67 were below $20,000 in cost, totaling $229,092. Conversely, the four most costly ground mishaps totaled $351,392.

MAINTENANCE HUMAN FACTOR EVENTS

Ninety-five mishaps listed some type of maintenance human factor as a cause. These mishaps included incomplete passdown, poor communications, inappropriate procedures, improperly followed procedures, a lack of supervisor review, or Q/A problems. The wrong part, poor equipment/part design, or lack of parts was listed as a cause in almost half (47%) of the mishaps (see Figure 13 on the next page). Thirty-nine (41%) of the mishaps involved incomplete, improperly followed, inappropriate or unavailable procedures. Inattention, complacency or awareness was a factor in thirty-nine (41%) of the incidents reported. Q/A review or supervision was cited as a cause factor in 36% (34) of the mishaps. Some form of inexperience, lack of training, or staffing issues were factors in 18% of the incidents. Workload, feeling rushed, or lack of resources was mentioned in 15% (14) of the mishaps. Poor passdown, incomplete checklist, or poor communications were also listed in 12% of the mishaps.

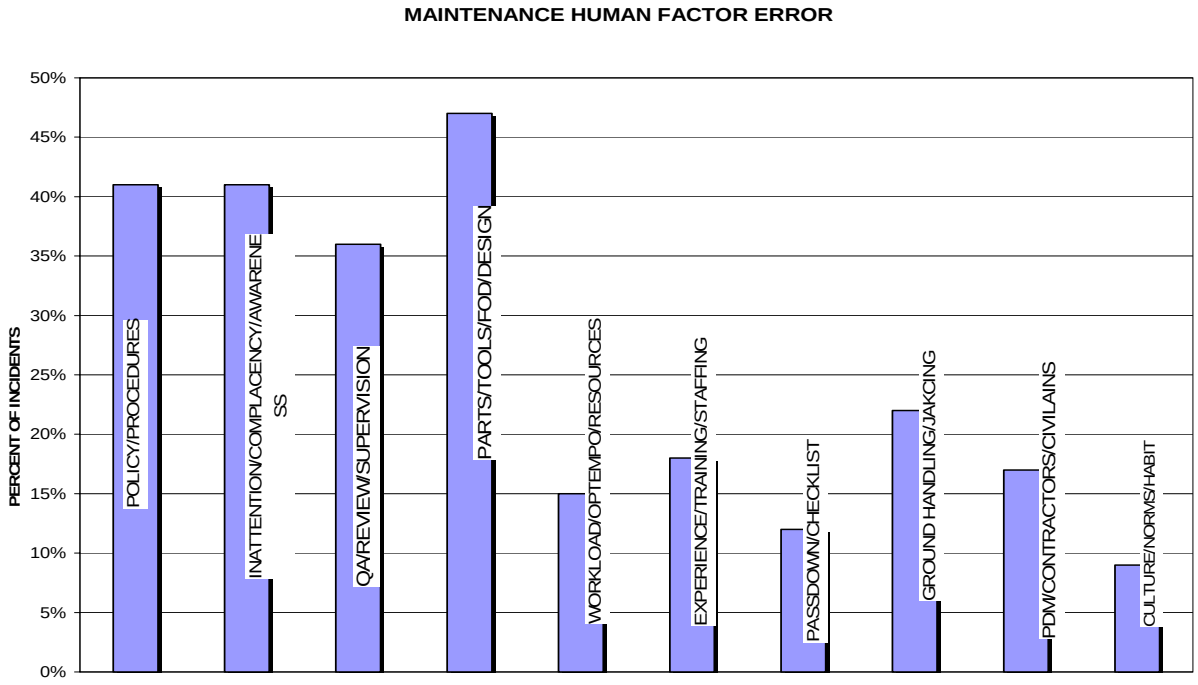


Figure 13

MAINTENANCE RESOURCE MANAGEMENT (MRM)

Reporting of MRM related mishaps continued at a high level in 2005. The major difference between 2005 and 2004, however, was the total cost of these mishaps. While the number of reported MRM related mishaps remained nearly constant at 95, the total cost of these mishaps was $484,658, down from over $1.1M in 2004 (see Figure 14, next page). Looking at a longer timeframe, annual maintenance-related mishap costs averaged $630K during the four years since MRM's inception in the Coast Guard. That is down 43% from the average of $1.1M experienced during the 5 years preceding MRM's introduction. We hope this is an indication that the integration of MRM training has been driving a cultural change. A culture, in which mistakes and near misses are more freely admitted to, and that the lessons learned from these incidents are acted upon earlier to change maintenance cultural norms, procedures and practices before

they injure someone or become high-dollar mishaps.

These achievements have been borne through the hard work and dedicated efforts of ATTC's cadre of MRM Instructors, who delivered MRM Initial training to over 250 "A" School students, and qualified 35 unit MRM Facilitators this past year. In turn, these MRM Facilitators have been responsible for conducting regular MRM refresher training at the unit level for all of the aviation maintenance personnel in the Coast Guard. Facilitator training is conducted on an annual basis at ATTC in Elizabeth City, NC. The goal is to train enough personnel each year to provide each air station with a qualified instructor for each airframe, and an additional instructor for air stations with more than five of any one type of aircraft. Facilitator qualifications are good for three years, while refresher training is required by all maintenance personnel every two years. Look for upcoming changes to the Aeronautical Engineering Maintenance Management Manual (COMDTINST M13020.1) chapter 6, for updates in policy regarding MRM training and qualifications.

While MRM provides the knowledge and awareness of human factors on the hangar deck, shops and flight line, it does not provide a systems approach to analyzing events that provide clues to the potential source of a future mishap. Every day "events" occur (e.g., a missed or improperly executed step in a maintenance procedure, improper use of a tool or machine, etc.) that constitute errors but fall short of causing a reportable mishap under our Safety reporting requirements (the portion of the "iceberg" that lies above the waterline).

Maintenance Event Trend Analysis (META) is an event investigation process, trend analysis and database tool designed specifically for Aeronautical Engineering use, providing a simple means of tracking those human error events that "lie below the waterline". By concentrating our attention there, we can make policy and process improvements and increase awareness before a mishap occurs. As it exists now, this tool is a paper form that can be used for collecting and analyzing trends at the unit level. This form is available on ATTC's website at: http://cgweb.arsc.uscg.mil/attc/CareerDevelopment/MRM.htm

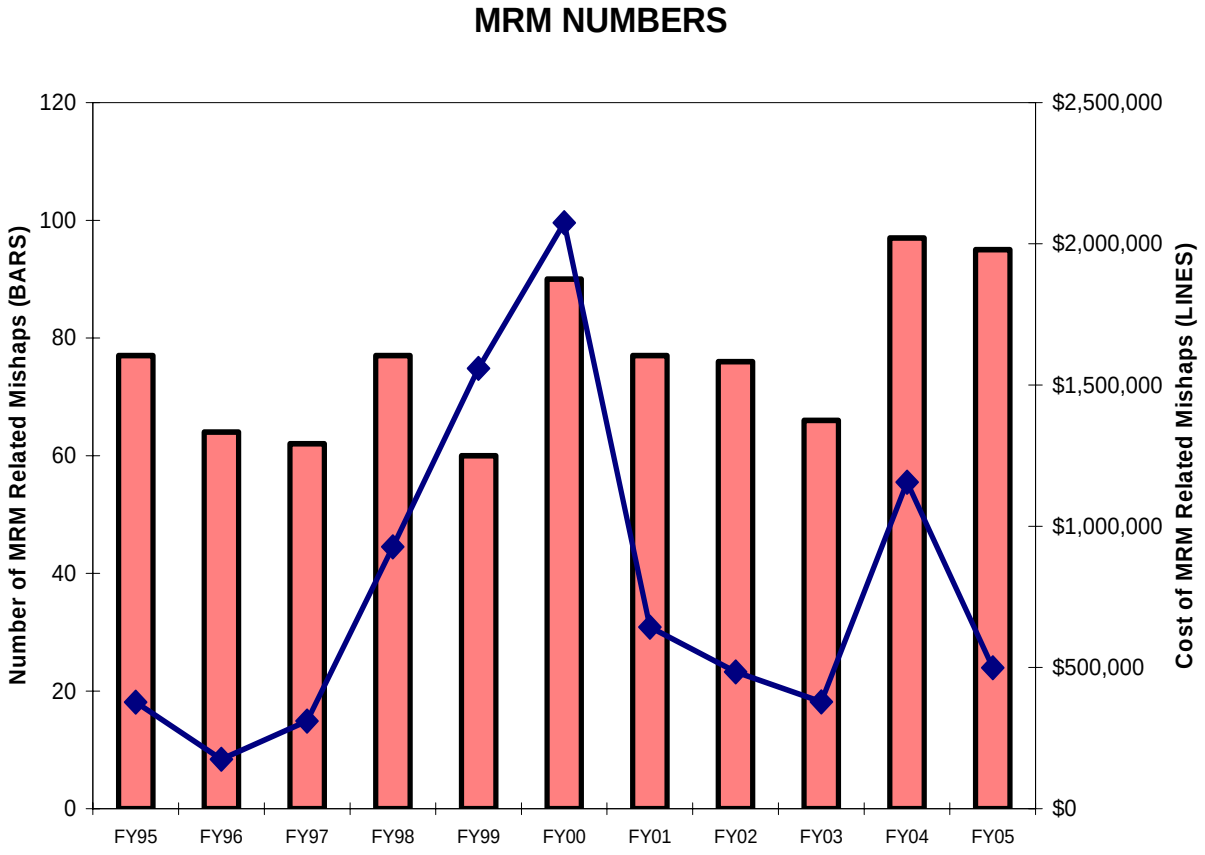


Figure 14

A number of units are using META with great success. Air Station Clearwater has already made extensive use of their locally-developed, electronic META Access database. CG-1131 continues to seek funding sources to integrate an electronic META graphical user interface and database program with ALMIS for the purposes of collecting this data CG-wide and analyzing it at the macro level. Additional personnel for larger air stations and CG-1131 have also been requested as part of this Resource Proposal. We hope to have the initial version of the electronic META program/database in place by FY07 to begin limited trial use and testing.

SUMMARY INFORMATION

Tables 5 and 6, on the following page, display mishap summary information for FY05 associated with each of the four major airframes. The pie charts on the next page, (Figures 15, 16 and 17) illustrate the percentage of total mishaps, flight hours and total mishap costs for each airframe.

AIRFRAME REVIEW

Pages 17-20 contain mishap data for each major aircraft type. In reviewing these pages, it should be noted that with only seven reportable Flight Class A or B Flight mishaps in the last five, the ABC Flight mishap rate for all aircraft is made up mostly of Class C mishaps. Also note the ABC Flight mishap rate for each airframe and all of CG aviation is fairly stable, with a slight increase in this rates across the board. But as stated earlier, this increase is made up largely of low/no cost mishaps, maintenance related and engine related mishaps. We see this as a good thing, since it is an indication of the very positive and proactive safety culture within the Coast Guard. Our ability to self report and identify safety hazards at the early stages prevents the major mishaps that often result in lost lives and airframes.

FY05 FLIGHT MISHAP PERCENTAGES

AIRCRAFT	MISHAPS	% of TOTAL MISHAPS	COST	% of TOTAL COST	FLIGHT HOURS	% of FLIGHT HOURS
HH60	72	10%	$15,925,943	71%	21,803	19%
HH65	429	61%	$4,268,127	19%	54,573	48%
MH68	26	4%	$65,954	0%	3,456	3%
C130H	99	14%	$1,198,865	5%	19,009	17%
C130J	4	1%	$7,355	0%	990	1%
HU25	65	9%	$914,674	4%	13,923	12%
C37	3	0%	$123,196	1%	635	1%
TOTAL	698		$22,504,114		114,389	

Table 5

FY05 FLIGHT MISHAP PERCENTAGES

CLASS	MISHAPS	% of TOTAL MISHAPS	COST	% of TOTAL COST
A	2	0%	$16,156,007	72%
B	1	0%	$287,378	1%
C	35	5%	$1,749,339	8%
D	300	43%	$682,320	3%
E	360	52%	$3,629,070	16%
TOTAL	698		$22,504,114	

Table 6

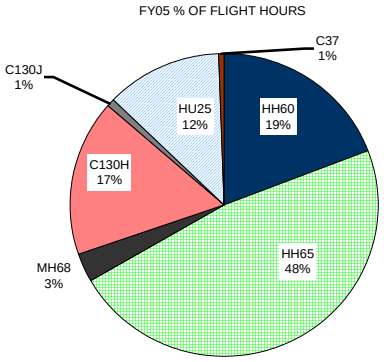


Figure 15

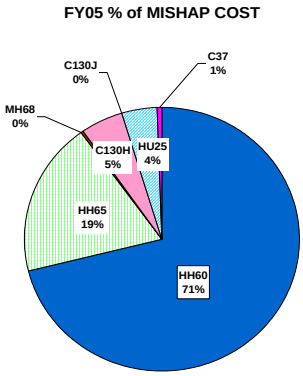


Figure 16

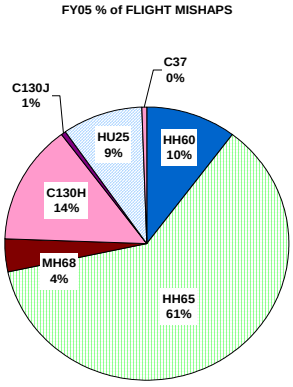


Figure 17

HH60J MEDIUM RANGE RECOVERY (MRR)

One of our two Class A mishaps this year was with an HH60J. The HH60J flew 21,803 hours (19% of the total flight hours) and reported 72 flight mishaps (only 10% of total reported flight mishaps). The HH60J had a mishap rate (0.33) the highest since 1996 and because of the Class A mishap the highest mishap cost per flight hour ($730) and per mishap ($211,197) of all the major airframes. The Jayhawks mishap cost account for 71% of the total Flight mishap costs. Of the 72 HH60J flight mishaps for FY05, 16 cited costs of less than $1,000. Of the eight Class E mishaps, four reported cost less than $20,000.

HH60J Flight Mishaps for FY05

Aircraft	Class	No. Mishaps	Cost
HH60J	A	1	$14,966,4650
	B	0	$ 0
	C	7	$ 405,247
	D	56	$ 176,535
	E	8	$ 377,696
Totals		**72**	**$ 15,925,943**

Table 7

HH60 ABCDE	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR	HH60 ABC	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR
FY01	34	$2,407,943	21,903	0.16	$70,822	$110	FY01	7	$2,343,976	21,903	0.03	$334,854	$107
FY02	29	$312,820	23,667	0.12	$10,787	$13	FY02	2	$56,044	23,667	0.01	$28,022	$2
FY03	37	$1,370,502	25,098	0.15	$37,041	$55	FY03	7	$508,426	25,098	0.03	$72,632	$20
FY04	53	$619,370	24,447	0.22	$11,686	$25	FY04	4	$279,390	24,447	0.02	$69,848	$11
FY05	72	$15,925,942	21,803	0.33	$221,194	$730	FY05	8	$15,371,712	21,803	0.04	$1,921,464	$705

Table 8

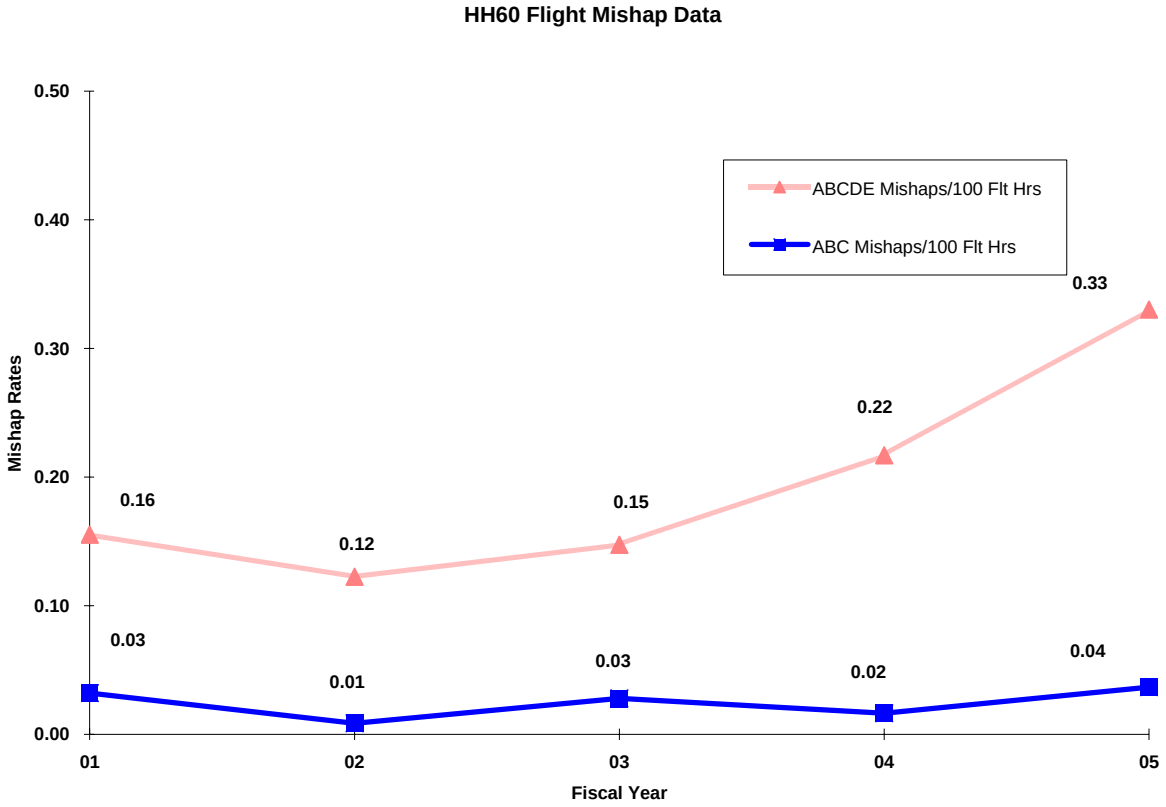


Figure 18

HH65 SHORT RANGE RECOVERY (SRR)

The HH65 flew 54,573 hours, and experienced the second aviation Class A mishap in FY05. The HH65 reported 61% (429) of the mishaps, but only 19% ($4,268,127) of the mishap cost, down from last year. Even with the Class A mishap, the Dolphin mishap rate (0.79) decreased as did the cost per flight hour ($78), the ABC rate (0.03) also decreased. Of the 429 HH65 flight mishaps reported in FY05, 307 were Class E mishaps. 267 of the Class E mishaps reported cost of under $20,000 (Class C threshold) and of these, 156 had associated cost under $1,000.

While torque splits in the HH65A/B continued to be reported at a very high rate, they appear to have peaked in FY04. The rate of reported in-flight torque splits resulting in the replacement of at least one engine or engine control system component (faulty indicators excluded) dropped by 20% in FY05. This is most likely attributable to better diagnostics and awareness of the problem, as well as incremental improvements to engine control system components that have been fielded in the past few years. At the time this report was written, five air stations had transitioned to the HH-65C, featuring the new engines and engine control systems. The entire fleet is scheduled to be complete by mid-2006.

Problems with the sliding cabin door have been a significant safety concern over the life of the airframe. In FY05 we saw a significant drop in sliding cabin door mishaps. While 11 events with four in-flight door departures were reported in FY04, only two events were reported in FY05, both were in-flight door departures. A number of improvements to the door have been prototyped and are making their way to the fleet. This should further improve the safety of the door system until a complete redesign can be funded.

HH65 Flight Mishaps for FY05

Aircraft	Class	No. Mishaps	Cost
HH65	A	1	$1,189,542
	B	0	$ 0
	C	17	$705,183
	D	104	$251,745
	E	307	$2,121,657
Totals		**429**	**$ 4,268,127**

Table 9

HH65 ABCDE	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR	HH65 ABC	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR
FY01	78	$2,928,788	45,095	0.17	$37,549	$65	FY01	22	$2,812,225	45,095	0.05	$127,828	$62
FY02	100	$861,004	50,067	0.20	$8,610	$17	FY02	6	$350,044	50,067	0.01	$58,341	$7
FY03	92	$1,097,536	51,010	0.18	$11,930	$22	FY03	13	$680,793	51,010	0.03	$52,369	$13
FY04	486	$4,646,538	52,195	0.93	$9,561	$89	FY04	8	$343,464	52,195	0.02	$42,933	$7
FY05	429	$4,268,127	54,573	0.79	$9,949	$78	FY05	18	$1,894,725	54,573	0.03	$105,263	$35

Table 10

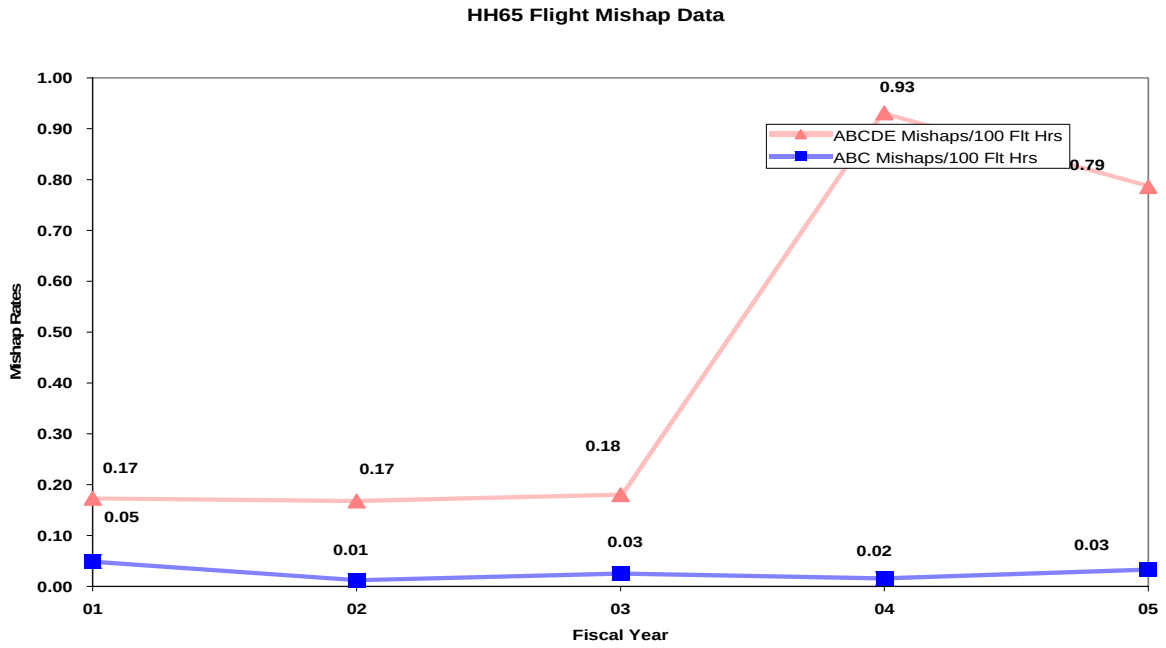


Figure 19

HC130H LONG RANGE SEARCH (LRS)

The HC130H flew 19,009 hours and reported 99 mishaps. The cost per mishap ($12,110) and cost per flight hour ($63) decreased and was the lowest for all the airframes.

Only 16 of the 99 reported mishaps had costs above $20,000. 64 of the mishaps had costs below $1000 and 29 of those were below $100. Of the 27 Class E mishaps reported, only nine involved costs of more than $20,000.

HC130H Flight Mishaps for FY05

Aircraft	Class	No. Mishaps	Cost
HC130	A	0	$ 0
	B	0	$ 0
	C	7	$ 344,986
	D	65	$ 80,111
	E	27	$ 773,769
Totals		**99**	**$ 1,198,866**

Table 11

C130 ABCDE	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR	C130 ABC	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR
FY01	16	$106,552	18,845	0.08	$6,660	$6	FY01	4	$76,754	18,845	0.02	$19,189	$4
FY02	23	$476,709	18,852	0.12	$20,726	$25	FY02	5	$331,701	18,852	0.03	$66,340	$18
FY03	19	$941,794	19,353	0.10	$49,568	$49	FY03	1	$70,789	19,353	0.01	$70,789	$4
FY04	66	$1,602,705	18,749	0.35	$24,283	$85	FY04	5	$183,149	18,749	0.03	$36,630	$10
FY05	99	$1,198,865	19,009	0.52	$12,110	$63	FY05	7	$344,986	19,009	0.04	$49,284	$18

Table 12

C130 Flight Mishap Data

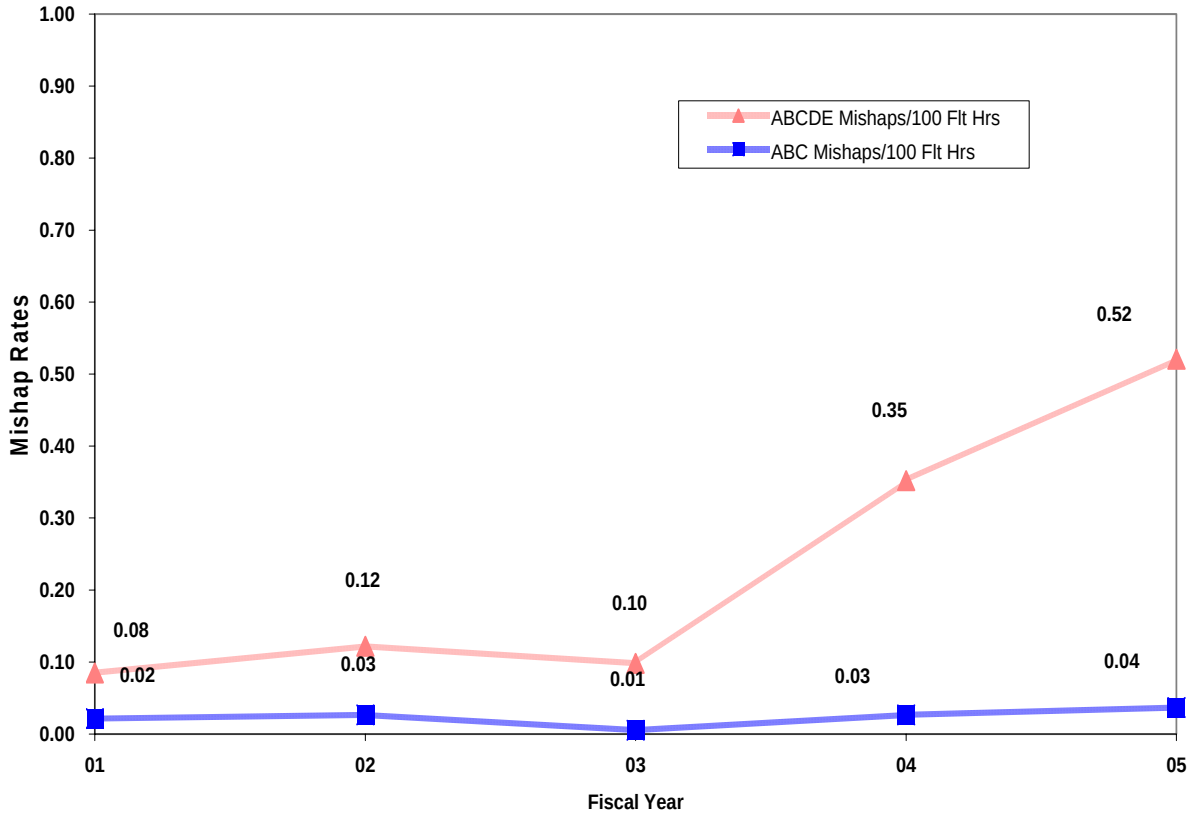


Figure 20

HU25 MEDIUM RANGE SEARCH (MRS)

The HU25 flew 13,923 hours and reported 65 of the total flight mishaps, the most reported since 1996. The Falcon's mishap rate (0.47) and cost ($14,072) per mishap, up again this year.

Of the 65 HU25 flight mishaps for FY05, fourteen were Class E. All but three of the Class E mishaps were under $20,000. Thirty-one of the 65 flight were under $1,000. Only seven flight mishaps reported over $20,000 in mishap costs.

HU25 Flight Mishaps for FY05

Aircraft	Class	No. Mishaps	Cost
HU25	A	0	$ 0
	B	1	$ 287,379
	C	3	$ 180,405
	D	47	$ 106,778
	E	14	$ 340,113
Totals		**65**	**$ 914,674**

Table 13

HU25 ABCDE	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR	HU25 ABC	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR
FY01	44	$403,097	15,371	0.29	$9,161	$26	FY01	13	$350,662	15,371	0.08	$26,974	$23
FY02	31	$1,596,952	12,235	0.25	$51,515	$131	FY02	2	$289,472	12,235	0.02	$144,736	$24
FY03	42	$295,745	13,560	0.31	$7,042	$22	FY03	4	$110,987	13,560	0.03	$27,747	$8
FY04	57	$620,157	13,761	0.41	$10,880	$45	FY04	3	$177,274	13,761	0.02	$59,091	$13
FY05	65	$914,674	13,923	0.47	$14,072	$66	FY05	4	$467,784	13,923	0.03	$116,946	$34

Table 14

HU25 Flight Mishap Data

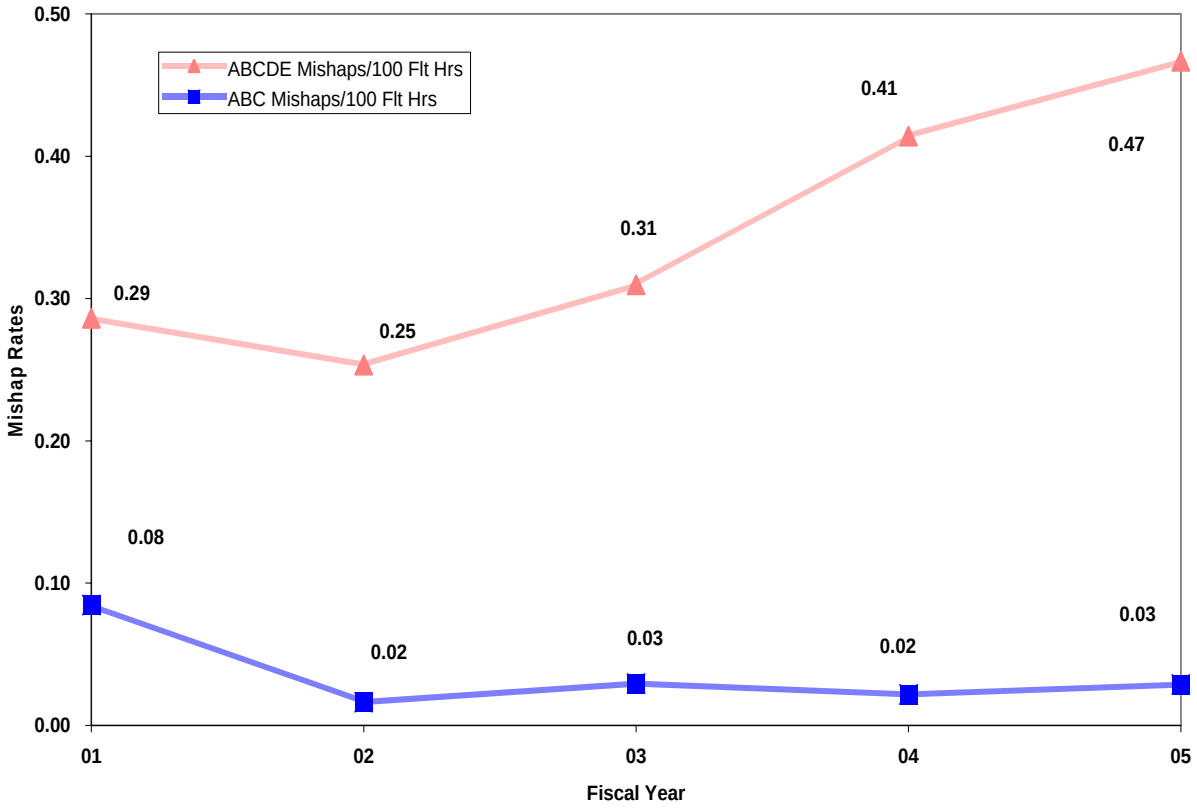


Figure 21

CLASS A MISHAP SUMMARY
FY90-FY05

DATE	ACFT	SUMMARY	CAUSE FACTORS
AUG 1990	E2C	Returning from night LE patrol, aircraft developed wing fire and crashed short of runway while on final approach.	Fire
AUG 1991	HH65	During daylight, low speed photo pass, aircraft experienced uncommanded left yaw and impacted ice.	Aircrew Error
JAN 1992	C130	Uncontained failure of # 3 reduction gearbox shortly after takeoff. Prop and front half of gearbox departed nacelle, struck fuselage resulting in explosive decompression and severing of MLG hydraulic line. Aircraft landed without further damage.	Overhaul Procedures, Material
MAR 1992	HH65	Aircraft impacted water during practice MATCH to water at night.	Fatigue, Disorientation, CRM, Supervisory & Aircrew Error
AUG 1993	HH65	During daylight delivery of ATON personnel and equipment, aircraft crashed while landing on elevated helipad.	Aircrew Error, CRM, Training
JUL 1994	HH65	Aircraft impacted side of cliff in low visibility during night SAR mission to assist S/V aground.	Communications, Situational Awareness, CRM, Aircrew
AUG 1994	HH65	Hard landing during daylight practice autorotation, aircraft impacted ground, slid and rolled on side.	Aircrew Error, CRM, Training
JAN 1995	HH65	During night pollution surveillance flight, with two MSO personnel on board, aircraft experienced engine fluctuations. While analyzing problem, aircraft flown into water.	Situational Awareness, CRM, Aircrew Error, Mechanical
AUG 1995	HH65	During daylight flight, deployed helo experienced rapid left yaw while conducting left pedal turn in a hover. Aircraft accelerated through wind line, spin could not be countered. Aircraft impacted water.	Design, CRM, Aircrew Error, Situational Awareness, Trng
DEC 1995	RG-8	While conducting patrol, sensor operator and pilot detected smoke in cockpit. Pilot determined engine was on fire, secured engine and crew bailed out (as required by emergency procedures). Crew recovered within an hour entering water. Acft lost at sea.	Cause of engine fire unknown, Training, Design
APR 1996	HH65	At end of 5-hour mission, pilot and crewman were practicing hover maneuvers over taxiway. During third hover, entered left turn; unable to counter and impacted ground.	Aircrew & Supervisory Error, Fatigue, Procedures, Design
JUN 1997	HH65	Night SAR in high winds and seas for sailboat taking on water. Shortly after arriving on scene, acft went lost comms. Crew did not egress, helicopter sank in 8,500 feet of water.	Aircrew & Supervisory Error, Design, Trng, Assignment, Policy/Procedures, Material
AUG 1999	HU25	Rear compartment fire lt illuminated during touch and go. Crew continued T/O, called out boldface procedures. Fire lt remained illuminated, emergency declared. Rear compartment fire lt extinguished approx 10 sec after fire extinguisher activated. Hyd sys lt illuminated during “before landing checks”. Acft landed, crew egressed, fire dept extinguished fire. Major fire damage.	Maintenance, QA, Procedures, Trng, Mechanical, Supervision,
JAN 2001	HH60	Lightning strike during airway trainer. Investigation revealed damage to numerous components as well as widespread magnetization of airframe and components.	Environmental Conditions
JAN 2001	HH65	After fifth night shipboard landing, crew signaled for primary tiedowns. Prior to attachment of tiedowns, helo rolled to the right. Main rotor blades impacted flight deck and helo spun approx 140 degrees counter clockwise and came to rest on right side.	Dynamic rollover, Policies, Environment, Procedures
DEC 2004	HH60	During 7th hoist of crewmembers remaining on M/V in danger of running aground in high winds and heavy seas, acft was engulfed by heavy sea spray erupting from large sea swell striking bow of M/V. Acft departed controlled flight and crashed into sea. Vessel’s master and Rescue Swimmer still on M/V witnessed mishap and were rescued later. HH-65A hovering above mishap acft recovered downed aircrew and one M/V crewmember. Search for additional survivors produced negative results.	In mishap review process
SEP 2005	HH65	During maintenance ground run acft spun clockwise on deck and rolled onto left side. Crew consisted of pilot, BA and 3 contractor technicians. While preparing for second run, acft became light on MLG and began a right yaw. Right MLG departed ramp during the second revolution, left horizontal stabilizer, vertical fin, and MRB contacted the ground. Acft continued to spin right and roll left, coming to rest on left side approx. 225 degrees from original heading. Technician outside acft was struck by acft nose during first rotation and suffered minor injuries. Remaining crew egressed acft unassisted after all motion stopped except mishap pilot who was assisted.	In mishap review process

Note: Mishaps are seldom, if ever the result of a single cause. They are a combination of several cause factors. When viewed alone, each cause factor often appears insignificant. A mishap is a sequence of events (which may seem unrelated) that results in tragic consequences.

Table 15

CLASS B MISHAP SUMMARY FY90-FY05

DATE	ACFT	SUMMARY	CAUSE FACTORS
MAR 1990	HH65	Power increase on #1 engine mis-analyzed and flight terminated w/autorotation and hard landing in sugar cane field. #1 fuel control failed, driving engine into overspeed and #2 engine decelerated to compensate for # 1 engine overspeed.	CRM, Supervisory & Aircrew Error, Material, Training, Procedures, Fixation
MAR 1991	HH65	While delivering passengers to Navy vessel, pilot pulled excessive collective overtorquing MGB and overspeeding both engines. Pilot was mistakenly advised to return to CG Cutter. Aircraft experienced hard landing upon return to CG cutter.	Supervisory & Aircrew Error, CRM, Training, Situational Awareness, Procedures
MAY 1992	HU25	Aircraft landed with left MLG up after MLG failed to extend. MLG unlock control cable separated, preventing MLG door from opening and stopping landing gear sequence.	Material, Aircrew Error, CRM, Procedures,
MAY 1992	HH60 FltRel	During live litter hoist from an RHI, litter cables failed, dropping the litter approximately 30 ft to the water.	Procedures, Maintenance, Supervisory,
DEC 1992	C130	Engine turbine wheel failed inflight. Damage limited to engine. Failure attributed to material fatigue and manufacturing processes.	Material, Procedures, Manufacture
MAR 1993	HH65	At end of offshore SAR, pilot misdiagnosed and improperly managed #2 engine indicating system failure and secured #2 engine. Situation further aggravated by series of uncoordinated inputs by both pilots. FM recognized situation, advanced FFCL, allowing remaining engine to regain power.	Mechanical, Aircrew Error, CRM, Training, Procedures
MAY 1993	HH65	During instrument approach to hover over water, rotorwash engulfed aircraft in salt spray. Pilots lost visual contact with surface resulting in MGB overtorque and overspeeding both engines during ITO.	Aircrew, Procedures, Darkness, CRM, Environment, Disorientation
AUG 1993	HH3	During flood relief support, MRBs contacted hangar, as crew completed turn into parking space. Crew had parked in same position several times.	CRM, Aircrew, Situational Awareness, Procedures
MAR 1994	HH65	Fenestron contacted runway during practice single engine landing for annual Stan check ride.	Awareness, Training, Supervisory & Aircrew
SEPT 1994	HU25 FltRel	Crew dropped DMB to aid relocation of lone raft at sea and departed scene for fuel. Unknown to crew, DMB struck a female in the raft. Rafters were later rescued, female underwent surgery and recovered.	Supervisory & Aircrew Error, Procedures
APR 1995	HH60	MRB tipcap departed inflight. Returning along coast from trng flt in VFR conditions, crew felt abnormal vibration. Vibrations so severe, pilots had difficulty reading instruments and controlling acft. Acft damaged during ldng on boulder-strewn beach.	Material Failure
JUL 1995	HH65	Deployed acft taxied into side of Navy hangar. Five navy personnel inside hangar received minor shrapnel injuries. Acft sustained shrapnel and sudden stoppage damage.	CRM, Aircrew & Supervisory Error, Procedures, Distractions, Judgement
AUG 1995	HH65	PAC was attempting to park helo between two other aircraft. MRB struck chain link fence. Two other aircraft and several buildings sustained shrapnel damage.	Aircrew, CRM, Distractions, Situation Awareness
DEC 1996	HH60 FltRel	Acft diverted from routine trng flight to assist F/V reported taking on water and sinking. Two PIW were hoisted using basket recovery, third PIW recovered using direct deployment. Victim's survival suit was improperly donned and filled with water. FM and RS encountered difficulties bring victim in cabin. Added weight caused victim to slip out of strop and fall to the water.	Environment, Procedures, Design, Equipment,
JAN 1997	HH65 FltRel	Acft was launched on early morning SAR to assist a F/V aground and breaking up. First victim was located face down in debris, unconscious and unresponsive. Victim had improperly donned PFD and slipped out of quick-strop while being brought into cabin. FM and RS tried to hold the victim, but he slipped out of PFD and quick-strop.	Procedures, aircrew, Training, Design
MAR 1998	HU25	Fan spinner departed in flight. Large section of fan spinner lodged in engine bellmouth, resulted in engine, fuselage, wing and horizontal stabilize damage.	Material, Design, Procedures, Aircrew
JUN 2002	MH68	During T-course day flight, crew entered an uncontrollable ground resonant state due to failure of a dynamic rotor head component. As acft was shut down, left MLG collapsed and helo came to rest on left MLG structure. MRB and TRB did not impact ground. Crew safety egressed acft with no significant injuries.	Material, Maintenance
MAY 2005	HU25	During warm-up syllabus in local area, crew observed an unsafe right MLG indication during extension. After extension troubleshooting, acft was landed. As acft entered gradual left turn to exit rwy right MLG collapsed, causing right wing tip to scrape rwy and right inboard gear door broke off. All aircrew egressed safely with no injuries.	Material, Procedures, Aircrew

Note: Mishaps are seldom, if ever the result of a single cause. They are a combination of several cause factors. When viewed alone, each cause factor often appears insignificant. A mishap is a sequence of events (which may seem unrelated) that results in tragic consequences.

Table 16

DOD CLASS "A" MISHAP RATES COMPARISON

Class A mishap rates for the DOD services are compared in Tables 17 and 18. When reviewing the DOD rates and comparing them to the Coast Guard, we need to consider the effect our limited flight hours have on our mishap rate. While one Class A mishap can greatly impact the Coast Guard mishap rate, one more or one less mishap would have little effect on the DOD rates.

FY05 CLASS A AVIATION MISHAP RATES FOR ALL SERVICES

	USCG	USAF	USA	USN	USMC
# Class A	2	32	31	13	9
Flight Hours	144,388	2,142,803	1,127,511	931,136	398,194
Mishap Rate	1.75	1.49	2.75	1.40	2.26

Table 17

FY04 CLASS A AVIATION MISHAP RATES FOR ALL SERVICES

	USCG	USAF	USA	USN	USMC
# Class A	0	27	24	12	18
Flight Hours	114,451	2,295,953	1,100,205	1,011,300	347,720
Mishap Rate	0.00	1.181.49	2.18	1.19	5.18

Table 18

FLIGHT SAFETY PROGRAM

Training Courses

⇒ Traditional FSO training will continue at the Navy's School of Aviation Safety with the ASO Course, now located at NAS Pensacola, FL.

⇒ COs will continue to receive the Aviation Safety Command Course at the Navy's School of Aviation Safety (NAS Pensacola, FL).

⇒ Advanced aviation safety training will be provided for selected FSO's as preparation for assignment to a Commandant convened mishap analysis board (MAB).

⇒ FY05 FSO Annual Refresher/Re-evaluation training took place in April 05. FY06 training will be held in May 06.

Safety Standardization Visits

⇒ The frequency of CG-1131 safety stan visits are determined by CO turnover (every three years for O-6 commands and every two years for O-5 commands).

⇒ CG-1131 completed five visits in FY05. The goal is to complete all visits within nine months of each Air Station change of command.

⇒ The Safety Stan visits focus on the flight safety program requirements contained in the Air Ops Manual, ORM Instruction and the Safety & Environmental Health Manual.

⇒ The checklist used during the Aviation Safety Stan Visits is available on the CG-1131 Website. http://www.uscg.mil/ hq/g-w/g-wk/wks/AviationHome.htm. See chapter 2.F.1.b (2) (i) of COMDTINST M5100.47 for more information on Safety Stan Visits.

⇒ Units may request unscheduled or informal assist visits and safety training at any time.

"CG-1131.COM"

⇒ G-WKS Website has a slightly new address: http://www.uscg.mil/hq/g-w/g-wk/wks/AviationHome.htm

⇒ It is available from any internet-capable computer. Accordingly, CG-1131 carefully reviews content for general public viewing, and can only post internet-releasable, non-privileged information. The website includes:

- Links to safety & health manuals and instructions with the latest changes.
- Anthropometric measurements and related information.
- Aviation safety presentations, safety stand downs and training ideas.
- ORM, CRM and MRM information and presentations.
- Mishap investigation and reporting requirements and other information.
- CG Mishap Investigation Guide (MIG).
- Links to e-AVIATRS and e-MISHAP.
- Aircraft voice and flight data recorder (VFDR) information.
- Information on the Safety Stan Visit Program, including updated safety standardization checklists.
- Recent Annual Aviation Safety Reports.

- Links to military and civilian aviation sites.
- Links to the DOD service's Safety Center and risk management websites.
- Link to the NTSB database and the Aeronautical Information Manual (AIM).

CRM

⇒ The CRM program continues to evolve. ATC Mobile recommended that CRM Refresher Training be conducted annually. G-RCA and CG-1131 concurred with the change, which becomes effective when the new Air Operations Manual (COMDTINST M3710.1F) is promulgated.

⇒ FSOs continue to receive CRM facilitator training annually at the FSO Stan Course. This training qualifies them to provide unit level CRM Refresher Training.

⇒ CG-1131 and ATC Mobile CRM personnel recently reviewed the CRM Automation Airmanship Training program developed and conducted by Convergent Knowledge Solutions, LLC, for the C130J Aircraft Project Office (APO) in Elizabeth City, NC.

- Although developed specifically for the "glass cockpit" automated environment of the C130J, many aspects of this program appear to be applicable to existing legacy CG platforms.
- CG-1131 and ATC Mobile will be exploring the possibility of integrating these concepts into the overall CG CRM curriculum.

AVIation Accident TRacking System (e-AVIATRS)

⇒ http://webapps.mlca.uscg.mil/kdiv/Aviatrs/

⇒ We're into year three of **E-AVIATRS** and version 2.2. The first mishap report was submitted to the new database on 21 November 2003.

⇒ The programming staff at MLCLANT made minor updates throughout the year, but at least once a year major revisions are made based on input and suggestions from the users.

⇒ Version 2.0 and 2.2 came on line in June 2004 and July 2005, eliminating many workarounds and incorporating many of the changes requested at the 2004 & 2005 FSO Stan Courses.

⇒ An email address update feature was added to update a user's email and automatically change the email on any pending mishap reports.

⇒ NVG flight time is now captured. The system requires NVG time for the flight and for the pilots if you check NVG as a factor in the mishap.

⇒ A check field was added to collect information on the type of small boat involved in a mishap.

⇒ Several enhancements were made to the command reviewer and email address functions.

⇒ Additional Factor fields have been added. These are "yes/no" fields for quick searches.

⇒ All Legacy data from the **AVIATRS** database has been converted to **e-AVIATRS**. There are over 12,000 records dating back to FY79 in the database.

⇒ Requirements to report aviation-related injuries can now be satisfied by entering a mishap report in **e-AVIATRS,** eliminating the need for duplicate reporting and the confusion this caused. Although they aren't actually communicating yet, the two databases **(e-AVIATRS** and **e-MISHAP**) will eventually be linked.

⇒ **E-AVIATRS** auto-generates the body of the CGMS message from the data entered. All the drafter has to do is enter the correct PLAD and appropriate AIG.

⇒ Aviation mishap reports can now be submitted to the database without a CGMS message being sent if the report is for trending and tracking only.

⇒ Units are now expected to enter cause factors for each incident. The unit can assign up to six cause factors for a mishap. These are not included in the mishap message. CG-1131 has assigned cause factors for many years, and will continue to provide "quality assurance" on this field.

⇒ **E-AVIATRS** captures all the information in the aviation mishap message. All information reported in the message can be searched and retrieved. CG-1131 will still maintain and review aviation mishap information.

⇒ Development of search programs, "canned" graphs, and report generators has been slower than expected due to programmer availability/competing Coast Guard demands. CG-1131 will remain available for assistance or for non-standard data queries.

⇒ Until **e-AVIATRS** search capabilities are fully developed, please continue to contact CG-1131

for data searches and aviation mishap information. (Contact Miss Zimmerman at czimmerman@comdt.uscg.mil)

⇒ We encourage comments and suggestions. Most get incorporated and almost all suggestions have been a positive improvement.

Hail and Farewell: Summer 05 we welcomed CDR Tom Farris formerly OPS at Group/Air Station Port Angeles and LCDR Gene Rush from Clearwater. LCDR Steve Pruyn will be departing Summer 06 for Detroit and LCDR Brian Glander from Air Station Kodiak will take over his duties. CAPT Chip Strangfeld departed in May 05 to become the new Commander of Sector/Air Station San Diego and CDR Rick Christoffersen left for OPS at Sector/Air Station Humboldt Bay.

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http://www.uscg.mil/hq/g-w/g-wk/wks/AviationHome.htm