FY09 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. This report contains fiscal year 2009 mishap information as well as prior years 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 total mishaps (flight, flight-related and ground). This is the traditional way of reporting annual numbers within the aviation industry. The other categories of mishaps are still important, and are reviewed separately.

FROM THE CHIEF OF AVIATION SAFETY

Fiscal year 2009 was another good year for Coast Guard Aviation Safety. Despite the tragedies of recent fatal mishaps almost all significant mishap measures continue to trend downward. For example, the five year average of the Coast Guard Class "A" mishap rate is substantially lower than any of the DoD services, and shows a continuing decrease when compared to the ten and fifteen year averages. Reducing the mishap rate is one of the top priorities in aviation safety; however, as the mishap rate creeps lower and lower figuring out how to do that becomes harder.

As fewer and fewer mishaps occur it becomes more difficult to use past events to predict what is likely to happen in the future. Colonel Pete Mapes, an Air Force Pilot Physician (he holds both pilot and Flight Surgeon quals), has conducted several extensive studies of DoD helicopter mishaps. In one of his studies Colonel Mapes used statistical tools common to epidemiology to determine whether certain apparent mishap trends were significant based on the relationship between mishap statistics, the number of aircraft in the inventory and hours flown. The study is very interesting, but like many DoD examples, it quickly becomes obvious there are not enough Coast Guard Class "A" and "B" mishaps to point toward specific systems, maneuvers, or even aircraft to focus on. Without these specific statistics to point the way, where do we focus our mishap prevention efforts?

For better or worse one factor remains significant across all platforms, mission areas, and branches of service; that is the prevalence of aircrew error as the most common cause factor in aviation mishaps. Aircrew error plays a significant role in about 85% of all aviation mishaps. The predominance of aircrew error led to the creation of almost all the modern mishap prevention programs. ORM, CRM, and MRM are each aimed at preventing and reducing specific types of human error, and as you will read in this report, each of these vital components of the Coast Guard Aviation Safety program is continuously being re-evaluated and improved. Most aircrew

TABLE OF CONTENTS

members are intimately familiar with ORM, CRM, and MRM, so I won't discuss them further here. Instead I will spend a few moments discussing a less understood tool, HFACS.

HFACS, the Human Factors Analysis and Classification System, was developed jointly by the uniformed services to make it possible to apply structured analysis and statistical models to the evaluation of human error. HFACS consists of a library of nano-codes used to classify the various factors that combine to result in a mishap. The nano-codes are divided into tiers describing the acts, preconditions, supervision and organization influences that may play a role in a given mishap. HFACS allows in-depth analysis of human error to go beyond what happened to determine how and why it happened. The hierarchy of HFACS ensures each event is reviewed systematically, and the nano-codes help ensure the analysis is classified in a standardized way allowing for statistical comparison.

The HFACS system has been in use for some time, but has only recently been given greater emphasis in the analysis of Coast Guard aviation mishaps. Historically, HFACS analysis (required in class "A" and "B" mishaps) has been delegated to the Mishap Analysis Board's (MAB) Flight Surgeon. After the Board completed its analysis and reached conclusions as to cause factors, the Flight Surgeon would be tasked with breaking down the analysis and fitting it into the HFACS model. HFACS was applied after the fact and was seldom, if ever, used as the basis for analysis.

Recently greater emphasis has been placed on HFACS as a tool used to facilitate critical thinking. MAB members are being exposed to HFACS early in the analysis phase of mishap investigations so they can use the system to guide their investigation. Awareness of the preconditions, supervisory, and organizational influences enables an MAB to ask questions that lead them beyond what happened to why. Also, because every precondition and supervisory or organizational influence must be tied to an associated act, HFACS can be used to verify mishap cause factors by ensuring each factor is related back to the act that resulted in the mishap.

The best example of the evolution in using HFACS can be found in the 6505 hoisting mishap Final Decision Letter (available on the CG FOIA reading room website http://uscg.mil/foia/readingroom.asp). Analysis of the human factors involved in this mishap focused attention on three critical acts initiating the mishap or increasing its severity. These acts are clearly identified along with the preconditions and organization influences that affected them. Additional findings are also included in the report. These findings cover hazards that could play a role in a similar mishap, but were not linked to an act occurring in the mishap process and not involved in this particular mishap.

The aircraft we fly continue to become more and more complex, but it will be some time before they ever come close to the complexity of the human beings operating them. As we continue to use HFACS to analyze the human factors involved in mishaps we will get a better understanding of the most common cause factor in Coast Guard aviation mishaps.

CDR Joel Rebholz
Chief Aviation Safety Division (CG-1131).

ANNUAL RECAP

The CG FY09 Class A Flight Mishap rate was zero. Coast Guard Aviation has averaged a little less than one Class A mishap a year for the last twenty years. Our 15-and 20-year Class A Flight mishap rates per 100,000 flight hours are 0.71 and 0.82 respectively. The Coast Guard 5- and 10-year rates are also below 1.0. See the last two pages of this report to review the Coast Guard Class A and B mishaps since 1991. Figure 1 (on the next page) compares Coast Guard 5, 10, 15 and 20-year Class A Flight mishap rates with the DOD rates. These numbers are excellent and include enough hours to compare us with DOD.

CG Auxiliary Aviation reported no Class A or B mishaps in FY09. Auxiliary Aviation flight hours and mishaps are not used in figuring CG mishap rates in this report. See page 9 for more on the AUXAIR program.

Flight Mishap costs for FY09 were $8,235,513 and there were (267) Flight mishaps reported this year, the lowest since FY03. The Total Flight mishap rate of 0.23 (per 100 flight hours) was also the lowest since FY03. Total Aviation mishap costs (Flight, Flight-Related and Ground) for FY09 was $9,421,987 (seeTable 2 on page 4). Of the 395 aviation mishaps reported this year, 65 were Ground and 63 were Flight-Related.

As we say every year, we feel our conscientious and methodical reporting is what helps us achieve our low mishap rate. The lessons learned from reporting low/no cost incidents can greatly assist in averting high-cost incidents ("cost" being in terms

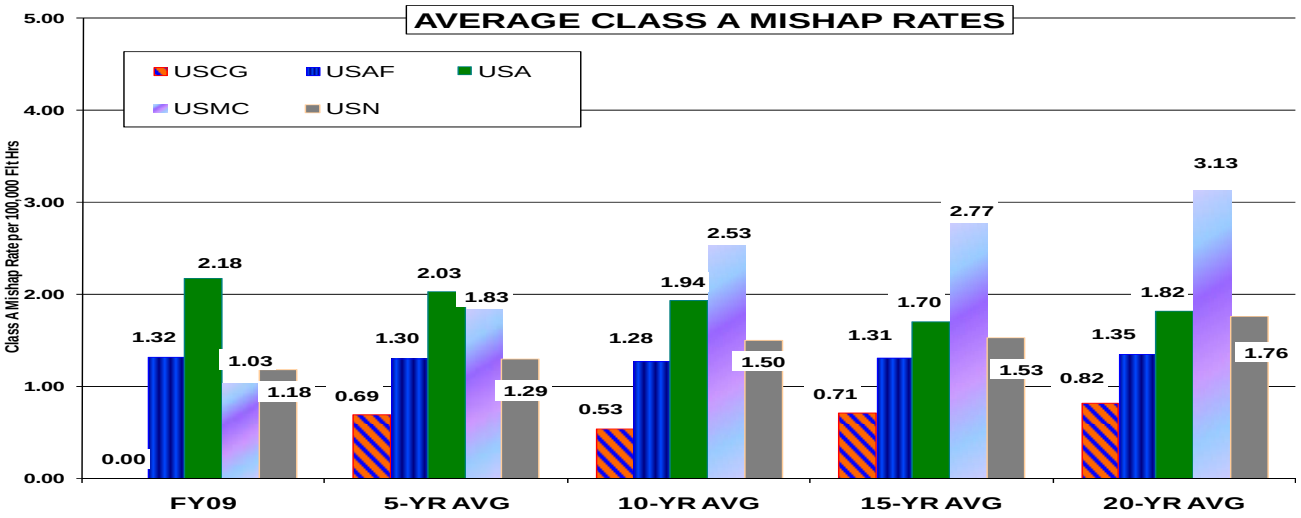


Figure 1

MISHAP CLASS COST BREAKDOWN

FY10-PRESENT

Class A	$2,000,000 or greater or death
Class B	$500,000 to $1,999,999 or serious injury
Class C	$50,000 to $499,999 or minor injury
Class D	Less than $50,000
Class E	Engine damage only, regardless of cost

FY02-FY09

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

NOTE: Mishap cost thresholds increased 1 Oct 2009.

of injuries, lost operation time and dollars). Reporting the low/no cost mishaps helps perpetuate what we believe is a very positive and proactive safety culture within the Coast Guard. We believe our success in self reporting often identifies safety hazards at the early stages. Thus setting us on a course to avoid the major mishaps that often result in lost lives and airframes.

Maintenance Resource Management (MRM) training and mishap awareness continues to contribute to the increased reporting of minor incidents and keeping our losses as well as the Class ABC statistics down. Table 2 (on the next page), displays the FY09 Aviation mishap summary data. Figures 2 and 3 (on page 4 and 5) display mishap cost data for the last ten years for Flight mishaps and for Total Aviation mishaps (Flight, Flight-Related and Ground). These two charts break out the Class A and Class E costs to help illustrate how engine mishaps and Class A mishaps can impact the overall mishap costs. Engine mishaps have historically accounted for half of the reported non Class A Coast Guard aviation mishaps costs.

The Class ABC flight mishap rate (per 100 flight hours) was 0.02 this year. It has remained below 0.05 since FY97. The relative stability of ABC flight mishap rate indicates that when our mishaps increase or decrease it is mostly at the Class D and E. This is good sign since these mishaps are generally low cost and demonstrate our vigilance and mishap prevention efforts are paying off. This is also the level where we can make the most difference, by breaking the chain

and correcting or mitigating the hazards. This is a positive indication that the aircrews are diligent about reporting even the minor events.

Of the 267 Flight mishaps reported, 82% (220) were below the Class C threshold of $20,000 and accounted for 7% ($600,558) of the Flight mishap costs. Similarly, looking at total mishap numbers (Flight, Flight-Related and Ground), 77% (306) of the 395 mishaps reported costs below the $20,000 threshold and accounted for 8% ($763,080) of the Total Aviation mishap costs. Table 3 on page 5, compares our mishap numbers for the last 5 years.

There were 76 reported Class E mishaps in FY09 with total reported mishap costs of $6,610,493, 70% of the Total Aviation Mishap costs. The Class E mishap cost was high this year due to six high dollar mishaps. There were eleven Class E mishaps with cost over $100,000 ($4,455,342) representing 67% of the Total Aviation Mishap cost. Two thirds (52) of the reported Class E mishaps had costs below the Class C threshold of $20,000, and accounted for less than 2% of the reported Class costs.

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

FY09 GRAND TOTALS

CLASS	# MISHAPS	COST	FATALS	INJURIES
A	0	0	0	0
B	1	245,004		0
C	41	1,910,779		7
D	277	655,711		32
E	76	6,610,493		1
TOTAL	395	9,421,987	0	40

TOTAL FLIGHT HOURS	116,788
CLASS A FLIGHT MISHAP RATE PER 100,000 FLIGHT HRS	0.00
FLIGHT MISHAPS PER 100 FLIGHT HOURS	0.23
COST PER FLIGHT MISHAP	$30,845
COST PER FLIGHT HOUR	$71

FLIGHT MISHAPS

CLASS	# MISHAPS	COST	INJURIES
A	0	0	0
B	1	245,004	0
C	23	1,499,139	0
D	179	537,278	3
E	64	5,954,092	1
TOTAL	267	8,235,513	4

GROUND MISHAPS

CLASS	# MISHAPS	COST	INJURIES
A	0	0	0
B	0	0	0
C	14	411,640	3
D	39	117,408	6
E	12	656,401	0
TOTAL	65	1,185,449	9

FLIGHT-RELATED MISHAPS

CLASS	# MISHAPS	COST	INJURIES
A	0	$0	0
B	0	$0	0
C	4	$0	4
D	59	$1,026	23
E	0	$0	0
TOTAL	63	$1,026	27

Table 2

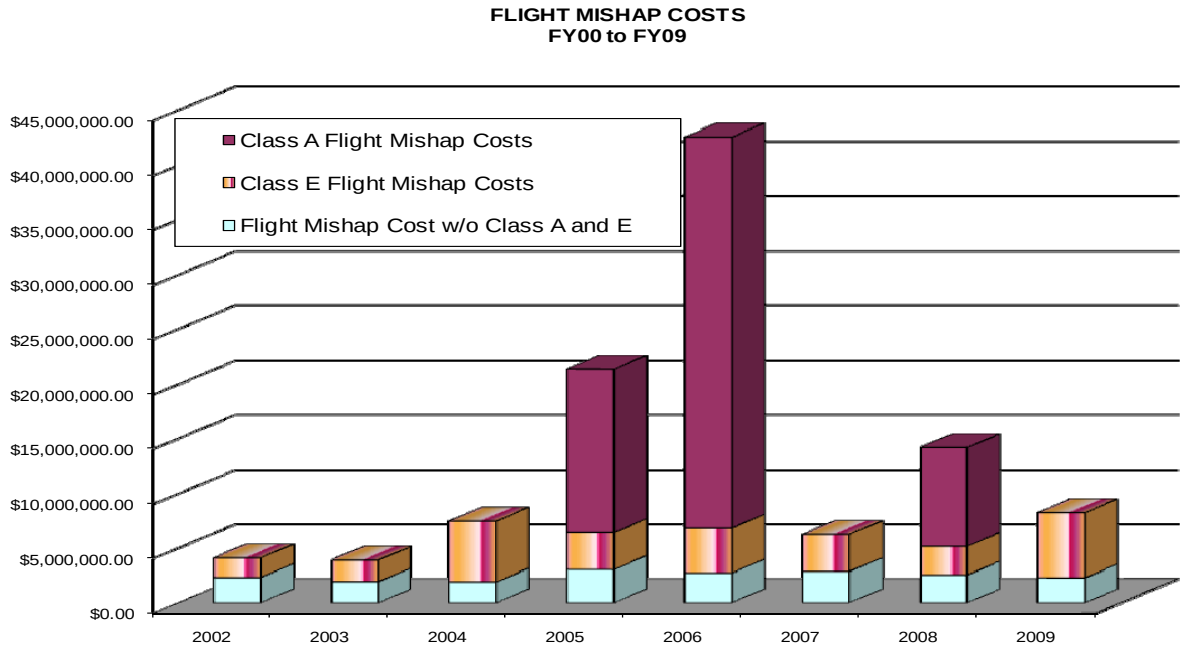


Figure 2

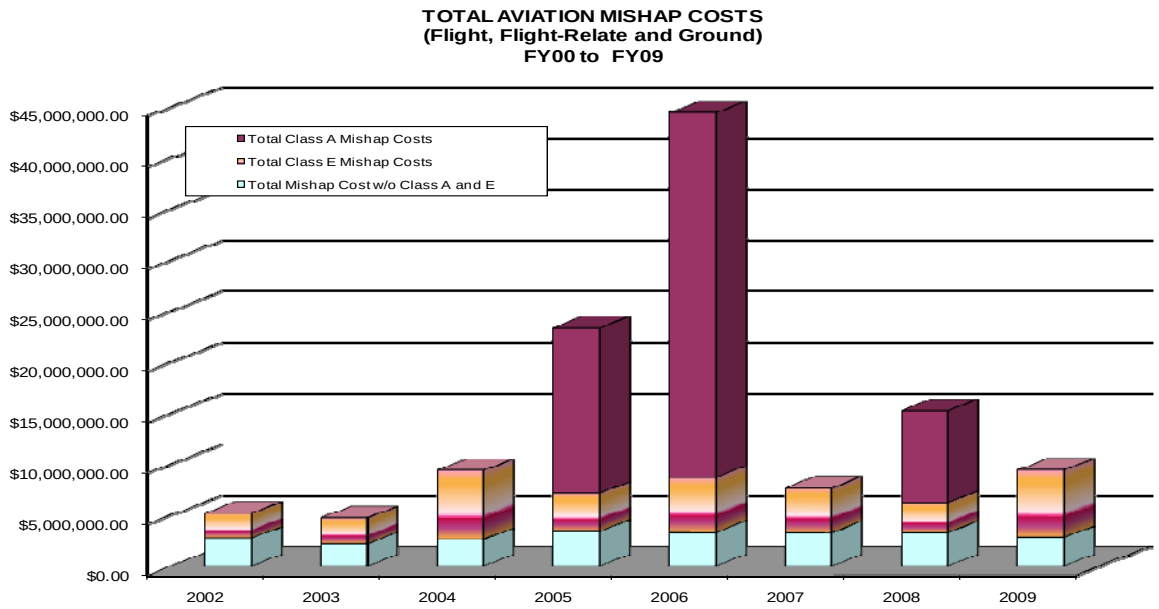


Figure 3

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
FY05	711	$21,379,185	114,387	0.62	$30,069	$187	FY05	43	$17,273,674	114,387	0.04	$401,713
FY06	544	$42,763,058	110,637	0.49	$78,609	$387	FY06	36	$37,833,372	110,637	0.03	$1,050,927
FY07	368	$6,240,091	118,415	0.31	$16,957	$53	FY07	30	$2,075,575	118,815	0.03	$69,186
FY08	347	$13,822,793	116,361	0.30	$39,835	$119	FY08	31	$11,028,350	116,361	0.03	$355,753
FY09	267	$8,235,513	116,788	0.23	$30,845	$71	FY09	24	$1,744,143	116,788	0.02	$72,673

Table 3

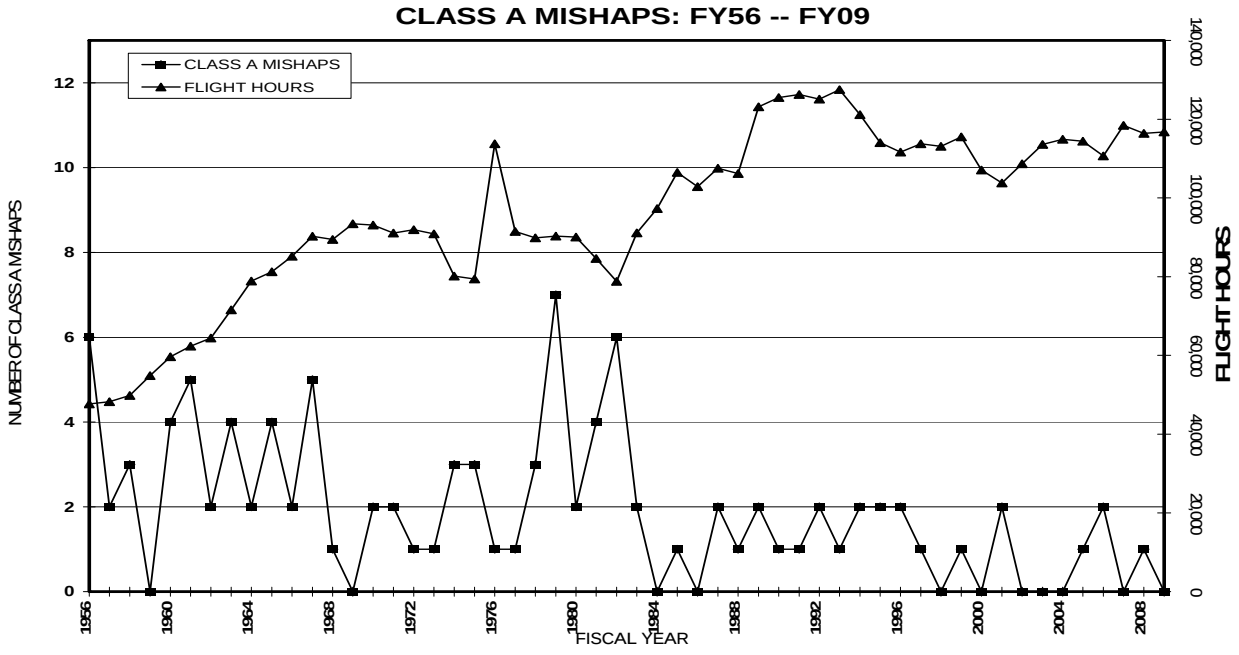


Figure 4

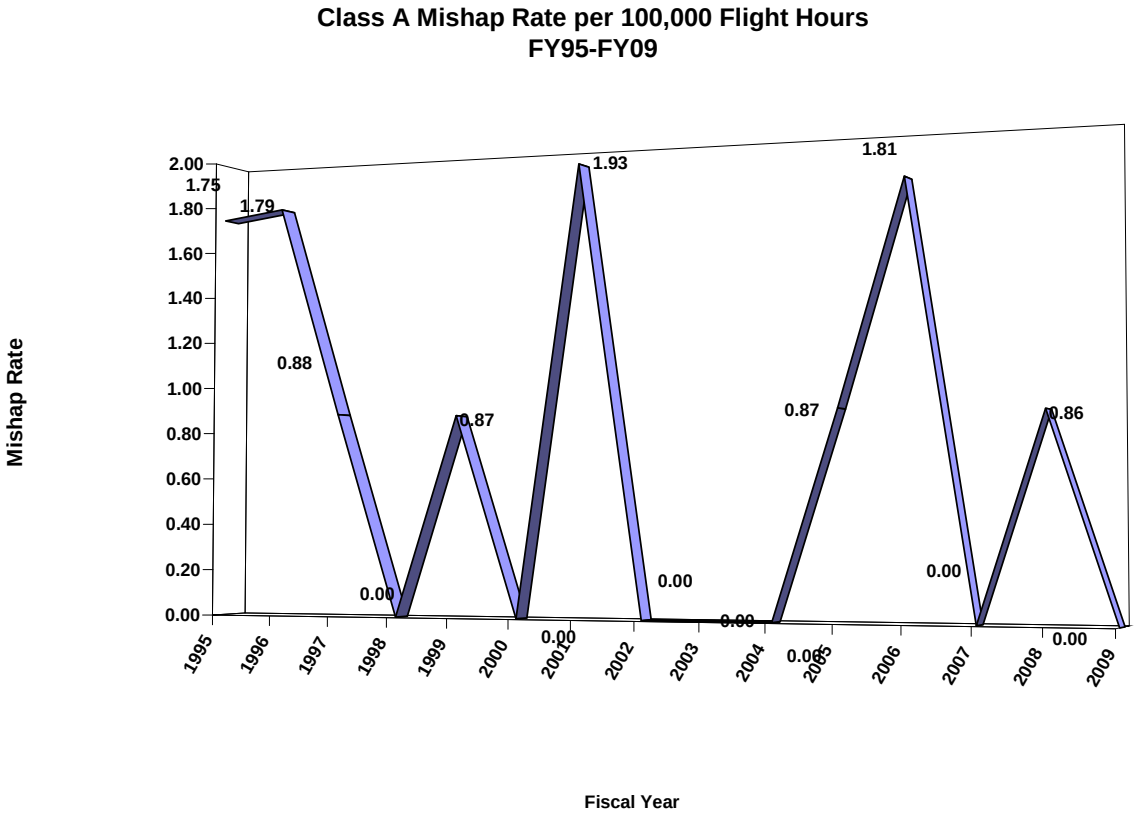


Figure 5

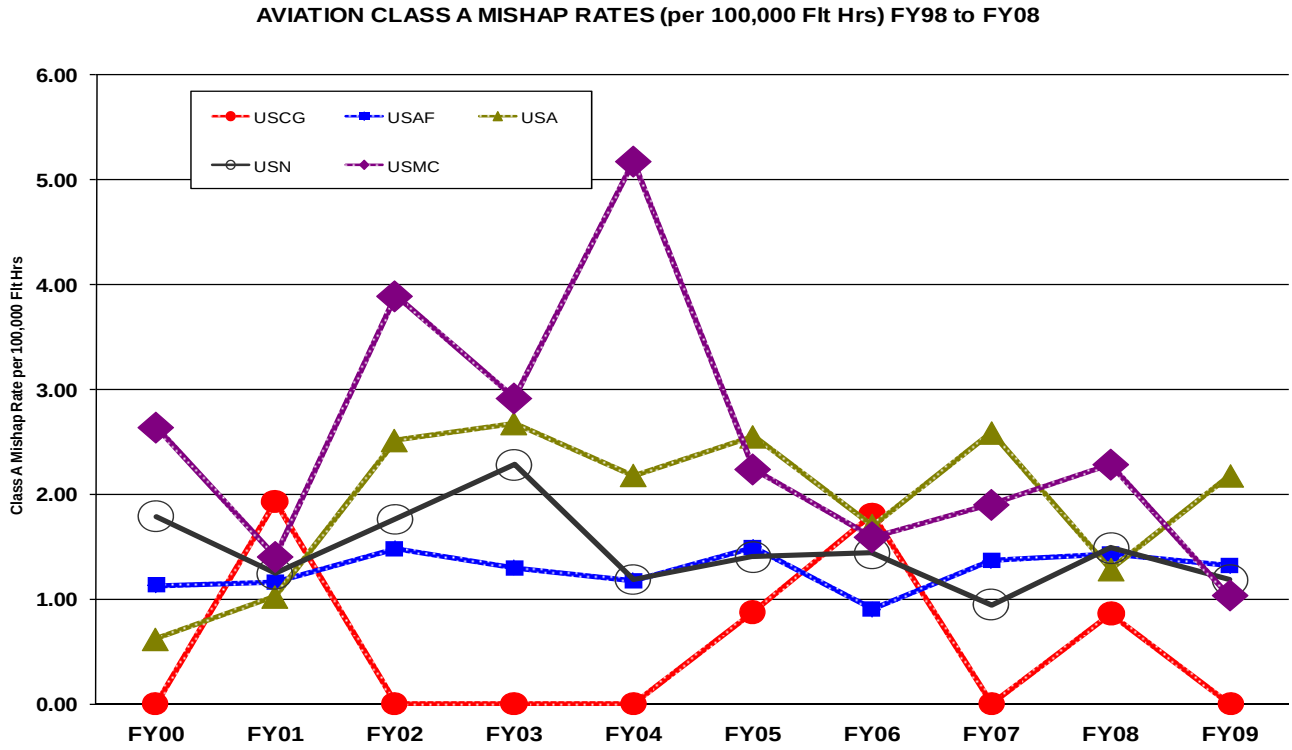


Figure 6

FY09 CLASS B FLIGHT MISHAP

During day AUF tactics flight with tactical training boat (TTB), MH65 experienced a MGB overtorque. TTB made an abrupt turn and PAC countered, the aircraft entered a slow left yaw. PAC announced the aircraft might be in an uncommanded left yaw. PNAC backed up the PAC in completing the emergency procedures for an ULY arresting the yaw and the descent.

FY09 CLASS A FLT-REL MISHAP

HH60 arrived on seen for sailing vessel in distress 120 NM off shore and found the S/V demasted and all persons on board requesting to be removed. It was determined to hoist the most seriously injured first, from the water. Swimmer was deployed for basket hoist. Hoist cable was damaged during basket delivery and the ERD was used to recover swimmer. Rescue Swimmer was injured during hoist precluding further hoisting. Acft departed scene. Survivor (now deceased) was later recovered by another asset.

FLIGHT DATA RECORDERS/MFOQA

The Voice and Flight Data Recorder (VFDR) recapitalization program and Military-Flight Operations Quality Assurance (MFOQA) programs continue to press forward. Every aircraft in the Coast Guard inventory continues to fly with some form of a voice and/or flight data recorder:

H-65: The H-65 fleet is outfitted with a GE (formerly Smith's) K-VADR. The K-VADR is capable of recording 25 hours of flight data and 4 hours of voice. Over 200 data points are recorded at a rate of 4 times per second. The 65 fleet is also completely outfitted with a separate Data Storage Unit (DSU), located on the Forward Avionics Tower. The DSU contains a PCMCIA card containing a copy of the flight data recorded by the VADR. The PCMCIA card can be easily removed and the flight data transmitted to ALC for analysis without removing the entire VADR.

H-60: The H-60J continues to use the older GE C-VADR, capable of roughly 30 minutes of audio and 4 hours of flight data. Only 42 flight parameters are recorded by the C-VADR. The H-60 Tango models are rolling off the PDM line with the same VADR/DSU system as the H-65 fleet. The new K-VADR will allow an additional 200+ parameters to be recorded.

HU-25: Currently the Falcon uses an L-3 Combination Voice and Data Recorder (CVDR). Under current configuration it is capable of recording 50 flight parameters for up to 25 hours and 2 hours of voice data. The addition of a Flight Data Acquisition Unit (FDAU) to the Falcon will allow roughly 75 more parameters to the CVDR. FDAU's have been installed on the 2110, 2139, and 2121. The ACCB2 is completed and all Falcons will be receiving a FDAU during their next trip to PDM.

C-130H: Most C-130H's currently only have a voice recorder. However, FDAU's similar to those installed on the HU-25, will remedy this situation. As part of the FDAU install, all C-130H models will also have an Engine Indicating Display System (EIDS) installed. The EIDS will replace the "steam" gauges of the C-130H cockpit with 2 flat panel glass displays. The FDAU/EIDS has been installed on the 1790, 1716, 1504, 1703, 1704, 1714 and 1709. All C-130Hs will receive the install during a drop-in maintenance period scheduled by the C-130 Product Line.

C-130J: All C-130J's came equipped with separate flight data and voice recorders, also manufactured by L-3.

HC-144: The Ocean Sentry also came off the shelf with separate flight and voice recorders. The Flight Data Recorder is capable of capturing over 650 parameters at rates as high as 8 times per second.

Air Station Atlantic City has been regularly downloading and sending ALC all the flight data collected on their DSUs for analysis. Air Station Elizabeth City and HITRON have recently joined this endeavor as well. This data collection has not only proven the capability of the program, but has led to several engineering assists using the data. This capability will be available to all HH65 units once a culminating software is acquired that will autonomously analyze the data and report the findings to the applicable persons. The data will be used to identify unrecorded over limit situations (i.e. angle of bank), provide feedback for engineering analysis, be available for mishap reporting, and set a baseline for trend analysis.

Finally, the folks at ALC have really moved forward with the "Crash Lab" portion of the VFDR program. The ALC lab now has the capability to download and analyze the data from all CG aircraft VFDRs. Animation for all CG aircraft is also available at ALC.

If you have any questions, please contact LCDR Chris Chase (ALC FSO), Mr. Tony Simpson (Flight Data Program Manager), or Mrs. Veronica Oliveira (Flight Data Analyst). If you are ever in E-City, feel free to stop by the lab, located in the Safety Office in the Jayhawk hangar, for a demonstration.

AVIATION SAFETY TRAINING

CG-1131 offers aviation Class C training consisting of four core safety classes. They are facilitated by the Southern California Safety Institute (SCSI) for the USCG in various locations across the USA.

1. Aircraft Accident Investigation Fundamentals
2. Helicopter Accident Investigations
3. Human Factors in Accident Investigations
4. Ramp and Maintenance Safety

The courses are proving to be excellent forums for aviation officer and enlisted representatives from safety, engineering, operations, training and standardization backgrounds to get together with the common focus of increasing knowledge and understanding of aviation accident investigation and preparedness topics. In this respect, the program shift is a tremendous success and will prove to be even more valuable as the content continues to shift away from civilian and DoD content to more specific Coast Guard policy and accident examples. Fortunately, and thanks to focused course critiques, a more deliberate approach has been launched to truly make the shift to a predominately Coast Guard centric curriculum. CG-1131 is reviewing each course with this objective in mind, but anticipates the need to charter several working groups in the future to ensure the courses offer valuable information to each of the diverse aviation career backgrounds.

The following is a short synopsis of the four core courses, their tentative schedules and additional highlights/changes anticipated for the course.

AIRCRAFT ACCIDENT INVESTIGATION

This course was originally developed to be a stand-alone fixed wing specific accident investigation course with additional focus on accident analysis report writing. Since the first run of the course in FY08, it has shifted to primarily on scene investigation techniques and fundamentals. It will be offered early in each fiscal year (most likely early December) to act as a primer for newly assigned FSOs who may not attend their primary ASO training until later in the fiscal year. It will also serve as a refresher for current FSOs and as the primary on scene accident investigation course for non-FSOs. This class will be offered in San Pedro, CA to use the contractor's crash lab.

HELO ACCIDENT INVESTIGATION

This course will remain as a helo specific accident investigation course, but will incorporate more CG specific material in the future. It will also shift some of the academic course work from aerodynamics and aircraft structures to a review of investigation techniques. It is not intended to be a substitute for the investigative techniques in the Aircraft Accident Course, but provides a review for FSOs and basics for non FSOs who have not attended the other course. It will be offered in San Pedro, CA as well to use the contractor's crash lab, and is targeted to remain in February.

AVIATION HUMAN FACTORS

The content of this course will not change significantly in this fiscal year with the exception of incorporating more CG specific accident human factor case studies. It will be held at ATC Mobile again to allow access to ATC IPs and Stan members since their focus on a mishap board is the human factors related topics. The target month will be in the spring (most likely April) to remain outside the summer SAR, PCS and Hurricane seasons.

RAMP AND MAINTENANCE SAFETY

This course was initially designed to offer safety program management topics to FSOs, maintenance managers and hangar deck personnel. After the first course, it was determined the content was too focused on civilian standards, and since the CG has the MRM Program, this course would be of more value if it was shifted to engineering accident investigation topics. CG-1131 coupled with SCSI and ALC members incorporated the new material and the course continues to be tailored based on course critiques. Since a significant portion of the course will be devoted to CG specific aviation engineering casualties, the location of the course will be Elizabeth City, NC due to proximity of ALC resources. The course is forecasted to remain in the end of the fiscal year (most likely Sept) for flexibility outside the summer SAR and PCS season and to accommodate those who could not attend courses earlier in the fiscal year.

AVIATION SAFETY ADVANCED EDUCATION

The theme of success continues for our Advanced Education program and its graduates. For a variety of reasons, last year was a tough one for "extra" TABs. Very few programs, if any, were unable to use all their allocated billets. Therefore we were unable to capitalize on previous years' successes and send our alternate selection.

However, we once again competed favorably during the TAB allocation process and secured two billets for AY11. Congratulations to last year's selectees LT Steve Charnon and LT Jim

Bates on their AY10 selection. Both have elected to attend the MSSS program in Prescott, AZ.

To further strengthen our program's credibility and comply with COMDT requirements, the GRE will be required for next year and beyond. Our goal is to continually select the highest caliber officers and this additional requirement can only assist in this effort. Our program's solicitation message will follow the Personnel Command's annual process message. Look for it in March or April.

Another change will include the preferred program. Due to fiscal constraints, the MSSS at ERAU Prescott will remain the primary choice. The MSA at Daytona has proven to be considerably more expensive and above the program's tuition cap. If selected members desire to attend a different program, they will be required to research the alternative and present their findings to CG-1131. The identified graduate programs for this TAB will be explained in the solicitation message, but for more information on the specifics please visit the school's website:

Master of Science in Safety Science, Embry Riddle Prescott Campus:
http://www.erau.edu/omni/pr/academicorgs/prssd/index.html

If you have any questions about the program, please feel free to contact the Program Manager, LCDR Jeremy Smith, or any of the current students or past graduates of the program:

CDR Jeff Kotson
CDR Tony Nygra
LCDR Jeremy Smith
CDR (s) Chris Chase
LCDR Roberto Torres
LCDR Clint Schlegel
LCDR Shana Donaldson
LT Brian Potter

AUXILIARY AVIATION PROGRAM

The Aviation Division of the Auxiliary National Response Department is charged with management of the Auxiliary Aviation program, known as AUXAIR. The Aviation Safety Branch of the Aviation Division engages in various activities to increase and promote safety within the Auxiliary Aviation Program.

The Auxiliary Aviation Safety Branch Chief is a member of the AUXAIR Standardization Team. The aviation STAN Team is currently developing a survey intended to measure the effects of the AUXAIR standardization efforts so far and to determine how standards are being implemented in the field. The Safety Branch has also begun a survey of the district aviation programs regarding aviation Personal Protection Equipment (PPE).

The Safety Branch has instituted quarterly conference calls with the District Flight Safety Officers (DFSOs) to facilitate communications about safety issues. Safety Information Notices have been sent to the DFSOs regarding volcanic ash, the National Capitol Region ADIZ and other relevant issues. The Safety Branch consults with the DFSOs on subjects such as: safety stand downs, safety newsletters, district safety programs, call sign, flight planning, currency, check flight issues and aircraft maintenance.

The Aviation Division has published procedures for the districts regarding how to deal with aviators who are not in compliance with published procedures. The Aviation Division also published guidance on the implications and responsibilities of pilot-in-command of an Auxiliary flight. Both documents are available on the Department web site (http://www.cgaux.org/response/).

The Aviation Division is involved in various aviation safety training initiatives, including three C-Schools. A common thread in all of these initiatives is building a "safety culture" in the Auxiliary aviation community.

⇒ AUX-14 is for Auxiliary DFSOs and their active duty counterparts, the Air Station FSOs. The course is intended to establish a close working relationship between the DFSO and the FSO. It provides the FSO a better understanding of the general aviation pilots and aircraft making up Auxiliary Aviation and provides the DFSO a better understanding of active duty aviation.

⇒ AUX-15 is for Auxiliary Aviation Coordinators (AACs) and their active duty counterparts, the Auxiliary Liaison Officers (AuxLOs). The course is designed to provide an understanding of each other's worlds and the guidelines under which Auxiliary Aviation operates. The concepts of team-building and shared knowledge between the Auxiliary and active duty personnel are employed in this course, concentrating on operational procedures, rules, scheduling, and the like.

⇒ AUX-18 is the AUXAIR Spatial Disorientation and CRM Training, taught at NAS Pensacola. ATC Mobile and NAS Pensacola personnel instruct this course. The course is required for all Auxiliary Pilots and Air Crew members. To ensure the lessons taught in the CRM training presented at NAS Pensacola are not lost over time, the Auxiliary Aviation Division

is developing a CRM refresher course based on CRM material developed for the Coast Guard by Convergent Technologies. This short course is intended to be exportable and presented in the field for annual refresher training.

(Special thanks to Robert Shafer, DIR-R for writing this article robert.t.shafer@cgaux.us)

Note from CG-1131--Similar to the standardized Aviation Safety Survey available online via the Vovici survey software, there is now an online safety survey available for Air Aux. The questions have been tailored to the AIRAUX's specific mission and crew requirements. We encourage all unit COs and FSOs to take a look at the survey and consider using it for their Air Aux Squadron. Any questions can be sent to LCDR Jeremy Smith (jeremy.c.smith@uscg.mil). As always, suggestions for improvement are certainly welcome.

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 there is 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.

Near Midair Collision

There were only five near midair collisions (NMAC) reported in FY09. NMAC's involved three HH65, one C130H and one HH60. NMAC involved two civil and three military aircraft. All reported NMAC occurred in the local pattern during training flights, two occurred during the day and three at night.

Aviation Injury

There were 31 aviation injury mishaps reported in FY09 involving injury to 40 aviation personnel. Almost half of these injuries involved improper procedures, the wrong tool or improper/poorly designed equipment. Inattention, complacency, awareness and motivation were factors in at least a quarter of the incidents and 30% listed lack of training or experience as a factor. Comms and passdown was mentioned in at least a quarter of the incident as was supervision and QA.

There were no reported days hospitalized and only 15 loss work days and 121 restricted duty days reported in FY09. Incidents involved cuts to fingers, eyes, faces and legs; as well as bruises, strains or sprains to shoulders, knees, arms and backs. Ten Rescue Swimmers were hurt during hoisting or other rescue operations (one of these incidents involved static discharge and four involved being stung by jellyfish or man-of-wars).

There were only 2 reported incidents involving personnel being sprayed by fuel or hydraulic fluid. While resulting in no lost worktime, proper PPE should have been worn in these incidents. Six Coast Guard crews (12 individuals) reported being lased by ground lasers.

BIRDSTRIKES

There were 22 birdstrikes reported in FY09 with associated damage costs of $133,682. Seven reports involved no or minimal airframe damage. There were no engine related birdstrikes reported in FY09. Figure 7 shows breakouts of the FY09 birdstrikes by airframe. There was a fairly even split between day and night incidents. About a third of the birdstrikes occurred in the airport environment (landing, takeoff or in the pattern).

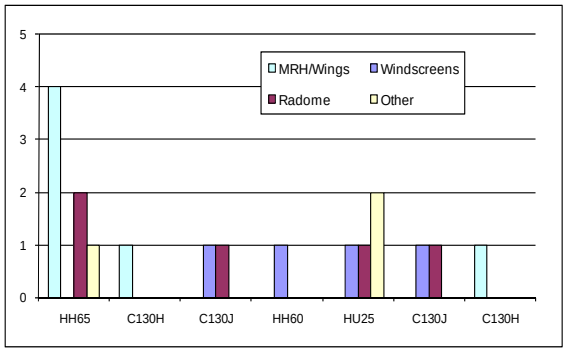


Figure 7

FOD / TFOA MISHAPS

The twenty-five Foreign Object Debris (FOD) and six Things Falling Off Aircraft (TFOA) incidents reported this year resulted in $597,414 in damage. Figure 8 and 9 show a breakdown of the reported FOD/TFOA incidents. Foreign

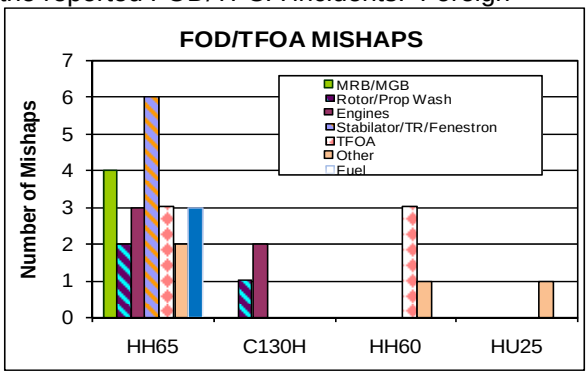


Figure 8

object debris mishaps involved three fuel systems ($1,777), five engines ($377,432), four rotor systems ($53,271), and six tail rotor systems ($116,525). Twenty HH65's, three C130's, one HU25, and one HH60's suffered FOD damage this year. Parts (8), contaminated fluids (5), personal gear (4), or rags/towels/bags (3) left in the aircraft accounted for 20 mishaps. TFOA account for $17,195 of the FY09 mishap costs.

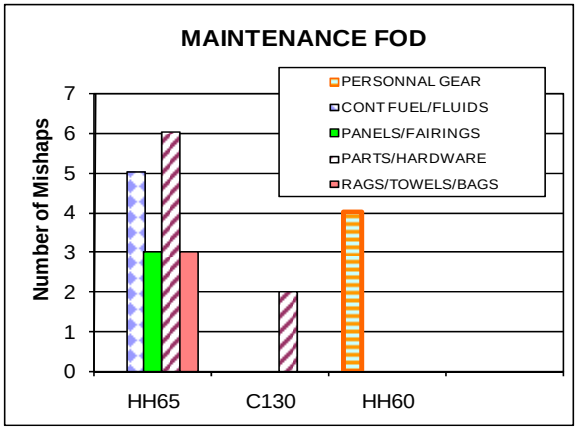


Figure 9

ENGINE MISHAPS

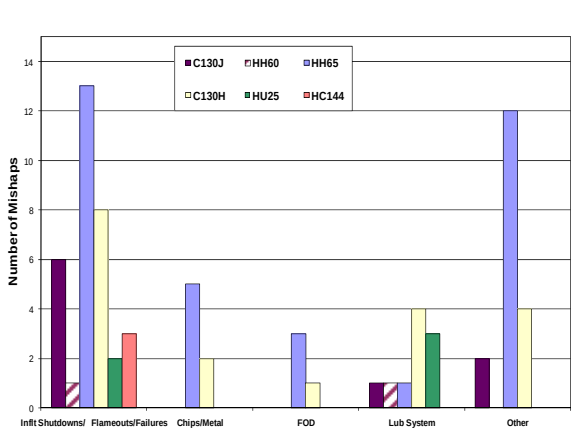


Figure 10

Class E mishaps accounted for only 19% (76) of the reported Total Aviation (ground, flight, flight-related) mishaps. But Class E mishaps made up 70% ($6,610,493) of the Total Mishap costs in FY09. Engine mishaps historically account for 50% or more of the mishaps cost each year. Figure 10 shows a breakdown of the Class E mishaps.

SHIP-HELO MISHAP REVIEW

There were twenty-four mishaps totaling $203,320 reported in FY09 involving ship-helo operations. Only thirteen 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 nine 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.

GROUND MISHAP REVIEW

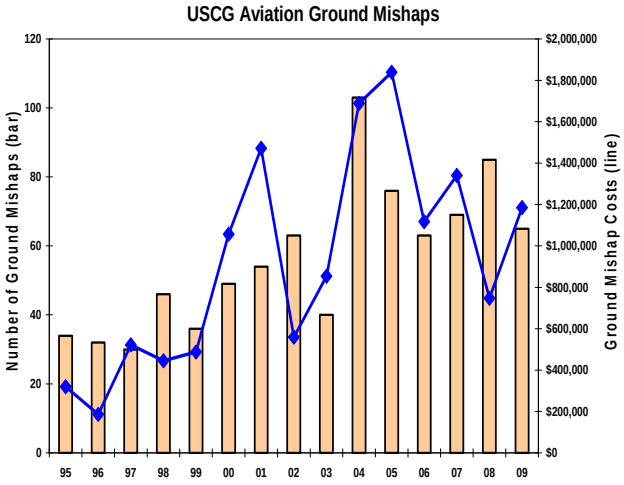


Figure 11

Sixty-five aviation ground mishaps were reported in FY09. The number of mishaps reported decreased and the cost of ground mishaps ($1,185,449) increased mostly due to two Class E mishaps representing over half of the ground costs. (See Figure 11). Ground handling (ground support equipment (GSE), towing, blade folding, fueling, washing or jacking) accounted for 25% of mishaps (23), and 35% of the costs ($275,719).

All the ground mishaps listed some form of human factors as one of the cause factors. The wrong part, tool, equipment or procedures were factors for 28% (18) of the ground mishaps. Insufficient Q/A, review or supervision was cited in 16 (25%) of the mishaps. Nineteen (29%) ground mishaps listed awareness, complacency or inattention as a factor. Of the 65 ground mishaps reported this year, 53 reported cost below $20,000. Of these 53 reports, 23 had costs below $100 and 18 reported no costs. Of the twelve reports over $20,000, three reported costs over $80,000. These three Ground mishaps represented 58% if the Ground mishap costs for FY09 ($691,944). There were ten Ground Class E representing 55% of the total Ground costs ($656,401).

WEATHER RELATED MISHAPS

Weather contributed to sixteen reported mishaps resulting in $168,359 in damage. These incidents included parts prematurely failing due to corrosion, electronic malfunctions due to moisture, and airframes damaged by wind, ice, snow, turbulence, winds and lightning.

MAINTENANCE HUMAN FACTOR EVENTS

Eighty-six mishaps listed some type of maintenance human factor as a cause, total reported costs was $2,365,748. Twenty-one of these events had zero cost and 46 reported damage costs under $1000. Eighteen of these events reported damage over $20,000. Five of the reported MRM events reported costs over $100,00 and represented 68% of the total MRM costs ($1,615,719). Four of these were Class E mishaps. MRM events included incomplete passdown, poor communications, inappropriate procedures, improperly followed procedures, a lack of supervisor review, or Q/A problems (see Figure 12 ont the next page).

The wrong part, poor equipment/part design, cannibalization or lack of parts was listed as a cause in 19 (22%) of the mishaps. Thirteen (15 %) mishaps were the result of FOD or poor tool control. Culture, norms or habits was listed as a factor in nineteen (22%) of the mishaps. Eighteen (9%) of the mishaps involved, work arounds, incomplete, improperly followed inappropriate or unavailable procedures.

Inattention, complacency or awareness was a factor in twenty-six (31%) of the incidents reported. Q/A review or supervision was cited as a cause factor in 38% (32) of the mishaps. Some form of inexperience, lack of training, or staffing issues were factors in 25% of the incidents. Workload, feeling rushed, or lack of resources was also mentioned in 21% (37) of the mishaps. Poor passdown, incomplete checklist, or poor communications were also listed in 15% of the mishaps. Ground handling, jacking or towing were listed in 21% (18) of the reported mishaps.

MAINTENANCE RESOURCE MANAGEMENT (MRM)

Reported MRM related mishaps decreased from 125 in FY08 to 86 in FY09. The total cost of these mishaps, however, soared to $2,365,748. This accounts for 25% of our total mishap cost. The influences here are the Class E MRM-related events- 21 mishaps for a total of $1,587,232. The adjusted cost per event was $27,509; this is an increase over the FY08 average cost of $6,547 per event. The five year trend has 491 MRM related mishaps for a total of $5,727,215. That adjusts to $11,664 per event.

For the past five years, MRM related mishaps represent 17% of our total mishaps and account for 6% of our mishap costs. FY07 and FY09, the years with high MRM-related costs, have large dollar values associated with Class E mishaps. To understand the factors driving these mishap costs, please refer to the Class E Mishap Summary. As we collect more data the variations introduced by reporting inconsistency are slowly smoothed. We believe the numbers support MRM as an effective loss prevention program and critical to aviation's overall success. Keep up the good work and keep reporting!

MRM Initial continues to be taught at ATTC in each of the "A" schools. We have coordinated with the Rating Force Master Chiefs to have MRM Initial listed as an Enlisted Performance Qualification for E-4. This is a major achievement and ensures all E-4 "A" school graduates will have completed MRM Initial. It will also document the resources ATTC requires to teach this invaluable class. Unit level facilitated instruction remains an annual "C" school. We have experimented with different months to maximize the course and will continue to work with the units to determine when the course is best held.

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 two years, and refresher training is required by all maintenance personnel every two years. Changes to the Aeronautical Engineering Maintenance Management Manual (COMDTINST M13020.1) Chapter 6, have been made requiring

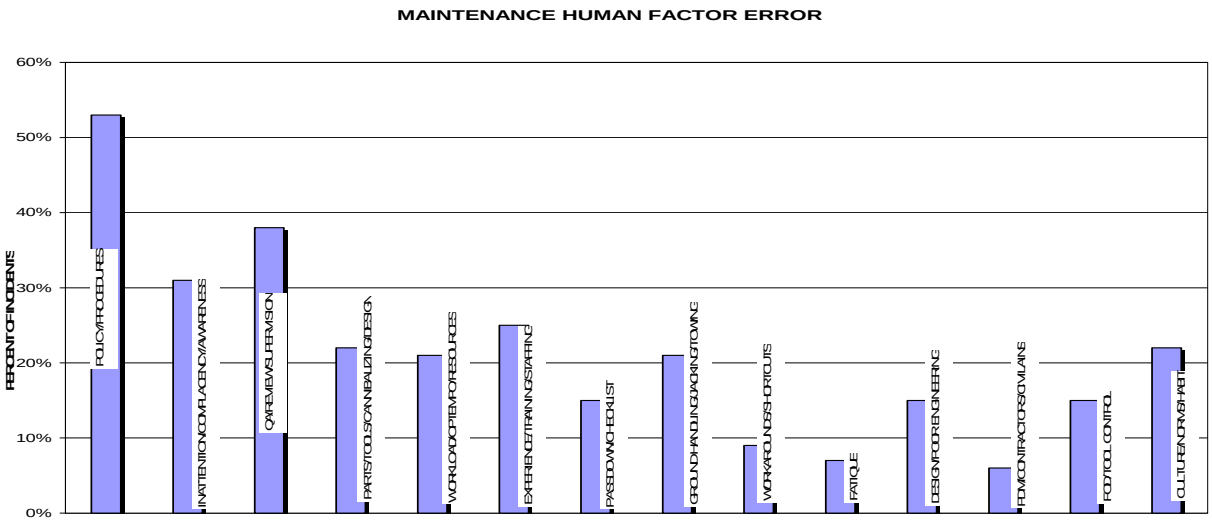


Figure 12

a CG-41 waiver to conduct aircraft maintenance if the biennial refresher is not completed (R 091135Z MAY 08 COMDT COGARD WASHINGTON DC//CG-41//).

While MRM provides the knowledge and awareness of human factors on the hangar deck, in the shops and on the 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.) constituting errors but fall short of causing a reportable mishap under our safety reporting requirements (the portion of the "iceberg" lying above the waterline).

Maintenance Event Trend Analysis (META) is an event investigation process, trend analysis and database tool designed specifically for Aeronautical Engineering use. It provides 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/MRM.htm. 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.

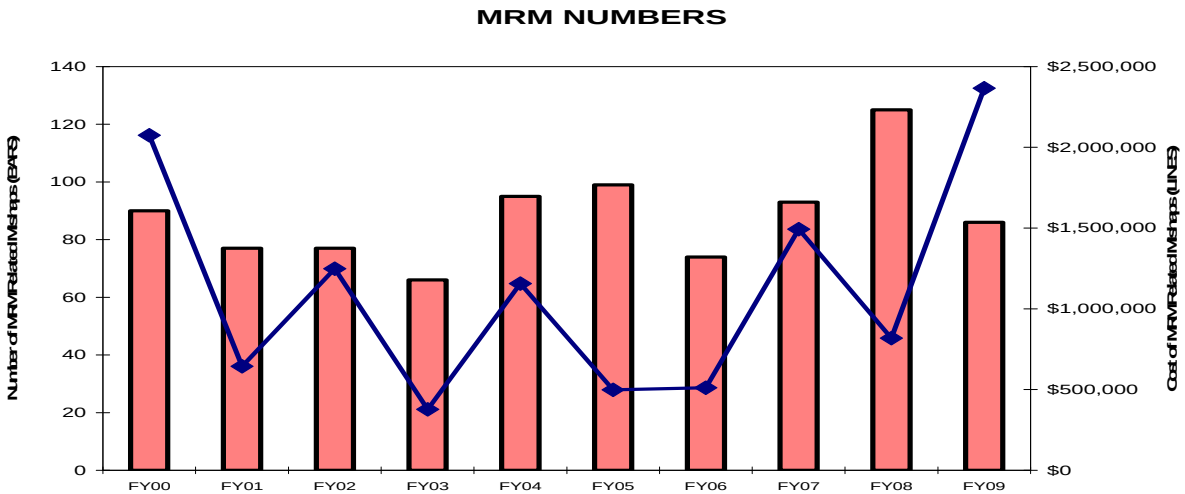


Figure 13

SUMMARY INFORMATION

Tables 4 and 5 below, display mishap summary information for FY09 associated with each of the four major airframes. Figures 13 and 14, on the next page, illustrate the percentage of total mishaps, flight hours and total mishap costs for each airframe for the past 10 years and in FY09. As expected the percentages for each factor is roughly the same for per airframe.

AIRFRAME REVIEW

Pages 15-18 contain mishap data for each major aircraft type. In reviewing these pages, it should be noted with only fifteen reportable Flight Class A's and Class B's in the last ten years, the ABC Flight mishap rate for all aircraft is made up mostly of Class C mishaps. The ABC Flight mishap rate for each airframe and CG aviation is fairly stable with a slight downward trend. This is the thirteenth year the ABC mishap rate has been under 0.05

FY09 FLIGHT MISHAP PERCENTAGES				
CLASS	MISHAPS	% of TOTAL MISHAPS	COST	% of TOTAL COST
A	0	0%	$0	0%
B	1	0%	$245,004	3%
C	23	9%	$1,499,139	18%
D	179	67%	$537,278	7%
E	64	24%	$5,954,092	72%
TOTAL	267		$8,235,513	

Table 4

FY09 FLIGHT MISHAP PERCENTAGES						
AIRCRAFT	MISHAPS	% of TOTAL MISHAPS	COST	% of TOTAL COST	FLIGHT HOURS	% of FLIGHT HOURS
HH60	28	10%	$319,885	4%	24,472	21%
HH65	170	64%	$5,563,876	68%	55,091	47%
C130H	39	15%	$1,046,521	13%	16,558	14%
C130J	9	3%	$120,566	1%	3,709	3%
HU25	15	6%	$562,653	7%	12,982	11%
C37A/C143	1	0%	$6,996	0%	1,186	1%
HC-144A	5	2%	$615,016	7%	2,790	2%
TOTAL	267		$8,235,513		116,788	

Table 5

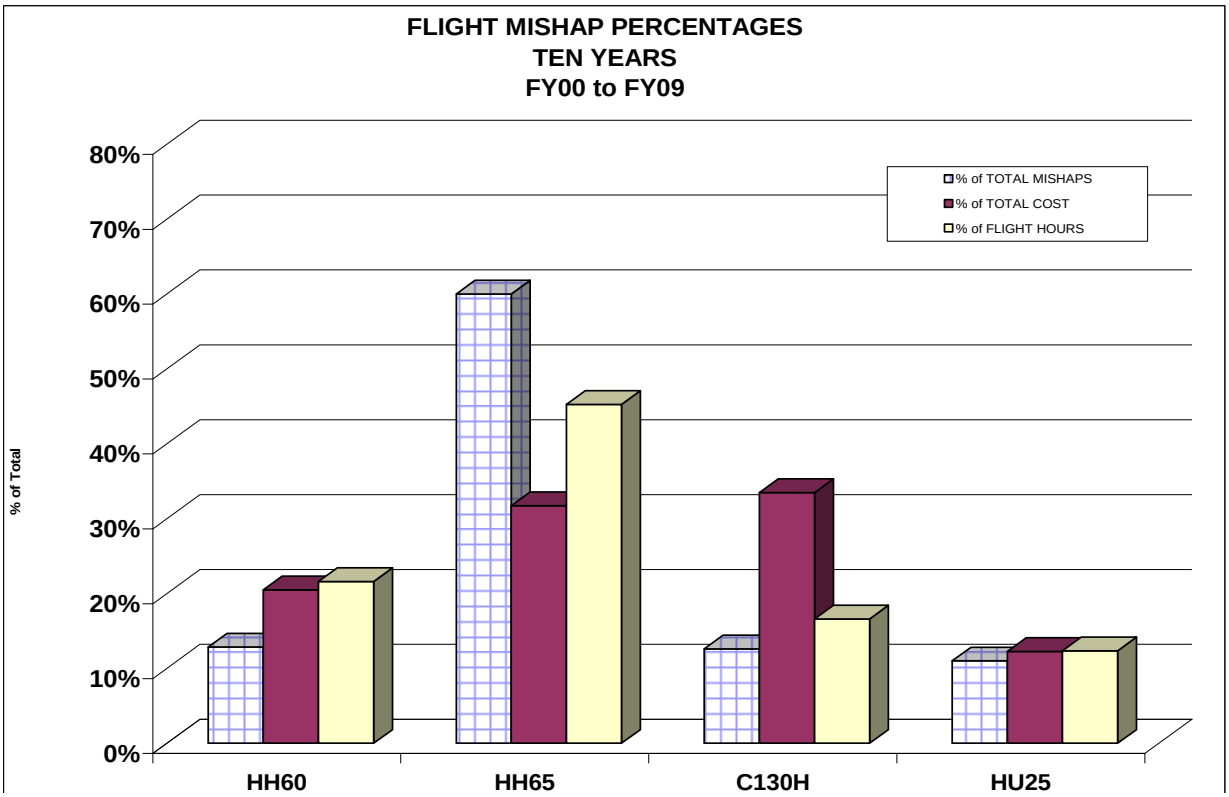


Figure 14

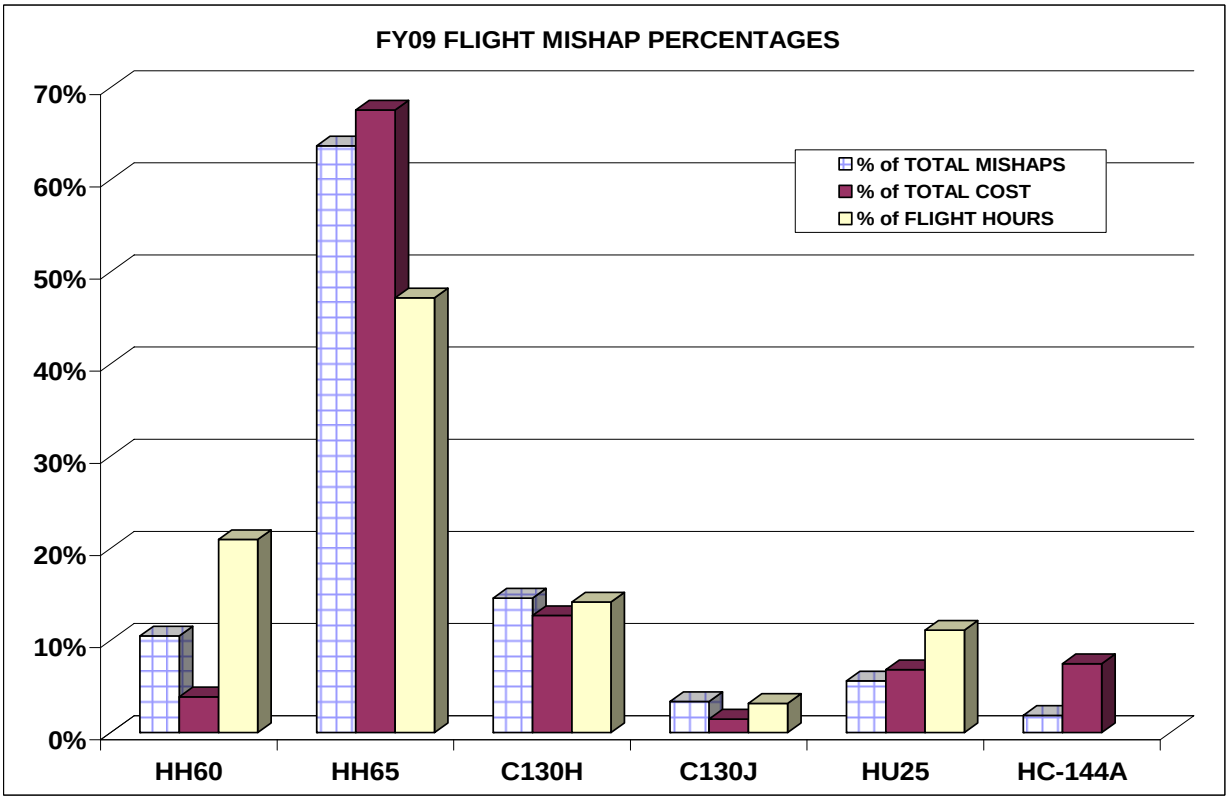


Figure 15

HH60/MH60 MEDIUM RANGE RECOVERY (MRR)

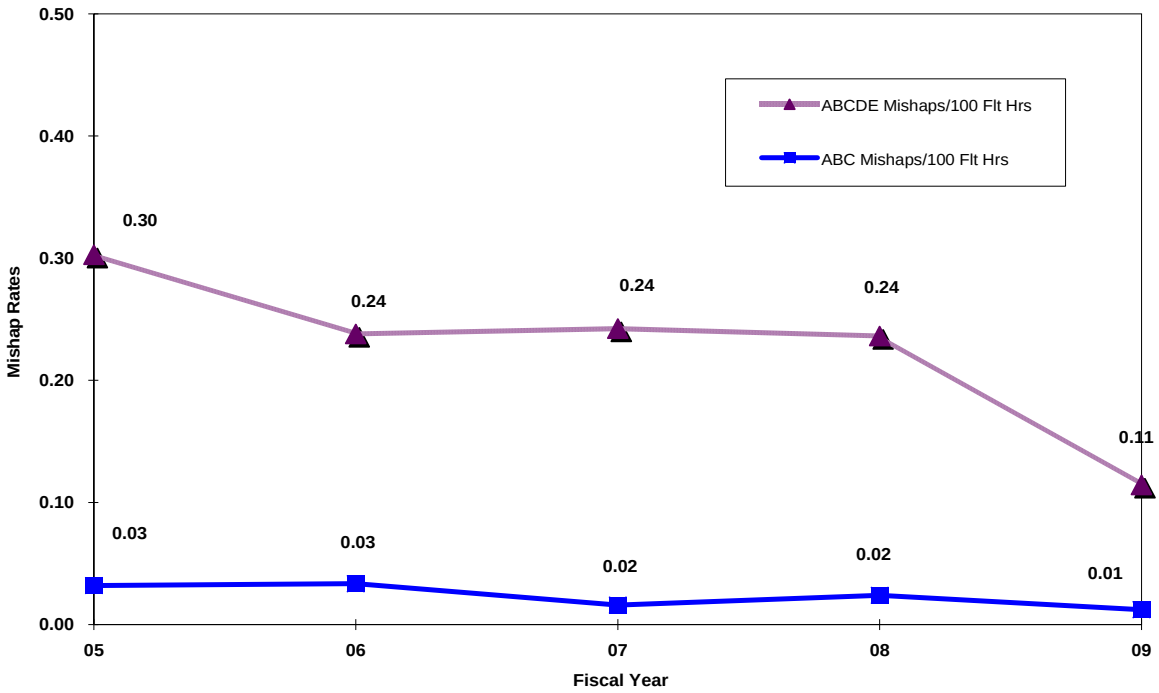
The HH60J flew 24,472 hours (21% of the total flight hours) and reported 28 flight mishaps (only 10% of total reported flight mishaps). The HH60J had a mishap rate (0.11), down for the fifth year. The HH60 mishap cost ($319,855) was the lowest in seven years and accounted for only 4% of the total FY09 Flight mishap costs. Of the 28 HH60J flight mishaps reported 22 had costs less than $20,000 (the Class C dollar threshold); 14 of these reported costs less than $1,000. Of the five Flight Class E mishaps all reported costs under $25,000.

HH60J Flight Mishaps for FY09

Aircraft	Class	No. Mishaps	Cost
HH60J	A	0	$ 0
	B	0	$ 0
	C	3	$ 222,671
	D	20	$ 57,568
	E	5	$ 39,646
Totals		**28**	**$ 319.885**

Table 6

HH60 Flight Mishap Data



H-60 ABCDE	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR	H-60 ABC	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP
FY05	76	$15,924,757	25,101	0.30	$209,536	$634	FY05	8	$15,371,712	25,101	0.03	$1,921,464
FY06	57	$1,269,815	23,949	0.24	$22,277	$53	FY06	8	$342,464	23,949	0.03	$42,808
FY07	61	$798,966	25,165	0.24	$13,098	$32	FY07	4	$57,007	25,165	0.02	$14,252
FY08	59	$1,702,990	24,970	0.24	$28,864	$68	FY08	6	$366,767	24,970	0.02	$61,128
FY09	28	$319,885	24,472	0.11	$11,424	$13	FY09	3	$222,671	24,472	0.01	$74,224

Figure 16

HH65 / MH65 SHORT RANGE RECOVERY (SRR)

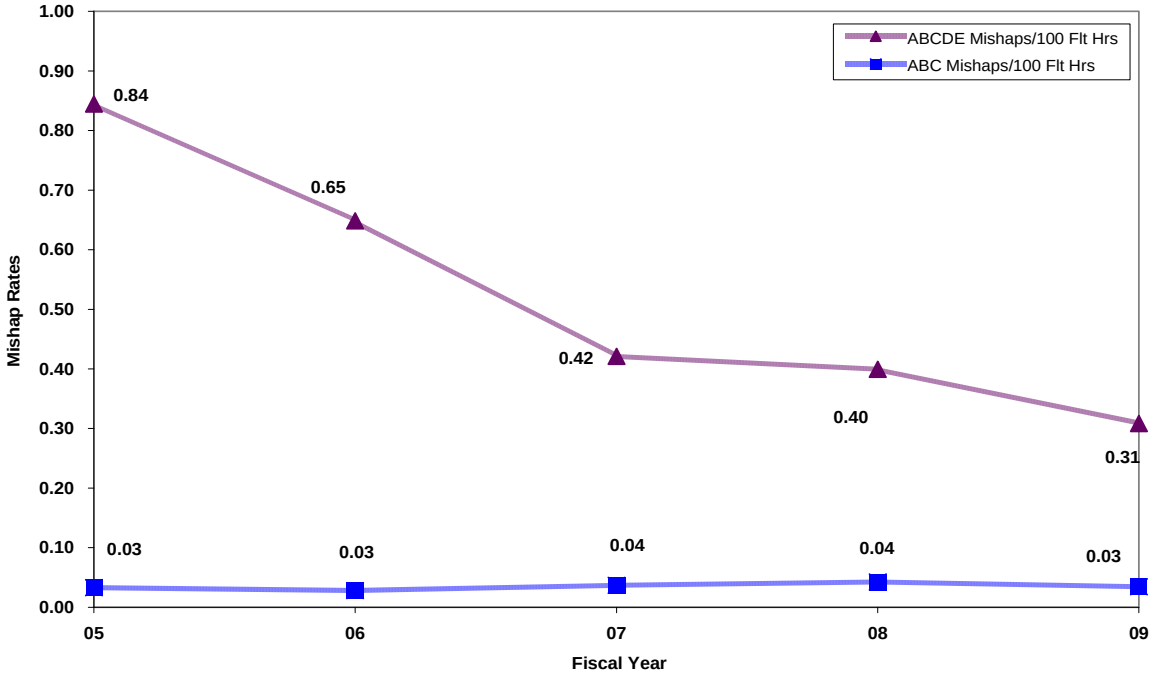
The HH65 flew 55,091 hours (the most hours flown) and represented 47% of the CG total flight hours. The HH65 reported 64% (170) of the mishaps, and 68% ($2,563,876) of the flight mishap costs. The Dolphin mishap rate (0.31) decreased again for the sixth year, but was still the highest of all the major airframes. Of the 170 HH65 flight mishaps reported in FY09, 139 reported mishap costs less than $20,000 (the Class C dollar threshold) only 6 of the reports had costs over $100,000. Eighteen of the 26 Flight Class E mishaps reported cost under $20,000. Three of the Class E mishaps had cost over $700,000, but eighteen reported costs under $20,000.

HH65 Flight Mishaps for FY09

Aircraft	Class	No. Mishaps	Cost
HH65	A	0	$ 0
	B	1	$ 245,004
	C	18	$ 1,159,342
	D	125	$ 327,382
	E	26	$ 3,823,147
Totals		**170**	**$ 2,563,876**

Table 7

HH65 Flight Mishap Data



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
FY05	433	$3,065,539	51,274	0.84	$7,080	$60	FY05	17	$702,626	51,274	0.03	$41,331
FY06	324	$6,186,909	49,962	0.65	$19,095	$124	FY06	14	$4,504,393	49,962	0.03	$321,742
FY07	228	$3,002,972	54,138	0.42	$13,171	$55	FY07	20	$1,827,078	54,138	0.04	$91,354
FY08	217	$11,240,704	54,351	0.40	$51,800	$207	FY08	23	$10,606,305	54,351	0.04	$461,144
FY09	170	$5,563,876	55,091	0.31	$32,729	$101	FY09	19	$1,404,346	55,091	0.03	$73,913

Figure 17

HC130H LONG RANGE SEARCH (LRS)

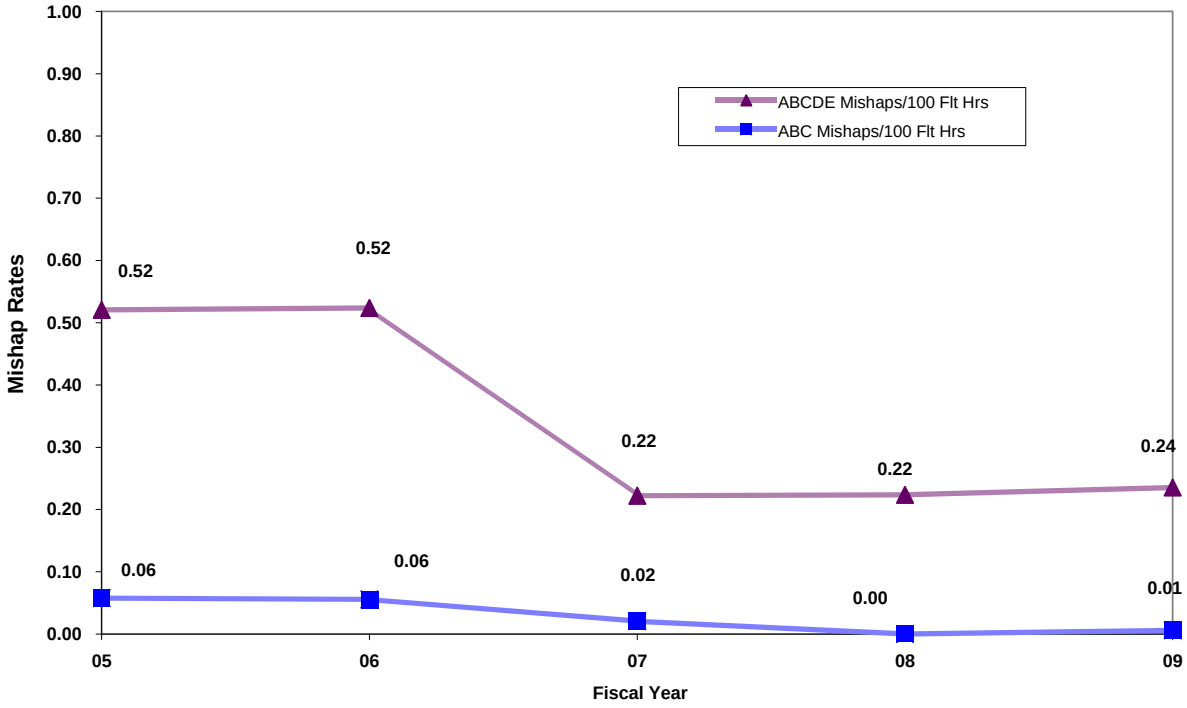
The HC130H flew 16,558 hours and reported 39 mishaps. The C130 mishap cost and cost per flight hour were the lowest in six years. The C130H mishap rate has also continued to decreased the last five years. Except for five Class E mishaps all of the FY09 Hercs mishaps reported cost less than $85,000. Twenty-nine mishaps had costs below $20,000. Of the 17 Flight Class E mishaps reported, six involved costs of more than $20,000.

HC130H Flight Mishaps for FY09

Aircraft	Class	No. Mishaps	Cost
HC130	A	0	$ 0
	B	0	$ 0
	C	1	$ 73,200
	D	21	$ 99,931
	E	17	$ 873,390
Totals		**39**	**$ 1,046,521**

Table 8

C130 Flight Mishap Data



HC130H ABCDE	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP	COST/ FLIGHT HOUR	HC130H ABC	NO. MISHAPS	COST	FLIGHT HOURS	MISHAPS/ 100 FLIGHT HOURS	COST/ MISHAP
FY05	99	$1,210,032	19,009	0.52	$12,223	$64	FY05	11	$554,451	19,009	0.06	$50,405
FY06	94	$33,770,422	17,949	0.52	$359,260	$1,881	FY06	10	$32,786,327	17,949	0.06	$3,278,633
FY07	43	$1,178,387	19,366	0.22	$27,404	$61	FY07	4	$129,904	19,366	0.02	$32,476
FY08	40	$1,027,071	17,877	0.22	$25,677	$57	FY08	0	$0	17,878	0.00	#DIV/0!
FY09	39	$1,046,521	16,558	0.24	$26,834	$63	FY09	1	$73,200	16,558	0.01	$73,200

Figure 18

HU25 MEDIUM RANGE SEARCH (MRS)

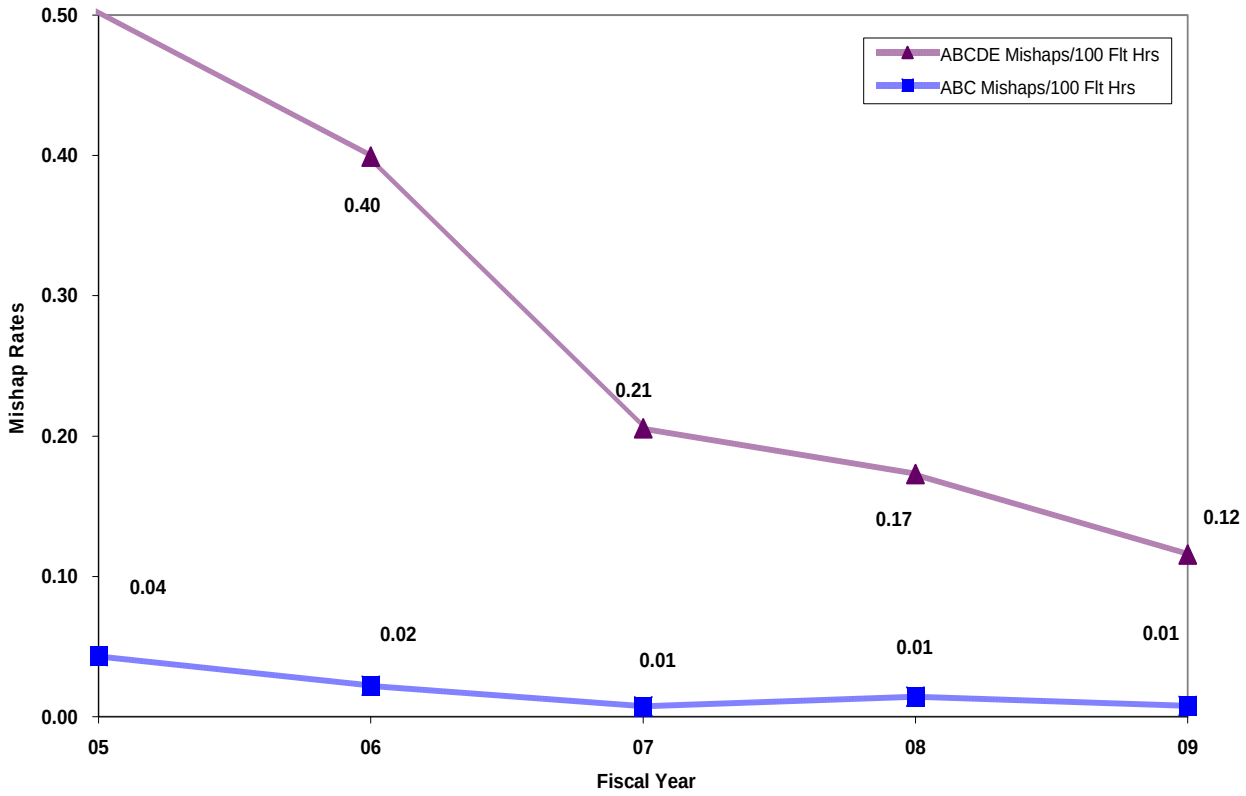
The HU25 flew 11% (12,982) of the total hours and reported only 15 (6%) of the total flight mishaps. The Falcon mishap rate (0.11) increased slightly this year dues to the decrease in flight hours. The Falcon's total mishap cost ($562,653) was also slightly up this year. One Flight Class E mishap accounted for 82% of the Falcon's FY09 mishap costs. Except for this one mishap, all reported mishaps were under $50,000.

HU25 Flight Mishaps for FY09

Aircraft	Class	No. Mishaps	Cost
HU25	A	0	$ 0
	B	0	$ 0
	C	1	$ 43,926
	D	9	$ 39,799
	E	5	$ 478,927
Totals		**15**	**$ 562,652**

Table 9

HU25 Flight Mishap Data



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
FY05	70	$982,363	13,923	0.50	$14,034	$71	FY05	6	$531,367	13,923	0.04	$88,561
FY06	54	$889,411	13,529	0.40	$17,952	$72	FY06	3	$164,196	13,529	0.02	$54,732
FY07	28	$1,208,689	13,624	0.21	$43,167	$89	FY07	1	$25,586	13,624	0.01	$25,586
FY08	24	$405,536	13,876	0.17	$16,897	$29	FY08	2	$53,279	13,876	0.01	$26,639
FY09	15	$562,653	12,982	0.12	$37,510	$43	FY09	1	$43,926	12,982	0.01	$43,926

Figure 19

FLIGHT SAFETY PROGRAM

Primary FSO and Aviation Command Training Update

⇒ Traditional FSO training will continue at the Navy's School of Aviation Safety with the ASO Course located at NAS Pensacola, FL. New FSOs should plan on reviewing the Safety and Environmental Health Manual, the e-AVIATRS User Guide and the Mishap Investigation Guide (MIG) during the course to ensure they are prepared for CG reporting requirements.

⇒ Aviation COs will continue to receive the Aviation Safety Command Course at the Navy's School of Aviation Safety (NAS Pensacola, FL). CG-1131 also offers the course to potential COs.

⇒ The Air Force Board President Course for CO's and potential Mishap Board Presidents is another option CG-1131 uses. CG-1131 also offers the courses to current Air Station XOs, OPS, and EOs.

Safety Standardization Visits

⇒ 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). The goal is to complete all visits within nine months of each Air Station change of command.

⇒ CG-1131 completed nine Safety Stan Visits in FY09.

⇒ 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/cg1/cg113/cg1131/default.asp

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

⇒ See chapter 2.F.1.b (2) (i) of COMDTINST M5100.47 for more information on Safety Stan Visits.

"CG-1131.COM"

http://www.uscg.mil/hq/cg1/cg113/cg1131/default.asp

⇒ Our web site 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.

Laser Hazard Control Program

⇒ ALCOAST 501/09 updated ALCOAST 290/08 for administrative reasons since the full COMDTINST has not been completed yet. The ALCOAST continues to remain the only Coast Guard directive addressing laser hazards. It specifically prohibits class 3B and 4 lasers until a comprehensive policy is promulgated.

⇒ IAW the ALCOAST, an organizational inventory of all class 3B and 4 lasers has been completed and individual systems have started to be reviewed by the Laser Hazard Control Standing Committee to the Coast Guard Safety and Occupational Health Council (CG-SOHC).

⇒ Despite the fact the COMDTINST isn't completed yet, there has been significant progress in the administration of the program;

- The CG-SOHC chartered by CG-01 and CG-DCO had its initial meeting in June, and sub-committees have begun to review several individual systems.
- COMDTINST 5100.27 is being edited to include specific requirements and language cited in a program meeting with the Center for Radiological Health (CDRH) of the Food and Drug Administration (FDA) in November. The main content is the CG will not be authorized to self exempt similar to DOD services.
- The FDA will be the final authority for CG laser systems requiring exemptions intended for domestic use.

⇒ Although it is anticipated that each unit with class 3B and 4 lasers will be required to have a designated laser safety officer, it is not anticipated they will be required to attend the Navy course to fulfill that role. FSOs should anticipate to receive basic laser safety training and program information at the annual FSO/STAN Requal Course.

CRM

⇒ The CRM program is in the third and final stage of its major upgrade. The core curriculum has been delivered and we continue to make changes to improve content. Please, feel free to submit feedback so we can make improvements.

⇒ The CG Central FSO microsite has been transitioned to CG Portal as the FSO Place. The purpose for CRM microsite remains the

same to establish a central depository for CRM-related material. On the site is the Way Forward document outlining the program and how to run it.

⇒ Also on the site: CRM courseware modules, case studies and videos. You may have also noticed there is a new section, with mishap animations and associated messages, to aid in presenting case studies to the wardroom and crew. These can enhance your CRM presentations.

⇒ FSOs will continue to receive their Refresher CRM facilitator qualification during the annual FSO Stan Course. This training qualifies them to provide unit level Refresher CRM training.

⇒ ONLY FSOs currently in a FSO billet and who attended the last FSO Stan Course are qualified to teach unit level Refresher CRM. This is an annual re-qualification requirement and does not follow the individual once they leave the FSO billet.

⇒ We are also working with CG-711 to align the HC-130 community's CRM training with the rest of CG aviation. Look for an upcoming message detailing those changes to M3710.1F.

⇒ Along those lines, don't forget about CH-1 to the manual. It is not incorporated into the online version, but rather it stands alone as a separate download.

⇒ We are also improving the program through creating approved curriculum for CRM Initial and CRM Refresher. These supporting documents will validate our program and serve as a model for other crew coordination training. If you have any suggestions on how to improve CRM in aviation, please contact a member of CG-1131.

AVIation Accident TRacking System (e-AVIATRS)

http://apps.mlca.uscg.mil/kdiv/aviatrs/

⇒ CG-1131 maintains and reviews aviation mishap information. We're into year seven of **E-AVIATRS**. The first mishap report was submitted to the new database on 21 November 2003

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

⇒ There are almost 14,000 records dating back to FY79 in the database.

⇒ **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.

⇒ The HFACs module went live in December 2007. This incorporates the DOD Human Factors Analysis and Classification System (HFACS) as part of both CG mishap reporting databases.

⇒ Currently, HFACS is only required for Class A and B mishaps, but can now be used for all CG aviation mishaps.

⇒ Aviation related injuries shall be reported only in **e-AVIATRS.**

⇒ Aviation mishap reports can be submitted to the database without releasing a CGMS message, if the report is for trending and tracking only. Remember these reports will not get the visibility with the HQ Aviation Program Managers and ALC of a mishap message.

⇒ All information reported in the mishap message is captured in **e-AVIATRS** and can be searched and retrieved.

⇒ Users can use the **e-AVIATRS** search capabilities or can continue to contact CG-1131 for data searches and aviation mishap information. (Contact Miss Zimmerman at cathie.zimmerman@uscg.mil)

⇒ We encourage comments and suggestions. Almost all suggestions have been a positive improvement and are incorporated into the.

Your Coast Guard Aviation Safety Staff

CDR Joel Rebholz 202-475-5200
(Joel.L.Rebholz@uscg.mil)
Cathie Zimmerman 202-475-5197
(Cathie.Zimmerman@uscg.mil)
LCDR Jeremy Smith 202-475-5198
(Jeremy.C.Smith@uscg.mil)
LCDR Brian Glander 202-475-5199
(Brian.C.Glander@uscg.mil)
LCDR Patrick Murray 202-475-5176
(Patrick.M.Murray@uscg.mil)

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

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)

Hail and Farewell: We grew this year, CG-1131 added a third O-4 billet welcomes LCDR Patrick Murray to the staff. We will be saying farewell to LCDR Glander this summer.

CLASS A MISHAP SUMMARY

DATE	ACFT	SUMMARY	CAUSE FACTORS
AUG 1991	HH65	During daylight, low speed photo pass, aircraft experienced uncommanded left yaw and impacted ice.	Aircrew
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
AUG 1993	HH65	During daylight delivery of ATON personnel and equipment, aircraft crashed while landing on elevated helipad.	Aircrew, 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	Hardlanding during daylight practice autorotation, aircraft impacted ground, slid and rolled on side.	Aircrew, 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, Mechanical
AUG 1995	HH65	During daylight, deployed helo experienced rapid left yaw while conducting left pedal hover. Acft accelerated through wind line, spin could not be countered, impacted water.	Design, CRM, Aircrew, 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, 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, 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. .	Maintenance, QA, Trng, Procedures, 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 remaining crewmembers on M/V in danger of running aground in high winds and heavy seas, acft was engulfed by heavy sea spray erupting from large swell striking the bow of M/V. Acft departed controlled flight and crashed into sea. Vessel's master and RS still on M/V witnessed mishap were rescued later. HH-65A hovering above mishap acft recovered downed aircrew and one M/V crewmember.	Environmental Conditions, Trng, Fatigue, Attention
SEP 2005	HH65 Ground	During maint ground run, acft became light on MLG and began right yaw, spinning clockwise on deck. Right MLG departed ramp during the second revolution, left horizontal stabilizer, vertical fin, and MRB contacted the ground. Acft came to rest on left side approx. 225 degrees from original heading. Crew consisting of pilot, BA and 3 contractor techs egressed acft unassisted after all motion stopped, mishap pilot who was assisted.	Aircrew
Feb 2006	HH65	Responding to 4 PIW, helo crashed into surf approx 40 yards off beach. RS direct deployed and hoisted to beach to commenced CPR. Helo was attempting to recover fourth PIW, # 1 eng inadvertently shutdown resulting in rapid power loss and loss of further flt. Crew made a controlled descent to surf and helo slowly rolled on right side, crew successfully egressed.	Policy, Design, Aircrew, ORM, Culture
Jun 2006	C130H	During delivery of 5000 gal acft fuel truck, acft swerved left, departing paved surface. After departing rwy surface, acft continued parallel to rwy on gravel, swerved left again, struck VASI, and continued on soft ground. During final left swerve, right wing dipped, striking ground, # 4 prop struck ground and departed acft. Acft came to rest 248 feet left of rwy edge.	Aircrew, Procedures, Culture, Design
Mar 2008	H65 FltRel	During recovery of numerous survivors from a sunken fishing vessel, non-CG members fell from basket while being brought into cabin.	Investigation Pends
Sept 2008	HH65	While conducting night hoist trainer cable snagged on 47 MLB and parted. Unusual attitude created by cable snagging and parting caused MRB contact with hoist boom leading to severe vibrations and various system compromises. Acft departed controlled flight and impacted water. All four crewmembers perished.	Procedures, Training, Design, Environment, Material
Oct 2008	HH60 FltRel	Swimmer was deployed for basket hoist of injured person from S/V Hoist cable damaged during basket delivery. ERD was used to recover swimmer who was injured during hoist. Acft departed scene. Survivor (now deceased) was later recovered by another asset.	Investigation Pends

Table 10

CLASS B MISHAP SUMMARY FY91-FY08

DATE	ACFT	SUMMARY	CAUSE FACTORS
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, 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, CRM, Procedures,
May 1992	HH60 FltRel	During live litter hoist from RHI, litter cables failed, dropping litter approx 30ft to 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 eng indicating sys failure and secured #2 eng. Situation further aggravated by series of uncoordinated inputs by both pilots. FM recognized situation, advanced FFCL, allowing remaining eng to regain power.	Mechanical, Aircrew, CRM, Training, Procedures
May 1993	HH65	During instrument approach to hover over water, rotorwash engulfed aircraft in salt spray. Pilots lost visual contact w/surface resulting in MGB overtorque and overspeeding both eng during ITO.	Aircrew, Procedures, 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	DMB dropped to aid in relocating lone raft at sea, acft departed scene for fuel. Unknown to crew, DMB struck female in raft. Rafters later rescued, female underwent surgery and survived.	Supervisory & Aircrew, 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.	Aircrew & Supervisory, Procedures, Distractions, CRM,
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 trng flt to assist F/V reported taking on water and sinking. Two PIW were recovered using basket, third PIW recovered using direct deployment. Victim's survival suit was improperly donned and filled with water. FM and RS encountered difficulties bring victim into cabin, added weight caused victim to slip out of strop and fall to water.	Environment, Procedures, Design, Equipment,
Jan 1997	HH65 FltRel	Acft launched on early morning SAR to assist F/V aground and breaking up. Victim located face down in debris, unconscious and unresponsive. Victim had improperly donned PFD and slipped out of quick-strop. FM and RS held 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 stabilizer damage.	Material, Design, Procedures, Aircrew
Jun 2002	MH68	During T-course day flt, crew entered an uncontrollable ground resonant state due to failure of dynamic rotor head component. As acft was shutdown, left MLG collapsed, helo came to rest on left MLG structure. MRB and TRB did not impact ground. Crew safety egressed with no injuries.	Material, Maintenance
May 2005	HU25	During local area warm-up syllabus, crew observed an unsafe right MLG indication during extension. After extensive 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
Jan 2006	HU25	Acft suffered damage during inspection/test of repairs performed by ARSC team. Original damage occurred when civilian G-V being towed struck left horizontal stabilizer. Damage required ARSC level repairs.	Fatigue. Resources, Environment, Policy
Jul 2006	HH65	FMI noticed high freq hum and vib. Following extensive trouble shooting, MGB, forward T/R driveshaft and T/R takeoff flange replaced. T/R takeoff flange lock nut securing pins were broken during PDM/Charlie mod, allowing T/R takeoff flange lock nut to back off. Tension from ECS belt was holding T/R takeoff flange to MGB.	PDM, Procedures, Maintenance, QA
Feb 2007	HH65	After day local area patrol and all maneuvers required for RT-1, crew commenced hover practice over rwy. During third 360 degree pedal turn, (AFCS and manual trim secured, NR high) acft entered rapid left yaw as tail came thru wind line. Acft made 3 complete turns, rt MLG and NLG contacted rwy prior to recovery.	Environment, Design, Aircrew, Procedures, Training
Mar 2007	HH65	MLG strut collapsed into the wheel well as a result of hyd strut actuator failure. Acft was on deck disembarking 2 passengers. PAC had collective locked and LG pinned	Material
Mar 2008	HH65	During PWCS patrol, CP announced bird approaching at same altitude as helo. PAC took evasive action, as did the bird. Bird impacted acft, significantly damaging windscreen and pilot door. Crew maintained control of acft and reviewed procedures for blade damage and windscreen cracks. Acft RTB and landed, acft suffered significant structural damage.	Birdstrike
Mar 2009	HH65	During day AUF tactics, TTB made abrupt turn and headed directly at acft. PAC countered TTB's move and acft entered slow left yaw. Both pilots confirmed full right pedal deflection, confirming ULY. Control of acft regained and trng ceased.	Awareness, Equipment, Design, Procedures, Habit

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

Table 11