

By Lt. Matthew Bartel

Unless you've been taking an exceptionally long re-rack this year, you've noticed the FA-18 safety record hasn't been good. Through the halfway point of this fiscal year, we've had 10 Class A mishaps, nine of which were flight mishaps, and one aviation-ground mishap. At this rate (7.26), FY03 will be the worst year in the history of the Hornet. What makes this year so different?

First, here's a general overview of the recent mishaps:

- 18 Oct 02, VFA-41, FA-18F. Midair collision during AIC. Both pilots saw each other.
- 31 Oct 02, VFA-125, FA-18C. Ramp strike on night approach by replacement pilot. Near idle for five seconds in the groove.
- 03 Nov 02, VFA-34, FA-18C. Controlled flight into terrain (CFIT) during a routine circle-the-wagons on an NVG-bombing-smokes mission.
- 14 Nov 02, VMFAT-101, FA-18D. Out-of-control flight (OCF) during BFM.
- 20 Nov 02, VFA-125, FA-18C. Ground fire during low-power turn.
- 18 Dec 02, NSAWC, FA-18A. Aircraft crashed after fuel starvation during AIC.

- 06 Jan 03, VFA-97, FA-18C. Aircraft landed right of runway, struck arresting gear in one-sixteenth-mile visibility in fog.
- 17 Jan 03, VFA-25, FA-18C. Aircraft departed end of runway after aborted go-around.
- 17 Jan 03, VMFA-225, FA-18D. Material failure during FCF, with one engine shut down.
- 18 Feb 03, VFA-147, FA-18C. OCF during BFM.

So what do all of these mishaps have in common?

Preliminary data suggests all but one mishap involved human error. Considering, on average, 80 percent of Class A mishaps involve human error, we're outdoing ourselves this year—shooting nearly 100 percent. Some people might say these mishaps are the “cost of doing business.” For anyone in the safety world, and that includes you, those four words are what we're fighting against. If we accept mishaps as an expected result of our job, we harbor a bias toward allowing those mishaps to occur. The data suggests all but one of this year's mishaps could have been avoided. So how?

ORM

ORM has been tossed around the fleet as the new buzzword to save us from ourselves. The truth is, ORM is common sense, defined. We use ORM every day, in every decision we make, but we don't realize it. Whenever you say, “Is this going to hurt?” or “How can this bite me later?” you've used ORM. The fact that ORM has been institutionalized confuses many people; don't let a simple process become more complex. Our leadership is trying to bring ORM down to earth.

Hornet Mishaps...



The first ever T/M/S ORM conference was held at NAS Lemoore, Calif. on 3-4 March. Fleet operators and safety experts met to discuss how to identify, prevent and manage risks in the FA-18 community. The meeting was successful and will be a semiannual event.

The FA-18 safety system has problems; many people perceive the system is solely reactionary. People only show their safety colors after a spike like we're currently seeing. It's ironic that when the fleet sees safety the most is when the system is not working. Safety has the impossible task of justifying itself by proving a negative. If the system works, nothing seems out of the ordinary. If the system doesn't work, as now, then safety becomes visible. Here is some insight into how the safety system and, specifically, the Safety Center is looking out for you.

200-pound heads and hardware

Safety officers look for items that concern fleet aviators and, every six months, compile a top-10 list. Magically, those items are collated into a fleetwide top-10 list. The process is not magic; it's called the Systems Safety Working Group (SSWG).

Every six months, the 200-pound heads who built the airplane get together with fleet operators, industry reps, and safety folks from around the country to talk about fleet concerns. Their emphasis is on engineering solutions to risks—how to design a better airplane. The hierarchy for risk is:

1. Design a foolproof system.
2. Add safety devices.
3. Include a warning system.
4. Implement procedures and training.

Items three and four are less desirable because they include the human element, which is prone to error. The SSWG has tackled numerous problems in the Hornet, including hydraulic pumps, aileron hinges, MLG failures, and engine-bay-fire issues. Solutions to these problems result in seamless operations in the fleet. The statistics indicate the SSWG has been unusually effective, considering this year's material-failure rate versus the human-error rate.

Human error—the software

What's the best way to avoid problems? Awareness. If you know the danger, avoidance is easier. The Safety Center has compiled data from the inception of the Hornet. This database has catalogued every mishap. We use this information to identify trends, predict risks, and try to prevent mishaps.

What system will fail and cause a mishap? The short answer is the Mk-1, Mod-0, brain-housing group. The biggest risk out there is **you**. Every aviator knows he's bulletproof; mishaps happen to those unlucky enough to not be as good as you. I'm sure when you read SIRs of recent mishaps, you've said, "How could someone be that stupid?"

Unfortunately, pilots thought each of their actions before the mishap was logical and correct. Can you put yourself in their shoes and come to the same conclusion? Of course not, because your hindsight is 20/20. You've had enough situational awareness to make a different decision, to take a different course. The problem with SA is it's only your perception of reality; it's not necessarily the same as reality. Each of

What's the Answer?



the Hornet mishaps this year involved some loss of SA by the mishap pilot. I guarantee that the pilot didn't say, "Wow, I don't have enough SA right now to continue doing what I'm doing; I'd better stop." Instead, their SA didn't match reality and caused a mishap. How do we fix the perception problem?

Training

Being armed with training prevents mishaps. Whether the training is stick and rudder (OCF training at the RAGs), ORM (the full five-step process or just common sense), or NATOPS refreshers, solid training prevents mishaps.

How do you know when you've trained enough? When you can execute your mission without a mishap. There's been a lot of talk the SFWT program has superceded all other training, including NATOPS and basic airwork. True or not, the SFWT program is an integral and necessary part of our job. We can lower our mishap rate by flying like the airline industry, or we can go out and execute our job as warriors and do it safely. I prefer the latter.

Old dog, new tricks

Figure 1 may not mean much to you on first look, but it tells an overwhelming story. Awareness of the risks makes any evolution safer because you can confront those risks head-on. For years, the fleet has had anecdotal evidence that transition pilots, whether NFO to

pilot or airframe to airframe, were more accident prone than the "Hornet baby." Using mishap-rate data from years past, you can see this evidence is abundantly clear. We face a major risk when transitioning to the Hornet. For example, if an aviator transitions to the Hornet with less than 1,000 total hours and has less than 500 hours in the Hornet, he is 2.6 times more likely to have a mishap, versus a non-transition pilot, until he has over 500 hours. A transition pilot with less than 2,000 total hours is 11 times more likely, and an aviator with over 2,000 hours, is 16 times more likely to have a Class A mishap with an aircrew factor (human error).

Cursed?

Data also suggests aviators with at least one previous Class A mishap have a predisposition toward a second mishap. A study done nearly two decades ago compared pilots who had a mishap with those who did not to see if there was a higher mishap rate among the former. If a pilot had a mishap within his first 1,000 total hours, he was 1.53 times more likely to have another mishap, versus his peers who previously never had a mishap.

All of this data can be added to your toolkit, whether you're a skipper signing the flight schedule or someone in one of these at-risk groups. Assess the risks you face in the daily flight schedule, and make sure you're adequately prepared and trained.

Lt. Bartel is the FA-18 analyst at the Naval Safety Center.

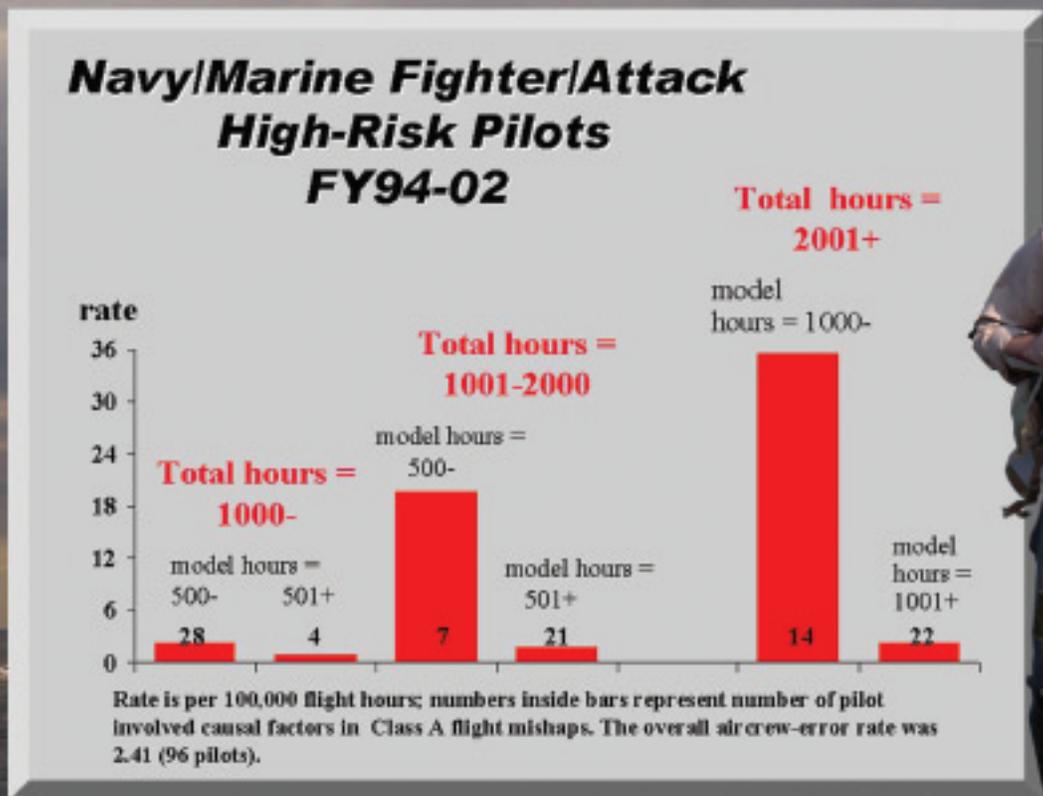


Figure 1