Hi-tech embarrassment

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The USS *Stark* went into harm's way and got blasted — accidentally — by an Iraqi Exocet missile, losing 37 men and a great deal of face for the hi-tech U.S. Navy.

Putting the *Stark* and seven other U.S. warships into the cramped waters of the war-torn Persian Gulf was inviting calamity, of course, but Washington had faith that the Navy's electronic wizardry would keep its ships safe from attack. So the carrier admirals had been assuring Congress for years.

By a breathtaking logical somersault, a much-beset Ronald Reagan blamed Iran for the Iraqi attack and ordered his ships and planes in the Gulf to fire on any "menacing" intruders. Another big step to getting the U.S. into the Gulf War, I fear, and a good way of diverting attention from Irangate. More about this on Sunday.

The question for today is: Are those "menacing" aircraft or ships approaching you friendly, hostile or neutral? Are you shooting a missile at a civilian jumbo jet or an attacker?

This latest American disaster in the Gulf reveals an interesting but little-known problem that is increasingly bedeviling military planners. It's called Identification, Friend or Foe — or IFF.

In simplest terms, how do you identify friend from enemy on radar, visually or electronically in the swirling fog of high-intensity modern combat?

When the Iraqi Mirage F-1 fired its Exocet, what the pilot saw was a medium-sized blip on his radar — probably a small tanker, he thought. The missile's terminal guidance system followed this same blip, hitting the *Stark* below the bridge. Five feet farther forward, by the way, and the *Stark's* magazine would have blown up. Neither the *Stark's* radar nor its anti-missile gun or chaff systems seem to have picked up the Exocet.

There is nothing surprising about this. In modern electronic warfare, warning and reaction times must be measured in the barest seconds.

Now, just imagine a general war where the *Stark's* predicament is multiplied a thousandfold. How do you tell an attacker from your own planes where the sky is crowded with all sorts of aircraft and missiles? In our most recent example, the 1973 Arab-Israeli War, Egyptian air defences are reported to have shot down at least 80 of their own aircraft; Israel also downed a smaller number of its own planes.

Each military aircraft carries a transponder that, when interrogated by a ground system, sends back a predetermined electronic message identifying it as a "friendly." Such transponders also make handy beacons to alert the enemy to a plane's location and nationality. Using IFF becomes very dangerous in wartime. Many pilots will turn off their IFF systems, preferring to take their chances.

According to Soviet estimates, in wartime one third of all communications will be destroyed and one third jammed. Imagine NATO's vast and complex communications network, degraded by 66%, trying to sort out friend from foe when there are hundreds of aircraft overhead, anti-aircraft missiles, jamming and decoys.

Aircraft fighting beyond visual range, like the Iraqi F-1, will have to rely on heavily jammed radar. How is the pilot to know whether the fuzzy little blips approaching him at a closing speed of 2,000 mph are enemy MiGs or his own wingmen returning from a strike inside enemy territory?

At sea, the problem is even worse. In modern naval warfare, victory invariably goes to the side that fires the first salvo. As we saw with the *Stark*, one hit is sufficient to disable a warship. Which clearly illustrates that modern warships are built for peacetime duties, not war. What we need are armored ships that can withstand being hit by a 2,000-lb. missile travelling at 500 mph, not the vastly expensive hi-tech "tin cans" now in use. But that's another story.

Since fragile modern warships must fire first, itchy trigger fingers will blast away at suspected threats picked up by radar or electronic systems. Announcing one's nationality is tantamount to suicide. Once again, the margin for error is enormous. Missiles, after all, are pretty stupid brutes. They simply go after the biggest target that appears before their small electronic brains.

And this all means that as warfare grows increasingly complex, on paper hi-tech systems look great. On the battlefield, however, even our limited experience is showing that many "smart" weapons have a scary tendency to become rogue elephants while super-gizmos often don't work.

Embarrassing indeed for the U.S. Navy that the only system to spot the Exocet was the "Mark I Eyeball System" of the *Stark's* forward lookout.

Punch

"This could be serious. His body accepted the implant, but his mind rejected the bill."