

**It's an eye-opener—and sometimes a shock—when industry managers and engineers visit the troops who use their products in the field.**

# Blue Two

BY SUSAN KATZ-KEATING

**I**N THE once-obscure Air Force Coordinating Office for Logistics Research (AFCOLR), tucked away at Wright-Patterson AFB, Ohio, telephones ring off the hook these days. The sound may be grating, but it should also be sweet music to the ears of every maintenance man who ever grappled with a weapon of strange, complex, or just plain boneheaded design.

AFCOLR's newly insistent callers are among the premier weapon managers and engineers of the corporate contracting world. Drawn by an unusual program known as "Blue Two," they are queuing up for a chance to "walk a mile" in the shoes of the harried Air Force men and women who must maintain the weapons that the contractors produce. In the process, their eyes are opened to the frustrations and problems that they unwittingly cause.

The Blue Two concept is brutally simple. Weaponeers are taken to the field for a firsthand, down-in-the-grease look at what it's like to maintain their arms in the "real world." No sensibilities are spared. On the

flight line or in the repair shop, participants are expected to roll up their sleeves, don coveralls, or slip into protective gear—then live the life of the enlisted man for a week. Virtually without exception, useful changes result.

Typical, say AFCOLR officers, is the case of one high-ranking manager of a munitions plant. During the executive's Blue Two visit to Hill AFB, Utah, he was approached by an airman with a simple question. Why, the airman wanted to know, do bombs come six to a pallet, when the fuzes for the bombs come packed eight to a box? As a result of the odd configurations, he went on, airmen at Hill find themselves short of fuzes or saddled with leftovers. Why couldn't the two components be packaged logically, in equal numbers?

"That manager asked me to find the nearest phone," remembers CMSgt. Danny Lewis. "He got right on the telephone [to his company] and fixed the problem on the spot." Bombs and fuzes now come packed in equal numbers.

## The Genesis of Blue Two

Many such stories are recalled by Chief Lewis, who is known as the originator of Blue Two, so named in recognition of the color of the Air Force uniform and the number of stripes typically worn by the maintenance person. Ask Chief Lewis to explain the genesis of Blue Two, and he'll answer quite simply that the whole thing started by accident. The subject was engines.

The story goes like this. Six years ago, an elite group of designers working on the Joint Advanced Fighter Engine project was in the midst of a seminar. Among those attending was Chief Lewis, who was at that time stationed with AFCOLR. The more he heard the engineers discuss engines, the more uncomfortable he became. As he puts it: "Listening to them talk, I was amazed at how little they actually knew about the real-life world of engine maintenance."

At a break in the seminar, Chief Lewis approached one of the speakers and asked if he would be interested in visiting a flight line to see an engine shop in action. The engineer jumped at the chance. The invitation was expanded to include some of his colleagues, and the whole group of them wound up taking the tour. "You should have seen their reaction," says Chief Lewis. "I knew in five minutes that we were on to something big."

The rest, as they say, is history. In short order, AFCOLR officials put together what it called a "Visit to the Field" program, later renamed "Blue Two" by Lt. Gen. Leo Marquez, Deputy Chief of Staff for Logistics and Engineering at the time. The name change was viewed as symbolic because "it's all oriented toward the two-striper," says MSgt. John Holloway, Blue Two Visit Manager for AFCOLR. "He's the one who gets singled out for all the greasy work."

The program has expanded as rapidly as time and manpower will allow. There are generally six trips per year, each lasting about five days. The visits include walk-throughs at several bases of a major air command, plus an Air Force logistics center. All that is required of participants—other than a willingness to work hard—is a clearance for "Secret" or higher and a pledge

to give AFCOLR a written report at the conclusion of the trip.

For participants, life on the road is far from easy. The first official Blue Two Visit (BTV) tour, in 1983, set the pace for future program schedules. "We were working on the ATF [Advanced Tactical Fighter] program," says Chief Lewis, "and took the prime bidders on a fourteen-day tour of jet engine shops and overhaul facilities. Every step of the way, I saw high-ranking engineers down in the grease, on the floor, crawling under engines, and taking pictures. They were all competitors, but after the first twenty-four-hour period, they were calling themselves 'the Tough Team,' for keeping up with the schedule. I had them up at 3:00 a.m. to do pre-flights, and we'd go on from there."

On a subsequent Blue Two visit, one high-level corporate manager was shocked to discover the kinds of hardships suffered by mechanics in the bitter cold at Minot AFB, N. D. In his follow-up report, the executive told the story this way: "They [BTV tour leaders] issued the [contractor] team cold-weather gloves and asked us to screw a nut on a bolt through a 'C' clamp. This really emphasizes the need for 'ease of maintenance' under these environmental conditions. They pointed out that many of the new airmen, frustrated with the clumsy gloves, sometimes take them off to work on the aircraft on the line. They are found with hands sticking to the metal, and the hands must be freed by use of a heater/blower."

Another high-ranking industry chief on a BTV heard an Air Force technician voice a complaint about a certain type of reconnaissance camera made by the executive's company. "It was a problem with how the lenses were buffed out," says Chief Lewis. Result: "The industry rep got on the phone and fixed it."

## Greatest Gripe Gone

The Blue Two program has resulted in the alleviation of one of the engine technician's greatest gripes—the irritating presence of safety wire. This wire is used to hold parts in place, theoretically reducing or eliminating vibrations. "In the past, it was assumed that if an item had a hole in it, it needed

safety wire," says CMSgt. John Nowicki, the Air Force Blue Two Program Manager.

But safety wire is despised by airmen who have to remove it every time it stands in the way of a required maintenance procedure. It is a time-consuming process, causing painful cuts. What's more, the wire itself is a potential hazard because, as a "foreign object," it could damage an engine. The Blue Two program gave airmen a chance to get this message across. A 1986 report from an engine contractor included this on his list of lessons learned:

"Never use safety wire. The only use for safety wire is to hang the engineer that requires its use." As a result of this observation, safety wire will be eliminated in most instances and will be used, says one maintenance chief, "only where it actually has a purpose."

A 1987 BTV to United States Air Forces in Europe (USAFE) resulted in changes in the maintenance procedures for the F-15's engines. Retired Gen. Charles L.

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Donnelly, Jr., who was CINC-USAFA at the time, recalls the incident that led to the change in technical orders.

"There was a required maintenance procedure on one of the parts in the F100 engine," he explains. "The engineers said, 'You must slide the engine out on its rail in order to do this procedure.' One of our airmen said he could do it without sliding the engine out, and he showed us that he could. Within ten days, that procedure was changed throughout the Air Force."

The move had a direct impact on all mechanics assigned to the job. "That particular change probably saves between thirty minutes and an hour per aircraft," says General Donnelly. "Multiply that by the number of engines in the Air Force, and you've saved a lot of man-hours."

### Lessons in Tool Design

Budgetary concerns were hammered home on a recent Blue Two "tool" visit. Participants learned of a huge difference in the tool requirements for two different helicopter engines. One required \$1.2 million in special equipment, whereas another needed only ten commercially available tools, at negligible cost.

That and other BTVs emphasized a need for lightweight tools as well. Many female mechanics, in particular, were having trouble handling some of the heavier equipment.

The lessons in tool design were applied by at least one BTV participant corporation—the Pratt & Whitney engine house. "The Blue Two visits," wrote three P&W engineers who made the tour, "made us more aware of the mobility requirements, and, therefore, upon returning from those visits, we established aggressive support-tool goals [for] current fighter engines." The new goal, they explained, is to issue sixty percent fewer tools for their engines, at forty percent lighter average weight.

Participants have found that the Blue Two visits open their eyes to a world they never imagined, even when their own types of designs are involved. Aeronautics engineers visiting Dover AFB, Del., had just such an experience when they came face to face with C-5A operations. Wrote one aircraft engineer: "The

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range of accessibility problems on an aircraft of that size was both amazing and embarrassing to us as designers."

For the engineers and designers, another source of amazement has been the harsh demand placed on maintainers by chemical and biological warfare. Designers concede that, sitting in their offices, they forget that little bolts and awkward angles become nearly insurmountable obstacles to a mechanic suited up in protective gear.

"Chem gear is very bulky and unwieldy," says Sergeant Holloway. "Sometimes we have a bolt that is so small, a guy in chem gear can't even grip it, let alone use it. We try to get the guy who designed it to try to use it in the field, and of course he can't." As a result of BTV, says Sergeant Holloway, some companies now test their own products for use with protective gear.

The list of lessons both learned and applied goes on and on. Meanwhile, the billets for future trips are fast being filled. Even now, AFCOLR is nearly fully subscribed for forays into the world of electronic-warfare software in June, surveillance radar and Pacific Air Forces support in August, and Alaskan Air Command aircraft support in December. The geographic sweep of the tours will range from Germany to the continental US, Alaska, Japan, and the Philippines.

Air Force officials expect no slackening of demand from the contractor community. "Each year, we put out to industry a schedule of our visit sites," says Sergeant Holloway. "We try to limit our number to about thirty from private industry and twenty Defense Department people from the logistics world. We fill up on a first-come, first-served basis. Those companies that feel they have a need to be on a trip will respond very quickly. They pay their own way. We try to accommodate as many as we can, but you wouldn't believe the response we get. As soon as the schedule goes out, it fills."

In recognition of his part in conceiving, developing, and implementing the program, Chief Lewis, now the senior enlisted advisor for the 56th Tactical Training Wing at MacDill AFB, Fla., was honored last year with the Dudley C. Sharp Award for outstanding achievement in logistics. The award is given each year to the individual who makes the most innovative contribution in this area. In bestowing the award, the Air Force predicted that Blue Two will have a beneficial impact on "every Air Force weapon and support system—not just new acquisitions, but also modifications and upgrades to existing systems and support structures."

There is no way to come up with a precise estimate of savings in time and money brought about by Blue Two, but AFCOLR officials think it is significant, and the Air Force knows a good thing when it sees one. General Marquez has called the program "one of the smartest things we've ever done." ■

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*Susan Katz-Keating, a writer for Insight Magazine since 1985, specializes in military topics. Her most recent article for AIR FORCE Magazine, "The Troops Behind the Trainers," appeared in the December '88 issue.*