

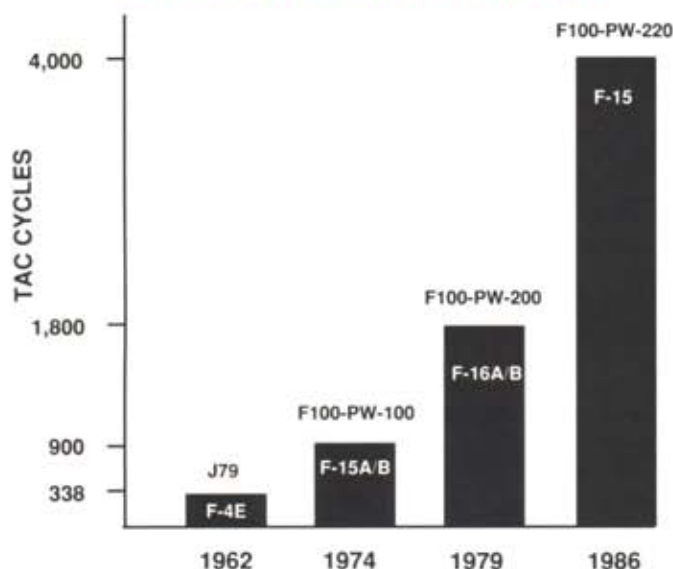
## An Anatomy of the "Ilities"

Edited by Colleen A. Nash, STAFF EDITOR

Reliability, maintainability, mission-capability of planes. Readiness and sustainability of forces. The unglamorous "ilities," once given short shrift, now command serious attention. The Air Force's R&M 2000 initiative, launched in 1985, is being pushed hard to help USAF squeeze more combat power out of its force in the face of slack budgets, rising costs,

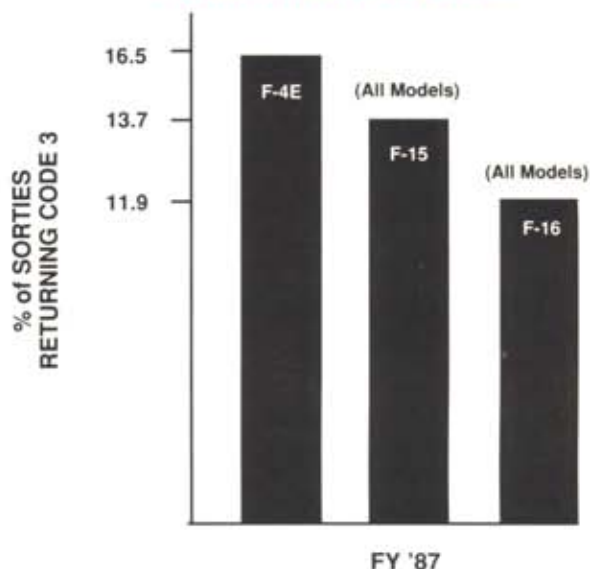
and a declining manpower pool. Advances can be seen in fewer equipment failures, reduced maintenance, and lower support costs. Still, tight funding for spare parts could cause the effort to falter. Gains, payoffs, and concerns are fully evident in the following charts.

### Muscular Modern Power Plants



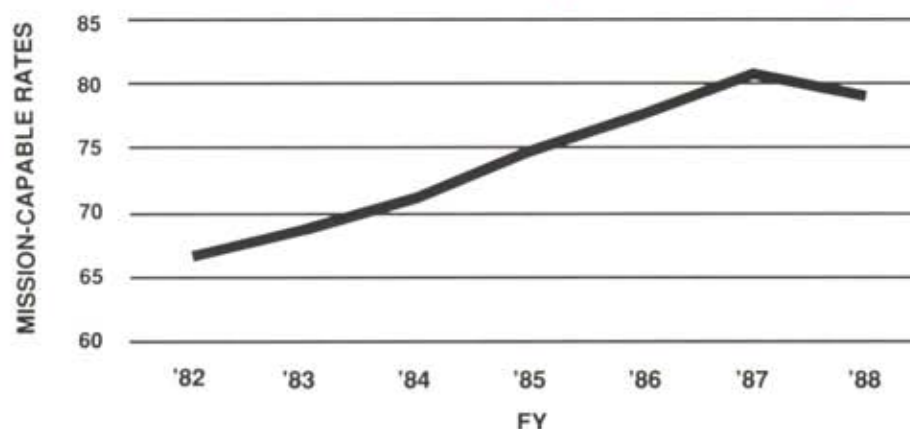
Today's modern engines require proportionally fewer hot section overhauls than their predecessors. This chart demonstrates hot section overhauls per given number of "tac cycles." (A tac cycle refers to a sequence an engine goes through—for example, "idle" to "military power without afterburner.") It is a key measure of engine performance under stress. Engines in F-15s show a tenfold improvement over those in F-4s. Maintenance needs and downtime for the aircraft are lower.

### Fighters: Hard to Break



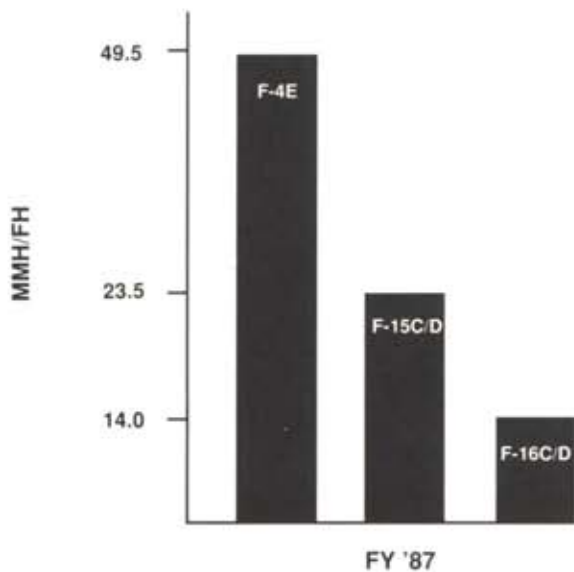
This chart shows the comparative break rates for certain fighter aircraft systems. "Code 3" means a serious system failure that prevents the aircraft from flying until it is fixed. (Code 1 means all systems function properly; Code 2 means a malfunction that does not have to be fixed right away.) F-16 and F-15 reliability stands significantly higher than that of the earlier generation F-4. F-16s, thus, spend less time in the shop and more in the air.

### Improved Mission Capability



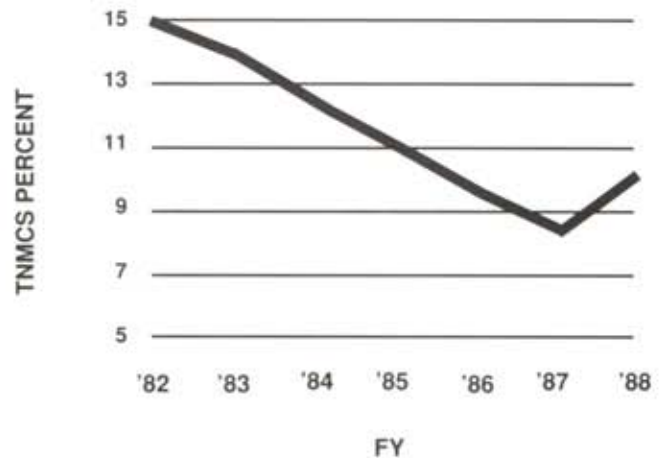
This chart shows the mission-capable (MC) rates for aggregate USAF aircraft. Equipment is rated "mission-capable" if it can perform at least one of its primary missions. (It is "fully mission-capable" when it can perform all of them.) In FY '87, the MC rate for the F-16C/D came in at a stunning 90.6 level, compared to an MC rate of 83.0 for the F-15C/D. Far behind was the F-4E, with an MC rating of only 72.4. Since FY '82, overall mission-capable rates have increased steadily as more modern aircraft have entered the fleet.

## Maintenance Man-Hours Per Flying Hour



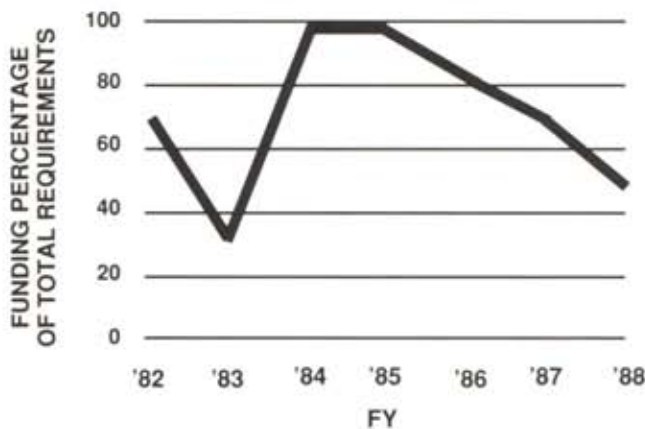
This chart demonstrates that the latest model F-16C/D aircraft is not only less likely to break than other aircraft but is also easier to maintain and repair—almost two times easier than is the case with the F-15C/D and more than three times easier than is the case with the F-4E. Result: lower personnel cost, more efficient use of manpower, and higher aircraft availability.

## "Total Not Mission-Capable Supply" of Aircraft



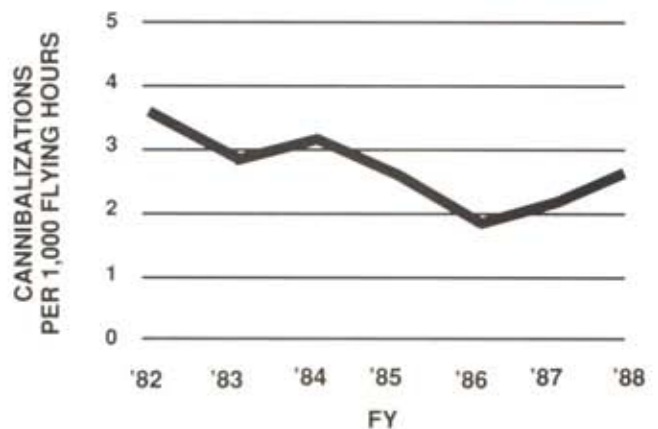
This chart shows the percentage of aggregate USAF aircraft rated total not mission-capable supply (TNMCS). TNMCS means that one or more parts are missing from the aircraft and that therefore the aircraft cannot perform its mission. From FY '82 to FY '87, the percentage of TNMCS was cut nearly in half. Now, however, it is edging upward. The situation today remains much improved over that of the early 1980s.

## The Spare Parts Roller Coaster



This chart shows the trend in funding for spare parts, measured as a percentage of total spare parts requirements. Financial support for spares has been up and down, ranging from a low of about thirty percent to a high of 100 percent, depending on the year. The combined figure over the past seven years comes to approximately seventy-five percent. The trend clearly is down, however, sparking concern about USAF's ability to hold its currently high combat readiness level.

## Creeping Cannibalizations



This chart shows the cannibalizations per 1,000 flying hours for aggregate USAF aircraft. "Cannibalization" means stripping a temporarily out-of-service aircraft of parts in order to keep other aircraft flying. The practice is the prime cause of "hangar-queen" aircraft. After a steep decline throughout the 1980s, the rate has turned up—principally due to spares being in tight supply.