Crash program potential: how U.S. aircraft output could zoom

by Richard Freeman and Vin Berg

At a time when the Soviet Union is massively expanding its military output, announcing militarization of its entire economy, and announcing that defense workers are "volunteering" to work long weeks, one hears U.S. congressmen and even military men arguing that the United States should slash its defense budget, that matching the Soviet effort is either not desirable, or not possible. *EIR* studies have shown that, at present, were the Soviet Union to attack, the U.S. Air Force's aging fleet of planes would be *no factor* in U.S. retaliatory capabilities. New *EIR* studies show that not only is upgrading that fleet necessary; it is very possible.

Two principal bottlenecks would loom under conditions of a national emergency mobilization for aircraft output. First, an extreme shortage of skilled shop-floor and engineering manpower; second, long lag-times in the supply of materials and components.

Nevertheless, *EIR* is convinced that the United States could increase the workforce four-fold and the present output of military aircraft six-fold *on the basis of full utilization of competently managed existing capacities,* provided these were placed on what the U.S. Defense Department currently classifies as "mobilization mode"—three shifts working a 48-hour week at all plants. Were the industry placed on what *EIR* itself would classify as a "mobilization mode," taking the 1939-43 period as a model of reference, output would go much higher.

On the other hand, should recent trends continue—should the U.S. government fail to change industrial and defense policy soon—this will quickly cease to be the case. The U.S.A. is currently losing capacities for the needed emergency defense mobilization, even in terms of the Defense Department's choice of meaning for the word "mobilization."

The U.S. aircraft industry is currently operating at a mere 56% of its capacity, when capacity is defined as the employment and output that would result from a one-shift, 40-hour work-week. Capacity utilization measured from the standpoint of recent "peak" years for various companies stands at 43-44%; from the standpoint of "mobilization" mode, capacity utilization is only 20-24%, i.e., unused capacity is 76-80% (depending on whether you measure airframe weight, sales, or employment), according to the Department of Defense.

Of the two constraints indicated above, of which the shortage of skilled manpower is the bigest obstacle. The second constraint, lag-time for materials and components, would be overcome quickly by subjecting suppliers to "mobilization mode."

Collapsing capacities

The U.S. aircraft industry reached its postwar peak in the 1967-68 Vietnam war period. As the accompanying table shows, it has under gone a fairly steady decline since then, and was only slightly more than half of 1968 levels by 1975. Aircraft sales, output, and employment rose from 1977 to 1981, but then declined. That decline has accelerated.

The main reasons are commercial-airline "deregulation"—which put airlines under such profit pressures that capital outlays for new orders to the aircraft industry collapsed—and Paul Volcker's Federal Reserve's policy of usury. In the first eight months of 1982, the Boeing 767 and the McDonnell Douglas DC-10 failed to receive a single new order. McDonnell Douglas is rumored to be planning a shift out of commercial production. Lockheed announced that its commercial L-1011 program would be terminated in 1984.

In the same period, the multi-engine pleasure-craft airplanes like Cessna, Piper, etc., fell before Volcker's interest rates; production was cut in half between 1981 and 1982. The production of single engine planes—usually only four- to six-seaters—collapsed completely, from 14,382 in 1978 to 6,825 in 1981, and a mere 3,350 in 1982.

In sum, the civilian side of airline capacities, representating invaluable conversion potential for a military mobilization, is being wiped out rapidly.

The picture on the military side is also bleak. The number of military aircraft units of all types committed to the U.S. force structure remained at a fairly steady 500 to 540 per year between 1979 and 1982. In 1983, new additions fell sharply to only 220. By comparison, in 1942, at the height of the World War II mobilization, the United States turned out 96,000 military aircraft. Last year, the U.S. Navy reported great difficulty in fulfilling orders for only 30 new planes—at a time when the Soviet Union is doubling and tripling on U.S. output in every military field.

This low rate of addition has given rise to a situation in

which 64% of U.S. Air Force planes are 12 years old or more. Of 390 bombers, 326 are B-52s, at an average age of 22.9 years.

Constraints on a gear-up of aircraft output result from the same "post-industrial" government and financier policies that have produced the present loss-rate of capacity. The bottleneck most often cited by the industry and the government are supplier lag-times in filling orders for materials and components. Federal Reserve high interest rate policies, and financier-policies aimed at knocking out American production capacity in these vital areas, have left American forging, fastener, casting, and pumps industries in a badly damaged condition.

A January 1977 Defense Department study listed the following production constraints: engines, radar, landing gear, numerical control equipment, fabrication shop work, large forging capability, and shortage of tooling engineers. The industry estimates that under nominal, one-shift operation, it would take 29 to 32 months from receipt of contract to delivery of a fighter plane, up to 35 months for an attack plane, and up to 60 months for a transport craft, up to 24 months for a bomber. This is largely blamed on the fact major components delivery by suppliers can take up to 29 months for an engine, 38 months for landing gear, 19 to 31 months for radar depending on type, and so forth.

As a 1979 DOD report stated: "It is significant that all prime aircraft manufacturers are reporting that lead times have increased in recent years. The degree to which these lead times could be reduced . . . is certain to be substantial. For programs that were pressed for early deliveries during the Vietnam urgency, lead times for components . . . were about one-half the recent experience." In fact, during the 1967-68 period to which the report refers, scarcely more than a one-shift 40-hour week was in effect. Under a three-shift mode, lead times might well be cut to one-fifth of current levels, all the more if the mobilization goes outside what is defined as the current "defense industrial base"—i.e., selective auto-plant conversion, construction of new capacities, introduction of laser machine-tooling, quality improvement in the components produced by laser machine-tooling, laser diagnostics, etc.

The crucial bottleneck facing aircraft construction is the shortage of skilled workers and engineers. For example, the producer of avionics systems for the Lockheed F-18 is turning out only one such system per month. Asked why output was so low, a source reported that "the company is trying to find out the same thing," and suggested a labor bottleneck. "These jobs require engineers and workers of a very high skill level . . . soldering transistors and resistors, which are put under a five-power binocular microscope to be examined." The system must be put through a reliability test chamber and computer simulation stress tests. Reliability machines and computers can be increased in number without difficulty, but "the number of scientists and engineering teams needed to man these machines doesn't exist."

Production and non-production employment in the U.S. aircraft industry

	Airframe production employees (1,000s)	Airframe non-production employees (1,000s)	Ratio of non-production to production employees	Constant dollar sales (billions)
1962	155	141	0.91	$12.4
1964	155	126	0.81	11.3
1966	215	158	0.73	15.8
1968	248	182	0.73	21.4
1969	221	175	0.79	18.2
1970	168	147	0.88	17.0
1971	131	125	0.95	14.0
1972	127	120	0.94	11.0
1973	127	121	0.95	12.6
1974	125	120	0.96	12.3
1975	114	121	1.06	12.1

A real mobilization: *EIR*'s program

No government or industry publication reflects any conception of what a "crash program" is. A mobilization on the 1939-43 scale depends on both "tangibles" and "intangibles"—innovation, from policy-planning down to the shop-floor level, stemming from the sense of urgency imparted to the program. Sticking to foreseeable "tangibles," *EIR* has concluded:

- Moving from present underutilization to "peak" mode, i.e., the output-level of the peak performance year in the last 18 for each of the 17 major airframe-makers, we would double the workforce and more than double the output measured in millions of pounds of airframe built. According to the 1979 report, only seven of the major plants were operating at near their capacity during their reported "peak year." Therefore, "the actual capacity potential of the industry is greater than estimated."

- Were the U.S. to go to a "mobilization" mode—three shifts of 48-hours per week—workforce would quadruple and output sextuple.

- Were the United States to bring into play merely the small-craft general aviation capacities, 27,700 workers and 22 million pounds of output would be added.

- Were we to add the capacity of the auto industry or other industries, through conversion, we could at the very least double the maximum mobilization-mode output of the airframe industry, 262 million lbs. (240 million lbs. from the mobilization mode, 22 million pounds from the general aviation sector).

Thus, we are tangibly capable of achieving *524 million pounds of output, a twelve- to thirteen-fold increase over 1978 levels*. To imagine what America would actually achieve, think about the "intangibles."