

prices below "fair market value." Meantime, Motorola announced plans to build a joint plant with Toshiba in Japan, and exchange chip and microprocessor technology. Eaton and Varian announced cutbacks because of the lack of chip sales.

To cope with what Wall Street calls "overcapacity" in semiconductor production, companies are cutting capital outlays, at a time when the economy and defense needs require more technology and capital improvements. To make matters worse, Reagan's "tax reform," means accelerated depreciation will now be canceled out by the loss of the investment tax credit.

The median earnings per share in the semiconductor industry last year were - 35.3%. Their five-year average earnings per share were - 4.2%. The combined computer, electronics, and semiconductor all-industry median earnings per share fell 0.9% as an average over the past five years. Over this period, of the top semiconductor suppliers to the Defense Department, Motorola (39th in the list of 100 largest defense contractors) had a - 10.6% five-year average earnings per share. Motorola's 1986 earnings per share were up 8.5%; the company is characterized by very low earnings stability.

So far the Pentagon—heavily involved in battles with Congress on the overall budget, the Persian Gulf deployment, and the SDI funding—has not acted on the recommendation of the Defense Science Board for the semiconductor consortium. However, Robert B. Costello, assistant secretary of defense for acquisition and logistics, has expressed support for the proposal. Many logistics experts have testified to Congress this summer on the need for expanding the board's recommendations to the rest of the defense industry. This, in turn, would lead to overall defense procurement cost reductions and supply guarantees, instead of high costs, bottlenecks, and the risks entailed in foreign source supplies.

Adm. Bobby Inman (ret.), former director of naval intelligence, CIA deputy director, and now chief executive officer of Microelectronics and Computer Technology Corp. has repeatedly stressed the need for ending the 1960s "cost-effectiveness" approach to Defense Department procurement, and instead, working with industry to further a broad base of high-technology applications in the economy. Inman predicts, for example, that the emerging very high speed integrated circuits being developed by the Japanese, will be far more affordable than those being developed by U.S. companies expressly for the Defense Department. He says that investment must go into Pentagon-sponsored research, and to university and industry research, but there must be the broadest possible applications of the results in the general economy. This implies a growing economy.

According to Inman, "If we don't have viable marketplaces for much of the technology, the cost to defense is going to be astronomical. We can buy a lot of chips and stockpile them. But we can't stockpile manufacturing capability."

Security emergency in fastener sector

by Joyce Fredman

Early in July, officials of the Pentagon announced that the Armed Forces are so short of spare parts that they are being forced to cannibalize existing machinery. In addition, cheaply made, imported fasteners (nuts, bolts, screws, and rivets) have been found to be defective on a wide scale and now threaten the capacity of some of the military's most important weaponry.

Evidence of industrial sabotage has recently beset the B1 bomber, a principal strategic weapon already besieged by a year of parts difficulties. The problems of the decline in U.S. military industrial readiness are made apparent by the fall in U.S. exports. U.S. military sales to other countries fell from \$14.8 billion in 1980 to \$7.1 billion last year.

Production capacity not utilized for export is being shut down, rather than converted to meet U.S. normal or "surge" requirements. During 1981-82 alone, close to 40 major fastener manufacturing plants shut down. The situation has taken on such dramatic proportions as to bring into the limelight a sector of industry badly in need of attention. These disasters may be a blessing in disguise if they force a reversal of a heretofore suicidal policy.

Cannibalism

The practice of cannibalizing for parts is something that is normally only done in combat circumstances. Now, it is commonly used, and even worse, on multimillion-dollar advanced items, as opposed to cheaper hardware that is less advanced technologically. Not only does this practice erode military readiness, but it is a blatant waste of energy, money, and time. The reason it is occurring reveals much about the nature of the U.S. "recovery."

In 1982, Defense Secretary Caspar Weinberger attempted to alert this country to the consequences of its deindustrialization. He wrote in a letter to the late Commerce Secretary Malcolm Baldrige:

"Most of our critical weapons systems, equipment, support items, and industrial production facilities require large quantities of various types of fasteners. There are currently significant import penetrations (over 50%) for items produced by the U.S. industry. . . . We must not be placed in a sole source foreign dependency situation for our mobilization

production needs.”

Congress had a different idea. Since 1982, the operations and maintenance budget (which pays for spare parts) has only increased 18.5%, or \$81.6 billion annually. Not only do spare parts suffer under this completely inadequate budget, but so do stockpiles of ammunition and other wartime supplies, to improve combat medical care and to provide enough sea and air transportation to support forces abroad. Now that growth in the military budget has halted altogether, officials predict even more of this phenomenon.

This is occurring in every branch of the Armed Services. Navy officers have stated that most aircraft carriers at sea, as well as anti-submarine squadrons, routinely have aircraft cannibalized.

The case of the B1 bomber

One piece of strategic equipment that has fallen victim to this process, the B1 bomber, has a number of other problems as well. Three new bombers, each costing \$200 million, are sitting immobilized at Dyess Air Force Base, near Abilene, Texas because parts have been taken from them to be installed in several other B1 bombers on the base.

But that's the least of the dilemmas concerning the B1. Air Force officials say it will be 1990 before 30% of the new U.S. strategic bombers can be kept on alert, which is the standard percentage for quick response. Out of 54 bombers in the force today, only one plane is on alert! The problems have ranged from faulty flight controls to malfunctioning computerized maintenance systems. The result is that the technical difficulties have delayed crew training and sharply restricted the number of bombers the Strategic Air Command has available.

Recently, an even deadlier problem has arisen. *Aviation Week and Space Technology* reported that Rockwell Security officials at its Palmdale, California plant, where the new B1 bomber is being produced, are investigating acts of apparent sabotage. The incidents included severed wires in cockpit electrical harnesses and in cables between test equipment and aircraft being tested, as well as razor blades taped to the underside of handrails on workstands positioned to injure anyone grabbing the handrail.

In one incident, a penny was taped to the aircraft's fuselage just aft of the engine inlets and spray-painted to match the color of the fuselage.

Three times in the past month cables connecting an aircraft to test equipment have been cut. Investigations are ongoing into all incidents in the past year, which number 75 for the B1-B production line alone.

Down to the nuts and bolts

The difficulty, however, in determining the extent of sabotage lies in the vulnerability of the American economy itself. Imports now account for approximately 70% of all fasteners used in the United States. For standard nuts, bolts,

and large screws, it is well over 90%.

One type of fastener is called the Grade 8.0 automotive bolt and is used by the Department of Defense in approximately 500 different weapons systems. In one agency alone, a random survey showed 29% of its inventory to be counterfeit bolts. That comes to 8-10 million substandard Grade 8.0 bolts simply in that inventory! When five defense contractors were asked to sample their inventories, they discovered 50% of their Grade 8.0 bolts to be counterfeit.

Other problems have included substandard plating, suppliers coating the bolts with zinc rather than the required cadmium, and improper threading of bolts. One defense depot did tests that revealed 60% of one type was defective.

One of the Army's main battle tanks is the M-60. Out of 10,000 tanks, 1,220 have been crippled by weak bolts. The problem is so prevalent that the Army has begun to alert allies who have bought some of the tanks. The Navy has had problems with engine bolts for minesweepers, and now howitzers are having to be repaired for faulty bolts.

“The magnitude of this problem is staggering,” said one congressman after reviewing the faulty parts alone. That could be the understatement of the year.

The Department of Defense has procured so much of its fastener supply abroad for simple reasons of apparent price-savings, under intense budget pressures. However, apart from “counterfeit-ordnance” and other breaches of contract, the strength specifications of the metals themselves are frequently inadequate.

The Defense Science Board has repeatedly called attention to the need for secure supplies of both basic steel and special alloy metals, and other specialty elements. The United States imports some of its most vital military materials, including asbestos, chromium, manganese, mercury, potassium, nickel, and titanium.

Another difficulty has arisen because of the scandals surrounding the defense industry. The first major contract for pontoon causeways, or lighterage, was in 1984 with Wedtech, which is now under investigation for charges that the company paid kickbacks to federal officials.

The pontoon causeways are portable bridges whose main purpose is to support in-stream off-load ship-to-shore movement and over-the-beach movement of military cargo. Although some of the hardware goes back to World War II, the basic concept (including the water jet propulsion) was developed in the mid-1970s. Their usefulness was demonstrated by England, who used them with great success during the Malvinas War.

In a functioning good shipyard (which is fast becoming extinct in the United States) these could be produced at a rate of 3 powered per month and 12 nonpowered per month. Since the Wedtech scandal, the U.S. inventory is jeopardized, as all orders have been suspended. For security reasons, information is scant, but any deals for more are shaky if existent at all.