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A NO-LOSE DEFENSE BUSINESS

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HIGHLIGHT:
E-Systems Inc. of Dallas makes supersophisticated electronic devices that are essential to weapons systems and to policing arms-control agreements.

FEW DEFENSE CONTRACTORS are flying higher than E-Systems Inc., a Dallas manufacturer of supersophisticated electronic gadgetry whose prosperity seems almost uniquely assured. The Reagan defense buildup has helped lift profits mightily, but E-Systems should fare well even if relations with the Soviet Union improve and defense spending gets clipped. The company makes the kinds of eavesdropping and detection devices that most people probably believe exist only in the imaginations of Hollywood screenwriters. The devices are essential to the weapons Reagan has been buying, but they are also needed to police arms-control agreements.

"Our biggest jump in new business came in the Carter Administration," says Chairman John W. Dixon. "The loss of Iran brought the realization that we had to devote more resources to reconnaissance, intelligence, and surveillance. If we had complete detente with Russia, what would we need? We'd need verification of what they were doing. And we've got to be the No. 1 verification company in the world."

Wall Street has been as aware as the Pentagon of E-Systems' special talents. Though the stock has slipped 45% from its 1983 high, the company's total return to investors -- dividends plus capital gains -- for the ten years through 1983 worked out to an electric 48% a year, compounded.

E-Systems has carved its secure niche in the defense budget by becoming the leader in what is known as passive electronic warfare. It puts together black boxes that pick up distant electronic impulses and determine what generated them and what they mean. About 80% of its revenues come from defense contracts, and most of them are classified. (The civilian sales include such things as flight control systems for airliners.) Total sales may reach $1 billion this year, triple what they were in 1978.

The company designed equipment for electronic listening stations that monitored movements in the Sinai Peninsula following the Camp David peace agreement. Other products range from communications gear for Jeeps to radar and missile detection equipment for fighter aircraft. E-Systems devices are passive in the sense that they do not jam enemy radar, fire missiles, or guide them to their targets.

E-Systems sells far more electronic warfare equipment than any other Pentagon supplier. The company took approximately $500 million of the Defense Department's electronic warfare outlays in fiscal 1983. The No. 2 supplier is Loral (FORTUNE, June 16, 1980); its $360 million in defense business in fiscal 1983 came mostly from electronic systems that disrupt the enemy's defenses. Raytheon ranks third, with $300 million in electronic warfare sales in 1983.

As those figures suggest, electronic warfare is only a flyspeck on the Pentagon budget, but it has been one of the fastest-growing segments. A three-volume study by the New York consulting firm Frost & Sullivan estimates that purchases of electronic gear will jump from $3.1 billion in fiscal 1983 to $5.6 billion this fiscal year. "The need for electronic warfare, both active and passive, is all-pervasive," the study concludes.

E-Systems started out as the electronic systems division of LTV. It did a steady but uninspiring business in the 1960s installing electronic spying equipment and communications gear in military aircraft. By 1970 LTV was choking on a potpourri of businesses it had acquired and was on the verge of bankruptcy. The company pared back to three basic businesses and sold off everything else, including the electronic systems division. It spun off the division in 1972 as an independent company with $157 million in sales and a new name, E-Systems.

LTV's timing couldn't have been much worse: the electronic warfare business started to boom the following year. Dixon, who had run the division and who became chairman and chief executive of the new company, had been predicting that boom. "We detected this area as providing the real payoff in the defense business," he says. "We figured electronics would be the thing that would help save the big expensive equipment like bombers and fighters and missiles by providing systems for gaining intelligence on the enemy's potential and for mounting the means of disrupting his activity."

The event that touched off the boom was the Yom Kippur war in 1973. Israel lost a quarter of its air force in a matter of days because the Egyptians were equipped with superior Soviet-made electronics. The losses rattled Pentagon strategists and created an instant demand for better electronic devices. Says Michael Lauer, a security analyst with Cyrus J. Lawrence in New York, "The defense electronics industry did not exist before 1973. Now electronic warfare companies are imperative to the survival of Western forces."

JUST HOW imperative became apparent in 1982 when the Israeli air force attacked Soviet-equipped Syrian missile bases in the Bekaa Valley in Lebanon. The Israelis wiped out the bases and their protective air cover with the loss of just a single plane. They employed a variety of electronic countermeasures, some supplied by E-Systems. They used a standoff "jammer" aircraft -- a plane that remains miles from the target -- to disable Syrian radar. They also sent in drones -- small, unmanned planes -- to gather intelligence about defenses and act as decoys to draw fire away from the fighters.

E-Systems won its first major contract as an independent company in 1973 when the Air Force chose it to recommend the aircraft and electronic equipment for the fleet of National Emergency Airborne Command Posts, better known as the doomsday planes. The doomsday planes are supposed to serve as the President's command post during a nuclear war. E-Systems recommended the Boeing 747 for the job and later won the contract to equip the first of four planes. It also equipped the other three as a subcontractor to Boeing. Now it is updating them, at $40 million each, with improved electronics.

E-Systems has grown in step with its industry and become the undisputed master of what is known as signal intelligence, an area that encompasses all forms of reconnaissance and surveillance and makes up the major part of the passive side of warfare electronics. "There isn't a company or a country that has the technology to address this market more effectively than E-Systems," says Robert Hanisee, president of Seidler Amdec Securities in Los Angeles. "I've heard E-Systems referred to at the Defense Department as a national resource."

E-Systems equipped the spy ship Pueblo, the U-2 spy planes, and funny-looking airplanes with humps and bumps -- called Big Safari and Rivet Joint -- that fly around the borders of Warsaw Pact nations listening to electronic signals emitted by missile sites and other military installations. The company even makes a portable eavesdropping device that can "read," from distances as far away as a mile, what is being written on an electric typewriter. Says Gene Stapp, an E-Systems vice president: "Each time you hit a key, it triggers minute fluctuations along the electrical system. We can read those fluctuations. We can even tell you what brand of typewriter you're using."

SIGNAL INTELLIGENCE also includes something called real-time command and control, a system that makes James Bond's wonder weapons look like Cracker Jack prizes. Dixon first had the vision back in the 1960s of an electronic system that would allow battlefield commanders to "see" just about everything going on behind enemy lines. Real-time command and control does just that. Radios, vehicles, and even electronic control panels give off electromagnetic or electrooptic signals. E-Systems makes sensors that continuously monitor all the signals generated in an area. That literally means scanning every electronic impulse in enemy territory and determining if the impulses are launching missiles or turning on toaster ovens. The sensors tell commanders how many tanks or infantry or computer-controlled artillery batteries the enemy has and where they are.

The sensors can "fingerprint" signal sources according to the unique pattern each one puts out and feed the information into computers. By tracking the position of each signal, the computers reveal how the enemy is moving his pieces around the chessboard. Field commanders know exactly what is coming at them, and from where.

E-Systems also spies on itself. Since so many of its projects are classified, the company has to guard against espionage. New employees who haven't received security clearance work on unclassified projects in a segregated area known around the company as the leper colony. The tight security can be rough on employee relations. One new arrival in the plush corporate headquarters became enraged when she noticed two tiny lights in a bathroom stall. "It took a while to convince her that those were listening devices, and that no one was peeking in the ladies' room," says an E-Systems official.

For all its preeminence in signal technology, E-Systems doesn't invent many new products. Instead, the company's engineers pore over existing products and assemble them in systems that surpass the capabilities of the individual components. Most of the electronics in its systems are purchased off the shelf from major computer and electronics companies. "What we do," says one E-Systems engineer, "is design the linkages that make all the pieces work in the manner we want them to."

The company's penchant for technological elegance sometimes works against it. ESystems lost several important military contracts in the past year because its proposals were too costly. A. Lowell Lawson, 46, the head of the aircraft systems group, says E-Systems' major failing lies in paying more attention to its engineers than to its accountants when preparing competitive bids. "We usually are beaten price-wise, not technically," he says. "If we are guilty of anything, it's being the best and providing more than they [the customers] really ask for."

Pentagon weapons procurement specialists assign weights to variables such as technology and price, but they don't tell bidders what the weights are. "They never tell you if cost is 40% or 80%," says Lawson. "Sometimes we think technology is the main driver, and we bid high. And sometimes the customers have a little fear of the technology -- that we're taking them too far too fast."

And sometimes E-Systems loses business for political reasons. A defense contractor can't discuss a project with a foreign country without clearance from the State Department and, says Dixon, "that's where the bureaucrats can kill you." E-Systems developed a communications system, now used in Los Angeles, that enables policemen in patrol cars to tap directly into a central computer at headquarters to find out if a car is stolen or a warrant is out for the driver. The system looked like a worldbeater. Says Dixon: "We put a system in Buenos Aires, and the government wanted one for the surrounding area. Then the clamps came down because of human rights violations. We couldn't talk to them because the Carter Administration said you can't do any more business with Argentina. Period."

DIXON, 64, spends most of his time on long-range strategy. He leaves daily operations to David Tacke, 62, the president and chief operating officer; E. Gene Keiffer, 55, who runs the electronic systems group; and Lawson. Some security analysts rave about the management team. Says Hanisee, "They are outstanding not only at the top level, but several tiers down. You have to go a long way to find a group of managers who work so well together and give the impression of really liking each other's company." A bizarre episode involving an E-Systems employee demonstrated the cohesive loyalty in the company's ranks. When Lenell Geter, a black E-Systems engineer, was falsely convicted of armed robbery in 1982, a dozen colleagues set up a legal defense fund. Geter was exonerated after serving 16 months in prison and is back at work at E-Systems.

In planning strategy, the chairman gets considerable help from the Center for Advanced Planning and Analysis, a private think tank he set up seven years ago in Fairfax, Virginia. Both Dixon and the Virginia thinkers spend almost as much time looking backward as they do gazing into the future. Says Dixon: "I'm convinced that electronic technology moves so fast we have to revisit things we looked at a few years ago and said were not feasible because of size or weight or cost. We revisit and see if the technology is such that now it is feasible. You'd better look back and revisit quite often, or you are going to miss opportunities."

Drones represent one backward-looking breakthrough. These remote-controlled aircraft are a marriage of both passive and active electronic warfare. They precede jet fighters into battle, locate hostile sources of fire, serve as decoys, and direct missiles and radar-jamming operations. Drones used to be as big as regular aircraft and weren't practical for large-scale battle use. But as electronic components got smaller and lighter, miniature drones became feasible. The ones today weigh as little as 200 pounds and have wingspreads as short as six feet.

Israel's success with drones in Lebanon in 1982 prompted the U.S. Army and Air Force to order the same type. The biggest drone program is called Pave Tiger; Boeing makes the drones, E-Systems the electronics. Hanisee of Seidler Amdec estimates that Pave Tiger will yield $300 million in revenues for E-Systems in the next five to seven years.

E-Systems has picked up several other major contracts in recent years that combine passive and active warfare. One of the largest is Wild Weasel, a $300-million system used in Air Force F-4G fighters to locate surface-to-air missiles.

The F-4 is an aging plane, however, and the Wild Weasel may eventually be shifted to the F-15. The conversion contract could be worth another $250 million.

The company also produces the sensors for Lockheed's Precision Location Strike System, used in a plane called the TR-1. The sensors locate enemy radar installations, and the system guides attack planes to them. The sensors should bring in $80 million to $120 million over the next five years.

Dixon's latest visions are of outer space. Like Ronald Reagan, he is persuaded that the future of electronic warfare will be in orbiting weapons systems outside the earth's atmosphere. E-Systems is already doing $160 million of space weapons research. But even if Star Wars technology proves too difficult or costly, E-Systems has plenty of business lined up back here on earth.

INVESTOR'S SNAPSHOT E-SYSTEMS

SALES (LATEST 4 QUARTERS) $822.0 MILLION CHANGE FROM YEAR EARLIER UP 4%

NET PROFIT $62.6 MILLION CHANGE UP 45%

RETURN ON COMMON STOCKHOLDERS' EQUITY 24% FIVE-YEAR AVERAGE 17%

RECENT SHARE PRICE $24.50

PRICE/EARNINGS MULTIPLE 12

TOTAL RETURN TO INVESTORS (12 MONTHS TO 9/30) -34%

PRINCIPAL MARKET NYSE
Explanatory notes: page 204

LANGUAGE: ENGLISH

GRAPHIC: Picture 1, A doomsday plane, a modified Boeing 747 that could serve as the President's airborne command post in a nuclear war, gets an electronic overhaul in an E-Systems hangar in Greenville, Texas. BY CHARLES THATCHER -- WOODFIN CAMP; Picture 2, Gene Keiffer, head of electronic systems, holds a mock-up of a Wild Weasel, a device that tracks enemy missiles. The baffles surrounding Keiffer filter out radio interference during equipment tests. BY CHARLES THATCHER -- WOODFIN CAMP; Picture 3, Star Wars technology gets a thumbs up from E-Systems Chairman John W. Dixon. BY CHARLES THATCHER -- WOODFIN CAMP ; Picture 4, President David Tacke oversees daily operations while Dixon charts the future. BY CHARLES THATCHER -- WOODFIN CAMP; Picture 5, Tiny drones like this prototype helped the Israeli air force destroy Syrian missile bases in the Bekaa Valley in 1982. E-Systems makes the electronics for the remote-controlled planes. MARK GODFREY; Picture 6, The Air Force can use this mobile system for all voice and data communication between a battle zone and the Pentagon. The system also can coordinate air traffic in the battle area. BY CHARLES THATCHER -- WOODFIN CAMP