

Grumman Account Plan - 10/30/86  
By Jack Everson

I. Business

Grumman through its subsidiaries, is engaged in three broad industry segments.

A. Aerospace - This includes the design and production of military aircraft and space related components such as the Lunar Lander vehicle. Moreover, the design and production of component parts and subassemblies for other manufacturers airplanes and military hardware. A portion of this category involves the modernization or conversion of previously completed aircraft and the furnishing of technical and support services. Examples of modernization are the wing conformal radar retrofit program for the E2-C Hawkeye, as well as the engine upgrade program for the F-14 Tomcat.

Grumman produces the A-6 Intruder, a Navy all-weather attack plane, the F-14 air superiority carrier based fighter, the EA-6B Prowler, an airborne tactical electronic jamming system and the E-2C Hawkeye, AWACS "Eye in the sky", early warning radar system. These are the primary income producers for the company. Sales in this area were about \$2.5 billion last year. Overall sales were about \$2.9 billion.

B. Information Services - This segment provides data processing services covering a diverse group of endeavors under the Grumman Data Systems rubric. Programs like PAX River and Rolls-Royce are in this market segment.

C. Commercial Products, Non-Aerospace - This is the everything else category. It ranges from fabrication and sale of aluminum truck bodies, to post office vehicles to aluminum canoes. Grumman owned the Flexible Bus Company at the time of all the problems with the City of New York and the so called "Grumman" buses. The city has a massive

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civil action against Grumman which if it wins  
will have severe consequences for Grumman.

# Delays for 2 Grumman Planes

By James Bernstein  
Newsday Aerospace Writer

Grumman Corp. disclosed yesterday that a computer malfunction is holding up a \$1.3-billion program to upgrade two of its key Navy airplanes, the F-14 and the A-6.

The Bethpage-based company made the disclosure in releasing its second-quarter earnings, which fell 23 percent from the same period last year. Grumman said problems with the two aircraft didn't affect the quarter's results, but that they could in the future.

Grumman's net income was \$17.6 million, or 50 cents per share, down from \$22.8 million, or 75 cents a share, in last year's second quarter. This year's results included a one-time gain of 11 cents a share from the sale of ISI Systems Inc. The earnings drop was attributed to lower contract prices for aircraft, higher debt and increased spending on research and development. Revenues rose 19 percent to \$869.4 million. For the first six months of 1986, net income was \$38 million, compared with 1985 profits of \$50.1 million.

Phil Friedman, an aerospace analyst for Drexel Burnham Lambert, said Grumman's earnings were disappointing. But, he said, Wall Street was far more concerned about the F-14 and A-6 upgrading problem. "It is their future," Friedman said.

Grumman stock dropped \$1.25 a share to \$23.625 yesterday in New York Stock Exchange trading.

The company said the upgrade problems "could have a significant impact on program costs and/or schedules." It said the problems were uncovered during recent tests "performed on certain critical items of government-furnished equipment and from program reviews."

Grumman also said the potential impact on costs is being analyzed. It added that "there is disagreement between the company and the Navy" about who should pay any costs associated with delays or repair of equipment.

Navy Lt. Paul Weishaupt, a spokesman at the Pentagon, said the Navy would have no immediate comment.

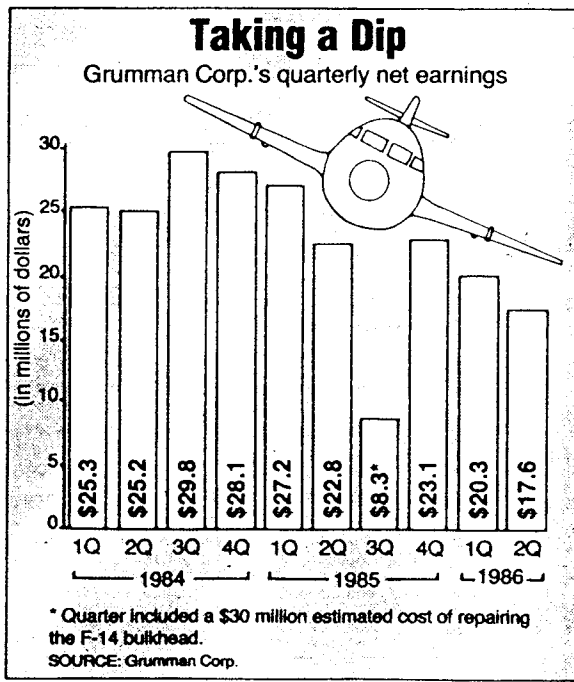
Grumman spokesman Robert Harwood said the upgrade problem is related to a central processing computer, the AYK-14, a standard Navy computer made by Control Data Corp. of Minneapolis. The computer is to be used aboard both the F-14D and the A-6F, the upgraded versions of the two Navy aircraft, to monitor all on-board functions.

"It doesn't operate fast enough to perform as the central processor," Harwood said. "We don't know the extent of the problems as yet."

Harwood said another version of the AYK-14 is used in other Navy airplanes and works without problems. He said the model to be used on the upgraded planes is a new one. The current A-6 airplane has been in Navy service for 25 years and the F-14 for 15 years.

Grumman Chairman John C. Bierwirth said there were "uncertainties" regarding the upgrade program, but said he was optimistic the problems would be resolved.

Grumman is upgrading both planes under a \$1.3-billion contract it won in August, 1984. At the time, Grumman said the upgrades could lead to \$20-billion worth of production. The Navy wants to buy 200 A-6Fs and 300 F-14Ds. Delivery is to begin in 1990, and the development phase alone is to require the hiring of 300 to 400 new workers, Grumman has said. The planes are to receive radar, electronics and new engines.



NEWSDAY, TUESDAY, AUGUST 5, 1986

II. History to Date

A. Business Volumes - In the past, and currently, our best success with Grumman comes from the high end of our product line. In FY500, we were selling 4114/4631 combinations as well as some 4634 and 4691's. The 4115/4125 was displacing this business by the end of 500. The NDAC project began ramping up in 513, swelling the 4125 count for FY500. FY600 followed with 4125 business predominant, and 4106, 4107, 4109 and 4111 business second. FY700 has been strong in 4125, and has outperformed FY600 in this category, year to date. The FY600 4107 business has gone away because Grumman has decided to buy 4107 (now 4207/8) from an OEM for the CASS and IFTE projects.

A detailed tabulation of Grumman business activity for FY500, FY600 and year to date for FY700, follows on the next page.

## Volume by Model#

Model	FY500	FY600	FY700
608	4	0	0
620	5	0	0
4631	7	4	0
4632	0	1	1
4634	4	1	4
4691	3	3	0
4692	0	3	5
4696	0	0	1
4114	6	1	0
4125	15	6	9
4106	0	1	0
4107	1	7	0
4109	0	1	0
4111	0	2	1
4207	0	0	1
4926	2	0	1
4957	0	2	0
4958	0	0	1
4014	1	1	0
4052	1	2	0
4662	1	0	0
s/w	10	5	2
Total	700K	400K	300K(YTD)

B. Product Mix - 412x's produce the most revenue. In line with the Grumman preference for the higher end, the 4691 and the 4692 are the copiers they buy.

C. Major Applications - Grumman makes extensive use of CAE/CAD. Most of this is provided by IBM and CADAM. The mechanical engineering portion represents the highest percentage. We have a piece of this, because some Grumman groups were not satisfied with their access to CADAM and developed some home grown software using 4014, which has recently been migrated to 4125.

CAE/CAD ME:60%      Presentation Graphics:10%

CAE/CAD EE:15%      TDA:10%

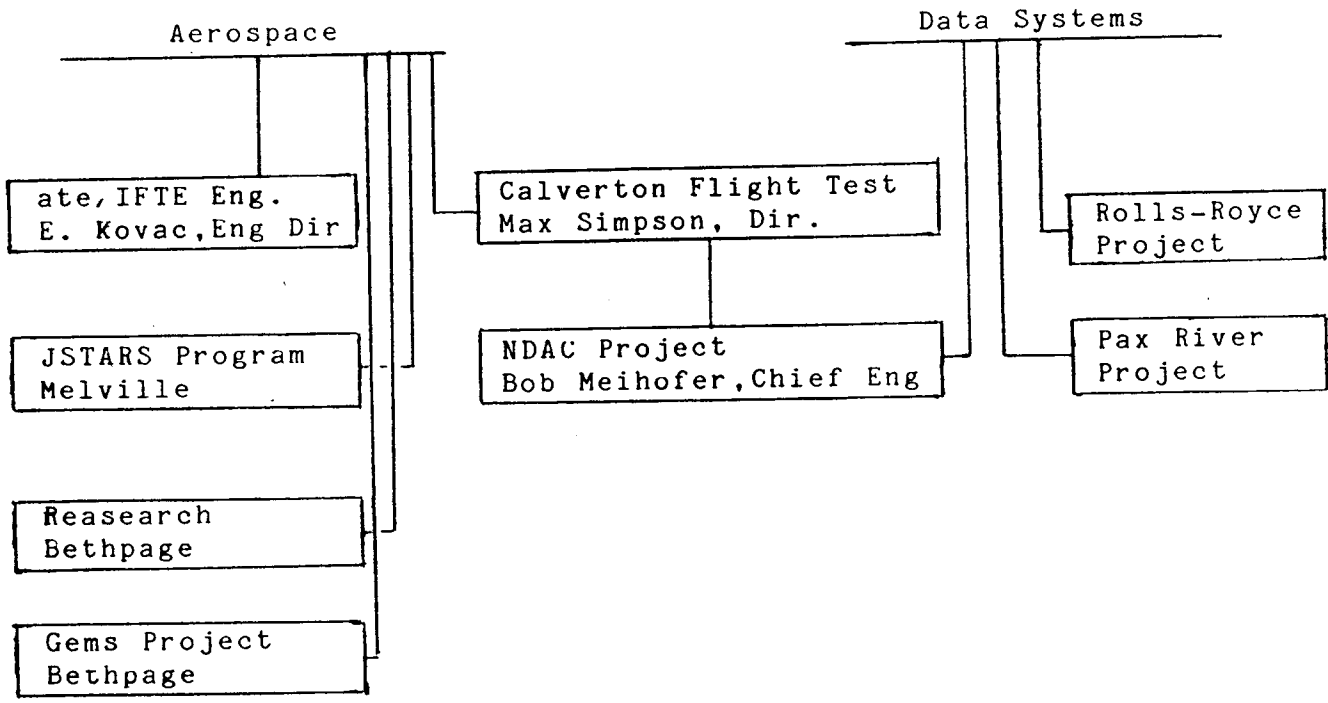
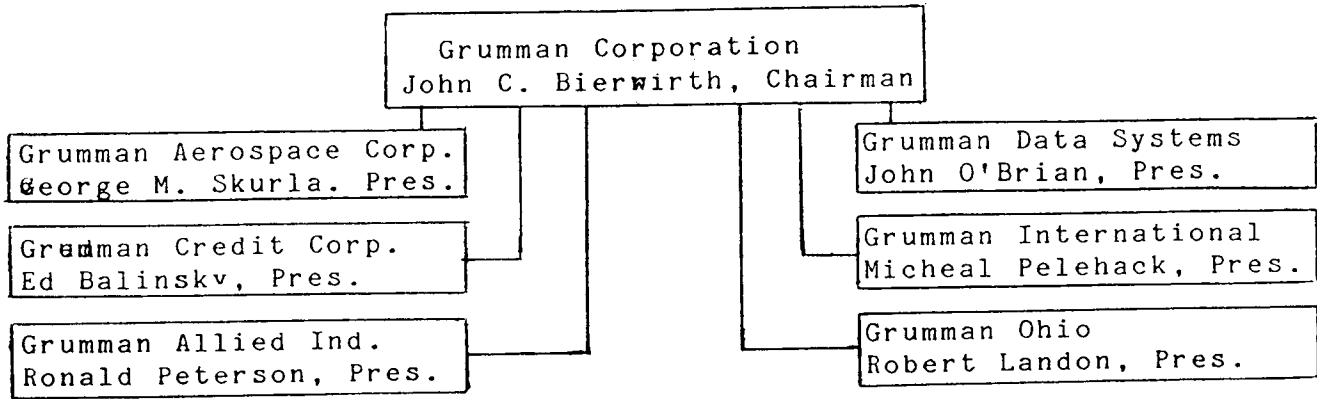


III. Major Computer Installations  
And Graphics Projects

Installation/Location	Equipment	Graphics	Purpose
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Aerospace/Bethpage	Cray 1M	Tek	Big Projects
Aerospace/Bethpage	IBM 3092	IBM, Tek	CADEM, IGL, TCS
Aerospace/Bethpage	HP-3000	HP, Tek	TDA using TCS
Aerospace/Melville	IBM 3084	IBM 5080	CADEM
Aerospace/Bethpage	DEC 8500	Tek, DEC	TDA
Systems/Calverton	CDC 176	Tek	TDA, Flight test
Systems/Calverton	VAX 780	Tek	TDA, Flight test
Systems/Calverton	Micro-Vax	Tek	TDA
Aerospace/Bethpage	Micro-Vax	<del>Tek</del>	TDA, General Purpose
Aerospace/Melville	VAX 780	Tek	Automated Test
Aerospace/Great River	VAX 780	DEC	System Development

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#### IV. Organization



Organization - The organization chart on the previous page shows six subsidiaries under the holding company, Grumman Corporation. We deal entirely with Grumman Aerospace and Grumman Data Systems. There have been several orders purchased by GDS (Grumman Data Systems), through Grumman Credit, but that is not the usual flow of business. The others are shown for sake of accuracy, we have not done business with them.

Graphics systems are used extensively in Aerospace. CADAM has been the major mechanical engineering tool for many years. We have been successful in the TDA areas of research, engineering, and ATE (Automated Test Equipment) support.

Major new opportunities and sales have been developed in GDS from the end of FY500 through the present. GDS constructed for Aerospace the NDAC project at the Calverton Flight Test Center. This is a flight test system which depends on real time display of flight dynamics data as an airplane is put through grueling maneuvers over the Atlantic test range, east of Montauk Point.

V. Competition - Grumman, probably like Tektronix, has one of nearly every new high tech piece of equipment offered in the market. They well give you a try. Sustained competition, however, comes down to IBM, HP, Versatek, DEC, and Apollo.

IBM is a big winner because of the CADAM program. I recently spoke with a source of long standing within the CADAM program who estimated a 5080 and 5080 clone population of 800 to 1000 by 1988. We have sold some monochrome copiers in CADAM, but the demand is not high now with about 600 3250/5080's.

Sporadic situations bring in different competition. On the PAX River and Rolls-Royce jobs, Megatek is the alternate display vendor. However, these jobs are similar in nature to the NDAC project which gives Tektronix the advantaged position.

## VI. IDG FY700 Potential

## A. FY700 Forecast

Product	\$ YTD	Total 700	Remarks
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410x, 420x	\$ 16,000	\$ 45,000	
412x	\$ 175,000	\$ 226,000	Most \$ here
469x	\$ 76,000	\$ 40,000	
Other	\$ 33,000	\$ 40,000	Software, Recond

B. FY700 Potential - The potential FY700 revenue is outlined below. References to these projects have been made throughout this Account Plan.

Project/Location	Potential	Application	Sales Actions
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Capital Equip.	\$335,000	TDA, Flt. Test	Support/Demo
Rolls-Royce	\$105,000	Eng. Test	4128 Loaner
Pax River	\$120,000	TDA Gov't	4125 Support

VII. Requirements - For the Rolls-Royce project, Grumman will need a 4128 loaner unit for up to two months. In addition, they are looking for telephone support from our local SA staff as program development proceeds. Grumman has asked that we supply a representative at two planned vendor meetings in England in November and Jan./Feb. 1987.

The Pax River job has been proposed. The work on the proposal is thus completed and we, as well as Grumman, await the government announcement of the winner of the job. After the award, I expect to need technical assistance through the SA staff.

Capital equipment purchases are something I have been handling for a long time and I don't anticipate special help nor do I see any T's and C's problems.

The major opportunities at this account are tied to the 4120's. The recent reduction of the base price and options prices of these units has caused me to revise the potential revenue

figures. Price reductions are great in an elastic market, however, most of the potential outlined above has fixed quantities of units. The capital investment purchases may benefit from the reduced price. However, I don't expect increased capital spending brought on by the price reductions, will be sufficient enough to countervail the revenue reductions on the Rolls-Royce, Pax River and NDAC programs. Three 4125 units are already included in the year to date figures at the lower prices.



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