

APPENDIX A: BACKGROUND PAPERS

INFORMATION AND EDUCATION IN THE HELICOPTER OPERATING INDUSTRY

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INTRODUCTION

This is not an academic paper in the usual sense for several reasons. One is that academic papers on economics usually rely on analysis of a great deal of information, including a lot of numbers, and such information has been hard to come by in the helicopter operating industry. The most important reason, however, is that my work in the industry has concentrated on education rather than research. Though I have been involved in several attempts to get practical research under way in the industry, my main effort has been in teaching—informing the pilots, mechanics and other technically trained people who make the industry go, about some basic business techniques and principles that would help them understand and solve the financial, marketing, and human resource matters that face every business.

But research was required just to determine what should be taught, and twenty-three years of this work has involved a fair amount of applied research in the form of reasoning with, visiting and hangar-flying with the nearly 500 operators who have attended HAI educational courses. The result has been a lot of observation and communication and the forming of some opinions and conclusions. This paper is an attempt to share observations which might help illuminate the economic circumstances and characteristics of the industry.

It will concentrate on two topics, the state of economic information and the state of economic education during three phases of industry history: (1) what I now see as part of the early years of the industry, 1969 to 1974-5, (2) the "boom" years of 1974-5 through 1980, and (3) the industry shake-out, reorganization and down-sizing following the energy "bust" in 1980-81 and continuing to the present.

BACKGROUND

The first HAI Operator Management Course (OMC) took place in 1970, in a motel about seventeen miles south of San Francisco. U.S. and Canadian owner-operators and their wives made up about 70 percent of the class, most of the rest were from Australia and other southwest Pacific locations, but the financial officer of Bristow was also in attendance. The faculty consisted of Peter Gibbs and myself. The subject content was about 70 percent financial management because the major concern of the operators seemed to be to learn enough of that subject to understand their accountants and argue on equal terms with their bankers.

This was the third course of this type we had presented. The first was designed and presented for Wiggins Aviation, a fixed base operator in Norwood, Massachusetts in the late 1960s. A Canadian operator, John Bogie of Ottawa, visited the course and recommended it to the Air Transport Association of Canada. As a result, we visited several Canadian operators to determine their needs, then designed and twice presented an ATAC-sponsored course in Ottawa. The students represented the largest group of ATAC members—small operators who did most of their flying in the bush.

The ATAC chairman at the time was also the elected head of HAI, then called the Helicopter Association of America. After being briefed on the course and observing a session, he decided that "helicopter operators need this more than anybody". So, we were soon visiting U.S. helicopter operators to determine their needs and then scheduling the first course, which has been followed by twenty-one more on an annual basis.

In the late 1970s we also researched, designed, and twice presented a course for the Alaska Air Carriers Association and presented five offerings of a course designed for NATA, the National Air Transport Association.

In the early 1980s, a course was designed for European operators and offered five times, starting in 1981.

In all these courses the approach has been the same: (1) visit operators to determine their educational needs, (2) find one typical operator who will provide actual numbers and problems for use in class, (3) find successful industry managers willing to serve as teachers, and (4) combine all this with a core of experienced professional teachers who can provide basic introduction to business topics and illustrate their application to current industry problems.

A policy of keeping the course current with the industry has resulted in continuous contact with operators, and frequent revision of course materials. As a result, faculty are kept aware of industry developments and trends.

ECONOMIC INFORMATION IN THE HELICOPTER OPERATING INDUSTRY, THE 1970S

Operating Cost Statistics

In the first HAI Operator Management Course (OMC) in 1970 the common approach of measuring company effectiveness by comparing company operating and financial ratios with industry ratios was prevented by the fact that no industry ratios had ever been calculated and published. At that time, the helicopter operating industry (HOI) was one of the few which had not seen the value of this and caused its association to gather and publish such information.

The OMC faculty made do with numbers supplied by several class members, and later forwarded a request to the board of directors that the association allow them to survey operators and compile industry ratios. The reply was negative. No specific reason was given.

This request was repeated in the late 1970s because operators attending the course wanted such information once they learned of its usefulness. The response was again negative.

As a result, the faculty collected what industry cost information it could from individual operators who were willing to share their own data in return for access to a sample of other companies' data. Some data were also made available, in confidence, from industry lenders. While this was a start and useful in the course, it did not benefit the industry in general.

The lack of such information meant there was no practicable way to document industry profitability by company or in the aggregate. More important, perhaps, there were no industry norms available to tell the new and/or small operator what cost structure to expect and how prices had to relate to costs if the company were to survive.

Direct Operating Costs

As in most executive programs, the OMC faculty learned at least as much from the students as vice versa. One startling example was the difference in helicopter DOCs as compared to the example most often taught in business schools; manufacturing company cost of goods sold.

In the manufacturing environment a great deal of engineering and organizational knowledge and talent is devoted to standardizing the process and controlling it closely in order to achieve consistency in output quality and cost per unit. Once the desired state is achieved, it is often possible to control, and therefore forecast, the cost per unit in hundredths or even thousandths of cents.

As the reader undoubtedly knows, the direct cost of one hour of flight, the common unit of production in helicopter operations, can vary wildly because of a number of factors outside the operator's control.

Weather, altitude, type of work, pilot skill and attitude, FAA and manufacturer decisions—all are examples of factors which have a direct and strong impact on hourly costs.

One outstanding example was the cost of insurance. Because it was an aircraft, the helicopter was lumped in with the rest of the aviation industry. As a result, airline accidents had a direct impact on helicopter rates—no matter the accident and loss rate of the industry or given company.

Manufacturer-published estimates of operating costs were a special irritant. Engineers derived them the best way they could, operating the equipment under controlled conditions. But these conditions could not possibly approximate all the varying conditions operators faced and usually were badly understated.

This contributed to underpricing by many operators and a great many well-publicized complaints aimed at the manufacturers.

A related complaint stemmed from "non-scheduled" maintenance; expense caused by equipment requiring maintenance before the manufacturer-estimated number of hours. At one time an operator survey named this as the most serious financial problem of the industry.

These manufacturer-connected items resulted in one HAI Chairman, at the annual meeting, warning a large audience that small operators should never buy new models of aircraft but wait until large operators had enough experience with them for their cost characteristics to be known.

A wild card surfaced in the late 1970s inflation. With energy-search demand already pushing up costs of all helicopter-related equipment and services, the advent of historically high inflation compounded cost problems, especially in fuel and money.

Operators had to renegotiate contracts to pass rising fuel costs on to customers, and when the "prime rate" jumped 6 percentage points in six months one operator, who had just borrowed heavily at a "floating" rate, suffered an operating loss due to a near doubling of interest expense.

The appearance of "floating" interest rates added a new variable cost to industry economics—one over which operators had absolutely no control and which strongly affected their ability to finance equipment.

All this made it very difficult to estimate direct operating costs accurately until an individual or company accumulated enough experience to derive their own costs. So, lack of organized information on the economics of operating helicopters was a handicap to individual companies and the industry as a whole.

As a result the operators and manufacturers initiated, in the late 1970s, an effort to at least define operating costs and causes to the satisfaction of all.

More on this later, after a look at the general state of economic knowledge in the industry of the 1970s.

ECONOMIC KNOWLEDGE IN THE HELICOPTER OPERATING INDUSTRY, THE 1970s

In the early 1970s the HOI was still a young industry and its association even younger. Two or three large companies were doing well but the large number of small companies seemed to be plagued with all the problems of other small businesses plus a few of their own.

Most U.S. and Canadian helicopter operators were military-trained pilots and mechanics with WW II, Korean, or Vietnam experience. They started their own companies because they wanted to stay in aviation and run their own show.

Most had entered service right out of high school, or earlier, and had no formal civilian education beyond that. Most also had little or no business experience between leaving military life and starting their own company. As a result, while intelligent and resourceful, they had neither the benefits nor disadvantages of prior business experience or education.

This surfaced in class in a number of ways. Some students did not recognize terms such as CPA and MBA. Halfway through my first explanation of "breakeven" analysis it became clear that a large portion of the class had either never heard the term or had not had it explained to them.

Inquiry during the following class break brought the comment from one experienced operator that he had never heard the terms used and didn't know what the h--- I had been talking about. When pressed that he surely had figured out what level of operations had to be reached before his company became profitable, he quickly confirmed that each ship had to fly an average of 600 hours a year to "break that nut" of costs which had to be paid even if no revenue hours were flown.

Other such examples demonstrated that while most operators had come to realize that some costs behaved differently from others (direct and indirect, variable and fixed), many were unsure how to measure the two or use that information effectively. They were simply unaware of basic terminology and techniques in general use in business.

So a primary function of OMC became familiarization with fundamental business terminology and techniques. It became a great satisfaction to the faculty to meet OMC graduates at the annual convention and hear how they were now recognizing and solving problems which formerly frustrated them.

This lack of basic business knowledge came out in a number of ways. When asked how they knew they had had a good year, most replied that, if they had a comfortable cash balance at the bank and no large bills outstanding, it had been a good year. The state of net worth from one year to the next was an accounting abstraction to most.

If asked how they would determine company value, most indicated what they would have left after selling all equipment and paying all debts would be what the company was worth. Most recognized the company had value as a going concern but saw no way to effectively calculate it or support it as a selling price.

Asked to calculate the rate of return on their investment in the business, most were stumped. They thought of the company as a way to earn a good living, not to build wealth which could be sold to create an estate. The difference between earning a salary as owner-manager and earning a return on invested capital represented by owner's equity was not part of their thinking.

Such examples illustrate why many operators started up and quickly failed. One young pilot had started two companies and quickly gone bankrupt before he attended the OMC and got "business religion", as he phrased it. His next attempt survived at least four years, at which point contact was lost.

They also illustrate why "that S.O.B. across the field" seemed to be the primary economic villain of the industry. Nearly every operator who attended OMC assured us that he/she knew their costs and used them to set prices

intelligently, but how could they compete with that stupid character "across the field" who obviously didn't know his costs because he was underpricing? Sure, he'd go broke when the first overhaul came due, but how were others to survive if he ruined the market?

Many did survive, of course, and became very knowledgeable business people in the process, but the "guy across the field" represented several industry characteristics of the time and a problem that we may still have.

There were plenty of pilots who thought they could get rich selling time at rates that did not include such real but intangible costs as depreciation and nonscheduled maintenance. Furthermore, aircraft were available to these people. There was evidently no barrier to entry into the industry that prevented such operations from getting started.

The oil embargo of 1973 changed all this temporarily. Suddenly, anyone who owned a helicopter could get a cost-plus contract to support energy exploration or production. But the resulting demand for aircraft and the inflation generated by the oil "shortage" sent prices for aircraft and related equipment soaring. Operators were able to pyramid small companies into larger ones by borrowing against the increased value of owned equipment to buy more and generate higher sales.

Company economics suddenly looked better. But within a year or two price increases in parts, fuel, and new aircraft once again made cost recording and control a matter of concern.

These and other problems sparked the previously mentioned move in the late 1970s to define helicopter operating costs. This resulted in a joint operator-manufacturer committee which produced the first "Guide for the Presentation of Helicopter Operating Cost Estimates".

Another notable effort was the documentation, by Evergreen Helicopters, of the annual cost of parts and components for all the types in their fleet. This clearly revealed the inflationary trend and provided good data for estimating next year's costs. This was shared with the industry through HAI.

These were two of the initiatives which became features of increased economic sophistication in the 1980s.

PROGRESS IN THE 1980s

Impetus For Change

The big event of the decade was the oil-glut of 1980-81. Approximately 70 percent of industry flight hours were connected to energy search and production. As this fell drastically so did the income of helicopter operators in general. The annual sales of one large operator fell more than 75 percent over a three-year period.

The result was cataclysmic. In 1980 approximately 31 companies were working the offshore market in the Gulf of Mexico. Within two years bankruptcy and consolidation reduced that to eight. It now seems to have stabilized at about six.

Manufacturers also suffered as orders were cancelled and used aircraft flooded the market. A general economic recession spread the impact throughout the industry.

This, then, was the inevitable shake-out following the boom years of the late 1970s. It resulted in the exit of many helicopter operating companies and hard times for the manufacturers.

But some of these companies perhaps need not have been driven out of business. Companies that lost over 50 percent of their sales were able to adjust and survive. At the 1981 annual meeting in New Orleans one survivor confided to me that two of his classmates had failed to come out of chapter 11 only because they were incapable of forecasting and managing their cash flow.

So the burst of prosperity may have submerged the problems of information and education temporarily rather than eliminating them.

As it happens, the event spurred existing and new efforts to find ways of reducing operating costs, measuring them accurately, and finding new markets and reviving old ones.

Search For Information

The HAI Economics Committee continued the effort to define all costs, bringing out a much-improved version of the "Guide for Operating Cost Estimates" in 1987. At this time I understand an even newer version is in the works.

The Committee, chaired by Brandon Battles of Bell Helicopter, also recommended and the board approved, a project to develop and publish industry ratios. The very interesting results were announced at the 1991 annual meeting and will probably be followed by another survey intended to include a larger number of operators.

The Committee also supported a survey of the ways in which U.S. operators record and use direct operating costs. The results are being processed as this is written.

Manufacturers have supported these efforts and are pursuing their own programs to identify and control operating costs.

Bell Helicopter, in the person of Brandon Battles, has examined operator records for many hours to determine the costs of flying Bell aircraft. The results can be of considerable value to operators. They have been presented in the Operator Management Course and will be used there in the future. Brandon is now trying to get his arms around an even more ambitious project—measuring the direct operating costs of different Bell aircraft in different applications and environments.

At McDonnell Douglas, Bob Devin has involved operators in minimizing operating cost through better design. This is a salutary approach which we can hope other manufacturers will emulate.

So, while the collection and dissemination of HOI operating cost data is not yet sufficient, a good start has been made. Most important, industry leaders have demonstrated the intent to remedy the lack of useful information regarding industry economics.

Will operators be capable of making use of this information to increase operating effectiveness and profitability?

Economic Education

Indications here are promising. After the industry collapse there was a near-disappearance of operators who could afford to attend the OMC or even attend the annual meeting. From 1983 on, however, there has been a gradual increase in attendance and a surprising number of company owners new to the field.

They differ from the old breed in that they view the industry primarily as a business opportunity. They are affected by the same glamour that has always attracted people to aviation, but their primary purpose is to operate a successful business.

Most of them have had significant business experience prior to entering the helicopter industry. So they are not handicapped by lack of basic business knowledge. Some have been so successful in previous businesses that they have no trouble in raising the capital needed to enter the helicopter world.

Here, I suspect a change that I can not document. The cost of entering the industry may now be preventing the "guy across the field" type from starting an operation. The glut of used aircraft for sale which followed the energy bust has evidently been absorbed. It now seems less likely that aircraft can be leased or bought easily enough to allow anyone without considerable financial backing to enter the industry.

Of course, manufacturers are in business to make and sell aircraft and will always push to expand sales. The capital investment they make in today's aircraft should, however, encourage caution in leasing or selling to operators of questionable capability and financial strength.

Perhaps, too, current and future tax law will make it less attractive for "hobby" owners to lease aircraft to operators or would-be operators of questionable ability.

HAI attempts to provide education to operators have also increased. A special course for managers on the maintenance function is now well-accepted, and the OMC has been augmented by advanced seminars in topics such as lease-or-buy analysis.

All in all, the outlook for improved economic understanding within the industry seems favorable.

If it were valid to generalize from two specific examples you might consider these. Remember the young pilot who, in the 1970s, went bankrupt twice before seeking some answers in education? Well, this year another young pilot attended the OMC and after graduation informed the faculty that the course had been a very big expense for him, but it had been worth it because "I've been in business a year and a half, and this year I thought I had broken even, but you guys have proved to me that I didn't. So, at least the current generation is looking for help before they go broke!

SUMMARY

In the early 1970s, a still-young industry of small companies was having a tough time economically. Many company owners and managers knew the industry technology but not the basic business skills needed to survive in a competitive business. Nor did they have access to industry economic information which would have provided some guidance.

The situation eased after the 1973 oil embargo due to a vast expansion of the search for oil and other forms of energy. Anyone who could get an aircraft could get a contract, often on a cost-plus basis. Companies could finance expansion by borrowing against the fast-inflating equity in aircraft, and many did so. The same inflation prompted

some industry leaders to initiate action to define operating costs and control their rate of increase.

This ended when the oil supply exceeded demand in 1980-81 and many companies were forced out of business. Some might have survived had management been more skilled in business techniques and had access to industry economic information.

Since that time there has been a gradual recovery, an influx of new operators with business experience, and increased activity by HAI and individual industry leaders both to generate useful economic information and increase access to economic knowledge needed by operators. The industry has made a good start on improving the quality and quantity of economic information about the industry and the economic knowledge needed to make use of it.

THE HELICOPTER INDUSTRY vs. DIRECT OPERATING COSTS

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INTRODUCTION

The usefulness of cost information in manufacturing firms is widely documented. Without complete and accurate information a company cannot adequately plan, control, measure, or evaluate its performance. In a tight fiscal environment a company without good cost data will not survive over the long run.

During the last half of the 1970s and before the decline of oil prices and a resulting decrease in exploration activities, the helicopter industry was flying high with its operating income in a very positive position and cash flow looking very good. The helicopter companies had an overabundance of work, charging and receiving high fees. Companies were not concerned with their operating expenses as the revenues adequately covered the operating costs.

With OPEC's decrease in oil prices and the drastic reduction in oil exploration, many helicopter companies found themselves with fewer flying contracts and little revenue, yet still with costs to cover. When a job did become available, operators would compete for the opportunity to fly it. Unfortunately, many of the competing firms mispriced the bid because they did not know the true costs of flying the helicopters. Some of these companies still do not know their direct or indirect costs. The result has been that many have since been forced out of business.

According to David Smith, President, MBB Helicopter Company, "Understanding, measuring and expressing operating costs is the most important subject in the long-term survivability of our industry." Unfortunately his statement is too true. Most helicopter firms are living on a day-to-day survival budget. Short-run survivability is the name of the game. The concept of "low-balling" a bid price and winning contracts does not equate to future existence if operating expenses continue to exceed revenues.

COSTS

All helicopter flight operating costs can be grouped into either *direct* or *indirect* operating costs. Caution must be noted because direct operating cost (DOC) is not the same thing as a direct cost to an accountant. A distinction is necessary in order to avoid confusion. Direct operating costs are those costs which can be specifically associated with operation of the helicopter.

Indirect costs are all those other costs necessary to run the business. Unfortunately, at times one cost may be a direct cost while at another time it may be an indirect cost. The identification of the type of cost will depend upon the circumstance and not whether it is a fixed or variable cost (explained later).

INDIRECT COSTS

Indirect costs are sometimes referred to as *overhead*. Their estimation is extremely important and necessary when pricing a contract because rarely will an operation be conducted without it absorbing some overhead costs. In other words, every contract should include part of the total overhead. There is no other way to cover overhead except