

CLEVER ROLE EQUIPMENT THE MEANS TO COST EFFECTIVE OPERATIONS

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Abstract

The European helicopter market has lost its momentum except in specific areas related either to the present strength of the oil market or to clever exploitation of a relatively minor market niche for small private aircraft. It is beholden to the Industry itself to regenerate that momentum. No one else will do so. A new impetus is required to change the perception of potential users from their current disinterest or even hostility, to the belief and understanding that helicopters have an essential role and possess unique and valuable characteristics. The Industry must combine to launch a careful media campaign coordinated with a vigorous and imaginative marketing drive for its product. The Industry must work to enhance and optimise the helicopter's unique capabilities by use of clever role equipment.

It is timely to explore a redefinition of the helicopter as an aerial work platform and then to progress towards identifying those characteristics which offer most market potential. That potential offers the way out of the sloth of despond and defensive thinking into which the Industry has drifted. Optimisation of those characteristics requires perhaps a little more effort and ingenuity than previous operators have been prepared or able to provide. The chief roles in which such potential lies are aerial application and delivery, aerial observation and the provision of support to the Emergency Services. Given sufficiently clever role equipment, none of these roles demand the dedication of particular helicopters

in the owner's fleet to specific roles. This allows the flexibility and versatility essential for cost effective operations.

Situation

Introduction

With certain notable exceptions, the European helicopter fleet size has remained effectively static over the last five years. The growth that has occurred falls into well defined areas: the small private aircraft - in the UK represented by the Robinson R22, and the large, oil field support aircraft. No other sectors of the fleet, even the military, have seen any significant growth. We, as fellow members of the helicopter fraternity have a common interest in a strong helicopter presence, and that means a steady sustained growth in the number and visibility of the craft.

Why is there a general stagnation in the industry and how long will it remain so? Very critical questions and ones, we suggest, which all in the industry must address. No one outside this industry is going to change the situation. Indeed, many have vested interests in actively maintaining the status quo. The ball is very clearly in the industry's own court. Our intention is first to signpost ways in which each in his own specialist sphere can move to step up the momentum of the whole industry, and secondly to discuss aspects from our own particular sphere which we believe would bear dividends - given more attention and effort.

Perception

There exists in the thinking European public a strong resistance to the helicopter. This pervades all levels from the Learned Societies - this Forum being the exception which proves the general rule - through the 'Not in my Backyard' lobby to the more vociferous and even less justifiable attitude of the growing environmentalist groups. We have done little to break down or even to contain that resistance. When, for example, will EHOC launch an active public relations campaign rather than fight a rearguard action as each more swingeing restriction is conceived for the industry. Most other bodies have learnt the value of the one minute TV slot used to counter criticism and then to mould perceptions - witness the recent campaigns for sugar, power, water, the major conglomerates and railways. When did we deliberately seed the concept that intercity travel by helicopter saves the brain from the train? When did we deliberately generate media coverage to demonstrate the cost effectiveness and the saving of lives will result from an organised EMS network? The facts are all there. We have yet to effectively present and exploit them.

The general public, which by definition includes all potential users of the helicopter, perceives it as a noisy, dangerous, expensive toy. Indeed, ironically one could argue that the enormous success of the Robinson is attributable in some degree to this perception and to the careful and very clever exploitation of the consequent niche market. After all, some people must have toys which appear noisy, dangerous and expensive. That aside, however, and apart from such splendid exceptions as the recent TV series on the RAF SAR squadrons, the media are at best helicopter-blind and at

worst openly anti-helicopter. How to reverse that situation is the problem. How can we change that perception?

Corrective Action

We suggest three actions to achieve that change. Firstly a deliberate, positive and wide spread PR campaign to pass the message which we want to be heard. Secondly, the far more imaginative marketing of the helicopter as a facility which enables other things to happen. Intercity travel, city centre heavy lift and emergency services support are typical areas where, compared to the potential revenue, little effort has been put into influencing the market. Thirdly, and the subject of our paper, is the optimisation of the helicopter's inherent unique capabilities by role modification - the use of clever role equipment.

Redefining the Helicopter

Basic Characteristics

We contend that the applications to which we currently put the helicopter fleet are limited by our concept of the aircraft, not by its basic performance and characteristics. By critically examining these characteristics, suppressing our existing concepts and effectively starting with a clean sheet of paper we can overcome this imitation which we have imposed upon the helicopter. It is not its technology but our concept and the manner in which we perceive that technology which is the limiting factor. A shift back to first principles is necessary in order to be able to move forward.

Despite limitations upon speed and altitude similar to the performance characteristics of a small, general aviation aircraft whilst costing many times as much, the helicopter represents the ultimately versatile

craft of the air. It can move easily and under full control in all directions. It can stop and hold its position for relatively long periods. Without any additional equipment, it can take on fuel whilst in the air and it can also embark and disembark its payload whilst in the air. It can fly in confined spaces. Its safety does not depend upon it having a considerable forward speed, and except if suffering a major catastrophic structural or mechanical failure, it can be guided and remain under adequate control in the event of motive power failure. As with all aircraft, its payload and endurance are only limited by the configuration which its designers impose upon it. Its general mechanical configuration allows payloads to be carried inside or below the fuselage and allow limited payloads to be attached fore, aft or upon either side of the fuselage. When considered in this aspect, a view emerges of an extremely manoeuvrable, versatile and agile aerial work platform.

Operating Environment

Its manoeuvrability and agility allow the helicopter to operate from any flat space which is little larger than its rotor diameter. Indeed, the greatest constraint on where the craft can land and take off is noise not length of concrete. It can fly, subject to legislation, driven by perceptions rather than experience, close to tall buildings, in confined spaces and round obstacles. Thus the aerial work platform can also be correctly described as relatively unrestrained in its area of operation.

The Aerial Platform

Capabilities

When defined as an aerial platform which can be transited under control and with little constraint, the helicopter takes on a new mantle. Now, instead of confining its horizons by the thoughts of seating capacity, transit speed or operating costs, one is free to consider the roles most appropriate to its full range of capabilities and to work to optimise its effectiveness in those roles by the provision of adequate role equipment.

Aerial Application

The small ag helicopters, like their fixed wing counterparts, are customised to the one role and are thus dedicated to one narrow specialisation. Yet the ag market is disintegrating fast and the use of specialised aircraft can no longer be justified. To a degree, the same situation applies to all aerial application scenarios - even to fire fighting where the market potential is vast but the season is so limited. Underslung role equipment, converting a general purpose aircraft to an effective applicator must be the way ahead. Some examples of equipment exist, but the plethora of cheap modern electronic equipment capable of monitoring and controlling the flow of powders, liquids or foams has not so far emerged. Once it does, surely the specialist dedicated aircraft will be a thing of the past, outperformed and undercut financially by its versatile general purpose competitor.

Aerial Delivery

The airborne cab concept is as old as the helicopter itself and will always be, in one of its major forms, a major aerial delivery role. As each new regulation is imposed on passenger carrying aircraft however, better role equipment is needed to restore optimum payload capability, whether it be by the introduction of external baggage or dinghy stowages or by more ingenious shaping of doors or trim. The task becomes increasingly difficult for the small operator, but specialists are at hand. As for freight carrying aircraft, the age of cheap electronics surely must yield a solution to the load hook weight monitoring problem, the underslung load visibility problem and the remote hook release problem. New opportunities are also emerging for heavy lift sorties, as road access to high rise developments worsens and the costs of such access increases as fast as the developments. In these cases, the basic mechanical role equipment is simple, but the availability of enhanced vision for the pilot would present more effective ways of doing the job.

Aerial Observation

Low light TV, infra red TV, search lights, gyro stabilised still cameras, binoculars and TV camera stands are all now readily available to the civil market together with rebroadcasting systems, data links and radios compatible with those of the specialists on the ground. We now see the ITV with a traffic watch aircraft, BBC with perfect airborne photography of sporting events and police forces searching and finding people lost in open country. The sensor equipments used in these roles need careful engineering into the aircraft, especially the smaller single engine types. The potential

for continuous employment of such equipped aircraft is considerable, even outside the area of police and quasi military applications. Ironically, the sensor equipment manufacturers are up and running fast, but the helicopter operators do not seem to share the same confidence.

Multiple Roles

Perhaps the majority of new and potential tasks depends upon the use of a combination of the new roles. Emergency Service Support is a case in point. Here, the success of the operation depends upon on-board and underslung equipment, state of the art sensors and clever arrangement of the helicopter cabin to accommodate stretcher cases, dog teams or airborne control posts. The users demand versatility to make up for the fact that the helicopter is no bigger than an ambulance, patrol car or rescue vehicle whilst costing several times more. Success for the operator is dependent upon the ingenuity of the company supplying his combination role fit. The price for both supplier and operator is a market potential of dozens of aircraft.

In summary, we must move away from considering our helicopter as a Taxi, Ambulance or in fact being any one thing. We should instead view our fleets as Platforms, platforms from which we can add and subtract in order to fulfil the tasks which are waiting to be met. We can then satisfy the ever increasing demands that we place upon them.

Thus, reviewing the current concepts and definition that we presently hold and starting to identify the helicopter as a platform or work arena, we can begin to explore many new revenue earning tasks for our fleets.

The Market

Review

Earlier in this paper, we identified a relatively static helicopter market in Europe and emphasised that the industry must turn its attention to moulding public perception, to review its penetration of the potential markets and lastly to optimise the unique capabilities of the helicopter with complimentary role equipment. We then explored these capabilities and equipments in more detail. So far, our paper has been an exhortation to the Industry to pull itself up by its own bootstraps towards a goal with equipment which has only been presented in conceptual terms. More specific examples would be a useful device to emphasise that there are markets just waiting to be taken. None of these simple examples require the use of any more than rudimentary role equipment.

The two main areas of growth have been identified as largely the small private owner - personified by the Robinson R22 owner who, tiring of the less exclusive image of his Porche and the ever mounting pressure to neuter the motor car - green petrol, speed limits and a shift in imagery towards the loving caring driver - is anxious to restore his status differential. The second area of growth, far more important to the long term interests of industry, is in offshore oil and gas support. Here the increasing buoyancy of the energy industries caused by international events has been the driving force, comparatively little effort having been needed by either the production or operating companies. Let us now look at other specific areas in which there is growth potential.

The Major Opportunities

Aerial Application

The ag-market is dead, and perhaps so it should be. However, there are an increasing number of opportunities for aerial application tasks for the multi-role aircraft. The seeding of forests in Europe to combat acid rain and the periodic pest control programmes in Africa are clear examples. A more local, topical and growing example is the aerial application of dispersants to oil spills. The Exxon Valdez was the type of environmental disaster which no national government can afford to mishandle again. The UK Government provides its oil spill response force through a contract placed with a fixed wing operator whose fleet of special to type aircraft are held at varying states of readiness. The contract is currently worth £3M per annum. The aircraft are DC3s and Islanders. The payload of the DC3 is equivalent to that which a general purpose Super Puma roled with an underslung applicator could carry. The DC3 is always visible on standby, photogenic in operation and absolutely useless compared to the payload per hour, effective operating costs, accuracy and versatility of a Super Puma. The contract has never been contested by a helicopter operator.

Aerial Delivery

One would perhaps not expect a helicopter to be more cost effective than a high rise crane. In difficult sites, for example city centres, and for one off lifts such as moving heavy plant, the helicopter lift can cost less than half the equivalent crane lift, and the role equipment required invariably comprises a simple spreader frame attached to the cargo hook. The role offers superb publicity potential as well as profit, and with better marketing could become far more widely used than today.

Emergency Service Support

Whether it be for Medical, Fire or Police support, the helicopter in the UK and most of Europe is a decade behind the US. The rule of thumb effectiveness of a helicopter in these roles is that each aircraft costs four times as much as a road vehicle but its productivity is four times as high. When one adds speed of response, versatility and manoeuvrability to the equation there is no contest. But still we have not broken down the vested interests and preconceptions which are holding back the enormous potential growth in this area. The design expertise and manufacturing technology to make the role equipment essential to this role and to modify it to follow changing fashion and dogma already exist.

Aerial Observation

Although Aerial Observation is a capability used in many roles, it has a place of its own and should be exploited as a stand-alone role. Tremendous progress is being made by the electronics companies to produce even smaller sensors with data links back to a base control. The major media companies are already starting to use the new generation sensors which are now small enough for fitment to say a Jet Ranger, by clever role modification. Substantial growth potential exists for news gathering, traffic reporting, perhaps even routine monitoring for the use of prohibited irrigation equipment. Imaginative marketing is required to exploit this role.

Search and Rescue

Search and Rescue requires a combination of several roles, and the Lockerbie disaster presented a regrettable opportunity for the cost effectiveness of the helicopter in a simple optical search role to be demonstrated. It was not as impressive and obvious as the 1,000 men on the ground who were its equivalent, but being seen to do the job was not the objective of the search for bodies and debris. Here was a case where a helicopter with relatively simple sensors and recorders on board was the obvious search tool to use, yet it took some days for the authorities to reach this conclusion. Search and rescue is a role which requires presentation of its enhanced potential.

Conclusion

The presentation noted an almost static helicopter market in Europe, particularly the UK, and related this to the adverse perceptions of potential users. It identified that the way forward was by the use of positive PR campaigns, a reassessment of the unique capabilities of helicopters, and their better optimisation by the introduction of clever role equipment. Basic definitions of these capabilities were discussed and the relationship established with current unfulfilled user requirements and areas of potential growth in usage. The authors expressed their considered opinion that the restoration of growth to the helicopter industry depended upon a more positive and innovative approach by the industry itself. This paper is intended to stimulate discussion within the Industry with the objective of overcoming the inertia from which it presently suffers.