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PRIME MINISTER

A DEFENCE SUPPRESSION WEAPON FOR THE RAF

At our meeting on 17th May, you asked that a further study be made of the possibility of persuading the Americans to offer Marconi an opportunity to participate in the development of an improved seeker head for HARM, the export potential of ALARM and of HARM COPRODUCTION and the credibility of the in service date and Fixed Price which BAeD have offered for ALARM. This minute reports the outcome of this further work and assesses its significance for my proposal to buy ALARM.

Participation in Development of an Improved Seeker Head

2. While we understand that the US have decided in principle to develop an improved head, much depends on the precise nature and timing of the improvements which the USAF and USN will want. Closer definition will be necessary before we could be certain that this programme could provide development work of a type and scale which would suit MSDS' needs. More significantly, technical problems can be expected to arise in any attempt to integrate a British seeker head into a US missile. These problems might not prove insuperable provided there are no major commercial and political obstacles in this highly competitive and sensitive area of advanced technology. Unfortunately, such obstacles are already evident, for example in the US Government stipulation that, whether we procured HARM on FMS terms or through COPRODUCTION, we would be allowed to obtain the seeker head only through Government channels and with a minimum knowledge of its internal workings (US manufacture = US repair).



3. It is open to question whether our purchase of HARM would be so important for the US Government or for TI to induce the US to adopt a more encouraging stance. Given the importance of the technology to them as much as to us, we would need to exert considerable pressure to get them to consider the possibility of a UK source for an improved HARM seeker head. Even then we could not expect MSDS to be given more than the opportunity to compete with US firms; there can be no guarantee that they would succeed in such a competition. Meanwhile, we would have to consider how much financial as well as diplomatic support MSDS might need in their competitive efforts, including support between now and such time as there was a US competition for them to enter. Unless these efforts were successful we would still face very serious difficulties over maintaining MSDS' seeker head and guidance capability.

Export potential

4. We have carefully re-examined the position, since firm estimates are hard to make with any confidence in the absence of an established market for this type of weapon. In January we put the market size for sales outside the UK, USA and France up to about the year 2000 at 4000 missiles. Some countries are showing a stronger interest, and we now think 5000 nearer the mark. This is still well below BAeD's estimate of 20,000 which assumes buyer countries would fit all their suitable front line aircraft to the full - compared with our assumptions of 20%, in line with RAF plans. Texas Instruments and Lucas estimate the potential market outside UK and US at 4,000 which is consistent with our revised figure of 5,000 when allowance is made for countries the US would veto. Because missile sales tend to follow aircraft sales, in which the US (and to a lesser extent, France) are dominant, we believe BAeD, perhaps helped in some cases by the fact that ALARM is the smaller missile, can at best hope to win some 25-30% of this market - i.e. some 1250-1500 missiles, equivalent to at least 6000 additional project man years in the UK. (BAeD also hope to get a 30% market share). The



HARM COPRODUCTION agreement with TI would give Lucas up to 8.5% of any US export work, equivalent to about 340 missiles, to which should be added up to 11% of the US domestic market, equivalent to about 1210 missiles. The total of some 1550 missiles equates to about 5000 additional project man years in the UK.

5. If one discounts - as I believe we should - BAeD's views, there is thus little to choose between HARM and ALARM. But each Company faces a major hurdle. Lucas would have to acquire qualified status as supplier to TI for US Government and US export business, and then compete with US suppliers for subcontracts. There is no reason to suppose that Lucas, who have a good record in the US, could not both qualify and stand to win subcontracts, and we could propose that the opportunity for Lucas to bid should be a condition of any HARM COPRODUCTION contract, but there can be no guarantee of their success. On the other hand, BAeD face stiff US competition in the world market and ALARM would have to be energetically marketed to get as much as a 25-30% share; but we would be marketing a total system, all under our own control, and strengthening our industrial base for the future.

Credibility of ALARM programme

6. I expressed reservations on BAeD's ability to meet their in service date of August 1987 in my earlier paper. The position has not changed. Since the proposed ALARM programme contains several areas of risk but makes insufficient allowance for setbacks, and since BAeD have accepted additional work within their timescale to provide capabilities necessary to make ALARM fully acceptable to the RAF, an in service date some two years later would command greater confidence. Consequently, choice of ALARM with an ISD of 1987 and on a Fixed Price contract involves the risk that if slippage occurred or seemed likely, BAeD might try to cut corners in meeting contractual specifications: we would have to resist pressure from them to sacrifice quality in order to save them extra costs. They could also be expected to exploit any



opportunity to escape from the Fixed Price. We would have to deny them any such opportunity by adhering to the agreed specification and meeting our obligations to supply them with equipment and facilities on time. Nonetheless, the Fixed Price would remain a strong incentive on them to minimise any slippage beyond August 1987. If however the programme did slip, BAeD's net loss (for which they have no doubt themselves made some contingent financial provision) would not, I believe, be too large for British Aerospace as a whole to sustain whilst remaining a viable enterprise.

7. On the basis of the later in service date the ALARM programme is judged to have broadly similar credibility to that of the HARM programme, in terms of technical risk. This means, first, that while the missiles differ in design philosophy and operating characteristics, ALARM (with the modifications to the bid which have already been provided for in the price quoted in my previous paper) is assessed as capable of meeting the RAF's operational requirement, especially against the more demanding threat postulated for the 1990's. Second, ALARM has advanced beyond the conceptual stage. Some development work has been done, at BAeD's expense (some £5M). They have ground laboratory hardware - 2 guidance development models and a navigation unit. It should be possible to enter Full Development before the middle of next year, given an immediate decision.

8. On the other hand, the poor prospects for MSDS participation in an improved head for HARM, stemming as this does from manifest US determination to maintain control over their own technology base, only serves to reinforce the importance of maintaining our indigenous seeker head and guidance capability. This is an increasingly significant area of technology. The whole emphasis of modern weapons is to the use of precision electronic guidance and on-board intelligence. Experience of facing EXOCET in Operation Corporate confirmed this, as do new initiatives in NATO ("Emerging Technology") and no country wishing to maintain a viable defence activity can afford to be without industrial capability in this area. This



applies especially to defence suppression weapons, which need to be modified quickly to match the changing electronic characteristics of their targets. Besides, the UK firms concerned have a low level of committed development work and in the absence of ALARM they lack the prospect of the level and quality of alternative work necessary to advance our capabilities, with a view to future requirements.

Conclusion

9. To sum up, I remain convinced that, all things considered, ALARM is to be preferred. I will not repeat all the points in my earlier paper but I would remind colleagues that, leaving aside export sales, ALARM will give rise to UK employment of 9,400 project man years as against some 3,500 man years for HARM co-production. In the last analysis the fundamental balance to be struck lies between the urgency of the RAF's operational requirement, where HARM has the advantage, and the importance of maintaining our indigenous seeker head and guidance capability, where the advantage lies with ALARM. This last point is underlined by the importance which the US clearly attach to protecting their own capability in this area, and by the absence of any certainty that choice of either HARM option would give UK firms a definite place in the US programme. For this reason, I also remain convinced, notwithstanding the possible risks to our sales to the US to which Sir Oliver Wright has drawn attention, that the US Government and others in the US will readily understand a decision in favour of ALARM, once the reasoning behind such a decision is explained to them. I shall write myself in very frank terms to Mr Weinberger.

10. I am copying this minute to our OD colleagues and to Sir Robert Armstrong.

Ministry of Defence

15th June 1983

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