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PREM 19/2071

SECRET Part 6 MT

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Confidential Filing

Procurement of ~~Defence~~ Weapon Systems
HARM/ALARM Air Launched Missiles
Cost of Defence Procurement

DEFENCE

Part 1: March 1983
Part 6: April 1988

Referred to	Date	Referred to	Date	Referred to	Date	Referred to	Date
~~4.4.88~~		26.10.88					
~~6.4.88~~		PT 6 ENDS					
~~9.4.88~~							
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~~4.5.88~~							
~~13.9.88~~							
~~22.9.88~~							
~~24.10.88~~							

PREM 19/2071

PART 6 ends:-

MOD to CDP. 26.10.88

PART 7 begins:-

M. ALEXANDER to CDP 11.11.88

Published Papers

The following published paper(s) enclosed on this file have been removed and destroyed. Copies may be found elsewhere in The National Archives.

Cmd 501 The Procurement of Major Defence Equipment.
Government Response to the Fifth Report From The Defence Committee 1987-88, HC 431.
Presented to Parliament by the Secretary of State for Defence by Command of Her Majesty, October 1988
Published by HMSO, ISBN 0-10-105012-7

Signed _____ Date 02/02/15

PREM Records Team

COVERING CONFIDENTIAL
COMMERCIAL IN CONFIDENCE

010

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 ..... (Direct Dialling)
01-218 9000 (Switchboard)

MO 26/2

26th October 1988

Dear Charles

MAJOR MOD PROCUREMENT PROJECTS

I enclose a sixth set of reports on major MOD Equipment Procurement Projects for the Prime Minister. As promised by my Secretary of State in his minute of 29th July to the Prime Minister, this includes a report on PINDAR.

Yours sincerely,

John Colston.

(J P COLSTON)
Private Secretary

Charles Powell Esq
No 10 Downing Street

COMMERCIAL IN CONFIDENCE
COVERING CONFIDENTIAL

OCTOBER 1988

PINDAR RELOCATION OF MOD/CABINET OFFICE CRISIS MANAGEMENT INTO HARDENED ACCOMMODATION

Equipment and Installation Programme: c. £64M

Works Programme: c. £42.5M

PROBLEMS

- Lack of a defined requirement for the total PINDAR project until recently.
- Management and control of a large hybrid works/equipment project involving PSA and MOD contractors.

CURRENT SITUATION

- In order to gain proper control of all aspects of the project it is intended to appoint a Prime Contractor.
- To this end a competition has been held for Competitive Engineering Definition Studies, and three study contracts have been awarded. These will provide the basis upon which the Prime Contractor will be selected.
- Meanwhile PSA are under remit to complete the current works programme, and a package of changes resulting from proper definition of the total PINDAR requirement earlier this year. They are currently negotiating these changes with their contractor. Once the current PSA contract is complete, the MOD(PE) will manage the works and equipment aspects as an entity through the Prime Contractor.
- The ISD estimate is in the range October 91 to December 92.

OCTOBER 1988

EH101 ASW HELICOPTER FOR RN

Programme Value: £1805M*

Problems

- No maximum price on development contract.
- Main Contractor (EHI) (the joint venture Westland/Agusta company) not in full control of the programme.
- No contractual requirement to prove total mission system works.

Current Situation

- Negotiations towards a maximum price are continuing. It is hoped that the new ownership structure of Westland (with GKN now as an important shareholder) will help in this respect. The company have been told, however, that we are not prepared to commit to production investment before this matter has been satisfactorily resolved.
- The EHI Board have amended their terms of reference to introduce two Co-Chairmen in place of the previous appointments of Chairman and Deputy Chairman. They have also agreed to enlarge the Board to include two non-executive Directors, who, the company claims, will provide the independent element at EHI which both Governments have been seeking; the effectiveness of this measure remains to be seen.
- A study to examine how to achieve mission system integration by appointing a prime contractor to be responsible for the complete system incorporating the helicopter and ASW equipment will be completed shortly and will then be studied to determine the best way forward.

* NB Revised programme estimate at September 1988 economic conditions.

OCTOBER 1988

REBUILDING PROGRAMME AT ALDERMASTON

Programme Value: £974M

Original Problems

- Inadequate project definition.
- Inadequate project management control.
- Inexperienced industry over-reliant on MOD/AWE in key nuclear safety areas.
- Split in responsibility between MOD and PSA.
- Technical difficulties.
- Cost escalation.

Current Situation

- Programme now under single project control with a total programme value of £974M.
- The National Nuclear Corporation, appointed as Facilities Project Management Contractor in June 1988, is progressively building up its team at AWE and has now taken on full project management responsibility.
- The transfer of contractual and financial responsibility to the MOD for the projects previously managed by the PSA has been completed.
- Production of Trident Warheads in existing AWE facilities is proceeding.

23A-C

SECRET

PRIME MINISTER

BILATERAL WITH THE DEFENCE SECRETARY

You have a bilateral with the Defence Secretary tomorrow morning. The main subject is the new tank. But it is also an opportunity to discuss defence spending (on which a joint MOD/Treasury minute should reach you in the course of the day), the organisation of intelligence in Northern Ireland and the break-in at Faslane.

New Tank

We cancelled the OD planned for tomorrow because MOD are not yet ready with a paper. It is likely to be mid-November before they are. This will put us under some pressure to reach a decision by Christmas.

My information is that the choice has narrowed down to Challenger Mark 2 with a rifled gun or the American Abrams tank. I know that the Defence Secretary saw and tried out the Abrams in the summer and is personally very impressed by it. It is of course already in service and has a number of improvements planned, both to the armour and the gun. But purchase would deprive us of the capability to manufacture tanks in future (although we would get sub-contracting work) and of export sales. It would be a severe blow to Vickers.

You will want to ask the Defence Secretary how the MOD's deliberations are going. You do not think foreign policy considerations should play a serious part in striking the balance. The most important questions are:

- How great is the risk of opting for the Challenger? Do we think Vickers capable of producing the tank to cost and to time?

- Of is there a danger of another Nimrod/Awacs experience (ie. starting down the route of national manufacture, then finding we cannot do it)?

SECRET

B

- How important is it in defence terms to maintain an independent capability to manufacture tanks?

- Do we really think Vickers have good sales prospects outside the UK?

- Is it true that the American tank is more advanced technically?

- What is the relative balance of cost likely to be? And what assumption will be made about the £/dollar rate?

- What counter-concessions could be obtained from the US if we were to opt for the Abrams tanks?

A great deal will turn in the end on how we assess the risk of committing ourselves to the Vickers project versus the importance of maintaining an independent capability in this field.

Defence Spending

As you know the Defence Secretary has reached agreement with the Chief Secretary to add £1.5 billion to the MOD's programme over three years. This would give real growth in defence spending of over 2 per cent. The question is whether the outcome matches funds to commitments; or whether the MOD will subsequently find that they cannot keep within the programme and end up proposing politically damaging cuts in equipment or commitments.

The Defence Secretary has reached agreement with the Chief Secretary with an eye to the Government's wider objectives, but personally doubts whether some cuts can be avoided by the second and third year. His original bid was for £2.3 billion: I understand he would be confident of getting by at £1.7 billion.

You will want to get a feel for how deep and genuine the Defence Secretary's doubts are. It will be very important to give the right signal internationally on defence spending at a time when some of our partners are already showing signs of abandoning any pretence of adequate defence spending: and subsequent cuts in defence would be very awkward and difficult to reconcile with your public commitment to strong defence. Against this, the Government's long-term ability to fund defence spending depends on getting the economy right now: more than 2 per cent real growth over the period is a good path to be on: and there is still plenty of scope to improve the MOD's financial management.

Intelligence Organisation in Northern Ireland

You may want to tell the Defence Secretary in confidence that you are coming to the conclusion that the Army's ideas for reorganising intelligence in Northern Ireland will not work in their entirety, indeed would dislocate the overall intelligence effort at a crucial time. Moreover, the Army have confirmed your misgivings about their ability to handle intelligence properly.

But it should be possible to go some way to meet them: for instance on strengthening the overall coordination machinery and the briefing of senior commanders, improving the operation of joint cells, and the appointment of a higher-ranking and more powerful Director and Co-ordinator of Intelligence. The key will lie in willingness of all concerned to work together. The departure of Sir Jack Hermon will help.

Intrusion at Faslane

You await the outcome of the Board of Inquiry. But it is a lamentable story of incompetence, which makes it hard to have confidence in the arrangements for the protection of our nuclear weapons. It may be that a wider review of these arrangements will be necessary.

C D P

C. D. POWELL
24 October 1988
SL3BEK

22A-D

(2)

PRIME MINISTER

24 OCTOBER 1988

A NEW TANK FOR THE ARMY

I understand that you will be having a meeting with the Defence Secretary in the near future to discuss the MoD's need to replace the Chieftain tank.

I felt you might find it useful to have some preliminary thoughts on the issue.

Background

This decision is an important one. A replacement for Chieftain will cost in the region of £2 billion. At a time when defence resources are tight, it will be essential to choose the most cost-effective option.

The MoD have finally to make up their minds as to which option they favour. They appear to have narrowed their list down to Vickers' Challenger II MK2 with a rifle-bore gun and the Abrams M1A1.

There are important arguments for and against each. But first you will want to satisfy yourself that:

(a) a new tank really is required;

(b) the balance of investment could not be more effectively spent on other systems.

B

Do we need a new tank?

The MoD say yes. The Treasury argue that an enhanced Chieftain might do until the revolutionary changes to tank technology become available around 2010.

The MoD argue that Chieftain will give us an insufficient capability against the threat.

To what extent would a Chieftain replacement improve this capability?

The MoD's Defence Operational Analysis Establishment has carried out a study to try and answer that question.

It shows that without replacing Chieftain the UK's anti-armour capability would still improve by at least 50 per cent relative to the Warsaw Pact threat, over its present level by the turn of the century.

This improvement would be achieved largely through the introduction of more sophisticated weapons such as the Multiple Launched Rocket System (MLRS) and the Light Attack Helicopter (LAH) carrying Trigat missiles.

The introduction into this equation, of the Chieftain replacement however, appears to add no significant increase in overall effectiveness. This point is illustrated by the graph which is attached at Annex A. It shows the predicted improvement in anti-armour capability a) without a Chieftain replacement (Line 1) and b) with a Chieftain replacement (Line 2).

On the face of it this does not appear to be a very good return on a £2 billion investment.

C

Conclusion

The MoD start from the assumption that Chieftain needs to be replaced. This may well be right. But you will want to have a clear picture of the operational advantages to be gained by replacing Chieftain as opposed to merely enhancing it.

You might explore with the Defence Secretary the following questions:

Why does the introduction of the Chieftain replacement appear to make so little difference to the overall level of anti-armour effectiveness up to the year 2002?

Does this trend persist after 2002?

Could this position be improved by changing the overall mix of anti-armour weaponry?

How does the exchange ratio (ie the ratio of battlefield kills to losses) compare between a) enhanced Chieftain b) Challenger II MK2 c) Abrams M1A1?

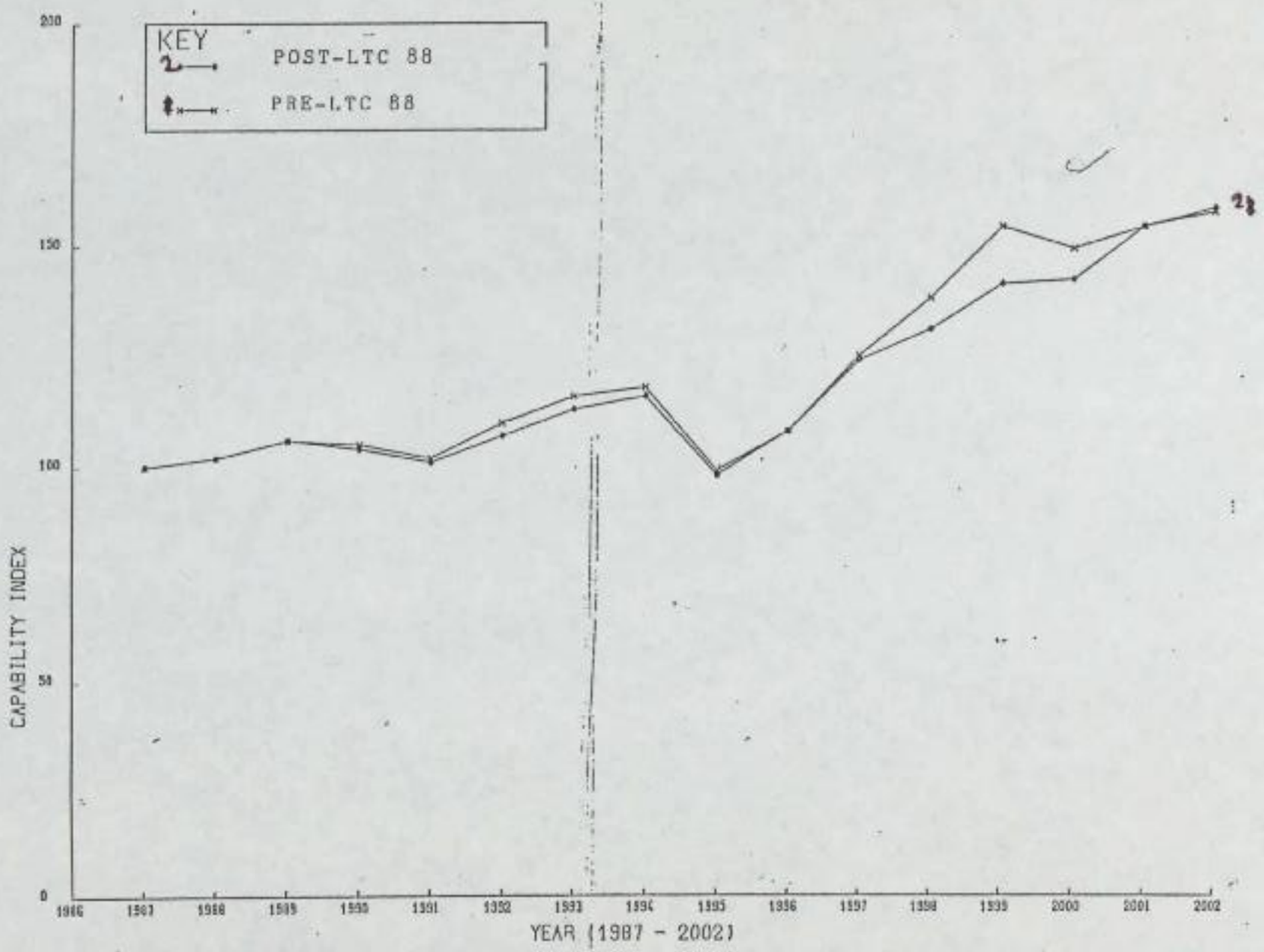
How is this ratio affected when other weapons on the battlefield are taken into account?

ANDREW DUNLOP

FIG 6

SECRET

IMPACT OF LTC 88, SAVINGS AND ADDITIONS (CM USED BY RED ONLY)



ANNEX A

BALANCE OF INVESTMENT WORKING GROUP: ANTI ARMOUR SUB GROUP REPORT, 8 JUNE 1988

SECRET 21 a-b

SRWBPO

PRIME MINISTER MB

A NEW TANK FOR THE ARMY

This is the biggest procurement decision which is currently outstanding. Replacement of Chieftain will cost over £2 billion.

There have been a number of minutes from the Defence Secretary. The latest is attached. You have also seen Sir David Plastow of Vickers, who is pressing for an early decision.

The battle lines are broadly as follows:

- Vickers want us to buy the Challenger Mark 2 with an improved rifled-bore gun. They envisage a transition to a smooth-bore gun in about the year 2000;

- the Treasury want the cheapest option. They have tentatively identified this as retaining Chieftain with an improved rifled-bore gun and improved fire control system;

- the FCO and Sir Michael Alexander are most concerned with inter-operability and therefore incline towards either buying an American or German tank or equipping Challenger with a smooth-bore American or German gun;

- the MoD are not sure what they want. They are uneasy that Challenger 2 is an unproven design. But they want to keep the capability to build tanks in the UK. I think their preference is probably to have Challenger 2 with an improved American smooth-bore gun. But they are anxious about the cost and the delay which this would involve.

We are committed to reaching a decision by the end of the year. You have been constantly spurring the MoD on to complete their studies. To keep up the pressure, we have arranged an OD on 25 October. But the MoD will not be able to

b

provide a paper for this meeting, because the technical studies are not complete and the Equipment Policy Committee will meet to make a recommendation only on 3 November.

The question is whether it is really worth going ahead, with the OD discussion without a paper. It could be useful vis-a-vis Vickers. And it might get some of the departmental positions above clearly out on the table. On the other hand, there is some risk that a discussion without papers will be disorganised and only complicate the issues. The time set aside for OD might more usefully be spent in a preparatory bilateral between you and the Defence Secretary, to talk through some of the issues. Agree?

Yes

C.D.P.

(C. D. POWELL)
18 October 1988

Wa-c

c/PC

MO 26/4/2/1E

PRIME MINISTER

A NEW TANK FOR THE ARMY

1. I minuted colleagues about this urgent requirement on 4th August and 9th September. OD is to discuss it on 25th October. I shall be unable at that stage to make a final recommendation because I shall still be awaiting advice from my Department's Equipment Policy Committee (EPC) which meets on 3rd November. (The EPC's meeting cannot be advanced because discussion of possible procurement arrangements, relevant to the EPC's consideration, is still in progress). Meanwhile I have some further comments to supplement what was said in my earlier minutes.

a. "Option 8" - the Treasury option of retaining Chieftain with CHARM and CHIP improvements - would be relatively cheap. However, these improvements in firepower and fire control would do nothing to remedy Chieftain's major deficiencies in mobility, armoured protection and mechanical reliability. To bring Chieftain fully up to the standard necessary to match the Soviet threat, even if physically possible, would cost as much as to replace it with a new tank. I can see no sense in investing that kind of money in a 20 year old weapon system; but without such an investment Chieftain would remain inadequate on the modern battlefield.

b. The options which involve fitting existing Challenger with either the Leopard 2 or the Abrams turret and smoothbore gun (Options 5 and 6) involve major engineering problems. The Abrams turret does not fit in the Challenger hull. To make it do so a major redesign of the hull and changes to the turret would be necessary; these would be costly, take time and at the end of the day might not work. Leopard 2's turret presents similar problems.

b

c. Further work has been done to compare the performance of rifled-bore and smoothbore guns and their ammunition (a point raised by Lynda Chalker in her minute of 11th August). I shall want to hear the EPC's advice on this, but I understand that the US Army plans to field a round in 1989 which is expected to have a penetrative performance somewhat better than CHARM, which is expected to enter service in 1992. (This information is extremely sensitive). Further US development of this round, it is claimed, could yield significant advances in the early 1990s. There are also industrial proposals to improve CHARM to similar levels to meet the threat foreseen in the mid to late 1990s.

d. Lynda also asked whether the Germans shared our view that Leopard's frontal armoured protection is inadequate. The answer is that they do and plan to make improvements. They make high claims for a new type of advanced armour ("Type D") but will not know for another two years whether or not it is successful. Lynda also suggested that we might collaborate with them on improving their armour using UK technology. The whole question of collaboration on armour is sensitive and the security of our technology is an important consideration, but discussions on the sharing of technology are in progress. We gave the Germans an early design of Chobham armour in the 1970s, but Germany has gone down a different design path which does not allow the use of current Chobham technology.

e. A decision in favour of Challenger 2/2 would not be straightforward to implement. Vickers have still to demonstrate that they are capable of developing Challenger to the required standard. Although the chassis of Challenger 2/2 is largely common with that of Challenger 1, the tank as a whole has still to be developed; the risks involved in integration of the components into a working weapon system are consequently greater than with the foreign contenders. If therefore the decision were to go in

Challenger's favour we would clearly need to be satisfied that the risk could be properly managed.

2. I am copying this to OD colleagues and to Sir Robin Butler.

G.Y.

Ministry of Defence
17 October 1988

(2) cc PC

SIR DAVID PLASTOW
Chairman and Chief Executive

VICKERS P.L.C.
Millbank Tower
Millbank
London SW1P 4RA
Telephone 01-828 7777

22 September 1988

Prime Minister
CDP23/9.

The Rt Hon Margaret Thatcher MP
The Prime Minister
10 Downing Street
LONDON SW1A 2AA

Dear Prime Minister,

Thank you very much indeed for finding time to discuss with me the Vickers' proposal for replacing the outdated Chieftain tank fleet. Over the last few days I have been reflecting on our discussion and enclose a re-statement of our position in the areas where you expressed concern.

You referred to recent Government experience with British defence equipment suppliers. The Vickers' record is good here and with our overseas customers. Furthermore, we have already invested a very great deal of money in both facilities and research and development to create a unique proposal without recourse to any government funding. Our financial exposure is a matter of high risk, as indeed is the delay in the decision and its effect on our ability to take very large overseas orders for our vehicles.

In summary, the Vickers' proposal is without doubt the cheapest, meets precisely the specification and will be delivered on time; we believe the General Staff is strongly in favour of this solution.

Yours sincerely,

David Plastow

Enclosure

cc The Rt Hon George Younger MP
Secretary of State for Defence

/csm/21L3

Registered in London under No. 3543 Registered Office: PO Box 177 Vickers House Millbank Tower Millbank London SW1P 4RA

VICKERS CHALLENGER 2 PROPOSAL

1) We are sure that Challenger 2 is the safest technical solution and will work because:

   - the hull is the same as the current Challenger with the improved gear box already used by the Challenger Recovery Vehicle (CRARRV);

   - the fire control computer is an improved version of the proven M1 Abrams system supplied by Canada;

   - the electronic systems are much simplified in design and significantly easier for the crew to operate;

   - the commander's panoramic sight from France has already been developed for the Leclerc;

   - the thermal T1 sight is the same excellent equipment used on Challenger 1;

   - the gunner's sight has British optics and a sight head already developed in France, again for the Leclerc;

   - the gun control equipment is solid-state already developed for Challenger 1;

   - Challenger 2 offers 20% more Chobham armour protection than the current Challenger 1 system;

   - and finally the overall integrated system is based on experience over several years on the Vickers Mk 7 turret.

2) The tank will be the safest for operation by the British Army as we will continue to store very high energy ammunition propellant below the turret, where it is best protected. Challenger 2 is the only tank in which the propellant is stored in armoured containers which must offer the best survivability.

3) Vickers are convinced that Challenger 2 is the cheapest solution to replacing Chieftain, not only in initial procurement costs, but also in the whole life costs of operating a fleet of Challenger 1s and 2s for the next 20 years. A high proportion of Challenger 2 is common with Challenger 1 and substantially reduces in-service costs of training, logistics, support, spares and maintenance of the fleet.

4) The concept at this time of fitting a 120 mm US present generation smooth bore gun will provide illusory inter-operability in NATO. There would be major disruption of the British Army in Germany requiring the setting-up of two separate supply lines back to the UK for ammunition. The cost penalty overall would be massive, compounded by a 2 year delay in deploying new tanks.

5) Vickers believe in the principle of inter-operability and are working with the MoD and gun manufacturers towards the goal of fitting a 140 mm gun system around the year 2000 to meet the projected Soviet threat. At Government level a quadrilateral agreement on a common chamber size and bore of this new gun between the USA, FRG, France and the UK is the clear aim.

6) The purchase of foreign tanks or guns will put decision making on our military sales in the hands of Congress in Washington - with intriguing diplomatic consequences. The use of the American gun and US designed Depleted Uranium ammunition would, we think, have 'strings' attached - our sovereignty on where we trade would no longer exist. The Gulf area is adjudged by Sir Colin Chandler to be worth some £4 billion during the 1990s and if we are denied access it will be left to the only other 2 manufacturers of NATO-Warsaw Pact Main Battle Tanks - namely the United States and Russia.

7) There is real urgency to decide positively on the Challenger 2 route, as the public airing of the UK competition for nearly 2 years is causing our credibility to ebb away - a clear signal from HMG is needed by our potential customers to enable Government and Vickers to operate effectively.

GB/csm
22 September 1988

DEFENCE: Procurement
Pt 6

CONFIDENTIAL

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 26/11/9E

20 September 1988

Dear Charles,

EFA

As I mentioned, my Secretary of State finally managed to make contact with Senor Serra this morning and they had a long conversation about the present state of play on Spanish participation in EFA.

Serra said that he is now making good progress with his colleagues and had isolated the problem of the comparison with Rafale. (Mr Younger's interpretation of what he meant by 'isolated' is that the comparison of EFA and Rafale, which the Spanish promised the French they would make, had now been completed). Serra said that the Cabinet were of a mind to remain full members of EFA and not to go into Rafale. The Cabinet would be taking a firm decision on Friday week. Provided the inherent difficulties of industrial participation and finance could be solved this week (and we do, in fact, have a Spanish team visiting today to have talks with Peter Levene and Rolls Royce), Serra was confident that Cabinet approval would be forthcoming; and that he would be given authority to sign the MOU and a little more money. He added that his Prime Minister was with him. Serra clearly expected that the Prime Minister will raise EFA with Gonzales but he opined that it would be unwise and unhelpful to press for a firm commitment to sign the MOU in any public statement arising from this week's visit.

Mr Younger's advice is that the Prime Minister should show concern on the importance of early signature; and that she should strike the note that she believes Spain to be a committed member of EFA (leaving Gonzales to deny it if he will), and hopes that the outstanding difficulties can be resolved quickly, and that Spain will be able to sign the MOU very soon. Any public statement might simply take the line that the two heads of government have discussed EFA and hoped that Spanish signature of the MOU would be possible in the near future.

I am copying this letter to Bob Peirce, Foreign and Commonwealth Office.

Yours sincerely,

(B H HAWTIN)
Private Secretary

Charles Powell Esq
No 10 Downing Street

CONFIDENTIAL

CONFIDENTIAL AND PERSONAL

FILE
EAM

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

16 September 1988

LEARNING FROM EXPERIENCE: PROJECT MANAGEMENT

Thank you for your letter of 16 September about the proposed meeting on the implementation of this efficiency study. I agree that it would be helpful for Mr Levene to provide the meeting with a short up-date on the progress made since our discussion of procurement matters last year.

CHARLES POWELL

Brian Hawtin, Esq.,
Ministry of Defence

CONFIDENTIAL AND PERSONAL

PERSONAL AND CONFIDENTIAL

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 8/14V

16 September 1988

Dear Charles,

LEARNING FROM EXPERIENCE: PROJECT MANAGEMENT

Thank you for your letter of 5th September indicating that the Prime Minister intends to chair a meeting in the coming weeks about implementation of this efficiency study.

You will recall that the Prime Minister received a full briefing from Mr Levene on procurement matters last year. Mr Younger considers that it would be helpful and sensible if the forthcoming meeting were to start with a short update, lasting say no more than 10 minutes, from Mr Levene. We would envisage this covering plans for and progress on the implementation of "Learning from Experience"; and the inter-relationship with the work now in hand to create a Defence Research Agency and to clarify the customer/supplier relationship between the Ministry of Defence and the R&D Establishments.

If you are content, we will proceed accordingly.

Yours sincerely,

(B R HAWTIN)
Private Secretary

Charles Powell Esq
10 Downing Street

PERSONAL AND CONFIDENTIAL

DEFENCE: Procurement + PG

CONFIDENTIAL

FILE
LPO

bcc: PC

10 DOWNING STREET
LONDON SW1A 2AA

16 September 1988

From the Private Secretary

Dear Brian.

HOUSE OF COMMONS DEFENCE COMMITTEE'S FIFTH REPORT

The Prime Minister has considered the Defence Secretary's minute of 15 September covering the proposed draft response to the Fifth Report of Session 1987/88 on the House of Commons Defence Committee. She is content for the response to be published next month.

I am copying this letter to the Private Secretaries to the members of OD, to the Private Secretary to the Chief Whip and to Sir Robin Butler.

Yours ever,

CHARLES POWELL

Brian Hawtin, Esq.,
Ministry of Defence.

CONFIDENTIAL

EAM

(1)

Rie Renton cc PS
I think not to proposed reply is all right. Agree not to reply either?
CDS 15/9.

D/S of S/PS/20/212E

Yes ms

PRIME MINISTER

HOUSE OF COMMONS DEFENCE COMMITTEE'S FIFTH REPORT 1987-88

We owe the Defence Committee a Government response to their Fifth Report of Session 1987-88 on the procurement of major defence equipment. The report consisted of commentary on nine current or future equipment projects (European Fighter Aircraft, ships' automated command systems, Harrier GR5 aircraft, ALARM, TRIGAT, BATES, light attack helicopter, main battle tank and 155mm self-propelled howitzer) followed by sections dealing with more general procurement issues. There is much in the report that we can agree with and little to take strong exception to, though we would not endorse every judgement the Committee have made.

2. A draft response is attached. Although it is generally low-key, I am proposing to respond firmly (paragraph 8) to the Committee's conclusion that, when ALARM was chosen in preference to HARM in 1983, "some considerations which were the concern of other Departments of State meant that the Royal Air Force did not get the missile which, at that stage, it judged to be the better of the two".

3. I should like to publish the Government response as a Command Paper next month, just ahead of the Defence Debate which begins on 19th October. I should be grateful for your and OD colleagues' agreement accordingly.

4. I am copying this to OD members, the Chief Whip and to Sir Robin Butler.

G.Y.

Ministry of Defence
15th September 1988

FIFTH REPORT FROM THE DEFENCE COMMITTEE

1987-88

THE PROCUREMENT OF MAJOR DEFENCE EQUIPMENT

1. In this memorandum the Government responds to the Fifth Report from the Defence Committee, Session 1987-88. The Government welcomes the Committee's interest in this important area of the Ministry of Defence's business and presents the following observations on the report.

INTRODUCTION (Part I)

2. While the wider political and economic factors to which the Committee refers will continue to form a part of the consideration of any major procurement decision, the Government's primary objective in each case is to secure the best value for money in providing the equipment the Armed Forces require at the time when it is needed.

MAJOR EQUIPMENT PROGRAMMES (Part II)

3. European Fighter Aircraft The Government welcomes the Committee's recognition of the importance of the European Fighter

Aircraft (EFA) programme and of maintaining an ability to build advanced combat aircraft in the European aerospace industries. The Government notes the Committee's remarks concerning the possibilities inherent in such a collaborative programme for progress to be frustrated. It believes however that, far from restricting progress, the EFA programme is providing the participating nations with the opportunity, which might otherwise not exist, of developing a truly agile combat aircraft capable of meeting the threat into the next century.

4. The Committee has stressed the importance of maintaining a strong national industrial base. The Government believes that this will be secured in the aerospace field through participation in the development phase of the European Fighter Aircraft. The Government also agrees with the Committee's view that the radar technology will be of great importance for the success of the EFA programme. The EFA nations will be forming a view in the near future on the proposals of the consortia competing for the work.

5. Ships' Automated Command Systems The Government notes the Committee's views on the Computer Assisted Command System 4 (CACS 4) project and endorses the comment that pricing of contracts should be agreed with contractors at an early date.

6. The Government shares the Committee's concern that the Type 23 Frigate Command System should be better able to meet the operational requirement than its predecessor was. This objective

formed the basis of the decision to cancel CACS 4 and to initiate the development of a new system. The Government notes the Committee's view that consideration should be given to a further Project Definition phase for the project. This is one of the routes which could be taken when a decision is made on how the programme should proceed to Full Development and Production. The Government agrees with the Committee that it is desirable that further delay to the programme should be avoided, but it is also important that sound management should not be subordinated to attempts to achieve an inflexible in-service date; the lessons of CACS 4 (paragraph 36 of the report) are very relevant in this regard. The Government agrees with the Committee that efforts should be made to negotiate a development contract on the basis of a firm price (that is, a price which is not subject to any variation) rather than a fixed price (that is, a price which is subject to variation of price increases in recognition of inflation).

7. Harrier GR5 The problems mentioned in evidence by the Ministry of Defence concerning the integration of the inertial navigation system into the aircraft are still not fully resolved. Action is being taken to minimise the resulting detriment to the programme.

8. ALARM In reaching the decision to order ALARM in 1983, the Government necessarily considered a wide range of complex factors. The Government does not accept the implication of the

last sentence of paragraph 56 that, in selecting ALARM in preference to HARM, it subordinated the interests of the RAF to the concerns of Departments other than the Ministry of Defence. Both ALARM and HARM were operationally acceptable to the RAF in 1983; and ALARM's potential for future development, and the value of the ALARM programme in terms of enhancing British technology of potential application to future weapons systems, were factors of direct relevance to the RAF. The operational arguments were reviewed afresh in autumn 1987 and the clear conclusion (reflected in evidence to the Committee (Q248)) was that ALARM was more suitable than HARM for the RAF's needs.

9. The Government notes the Committee's views on the lack of a Project Definition phase and accepts the importance of generally carrying out such a phase for major equipment projects. However, in this case, as the Committee is aware, several feasibility studies were carried out prior to 1983 to reduce risks, further define the requirement, and provide the basis for the assessment of the competing solutions. The rocket motor was not seen as an area of particular risk, and a Project Definition phase would not necessarily have identified the problems which subsequently emerged.

10. TRIGAT The Government agrees with the Committee's comments. Since the Ministry of Defence's evidence was given to the Committee, Italy has declared that she does not intend to join either the medium or long range development programmes. The

contracts for both development programmes are currently under negotiation.

11. BATES The Government generally concurs with the Committee's comments, but the suggestion that software integration was the cause of most of the project's problems needs some amplification. Although recent delays are attributable to difficulties with software integration, other factors had contributed to earlier slippages.

12. Light Attack Helicopter The Government agrees with the Committee that full account should be taken of aircraft currently in production in deciding how to meet the Army's requirement for a Light Attack Helicopter (LAH). The US AH64 Apache is one of several options which were considered before the present A129 LAH studies were commenced, and which will be reconsidered when the outcome of those studies is known. For the present, however, the Government believes that it would be premature to assume that any one of these options would (or would not) be a more cost-effective alternative to a development of the A129.

13. Main Battle Tank As the Committee have noted, the Ministry of Defence is considering the timescale in which it might need to replace the Chieftain tank and the options available for doing so. The Government will bear in mind the Committee's comments in reaching a decision.

14. 155mm Self-Propelled Howitzer The Government notes the concern of the Committee about Cardinal Point Specifications and confirms that this means of procurement will continue to be used whenever appropriate.

MEASURES TO IMPROVE VALUE FOR MONEY IN DEFENCE PROCUREMENT (Part III)

15. The Government welcomes the Committee's support for the measures introduced since 1983 to improve the commercial nature of procurement; its support for competition in defence procurement; and its acknowledgement of the steps being taken to widen the supplier base. The Government accepts the Committee's view that excessive use of iterative tendering would be counter-productive. Iterative tendering is used selectively, and in 1987/88 was applied to less than 1% of the contracts placed. Worthwhile cost savings, or improvements in other areas such as specification, delivery schedules and payment terms, were achieved. The Government must reserve the right to use the procedure in cases where it is justified in order to obtain better value for money.

16. In sounding cautionary notes about the effects of the drive for increased competition, the Committee has raised a number of issues which are of concern. The Government wishes to make clear that, in squeezing contractors' costs, the intention is to provide an incentive to companies to become more efficient. Far

from leading to a smaller competitive base, more efficient companies should be better able to win overseas business. The Government wishes to encourage defence contractors to become less dependent on Ministry of Defence orders. The performance of companies in overseas sales markets, particularly in the last three years, demonstrates the competitiveness of UK defence industries.

17. The Committee has also said that price alone should not always determine a winning bid. The Government wishes to draw attention to Defence Open Government Document 83/01, which makes clear that a range of factors are taken into account in deciding where to award contracts. These include the nature of the technical proposals; the reliability, financial viability and track record of the supplier; and the quality, reliability and expected whole-life cost of the product being offered, in addition to the price.

18. On the question of the costs of non-competitive defence work, the Government acknowledges the concern of the Committee that these should be monitored. The best way to avoid high costs is through the greatest possible use of competition. The Committee has noted that, since the competition initiative was launched, there has been an increase in the proportion by value of contracts let competitively. In addition, the proportion of contracts by value let on cost-plus terms was only 7% in 1987/88. In cases where it is not possible to secure a fixed or firm

price, it is now the norm to seek a maximum price contract linked with some form of incentive, to avoid uncontrolled non-competitive costs. Moreover the Government is currently examining the general basis for the recovery of overheads to ensure that it fully reflects current procurement initiatives.

19. The Government welcomes the Committee's support for international collaboration as a means of sharing development costs and fostering standardisation and interoperability. The Government believes that collaboration has an important part to play in effective procurement, but accepts the Committee's view that there are potential difficulties that participating nations should guard against. Some of these problems are not easy to solve in full, but collaboration nevertheless represents the most sensible way forward in many cases. Where collaboration is appropriate, the Government seeks to incorporate both the best current procurement practice and lessons from experience; for example, the EFA project's contractual and management arrangements will benefit from lessons learned in the Tornado programme.

20. The Government does not regard international collaboration as an end in itself, but as a means of securing value for money in appropriate circumstances. Collaborative projects along the lines of Tornado are just one element of our international procurement strategy. This strategy, which the Government is encouraging our allies to share, includes a more open defence

market and a greater willingness for nations to buy each other's equipment off-the-shelf.

PROJECT MANAGEMENT (Part IV)

21. The Committee has highlighted a number of areas of project management which it assesses to be weak. Recent progress in the first area, risk assessment, is acknowledged by the Committee (paragraph 112). The Government's contractual policies will continue to ensure that an appropriate share of the risk is placed with the contractor, while new technical audit arrangements within the Ministry of Defence, in which the Chief Scientific Adviser and his staff will play an important part, will mean that risk is more effectively evaluated before decisions are taken.

22. The Government recognises the need, referred to by the Committee, to retain experienced staff both generally and in the specific field of software management. The Government believes that the new, more flexible pay arrangements for scientists and engineers should make a significant contribution to retention.

23. Sound project management practice is examined in the "Learning from Experience" report. As the Committee notes, the Government has responded positively to that report. The Government agrees with the Committee's comments on the figures for "unforeseen costs" drawn from the report.

RELIABILITY AND MAINTAINABILITY AND LIFE CYCLE COSTING (Part V)

24. The Government agrees with the Committee on the value of good Reliability and Maintainability (R&M) and on the significance of the savings which it makes possible. The Government accordingly attaches importance to improving R&M. It would point out, however, that the figures quoted by the Committee to indicate the effect of unreliability on aircraft availability reflect normal peacetime circumstances only. Operationally, the key measure of availability is the number of aircraft which would be available for operations in an emergency. The Government is confident that sufficient aircraft would be available to meet national and NATO commitments.

25. A key part in the drive towards achieving better reliability is the inclusion of legally binding safeguards in all appropriate contracts. Consideration of the Ministry of Defence's study into this, mentioned in the Committee's report, is almost complete. The guidelines which emerge from this exercise will enable contracts staff to incorporate in future contracts the terms and conditions necessary to bind contractors to produce reliable equipment. Where such conditions cannot be agreed, the Ministry of Defence will seek financial incentive arrangements to secure improved R&M standards.

26. The Government notes the Committee's comments about limited

Ministry of Defence resources in the R&M field. The prospects of recruiting people with the relevant expertise and experience are not encouraging due to a national shortage of specialists in these disciplines. Efforts are therefore being concentrated on adapting structures and procedures to make the best use of the resources which are available. These include the provision of advice and training to project managers, who are responsible for the R&M aspects of their projects, aimed at fostering awareness and understanding of the importance of R&M and of the disciplines involved in improving it. Moreover it is policy that R&M considerations are to be afforded a higher priority when trade-off decisions, against the more obviously visible factors of cost, performance and timescale, are being taken.

27. The Committee has questioned whether use of Discounted Cash Flow (DCF) techniques to appraise defence equipment projects may result in potential savings from investment in R&M, which typically accrue in the longer term, being given insufficient weight. It is Government policy to conduct an investment appraisal utilising DCF techniques whenever a substantial investment is contemplated. However, formal DCF appraisal is not and cannot be the sole criterion governing defence equipment choices; other considerations, including operational performance against the military threat, in-service date and technical risk, must also be given appropriate weight. The Ministry of Defence will ensure that R&M considerations, including potential savings through R&M investment, are properly identified and taken into

account in decision-making in this area. The Government agrees with the Committee that life cycle costings (LCC) have an important part to play in this work, and the Ministry of Defence will consider how better use can be made of them.

File ref 8W

SUBJECT
cc MASTER

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

15 September 1988

Dear Brian,

CHIEFTAIN REPLACEMENT

The Prime Minister saw Sir David Plastow this afternoon, to enable him to put Vickers' Defence Systems views on the choice of a replacement for Chieftain. Sir David did this in predictable terms, with the aid of a model of the Challenger 2 Mark 2, and dealt with a number of supplementary questions from the Prime Minister.

Sir David asserted that Challenger 2 Mark 2 would be the cheapest option, and would be delivered on time and to specification. But the main part of his presentation was the need for a rapid decision to enable Vickers to compete in the vital Middle East market.

The Prime Minister said that she was fed up with ordering British equipment which then did not work as promised. Would Challenger 2 Mark 2 really work? Sir David said that there would be a full warranty. The Prime Minister said that the army could not go to war with a warranty, they needed a tank which worked. Sir David said that the main parts of the Challenger 2 Mark 2 were proven equipment.

In reply to the Prime Minister's question, Sir David said that the smooth bore gun could be fitted to the Challenger 2 Mark 2, but this would mean a delay of two years and add £70 million to the cost. Moreover the smooth bore gun could not be retro-fitted to the Challenger Mark 1. In his view, the right course would be to start planning now for a smooth bore gun common to the US, UK and FRG, to enter service after the year 2000.

In reply to a further question from the Prime Minister, Sir David implied that Vickers were not interested in producing a foreign tank under licence. They wanted to remain in the business of production and export of a British tank.

Sir David pressed for a decision on the Chieftain replacement by mid-October. The Prime Minister said that this was not feasible: she could say that we would try to reach a

decision by the end of the year. But she had some sympathy with the problems which delay caused for Vickers. We would reach the decision as rapidly as we could, consistent with examining all the options thoroughly.

The Prime Minister has said subsequently that she would wish to have a discussion in OD as soon as possible after the Party Conference and her return from Poland, recognising that more than one discussion may be necessary.

I am copying this letter to Alex Allan (HM Treasury), Neil Thornton (Department of Trade and Industry), Bob Peirce (Foreign and Commonwealth Office) and Trevor Woolley (Cabinet Office).

yours sincerely,

(C. D. POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

PRIME MINISTER

MEETING WITH SIR DAVID PLASTOW

Sir David Plastow, Chairman of Vickers Defence Systems (VDS) is coming to see you tomorrow to lobby for an early decision by the Government on the replacement of our Chieftain tanks. Your correspondence with him is in the folder. He will bring two models to demonstrate what is involved.

Sir David has three main worries:

- the delay in reaching a decision. This is costing VDS money and may jeopardise export orders;

- the risk that we might opt for an American or German tank;

- his belief that we place too much weight on inter-operability with other NATO forces and thus are tending to the smooth-bore gun. He will argue that it is more important to maintain inter-operability within the British Army and with our traditional export customers;

He has been assiduous in pursuing VDS' case, approaching a large number of Ministers and senior officials. There is also quite a lobby the other way. Michael Alexander has been in touch to urge that you say nothing to Sir David to foreclose any option.

The background is fully set out in the Defence Secretary's minute attached. You should be aware there are still some doubts about whether the Vickers Challenger II will actually work.

You will want to ask Sir David to explain his case first. Points you might make in reply are:

- you quite understand Sir David's concern to ensure his

company's case is fully considered and that the export aspect is given full weight;

- but Vickers were never given any assurance that there would be a new tank before the end of the century. They have invested in this project in the knowledge that we had not even established a requirement;

- with such very large sums at stake - at least £2 billion - the Government has an obligation to exercise every option very carefully before reaching a decision. There have been too many procurement disasters;

- we shall of course weigh the industrial arguments, but have to take other factors into account. Even in the hypothetical case that we ordered from overseas, Vickers could well get a lot of work under licence;

- the inter-operability argument is a very important one. SACEUR has made clear he would give greater weight to inter-operability between British, American and German tank guns and ammunition than to inter-operability with the British Corps. But you recognise that there are arguments the other way too;

- we shall certainly not buy a tank for foreign policy reasons. We shall buy the one which best meets our military requirement and offer the best value for money;

- you will ensure that the Government's consideration of the Chieftain's replacement is pressed forward as rapidly as possible, but you cannot make any promises about the date of a decision, only that our aim is to settle it by the end of the year.

CDP

C. D .POWELL
14 September 1988

12/9

MO 26/4/2/1L

PRIME MINISTER

CHIEFTAIN REPLACEMENT

LINE TO TAKE

1. When you meet Sir David Plastow on 15th September, I would be surprised if he presents arguments which are new to us. This being the case, I recommend that you should:

   a. Confirm that my aim is to make a decision on Chieftain replacement by the end of 1988.

   b. Reassure him that the industrial question will be fully considered, but remind him that although an important factor, it is not the overriding one.

   c. Point out that in considering a project worth some £2bn, it is essential that we do not rush the issue and that we are confident that our final choice represents best value for money.

2. Lines to take in response to specific questions he may have are at Annex A.

BACKGROUND

3. Sir David will undoubtedly use the meeting to press his case for speedy decision on the question of a replacement for the Chieftain tank, and in particular that the order should be given to his company. This is despite the very clear message contained in your letter to him of 11th July 1988 that the Government is fully aware of

Ref A

the efforts Vickers Defence Systems (VDS) have made to meet the Army's requirements, but that before making a final decision the full range of factors we would expect to influence any major procurement decision must be properly examined. This is still the position. It is crucial that we make the right choice; the interrelated military, political, and industrial issues are extremely complex and the potential expenditure considerable. While we are working with all speed to reach a decision, we cannot run the risk of getting it wrong just because of pressure from one of the possible contenders to rush our analysis. Indeed, your Private Secretary's letter of 11th August makes it clear that you wish to see the fuller study before taking a view on the matter. The plan is to bring the issue forward for final discussion with OD colleagues following EPC consideration of it in early November.

Ref B

4. My earlier brief of 8th July covered the general background and I circulated a note on 4th August 1988 to OD colleagues explaining in more detail the issues involved, but it might be useful if I repeated some of the salient factors.

Ref C

5. The background to our requirement is that a combination of improved Soviet tanks and the later timescale now envisaged for any revolutionary changes in tank design make it essential to replace our 600+ inadequate Chieftain tanks now. 3 basic options are being considered:

a. An improved version of our other main battle tank (Challenger 1) known as Challenger 2 Mark 2 and produced by VDS.

b. The German Leopard 2 and

c. The American Abrams M1A1.

There are also sub-options involving re-turreting existing Challenger 1s. To remind you, the full list of options is at Annex B.

6. Each option has its strengths and weaknesses but in the case of adopting an overseas solution we would be faced with a perhaps unwelcome domestic industrial complication. VDS are now the design authority for much of our present heavy armoured vehicle inventory having purchased the ex-Royal Ordnance tank factory at Leeds in 1986. At the time of the purchase only one further order for Challenger main battle tanks, a regiment's worth, was on the books and no commitment to any further order was made or implied. In fact Vickers were told that there would be no new orders for tanks in the UK before the turn of the century. Work on fulfilling this order will be finished in early 1990 and there is no work currently foreseen for the factory beyond this date. This fact was reflected in the relatively low sale price of the Leeds factory. Despite the lack of orders, VDS chose to build an entirely new factory at Leeds (completed early this year) and they have sunk several million pounds of their own money into developing a new tank for possible use by the British Army, but which nevertheless remains a private venture. A note on the export potential of tanks is at Flag C.

7. Inevitably, the choice of a foreign tank to replace Chieftain would have considerable industrial implications not only for VDS (who employ some 1600 people at their 2 plants at Leeds and Newcastle) but also for their subcontractors. However, if this were to happen, VDS might be offered the opportunity to manufacture under licence, although this could have the effect of increasing the cost. These are, of course, the reasons why Sir David is lobbying hard to get the order. His concern is understandable but is no good reason why we should be rushed into a hasty decision and one that we might come to regret; and over the next few months we shall be working on refining the proposals from the 3 companies concerned and coming to a decision which I could recommend to you and OD colleagues.

8. Sir David's latest letter, dated 21 July, concentrates particularly on the question of the 120mm smoothbore gun and the related question of interoperability, and he seems to be casting doubt on whether this is a serious issue in the argument.

9. As I explained in my earlier brief, one of the factors which we will have to consider in arriving at a decision on Chieftain replacement is the extent to which an eventual choice should be influenced by the need to achieve greater interoperability with our NATO allies on the Central Front. It is generally agreed that it is militarily and politically desirable for Allied armies to be able to fire each others ammunition. Each of the 3 potential replacement tanks has a 120mm gun, but whereas Chieftain and Challenger have a rifled bore, the M1A1 Abrams and Leopard 2 have a smoothbore gun. The 2 types of gun use different and incompatible types of ammunition and there is at present no opportunity for the British Army to draw on German or American 120mm ammunition stocks or vice versa. The issues are complex. A smoothbore replacement option would be more expensive than a rifled one. In addition, to adopt a smoothbore gun for the Chieftain replacement would mean that the new tanks could not fire the same ammunition as our existing front line Challenger tanks based in 1(BR)Corps. This would of course have very serious operational, logistic, support and training problems for 1(BR)Corps with attendant financial penalties.

10. On the other hand, it is the considered view of SACEUR that a movement towards interoperability within NATO, even to the extent of sacrificing it within our own Corps, is the decision he would favour.

11. One way out of the mixed fleet difficulty would be to replace or re-turret our existing Challenger tanks and fit them with a smoothbore gun as well as replacing Chieftain. This would not only be significantly more expensive but in the case of Challenger 2 could also delay any replacement programme by some 24 months. However, we have to consider these possibilities not only because we have to acknowledge the powerful arguments for greater interoperability within NATO but also because very recently we have been advised that the Americans are developing their smoothbore ammunition technology to give their gun a substantially improved performance and penetration capability. My officials have discussed this with the

Americans and are currently examining how it relates to our own rifled bore research. This issue is still very sensitive, and while Sir David may have an idea this has happened, he will probably not be aware of the full significance.

12. These latest developments potentially enhance those options with a smoothbore gun and we are analysing scientifically the US claims as well as examining ways in which we can transfer the US technology to the British rifled bore gun. What is clear however is that we must still hold the option of a smoothbore gun solution open until we have fully considered all the factors before finally deciding the best way forward.

G.Y.

Ministry of Defence
12 September 1988

ANNEX A

PRIME MINISTER - MEETING WITH SIR DAVID PLASTOW
LINES TO TAKE IN RESPONSE TO SPECIFIC QUESTIONS

1. When will a decision be taken on Chieftain replacement?

We hope to reach a decision by the end of the year.

2. Why is there a delay in reaching a decision?

A great deal of work remains to be done on the proposals submitted by the 3 contenders and other policy issues before we are in a position to judge which option best meets defence needs taking all factors into account. At some £2bn this is a major decision for HMG and in the light of the complexity of this it is essential that we do not rush the issue.

3. Is there anything that VDS can do to help speed up the decision making process?

MOD officials have already started talks with VDS to refine the contractual terms currently on offer. A speedy and constructive response to MOD's enquiries can do nothing but good.

4. Why is the 120mm smoothbore gun only now being considered as a possible fitment to Challenger 2 Mark 2?

We must take fully into account recent technical developments and the wider question of interoperability with our NATO allies.

5. Do you realise that delaying the decision on Chieftain replacement means that the unit price of Challenger 2 Mark 2 goes up due to the additional financing charges we must pass on?

Yes. But this is a major procurement decision which needs very careful analysis to ensure we make the right decision before pressing ahead.

6. Do you understand that the purchase of a foreign tanks is likely to add considerably to the overall cost to MOD for Chieftain replacement, to buy and to run ?

Cost is of course a major factor which is being given full weight in our appraisal - particularly full life costs.

ANNEX B

CHIEFTAIN REPLACEMENT OPTIONS

The following options are being costed:

Option 1. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Challenger 2 Mark 2 with CHARM rifled bore gun.

Option 2. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Leopard 2 with smoothbore gun.

Option 3. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Abrams with smoothbore gun and incorporating planned improvements (including up-armouring).

Option 4. Refit Challenger 1 with new turret and smoothbore gun; replace Chieftain with Challenger 2 Mark 2 incorporating smoothbore gun.

Option 5. Refit Challenger 1 with new (Leopard 2) turret and smoothbore gun; replace Chieftain with Leopard 2.

Option 6. Refit Challenger 1 with new (Abrams) turret and smoothbore gun; replace Chieftain with Abrams with smoothbore gun and incorporating planned improvements (including up-armouring).

Option 7. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Challenger 2 Mark 2 incorporating smoothbore gun.

ANNEX C

EXPORT MARKET FOR TANKS

This annex sets out the Defence Export Sales Organisation's current assessment of the tank export market, available to the UK, for tanks in the Challenger 2/Mk 7 category:

Country	Qty Reqd	Timescale	Present Fleet
Kuwait	200	by 31/12/88	235 (R)
Oman	50	1989/1990	33 (R)
Saudi Arabia	500 (Ultimately)	200 - 1990 300 - 1992	560 (R)
Abu Dhabi	120	1989	131 (R)
Iran	200	1991/92	1000+ (70%R 30%S)
Canada	250	1992	114 (R) (Leopard I)
Total	1300		

(Note: (R) denotes present fleet has rifled gun; (S) smooth bore.)

2. Applying a 30% probability factor for British market penetration to the figure of 1300 gives an estimate of possible British sales of about 400 tanks to a value, for the tanks alone, of £1bn. Associated sales of spares, support equipment and ammunition over the years can be a multiple of at least 3 times the basic costs, giving a potential sales value of at least £4bn.

DEFENCE : Procurement P76

#3 19(a-b)

MO 26/4/2/1L

PRIME MINISTER

A NEW TANK FOR THE ARMY

I have seen your Private Secretary's letter of 11th August recording your views on my minute of 4th August and the comments of Peter Lilley (10th August), Lynda Chalker (11th August) and David Young (16th August).

2. In view of your wish that the options should not be artificially limited at this stage, I will ensure that the seven options identified in my earlier minute are addressed in the further report to OD in which I shall make my final recommendation. To meet Peter Lilley's concern, that report will also address the possibility of retaining an improved CHIEFTAIN in service, though for the reasons given in paragraph 2 of my earlier minute I regard that option as a non-starter. (If CHIEFTAIN were to be improved and retained in service until 2015, the earliest date by which it could be fully replaced by a new technology tank, it would then be 50 years old). The operational analysis arguments, which in the interests of brevity were omitted from my earlier minute, will be covered in my further report. As Peter Lilley recognises, the picture conveyed by the summary in his fourth paragraph is based on incomplete material; it does not in my view represent a valid conclusion.

3. I note that Lynda and David have expressed rather different views on the two issues raised in paragraph 17 of my minute. They have made a number of useful comments which will be taken into account in my Department's further study. Meanwhile, I take it that the consensus of colleagues is that we are prepared to contemplate

buying a foreign tank if that should appear the best course in the light of all the argument.

4. David suggested there was an inconsistency in my account of American intentions. This is not the case. In paragraph 9a, I was describing present American plans to convert the last of their tanks with 105mm guns to 120mm. At about the same time, the large calibre conventional gun would start to be phased into service. Full deployment would take several years and the 120mm gun would be in service side by side with the large gun during that time.

5. I am copying this to OD colleagues and to Sir Robin Butler.

G.Y.

Ministry of Defence
9 September 1988

DEFENCE: Procurement Pt 6.

SECRET 18A

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

8 September 1988

EFA: MESSAGE TO SR. GONZALEZ

Thank you for your letter of 7 September suggesting that the Prime Minister should send a message to Sr. Gonzalez before the Spanish Cabinet meeting on 9 September to decide on Spain's participation in EFA. The Prime Minister is willing to do so. I enclose a somewhat revised text of the message which she has signed.

I am sending the top copy to the Foreign Office and should be grateful if they could telegraph it to Madrid for immediate delivery, with copies to Bonn and Rome.

CHARLES POWELL

Brian Hawtin, Esq.,
Ministry of Defence.

SECRET

PRIME MINISTER'S
PERSONAL MESSAGE
SERIAL No. T136/88

SUBJECT
cc master
OPS

10 DOWNING STREET
LONDON SW1A 2AA

THE PRIME MINISTER

8 September 1988

Dear Prime Minister,

I understand that your Cabinet will be considering whether to join the development phase of EFA on 9 September. I wanted to let you know the very great importance I attach to that decision.

It is now some time since the Defence Ministers of Italy, Germany and the United Kingdom signed the Memorandum of Understanding for the development phase of EFA in Bonn in May, following your signature of the General EFA MOU in November 1986 and your acceptance of the parameters of the aircraft outlined in the Turin Agreement.

Since May the EFA Airframe and Engine Consortia, including Spanish firms, have been working with the officials of all the EFA partners to draw up development contracts. These should be ready by 5 October. Whether or not we can then start work on the development phase depends crucially upon Spanish signature of the development MOU.

It is disappointing that France decided not to participate in this European venture. Nevertheless, we would still be willing to consider, in the development phase, whether there is scope for French industrial participation in say the radar and engine, and achieving some degree of

commonality between EFA and Rafale. But at the same time, we would expect France to offer the EFA nations reciprocal industrial access to the Rafale programme.

I consider it vital to maintain the momentum of this project. I am sure that Chancellor Kohl and Signor De Mita - to whom I am copying this message - will attach as much importance as I do to a positive decision this week that will set the seal on this most significant European collaborative project.

I am much looking forward to my visit.

Yours sincerely

Margaret Thatcher

His Excellency Senor Don Felipe Gonzalez Marquez.

SECRET

17A-D.

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 26/11/9L

7 September 1988

Prime Minister
Agree to send
this message to the
Spanish Prime Minister?
CDP 7/9

Yes MT

Dear Charles,

EFA: MESSAGE TO SR GONZALES

The Prime Minister will be aware that following completion of national approval processes my Secretary of State and his German and Italian colleagues signed the Memorandum of Understanding for development of EFA on 16 May in Bonn. At that stage, it was anticipated that the fourth partner, Spain, would follow suit shortly. They have not yet done so, but we understand that there is to be a key Cabinet Meeting to decide on Spanish participation this Friday (9th September).

Although when the other partners signed the development MOU, we were confident that Spain would keep their word that they were committed to EFA, following their earlier signature of the Turin Agreement (which set out the main parameters for the aircraft), and by doing so explicitly rejecting the competing French Rafale programme. They were also signatories to the EFA General MOU in November 1986. And we are sure the Spanish MOD is unambiguously in favour of EFA. However, since May, we have been aware that the French have been applying significant pressure on them to reconsider participation in Rafale. We have now established that this pressure came to a head over the last couple of days when M Mitterand met Sr Gonzales in Madrid and offered him a very attractive technical and financial package to encourage Spanish participation in the project possibly involving French purchase of Spanish CASA 212 aircraft.

Further delay by Spain, or worse still their withdrawal from the programme, would put the entire EFA programme in jeopardy. The Italian budgetary position means that they could be forced out of the programme if they are not able to commit expenditure this year. Since the signature of the MOU, industry has been working with the officials of all nations, including Spain, to draw up the development contracts. We were hoping that these could be ready by [illegible]

Charles Powell Esq
10 Downing Street

However, the contract cannot be placed in the absence of Spanish signature and any further delay by Spain in reaching a decision would, therefore, cause serious problems. Even worse, were Spain to withdraw at this late stage, the consequences would be severe, given the need to try to renegotiate workshare and overall cost share. Currently, Spain intends to carry 13 per cent of the programme; it could well prove impossible for the other 3 partners to increase their contributions proportionately to make good this shortfall.

My Secretary of State had himself intended speaking to his Spanish opposite number, Sr Serra, when he meets him at an IEPG meeting in France this weekend. But, in view of the level of the discussions that have taken place between France and Spain, he thinks that it would be appropriate for the Prime Minister to send a message to Sr Gonzales in advance of the Spanish Cabinet Meeting, to press for an early signature of the EFA MOU. I understand that arrangements are also being made in Germany for Herr Kohl to speak to Sr Gonzales.

We understand that part of the reason for Spain's reluctance to commit themselves finally to EFA is that Spain, because of its special ties with France, cannot endorse the prospect of putting the French military aeronautics industry into further crisis through lack of orders, and therefore is seeking ways, even at this late stage, to include France in the EFA project. But we would still intend, in the development phase, to look at possible co-operation at an industrial level between France and the EFA partners, on such items as the radar and engine, to enable some degree of commonality between EFA and Rafale.

Accordingly, we can reassure Spain on a number of points to do with the possibility of French participation in the EFA project, at the same time as seeking urgently to learn their intentions with regard to EFA; to encourage them strongly to make a national decision to endorse the project; and to ensure their Defence Minister signs the development MOU as soon as possible.

I attach a draft for the Prime Minister to send to Sr Gonzales, prepared in consultation with the FCO.

I am copying this letter to Lyn Parker (FCO).

Yours sincerely,

Brian Hawtin

(B R HAWTIN)
Private Secretary

DRAFT MESSAGE FROM THE PRIME MINISTER TO THE SPANISH PRIME MINISTER

It is now some time since the Defence Ministers of Italy, Germany and the United Kingdom signed the Memorandum of Understanding for the development phase of EFA in Bonn on 16th May 1988. At that stage, it was recognised that your country would need more time to take a final decision on participation (though you had earlier accepted the parameters of the EFA aircraft outlined in the Turin Agreement and signed the General EFA MOU in November 1986).

Since May the EFA Airframe and Engine Consortia, including Spanish firms, have been working with the officials of all the EFA partners to draw up development contracts. These should be ready by 5th October and enable us to start work formally on the development phase of this important collaborative project. But this depends of course upon Spanish signature of the development MOU.

It is disappointing that our French colleagues decided not to participate in this European venture. Nevertheless, we would still wish to consider, in the development phase, whether there is scope for French industrial participation in, say, the radar and engine, and achieving some degree of commonality between EFA and Rafale. At the same time, we would expect France to offer the EFA nations reciprocal industrial access to the Rafale programme.

I appreciate the importance of a full national consultative process. But we do need to keep up the momentum on this important project, particularly as our respective industries have undertaken some preparatory work at their own risk.

I am sure that, like me, Chancellor Kohl and Senor De Mita - to whom I am copying this message - will be looking with interest at your decision on EFA this week. I very much hope that it will set the seal on a very successful European collaboration.

DRAFT MESSAGE FROM THE PRIME MINISTER TO THE SPANISH PRIME MINISTER

I understand that your Cabinet will be considering whether to join the development phase of EFA on 9 September. I wanted to let you know the very great importance I attach to that decision.

It is now some time since the Defence Ministers of Italy, Germany and the United Kingdom signed the Memorandum of Understanding for the development phase of EFA in Bonn ~~on 16th~~ in May ~~1988.~~ ~~At that stage, it was recognised that your country would need more time to take a final decision on participation (though you had earlier accepted the parameters of the EFA aircraft outlined in the Turin Agreement and signed the General EFA MOU in November 1986~~ following your acceptance of the parameters of the aircraft outlined in the Turin Agreement and your signature of the General EFA MOU in November 1986.

Since May the EFA Airframe and Engine Consortia, including Spanish firms, have been working with the officials of all the EFA partners to draw up development contracts. These should be ready by 5th October, ~~and enable us to~~ whether or not we can start work ~~formally~~ on the development phase ~~of this important collaborative project~~. ~~But this~~ depends crucially ~~of course~~ upon Spanish signature of the development MOU.

It is disappointing that ~~our French colleagues~~ France decided not to participate in this European venture. Nevertheless, we would still be willing wish to consider, in the development phase, whether there is scope for French industrial participation in, say, the radar and engine, and achieving some degree of commonality between EFA and Rafale. But at the same time, we would expect France to offer the EFA nations reciprocal industrial access to the Rafale programme.

LOS
AFB

~~I appreciate the importance of a full national consultative process.~~ ~~But we do need to keep up~~ If I consider it vital to maintain the momentum of this ~~important~~ project, ~~particularly as our respective industries have undertaken some preparatory work at their own risk.~~

I am sure that, ~~like me~~, Chancellor Kohl and ~~Senor~~ Senor De Mita - to whom I am copying this message - will ~~be looking with interest at your~~ I do to a positive decision ~~on BPH~~ this week. ~~I very much hope~~ that ~~it~~ will set the seal on ~~a very successful~~ this most significant European collaborative project.

PERSONAL AND CONFIDENTIAL

File
ref. SW2ABF

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

5 September 1988

Dear Brian,

PROJECT MANAGEMENT IN THE MINISTRY OF DEFENCE

During the summer the Prime Minister has looked at the efficiency scrutiny on the arrangements for managing technical and scientific aspects of major projects in the Procurement Executive. She has also had an account from Sir Robin Ibbs of the steps being taken to implement its conclusions.

The Prime Minister is determined that, this time, the recommendations are fully and effectively implemented. To ensure that all concerned are in no doubt of the action which she expects, she will herself chair a meeting of those concerned in the coming weeks. Those whom she would wish to attend are the Defence Secretary, Lord Trefgarne, Sir Robin Butler, Sir Michael Quinlan, CDS, Sir Peter Levene, Sir Robin Ibbs or his successor and the Head of the Efficiency Unit. The No. 10 Diary Secretary will be in touch to arrange a date as soon as possible.

Yours ever,

(C. D. POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

PERSONAL AND CONFIDENTIAL

PERSONAL AND CONFIDENTIAL

CHARLES POWELL
PRIME MINISTER'S OFFICE

PROJECT MANAGEMENT IN THE MINISTRY OF DEFENCE

Sir Robin Ibbs has asked me to thank you for your minute of 1d August. He was delighted to hear that the Prime Minister would be ready to hold a meeting of MOD Ministers and senior military and civilian officials, and believes that this could be very helpful in ensuring implementation of the scrutiny recommendations.

To be fully effective, the agenda of the meeting will need to be carefully structured. In particular Sir Robin believes two or three key points should be agreed beforehand on which by the end of the meeting the Department can be left in no doubt of the action which the Prime Minister expects. In his view, the key points which need to be nailed are:

- Assurance that sufficient technical evidence will be provided at the early stages of projects (Feasibility Study and Project Definition) to illustrate the options, test practicality and costs, and demonstrate the risks. Evidence should be based on practical demonstration of hardware, software and integration rather than paper studies.

- Assurance that the military customer and those confirming his requirement will take note of the results of technical work, and if necessary adjust the requirement where feasibility studies or project definition stages show unacceptable costs or technical risk. Thus by the time a decision is made on full development it should be possible to regard the staff requirement as fully confirmed.

- A new approach to project management so that project managers are seen to have personal authority and responsibility for projects, with short chains of command, better training and deployment according to the needs of projects. (Discussion on this is likely to bring into focus not only the qualities required for Project Management, but the Prime Minister's previously expressed concerns on the length of postings of civilian and military personnel within MOD.)

The Efficiency Unit can let you have fuller briefing in due course, but in the mean time I suggest that Mr Younger might be invited at the meeting first to speak briefly on his reaction to the scrutiny recommendations, focusing on the changes he expects and how they are to be achieved. He might then be asked to discuss more specifically:

a) The criteria for entering into different phases of projects

and b) The role of the project manager

As always with MOD a large number of officials have interests in the results of this scrutiny, but experience suggests that the smaller the meeting the more likely it is to be effective. Sir Robin suggests that the essential participants are Mr Younger, Lord Trefgarne, Sir Michael Quinlan, Mr Levene and the Chief of the Defence Staff. As with VFM seminars, he believes that non-MOD attendance should be limited to himself or his successor, the Head of the Efficiency Unit and Sir Robin Butler.

I am copying this minute to Sir Robin Butler.

CHDixon

CHARLOTTE DIXON
2 September 1988

DEFENCE Procurement pt 6

dti

the department for Enterprise

TOTAL COPIES 7 16

COPY No. 2 (A-E)

c/c PC

SECRET AND COMMERCIAL IN CONFIDENCE

The Rt. Hon. Lord Young of Graffham
Secretary of State for Trade and Industry

The Rt Hon George Younger TD, DL, MP
Secretary of State for Defence
Ministry of Defence
Whitehall
London
SW1A 2HB

Department of Trade and Industry

1-19 Victoria Street
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01-215 7877

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NBAM - at this stage

Direct line 215 5422
Our ref DW2AOZ
Your ref
Date 16 August 1988

Dear George,

A NEW TANK FOR THE ARMY

Thank you for sending me a copy of your minute of 4 August to the Prime Minister.

I wrote to you on 5 July, setting out my views, in anticipation of a bilateral discussion between us which in the event had to be put off. Since the issues remain much as they were then, it may be helpful if I now circulate a copy of that letter to OD colleagues - attached.

I would add three points arising from your minute. As regards the cost of the various options, I note that you are still working to produce reliable estimates. But one of the striking points to emerge from the extensive MoD assessment of the options completed last December was that the overall programme cost of Challenger 2/2 came out at £1,547 million as against £2,457 million for Abrams M1A1 and £2,457 million for Leopard 2. Unless there has been a sea-change in the position, we would appear to be paying a heavy premium for choosing the American or German tanks quite apart from the extra cost of retrofitting smoothbore guns to Challenger 1.

As regards interoperability of ammunition, I am not very clear about the intentions of the USA. You say in paragraph 9(a) of your minute that by the year 2000 they will have completed conversion of their tanks based in Germany to the 120mm smoothbore gun but later in the same paragraph, and in paragraph 10, you mention the possibility that all NATO armies will have adopted a common and larger calibre gun by around the same date. I find it difficult to see how the Americans

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would be able to proceed down these two, apparently mutually exclusive, paths on the same timescale. Nor am I sure about the importance of the Americans in this context - are they significant neighbours of our tank fleet on flanks other than the southern one (which will continue to be covered by the Belgians with the 105mm guns)? That apart - though this is very much a matter for you and the Defence Staff - I do wonder how much weight we should really place on interoperability of ammunition. In the heat of battle when ammunition supplies are crucial, can we in practice expect much scope for sharing? The smoothbore route also poses a problem of timing. I understand that adapting Challenger 2/2 to accept a smoothbore gun would take about two years. This would not only delay the in-service date (to which I believe you attach importance) but also worsen the production gap at the VDS plant in Leeds in the early 1990s, so - I presume - increasing the cost of the option still further.

My final point concerns the industrial case, which you have set out very fairly. The Government should clearly not be in the business of keeping VDS going at all costs if the products they offer are uncompetitive, overpriced or unacceptable on military grounds. But since none of that seems to be the case here, and since the foreign options themselves carry cost and other disadvantages, I think that we would have real difficulty in giving a convincing public explanation of why we had rejected the British option.

Turning to your specific questions to colleagues, my answers are as follows. I regard interoperability of ammunition as just one of the factors to be taken into account in reaching a decision: on the evidence to date, the benefits look uncertain and the costs and other disadvantages high. As regards the industrial implications of buying a foreign tank, the benefits of overseas purchase seem far from conclusive and the drawbacks serious.

I am copying this letter to OD colleagues and to Sir Robin Butler.

dti

the department for Enterprise

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SECRET - COMMERCIAL IN CONFIDENCE

The Rt. Hon. Lord Young of Graffham
Secretary of State for Trade and Industry

The Rt Hon George Younger TD DL MP
Secretary of State for Defence
Ministry of Defence
Whitehall
LONDON
SW1A 2HB

Direct line 215 5422
Our ref PS6AKN
Your ref
Date 5 July 1988

Dear George,

MAIN BATTLE TANK PROCUREMENT

As you know, David Plastow of Vickers came to see me on 29 June to press his case for an early decision on the replacement for Chieftain. Since I understand we cannot now get together until next Thursday, 14 July, I thought it might be helpful if I outlined the issues as I see them.

A number of basic points are, I believe, not in dispute - entry into service of the next generation of main battle tank, probably developed through collaboration with our NATO allies, has moved out to around the year 2010 because of the time needed to bring about a step-change in gun technology; and replacement of Chieftain, which has been operationally desirable for some years, cannot wait till then. Hence the decision to search for a substitute with an early start to production so that Chieftain can be completely phased out by the year 2000 at latest. Against this background, the Government now face two issues - the choice of replacement, and the timescale for reaching a decision.

On the first question, I understand that MoD's own exhaustive study last year of domestic and foreign options concluded in favour of Vickers' Challenger 2 Mark 2 on operational and economic grounds, with industrial considerations pointing the same way. The operational assessment was that Challenger would be superior to the US and German contenders - Abrams and Leopard 2 - in its fire-control system (certainly well into the 1990s), its armour (particularly over Leopard), its fuel economy (over Abrams) and in terms of retaining commonality within the British tank fleet.

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As regards armament, I believe the judgement was that moving from a rifled to a smoothbore gun would have the advantage of securing interoperability with NATO forces but would be expensive, would offer no significant improvement in military effectiveness, would reduce the ammunition load and make it more vulnerable to attack, and would remove commonality within the UK tank fleet itself. Moreover, interoperability within NATO would be only partial (since, unlike us, the Americans, Germans and others use both 105mm and 120mm guns in their own fleets) and would do no more than anticipate for a few years the full interoperability that should anyway be achieved within the next decade if current NATO tanks are up-gunned to take them through to 2010.

On the question of cost, I understand that MoD's figures last December showed Challenger to be the cheapest option per tank and even more so in terms of the overall procurement programme (the latter reflecting the greater expense of introducing a half-fleet of vehicles and ammunition different from the existing Mark I Challengers). Even with the strengthening of sterling this year and whatever price reductions may emerge from the current updating of tenders by the American and German companies concerned, the gap was so large that I imagine the overall programme cost of Challenger will still be lower than for both Abrams and in particular Leopard. Moreover, over a ten year procurement period I wonder whether we can anyway be confident that the dollar and deutschmark exchange rates would remain even as relatively favourable to the foreign options as they are now.

Turning to the industrial consequences, I accept that they are not decisive on their own. Vickers bought the Royal Ordnance factory at Leeds in the clear knowledge that at the time there was no prospect of the British Army ordering a new model of tank in the early 1990s. They presumably either hoped to get by with residual domestic business and exports or, more likely, were speculating that the manifest shortcomings of Chieftain would force its early replacement. Be that as it may, I am clear that there would have been no question of the Government buying new tanks simply so as to improve Vickers' workload.

But it seems to me that the position has now changed. The fact is that, regardless of Vickers' needs, there is now to be a significant order for the British Army. If Vickers fail to win it, they will presumably lose some if not all of the residual MoD business they had expected and will suffer a real blow to their credibility in export markets. In the new circumstances, I believe that we have to look at the

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industrial consequences of buying overseas. It is hard to see how Vickers could avoid the run-down and eventual closure certainly of Leeds and perhaps of Newcastle as well (risking over 1,500 jobs in total). There would be a knock-on effect into their extensive network of sub-contractors and their suppliers (who employ about 6,000 people around the country). The UK capability in main battle tank manufacture would be ended, leaving us with no industrial input to future collaborative programmes. This would in addition put at risk UK capability in the potentially large export market for retro-fitting new guns and engines to tanks in service with foreign armies. And all this would come about just two years after we as Government supported the rationalisation of the industry on the basis that the UK could support only one efficient producer of heavy fighting vehicles.

On the second principal issue - the timing of a decision - you will of course be familiar with Vickers' need for an early resolution one way or the other. They are sinking their own money into development of Challenger - £10 million to date, now rising by £2 million a month - and, with completion of the 7th Challenger Regiment at the end of next year, a production gap in 1990 is fast approaching. While I know that you are concerned to weigh all the factors carefully, I think that after the lengthy negotiations which have taken place between the MoD and Vickers it is not unreasonable of David Plastow to ask for a very early decision on whether or not he is to get the order. Speed anyway seems to be as much in our own interest: the longer the production gap that has to be financed at Leeds, the higher the cost of the Vickers' option if that is what is eventually chosen.

In sum, my basic concern is that, on the information I have seen, Challenger is a credible and cost-effective solution which on MoD's own assessment todate seems to score over the overseas competitors. NATO interoperability is of course desirable but it is surely only one of the considerations to be weighed in the balance. I think we should need to have significantly more compelling reasons than I have so far heard if we were to be able to justify in public a decision not to go for Challenger. I look forward to discussing these issues with you next Thursday.

SECRET - COMMERCIAL IN CONFIDENCE

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

11 August 1988

Dear Brian,

A NEW TANK FOR THE ARMY

The Prime Minister has read the Defence Secretary's minute of 4 August about the options for replacing the Army's Chieftain tanks. She has also seen the minutes by the Economic Secretary and the Minister of State, FCO on the same subject. She does not wish to offer any particular views at this stage but would prefer to wait to see the fuller study which is promised. Given the scale of the expenditure, the study must be a very thorough one and not seek to pre-judge the outcome by artificially limiting the options considered.

I am copying this letter to the Private Secretaries to members of OD and to Sir Robin Butler.

Yours ever

(C. D. POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

SECRET - COMMERICAL IN CONFIDENCE

PERSONAL AND CONFIDENTIAL FILE KK

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

SIR ROBIN IBBS

PROJECT MANAGEMENT IN THE MINISTRY OF DEFENCE

The Prime Minister has read your note of 4 August covering the scrutiny report on the arrangements for managing major projects in the MOD Procurement Executive. She very much agrees about the need to ensure the technical feasibility of proposals at an early stage, and not to fall into the trap of constantly adjusting the requirement to what looks likely to be feasible. She also shares your concern that findings similar to those in the scrutiny report have not been implemented in the past. The regular progress reports which you propose are clearly one way to ensure that they are taken with sufficient seriousness this time. But the Prime Minister has in mind that she might herself hold a meeting of MOD Ministers and senior military and civilian officials in the autumn to leave those concerned in no doubt at all of the importance she attaches to improving the existing arrangements, particularly given the major defence procurement decisions which lie ahead. Do you think this would be helpful?

I am copying this minute to Sir Robin Butler.

C D P

C. D. POWELL
11 August 1988

PERSONAL AND CONFIDENTIAL

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Prime Minister

The FCO use a rank slide is designed to meet foreign policy requirements! It doesn't seem to matter whether it can shoot straight.

CDS 11/8.

PM/88/41

PRIME MINISTER

I totally disagree with this minute. MR

WITH COS?

A New Tank For The Army

In Geoffrey Howe's absence I am commenting on George Younger's minute of 4 August. I have also seen Peter Lilley's minute of 10 August. My answers to the two questions in paragraph 17 of George's minute are:

a) Yes. 1(BR) Corps will not be fighting alone in the Central Region: it must make operational sense to maximise the extent to which the Allies' ammunition needs can be provided in common. SACEUR's view to this effect, reported in paragraph 10 of the minute deserves to be given due weight. At a time when we are arguing that the Alliance must move towards greater interdependence and commonality in response to increasing pressures on defence budgets, we must show we are trying to practice what we preach in a field as important as tanks.

b) Yes. The situation for VDS if we do not buy Challenger 2 MK2 will be no worse than they expected when they bought the Royal Ordnance tank factory in 1986; it will be

/better

better, if they agree to build foreign tanks under licence. It is also not clear whether VDS would have a role to play in any updating of the Challenger 1. The industrial considerations in paragraph 13 of George's minute are important: but not important enough to conclude that maintaining a British tank-building capability should drive the decision.

I should like to make also five other comments at this stage:

a) While we should keep open the foreign and smooth-bore options, the costings promised for the Autumn will be critical.

b) George's minute offers no judgement on the relative operational merits of smooth- and rifled-bore guns. But the smooth-bore club is gradually attracting more members, with SACEUR's encouragement. If we want to be able to contribute to future developments, we shall need to join it too at some stage.

c) There is never likely to be a time when we replace our whole tank fleet at once. The more often we opt for internal rather than intra-Alliance interoperability in making partial changes, the wider the gap will become between us and Allies.

d) The options which George proposes to continue to examine include none involving both a new foreign tank and a smooth-bore gun for Challenger 1. I think that this is a pity: if only for comparison's sake, it would be valuable

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to keep option 6 among the runners. An important consideration, when we addd#ress this issue in the Autumn, will be the relative cost and technical difficulties of fitting Challenger 1 with CHARM and of fitting it with a smooth-bore gun and turret.

e) Given the key role of the Leopard 2 tank in the defence of the Central Front, it is alarming that MOD's judgement isthat its frontal armoured protection is inadequate. Do the German military authorities share this view? And is there no prospect of our drawing on our own expertise ub tank armour to collaborate on improving the Leopard 2's capabilities?

I am copying this minute to members of OD and to Sir Robin Butler.

MRS LYNDA CHALKER

Foreign and Commonwealth Office
11 August 1988

Défauts: Procurement PTG

53/2/LPD/3772/059

COMMERCIAL IN CONFIDENCE

FROM: ECONOMIC SECRETARY
DATE: 10 August 1988

PRIME MINISTER

A NEW TANK FOR THE ARMY

In John Major's absence I am responding to George Younger's minute of 4 August.

2. As George makes clear, a decision to replace Chieftain respresents an investment of £1½-2 billion and of another £½ billion if existing Challengers were retrofitted with a new gun and turret. As made clear in John Major's private secretary's letter of 12 July, it will be important that such a decision is taken on a properly informed basis.

3. A key question is the extra effectiveness which would be obtained for our Armed Forces by making this investment. This can only be established by comparing the capability we would have if the investment were made with the capability we would have without the investment. The latter capability is represented by the option of retaining the enhanced Chieftain.

4. Until this analysis has been done, the retention of enhanced Chieftain must remain an option. The operational analysis which my officials have seen so far suggests that the replacement of Chieftains provides very little increase in capability and does not appear to be cost-effective. I understand this analysis may be further refined, and the final results could be different, but retention of enhanced Chieftain is the appropriate baseline for analysing the costs and benefits of the other options as well as, possibly, the preferred solution.

5. As regards the issue posed in George's paragraph 17, it seems to me inappropriate to take a view on these matters until we have a full and clear analysis of the relative cost-effectiveness of the

various options. For the same reason, I would not favour ruling out at this stage the solution based on Lecpard. I do take George's point that the cost in training and logistics will vary considerably between the options. It will be important that these are examined on the basis of their full through life costs.

6. I am copying to members of OD and to Sir Robin Butler.

PETER LILLEY

Personal and Confidential

PRIME MINISTER

PROJECT MANAGEMENT IN THE MINISTRY OF DEFENCE

Following your concern about the Nimrod project in 1986, MOD agreed to set up an efficiency scrutiny on the arrangements for managing technical and scientific aspects of major projects in the Procurement Executive. At the seminar on value for money in January 1987, when George Younger gave a presentation on the Procurement Executive, you asked for a report on the outcome of this scrutiny. Although the scrutiny was complete by the end of June last year, I have delayed reporting until acceptable decisions on an action plan had been made by MOD. That has, I am afraid, taken just over a year.

A copy of the scrutiny report is attached, including in its first three pages a summary of its major findings and key recommendations. The scrutiny found that a number of recent initiatives, in particular the emphasis on tighter contractual procedures, were contributing to the aim of achieving better value for money from the £9 billion spent on procurement annually. But there was still insufficient emphasis on ensuring the technical feasibility of proposals by practical demonstrations at different stages. This leads too often to equipment which does not work, or costs being much higher than estimated. In the early stages of projects, the tendency has been to continue to try to meet the requirement of the service customer despite evidence of practical risks, or with insufficient evidence to define those risks, rather than adjusting that requirement in the light of what looks like being feasible. This attitude has put great pressure on costs, and lengthened timescales substantially.

The scrutiny also found that Project Managers in the Procurement Executive did not have sufficient responsibility or training to exercise proper control, while the organisation as a whole lacked clear measures of its own performance.

George Younger and Peter Levene have now accepted the main thrust of recommendations which were designed to ensure that earlier phases of projects included sufficient practical work to demonstrate whether or not equipment could achieve required performance within an acceptable time and cost, and to tighten up the management of the organisation. But I have emphasised to them that to achieve real results the implementation of the scrutiny will require continuous interest and drive from the top. The scrutineers themselves found that virtually all their findings had been diagnosed in a succession of reports since the Downey Report of 1966, but that despite formal acceptance of past recommendations the practice had not changed. Recommendations since Downey, for example, have consistently suggested that some 15-25% of development expenditure should be incurred before commitment to Full Development, and this matches current US practice. The UK figure has however remained stubbornly at about 8%.

Ensuring that things are different this time will not be easy, since it demands change in so long-established practices and attitudes. The Ministry needs to build on the undoubted success which Peter Levene has had on the contractual front and ensure that managers in the Executive are equally hard-nosed and eager for results on the technical side. The

attitudes both of civil servants in MOD and of the military customer will need to change.

Your personal interest has been of great value in ensuring that the Department take this seriously and I have therefore told Mr Younger that I would expect my successor to report to you again in two years' time. In the meantime I have asked for Mr Younger, and the Efficiency Unit, to receive six-monthly progress reports. Given development timescales for major projects, it will not be possible to make a full assessment of the scrutiny results for 5-10 years. I have therefore asked that the first report concentrate on identifying some key performance indicators on which monitoring can be started immediately and also on the administrative savings which by then should be resulting from a more leanly structured organisation. I have also asked for a few projects at or near the beginning of development to be identified now so that we can closely monitor them through their different stages and check that practice has genuinely changed.

You will understand from the above my concern that without substantial time and effort being put into securing genuine cultural change in the MOD organisation, the scrutiny and the MOD's commitment to its recommendations will remain no more than words. That has been the fate of at least three major earlier reports. I believe that the Ministry's proposals to reorganise their non-nuclear research establishments into an Agency will help, and a further scrutiny on this subject has just reported. But in the longer term I believe that the Procurement Executive itself needs to be made subject to the disciplines of clear objectives and targets, with a Chief Executive free to organise his resources, and in particular his staff and their training, in a way which better fits the exacting nature of the work. I believe this is an important objective for my successor and Peter Kemp.

I am sending a copy of this to Robin Butler.

ROBIN IBBS
4 August 1988

Ministry of Defence document

The following MOD document, which was enclosed on this file, has been removed and destroyed.

Such documents are the responsibility of the Ministry of Defence; when released they are available in the appropriate **MOD CLASSES**.

"Learning from experience": a report on the arrangements for managing major projects in the Procurement Executive, August 1988

Signed H A Wayland Date 18 June 2015

PREM Records Team

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PRIME MINISTER

A NEW TANK FOR THE ARMY

I need to replace the Army's ageing and obsolescent Chieftain tanks, some 600 in number. A number of options have been identified, and I shall be putting proposals to OD in the autumn. No immediate decisions are necessary, but you, and other colleagues, may find it helpful to have advance warning of the complex issues involved. For my part, I would welcome colleagues' views on two specific issues, and any other comments they may wish to make at this stage.

2. Chieftain entered service in 1965, and now lacks the capability demanded by the modern battlefield. It suffers from poor protection; inadequate mobility; an unsatisfactory fire control system; insufficient firepower; and very poor reliability. It is thus inadequate against the current threat, and its mechanical unreliability could not be reversed except at unacceptable cost. For all these reasons, I do not think the option of enhancing Chieftain which has been canvassed by John Major (his Private Secretary's letter of 12th July) is a serious runner. All the evidence, including detailed operational analysis, confirms that the tank will remain a main battlefield weapon for the foreseeable future. There are clear indications that the Soviet Union plan to introduce new tanks with better armoured protection and greater firepower. Even today, their best tanks are equal or superior to those of NATO, and greatly superior to Chieftain. On the 1st(British)Corps front their tank fleet outnumbers ours by 3 to 1.

COMMERCIAL IN CONFIDENCE
SECRET

3. I propose, therefore, to replace the Chieftain fleet in the early 1990s. Within the last couple of years, it has become clear that revolutionary changes in tank armament, such as liquid propellants or an electro-magnetic gun, will not be available before 2010 at the earliest, although a larger calibre conventional gun might possibly emerge in about the year 2000. We are concentrating, therefore, on options based on existing conventional technology.

4. Three basic options have been evaluated:

a. an improved version of our other main battle tank, Challenger, known as Challenger 2 Mark 2, incorporating not only a new high pressure gun, and new ammunition, known as CHARM and currently under development for existing Challengers, but also a new and greatly improved fire control system;

b. the German Leopard 2; and

c. the American Abrams M1A1.

Leopard 2 and Abrams are already in service in large numbers with the German and United States Armies respectively. Their performance is proven, and further improvements are planned of which we would take advantage were we to select one of these options. Although the turret of Challenger 2 does not yet exist, this tank would be an evolutionary development of, and have considerable automotive commonality with, the Challenger 1 tank currently in service.

5. Each of the three has its strengths and weaknesses. Leopard 2 meets the requirement in most respects, but suffers from the major shortcoming of weak frontal armoured protection. Abrams is expected to have adequate protection following a planned up-armouring programme; other enhancements are expected to remedy features which currently make it difficult to command in a battlefield environment.

Its gas turbine engine has a high fuel consumption. Both Leopard 2 and Abrams, unlike Challenger, stow ammunition above the turret ring, which in certain circumstances may increase the vulnerability of the tank. The relative vulnerability of the options is being examined, though full information is not easily available.

6. From an operational standpoint, the Defence Staff's preference, on present evidence, would be for Challenger 2 Mark 2 provided the manufacturers, Vickers Defence Systems (VDS), could achieve the specification (which includes a high level of reliability). They regard Abrams, with the improvements planned by the US Army including up-armouring, as meeting the operational requirement, but there are training and logistic penalties which are discussed below. The Defence Staff consider that the inadequacy of Leopard 2's frontal armour makes it operationally unacceptable.

7. One major factor affecting our choice is interoperability of ammunition. Each of the three potential replacement tanks has a 120mm gun, but whereas the Chieftain and Challenger guns have a rifled bore, the current Abrams and Leopard 2 have the same smoothbore gun. The two types of gun use different and incompatible types of ammunition. Thus, at present, there is no opportunity for the British Army to draw on German or American 120mm ammunition stocks, or vice versa, in case of need.

8. It is militarily and politically highly desirable for allied armies to be able to fire each other's ammunition; and, at first sight, this seems a powerful argument for replacing Chieftain with a tank with a smoothbore gun. (This course would be even more attractive if, as may be possible, the US are on the brink of achieving a major improvement in the penetrative power of their smoothbore ammunition. We are investigating this further). But if we were to do so, and to stop there, we would lose interoperability

within 1st(British)Corps, since the Chieftain replacement (smoothbore) would be incompatible with our relatively new Challenger 1 (rifled bore). The Defence Staff's present assessment (which might have to be reviewed if the US achieved the major improvement just mentioned) is that in an Army of our size, the logistic and other penalties of losing interoperability within the Corps could outweigh gains through interoperability with other Corps. We could only achieve interoperability in both directions if we replaced Chieftain with a smoothbore solution and re-equipped our current Challengers with a smoothbore gun. This would mean giving them a new turret and would add greatly to cost and technical risk; it would also mean writing off past expenditures on CHARM.

9. If we were to fit our tank fleet with smoothbore guns, we would not achieve full interoperability with allies because:

a. 60% of allied tanks are fitted with the older 105mm rifled bore guns. In the year 2000, this will still be true of a significant proportion of the total, including the entire holding of the Belgians, who are 1st(British)Corps' neighbours on their southern flank. But it will not be true of the Americans who, more significantly, will have completed the conversion of their tanks based in Germany to the 120mm smoothbore gun by that date;

b. for political reasons, the Germans do not hold the depleted uranium (DU) round which the Americans use and we plan to adopt (whether we go for a rifled bore or smoothbore solution) because it penetrates armour more effectively. But smoothbore guns could still fire German ammunition.

There is a possibility that full interoperability will be achieved around the turn of the century through a larger calibre conventional gun (we have recently signed a statement of intent with

the USA, Germany and France to collaborate to this end), or later (around 2015) through a gun using revolutionary electro-magnetic technology.

10. On my instructions, SACEUR was asked for his formal judgement of the relative importance of (a) increasing interoperability within Northern Army Group (NORTHAG) as against preserving the existing interoperability within 1st(British)Corps; and (b) increasing interoperability within NORTHAG earlier through adoption of a smoothbore gun by our Army, as against doing so later through the adoption by all armies of a common and large calibre NATO gun around the year 2000. SACEUR's answer gives the first objective priority over the second in both cases, though he also attaches key importance to the eventual larger calibre gun. The Defence and General Staffs are considering his answer.

11. Training and logistic factors tell in favour of the Challenger 2 option. In brief:

a. Because Challenger 2 would have a good deal of commonality with the existing Challenger 1 whereas Leopard 2 or Abrams would have none, selection of either of the latter would necessitate duplication of training. In particular, an additional 36 tanks (48 including repair backing) would be needed for the army's training ground in Canada to make possible unit training on both types.

b. Similarly, if Leopard 2 or Abrams were chosen the Army would need more spares to support two types of tank;

c. Leopard 2 and Abrams carry fewer rounds of ammunition than Challenger, and Abrams uses more fuel. More logistic vehicles and drivers would therefore be required.

Two different types of ammunition would degrade the efficiency of the Army's logistic organisation in war. As the battle progressed, the two types of tank could no longer be kept separate. Total stocks of ammunition would need to be increased. Even then, it would be difficult to guarantee the right balance between the two types of ammunition at the point of tactical resupply. This is an argument not against Leopard 2 or Abrams in themselves, but against choosing either without also retrofitting Challenger 1 with a smoothbore gun.

12. The industrial implications of our choice are important. The background is VDS's purchase of the Royal Ordnance (RO) tank factory at Leeds in 1986. At that time, only one further order for a regiment's worth of main battle tanks, was foreseen up to the end of the century. The sale price reflected that prospect. No commitment to any further orders was made, or implied. As a result of the sale, VDS took over outstanding MOD orders for Challenger 1 and were awarded the contract for the remaining regiment. They have chosen to build, purely as a private venture, an entirely new factory at Leeds; this was completed early this year. Work on Challenger 1 orders will be finished in early 1990; there is no work currently foreseen for the factory beyond this date. VDS are now the design authority with sole responsibility for the design integrity, maintenance and improvement of the current tank fleet, as well as the UK's sole national manufacturer.

13. A decision to replace Chieftain with an overseas tank which met the operational requirement would, in principle, be acceptable in military terms. But it would mean the loss, probably irreversible, of a UK tank design capability, which, in turn, could place at risk our ability to improve existing tanks. From the point of view of reducing defence R&D spending, such a loss could be seen as an advantage, provided the industrial consequences are accepted. These could be substantial both for VDS, and for their principal

sub-contractors, who include RO (gun), Marconi (gun control), Perkins (power pack), Barr and Stroud (sighting systems) and David Brown (transmission). VDS currently employ some 1600 at their two plants at Leeds and Newcastle; direct sub-contractors account for a further 6000 jobs. Lack of production work would impair the company's ability to continue to support the army's current tank and heavy armoured vehicle inventory. In the longer term, it would erode the UK's ability to play a full part in any future tank collaborative programme, if we so wished. VDS say that they would not be prepared to stay in the tank business on the basis of the manufacture of foreign tanks under licence, though whether this would be their last word is questionable.

14. The costs of the options are still being refined on the basis of quotations from the manufacturers supplemented by budgetary estimates. They are not yet sufficiently reliable for me to present to colleagues. But in very broad terms, the acquisition costs (development, production and initial spares) would be in the band £1.5-2.0 billion at average 1987/88 prices. I have had costings made not only of the three basic options in paragraph 4 but also of four other options designed to enhance interoperability within NORTHAG; the seven options are listed at Annex. To retrofit existing Challengers with a smoothbore gun and a new turret would probably cost at least an additional £0.5 billion. (A smoothbore Challenger would, however, be more saleable overseas).

15. The ceilings on defence R&D spending make the overseas options more attractive. If Challenger 2 Mark 2 were chosen, VDS might be prepared to fund part of the R&D cost as a private venture, recouping their outlay through the unit price. But even if they did not, the R&D cost to my Department would be relatively small, would fall mainly over the next three years, and could probably be accommodated.

16. I believe three of the options listed at Annex can be eliminated. Although selection of Leopard 2 might be attractive from an Alliance point of view, the weakness of its frontal armour seems an overriding objection. This would rule out options 2 and 5. I am also inclined to eliminate option 6 in view of the technical difficulty of the integration task involved.

17. I have therefore instructed the staffs to concentrate further work on options 1, 3, 4 and 7. As I have said, I shall be making recommendations to colleagues in the autumn, with a view to an announcement before Christmas. Meanwhile, it would be helpful to know:

a. whether colleagues hold strong views on the importance of ammunition interoperability within the Alliance, bearing in mind that to achieve the full operational benefits for the British Army we would need to be prepared to install new guns and turrets in existing Challengers; and

b. whether colleagues are prepared to contemplate the industrial implications of buying a foreign tank. If not, I ought not to pursue serious negotiations with the overseas manufacturers further.

18 I am copying this minute to OD colleagues and to Sir Robin Butler.

G.Y.

Ministry of Defence
4th August 1988

ANNEX

The following options are being costed:

Option 1. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Challenger 2/2 with CHARM rifled bore gun.

Option 2. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Leopard 2 with smoothbore gun.

Option 3. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Abrams with smoothbore gun and incorporating planned improvements (including up-armouring).

Option 4. Refit Challenger 1 with new turret and smoothbore gun; replace Chieftain with Challenger 2/2 incorporating smoothbore gun.

Option 5. Refit Challenger 1 with new turret and smoothbore gun; replace Chieftain with Leopard 2.

Option 6. Refit Challenger 1 with new (Abrams) turret and smoothbore gun; replace Chieftain with Abrams with smoothbore gun and incorporating planned improvements (including up-armouring).

Option 7. Retain Challenger 1 with improved rifled bore gun (CHARM) and improved fire control system (CHIP); replace Chieftain with Challenger 2/2 incorporating smoothbore gun.

DEF: prowrest pt 6

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 8/14E

27 July 1988

Rt Hon Minister
Some marginal improvement in the EH101 position
CBD 28/7

Dear Charles,

MAJOR MOD PROCUREMENT PROJECTS

I attach the latest in the regular series of reports on major MOD equipment procurement projects currently facing significant problems.

I am sending a copy of this letter and of the reports to Jill Rutter (HM Treasury) and to Graham Cawsey in the Efficiency Unit.

Yours sincerely,

John Colston

(J P COLSTON)
Private Secretary

Charles Powell Esq
No 10 Downing Street

JULY 1988

EH101 ASW HELICOPTER FOR RN

Programme Value: £1625M

Problems

- No maximum price on development contract.
- Prime Contractor (EHI) (the joint venture Westland/ Agusta company) not in full control of the programme.
- No contractual requirement to prove total mission system works.

Current Situation

- Although discussions with the company continue, Westland remain unwilling at this stage of development to accept the risk of a maximum price, the root of the problem apparently being Westland's fundamental financial weakness. The financial situation could be improved through the potential Saudi helicopter order and by a possible restructuring in ownership coupled with some senior management changes.
- There are signs of improvement in EHI's performance, as a result of changes urged upon them by officials. Proposals to introduce an independent element to the EHI Board are under consideration. In addition, changes at the top of the Italian MOD have now brought their thinking on the programme much more in line with our own. This will help in bringing co-ordinated pressure to bear.
- Following competitive tender a contract has been placed with CAP Scientific for a 6 month study, to examine how to achieve mission system integration via a prime contractor.

JULY 88

REBUILDING PROGRAMME AT ALDERMASTON

Programme Value: £974M

Original Problems

- Inadequate project definition.
- Inadequate project management control.
- Inexperienced industry over-reliant on MOD/AWE in key nuclear safety areas.
- Split in responsibility between MOD and PSA.
- Technical difficulties.
- Cost Escalation.

Current Situation

- MOD and Treasury Ministers have approved the revised total cost of the programme, now under single project control, of £974M.
- The National Nuclear Corporation has been appointed, following competition, as Facilities Project Management Contractor. The contract is fixed price with incentives related to overall target price and the achievement of Trident milestones.
- The transfer of management of PSA operations at AWE to MOD and handover of individual projects will be completed shortly.
- Production of Trident warheads in existing AWE facilities is proceeding.

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10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

22 July 1988

REPLACEMENT OF CHIEFTAIN TANK

The Prime Minister is to see Sir David Plastow at 1700 hours on ~~Tuesday~~ Thursday 15 September. I should be grateful for briefing in good time before then.

Charles Powell

Brian Hawtin, Esq.,
Ministry of Defence.

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10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

21 July 1988

The Prime Minister has asked me to thank you for your letter of 21 July. I think that it is simply not practicable to fit in a meeting before her departure for the Middle East and Far East next week. I suggest that we look for a date in September after the holiday period. I will ask our Diary Secretary to be in touch to see what can be arranged.

(C.D. POWELL)

Sir David Plastow

CDP

Have arranged Tues for 5.pm on Tuesday 15 Sept.

TC. 22/7

MRS. GAISMAN

The Prime Minister needs to have a meeting with Sir David Plastow, Chairman and Chief Executive of Vickers, in the second half of September. Could you please try and negotiate a time with his secretary. They need about half an hour.

C.D.?

(C.D. POWELL)

21 July 1988

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

21 July 1988

I enclose a copy of a further letter and enclosure to the Prime Minister from Sir David Plastow, together with a copy of my reply (although I see you already have a copy of his letter). We will look for a date in the second half of September. I should be grateful if the Department could set in hand some briefing for that occasion.

(C.D. POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

CC

SIR [redacted]D PLASTOW
Chair[redacted]nd Chief Executive

VICKERS P.L.C.
Millbank Tower
Millbank
London SW1P 4RA
Telephone 01-828 7777

21 July 1988

The Rt Hon Margaret Thatcher MP
The Prime Minister
10 Downing Street
LONDON SW1A 2AA

Dear Prime Minister, Cap.

Thank you very much for your letter of 11 July, and I appreciate the importance of careful evaluation of the operational requirement, value for money, delivery, and the contractual terms for a solution to the Chieftain tank replacement problem.

You mention that you will need to consider interoperability, and in this context the choice of gun is crucial. When we presented our proposals in the spring of 1987 they included a rifled 120 mm gun at the request of the British Army. It is now surprising that a 120 mm smooth bore gun is being considered. Vickers have examined the matter in some detail and our views are outlined in the appendix.

As you were kind enough to suggest we could meet, I would welcome that opportunity just as soon as this can be arranged; when I would like to discuss with you the gun, and aspects of our unique commercial and industrial approach to a very serious and urgent requirement of the British Army for a tank fleet capable of withstanding the Russian threat.

Yours sincerely,

David Plastow

enc

cc The Rt Hon George Younger MP
Secretary of State of Defence

1313/BAS

CHALLENGER 2 GUN

The aim of the Chieftain replacement programme as we see it is to provide at minimum cost, time and risk, the operational enhancement to the tank fleet of 1st British Corps in Germany to enable us to meet the Soviet threat.

The question of which gun we fit to meet this aim surely cannot be a current issue.

If we were to change to a smooth bore gun, the programme would be delayed by some two years which would destroy the economics of our proposal and would mean a significant increase in the price of the tanks. To achieve harmonisation with Challenger 1 would cost at least £400 million. The outcome would still only result in partial interoperability with the US and FRG armoured divisions.

From publicly available material it is apparent that neither the Americans nor the Germans plan to bring their tank fleets up to a single standard of 120 mm smooth bore gun. Throughout the 1990s the US M1 fleet will be 60% 105 mm and half of the German fleet will comprise Leopard 1 tanks fitted with the same 105 mm gun. As a result of this, half the fleets of our main allies will not be able to meet the threat and penetrate the Soviet armour protection.

With this scenario through the 1990s we would expect our NATO colleagues to applaud the UK for being the only country moving to a full fleet of tanks with a high pressure 120 mm gun capable of meeting the threat. This gun is the outcome of a current UK £100 m evolutionary programme.

It seems, therefore, unrealistic to expect the UK with its relatively small tank fleet in Germany to go further than the US and FRG themselves are willing to go towards commonality. It is also a very dubious military argument that any other ally would be prepared to give us ammunition during a fast moving battle.

We believe firmly that the correct longer-term aim is to strive to bring into service a common larger calibre standard tank gun (perhaps about 140 mm) around the year 2000 for replacing all the current 120 mm guns, whether smooth bore or rifled for fitting into the US, German and UK tank fleets.

This note aims to clarify the gun question and attached is a simple map showing the basic NATO armour deployment in Germany which you may find useful.

DP/csm/6L2
July 1988

NATO TANKS IN CENTRAL EUROPE

JULY 88

			GUN	TANKS
LANDJUT	DENMARK	Centurion/Leopard 1	105	90
	GERMANY	Leopard 1 Leopard 2	105 120	250
NORTHAG	HOLLAND	Leopard 1 Leopard 2	105 120	650
	GERMANY	Leopard 1 Leopard 2	105 120	1300
	UK	Chieftain Challenger	Rifled 120 Rifled 120	900
	BELGIUM	Leopard 1	105	260
CENTAG	GERMANY	Leopard 1 Leopard 2	105 120	930
	USA	M1 M1A1	105 120	640
	USA	M1 M1A1	105 120	920
	GERMANY	Leopard 1 Leopard 2	105 120	760
	FRANCE	AMX30	105	1000?

VICKERS DEFENCE SYSTEMS

All data from published sources

SurFleet

RESTRICTED

CDP

Treasury Chambers, Parliament Street, SW1P 3AG

Private Secretary to
The Rt Hon George Younger TD MP
Ministry of Defence
Main Building
Whitehall
LONDON SW1A 2HB

CDP 17/7.

15 July 1988

Dear Brian,

HOUSE OF COMMONS DEFENCE COMMITTEE: REPORT ON THE FUTURE SIZE AND ROLE OF THE ROYAL NAVY'S SURFACE FLEET (HC 309)

The Chief Secretary has seen a copy of your letter of 8 July to Charles Powell.

The Chief Secretary would be content with a response which took the form of a Command paper and which was published before the Summer Adjournment. The Chief Secretary considers it important that the content of the response should not prejudice PES discussions and Ministerial consideration of the work to be undertaken in the light of my letter to you of 11 July. He feels it would be useful if Treasury officials were consulted early in the drafting of the response.

I am copying to the Private Secretaries to Cabinet Ministers and to Trevor Woolley.

Yours,

Jill Rutter

JILL RUTTER

Defense

Poor

R+6

(4)

We will await the reply

10 DOWNING STREET

Prime Minister reply

Radar for EFA

You will want to see this note by the Policy Unit. Two points to bear in mind are:

— there is British involvement in both bids.

— our experience with Ferranti's Blue Vixen is not very good. CDP 15/7

MR POWELL 14 July 1988

EFA RADAR

I met yesterday with Sir Derek Alun-Jones, Chairman of Ferranti. He clarified some of the points raised in his letter to the Prime Minister last week. (A copy of which is attached.)

The choice of radar is critical. It is the primary sensor for the aircraft. It is also one of the major risk areas in the whole programme. And it is expensive - over £1,000 million.

Two consortium - one led by Ferranti, the other by AEG (with GEC - Marconi as the UK partner) - are bidding for the contract.

The competition is being run by the EFA prime contractor, Eurofighter. The final choice, however, requires the approval of all four national governments. Herein lies potential for friction.

The problem is that each of the four governments requires a different level of performance from the radar:

(1) - the UK and Italy, for example, have a requirement for a longer detection range than do the Germans;

(2) - similarly the radar will be more capable of dealing with electronic counter measures if it has a third processing channel. The Germans appear less concerned about this aspect than we are.

Our concern must be, therefore, that each nation in making its evaluation will give different weight to different aspects of the requirement. Put simply it appears that if this competition were a race, each country would be holding the finishing tape at a different point along the course.

The worry is:

- that the technical evaluation will not produce an automatic result;

- that the Germans will seek to influence the final decision on the basis of their own political preferences referred to by Sir Derek in his letter.

Furthermore the consortium led by AEG uses US technology which as things stand at present has restrictions on exportability.

- restrictions on access to information unless and until MSD 2000 is the chosen bid (this information is required to make a proper decision in the first place);

- demands for US firms to be given a substantial workshare in the programme;

- insistence that the transfer of information be passed Government to Government rather than company to company, leading to unnecessary delays.

Ferranti make the legitimate point that had there been such US involvement in the Tornado programme it is unlikely that the UK would have been as successful as it has been in its sales to Saudi Arabia. It is clearly in the interests of the US to prevent Europe gaining a foothold in market

places, which hitherto they have dominated, and with a product for which the US have no direct competitor.

Conclusion

We must recognise that the technical evaluation may not provide an automatic result. We should therefore ensure that due and timely consideration is given to how best to avoid being caught out on this issue. It may prove necessary for intervention - at a senior political level if necessary - to ensure that the radar chosen for EFA is the solution which best meets the most rigorous of the four-nations' different requirements.

ANDREW DUNLOP

APPENDIX

THE COMPETING BIDS

ECR 90

The Ferranti Consortium are offering the ECR 90 which is a development of the Blue Vixen radar for the Sea Harrier.

Blue Vixen has itself not been a trouble-free programme. It has run into technical problems and has suffered an overall delay.

The problems it has encountered have, however, been of a lower order of magnitude to those experienced by Foxhunter. Much of the difficulty can be attributed to MoD failure (to which they themselves admit) to fulfil some of their obligations. These problems have now been substantially overcome. A tight contract has been negotiated which will place the risk for any further cost and time overruns with the company. 70 per cent of the development work is now complete with an overall technical solution in sight. The ECR 90 radar development will, therefore, be starting from a point that is effectively a generation ahead of the competition.

MSD 2000

The AEG Consortium are offering MSD 2000, a development of the Hughes APG 65 radar. This technology is certainly older than that employed in Blue Vixen. It is of the same generation as Foxhunter. It is, however, proven technology.

The main problem is working within the constraints of the older technological architecture to meet the complex and demanding performance requirements of EFA. An indication of the complexity of the task is that despite using proven technology, the cost of adapting it to produce MSD 2000 will be little different to the cost of ECR 90 which will use more state of the art technology. These constraints could be a crucial factor when considering stretch potential.

For example, the ECR 90 solution contains a third processing channel to deal with the threat from electronic counter measures. The MSD 2000 has only 2 channels and cannot be upgraded to accommodate 3.

FERRANTI INTERNATIONAL

Ferranti International Signal plc

SIR DEREK ALUN-JONES
CHAIRMAN

7th July 1988

The Rt Hon Margaret Thatcher MP
Prime Minister
10 Downing Street
LONDON
SW1A 2AA

Dear Prime Minister

THE RADAR FOR THE EUROPEAN FIGHTER AIRCRAFT

I am enclosing a short booklet we have prepared on the ECR-90, the proposal we have put forward in the competition for the radar for the European Fighter Aircraft. Whilst I appreciate the many calls on your reading time, I hope you will find the time to read it. The issues involved are very important for the United Kingdom high technology industry and future export sales, not only for the EFA itself, but also for the radar which will be highly saleable around the world as a separate item if unencumbered by United States export restrictions.

There are only two contenders. The ECR-90 proposed by the Ferranti led consortium and the MSD 2000 proposed by a consortium led by AEG of West Germany and which includes GEC.

Ferranti proposes a radar based on modern technology proven in the development of its new Blue Vixen radar for the Sea Harrier. AEG proposes an updated version of the Hughes US radar, the APG65. This radar is now very old technology and it is extremely difficult to update to the EFA requirements which is why the price for development will be comparable with our new technology radar. It will have very limited capability for future improvement.

Cont .....

Ferranti International Signal plc, Millbank Tower, Millbank, London SW1P 4QS England.
Telephone: 01-834 6611 Telex: 264055 Fax: 01-834 1137

Registered Office: Bridge House, Park Road, Gatley, Cheadle, Cheshire SK8 4HZ. Registered in England 83718

to The Rt Hon Margaret Thatcher MP date 7th July 1988

There is the probability that logic, capability, design and price will not be the final arbiters in the West German assessment. Politics will also be involved in that the West Germans have already made a decision to fit a US radar as a midlife update for their Phantoms. Much of the justification used for this decision - controversial in West Germany itself - was that there would be a later saving on EFA through the purchase of similar radars.

While no such saving will in fact now emerge, even if a US radar is purchased for EFA, some will wish to avoid an overt recognition of this.

In addition, there is always political pressure on the Germans to buy US equipment as offset for the cost of US troops in Germany.

While US efforts to kill EFA have now died away, selection of a European designed and produced radar will be unwelcome in the USA in that this will give Europe an aeroplane and a radar highly saleable in the 1990s with no US influence on its use or sale. The choice of ECR-90 would also maintain a competitive European design technology, with a current design superior to existing US radars.

The issue is a fairly clear one and an important one for the future. Do we want a modern radar free of US influence and ensure radar and aeroplane are saleable overseas or not? In terms of cost, we believe there will be virtually no difference. While Ferranti has the capability, the opposition will make great play with recent radar failures by GEC on the cancelled Nimrod and the delayed ADV radar for the Tornado - ironic as GEC is in fact in the other consortium!

If I can give you any further information, don't hesitate to come back to me.

Yours sincerely

Derek Alt. Rams.

001/3298

CONFIDENTIAL

Treasury Chambers. Parliament Street. SWIP 3AG

Brian Hawtin Esq
Private Secretary
to the Secretary of State for Defence
Ministry of Defence
Main Building
Whitehall
London
SW1

12 July 1988

Dear Brian,

CHIEFTAIN REPLACEMENT

The Chief Secretary has seen your Secretary of State's minute of 8 July to the Prime Minister.

The Chief Secretary fully shares your Secretary of State's view that Ministers need to be in a position to make a properly informed decision on this issue. The Chief Secretary considers that this will involve, inter alia, a clear analysis of the cost-effectiveness of replacement by comparison with the alternative of enhancing Chieftain.

On this basis the Chief Secretary has no comments on the draft letter to Sir David Plastow.

I am copying this letter to the Private Secretaries to the Prime Minister, David Young and Sir Robin Butler.

Yours,

JILL RUTTER
Private Secretary

DEFENCE PROCUREMENT pt b.

[Mr. Waldegrave]

hon. Gentleman's first important point, I have already made it clear twice to his right hon. Friend the Member for Morley and Leeds, South (Mr. Rees) and to the hon. Member for Southwark and Bermondsey (Mr. Hughes) that it is for this House ultimately to decide whether to pursue housing action trusts.

Mr. Chris Mullin (Sunderland, South): What consultation was there with Sunderland borough council before the decision was made to designate estates in its area? Is the Minister aware that public housing in Sunderland is extremely well run and that the only problem it faces is the shortage of funds from central Government?

Mr. Waldegrave: There were no formal consultations with local authorities before the estates were designated. That has always been made clear. The time for consultation is now. My right hon. Friend the Secretary of State looks forward to discussions with the Sunderland borough council and others in the months ahead. There is nothing new about that. It is right that the proposals should be put to the House before they are discussed with outside interests. I have no doubt that had we done it the other way round the hon. Gentleman would have been jumping up and down and saying, "How dare you consult outside before coming to the House to announce the list?"

Several Hon. Members *rose*——

Mr. Speaker: Order. I remind the House that this is a private notice question and that we have had a long run on it. I shall give precedence on a subsequent occasion to those hon. Members who have not been called.

Type 23 Frigates (Orders)

3.53 pm

The Parliamentary Under-Secretary of State for Defence Procurement (Mr. Tim Sainsbury): With permission, Mr. Speaker, I should like to make a statement about the Government's plans to place orders for further Duke class type 23 frigates.

The type 23 frigate will form the backbone of the Royal Navy's anti-submarine warfare surface force in the future. Principal features of this ship include a towed array sonar to detect low-noise submarines, a 4·5 in gun, a helicopter capable of carrying Sting Ray torpedoes and sonobuoys, Harpoon anti-ship sea-skimming missiles and vertical launch Sea Wolf missiles to counter the air threat. The type 23 will be more capable than the types of ships it is replacing.

Tenders were sought for orders for one to four ships from the four main warship building yards in the United Kingdom. We are very pleased with the outcome of the competition. The precise value of the order is commercially confidential but the prices submitted were very keen. Following evaluation of the tenders, I am pleased to be able to tell the House that an order for three ships is to be placed with Yarrow Shipbuilders Ltd. The ordering of all three ships from Yarrow provides best value for money in terms of prices and contract conditions. The average unit cost of the three new ships is some £10 million below the average of the last three ordered in 1986. That reflects, among other things, the keenness of the competition; the benefits of batch ordering; improved efficiency in the shipyards, due in part to improved fabrication methods; and greater experience of building those types of vessel.

I take this opportunity to thank all the yards who participated in this excellent competition and who submitted such competitive bids. Although tenders were sought for up to four vessels in order to explore the benefits of batch ordering, an order now for four—even if all from one yard—would not be significantly more attractive in terms of unit price than an order for three. Therefore, we have decided that it is best to include the fourth ship in the next batch competition. That will enable all the yards that participated in this competition to have an opportunity to bid again for that ship, together with further possible orders.

This decision brings to 10 the number of new frigates now on order, excluding the three type 22 frigates accepted by the Royal Navy from the shipbuilders this year. In recent days, there has been much comment in the press and from the Opposition about the size, age and availability of our surface fleet. I regret that much of it has been ill informed. My announcement today demonstrates in the best possible way the Government's commitment to maintaining a highly capable escort force of about 50 destroyers and frigates.

Mr. Allan Rogers (Rhondda): We welcome the Minister's statement, but we also have grave misgivings about it. We welcome it because it will mean an enhancement of our surface fleet, which has been much reduced in capability and in relative effectiveness because of the Government's gross inability properly to manage the defence economy over the past few years. We also welcome it because it will provide much-needed job

emitting peculiar noises—will come down on our side and join us as it has on the right to buy and so many other policies.

Mr. Peter Shore (Bethnal Green and Stepney): On many deplorable estates, not least in the borough of Tower Hamlets, the issue that the Minister must consider is whether this is the best way of dealing with those problems or whether he should pursue the previous policy of priority estate projects and begin to repair some of the housing investment programme allocations that have been so grievously reduced in the past few years.

I fear that I know already what the answer will be, but can the Minister really say, despite what he has previously said about consultation, that if both the local authority and the tenants on the estate do not wish to have a housing action trust, nevertheless it will be imposed upon them?

Mr. Waldegrave: I answered the last question when I told the hon. Member for Southwark and Bermondsey (Mr. Hughes) that it will be for the House to decide.

On the right hon. Gentleman's first question, he knows very well that if additional allocations were made to a number of boroughs—perhaps I say this in relation to his borough—the way in which that money would be spent would be extremely unpredictable, to put it politely, and it may be wasted. I believe that this is the best way forward. We shall continue estate action and the priority estates programme where that is the best way, but in some areas the problems are so great that a much longer and more concentrated direction of resources is now needed.

Mr. Robert Banks (Harrogate): I congratulate my hon. Friend on his statement today and especially on choosing Leeds. Is this not the implementation of a policy for real action that will bring tangible benefits to many people in the rundown areas? Will he especially monitor the progress of the housing action trust when they get under way so that we can be kept fully in the picture as to their success?

Mr. Waldegrave: My hon. Friend makes a good point. We should monitor this new policy very closely, and we shall do so. I join him in saying that the policy is likely to bring real benefits, choice and hope to some areas that have been short of them for too long.

Mr. Peter Snape (West Bromwich, East): Does the Minister accept that Sandwell's housing problems have been considerably worsened in recent years by the consistent underfunding of its HIP allocation? That is not politics, but fact. Can he assure us that the local authority and the local voluntary housing sector will be encouraged to set up these trusts, or will the trusts be confined entirely to the private sector, which has consistently failed boroughs such as Sandwell for many years?

Mr. Waldegrave: These trusts are not in the private sector, but are part of the public sector. They will be established by the House and they will be responsible to my right hon. Friend. We hope for good co-operation from the local authorities, the many housing associations and other housing experts operating in those areas.

Mr. Robert G. Hughes (Harrow, West): Does my hon. Friend accept that his statement today will bring real relief and help to people in Labour-controlled areas who have been left to rot by successive Labour councils in places in which no Labour Members would wish to live? Does he accept that there will be some disappointment that his statement does not include more areas to be designated as housing action trusts? When does he expect to be able to extend the housing action trust to Bradford, Manchester, Newham and other areas where the Labour party has failed the people?

Mr. Waldegrave: That remains open to us for the future. If the new policy goes well, I hope that additional housing action trusts will be nominated. My hon. Friend was entirely right when he said that if anybody can doubt that national resources are now needed for these areas to bring them back into decent—*[Interruption.]* If anyone believes that some of the present housing management is capable of that, he is living in cloud-cuckoo-land.

Mrs. Harriet Harman (Peckham): Can the Minister assure the people who live in north Peckham and Gloucester grove that they will ben efit from any additional investment in their estates? Does he recognise that, based on the experience of the London Docklands development corporation in the north of the borough, there is widespread concern that existing tenants will not benefit? It is feared that they will be driven out in favour of those who can buy.

Mr. Waldegrave: There is not all that much comparison between a UDC and a HAT. The interests of existing tenants are central to a HAT's purpose. The failure or the success of housing action trusts will be judged by whether they have brought benefits to the hon. Lady's constituents who are tenants of those estates.

Mr. Jonathan Sayeed (Bristol, East): Why has there been no announcement for Bristol, with all its inner-city housing problems that my hon. Friend and I know so well? Could it be that it helps if there is co-operation with the local authority when establishing housing action trusts? One sees from the past actions of the Labour-controlled Bristol city council that it is more interested in bigotry than in caring for the community.

Mr. Waldegrave: My hon. Friend will well understand that Bristol was not forgotten. I was interested to hear him say that he believes that a housing action trust for Bristol might be worth considering for the future. He is quite right that we face the spectacle of Bristol city council wasting a considerable sum of ratepayers' money by pointlessly petitioning against the UDC, which most people in Bristol warmly welcome.

Mr. John Fraser (Norwood): Reverting to the two estates in my constituency, if the majority of the tenants oppose the order, will that influence the Government and will they not proceed with it? Secondly——

Mr. Speaker: Briefly.

Mr. John Fraser: —if the Government are to provide extra resources for estates such as Angell town, why will the same resources be denied to similar estates in the neighbourhood, such as Tulse hill and Stockwell park? What is the difference in principle? Thirdly, will the Minister give an undertaking that all vacancies will be made available to Lambeth people, and will Lambeth be able to spend only 20 per cent. of its capital receipts, or the whole lot?

Mr. Waldegrave: The hon. Gentleman opposes these proposals but then asks why the same cannot apply to other estates. There were difficult decisions to make about the estates that were in most need. We have selected some estates that we believe will benefit dramatically. On the

10 DOWNING STREET

LONDON SW1A 2AA

THE PRIME MINISTER

11 July 1988

Dear Sir David.

I have now been able to consider further with George Younger your letter of 13 June about the replacement of the Chieftain tank.

You will know from your own discussions with David Trefgarne that we are very much aware of the efforts you have made to see that Vickers will be in a position to respond speedily as and when our requirement is confirmed. At the same time, we will have to satisfy ourselves that whatever solution we adopt represents the best value for money. In coming to our decision, we shall consider the full range of factors: how well the various options open to us meet the operational requirement, the price, delivery and so on - and of course the industrial dimension. There is also the important question of interoperability both within the British tank fleet and with our NATO allies which we shall need to consider.

This is an important decision and we intend to get it right. There will be no unnecessary delay but equally it is not something we can afford to rush. We well understand your difficulties, including those with your potential sub-contractors and are grateful to you for revising your own proposals to match what looks like a more realistic timescale, pointing to a decision in the late autumn and before the end of the year.

We are all fully seized of the importance to Vickers and its export prospects of a timely Chieftain replacement decision. Equally you will understand how important it is to us to weigh up properly which of the various options best meets defence needs, price competitiveness and the kind of contractual terms offered. While I am certainly ready to meet you, I wonder whether it would not be best to defer this until we have taken our own consideration of the issues involved a further step forward in the autumn.

Yours sincerely

Margaret Thatcher

Sir David Plastow

DEFENCE: procurement ptb

CONFIDENTIAL

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

11 July 1988

CHIEFTAIN REPLACEMENT

The Prime Minister has seen the Defence Secretary's minute of 8 July about the letter from Sir David Plastow concerning the Vickers' proposal for the replacement of Chieftain tanks. She has agreed to write to Sir David, and I enclose a copy of her letter. At the same time, the Prime Minister has commented that she can see why Sir David is worried, and she hopes that we shall make the decision on the Vickers' replacement as speedily as possible, perhaps in the early autumn.

I am copying this letter to Neil Thornton (Department of Trade and Industry), Jill Rutter (Chief Secretary's Office) and to Trevor Woolley (Cabinet Office).

(C. D. POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

CONFIDENTIAL

(1)

PRIME MINISTER

CHIEFTAIN REPLACEMENT

Sir David Plastow of Vickers has been agitating to see you about the prospects for Vickers securing the order for the Chieftain replacement. He fears that Vickers will lose good export prospects unless we make up our own minds soon on the Chieftain replacement and decide to buy the Vickers tank.

The attached letter from the Defence Secretary explains that this is a very major decision which needs the most careful consideration and it is unlikely that we can reach a decision before the late autumn. He thinks that Sir David really knows this and that his main objective is simply to nobble you early in the process for support of the Vickers tank. He suggests, therefore, that you reply to Sir David that you are ready to see him at the right time, but there is little point in a meeting until our own consideration of the future tank is completed.

This seems to be right. If Sir David feels strongly enough he will come back and say he really does want a meeting now.

Agree to sign the attached letter?

Yes - I can see why he is worried so I hope we shall make the decision as speedily as possible perhaps early autumn not

C.D?

Charles Powell

8 July 1988

DG2CUC

RESTRICTED
COMMERCIAL IN CONFIDENCE

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 26/3/1V

8th July 1988

Dear Jill,

STATEMENT ON TYPE 23 FRIGATE ORDERS

In his letter of 7th July, my Secretary of State answered the points raised in the Chief Secretary's letter of 6th July and expressed his strong belief that we need to announce the Government's decision on Type 23 Frigate Orders on Monday 11th July.

Accordingly, I enclose a copy of the draft statement which Mr Sainsbury plans to make on Monday, subject to confirmation that the Chief Secretary is content to approve the order of the three ships as proposed. If we are so to proceed, it would be helpful to have a very early indication that the Chief Secretary is now content.

I am copying this letter and attachment to Charles Powell (No 10), Lyn Parker (FCO), Neil Thornton (DTI), David Crawley (Scottish Office), Alison Smith (Lord President's Office), Murdo MacLean (Chief Whip's Office) and to Trevor Woolley (Cabinet Office).

Yours sincerely,

(B R HAWTIN)
Private Secretary

Jill Rutter
PS/Chief Secretary

COMMERCIAL IN CONFIDENCE
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STATEMENT ON TYPE 23 ORDERS

With permission, Mr Speaker, I should like to make a statement about the Government's plans to place orders for further Duke class Type-23 frigates.

The Type 23 frigate will form the backbone of the Royal Navy's anti-submarine warfare surface force in the future. Principal features of this ship include a towed array sonar to detect low noise submarines, a 4.5 inch gun, a helicopter capable of carrying Sting Ray torpedoes and sonobuoys, Harpoon anti-ship sea-skimming missiles, and Vertical Launch Seawolf missiles to counter the air threat. The Type 23 will be much more capable than the types of ship it is replacing.

Tenders were sought for orders for one to four ships from the four main warshipbuilding yards in the United Kingdom. We are very pleased with the outcome of the competition. The precise value of the order is commercially confidential but the prices submitted were very keen. Following evaluation of the tenders, I am pleased to be able to tell the House that an order for three ships is to be placed with Yarrow Shipbuilders Limited. The ordering of all three ships from Yarrow provides best value for money in terms of prices and contract conditions. The average unit cost of the three new ships is some £10M below the average of the last three ordered in 1986. This reflects, among other things, the keenness of the

competition, the benefits of batch-ordering, and improved efficiency in the shipyards (due in part to improved fabrication methods and to greater experience of building these types of vessel).

I should like to take this opportunity to thank all the yards who participated in this excellent competition and who submitted such competitive bids. Although tenders were sought for up to four vessels in order to explore the benefits of batch ordering, an order now for four, even if all from one yard, would not be significantly more attractive in terms of unit price than an order for three. We have decided, therefore, that it would be best to include the fourth ship in the next batch competition, which will be for up to 4 vessels and for which we will invite tenders early next year. This will enable all the yards which participated in this competition to have the opportunity to bid again for this ship together with further possible orders.

Mr Speaker, this decision brings to ten the number of new frigates now on order, a figure which excludes the three Type 22 frigates accepted by the Royal Navy from the shipbuilders this year. There has been much comment in the press in recent days and from the Opposition about the size, age and availability of our surface fleet. I regret that much of it has been ill-informed. The announcement I am making today demonstrates in the best possible way the Government's commitment to maintaining a highly capable escort force of about 50 destroyers and frigates.

DEFENCE : Procurement PT6

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cc: PC (2)

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

D/S of S/PS/20/210V

5th July 1988

Mr Richards

To be aware.

CDP 8/7

Dear Charles,

HOUSE OF COMMONS DEFENCE COMMITTEE: REPORT ON THE FUTURE SIZE AND ROLE OF THE ROYAL NAVY'S SURFACE FLEET (HC 309)

My Secretary of State has been considering the form of the Government response to the above report which was published on 28th June.

You may recall that the report attracted a fair amount of press interest, some of which was based on misleading and unsubstantiated assertions in the report itself. For ease of reference I attach some examples of the newspaper coverage. Mr Younger intends, therefore, to produce a short and punchy response to the report to be published if possible before the Summer Adjournment. As regards the form of the response, the two main alternatives are either a Command Paper or a Memorandum to the Committee. Submitting a memorandum to the Committee is classed as evidence and as such publication is in the hands of the Committee. Also, the Committee are at liberty to add their own comments to the response before publication. The alternative of a Command Paper response has the distinct advantage of retaining control of content and timing. Mr Younger has concluded that responding by a Command Paper represents the best way ahead and he therefore intends to circulate to Cabinet colleagues a draft response during the week beginning 18th July.

I am copying this letter to Private Secretaries to Cabinet Ministers and to Trevor Woolley (Cabinet Office).

Yours ever,

Bill Clark

(W C CLARK)
Private Secretary

Charles Powell Esq
10 Downing Street

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The Guardian

Navy escort fleet 'overstretched'

David Fairhall
Defence Correspondent

THE ROYAL Navy's fleet of surface escorts is in danger of shrinking to the point where it cannot meet even peacetime commitments, the all-party Commons defence committee warned in a report published yesterday.

Unless new orders for frigates and destroyers are speeded up to an average of 2.6 ships a year, MPs calculate, the Government will not be able to meet its commitment to maintain "about 50 ships".

Tenders for a batch of up to four Type 23 frigates are being considered by the Ministry of Defence and a decision — probably to order at least three — is expected shortly.

As pressure on the defence budget grows, committee members fear the ministry will be tempted to save money by delaying further orders. In that case, they say, it should spell out which of the navy's operational roles must be abandoned.

As things are, one in three escorts is unavailable, in refit or on trials, and the Armilla escort patrol in the Gulf absorbs six of the remaining ships. MPs were told the fleet was being run harder than it ever had been in peacetime and that the "ship-weeks" available to the commander-in-chief were inadequate for the tasks he was asked to undertake. The navy had had to reduce its participation in Nato exercises.

"We are concerned at the consequent overstretch and in particular at the implications for morale and retention of personnel," the report says. The MPs said warships' crews spent about 60 per cent of their time away from home ports. A survey had shown that separation from families was a factor among ratings' seeking premature release.

After questioning Ministry of Defence witnesses about the Royal Navy's roles in a war between Nato and the Warsaw Pact, the committee says it is clear that "forward defence" — blocking the Soviet northern fleet's passage through the Norwegian Sea to the open Atlantic — is its highest priority. Few ships would be left to protect American reinforcements against Soviet submarines which broke through the cordon. Only certain "high value shipping" could expect convoys across the Atlantic.

The ministry explained plans to get ships out of refit as fast as possible in wartime and said the ships being built were more capable than those they replaced. MPs pointed out that the "threat" posed by the Soviet navy had also increased.

Calling for more warships, to stop the decline in the navy's surface escort fleet, the report says the lack of regular orders, or any clear sense of direction, makes life difficult for shipbuilders.

"The uncertainty is aggravated by the over-capacity in warship-building which results in too many yards chasing too few orders. It is in no one's interest that this uncertainty should continue," it says.

Labour's defence spokesman, Mr Martin O'Neill, said the committee's findings demonstrated that "the Government is unclear about its maritime strategy, and ministers have consistently misled the country about the size of the fleet."

The report was welcomed by the chairman of the Ministry of Defence industrial unions, Mr Jack Dromey of the Transport and General Workers. "Forget the Russians. The real threat to the navy is the Government's secret cutting back of the surface fleet," he said.

The defence committee had exposed a "defence review by stealth". It should now mount a watch on the Government to hold it to its election promise to maintain a surface escort fleet of about 50 ships.

The Institution of Professional Civil Servants, on behalf of 4,500 dockyard members, said it endorsed the committee's concern that elderly or inefficient ships would have to be kept in service for an extended period to maintain the Government's target for the size of the fleet.

"The MoD's warship procurement policy is incoherent," claimed national officer Mr John Billard. "The Government is already failing to order enough ships to meet its target."

Meanwhile, the SDP's spokesman, Mr John Cartwright, said: "The Government must stop pretending that all Britain's defence needs can be met within present resources."

The Future Size and Role of the Royal Navy's Surface Fleet, HMSO, £12.70

Wednesday, June 29, 1988

Wednesday, June 29, 1988

Daily Mail

CONCERN OVER THE NAVY

Fleet will be sunk unless more is spent, say MPs

FOUR HUNDRED years ago next month, when the Armada was first sighted, the Royal Navy was prepared for one of its finest hours.

But today, according to a damning report, secret defence cuts have reduced it to such a level that it cannot carry out its peacetime duties and would be unable to meet its Nato commitments in a war.

The study, by the all-party Commons defence committee, condemns the Defence Ministry for undermining the Navy's strength and leaving the country vulnerable to Soviet attack.

But last night, Defence Secretary George Younger denied that he was allowing the surface fleet to be run down. He also rejected criticism that he was conducting a 'defence review by stealth'.

The committee took 200 pages of evidence, much of it in secret, from senior MoD officials, retired admirals and shipbuilding chiefs.

It concludes that there has been 'growing scepticism' about the MoD's commitment to maintain "at least 50 frigates and destroyers". It is thought to have as few as 45, and only 28 are operational at one time.

By PAUL MAURICE
Defence Correspondent

Ordered

With older ships being scrapped or sold, the MPs claim it might cost around £7.5billion over the next decade to maintain the fleet.

But what most alarmed the MPs, headed by Tory Michael Mates, was that while the number of ships had declined, their peacetime and wartime duties had increased.

Since 1960, when there were 67 frigates and destroyers, the Navy has had to mount patrols in the West Indies, the Falklands and the Gulf with only 45 ships.

This means that Nato commitments to provide ships for duties in the North Atlantic, the Channel and the Mediterranean have been 'stretched'. In one case, the West German navy was forced to send a ship to the Mediterranean to cover British commitments.

The report adds that despite an MoD promise at the end of the Falklands war that at least three ships a year would be ordered, only six have been commissioned in the last six years. Four more were built to replace those lost in the war.

Four of the new Type 23 frigates are being built on Clydeside and Tyneside. The MoD is still evaluating tenders for four more, although the orders should have been placed more than a year ago.

The report says: 'We were told that Ministers wish to decide on the number to be ordered when they consider the tenders.'

It suggests that this policy is causing chaos in the shipyards. 'The uncertainty is aggravated by the over-capacity in warship building, which results in too many yards chasing too few orders.

Strategy

'It is in no one's interest that this uncertainty should continue.'

Martin O'Neill, Labour's new defence spokesman, said: 'The Government is unclear about its maritime strategy, and Ministers have consistently misled the country about the size of the fleet.'

Mr Mates said: 'Either the MoD orders ten new frigates in the next four years or it will not be able to meet its commitments. It's as simple as that. Tough decisions will have to be taken, and quickly.'

Sailors 'seasick'

THE MPs' report says that most ships' crews spend 40 per cent of their time in home ports and about 60 per cent away. A survey showed that separation from families was a major factor in ratings' decisions to seek premature voluntary release from the Navy.

EXPRESS

Navy is at crisis point, warn MPs

By PETER HITCHENS Defence Correspondent

BRITAIN must decide now if it wants to continue having one of the world's major navies, Parliament's all-party defence committee warned last night.

New ships must be ordered straightaway if the government is to keep its pledge of a 50-ship surface fleet, said the MPs.

But they warned this could carry a giant £7,500 million price tag over the next ten years.

Letting the fleet of frigates and destroyers drop to 40 could save the taxpayer £4,000 million over the same period, they pointed out.

Setting out the bleak choices before Defence Secretary George Younger, they warned:

"Further reduction in the size of the fleet may indeed be a tempting course for the Ministry of Defence, but it would then need to spell out which of the Navy's roles would have to be abandoned."

The report highlights the danger that the fleet will simply be allowed to shrink until it can no longer meet its peacetime commitments.

And it says that 17 destroyers or frigates have to be ordered in the next 6½ years to keep the fleet at an acceptable strength

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Daily Mirror

NAVY 'IS TOO SMALL'

THE Royal Navy isn't fit to rule the waves, a Tory-dominated committee of MPs warned yesterday.

There will soon be too few ships for either war or peace unless the Government changes policy and builds more, the Commons Defence Committee reported.

The MPs expressed "the greatest concern" and painted a grim picture of an over-stretched navy adapting old ships to meet the threat of a highly-sophisticated Soviet force.

Morale was low and there had been a flood of requests from sailors wanting to quit.

THE Sun

Storms ahead . . . the destroyer HMS Newcastle

The Navy's all at sea, warn MPs

By CARSON BLACK

BRITAIN'S Navy is dangerously under-strength, a powerful group of MPs warned last night.

Defence cuts mean the Royal Navy cannot even cope with its peacetime NATO role, the all-party Defence Select Committee claimed.

A probe by the MPs also revealed **MORALE** is at an all-time low; **SAILORS** stay at sea too long—and are quitting the service early; too few **SHIPS** are being ordered by the Government; and the cost of equipment needed to bring the Fleet up to strength would be a staggering **£7.5 BILLION.**

They said the Government's pledge to keep "about 50 ships" actually meant about 45—and in the past year only 28 were in service at any one time.

Crews

Ships' crews now spend about 60 per cent of their time at sea—and separation from families is driving many ratings to leave early.

Shadow Defence Secretary Martin O'Neill last night stormed: "The Government is unclear about its maritime strategy.

"Ministers have consistently misled the country about the size of the Fleet. They have allowed the Navy to decline to an appalling state."

TODAY

Navy needs more ships to rule waves

BRITAIN needs more ships to defend it during war.

The Government must spend more on the Navy, an all-party committee of MPs urged yesterday.

Their report hit out at the lack of a long-term plan for the forces.

The fleet was poised to fall below the Government's target of 50 ships and orders for more must be speeded up.

Labour defence spokesman Martin O'Neill said the Government had misled the country about the size of the fleet.

He said: "They have failed to order sufficient numbers of ships to keep it anywhere near the figure of 50 agreed after the Falklands."

He said morale had plummeted as crews were forced to remain at sea for too long.

A Ministry of Defence spokesman said: "We have a large and well-equipped surface fleet, and we shall maintain and update it."

STAR

NAVY ON THE ROCKS SAY MPs

By PETER MacMAHON

BROADSIDE was fired at the Government yesterday for allowing the Royal Navy to be torpedoed.

The bombardment came from a key group of MPs who warned that our fleet would soon be too weak for even a peacetime role.

The Tory-dominated Commons Defence Committee discovered:

- **FEWER** sailors to man the ships.
- **MORE** work, **MORE** time at sea and **LOWER** morale.
- **NOT ENOUGH** ships and **TOO MANY** old vessels.

The MPs attacked the Defence Ministry pledge to keep Britain's frigate and destroyer fleet at "about 50 ships."

Although there are 52 this year—compared with 67 in 1980—only about 30 are ever fully operational.

A promise to maintain the fleet at about 50 was made after the Falklands war.

But the MPs are critical of a slowdown in introducing the new type 23 frigates.

The Defence Ministry hit back last night. A spokesman said: "We can state that there has been no change to our policy in respect of the Royal Navy's surface fleet."

Caldwell's view — Page 8
The Star Says—Page 8

25

Financial Times Wednesday June 29 1988

Fleet decline must be halted 'if Navy is to carry out its tasks'.

BY DAVID WHITE, DEFENCE CORRESPONDENT

THE ROYAL Navy will be incapable of fulfilling even its peacetime roles unless the Government steps up its rate of ship orders, the Commons Defence Committee warned yesterday.

In a strongly-worded report, the cross-party committee expressed "the greatest concern" that the fleet of destroyers and frigates might fall significantly below the Government's own target of about 50 ships, and warned of the effects present uncertainty was having on shipyards.

It said it had no evidence that ministers were proposing to approve the level of orders needed to check the fleet's decline. If the money were unavailable, the Government should not cut other commitments but should set in hand a formal review of the whole defence programme, it said.

The report comes as a decision is awaited on how many more Type-23 frigates are to be ordered. Tenders were invited for up to four.

The committee said that even though the Ministry of Defence planned to extend the life of the navy's older ships, 17 more had to be ordered during the next 6½ years to maintain today's level.

Ministry figures released this month showed a total of 47 destroyers and frigates, only 32 of them fully operational at the time.

"If the number of destroyers and frigates falls much below its present level, the Royal Navy will not be capable of meeting all the peacetime tasks which it is currently directed to undertake, and we doubt whether it would be of an adequate strength for the wartime roles assigned to it by Nato," the committee warned.

It said the Navy was already overstretched and unable to participate as much as it would like in Nato exercises. The Armilla patrol sent to safeguard shipping in the Gulf was reckoned to occupy 25 per cent of all seagoing time of British destroyers and frigates.

In wartime, the demands of "forward deployment" to contain enemy forces in the Norwegian Sea would leave "very limited resources" for other tasks such as protecting merchant shipping in the Atlantic.

The committee cited estimates from Mr Malcolm Chalmers, a lecturer at Bradford University's School of Peace Studies, that maintaining a 50-ship force would cost £7.5bn over a decade, including frigate-based helicopters, missiles and support vessels. This would make it the UK's largest single defence equipment programme over that period.

However, it said that much of the philosophy behind the original commitment, made in 1981, to sustain the level seemed to have been "quietly discarded," without being replaced by a coherent long-term plan.

"Since the phrase was first used, there has been growing scepticism as to whether the Government's understanding of 'about 50' is shared by anyone else," the committee commented. It rejected the idea of buying simpler and cheaper ships to make up numbers.

The lack of a clear sense of direction made life "extremely difficult" for the warship-building industry, it said. Hopes of new orders had led yards to retain surplus capacity. Continued uncertainty raised the possibility of further redundancies and higher costs when orders were finally placed.

The committee also warned that the overstretching of the Navy, with manpower reduced by 8,700 since 1981 to 57,700 at present, meant more time spent at sea and made it hard to hold on to specialised personnel.

House of Commons Defence Committee sixth report, The Future size and role of the Royal Navy's surface fleet, HMSO, £12.70

FINANCIAL TIMES

Silence over orders for frigates

BY IVOR OWEN

MR GEORGE YOUNGER, the Defence Secretary, refused to be drawn in the Commons yesterday on the timing of the orders for the new Type-23 frigates required by the navy.

When Mr Martin O'Neill, Labour's newly-appointed defence spokesman, stressed that an announcement was "desperately" awaited by the fleet and the shipbuilding yards, the minister declined to go beyond saying it would be made "as soon as the process of assessing the bids is complete".

Mr Younger reaffirmed that the Government intended to keep a force of "about 50 destroyers and frigates" in future.

He stated that 47 were available for service at the present time, and highlighted the "very marked improvement" in reducing the time such vessels spent undergoing refits.

10 years ago 27 per cent of their life would have been occupied by refits compared with 12 per cent at the present time.

He maintained that the size of the Royal Navy was at "a very high level" with about 143 ships in commission. Mr Younger rejected the view of Labour MPs that the balance of Britain's defence forces was being upset by over-concentration on the nuclear deterrent and emphasised that Trident, which is to replace the Polaris submarines, had become less costly in foreign exchange and cash terms.

He said the Trident programme was on schedule and refused to intervene in the dispute at the Barrow yard where it is being carried out - said by Mr John Cartwright (SDP, Woolwich) to be due to the "Victorian attitude" of the

on holiday in the same two weeks in August.

In a speech in London last night Mr Younger accused the Labour Party of adopting the same approach as Dickens's Mr Micawber to defence policy.

It had hoped that "something would turn up" and that somehow or other the superpowers would agree to abandon all their nuclear weapons, thus relieving it of having to make difficult choices on defence.

Mr Younger asked: "How can anybody – the Soviets, our friends and allies, the electorate or even Labour Party activists believe in such a cynical approach towards defence and arms control?"

Describing Mr Neil Kinnock, the Labour leader, as a "convinced unilateralist", he said: "Although for electoral advantage he may appear to trim or

THE INDEPENDENT

Commons row over 'damning' report by MPs on Navy

By Andrew Marr
Political Correspondent

THE GOVERNMENT clashed head-on with the Opposition yesterday over the size of the Royal Navy's ageing warship fleet, after a damning report by MPs suggested it could not meet its peacetime or wartime commitments.

George Younger, Secretary of State for Defence, insisted in the Commons that he was retaining a fleet of "about 50" destroyers and frigates, and would be announcing orders for more frigates once shipyard bids had been assessed.

But the Commons Defence Select Committee has concluded, as forecast last week by *The Independent*: "The number of fully available and fully armed frigates thoughout 1987-88 . . . appears to have been not more than 28."

The MPs dryly comment: "There has been growing scepticism as to whether the Government's understanding of 'about 50' is shared by anyone else."

To maintain an active fleet of this size could cost Britain £7.5bn over a decade, in new frigates, helicopters, support vessels and missiles, the report states. To allow the fleet to fall to about 40 ships might save £4bn, but the Ministry of Defence would have to spell out which of the Navy's roles would have to be abandoned.

Martin O'Neill, Labour's defence spokesman, said that the report showed the Government was unclear about its maritime strategy. "and that ministers have consistently misled the country about the size of the fleet".

Jack Dromey, chairman of the MoD industrial trade unions, commented: "Forget the Russians. The real threat to the Navy is the Government's short-sighted cutting back of the surface fleet."

The committee says: "In wartime, the strategic implications could be serious." Nato is committed to a policy of "forward defence", or containing the Soviet Navy as far north as possible. But the numbers of available warships mean "the demands of forward deployment will leave very limited resources for the other tasks which the surface fleet is expected to perform in wartime, even without allowing for any attrition".

These other tasks include the direct defence of Atlantic convoys of reinforcements and vital supplies; anti-submarine defence of the Nato Striking Fleet in the Atlantic; and the protection and deployment of the joint UK-Dutch amphibious force to reinforce Nato's northern flank.

In peacetime, the size of the Navy means its commitments in the Gulf, North and South Atlantic, Far East and around Britain, leaves it short of warships. "We are concerned at the consequent overstretch and . . . the implications for morale and retention of personnel," the MPs say.

The overstretch has also forced the Navy to cut back on training with other Nato navies: "We have formed the clear impression that the Royal Navy is unhappy about the current level of its participation in Nato exercises but, because of its commitments, cannot increase that participation."

If the lack of Nato training is attributable to MoD scepticism about its value, that is worrying, the report says: "It is still more worrying if this view results from the fact that the Royal Navy cannot meet its peacetime commitments, and that Nato training is the first thing to suffer."

28

MO 26/4L

PRIME MINISTER

CHIEFTAIN REPLACEMENT

Sir David Plastow wrote to you on 13th June seeking a meeting to discuss a Vickers Defence Systems proposal for the replacement of the Army's ageing Chieftain tanks. He was particularly concerned about how any delay in our decision might affect the company's export prospects and keeping together his potential overseas sub-contractors. You sent a holding reply on 18th June.

2. The background is that a combination of improved Soviet tanks, and the later timescale now envisaged for any revolutionary changes in tank armament, make it essential to replace our 600 plus Chieftain tanks, which entered service in 1965, as soon as we sensibly can. I made provision for this in the last re-costing of the defence programme and we have since been examining the Vickers proposal, which is for an improved version of our other and newer main battle tank (MBT) Challenger with a new turret and gun, and also improved versions of the current German and American MBTs, the Leopard 2 and Abrams M1A1.

3. This involves a major exercise in judging the operational merits of the various contenders, assessing technical risks and establishing the preferred procurement route, as well as seeking the price data on which to make a sound financial appraisal. But there are two further and major complicating factors.

4. The first is the extent to which our eventual choice should be influenced by the need to achieve greater interoperability with our NATO allies on the Central Front. Both Chieftain and Challenger have 120mm rifled bore guns which our current plans envisage will be replaced with an improved version. Both the US and FRG have equipped part of their tank fleets with 120mm smooth-bore guns although the Belgians on our flank have no plans to do so. The question of interoperability is a complex one but it is clearly desirable that we should make progress towards the goal of greater interoperability within the Alliance, if this can sensibly be done. The difficulty is that to change from a rifled bore to a smooth-bore gun for the planned replacement of our Chieftain tanks would mean that the new tanks could not fire the same ammunition as the Challenger tanks on which we should still be relying for a substantial part of our front-line capability in Germany and all our war maintenance reserve. This would have very serious operational, logistic, support and training problems for BAOR with attendant financial penalties.

5. One way out of the difficulty would be to replace or re-turret our Challenger tanks as well as replacing Chieftain. This would be expensive, and re-turreting would mean technical risk and delay. I am looking into this, while at the same time seeking to confirm our Allies future plans for their tank fleets, to review the prospects for collaboration and to obtain a considered view from SACEUR as to where he considers his military priorities lie in relation to interoperability.

6. The second major issue concerns the acceptability, or otherwise, of overseas purchase. Vickers are now our sole tank manufacturer and the design authority for much of our present heavy armoured vehicle inventory. A decision to buy overseas would represent a watershed decision for this area of industrial capability, including its ability to support the current heavy armoured fleet.

7. The whole question of Chieftain replacement is, therefore, a difficult and complex one. It is not something we can rush if we are to make a properly informed and sensible decision. Having reviewed the position in some detail, I expect to have the views of SACEUR and confirmation of the Allies plans shortly, together with revised cost data for all three tanks. Although I do not expect to be in a position to make firm proposals to colleagues before the Autumn, I would hope to be able to seek an earlier indication of colleagues views on some of these issues before the recess.

8. There remains the question of what to say to Sir David, who has been lobbying hard for an early decision. Our own view of the export prospects of the Vickers tank is that they are not such as to justify rushing our decision. It is true that Vickers have sunk several million pounds of their own money into what must remain, for the present, a private venture investment; and Sir David is naturally anxious to recoup this. He has already been told by David Trefgarne that we have no basis for refunding this expenditure until a decision is made to adopt the Vickers contender (if this should indeed be the outcome), although we would then look sympathetically at what could be properly reimbursed. David went over the timing with Plastow at the end of May when Sir David agreed to submit a revised Vickers offer predicated the assumption that we would not be able to let a contract before the beginning of December.

9. In sum, we are as anxious as Sir David to reach a decision, but the problem is complex. Not all the pieces are yet in place and, as I have said, I will wish to give colleagues a proper opportunity to contribute their own views shortly. Sir David's concerns are well known to us; he is equally aware of the issues we have to consider. The only substantive benefit in your agreeing to see him now, therefore, would be that it would give Sir David reassurance that his concerns had been registered at the highest level. On balance it

would seem preferable to wait until after my approach to OD colleagues; the suggested draft rely to Sir David attached to this minute takes this line.

10. I am sure I do not need to remind you, that the admirable and energetic way the company has set about re-vitalising the former Royal Ordnance operation at Leeds should not obscure the fact that Vickers bought the business without any commitment whatever to additional MOD orders beyond the current Challenger order due to complete early in 1990.

11. I am sending a copy of this minute to the Secretary of State for Trade and Industry, the Chief Secretary and to Sir Robin Butler.

G.Y.

Ministry of Defence
8 July 1988

DSRAD

DRAFT LETTER TO SIR DAVID PLASTOW FROM THE PRIME MINISTER

I have now been able to consider further with George Younger your letter of 13th June about the replacement of the Chieftain tank.

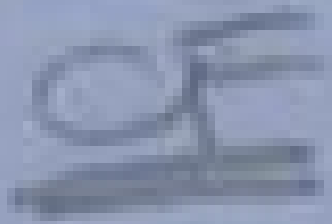
2. You will know from your own discussions with David Trefgarne that we are very much aware of the efforts you have made to see that Vickers will be in a position to respond speedily as and when our requirement is confirmed. At the same time, we will have to satisfy ourselves that whatever solution we adopt represents the best value for money. In coming to our decision, we shall consider the full range of factors: ~~we would expect to influence any major procurement decision, namely~~ how well the various options open to us meet the operational requirement, the price, delivery and so on - and, of course the industrial dimension. There is also the important question of interoperability both within the British tank fleet and with our NATO allies which we shall need to consider.

3. This is an important decision and we intend to get it right. There will be no unnecessary delay ~~on our part~~ but equally it is not something we can afford to rush. ~~I know David Trefgarne~~ We well understands your difficulties, including those with your potential sub-contractors and ~~he is~~ we are grateful ~~for your prompt response~~ to have your help.

~~following his meeting with you at the end of May,~~ in revising your own proposals to match what looks like a more realistic timescale, pointing to a decision in the late Autumn and before the end of the year.

2 // ~~The MOD is~~ we are all fully seized of the importance to Vickers and its export prospects of a timely Chieftain replacement decision. ~~In the end, the Government's decision will rest on~~ Equally you will understand how important it is to us to weigh up properly which of the various options best meets defence needs, price competitiveness and the kind of contractual terms offered. While I am ~~prepared~~ certainly ready to meet you, ~~if you wish, I suggest that, unless there is some other argument affecting your company that you have not yet put forward to George Younger or his colleagues, it would be better to defer a meeting until I and my colleagues have been able to carry our consideration further forward.~~ we have heard our discussions in the autumn. I wonder whether it would not be best to defer this until we have taken our own consideration of the issues involved a further step forward in the autumn.

DEFENCE : Procurement Pt. 6



Dear Sir David

R 21/6

SIR [redacted] PLASTOW
Chairman and Chief Executive

VICKERS P.L.C.
Millbank Tower
Millbank
London SW1P 4RA
Telephone 01-828 7777

20 June 1988

C D Powell Esq
10 Downing Street
LONDON SW1A 2AA

Dear Mr Powell. PSS 21/6.

Thank you for your ~~acknowledgment~~ of my letter of ~~13~~ 14th June, and our telephone conversation. Please be assured that I do appreciate how difficult it will be to find a few moments of the Prime Minister's time - particularly with summits abounding.

Should it be possible to arrange a meeting, I will be asking for your advice on a format which would be acceptable to the Prime Minister, and I undertake that it would definitely not be a classic British industry winge!

Yours ever,

David Plastow

/BAS

D6F61X6 : Procurement Pt6.

8

10 DOWNING STREET
LONDON SW1A 2AA

THE PRIME MINISTER

18 June 1988

Dear Sir David.

Thank you for your letter of 13 June about your company's proposals to replace the Army's Chieftain tanks. I note your concern about the timetable for a Chieftain decision and the possible impact on export prospects and I hope to discuss the whole matter with the Defence Secretary in the reasonably near future (although I shall be out of the country at the Economic Summit and then the European Council over the next two weeks). Perhaps we could consider in the light of my discussions with George Younger how to take matters forward.

Yours sincerely

Margaret Thatcher

Sir David Plastow

CF R16/6

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 26/4L

16 June 1988

Dear Charles,

CHIEFTAIN REPLACEMENT

You asked for an interim reply to Sir David Plastow's letter of 13th June to the Prime Minister about his company's proposal for the replacement of the Army's Chieftain tank.

We agreed that any substantive reply should sensibly wait until Mr Younger has, as already planned, himself taken stock of the latest position on the Chieftain replacement options on 27th June. I will accordingly let you have a more considered reply as soon as possible after this date.

In the meantime, we would see no particular merit in the Prime Minister responding personally unless you think this essential, or to her agreeing to meet Sir David at this stage. The attached draft is accordingly couched in Private Secretary terms.

There is nothing in Sir David's letter which is new to us as he saw Lord Trefgarne as recently as 26th May. We are well aware of the importance to Vickers of this prospective order but as we have repeatedly explained to Sir David, our own timetable in coming to a decision is directed by the need to ensure that all the relevant factors, operational, financial and procurement, are properly and fully explained.

Since Sir David refers to his company's purchase of ROF Leeds in 1986, it is pertinent to recall that they did so on the basis of their own commercial judgement, without receiving or being lead to believe that they might receive any further tank orders beyond the current production order for the 7th Challenger regiment which is due to be completed in 1990. Likewise, the new factory there was built entirely at their own risk and commercial judgement.

Charles Powell Esq
10 Downing Street

Our own view of the export prospects referred to in Sir David's letter is that they are still somewhat speculative in character and are most unlikely to be a decisive or immediate influence.

Yours sincerely,

Brian Hawtin

(B R HAWTIN)
Private Secretary

Sir David Plastow
Chairman and Chief Executive
Vickers plc
Millbank Tower
Millbank
London SW1P 4RA

June 1988

Dear David

You wrote to the Prime Minister on 13th June about your company's proposals to replace the Army's Chieftain tanks. The Prime Minister will be discussing the matter with the Defence Secretary in the near future. But in the meantime she has asked me to say that she notes your concern about the timetable for a Chieftain decision and the possible impact on export prospects. These will be some of the points she would wish to discuss with Mr Younger.

Yours sincerely

Brian Hawtin

bcc. Brian Hawtin

DEFENCE: Procurement
PG

Pte SLW

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

14 June 1988

I enclose a copy of a letter to the Prime Minister from Sir David Plastow, Chairman and Chief Executive of Vickers, about their proposal to introduce a completely new turret and weapons system for the Challenger tank. As you will see, the letter requests a meeting with the Prime Minister.

I should be grateful for very early advice and a draft reply, if possible before the Prime Minister leaves for the Economic Summit on 18 June.

(C. D. POWELL)

Brian Hawtin, Esq.,
Ministry of Defence.

Cole SRW

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

14 June 1988

Dear Sir David,

I am writing on behalf of the Prime Minister to thank you for your letter of 13 June. I shall bring this to her attention and hope to let you have a reply as soon as possible.

Yours sincerely,

(C. D. POWELL)

Sir David Plastow

10 DOWNING STREET

Charles

This correspondence stems from RO jurisdiction but is not really about a specific procurement issue on tanks. Do you want to handle it or leave it to me? Personally the first step is to ~~get~~ ascertain and to call for an urgent report from MoD.

PRC
14/6

SIR DAVID PLASTOW
Chairman and Chief Executive

VICKERS P.L.C.
Millbank Tower
Millbank
London SW1P 4RA
Telephone 01-828 7777

13 June 1988

The Rt Hon Margaret Thatcher MP
The Prime Minister
10 Downing Street
LONDON SW1

Dear Prime Minister

In the summer of 1986 you were kind enough to take an interest in our proposals to acquire the Royal Ordnance tank factory in Leeds.

As a result we bought the business for some £15 million, and in January 1987 began the construction of a completely new factory on the site costing £14 million. The building is over a third of a mile long and was completed within 48 weeks. At the same time we maintained the current programme of Challenger tank deliveries to the Ministry of Defence. The payroll has been reduced from 1350 to 840, and we believe we now have the lowest cost tank production facility in the West.

In March 1987 we presented to the Ministry a solution to the problem of the totally inadequate Chieftain tanks which make up half the tank fleet in Germany. Our proposal is to introduce a completely new turret and weapons system upon the proven Challenger 1 hull for first off production in the autumn of 1992, with a fixed production price. The design is based on work Vickers had been doing prior to privatisation. Since then we have modified our proposal to meet the detailed Staff Requirement issued towards the end of last year.

As you will see from the enclosed copies of letters to Lord Trefgarne, the timetable which was an essential part of our programme is now slipping and we are faced with serious difficulties in maintaining the momentum. What had begun in 1986 as a privatisation has developed into a rapid and good value solution to a serious British Army requirement and is now at risk.

I would be most grateful if you could spare a few moments for us to meet so that I may explain the importance and value of our proposals, not least because of two very important export prospects of which you are no doubt aware. We need a decision urgently, not only because of these exports, but also to ensure the continued participation of our collaborative partners in France and Canada.

As you would expect I have sent a copy of this letter to George Younger.

Yours sincerely,

Encs

David Plastow

/BAS

SIR DAVID PLASTOW
Chairman and Chief Executive

VICKERS P.L.C.
Millbank Tower
Millbank
London SW1P 4RA
Telephone 01-828 7777

The Lord Trefgarne
Minister of State for Defence Procurement
Ministry of Defence
Main Building
Whitehall
London SW1A 2HB

15 April 1988

Dear David,

Since your suggestion at Oracle that we should meet upon your return from overseas, I have learnt that there is an apparent delay on a decision over the Chieftain replacement programme. When we presented our proposals in March 1987 we emphasised the point that there were considerable advantages both to the MOD and to our company in sticking to a strict timetable.

Work began on our turret development for Challenger 2 early in 1987 in order to meet this timetable. The mechanical design of the turret has been completed and we have recently cast the first armoured steel turret shells. The results of early armour rig trials have been very successful.

The main electronic and optical weapon sub-systems have been chosen from the world's leading specialists as a result of competitive bidding. The fire control computer is from Canada and represents a considerable improvement over the unit on the US MI Abrams tank. Sights have been chosen from French suppliers capitalising on development and investment in the Leclerc main battle tank.

These companies are working with us without financial cover to maintain the momentum on the programme for Challenger 2. By the middle of this year the costs will approach £10m of which about half will have been incurred by our suppliers in this country, France and Canada.

Faced with this apparent delay, may we meet to see whether there is any way in which we can avoid a situation where we have to withdraw our proposals and run-down the work both within our company and with our sub-contractors?

2/ ....

Registered in London under No. 3543 Registered Office: PO Box 177 Vickers House Millbank Tower Millbank London SW1P 4RA

If we are not able to find a way forward it will not surprise you to learn that if we were subsequently asked to re-develop a submission to resolve the Chieftain replacement problem, the in service date, the unit cost, and the development budget, would all be very much less attractive.

A further factor of great concern is that for the last 12 months the future of Vickers as an international tank producer has been at risk as a result of your decision to invite the Germans and the Americans to bid.

We have made a very positive sales drive costing some £3m in Saudi Arabia, Morocco and at Kirkcudbright in Scotland. It is becoming very difficult to maintain our position in the international market-place as a result of the continued uncertainty, coupled with harmful press speculation.

If the uncertainty is prolonged awaiting an announcement of the MOD's intentions, our position at BAEE will be very difficult. We may even have to consider not having a presence and pulling out of Aldershot unless we can find a way forward.

Having said all this, it would be churlish if I did not commend the Ministry of Defence at all levels, and in all departments, for their outstandingly rapid co-operation with our company in responding to the proposals we have made. It seems a shame that all that good work is now in jeopardy.

I am available to discuss this matter at your convenience.

Yours sincerely,

/CE

SIR DAVID PLASTOW
Chairman and Chief Executive

VICKERS P.L.C.
Millbank Tower
Millbank
London SW1P 4RA
Telephone 01-828 7777

17 May 1988

The Lord Trefgarne
Minister of State for Defence Procurement
Ministry of Defence
Main Building
Whitehall
LONDON SW1A 2HB

Dear David,

Since I wrote to you on the 15 April and our meeting on 27 April, the urgent need for the replacement of Chieftain with a cost effective solution has not diminished. The changed factor, however, is the likely timing of the decision to proceed with the programme.

Timing, as you know, is of the essence, both in meeting your first off production of 1992 and keeping our offer financially attractive to you. May I run through again the sequence of events as to why this is so crucial.

The first step was the privatisation in 1986 of the tank business in Leeds, by the sale of RO plc to Vickers for some £15m. Immediately following this, Vickers invested a further £14m to build a modern low fixed-cost manufacturing plant which was producing Challenger 1 tanks by the end of 1987. Concurrently with the factory construction, we brought together the design expertise of Newcastle and Leeds to put forward very rapidly the Challenger 2 design.

This proposal, when compared with other options we studied, we considered to be a low risk technical solution in meeting the Staff Requirement. However, as I outlined to you in my letter of 15 April, we have invested further substantial sums of Vickers' money to maintain the momentum and achieve the ISD.

Since we made our first proposal in March 1987, Vickers have offered to accept a reasonable financial risk at the front end of a committed Challenger 2 production programme, and this I confirm is still our position.

/continued

Registered in London under No. 3543 Registered Office: PO Box 177 Vickers House Millbank Tower Millbank London SW1P 4RA

The Lord Trefgarne
17 May 1988

However, as the programme decision has not yet been made, I must now ask you to endorse as a very minimum the spend profile attached to this letter, and to provide us with financial cover up to these sums. This will enable us to keep the programme on course, retain the support of the key subcontractors in the UK, France and Canada, as well as keeping our financial offer open. Without this commitment by your Department, we will have to withdraw our proposals and any subsequent offer is bound to be much less attractive - this of course assumes we would still be in a position to mount an offer.

If we compare this issue with the funding decisions on the EFA project, it seems to us that the sums for which we need cover are a very modest percentage of the total Chieftain replacement programme, for what we agree are considerable benefits to the MoD and the Army.

I am, of course, available to discuss this at your convenience.

Yours ever,

David.

/GB/csm

CHALLENGER 2 VICKERS PROGRAMME COMMITMENT 1988

Month End	Running Total
MAY 88	£ 6.2m
JUNE	£ 8.1m
JULY	£ 9.9m
AUGUST	£11.7m
SEPTEMBER	£13.7m
OCTOBER	£15.8m
NOVEMBER	£18.5m
DECEMBER	£20.5m

/GB/csm
16 May 1988

Defence: prosecution pt 6

Covering COMMERCIAL IN CONFIDENCE

CCPC (L)

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 8/14V

9th June 1988

Rt Hon
CBP. 8/6
MF

Dear Charles.

MAJOR MOD PROCUREMENT PROJECTS

I attach the latest of the regular two monthly reports on MOD equipment procurement projects currently facing major difficulties.

I am sending a copy of this letter and of the reports to Jill Rutter (HM Treasury) and to Graham Cawsey in the Efficiency Unit).

(I C F ANDREWS)
Private Secretary

C D Powell Esq
10 Downing Street

Covering COMMERCIAL IN CONFIDENCE

JUNE 1988

REBUILDING PROGRAMME AT ALDERMASTON

Programme Value: £974M

Original Problems

- Inadequate project definition.
- Inadequate project management control.
- Inexperienced industry over-reliant on MOD/AWE in key nuclear safety areas.
- Split in responsibility between MOD and PSA.
- Technical difficulties.
- Cost Escalation.

Current Situation

- Measures reported to MISC 7 have been implemented
  - Agreement has been reached on the arrangements for transfer of management of PSA operations at AWE to MOD and handover of individual projects has commenced.
  - All elements of the AWE programme have been brought under single project control and a revised total estimate to completion of £974M has been submitted for Approval.
  - A contractor has been selected as Project Manager on behalf of AWE, under highly incentivised terms related to an overall target price and achievement of Trident related milestones; this measure also makes available additional Industry expertise on nuclear installations and commissioning.
- Good progress continues on early production of Trident warheads in existing AWE facilities.

JUNE 1988

EH101 ASW HELICOPTER FOR RN

Programme Value: £1625M

Problems

- No maximum price on development contract.
- Prime Contractor (EHI) (the joint venture Westland/Agusta company) so far unable to operate efficiently.
- No contractual requirement to prove total mission system works.

Current Situation

- Whilst Westland have so far been unwilling to negotiate a maximum price, discussions with them are continuing. But the root of the problem is the company's fundamental financial weakness which makes it difficult for them to accept significant risks.
- The MOD proposal for the appointment of a single independent non-executive member to the board of EHI has been rejected. Again, discussions are continuing, but the apparent lack of any real concern on the part of the Italian MOD makes progress difficult.
- Following competitive tender a contract has been placed with CAP Scientific for a 6 month study, to examine how to achieve mission system integration via a prime contractor.

Overall Comment

Although the development programme is progressing at a reasonable pace, albeit late, that we have been unable thus far to apply any of the contractual remedies that we now invariably seek to make the contractor responsible is a matter of concern. Westland's perception that they enjoy the potential to exercise significant political leverage domestically which they might exploit to protect their position compounds the problems that attach to the collaborative aspects of this programme.

10 DOWNING STREET

Charles. CDP 27/4.

Many thanks

for your help on this.
I have tried to
set the matter straight
in my formal reply. After
today's announcement,
it is water under the
bridge. But in case
of later recriminations
if EFA proves a
disappointment, it would
be useful for the P.M.
to know the true position.

John O'Sullivan

CDP27/c 13

SECRET

MR POWELL

25 April 1988

SIMULTANEOUS DEGRADATION PART II

Many thanks for your note. The contrast between Mr Younger's answers of 13th April and 20th April is instructive. I would guess that his answer of the 13th is the straightforward view of a technical official, and that his later reply a political gloss on it.

It is also a disingenuous gloss. The "staff requirement" plane is an ideal which the MOD never expected to realise. EFA was always modelled as a plane that fell short of this ideal in key ways.

But it is sharp practice to reply to the question "what will happen if EFA falls short of its 'realistic' targets?" with the answer: "It has already fallen short of its ideal requirement." And the MOD has implicitly conceded this point until now by estimating the effect of a shortfall in each of EFA's key parameters, considered singly. It has only produced this sleight of argument when asked to estimate the effect of a simultaneous shortfall in two or more of them.

The upshot is: we have consistently asked the MOD: "where would EFA land on the 'S' curve if there were a simultaneous shortfall in its key parameters?" They have consistently failed to tell us. Mr Younger's reply is designed to obscure that simple but significant failure.

John O'Sullivan

JOHN O'SULLIVAN

SECRET

12.

10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

Th. O'Sullivan.

I will certainly draw this to the Prime Minister's attention. But before I do so, you will not recall ~~that~~ note X in Mr. Younger's letter of 20 April to the Chief Secretary, which gives a rather different impression.

CDP. 25/4

8

MINISTRY OF DEFENCE WHITEHALL LONDON SW1A 2HB

TELEPHONE 01-218 9000
DIRECT DIALLING 01-218

MO 26/11/9L

20th April 1988

Dear John,

EUROPEAN FIGHTER AIRCRAFT

Thank you for your letter of 19 April 1988. All the points you now raise were taken into account in reaching our decision to recommend EFA. Earlier correspondence made this clear and I understand that our officials have discussed these and other points in great detail over many months. I am disappointed therefore that there still appears to be some lack of understanding in the Treasury of the current status and availability of information about Hornet 2000 and the ATF.

As our previous correspondence records, there are several Hornet 2000 variants on offer. The best of these would cost about the same to procure as EFA (assuming production work were to be largely sourced in UK). But even on an optimistic assumption of its performance this aircraft would have a significantly inferior performance to that predicted on a pessimistic basis for EFA. This point has been conceded privately by Senior US Officials. The Hornet 2000 is not, therefore, an aircraft I can recommend to colleagues.

Neither can I recommend the ATF. Repeated attempts to obtain further information on ATF - including most recently an approach in Washington by a senior RAF Officer in the last couple of weeks -

The Rt Hon John Major MP

have all been politely refused. But it is clear that, although the ATF appears to be based upon the need to respond to the same threat as EFA (ie from FULCRUM and FLANKER), it will be a much larger and heavier aircraft designed to meet the US requirement for long-range, deep penetration into enemy territory. It will also be very considerably more expensive than EFA. It is quite unrealistic to expect to procure the step-change in capability to be provided by the ATF at a cost less than that of the F-15 it will replace; and the cost of the F15 is comparable with that of EFA. As I said in my earlier letter to the Prime Minister, it is most unlikely that the final cost of ATF will be much less than $80-100M, that is, around twice the cost of EFA. It must also be significant that, despite its manifest deficiencies, US officials are promoting the Hornet 2000, rather than the 'black' ATF; the classification of which is likely to prevent its sale outside the US well into the next century.

On Tornado, I think there is here a basic misunderstanding by your officials of the case made for further spending on the Tornado radar. That case is in my view quite consistent with my arguments for EFA, and with the graphs presented to you and your staff by my officials. As far as the Tornado ADV is concerned, the principal requirement was to enhance Tornado's chances of survival against fighter escorts, as well as to provide a limited capability to tackle the escorts. The EFA studies have made it quite clear that if Tornado ADV were left on its own to deal with the combined bomber/escort threat, it would be unable to cope and would be shot down in large numbers; as I said in my earlier letter, this was explained in the Tornado radar submission seen by your officials.

You also further queried the fact that the EFA performance graphs had not considered ECM. We have not, as you suggest, ignored this aspect, which is of course a factor common to all the alternative solutions to the requirement. We have taken a reasoned

view that, in general, the effect of roughly equal ECM capability is self-cancelling and merely compresses the battle area, and reduces BVR ranges. I believe this judgement to be entirely justified. If we maintain a five year technology lead in ECM over the Soviets, then EFA's margin of superiority over the threat may increase in comparison to the 'S' curves you have seen. But it seems only prudent to assume that the ECM edge may well be eroded over the lifetime of EFA to the stage where the capabilities of either side are roughly equal; in which case EFA would still be able to deal with the threat.

The issue of the likely Soviet response to EFA was also fully addressed in my earlier letter to you. We must recognise that the threat is continually evolving, but this must not prevent us from facing up to timely decisions to safeguard the future air defence of the UK. My previous reply reflected all the available intelligence information, including that resulting from discussions with the US intelligence community, and the assumptions made in our studies have been coldly realistic.

Lastly, you stated the need for an examination of the effect of the simultaneous degradation of EFA's performance characteristics. The realistic MOD(PE) aircraft modelled on the 'S' curve did just this; in other words, we were deliberately pessimistic about EFA in all four key parameters. As I said before, we have been unable to take this further in any meaningful way.

In summary, this is a major decision that has to be taken now. An immense amount of work has been carried out over the last 3 years by the four partners, and this has resulted in a well-defined project which is the most cost-effective solution - by a considerable margin - to the requirement. I cannot recommend either Hornet 2000 or ATF to my colleagues, nor can I accept a further delay to await more

details on these projects before a final decision is reached. The consequences of any further delay would be considerable. The EFA partnership would almost certainly collapse and, without it, the UK's military aerospace industry would decline to the point where we should be forced to buy American for the foreseeable future. Our own in service date could not be met. All confidence in the good faith of the UK as a collaborative partner would evaporate, with serious implications for the political and military strength of the Alliance.

I am sending copies of this letter to the Prime Minister, other members of OD and Tom King, and to Sir Robin Butler.

Yours ever, George.

George Younger

file. EFA/CCGVES/DEFENCE

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 6312 (Direct Dialling)
01-218 9000 (Switchboard)

PQ 1137

25th April '88

Dear Mark

I enclose a copy of a Statement to be made in the House this afternoon by Mr George Younger, the Secretary of State for Defence, on EFA.

Yours sincerely

(NAVIN PATEL)
Parliamentary Clerk

Mark Addison Esq
10 Downing Street

STATEMENT BY THE DEFENCE SECRETARY

With permission, Mr Speaker, I wish to make a statement about the European Fighter Aircraft.

2. In the summer of 1985 we agreed with the German, Italian and Spanish Governments on the essential characteristics of a European Fighter Aircraft, or EFA, and on arrangements for a phase of Project Definition to explore the technical content and cost of a programme to develop such an aircraft. Project Definition has been completed successfully and the four nations have now to decide whether to embark on Full Development of the aircraft. I am very pleased to say that the Government for its part has decided to do so, subject of course to similar affirmative decisions by our three partners which I understand should be made shortly, and subject also to final negotiation of acceptable contractual terms and conditions.

3. EFA is needed by the Royal Air Force to replace its air defence Phantoms and ground attack Jaguars at the end of their lives and to complement the Tornado F3 air defence aircraft. The Warsaw Pact is well equipped with modern high performance fighters, and an agile aircraft with the characteristics of EFA is essential to maintain effective air defences beyond the late 1990s. EFA will also have a secondary ground attack capability.

4. The specification for EFA which has emerged from Project Definition has been rigorously and realistically examined in comparison with a number of possible alternatives. After an exhaustive investigation I am in no doubt that EFA is the best and most cost-effective option to fulfil this essential military role. The prime contractors will be the Eurofighter consortium for the aircraft as a whole and the Eurojet consortium for the EJ200 engine. British Aerospace and Rolls Royce respectively will play key roles in these consortia, drawing on invaluable experience gained during the Experimental Aircraft Programme and the XG40 engine demonstrator programme, both of which have been partly funded from the Defence Budget. Overall the United Kingdom will have a 33% workshare in the development of the aircraft. This will open up major opportunities for British industry, and I estimate that the development task alone will give direct long-term employment to between 3,000 and 4,000 people in the United Kingdom.

5. The cost to the UK of Full Development will be some £1.7 billion; this will be accommodated within the planned defence expenditure totals published last Autumn by my Rt Hon Friend, the Chancellor.

6. The EFA programme is of vital importance to the UK aerospace industry. Although the technology involved is highly advanced, it is based on concepts proven during Project Definition and by the various demonstrator programmes to which I have referred. We have insisted

that the prime contractors accept a very tight commercial package and the contracts we are drawing up will place the technical and financial risks firmly where they should be, on the industrial consortia rather than on the Governments. All sub-contractors for the aircraft's equipment will be subject to competition.

7. Mr Speaker, EFA will fulfil a vital defence need in the best and most cost-effective way. It will continue the trend of successful European collaboration in aerospace. It will ensure that our industry remains in the forefront of this technology to the end of the century and beyond, while ensuring the best possible value for money for the taxpayer. I commend the Government's decision to the House.

11

MO 26/11/9L

PRIME MINISTER

EUROPEAN FIGHTER AIRCRAFT

1. At OD(88)3rd Meeting last Thursday, I was invited to confirm that the Federal German Republic, Italy and Spain intended to proceed with the Full Development of EFA. I have since been in touch with Dr Woerner, with Signor Zanone's people, and with Señor Serra.

2. Although Dr Woerner has yet to obtain final approval from the Bundestag and still faces some problems within the Coalition, he is relying on Herr Genscher to use his authority with the Liberals. He has personally assured me of his confidence that all the necessary hurdles can be cleared by 5th May.

3. I have confirmed that the Italians still intend to proceed with EFA. Like the Germans, they have Parliamentary processes to go through; but these were begun in good time, even though the recent Government crisis may have delayed matters.

4. When I saw Señor Serra last Thursday, he left me in no doubt as to his personal commitment to the programme. He definitely understands the need to achieve a decision as soon as possible, and certainly before Dr Woerner leaves office on 18th May; but he has budgetary problems. He suggested to me that these might be aired at a Cabinet meeting last Friday and certainly at a meeting of a Committee on Economic Affairs to-day.

5. It is clear that we are now in the lead on this programme, a fact which I believe we should use to full advantage. By announcing that the UK has decided to proceed, we can be seen as the driving force behind the development of this new aircraft, and an announcement will doubtless assist my colleagues in Italy and Spain to obtain the further approvals they require speedily. Dr Woerner told me too that he would find an early announcement particularly helpful during the final days of the German approval process.

6. Subject to your agreement, I therefore propose to make a Statement after Questions this afternoon in the terms of the attached draft.

7. I am sending copies of this minute to other members of OD, the Northern Ireland Secretary and the Chief Secretary, and to Sir Robin Butler.

G.Y.

Ministry of Defence
25th April 1988

SECRET UK EYES A

DRAFT STATEMENT BY THE DEFENCE SECRETARY

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SECRET

10

MR POWELL

22 April 1988

SIMULTANEOUS DEGRADATION

I enclose the MOD's answer on the simultaneous degradation of EFA's four critical parameters as measured on the 'S' curve. It was contained in an addendum to a letter of 13 April from George Younger to John Major.

It might be better worded, but the meaning is plain: there has been no study of the effects of a shortfall in two or more of these factors taken together. All four have been examined, but each one in isolation. And if the Prime Minister was told otherwise in Mr Younger's final letter, she may have been seriously misled.

This is a crucial point, which is why it was the first point I emphasised in my minute. I would be grateful if this could be drawn to the Prime Minister's attention.

John O'Sullivan

JOHN O'SULLIVAN

SECRET

QUESTION 17

How much degradation would there need to be in EFA engine, weight and radar taken together (not individually) to make it no better than F-18 as modelled?

28. Although the studies we have carried out show that the four critical parameters of weight, thrust, radar range and radar cross section (RCS) are interdependent, it has not been possible to discover a simple relationship between them which would allow ad hoc combinations of performance degradation to be illustrated. It would be necessary to identify particular combinations of the parameters and subject them to the full modelling treatment which was used to place the aircraft on the 'S' curves. Figures have been given to show that major failures in any one parameter would be needed to drag the effectiveness of EFA down to that of the F-18 as modelled, and it should not be forgotten that the 'MOD(PE)EFA' shown on the 'S' curves is itself assumed not to perform to the full standard of the specification.

Prime Minister

You will need to decide if it goes to Cabinet and if so when.

Also when we before Secretary should announce a decision to the House.

CDP.

SECRET [redacted] cc Tos

9

PRIME MINISTER 20 April 1988

GETTING EFA RIGHT

You face a very unsatisfactory choice at tomorrow's meeting of OD. One of the largest public spending decisions of this Parliament seems likely to be made without a full and informed consideration of the alternatives because the MOD is committed to EFA on inadequate grounds and nervous of upsetting our EFA partners by delay.

This rush to judgement has meant that large gaps remain in the case for EFA; that the MoD has sweepingly dismissed alternatives like ATF and Tornado on highly dubious grounds; and that there are flat contradictions between the MoD and US accounts of Hornet 2000 - particularly on the crucial questions of cost and stealth.

The EFA Performance.

In particular, there are two gaps in our knowledge of EFA:

(1) The MoD has never answered the question: what would happen to EFA's performance if there were degradation in engine, weight and radar taken together? MoD has consistently based its estimates upon failure in one parameter. But degradation of one characteristic alone is very unlikely. And one shortfall would have to be major for it to drag down the plane's overall performance. That raises the question: How much degradation of several characteristics would there need to be for EFA's performance to be no better

Not SQ: the aircraft modelled on the S curve had pessimistic assumptions in all key parameters.

than the F-18's as modelled? This is something we need to know for any rational decision.

(2) The MoD has told the Chief Secretary (13th April) that EFA's side-on radar cross section is "not yet known". (If my memory is correct, this contradicts assurances you were given at the EFA briefing.) It also casts doubts on MOD's constant assertions that EFA is more stealthy than Hornet 2000.

These gaps in the EFA case are a strong argument for examining the alternatives more closely. This has not been done. Tornado and ATF were dismissed at a very early stage without serious scrutiny. And the MOD assessment of Hornet 2000 seems to be based on the one-day US presentation in Bonn. That is wholly inadequate.

There are good grounds for a closer look at these alternatives:

(1) The Advanced Tactical Fighter (ATF).

A report on the ATF (dated January 1988) from the US Government General Accounting Office (GAO) makes the plane sound very like EFA: "ATF must possess first-look, first-kill capability, ATF will have to be hard to detect, have long-range sensors and possess an improved combination of high-speed and greater manoeuvrability. Low detectability is also a critical ingredient".

The cost quoted is only slightly higher than for EFA - £37m versus £32.5m at the MOD exchange rate of $1.61. But it is likely to be a much stealthier plane. We would therefore be buying

more capability at a slightly higher cost in order to forestall a Soviet upgrading of Threat 2000.

The GAO report says that the US should have prototypes flying around "late 1989". The MOD believes that the ATF would not be available for export. But has anybody asked? We need to know that - and more about the plane.

(2) Tornado

The EFA studies, which show Tornado in a poor light, assume both sides were using zero Electronic Counter Measures (ECM). This is justified on the grounds that both sides' ECMs would cancel out.

But the MOD argues elsewhere that the Soviets are five years behind us in ECM. And the earlier EPC submission on Foxhunter said "an effective (Electronic Counter Measures) suite would help (Tornado) to survive the escort threat whilst saving its missiles for multiple shots against the bombers."

This suggests that an enhanced Tornado is a possible low-cost option for most of the period that EFA is intended to cover.

(3) The Hornet 2000

The F-18 shown in EFA presentations is not a Hornet 2000 but "a modest off-the-shelf up-dated F-18. The MOD argues that the Hornet 2000 would appear somewhere on the EFA graph between the enhanced F-18 and EFA "probably on the steep section of the curves".

Remember that this estimate is on the basis of MOD's assertion that Hornet 2000 would be a less stealthy plane than EFA. But the MOD has no firm basis for this belief. As Mr Younger admitted in his letter to you, "the Americans declined to discuss RCS: our conclusion is that the Hornet 2000 is less stealthy than EFA." The US team maintains that the Hornet is a significant improvement in stealth terms and offers to discuss this under secure conditions. This is a slender basis for dismissing Hornet.

Otherwise, the bulk of Mr Younger's criticism focusses on the Hornet's airframe. But the Americans have argued all along that the Hornet's most important advances are in avionics ("multi-sensor integration"). The MOD criticism is therefore seriously off the point.

The MOD figures on Hornet's costs are, similarly, far higher than the US estimates (though still lower than EFAs).

It is plain that the MOD does not know enough about the Hornet 2000, particularly on stealth, to dismiss it so completely. It needs to be assessed in the same way as EFA to establish its true position on the graphs.

Options

There are various possible permutations of the above options. We might consider, for instance, extending the life of Tornado, as outlined above, and replacing it at a later date with a collaborative version of the ATF. Or we

might work for a collaboration between the Hornet and EFA. Or we might proceed with EFA. But before making a decision which will cost £14 billion, we need to know the answers to some of the above points. Ideally, we should take no decision on EFA until we:

Gather more information on the Hornet 2000. A report is being presented to Mr Carlucci about now.

Seek information on the ATF following its prototype flights in 1989/90.

And commission studies on Tornado with ECM, the stealth characteristics of EFA and Hornet, and the impact of simultaneous degradation on key features of EFA.

The MOD would strongly oppose such a course of action. If you do not wish to press it strongly, I would propose a fall-back position. We would allow EFA to go into full development only on the following limited basis:

a. our initial funding is limited to the period up to April 1890 - cost £130 million;

b. at this point we can withdraw without cost. That would mean renegotiating the draft MOU. But it is essential. Under the MOU as it currently stands, unilateral withdrawal would cost some £350 million on top of the £130 million above;

c. and we should make clear to our EFA partners that we are continuing to examine alternative options. This is necessary to avoid MOD building up an EFA commitment from which we could not withdraw in 1990.

For the future, you may want to consider establishing new machinery to involve the Treasury and the Policy Unit in MOD's project assessments more fully and at an earlier stage.

The lesson of EFA is that project champions at MOD must not be allowed to limit the information and analysis on future projects in the way that they have on this occasion.

JOHN O'SULLIVAN

MO 26/11/9V

PRIME MINISTER

EUROPEAN FIGHTER AIRCRAFT

You have asked for my personal assurance that the EFA programme represents the most cost-effective solution available to the vital requirement for an agile air defence fighter to replace the ageing Phantom and Jaguar aircraft now in service with the RAF. I am entirely satisfied that it is, and by a considerable margin. In addition to the Chief of the Defence Staff who will be present in person at the meeting of OD tomorrow, all my senior advisers, including the Chief of the Air Staff (Air Chief Marshal Sir David Craig), the Chief Scientific Adviser (Sir Richard Norman), the Chief of Defence Procurement (Mr Peter Levene) and the Controller Aircraft (Air Chief Marshal Sir David Harcourt-Smith), endorse this judgement without reservation.

G.Y.

Ministry of Defence
20th April 1988

CONFIDENTIAL

MO 26/11/9V

PRIME MINISTER

EFA: THE CEILING ON DEFENCE R&D EXPENDITURE

As required by E(ST) on 13th April, the Chief Secretary and I have now examined the scope for a reduction in the level of my Department's planned R&D expenditure, as proposed in E(ST)(88)6. We have agreed that if OD colleagues decide to proceed with EFA some increases are required, but that they should be constrained to £324M over the most difficult four years 1992/3-1995/6, with a consequent extension of the timetable for achieving a reduction of one-third in Defence R&D expenditure since 1985/6 by two years until 1996/7.

2. Providing you are content with these arrangements, the R&D ceiling as such is no longer an obstacle to EFA. We shall, of course, be returning to the wider affordability aspects at OD tomorrow.

3. I am sending a copy of this minute to other members of OD and E(ST), to the Secretary of State for Northern Ireland and to Sir Robin Butler.

G.Y.

Ministry of Defence
20th April 1988

CONFIDENTIAL

8

MINISTRY OF DEFENCE WHITEHALL LONDON SW1A 2HB

TELEPHONE 01-218 9000
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MO 26/11/9L

20th April 1988

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In summary, this is a major decision that has to be taken now. An immense amount of work has been carried out over the last 3 years by the four partners, and this has resulted in a well-defined project which is the most cost-effective solution - by a considerable margin - to the requirement. I cannot recommend either Hornet 2000 or ATF to my colleagues, nor can I accept a further delay to await more

details on these projects before a final decision is reached. The consequences of any further delay would be considerable. The EFA partnership would almost certainly collapse and, without it, the UK's military aerospace industry would decline to the point where we should be forced to buy American for the foreseeable future. Our own in service date could not be met. All confidence in the good faith of the UK as a collaborative partner would evaporate, with serious implications for the political and military strength of the Alliance.

I am sending copies of this letter to the Prime Minister, other members of OD and Tom King, and to Sir Robin Butler.

Yours ever, George.

George Younger

7
DJDS

PRIME MINISTER

OD: EUROPEAN FIGHTER AIRCRAFT

Since the last discussion in OD there has been a lot of activity:

- you have consulted an independent expert (Professor Hartley);

- there have been extensive exchanges with MOD about various points which he raised, as well as about Hornet 2000;

- E(ST) has discussed the aspect of containing EFA's development costs within the defence R & D ceiling. The Defence Secretary and the Chief Secretary have subsequently reached agreement on this (minute attached);

- the Defence Secretary has put round a further note on the affordability of EFA within the defence budget.

There are a number of crucial questions which OD has to answer.

When do we have to reach a decision?

The agreement to proceed to full development of EFA is due to be initialled by the four countries on 10 May. This is an important date because it is just before Woerner leaves office. We cannot leave a decision too long because there are practical arrangements which have to be made. But if you feel at the OD meeting that further work is needed, you could let it run one more week, i.e. until Cabinet on 28 April. If we did not reach a conclusion then, we would have to announce publicly that we were not yet able to take a decision. This

would cause a considerable stir.

Do we need EFA?

EFA will provide the main air defence of the UK. We do not have a significant ground-based missile capability and it is late in the day to develop one. Anyway aircraft are more flexible - a conclusion the Americans have reached too. The Defence Secretary rates EFA as more important than almost anything else in his long-term plans. There is no real doubt that we need a new fighter aircraft. The questions are rather:

- do we need it now? Or can we stretch the service of existing aircraft longer, in case the nature of the threat changes or better ways of meeting it come along?

- is EFA the right aircraft?

Will EFA work?

We have been into this just about as thoroughly as we can. At the end of the day it is a technical judgement. The MOD clearly believe it will work: and the Defence Secretary will be letting you have a personal note putting his own reputation and that of his technical advisers on the line. The Germans appear also to be convinced.

Is there a better alternative?

This has proved just about the most difficult aspect.

It is absurd that we should be arguing this point now rather than two years ago when we started down the EFA road. The MOD are partly to blame. They have stifled investigation of the alternatives because they are so convinced that EFA is right. They would have done everyone including themselves a service by doing a proper investigation of other options rather than just issuing a few dismissive sentences. Equally the

Treasury, who are the main champions of an alternative to EFA, left it very late in the day before advancing any concrete proposals. They now have no less than three: upgrading Tornado, going in with the Americans on development of Hornet, and waiting to see whether the Advanced Tactical Fighter is suitable and available. They give some impression that they are more concerned with stopping EFA than with having a viable alternative.

Equally with such very large sums at stake, it is right to look properly at every possible option. You will wish to hear the discussion in OD and make up your mind whether it is necessary to have more time to examine the alternatives: or whether this would just mean spinning things out. Personally I am convinced that Hornet is not a serious contender.

Can we afford EFA?

Granted the importance of having an effective air defence, the through-life cost of £14 billion over twenty years is still a daunting bill to put to the taxpayer. The Defence Secretary's note shows that other desirable, indeed essential, defence projects may have to slip. Characteristically MOD have chosen to highlight the most sensitive ones. Can we really say now that we shall not be able to afford the follow-on to Lance, or the nuclear warhead for the stand-off missile? When the time comes, we shall certainly be told by MOD that we have to have them.

There is certainly a tactical element in this: by making our flesh creep now, the MOD are setting up a strong position to demand more money later. If so, there is room for calling their bluff. You might make clear that if they give EFA such high priority, they must fund it within the defence budget and must also manage their budget so as to afford other obviously essential items like Lance follow-on and the warhead for the stand-off missile. Agreement to EFA does not in any way imply willingness to increase the defence budget in future.

What happens if we pull out of EFA?

We cannot overlook the consequences of not going ahead with EFA.

Depending on whether there is seen to be a viable alternative, the Service lobby would put it about that the Government were failing to provide for the air defence of the UK. But it would be easy to counter with the Services' appalling record on procurement.

The other Europeans would create a fuss and the Germans in particular would feel let down. But it would be surprising if the other three governments did not entertain some of the same doubts as we do (even though happy to have us as fall-guy). They might be propelled into the arms of the French and their Rafale project, which would be a bit of a political setback for us.

But the biggest consequences would be the industrial/technical ones. Withdrawal would be a major blow to the British aerospace industry and might spell an end to the British (and European) capability to build modern warplanes.

The folder contains all the basic papers, viz:

- main OD paper on EFA
- Defence Secretary's note on affordability
- minute by the Chief Secretary on R & D ceilings
- Defence Secretary's most recent note to you (not yet seen)
- exchanges between the Defence Secretary and Chief Secretary on alternatives to EFA

together with a Cabinet Office brief and a Policy Unit note.

Charles Powell
20 April 1988

DG2CQR

68

cc PS

CHIEF SECRETARY TO THE TREASURY

Treasury Chambers, Parliament Street, SW1P 3AG

The Rt Hon George Younger TD MP
Secretary of State for Defence
Ministry of Defence
Main Building
Whitehall
London
SW1A 2HB

19th April 1988

D Secretary of State,

EUROPEAN FIGHTER AIRCRAFT

Thank you for your letter of 13 April.

I am grateful for your helpful responses to my queries. I have to say that I feel most uncomfortable about commiting £1.8 billion of the taxpayer's money on the basis of the information now before us. We need to know more about the alternatives to EFA, and about EFA itself.

As regards Hornet 2000, you emphasise that the project is ill-defined. You suggest that, on the graphs, Hornet 2000 would be "somewhere between" F18 as depicted and EFA, "probably on the steep section of the curve". This surely merits further examination. I fully understand your concerns about the impact on our EFA partners of holding discussions with the US but I do not believe this should outweigh our obligation to the UK taxpayer.

I think we need greater understanding of the stealth characteristics of Hornet 2000. You say it would be less stealthy than EFA but, as I understand it, no figures on radar cross section were given at the Bonn presentation. As regards the improvements over F18 as currently in production, you focus on the airframe but I understand the US also emphasise the avionics.

I appreciate your officials have had little time to react to Hornet 2000 and that your comments are largely based on what they learnt at the US presentation in Bonn last month. You say US officials were preparing a report for Carlucci on Hornet 2000 for the end of last month with a view to possible approval for fiscal year 1990-91. This suggests information should soon be available for a fuller discussion with the US. This may well enable Hornet 2000 to be assessed more fully and its position on the graphs identified more precisely.

We also need more consideration of the advanced tactical fighter (ATF). You say that this "stems from a different requirement" from EFA, that it will be expensive and that there has "been no hint" of it being available for export.

My officials have recently obtained a copy of a report of January 1988 on the ATF by the US Government General Accounting Office (GAO). The GAO makes clear that the ATF focus on the threat which "revolves around .... Fulcrum and Flanker"; the same is true of EFA. He also says "the preferred methods of engagement for ATF will be beyond visual range" but the US Air Force recognise "it needs the ability to engage the enemy in close combat"; this is very similar to the way your officials described EFA. On capability, the GAO says ATF "must possess first look, first kill capability .... will have to be hard to detect, have long range sensors and possess an improved combination of higher speed and great maneouverability [than F15] ....low detectability is also a critical ingredient".

There are signs here that ATF is similar to EFA but more capable. The cost estimates quoted by the US GAO are quite close to EFA.

OD(88)2 made clear the ATF had been considered beyond an initial scrutiny. It was not shown in the graphs comparing EFA with the alternatives. I consider more work is needed on it, including on the US export prospects. I appreciate that your officials fear the costs of the ATF will escalate. I have exactly the same fear about EFA and it is clear from British industry's unwillingness to quote a firm price for EFA that they share my fear. So this risk is not unique to the ATF.

I understand the GAO report envisages that a good deal more is likely to be known about the ATF and its costs around late 1989; the prototypes are scheduled to fly in 1989-90.

The other option that needs further examination is Tornado. When we recently approved the case for spending a further £155 million on Tornado's radar, my officials were given a paper by yours which made clear that, if Tornado had effective electronic counter measures (ECM), it would be credible against "Threat 2000". You now say it should be seen not as a "capability on its own right" but only as a supplement to EFA. I find this hard to follow. The paper on the radar quite clearly said that "an effective ECM suite would help [Tornado] to survive the

escort threat whilst saving its missile for multiple shots against the bombers".

In addition I now appreciate that the graphs we have seen do not consider ECM at all. This shortcoming needs to be made good. You say that ECM could have a substantial impact and that we have a lead of some 5 years over the Soviets. I do not believe we can simply ignore this capability. I understand your Equipment Policy Committee was told last Autumn that a new computer model capable of examining electronic warfare should be available for use "within the next few months".

Apart from these points on the alternatives, we need further information on:

(i) an examination of the Soviet response in terms of tactics and/or equipment to the threat EFA would put to their escorted bombers. I do not think it is enough to say Soviet attacks would be deterred. They would find some other way to attack us or to reduce the threat posed by EFA;

(ii) an examination of the impact on EFA of simultaneous degradation of several key characteristics. The work so far has looked only at degradation of single characteristics. Without examining simultaneous degradation, we do not really know how robust EFA's design and performance is.

I am copying this letter to the Prime Minister, other members of OD and to Sir Robin Butler.

Yours sincerely,

Jo Ewing

pp JOHN MAJOR

(Agreed by the Chief Secretary and signed in his absence)

DEFENCE : Procurement PTG.

SECRET

B.098

PRIME MINISTER

c Sir Robin Butler

THE EUROPEAN FIGHTER AIRCRAFT
OD MEETING at 9.30am on THURSDAY 21 APRIL
OD(88)2 and OD(88)7

CONCLUSION

Subject to discussion, the Committee might be guided:

(a) to endorse the Defence Secretary's proposal that the United Kingdom should participate in the full development (FD) of the European Fighter Aircraft (EFA);

(b) to agree that this conclusion be referred to Cabinet for decision that day.

BACKGROUND

2. In his memorandum OD(88)2, the Defence Secretary invited the Committee to agree:

(a) that we should participate, together with the Federal Republic of Germany, Italy and Spain, in FD of EFA;

(b) that in order to accommodate EFA's research and development (R and D) costs, the ceilings imposed in 1986 by E(A) on defence R and D expenditure should be raised.

3. At its meeting on 7 March (OD(88) 1st Meeting), the Committee deferred a decision until:

SECRET

(a) a presentation had been arranged for members of the Committee. This would cover not only the technical feasibility of the project and EFA's performance against the perceived Soviet threat, but also the extent to which the alternative options (essentially, the British Aerospace P120 and the US Hornet 2000 - an improved version of the F18) fell short of the operational requirement;

(b) the views of an independent expert had been sought;

(c) E(ST) had considered the implications of accommodating EFA's R & D costs within the E(A) ceilings on defence R & D expenditure;

(d) the Defence Secretary had circulated to the Committee a detailed assessment of the implications of EFA for the defence programme as a whole.

4. You attended a presentation on the project on 17 March; you had previously had independent advice from Dr Walton? At the presentation, you raised a number of questions, which have since been answered by the Defence Secretary (Mr Andrews's letter to Mr Powell of 8 April); further questions by the Chief Secretary were answered by the Defence Secretary in his letter of 13 April.

5. At its meeting on 13 April, E(ST) invited the Defence Secretary to examine urgently with the Chief Secretary the scope for reducing planned defence R & D expenditure below the alternative, higher ceilings that he had proposed, and to establish whether the

E(A) ceilings should be adjusted, if EFA were to be pursued. A minute reporting on the outcome will be available before the OD meeting.

6. In his memorandum OD(88)7, the Defence Secretary attempts to identify the opportunity costs of EFA for the defence programme as a whole. They could be sizeable. In the short term (ie the ten-year Long Term Costing (LTC) period), assuming that the defence budget remains broadly level in real terms from the end of the PES period in 1990/91, the Defence Secretary already sees difficulties, irrespective of EFA, in reconciling a defence programme consistent with present defence policy with the provision agreed in PES 87. On this basis, a number of priority items will have to be displaced by the replacement for the Chieftain and the delivery system for the successor to the WE177 nuclear bomb. These items include attrition purchases of Tornado and Harrier and a replacement for LANCE. The Defence Secretary rates EFA as more important than all of these.

7. In the longer term (ie the late 1990's onwards), and again assuming broadly level defence expenditure, the problem will be even bigger. EFA would have no impact on Trident, expenditure on which would have peaked, but a number of other major projects might have to be postponed. These include the replacement for the Tornado GR1 and Harrier and for the Nimrod maritime patrol aircraft, the warhead for the WE177 replacement, updated anti-armour capability and the future SSN building programme. But the Defence Secretary concludes that, despite the difficulties, EFA must take priority.

ATTENDANCE

8. All members of the Committee will be present. The Secretary of State for Northern Ireland, Chief Secretary, Treasury and the Chief of the Defence Staff have been invited to attend.

HANDLING

9. After the Defence Secretary has introduced the paper, discussion should cover the following aspects:

A. **R & D Expenditure**. The Defence Secretary and Chief Secretary should be invited to speak to the written report on the outcome of their discussions about possible adjustments to defence R & D expenditure ceilings. Will it be necessary to abandon any projects in order to accommodate EFA? If so, which? What about TRIGAT (about which the Defence Secretary minuted you on 8 April)?

B. **Implications of EFA for defence budget**. The Defence Secretary has listed a number of important projects that may have to be cancelled or postponed. The question of future defence spending is being pursued bilaterally between the Defence Secretary and the Chief Secretary and, depending on the outcome, the issue might eventually have to come to OD. You will wish on this occasion to avoid a general discussion of the adequacy of the Defence Budget. But the Chief Secretary should comment on the Defence Secretary's assumption that defence spending will remain level in real terms. The suggestion that the LANCE successor will not

be affordable and that the plans for the WE177 replacement may be affected would have serious implications for our tactical nuclear capability. Can this sensibly be contemplated? (Defence Secretary) Is there any risk of our overall defence capability becoming unbalanced? (Defence Secretary). The Chief Secretary and Foreign Secretary should be invited to comment.

C. **Technical characteristics.** You and other members of the Committee felt at the meeting of OD on 7 March that the operational case for EFA had not been spelt out in sufficient detail. This ground was covered at the MOD presentation and a number of points have been pursued in subsequent correspondence. Are there any residual doubts about EFA's ability to cope with the assessed threat? The Chief Secretary should in particular be asked to comment.

D. **Hornet 2000.** At the 7 March meeting the Defence Secretary indicated that the Hornet 2000 existed merely on paper; that it was unlikely to attain the performance of EFA; and that, in any case, it was likely to be more expensive. These points have been developed in his letter of 13 April to the Chief Secretary. Has the Defence Secretary anything further to add, in particular about the presentation that was given by the Americans in Bonn on 7 March? Can he clarify Hornet 2000's place in current Pentagon thinking? Does the Chief Secretary still see the project as a possible contender?

E. **Radar.** Previous discussion indicates that the radar remains an area of risk. This aspect is discussed in detail in the answer to Q16 in Mr Andrews's letter to Mr Powell of 8 April. This expresses confidence that "the radar will meet our requirements in an acceptable timescale". Is this confidence fully justified, in the light of Nimrod AEW and Foxhunter? Might the aircraft be delayed on that account? What then? (Defence Secretary). The Chief Secretary should be invited to comment.

F. **Attitude of Collaborative Partners.** The FRG Defence Minister has expressed concern at the cost of the project. How confident is the Defence Secretary that our partners will stay within it? Might France yet succeed in drawing them into her rival Rafale project?

G. **Industrial aspects.** The United Kingdon would be awarded 33 per cent of the development work. British Aerospace and Rolls Royce will be members of the Eurofighter and Eurojet consortia respectively. The Secretary of State for Trade and Industry should be invited to comment on the industrial aspects, and, in particular, on the implications for British industry were we to withdraw from EFA.

H. **House of Commons Defence Committee (HCDC).** The HCDC took evidence on EFA on 13 April. The Defence Secretary might be invited to report on this.

I. **Presentation.** How does the Defence Secretary envisage presenting a decision on EFA? Would he wish to make an announcement - presumably by means of a written answer - at once? Or would this be postponed until the other partners have taken their decision?

P J Weston

15 April 1988

6 (1)

PRIME MINISTER

EUROPEAN FIGHTER AIRCRAFT

OD will be discussing EFA again on Thursday. There are two further documents which you ought to see before then:

- the MOD's answers to the Chief Secretary's questions about Hornet 2000. They cover very much the same ground as his earlier answers to you. It was right to investigate all possible alternatives - indeed MOD should have done this two years ago - but Hornet does not really stand up to examination. It is a ploy not an aircraft;

- a further paper from the Defence Secretary on the affordability of EFA. This deals with the opportunity costs of EFA for the defence programme as a whole. His judgement is that in the short term the need for EFA and for other priority items such as early replacement of Chieftan and replacement of the WE177 free-fall bombs will displace or delay a host of desirable items including attrition purchases of Harrier and Tornado, an eighth Type 23 frigate and a replacement for LANCE (I don't see how we can do without that). He regards EFA as more important than any of these.

In the long term, the problem posed by EFA is even bigger and it is likely to displace replacement of Tornado and Harrier, the warhead for the WE177 replacement, an updated anti-armour capability and the future SSN building programme. Nonetheless the Defence Secretary concludes that the air defence of the UK is so important and EFA so fundamental to that it must take priority over other modernisation programmes. "EFA will simply have to be afforded."

CDP

(C.D. POWELL)
15 April 1988

5

MINISTRY OF DEFENCE WHITEHALL LONDON SW1A 2HB

TELEPHONE 01-218 9000
DIRECT DIALLING 01-218 2111/3

MO 26/11/9L

17th April 1988

Dear John,

EUROPEAN FIGHTER AIRCRAFT

I am replying to your letter of 7th April to David Trefgarne in which you asked a number of further questions mainly relating to the HORNET 2000, but also touching upon other issues arising from the presentation by MOD officials on 30th March.

Before answering your specific questions, it may be helpful if I outline briefly the background to the HORNET 2000 concept. Some nine months ago, Caspar Weinberger asked the US Navy (USN) to produce proposals for upgrading the F/A-18 HORNET (he also asked the USAF to do the same for the F-16). In addition to satisfying future US needs, he expressed particular interest in considering upgrades that would meet the future needs of European allies. It cannot have escaped DoD notice that there will be a large market for aircraft of the EFA type around the turn of the century and yet the US had no planned competitor. The F-16 and F/A-18, both good aircraft, will be old designs by the year 2000; they will have been in operational service for 21 and 17 years respectively. The Advanced Tactical Fighter (ATF) and Advanced Tactical Aircraft (ATA) will be larger, more expensive aircraft and both will have export limitations because of their high technology; both are 'black' programmes surrounded in

The Rt Hon John Major MP

secrecy, and there has been no hint of either being offered for export. Only EFA and the French RAFALE remain in the western world as possible contenders for what has, in the past, been a US-dominated export market.

In response to Mr Weinberger's remit, the USN and McDonnell Douglas (MD) conducted joint studies which identified a range of seven possible options for updating the F/A-18 HORNET under the generic title of "HORNET 2000". But the USN had some difficulty with this exercise. Firstly, their budget problems are such that they can contemplate only limited improvements to the existing F/A-18 without jeopardising their future ATA. Indeed they have stated that, in the absence of collaboration, they will restrict themselves to upgrading the radar. Secondly, in upgrading the F/A-18, their main interest lies in improving the aircraft's ground-attack capability by increasing its range and payload. But this will increase its basic weight and will detract from its performance in the air superiority role which is the principal interest of the EFA nations. Hence, the US has come up with an unusual and untried proposal for collaboration to produce two different aircraft, one (OPTION IIIC) to meet the USN's needs and the other (OPTION IV) aimed at the European requirement.

MOD observers were present when Mr Dennis Kloske, (Deputy Under Secretary of Defense, Planning Resources) led a joint US DoD/Industry team which briefed officials of the four EFA nations last month in Bonn on their HORNET 2000 proposals. Kloske made it clear that they were not suggesting that HORNET 2000 was the answer to the EFA requirement; he put it forward rather as a fall-back option and acknowledged that even the most capable of the many options fell short of the European requirement, mainly in terms of supersonic agility.

In your opening paragraphs, you expressed surprise that, although the project was so ill-defined, we had apparently been able to assess its position with such precision on the 'S' curves. The project is indeed ill-defined, which is not surprising when we remember that the seven possible design options were identified in no more than eight months and after a total expenditure from the DoD and industry of only $1M. The version of the F/A-18 which was shown on the 'S' curves was that which we assumed would be available off-the-shelf in the 1990s. It was the current aircraft enhanced with the RM12 version of the GE404 engine and a radar which was compliant with the EFA requirement; it also featured some other minor improvements including compatibility with AMRAAM. These assumptions have been proved to be valid; the USN have stated that, without a collaborative development project, they will pursue similar, or even slightly less ambitious, objectives. Thus the statement was made at the presentation that there is no planned and approved enhancement of the F/A-18 which will perform better than that shown on the curves. A full assessment of the OPTION IV HORNET 2000 is not possible at the present level of definition, but even accepting the claims of US industry (notoriously optimistic at this stage of a project) the aircraft's performance is inferior to that of EFA, particularly at supersonic speeds. It therefore follows that the OPTION IV proposal would appear on the 'S' curves at a point somewhere between the enhanced F/A-18 which was depicted and EFA, probably on the steep section of the curve.

I have attempted to deal with your specific questions in the Annex to this letter. But I should first explain that, despite your suggestion, I have not approached Mr Carlucci about any of them for fear of the effect on our EFA partners if news of such an approach were to leak out. I am satisfied, however, that the answers given in response to your questions on HORNET 2000 are as full and objective as can be obtained. They reflect the comprehensive briefing given in Bonn last month and the discussion which followed it and I believe it most unlikely that any approach to Mr Carlucci could provide any

greater elucidation of the US position than was provided then. It would, on the other hand, run the risk of causing severe damage to the EFA international programme at a critical stage of decision making in the other capitals.

I hope that all this is helpful but please do let me know if you require any further information. I am sending copies of this letter and of the attachments to the Prime Minister, to other members of OD and to Sir Robin Butler.

Yours ever, George

George Younger

ANNEX

EFA AND HORNET 2000

QUESTION 1

To what extent do the US have a military requirement for an EFA type capability around the year 2000? To the extent they do, what aircraft do they see meeting this requirement?

1. Within the broad category of fighter and fighter-bomber, the US forces currently operate four types:

a. The USAF's McDonnell Douglas F-15 Eagle is the main air superiority fighter; it entered service in 1974 and has been steadily updated since.

b. The USAF's light fighter is the General Dynamics F-16 Fighting Falcon which entered service in 1979.

c. The USN's main air superiority fighter is the Grumman F-14 Tomcat which entered service in 1974.

d. The USN also operates the F/A-18 HORNET multi-mission fighter which entered service in 1983.

2. The only currently approved US plans for replacement aircraft are for the Advanced Tactical Fighter (ATF) and the Advanced Tactical Aircraft (ATA). Both are expected to enter service in the 1990s but

neither is expected to be offered for export. In July 1987, Mr Weinberger invited the Secretaries of the USAF and USN to "review our plans for the continued development and procurement of upgraded versions of existing fighter and attack aircraft, particularly the F-16 and F/A-18." He went on to say that, "In addition to satisfying future US needs, modified F-16s and F/A-18s would also be appropriate for allied air forces. As you know, several countries are considering new aircraft for missions that upgraded F-16s and F/A-18s might perform as well. In the near term, I am particularly interested in considering upgrades that would meet the future fighter needs of European Participating Governments ... a final report from both services should be completed by March 1988, in time for use during the preparation of the FY 90/91 budget."

3. Considerable light is thrown on USA motives by the fact that the initiative came from Mr Weinberger's office supported by US industry and not from the armed forces themselves, and that there is a heavy emphasis on producing proposals to meet European requirements.

QUESTION 2

What is the position of HORNET 2000 in the US development process? What approvals does it have?

4. It is our understanding, confirmed by the Defence Staff in our Washington Embassy, that the Hornet 2000 has no approval in the US budget. Mr Weinberger's memorandum of July 1987 implied that approval might be considered for FY 90/91. But given the pressures on the US Defense Budget, it will be difficult for any totally new programme to obtain funding.

QUESTION 3

What are the main areas of improvement postulated for HORNET 2000 over F/A-18 as currently in production?

5. The term "HORNET 2000" includes seven options with a range of improvements over the current F/A-18 (these are illustrated on the attached diagram).

OPTION I — Weapon system upgrade. Survivability enhancements.

All the other six options include increased fuel, a more powerful engine, an improved radar and an improved electronic warfare (EW) system.

OPTION II — Raised dorsal fairing (for fuel and avionics). Stiffened wing.

OPTION III and OPTION IIIA — Both feature a larger wing and a new tail plane. OPTION III makes room for the additional fuel and avionics in a dorsal fairing whilst OPTION IIIA employs two fuselage plugs for the same purpose.

OPTIONS IIIB and IIIC — Both have an even larger wing together with a new tail plane. OPTION IIIB has the dorsal fairing whilst IIIC has the fuselage plugs.

OPTION IV

OPTION IV is a radical re-design. The wing is a totally new cranked-arrow design and tail plane is relocated on the front fuselage to provide canard surfaces. The flight-control system would have to be much more advanced than that in the other Options.

HORNET 2000

Configuration Study Options

I

- FY88 Baseline Plus
  - Weapon System Upgrade
  - Survivability Enhancement

II

- Raised Dorsal
- Stiffened Wing

- Increased Fuel
- Growth II Engine
- Improved Radar
- INEWS(1)

III

- Raised Dorsal
- Larger Wing with Increased Chord

IIIA

- Fuselage Plugs
- Larger Wing with Increased Chord

IV

- Fuselage Plugs
- Cranked Arrow Wing with Canard

IIIB

- Raised Dorsal
- Larger Wing with Increased Chord & Span

IIIC

- Fuselage Plugs
- Larger Wing with Increased Chord & Span

(1) Integrated Electronic Warfare System

QUESTION 4

What is the projected in-service date and unit cost of HORNET 2000?

6. The US implementation plan shows the first production aircraft flying just over seven years after the signing of a US/European MOU. This plan is thought to be optimistic. For example, the Authorisation to Proceed (ATP) for production is coincident with the first flight of the prototype which leaves no time to modify the design as a result of experience with flight tests.

7. Given that the HORNET 2000 is ill-defined, no precise costings of most of the HORNET 2000 options are available. However, as part of the MOD's consideration of the possible alternatives to EFA, purchase of a modest off-the-shelf updated F-18 was assessed. The aircraft costed (by MOD's technical project costs staffs after extensive discussions with US industry) was based on the current F-18 airframe with some enhancement (new RM12 version of the current GE404 engine; AMRAAM compatibility; updates to the APG-65 radar; updates to the communications equipment; birdstrike strengthening). This version appears to equate to the most basic of the seven versions of the HORNET 2000 on offer. On the basis of our current understanding of "recurrent flyaway cost", the cost of this basic "enhanced" F-18 is about $28.4M. If initial spares, support and R&D costs are added the cost rises to around $35.3M. However, it must be emphasised that these costs relate only to a very basic update of F-18 and not to

either Option IIIC or Option IV, both of which could be expected to be considerably more expensive; Option IV itself will inevitably entail a significant further premium over Option IIIC since it involves a major redesign, novel features, dedicated prototypes, and a separate and extensive flight test programme. We estimate the 'recurrent flyaway cost' at $32.45M (£20.03M); with the addition of spares, support and R&D costs this figure would rise to $43.58M (£26.91M). It should be noted that all the above figures are based on a single production facility in the US; ie no production in Europe. If UK production were involved, there would be the additional costs to the UK of preparing industry for the task. There would be a premium of £2.7M over the unit production cost, and the all up unit cost including UK production investment, spares, support and R&D would amount to $50.48M (£31.16M).

QUESTION 5

What balance between stealth and agility does the US consider appropriate for HORNET 2000?

8. Stealth is achieved in two complementary ways. First, the capability has to be built in from the start of design work because a low Radar Cross Section (RCS) can only stem from certain specific design characteristics, notably shape. Subsequently, radar absorbent material (RAM) is applied to certain parts of the structure to reduce further the RCS. With the first, design, stage the reduction possible in RCS is limited. The HORNET 2000 is based on the F/A-18, the early design of which began in 1966 before stealth was well understood and the (head-on) RCS of the F/A-18 is about 5 square metres. Some improvement will be possible in the redesign to HORNET 2000 standard but the manufacturer will not have a free hand to decide the balance between stealth and agility; he will have to do the best he can with what he has. At best he may be able to reduce the RCS to something approaching that of EFA (although only on the basis of carrying 2 AMRAAMs conformally against EFA's 4; additional AMRAAMs would negate the RCS reduction measures). The manufacturer is similarly limited in agility performance by having to work from an existing design; in particular, the HORNET 2000 will be limited to 7.5g as opposed to EFA's 9g.

9. In summary, the US does not have a free hand in determining the balance between stealth and agility; although improvements are possible in both areas, there are severe constraints through working from an existing design. The HORNET 2000 would be less stealthy and less agile than EFA.

QUESTION 6

What work sharing would they envisage on a collaborative programme?

9. As indicated in the answer to question 4 above, the costs currently quoted by the US assume that there will be no worksharing but only a single facility in the US. However, the US has indicated that worksharing would be possible, in which case workshares would be determined by market share; they have suggested the following ratios:

Participant	Number of Aircraft	%Workshare
US	500	39.5
UK	250	19.8
Germany	250	19.8
Italy	165	13.0
Spain	100	7.9
Total	1265	100.0

Achieving the agreed workshare levels for production should be possible but would be more difficult for development; for example, development work on the new engine is already in progress and that which could be passed to collaborating partners is relatively low technology. The UK share of EFA development work is 33%.

QUESTION 7

In the recent submission on Foxhunter Radar, it was suggested that Tornado equipped with ECM would be credible against escorted bombers in the year 2000. This is difficult to reconcile with the graphs we saw at the presentation.

10. I am assuming that you refer in particular to Annex A of Controller Aircraft's EPC memorandum to CSA on ASR395. The relevant part of the Foxhunter submission (Annex A, para 8) states: "Again, if the ADV is to be credible against escorted bombers, it must have an active ECM suite to enhance surviceability against escorts not engaged by EFA". Thus the Foxhunter submission made it quite clear that the credibility of Tornado ADV with active ECM against escorted bombers was not being presented as a capability on its own but as a supplement to the capability to be provided by EFA. In fact RAE(Farnborough) study SA(86)WP19 of December 1986, quoted in the Foxhunter submission, is the same study on which the Tornado/EFA multiple BVR histogram was based.

QUESTION 8 AND 9

It was said that the results for Tornado shown on the graphs assumed it had ECM. My officials had understood that the underlying studies had not considered electronic warefare - hence my question to that effect. It was said that ECM could "alter the sums dramatically." How much of an edge are we expected to have and how much difference would this make to the sums? How many years are the Soviets judged to be behind in this area at present?

11. It was not our intention to give the impression at the presentation two weeks ago that the studies assumed ECM for Tornado. For the purposes of the studies, ECM activity was taken as equal (ie zero) on both sides for all options. It is certainly the case that use of ECM by one side would have a substantial effect on the outcome of the engagements modelled, and this is the point which I believe was being made at the presentation. Use by both sides would produce a much more complex and balanced situation but there is, unfortunately, no mathematical model available which could reflect all the complexities of an engagement in an ECM environment such as might obtain in the year 2000. It was necessary to arrive at an objective and rigorous assessment of the relative position of the various options under consideration, and the best way to achieving this was to assume that there would be no ECM use on either side. This introduces a simplification into the modelling which permits objective numerical results which are not otherwise obtainable. But it is also representative of a situation which is quite likely to be realistic, in which the ECM capabilities of both sides are sufficiently well-balanced as to cancel each

other out. There would, nonetheless, be a reduction in BVR ranges and in the volume of sky used in manoeuvres; and this would give an additional emphasis to agility, the importance of which the studies underlined.

12. The DIS assessment is that at present the Soviets are approximately five years behind the West in the application of ECM techniques.

QUESTION 10

It was suggested that DIS is starting to change its assessment of Soviet stealth capability. It would be interesting to know more about this.

13. This issue was fully covered in the response to the Prime Minister's further questions on EFA which was circulated to members of OD under cover of my Private Secretary's letter of 8th April. I believe that the answers contained in that paper also deal with the point you raise later (question 19) about our confidence in postulated Soviet stealth and agility achievements.

QUESTION 11

What do we expect Soviet commanders to do in terms of tactics and/or equipment developments in the light of "unacceptable" losses inflicted by EFA?

14. The short answer is that we expect the possession of EFA to deter Soviet attacks even with escorted bombers. With Tornado alone which, as you acknowledge, will perform inadequately against escorted bombers, we allow a serious gap to open in the UK's air defences which could be exploited by the Soviets.

QUESTION 12

Four roles were identified for EFA. To what extent could we use other aircraft for one or more of these roles?

15. The four roles are:

a. Air Defence of the UK Air Defence Region (ADR)

b. Air Defence of the Central Region of NATO

c. Offensive support within SACEUR's Rapid Reinforcement Plan (RRP) for the Baltic Approaches and North Norway.

d. Out of NATO Area of Operations.

16. There is a requirement to replace the Phantom aircraft in the roles at a. and b. and the Jaguar aircraft in that at c. above. No specific aircraft fulfils the out-of-area commitment.

17. Looking first at the offensive support role in SACEUR's RRP, the need here, as far as UK declaration of air assets is concerned, is for a ground attack aircraft. Harrier GR5 must be discarded because of insufficient range and weapon carriage capability. Tornado GR1, F-18 and EFA would perform this role adequately. But SACEUR has identified the need to redress the serious deficiency in his air defence assets in the Northern Region. It is possible that, in the early days of a conflict,

the priority task would be air defence. Neither Tornado GR1 nor F-18 has a credible air defence capability against the threat around the year 2000. Only EFA - or P120 - would satisfy both the ground attack and air defence needs.

18. Turning now to the out-of-area role, it is impossible to declare in advance whether a ground attack aircraft or an air defence aircraft would be needed. Most likely it would be both. Therefore, both needs must be catered for. The logical choice is a dual role aircraft, which would give the air commander the flexibility essential for successful operations. Furthermore the chosen aircraft should be STOL capable to permit operations from short, poor quality runways (the Falkland Islands and Belize are 2 obvious examples). Again, only EFA - or P120 - would satisfy the overall need.

19. This leaves the 2 air defence roles - UKADR and the Central Region. As shown in our studies, all the feasible options other than EFA and P120 would fail to satisfy this primary role on their own. Only EFA and P120 would possess the required agility and weapon system capability to defeat the threat.

20. In short, although Tornado GR1 and F-18 could satisfy the ground attack needs, only EFA and P120 would perform adequately in both the air defence and ground attack roles. Discarding P120 for the reasons presented on 30 March, EFA remains the logical choice for all 4 roles.

QUESTION 13

A pie chart was shown showing cost reductions agreed by George and his German opposite number,. Will these have any impact on projected EFA performance?

21. The short answer to this is no. The reductions which have been agreed by industry were derived in the following way:

4% unconditional reduction on the prices proposed by industry last September;

2% from the acceptance of a scheme whereby industry and the nations agree to split the costs in the 96%-100% band on a 50/50 basis;

Some other minor savings measures largely relating to the administrative costs of maintaining the industrial headquarters in Munich.

This overall reduction of the order of 6% was thus not tied to any reduction in requirement or specification.

QUESTION 14

If we sought a fixed price now, how much higher might it be (in broad terms) than the maximum prices shown in the OD paper?

22. There is no simple answer to this question, even in broad terms. If it could be answered, then fixed price contracts at this stage would automatically have been a serious option for consideration. This route was discounted because the risks in certain parts of the programme make realistic fixed pricing for the total task an impracticable proposition at this stage. In fact, industry was asked to quote fixed prices but declined. Nonetheless, there is no doubt that if it had been possible to persuade industry to accept fixed price contracts at the outset, the hypothetical "premium" would have been extremely large, and even then, industry would almost certainly have insisted on some limit to their liability under the contract.

23. It should be emphasised, however, that this does not mean that the potential risk areas will turn out to be matters of real concern, nor therefore that the premium sought by industry would be justified by future events. The "premium" would have had to have covered the worst possible outcome in all areas, and would have taken no account of the various technical, programme and commercial measures to contain and manage the risk areas, or of the likelihood that to some extent at least, risks will balance each other out. To the extent that risks turn out, as we would

expect, to be less than had been assumed in such a fixed price, the exess profits would be retained by industry.

24. Finally, even if it were practicable, the EFA nations could not accept a fixed price offer without detailed price investigations followed by a negotiation. We know from our experience on the Tornado programme that this would take a considerable time, probably several years. This would raise the question of how to proceed in the meantime. It would only be prudent to do so under the cover of a binding maximum price until a lesser fixed price had been agreed. For the reasons given above, this would have to be larger than the maximum price now proposed.

QUESTION 15

Was the F-18 used in the models of the plane as MoD currently expect it to be around the year 2000? If it is why is the US going for a plane which appears inadequate against Threat 2000?

25. The EFA studies modelled an F18 with a radar compliant with the EFA requirement and fitted with developed GE 404 engines. Currently, the only firm improvement programme is for the USN; it is not known in detail how close USN radar proposals might be to those modelled, but they are not expected to exceed the performance of the F-18 modelled because of the limitations of radar dish size. The F-18 used in the EFA modelling might well be superior therefore to the USN F16 in the year 2000, unless they undertake a further substantial engine development for that aircraft.

26. As to why the USN might be going for an aircraft which appears inadequate against Threat 2000, the likely answer is that the significant cut-backs in US Defence spending highlighted by Mr Kloske mean that there is little money available to enhance the F-18 whilst expenditure continues on ATF and ATA. It should also be remembered that the Hornet F-18 is a USN carrier-borne attack aircraft whose prime mission is air-to-surface. The F14 Tomcat is the primary USN air defence aircraft. The USN may not recognise Threat 2000 as significant to them in their totally different operational scenarios.

QUESTION 16

What is the side-on RCS of EFA?

27. The increase in radar cross-section used in our studies from head-on to side-on was "head-on times 100", a not unusual ratio. The exact side-on radar cross-section of EFA is not yet known, but it will probably lie between "times 10" and "times 100". However, our studies have shown that the dominant low RCS zone for combat effectiveness is the head-on sector; in the case of EFA this is a very substantial cone subtending 100 degrees horizontally and 50 degrees vertically.

QUESTION 17

How much degradation would there need to be in EFA engine, weight and radar taken together (not individually) to make it no better than F-18 as modelled?

28. Although the studies we have carried out show that the four critical parameters of weight, thrust, radar range and radar cross section (RCS) are interdependent, it has not been possible to discover a simple relationship between them which would allow ad hoc combinations of performance degradation to be illustrated. It would be necessary to identify particular combinations of the parameters and subject them to the full modelling treatment which was used to place the aircraft on the `S' curves. Figures have been given to show that major failures in any one parameter would be needed to drag the effectiveness of EFA down to that of the F-18 as modelled, and it should not be forgotten that the `MoD(PE)EFA' shown on the `S' curves is itself assumed not to perform to the full standard of the specification.

QUESTION 18

It was said that it would be hard to combine EFA agility and stealth. It was also said that, over the life of EFA, NATO countries were expected to have a lead over the Soviets in stealth. Is there a case for playing to our strong suit and going for more stealth even at the expense of some agility?

29. The balance between stealth and agility was fully considered, along with a wide range of operational features in establishing the European Staff Requirement under the authority and professional guidance of the four Chiefs of Air Staff. These parameters have been justified by the studies carried out at RAE Farnborough and, in our view, we have got the balance between stealth and agility about right. I emphasise that there is much less conflict between the requirement of stealth and agility when they are incorporated at the earliest design stage. The conflict becomes much more real when it is attempted to graft these features onto an existing design.

QUESTION 19

How confident can we be that the Soviets can achieve the improvements in both stealth and agility postulated in Threat 2000?

30. See paragraph 13 above.

QUESTION 20

There was some suggestion that the weight constraints on EFA had pushed the plane in a different direction from the US. How far is this the case?

31. The weight, wing area and thrust constraints of the EFA programme served as a good discipline during the early stages of the aircraft's evolution and we are convinced that the final product will meet our demanding requirements satisfactorily.

32. The American advanced Tactical Fighter (ATF), the USAF's 'black' programme, stems from a different requirement from that of the European partners. The US concept centres around a large, highly stealthy design with a capability for long periods of high supersonic cruise and deep penetration into enemy territory. As such, it is inherently heavier than EFA and it would be wrong to attribute the different masses of EFA and ATF to the effect of the Turin parameters.

DEFENCE : pourvoi pl. 6

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COMMERCIAL IN CONFIDENCE

Treasury Chambers, Parliament Street, SW1P 3AG

The Rt Hon George Younger MP
Secretary of State for Defence
Ministry of Defence
Main Building
Whitehall
London
SW1A 2HB

15th April 1988

Dear Secretary of State,

TRIGAT

Thank you for your letter of 8 April.

I am glad to know of the satisfactory outcome to these contract negotiations, which you are confident will deliver weapons which will work. I am content that you should sign the trilateral Memoranda of Understanding for development. My agreement is on condition that the cost of £313.6 million is affordable within the agreed control totals for the defence budget, and also within the agreed defence R & D limit.

I am copying this letter to the Prime Minister OD colleagues and to Sir Robin Butler.

Yours sincerely,

pp JOHN MAJOR

(Approved by the Chief Secretary and signed in his absence)

DEFENCE proof pt 6.

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Prime Minister

The MOD's answers to your questions on Hornet. They still have to answer the Chief Secretary's question. con

MF

PRIME MINISTER

HORNET 2000 at flap

In his letter of 4th April, your Private Secretary asked me to provide further information about the HORNET 2000. It may be helpful if I outline briefly the history of the F/A-18 HORNET which is the basis of the US proposals for the enhanced HORNET 2000.

History

2. The F/A-18 design dates back to 1966 when Northrop began work on the YF-17 which was one of two contenders for a US Air Force (USAF) light fighter competition. The YF-17 flew in 1974 but lost the competition to the General Dynamics YF-16.

3. In 1974, the US DoD accepted a US Navy (USN) proposal for a lightweight fighter with a ground attack capability and it was decided that the YF-17 offered a sound basis. The design evolved into the F/A-18 HORNET which first flew in 1978, underwent US Navy evaluation throughout 1981 and 1982, and entered operational service in January 1983. To date, the USN/US Marine Corps have ordered 1377, and export orders total 139 for Canada, 75 for Australia and 72 for Spain.

Background to HORNET 2000

4. The origin of the HORNET 2000 lies in a memorandum which Secretary Weinberger issued to the Secretaries of the US Navy and Air Force on 15 July 1987; the subject was "Design Upgrades of Existing Tactical Aircraft", and the following is an extract:

"The Advanced Tactical Fighter [ATF] and the Advanced Tactical Aircraft [ATA] are essential to the long-run strength of U.S. tactical air power. It will be many years, however, before they are available in significant numbers. We, therefore, need to review our plans for the continued development and procurement of upgraded versions of existing fighter and attack aircraft, particularly the F-16 and F/A-18. To that end, I would like you to initiate separate studies of F-16 and F/A-18 derivatives that might be procured in the 1990s.

"In addition to satisfying future US needs, modified F-16s and F/A-18s would also be appropriate for allied air forces. As you know, several countries are considering new aircraft for missions that upgraded F-16s and F/A-18s might perform as well. In the near term, I am particularly interested in considering upgrades that would meet the future fighter needs of the European ... Governments .....

" ... a final report from both Services should be completed by March 1988, in time for use during the preparation of the FY90/91 budget."

5. It is significant that the initiative came from Mr Weinberger's office and not from the armed forces. It cannot have escaped DoD notice that there will be a large market for aircraft of the EFA type around the turn of the century and yet the US had no planned competitor. The F-16 and F/A-18, both good aircraft, will be old designs by the year 2000; they will have been in operational service for 21 and 17 years respectively. The ATF and ATA will be larger, more expensive aircraft and both will have export limitations because of their high technology; both are 'black' programmes surrounded in secrecy, and there has been no hint of either being offered for export. The Israeli Lavi project, which reached the prototype stage, has been cancelled, and the Japanese FSX fighter project will now be a development of the US F-16. EFA and

the French Rafale remain in the Western world as possible contenders for what has, in the past, been a US-dominated export market. Whilst Mr Weinberger may well have had a genuine interest in furthering US/European collaboration, US industry will be very conscious of the benefits of killing off the opposition to leave the field open to them (indeed, some senior US DoD officials have admitted privately to having sympathy with this objective). You will know that the Americans have been working hard to persuade the French Navy to opt for a version of the F/A-18 rather than their national Rafale project; Rafale's future is by no means secure and would be considerably weakened if the French Navy were to opt out.

The HORNET 2000 Proposals

6. The USN have worked with McDonnell Douglas (MD) to produce a set of options for an upgraded F/A-18; all of which go under the generic name "HORNET 2000". The USN have not found it an easy exercise. First, they are under severe budgetary restraint and they are cautious about entering any financial commitment which might jeopardise their future ATA; they have already been obliged to cancel an important upgrade of the A-6 Intruder aircraft. Secondly, for any major upgrade of the F/A-18, their main interest lies in improving the aircraft's ground-attack capability which entails making room for more fuel and weapons; the weight penalties involved (which are additional to those already inherent in an aircraft designed for carrier operation) detract from the aircraft's performance in the air combat role, the principal interest of the EFA Nations.

7. Before the proposals were put to Mr Carlucci (as Mr Weinberger's successor) a joint DoD/Industry team, headed by Mr Dennis Kloske (Deputy Under Secretary of Defense, Planning Resources) visited Bonn to brief German MoD officials on the HORNET 2000; two of my officials were present as observers.

8. The US team presented seven different options with varying degrees of enhancement and suggested a collaborative deal which involved one aircraft (OPTION IIIC) for the USN and a radically different design (OPTION IV) as the one which came closest to meeting the European requirement. You will see from the illustration at Annex A that, whilst the USN configuration retains the basic shape of the current F/A-18, that proposed for the European nations has a totally new wing and tail fins, and the tailplane is moved forward to provide the canard surfaces. The claim is made that the fuselage is common to both designs but that cannot be so unless compromises are accepted into the European design.

9. It is important to realise that the US team themselves admitted that the OPTION IV design for Europe, the most capable of the seven options on offer, did not meet the requirement identified by the four European nations. It must also be stressed that even its relatively modest performance figures are based on industry's brochure claims which experience suggests are invariably optimistic. German officials were unimpressed by the performance offered and their National Armament Director actually suggested that the US should consider buying EFA.

10. To sum up, my response to your request for my assessment of the HORNET 2000 in the round is that it is currently a proposal rather than a project, and prudence suggests that the claims of the manufacturer must be treated with considerable caution.
I find the suggestion that we should collaborate to produce what are two different aircraft to meet the differing US and European requirements rather odd. I believe that the problems involved would be far greater than the Americans suggest and the potential for work for British industry would be much less than in the case of EFA. Certainly, experience indicates that the costs of the HORNET 2000 would be much greater than those currently being quoted.

11. But the most important factor is the HORNET 2000's performance. Even if, for the moment, we accept the claimed brochure figures, the aircraft does not meet our requirement and, as an extensive redevelopment of a dated aircraft, its potential for further improvement - essential when we contemplate a 25-year Service life - is very limited. In short, we should be paying a considerable sum - probably close to the costs of EFA - for an aircraft of limited capability and limited growth potential. I cannot recommend that.

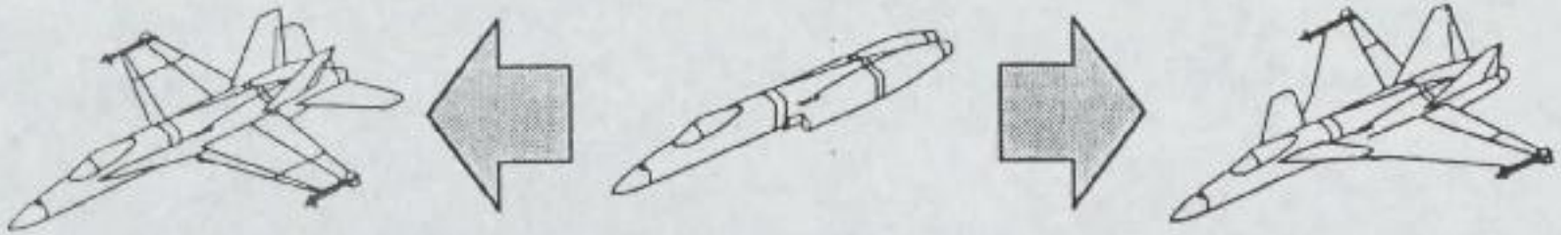
12. I have set out answers to your eleven specific questions at Annex B. I should explain that, despite your suggestion in the context of the first, I have not approached Mr Carlucci specifically about any of them for fear of the effect on our EFA partners if news of such an approach were to leak out. But I am satisfied nevertheless that the answers I have offered you are as full and objective as can be obtained; they reflect the comprehensive US briefing provided last month and subsequent exchanges with a European team led by the German National Armament Director. I believe it most unlikely that any approach to Mr Carlucci would provide any clearer statement of the US position than was provided then.

G.Y.

Ministry of Defence
12th April 1988

Co-Development Example*

USN Configuration	Common	European Configuration



Peculiar

- Wing
- Horizontals
- Verticals
- Avionics
- Carrier Suitability

- Fuselage/Systems
- Engine
- Crew Station
- Common Avionics

Peculiar

- Wing
- Canard
- Verticals
- Avionics
- Non-Carrier Mods

* Option C

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ANNEX B

Q1. With HORNET 2000 are we dealing with a genuine competitor to EFA? Or is it just a sales pitch to help a faction in the Pentagon fight for its share of the defence budget?

1. I have little doubt that the HORNET 2000 proposals represent an attempt by the Americans, late in the day, to provide competition for EFA in the export market; but the limitations of their budget will probably prevent them from continuing with the project if they cannot find collaborative partners. If they were to succeed in persuading the European nations to cancel EFA and to help to finance the HORNET 2000, that would be a considerable achievement for them.

2. The USN seem to be rather unwilling accomplices to the HORNET 2000 proposals; much as they would like an improved F/A-18, given a free hand they would probably spend the money elsewhere. It was noteworthy that, when the USN Programme Manager was asked in Bonn what the USN would do if there was no collaborative agreement, he said they would probably limit themselves to an upgrade of the aircraft's radar.

Q2. It is argued that EFA sacrifices stealth to obtain greater agility, while the Hornet sacrifices agility to obtain greater stealth. Is this a valid argument? Is it more important to have an agile fighter (EFA) or a much less visible platform armed with agile missiles and sophisticated avionics (HORNET 2000)?

Q3. Does HORNET actually fit this exacting bill, particularly in terms of Stealth technology?

1. It is not true that EFA sacrifices stealth to obtain agility, nor that the HORNET 2000 sacrifices agility to obtain greater stealth. The design requirements for stealth and agility can only be properly co-ordinated in the initial design of an aircraft through modern computing techniques. The EFA design is perforce based on the need for super- and sub-sonic agility with a low radar cross section (RCS). The stealth measures to be applied to the airframe will not degrade its required performance, and this is the advantage of being able to design for stealth and agility together, instead of facing the problem of, in effect, trying to retrofit stealth onto an old design. The RCS of the F/A-18 is estimated to be 5 square metres and the proposed enhancements will at best reduce the RCS to something approaching that of EFA (although even then this would be on the basis of the HORNET's being able to carry only two AMRAAMs in conformal position as against EFA's four). In Bonn, the Americans declined to discuss RCS: our conclusion is that the HORNET 2000 is less stealthy than EFA; and it is certainly less agile.

2. As regards missiles and avionics, both aircraft would have the same missiles, while the avionics in EFA will be at least

equal to those in the HORNET 2000.

Q4. Is it the case that HORNET 2000 would have more combat time and better loitering time with 60 per cent fuel than EFA has with 100 per cent?

No: the question may arise from a misinterpretation of the facts presented by the US team. 60% internal fuel in their OPTION IV is believed to equate to 3600 kg; EFA at 100% internal fuel has at least 4300 kg. The fuel consumption of both aircraft will probably be similar; thus EFA has the advantage in this situation. The origin of the 60% figure mentioned by the US team reflects the fact that, in order to show a HORNET 2000 combat performance reasonably close to EFA's (although still short of the requirement), they had to assume a maximum internal fuel load of 60% on entering combat; EFA however achieves the required performance with the more demanding (because heavier) 100% of internal fuel. It is also worth mentioning here that the HORNET 2000 would be designed to sustain only 7.5g as against the required 9g which EFA meets; the 'missing' 1.5g will be significant in subsonic turn performance in close combat.

Q5. Is it the case that with a full internal fuel load HORNET 2000 can engage in combat with up to ten AMRAAM and two Sidewinders aboard? How does this compare with EFA? And how useful is it?

1. The HORNET 2000 may well be capable of taking off with ten AMRAAMs, two Sidewinders and a full internal fuel load; but the aircraft cannot carry more than two AMRAAMs semi-recessed within the fuselage and the other eight would have to be carried on pylons under the wings. This configuration would -

a. incur a large drag penalty;

b. increase the HORNET's radar cross-section markedly; and

c. because of the increased mass and drag, adversely affect the manoeuvrability and range of the aircraft.

2. EFA can carry four AMRAAMs semi-recessed - and that capability is important for considerations of radar cross-section and stealth. To that configuration can be added either two AMRAAMs and two Sidewinders on pylons (making a total of eight missiles) or six Sidewinders on pylons (making a total of ten missiles).

3. Because the HORNET 2000 would not go far with its load of twelve missiles, and certainly would not meet our mission requirements, it would not be a practicable load in a European scenario.

Q6. Where does HORNET 2000 stand in the US defence budget? Is it just a 'spoiler'? Or is there real demand for it? Is it more likely to proceed than e.g. the ATF?

1. It is our understanding, confirmed by the Defence Staff in our Washington Embassy, that the HORNET 2000 has no approval in the US Defense Budget. Mr Weinberger's memorandum of July 1987 implied that approval might be considered for FY 90/91.

2. The next two points are covered in the answer to Question 1.

3. As regards the last, both the ATF and the ATA are in full development following very substantial outlay and it is most unlikely that either will be cancelled. The HORNET 2000, however, seems unlikely to go ahead (other than as a simple avionics update to the F/A-18) without some collaborative agreement, and none seems likely at present.

Q7. Is it the case that HORNET 2000 is intrinsically likely to be a safer option than EFA because it contains a higher proportion of proven technology and sunk costs?

It is difficult to be precise here because the HORNET 2000 is, as yet, ill-defined and hence a detailed assessment is not possible. What is clear, however, is that the European OPTION IV would involve entirely new flying surfaces with advanced aerodynamics, a new radar, a new electronic warfare system, new engines, new materials, a new flight control system, new missiles and many other smaller improvements. Although the Americans have made a great play of the sunk costs of the F/A-18, it is a fact that the OPTION IV aircraft is a radically new development and little of the basic F/A-18 will remain. Some of the equipments for it are already in development for other uses but the same can be said of EFA. Against any advantages conferred by sunk costs and proven technology must be set the disadvantages inherent in forcing an old design in an attempt to achieve a significant performance increment; this in itself represents a significant risk. The sizeable investment in EFA over the last three years (of which the UK share is around £80M) has markedly reduced the risks in the EFA programme; EFA is a well-defined and well-understood aircraft supported by extensive technology demonstration (EAP, XG40, Brough avionics rig). In contrast, the HORNET 2000 OPTION IV is based on a brief basic study costing some $1M, and it represents a major change from the F-18 flying today.

Q8. How do we assess the claim that HORNET's recurrent fly away cost would be $25M, rising to $35-36M if additional spares and support and amortisation of R & D is included? What saving would this offer over EFA?

Given that the HORNET 2000 is ill-defined, no precise costings of most of the HORNET 2000 options are available. As part of the MoD's consideration of the possible alternatives to EFA, however, the purchase of a modest off-the-shelf updated F-18 was assessed. The aircraft costed (by the MoD's technical projects costs staffs after extensive discussions with US industry) was based on the current F-18 airframe with some enhancement (new RM12 version of the current GE404 engine; AMRAAM compatibility; updates to the APG-65 radar; updates to the communications equipment; birdstrike strengthening). This version appears to equate to the most basic of the seven HORNET 2000 versions on offer. This version offers savings over EFA of about £1.3 billion in development and some £1.45 billion in total acquisition costs. Using the MoD's current understanding of "recurrent flyaway cost", the cost of this basic "enhanced" F-18 is about $28.4M. If spares, support and R&D costs are added, the cost rises to around $35.3M. It must be emphasised, however, that these costs relate to only a very basic update of the F-18 and not to either OPTION IIIC or to OPTION IV, both of which could be expected to be considerably more expensive; OPTION IV itself will inevitably entail a significant further premium over OPTION IIIC since it involves additional major redesign. This further work and the claimed performance of OPTION IV are thus not compatible with quoted costs of around $25M.

Q9. Is it possible to think of meeting Threat 2000 with a combination of HORNET (perhaps as a collaborative US/European project) and enhanced Tornado?

The HORNET 2000 would not fare well against the Soviet escort fighter threat, and the Tornado's agility and performance could not be sufficiently enhanced even with a major redesign. Almost certainly this would be a more expensive option which would still fail to meet the threat. The possibility of a collaborative US/European product being available in the required timescale must be considered remote since considerable work would remain to be done to define the collaborative design, and the impact of delay in in-service dates on the European air forces should not be overlooked.

Q10. Is there enough common ground between EFA and HORNET 2000 to make a single collaborative project possible?

EFA is the result of three years of Feasibility Study and Project Definition whilst the HORNET 2000 is a paper study put together in eight months and based on an existing aircraft. The USN and European requirements pull in different directions and the proposed side-by-side development of an OPTION IIIC and an OPTION IV would only partially resolve this problem. It is difficult to see how a single collaborative HORNET 2000 option could be pursued without abandoning or at least substantially compromising the requirements of the US or Europe or both and in addition delaying the entry into service by several years. Any aircraft which was not based on the F/A-18 would have no appeal to the USN but the HORNET 2000 does not meet the EFA requirement. To develop the HORNET 2000 to the necessary European standard would entail such major surgery as to remove virtually all the commonality with the USN preferred version. We should in effect be trying to build a new aircraft within the constraints of an existing airframe and the demands of a fifth partner with different aims. A better option would be for the US to consider buying EFA once it has been developed.

Q11 **Would such a collaborative plane have a better export potential than EFA on its own?**

The answer here is "yes and no". Doubtless, a collaborative aircraft, which was in service with the armed forces of all five nations would, in theory, have an even better potential export market than the four-nation EFA.

There would be four factors, however, which would reduce the possible advantages for the UK. Firstly, the US would be the project leader (with at least a 50% share); where there was a choice between US and European components, US industry's interests must be expected to prevail.

Secondly, US involvement could also limit export opportunities, particularly to the Middle East (an area where Tornado has sold well) due to the influential Israeli lobby in Washington.

Thirdly, the sales potential would be limited by the aircraft's performance which would be less than that of an aircraft tailored to meet Threat 2000.

Finally, the Saudi Arabian project has shown that the Prime Contractor (the UK) is able to obtain the major share (compared with the other partners) of ancillary business such as support, training and infrastructure - often the most lucrative element and which also provides for business to companies outside the aerospace sector. In EFA, the UK is likely to dominate export marketing; in a 5 nation consortium, the US would almost certainly provide the Prime Contractor.

The final answer would hinge on what other competition existed. IF EFA were to be cancelled, the French Rafale would be the only possible competitor in the Western World. If on the other hand EFA goes ahead, the indications are that any updated F/A-18 which might be offered in competition will be significantly less capable than EFA.

DEFENCE. Procurement
A 46

SECRET

3

PRIME MINISTER

EFA

You will recall that we devised a series of questions on EFA after your Chequers meeting. The MOD have now provided the attached answers. There is a quite a lot of circular argument. But by and large they answer the points we raised and claim the potential problems can and will be overcome. The MOD's collective name is on the line.

I don't think we are in a position to challenge the individual assertions. It is more a question of whether you feel that, taken together, they are too pat to be convincing. But we could send the MOD answers to Professor Hartley and ask for his comments. Agree?

There are two further qualifications to make:

- you should see the further MOD letter about STEALTH (attached). It shows that in one important respect at least, information supplied by the MOD was wrong.

- we still await answers to the further questions about the Horret 2000 project which we sent subsequently.

CDP

C. D. POWELL

9 April 1988

PMMAVU

SECRET

The National Archives

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2B

MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1A 2HB
Telephone 01-218 2111/3

MO 26/11/9V

8th April 1988

Dear Charles

CDP 11/4

re with CDP

EUROPEAN FIGHTER AIRCRAFT (EFA)

With your letter of 16th March, you enclosed a list of questions which the Prime Minister had hoped to be able to put to the Defence Secretary during the presentation on EFA earlier that afternoon and to which you asked me to provide written answers. These are attached.

I am sending copies of this letter, and of the attachments, to the Private Secretaries to other members of OD and to Trevor Woolley in the Cabinet Office.

Yours ever

(I C F ANDREWS)
Private Secretary

Charles Powell Esq
10 Downing Street

PM

MISSILES

Q1. The concept of EFA depends on the intelligence judgement that the main threat in the Central Sector will come from bombers escorted by high performance fighters. Will this really be the threat? or will the Soviets rely more upon missiles with conventional warheads?

The currently deployed AS-15 air launched cruise missile (ALCM) has a nuclear-only role and is targetted against the USA. The next ALCM to be deployed, AS-X-19, will also be nuclear. The Defence Intelligence Staff assess that the accuracy of these missiles is approximately 100 metres. Warhead weight is approximately 300kg. The effectiveness of a cruise missile is governed by the inter-relationship of navigation accuracy, warhead weight, and weight of missile fuel. The present Soviet cruise missiles, and those soon to be deployed, will not have sufficient accuracy and warhead size for the Soviets to consider them anything other than nuclear delivery systems.

It is possible that, should the Soviets manage to improve the accuracy of their cruise missiles through the 1990s, they might consider a conventional role for them. Such a development would probably involve a new terminal guidance system and the trading of fuel weight for warhead weight, thus reducing the range of the cruise missile (and therefore making the carrier aircraft more vulnerable). Even with these developments there would be only a limited number of suitable targets for conventional cruise missile attack. If, for example, a cruise missile were to have an anti-radiation terminal guidance system it could be targetted

against a radar; or, if the cruise missile had some form of active radar seeker at millimetric frequencies, it could be targetted against an object such as an aircraft hangar. It would be effective against a soft hangar, but would probably have little effect on a hardened aircraft shelter.

Surface and submarine launched cruise missiles could also be targetted against the UK, but similar reservations on conventional use apply to these as to the ALCM. Proposals for limiting SLCM numbers under START have yet to be resolved.

The limitations on warheads will always make cruise missiles an expensive option for roles such as airfield attack. Thus, although the use of cruise missiles in a conventional role against the UK might be developed up to the year 2000 and beyond, we assess that the main threat of the Soviet conventional attack will remain, for the foreseeable future, the bomber aircraft with its flexibility and ability to put down large quantities of ordnance on target.

The Soviets currently use shorter range conventional stand-off missiles launched by bomber aircraft for defence suppression and against targets offering a large radar cross-section. It is assessed that the anti-radiation defence suppression type would be used against warning radars and missile control radars in the UK. These missiles are launched some 250 miles from their targets, having acquired their targets before launch. The Soviets will continue to use this type of missile. They could

extend the launch range, but this would take the missile beyond the radar horizon of their targets; thus target acquisition before launch would not be possible. Some form of mid-course guidance would then be necessary, together with a very considerable extension of range in order to achieve a significant decrease in the vulnerability of the launching aircraft.

It should be remembered that EFA has a capability against a cruise missile which has already been launched. Radar detection ranges against cruise missiles will be short; however, EFA will be deployed well forward and will have the agility to engage these missiles within the very small detection range available. Moreover, a BAe study has shown that EFA's agility would allow a head-on attack against a cruise missile followed by a turn through 180^{o} and a repeat attack tail-on, thereby increasing the probability of success. Finally, EFA will be able to engage aircraft carrying stand-off missiles before those weapons are released.

Q2. EFA may be adequate to deal with the predicted threat in 2000. But what about the threat in 2005 or 2010? Does not EFA risk being overtaken by Soviet development of offensive weapons soon after it comes into operational service?

The Defence Intelligence Staff assess that the two aircraft currently used for fighter escort operations - FULCRUM and FLANKER - will have mid-life updates to their systems around 1995. This will enhance their performance, but not produce a dramatic improvement compared with the performance we see today. They also assess that replacement aircraft for FULCRUM and FLANKER will emerge in prototype form before the end of the century, for initial deployment around 2003 to 2005. The new aircraft will follow normal Soviet rates of deployment (predicted by production and crew training limitations); thus it will be between 2006 and 2008 before the aircraft are deployed in significant numbers with a likely service life of 15 to 20 years. These new aircraft will enhance Soviet fighter performance and, although the Soviets are expected to reduce the radar cross-sections of the aircraft compared with those of previous aircraft, they are not expected to be STEALTH aircraft in current American terms. [OUT SEE SEPARATE LETTER]

The EPC assessment was that EFA provided a comfortable margin of superiority over "threat 2000". Threat 2000 was based, in part, on intelligence information available in 1986 supllemented by a trend analysis. Since then the DIS have carried out a fuller projection of the characteristics of the replacement aircraft for FULCRUM and FLANKER. This has shown that the FLANKER

replacement will have a lesser supersonic performance than the earlier projections. The new performance data, together with the possible improvements in Soviet STEALTH technology have been re-examined and EFA remains superior. EFA's performance would be readily enhanced by recovering the MOD(PE) estimated shortfall of 6% on engine thrust which would normally be achieved in the early years.

We believe, therefore, that EFA will not be overtaken by Soviet fighter development in the timescale in question.

Q3. To what extent are the Soviets likely to master STEALTH technology within the lifetime of EFA, thus reducing its usefulness?

[See separate letter]

It has been possible to measure the radar cross-section (RCS) of a number of Soviet aircraft, including FULCRUM and BACKFIRE, and there is confidence that no radar signature reduction methods have been used on the aircraft currently deployed in East Germany. From these practical results, supported by radar modelling of FULCRUM and FLANKER, we are confident that the RCSs of the current FULCRUM and FLANKER lie in the range 5-10sq m.

The Defence Intelligence Staff assess that the Soviets lag behind the West in the development of STEALTH technology. They appear to have difficulty in mastering some of the supporting technologies such as advanced materials and high speed computing. The Soviets are, however, pursuing STEALTH development and it is likely that they will develop a STEALTH aircraft during the 1990s. This aircraft will use a number of radar signature reduction technologies, although it is not clear how successful the design will be. The RCS of an aircraft varies considerably - by a factor of least ten - depending on the aspect of the aircraft from which it is measured and on the frequency of the radar directed at it. It can, therefore, be extremely misleading to quote a single figure for the RCS of an aircraft, but it is reasonable to assume that the Soviets could achieve, in some circumstances, an RCS of less than 1 sq m from this first

generation STEALTH aircraft. It should also be remembered that the effectiveness of this aircraft will depend on how successful the Soviets are in reducing the other aircraft signatures such as Infra Red (IR), acoustic, electronic emissions and visual. The conflicting requirements of supersonic performance, shaping to reduce RCS, and aerodynamics to produce rapid turn rates are too great to be resolved in a first generation STEALTH platform and this aircraft will be subsonic with limited agility. It will not, therefore, replace any currently deployed aircraft but will probably be deployed in limited numbers in the Central Region in a covert reconnaissance role or in a strike/attack role for specific key-point targets. EFA will have a useful capability against such a threat.

The second Soviet STEALTH aircraft is likely to be a bomber. Technology for the bomber project would be drawn from the first generation technology tested on the fighter bomber project. It is therefore most unlikely to evolve to prototype stage until well after 2000. This project could, in principle, be directed towards either strategic or tactical applications. The Soviets will deploy the new BLACKJACK strategic bomber in the next year or so; its airframe is expected to remain in service for at least 15 to 20 years. It would be feasible in terms of timescale that the STEALTH bomber aircraft could replace BLACKJACK after 2010. The bombers which EFA is intended to counter - FENCER, BACKFIRE - are believed by the DIS to be due for replacement during the 1990's. A new aircraft programme has been underway for at least 3 years at a production facility, and

an airframe has been identified - probably in mock up form - that is likely to be part of this programme. It is not a STEALTH airframe. This new aircraft will probably replace FENCER during the 1990's and possibly BACKFIRE later in the decade. Given these current developments it is not clear how the STEALTH bomber would fit into tactical or theatre employment.

If the Soviets chose to extend the life of BACKFIRE in the theatre bomber role and were thus able to replace it by the STEALTH bomber, EFA would be faced with a non-agile aircraft with an RCS of perhaps as low as 1 sq m. Studies have shown that EFA would attain a high attrition rate against such a bomber. Thus the Soviets would have to provide escort fighters.

The Soviets will reduce the RCS of FULCRUM and FLANKER in a mid-life update during the 1990s and it is likely that they will achieve RCS figures of between 2 and 5 sq m in this way. The replacement aircraft for FULCRUM and FLANKER will be developed through the 1990s. The specification of these aircraft must take place in the next three to four years. For the reasons noted above, this role represents the most difficult challenge for the STEALTH aircraft designer. It is most unlikely that the Soviets will have developed sufficient experience from the first generation STEALTH aircraft to give them enough confidence to specify STEALTH designs for FULCRUM and FLANKER replacements. These aircraft will, therefore, probably be fairly conventional in design, although, given the knowledge the Soviets will gain from their STEALTH programme, they could perhaps reduce the RCS

of these aircraft to the 0.5 to 2 sq m range. The FLANKER replacement in particular will be a large fighter thus giving the opportunity to minimise RCS by measures such as internal carriage of weapons. These values are lower than previously assessed, and, together with the new performance data described in the answer to question 2, have been re-examined; EFA remains superior.

Thus the Soviets will be forced to follow parallel lines of development in the 1990's. They will require new fighter aircraft using advanced technology but with a fairly conventional lay-out emphasising agility and weapons carriage with as great a degree of RCS reduction as possible. On the other hand they are likely to produce STEALTH designs emphasising low RCS at the expense of agility and weapons capability. These two lines of development may come together in a single airframe in the same way as intended in the American Advanced Tactical Fighter, but this will not occur before 2015. By that time it is reasonable to expect EFA to have had a mid-life update, which would provide an opportunity to incorporate further STEALTH measures and counter-STEALTH techniques. There is confidence, then, that an updated EFA could remain effective during its projected lifetime, although during the closing years of its service life there would be a decline in effectiveness, as is usually the case with any weapon system.

SKIP GENERATION

Q4. Do likely developments in the Soviet threat make it more sensible to miss out EFA and go straight for the next generation of aircraft?

The EFA requirement is based on the pressing need to replace the Phantom and the Jaguar with an agile fighter. Between now and 1995, current Soviet fighters will be replaced by the agile FULCRUM and FLANKER; both will have a look down, shoot down, beyond visual range (BVR) capability. Thus, until EFA enters service, all fighters in the Central Region and South East England will be outclassed in air combat.

The probable developments in Soviet aircraft have been described in detail in the answers to questions 2 and 3. EFA remains a robust solution to all likely threats to the UK Air Defence Region. We conclude that there is no case in terms of the Soviet threat to miss out EFA and go straight for the next generation of aircraft.

Furthermore, the industrial consequences of such a move would be severe. EFA is NATO's biggest collaborative equipment development and production programme for years. The successful collaboration on Tornado followed by EFA will establish a firm UK base for the design and development of advanced aircraft. The UK's third share in EFA development will maintain a UK design and development capability in the advanced technology areas associated with the airframe, avionics and engine. A UK

withdrawal, if not replaced by a comparable national project in the same timescale, would so gravely weaken the UK's military design capability as to prejudice a viable UK participation in future military aircraft competitions.

It is estimated that the development of EFA would give direct long term employment to 3,000-4,000 people in the UK, and that production of EFA would mean jobs for more than 20,000 throughout the UK. At its peak, EFA production would account for more than 30% of the workload of BAe Military Aircraft Division and the military engine sites of Rolls-Royce, and there will be a similar loading on the relevant part of the equipment industry.

Q5. Is EFA too sophisticated for the Baltic/North Norway and Out of Area environment? Will not Harrier GR5 suffice for our requirements?

The required attributes for the ground attack task envisaged for EFA have "fallen out" of the air-to-air design without detriment to, or compromise of, that design. The requirement for our ground attack aircraft to have a robust self-defence capability in any theatre where a threat may be encountered has been highlighted by the advent of agile look-down, shoot-down Soviet fighters. EFA is able to retain four AMRAAM whilst carrying a ground attack weapon load, and its agile airframe, radar and integrated Defensive Aids Sub-system (DASS) will allow it to counter shoot-down fighters successfully. EFA will hence provide a much-needed multi role capability in the Northern Region capable of countering the many air-to-air and ground-to-air threats postulated for the turn of the century and beyond.

Harrier GR5, however much developed, would fall well short of satisfying the air-to-air requirement. In the ground attack role, EFA is required to carry six BL755 cluster weapons for 240 nautical miles (nm) at low level, with the last 60nm as a Mach 0.9 dash to the target. This requirement relates to a typical Northern Norway scenario where, from Bardufoss airbase, EFA could be required to oppose an advance into the Eastern Finmark area. By comparison the Harrier GR5's radius of action with six BL755 is 130nm, approximately 50% of the requirement. Over a combat radius of 240nm, the GR5 could carry only four BL755 but could not accomplish the Mach 0.9 dash demanded. Unlike EFA, the GR5

will not possess a reconnaissance capability, at present undertaken by the Jaguar, which is most important to SACEUR in the Northern Norway region. Finally, the Harrier GR5 would lack EFA's capability to deal with the air-to-air threat in the Northern Region; in the Central Region, other air defence aircraft would be available to complement the GR5.

In summary, an aircraft with EFA's qualities will be needed to accomplish the task in Northern Norway; the Harrier GR5 will not suffice. For Out-of-Area tasks we have always planned to use aircraft procured for NATO commitments.

Q6. How will EFA cope with the Identification Friend or Foe (IFF) problem in the crowded skies of the Central Region, given that its prime task is to fight a Beyond Visual Range battle?

The problem of identifying targets at beyond visual range will not be exclusive to EFA or indeed NATO. The ATF will also face the same problems as EFA in establishing the identity of other aircraft.

EFA will cope with the identification problem in all theatres of operation by employing both the Direct and Indirect Sub-systems of the NATO Identification System (NIS).

EFA's NIS Direct Sub-system will consist of a variety of equipments and sensors, each of which will be capable of providing an assessment of the identity of detected targets.

Equipments such as IFF and the future NIS "Question and Answer" system will rely on direct interrogation of the target to achieve an identification. Sensors such as the radar, the Defensive Aids Sub-system (DASS) and the Forward Looking Infra-Red (FLIR) detector will identify targets non-cooperatively by evaluating the electromagnetic radiation reflected or transmitted by targets and comparing it with intelligence data stored on-board.

EFA will also be able to receive target identity, via the data link, from other sources such as AWACS or ground stations.

Once the identification information has been received from the

various sources, EFA's NIS Indirect Sub-system will combine the data automatically to achieve the best possible assessment of the targets' identity. The identity can then be displayed to the pilot or transmitted via the data link to other users.

Additionally, airspace control and routeing procedures will still play an important part in the identification of targets.

To summarise, EFA will be able to use the following on-board equipments to identify targets at beyond visual range: IFF, NIS "Question and Answer", radar, DASS, FLIR and data link. The information from each individual source will then be combined to give the best possible assessment target identity.

[i.e. it can't: it will still be a guess]

Q7. Is it the case that a mid-life enhancement using an infra-red system is planned? What are the additional cost implications of this?

The operational importance of a totally passive sensor, capable of detecting and identifying other aircraft, cannot be overstated. It is therefore a firm requirement that EFA has an internally mounted Forward Looking Infra-Red (FLIR) sensor at initial entry into service. The current price proposal includes the cost of the FLIR, and no mid-life enhancement is currently planned.

EFA's FLIR will also be usable as a low flying and landing aid in poor weather or at night.

Q8. The BVR Threat Chart (Annex C, page 11) shows that any shortfall from the basic requirement is a very steep one; ie. if the aircraft falls short in this respect, its overall usefulness is very much degraded. How confident are we of being able to meet the requirement in SR(A)414?

It has never been assumed that the SR(A)414 requirement would be met in full. For the purposes of the modelling exercises carried out by the Systems Assessment Division at RAE Farnborough, the assumption was made that eventual performance of EFA would fall short of the requirement in certain key areas. Principal examples of the shortfalls assumed are:

Engine - 2% decrease in engine thrust (on top of the adjustment from a nominal 90kN to reflect the use of a convergent/divergent exhaust nozzle; losses due to installation in the airframe; a 2% reduction for the "minimum" rather than the "average" engine; and a further 2% for the "in-service" rather than the brand new engine), coupled with an increase in fuel consumption (4% on average).

Mass - 3% mass increase.

RCS - 1.5 sq m instead of 1 sq m.

This realistic estimate of the likely outturn has been used as the basis for our internal consideration of the case for EFA Full Development, including the modelling and costing exercises. The

question, therefore, is rather how confident we are that we can meet these revised performance assumptions, and how far performance would have to slip below these assumed figures before the value of the aircraft was called into question.

The studies show that the four critical parameters of weight, thrust, nose radar range and radar cross section (RCS) are interdependent; so to give a simple illustration of the robustness of EFA we have calculated the levels to which any one of these parameters must fall, in isolation, below the degradation already assumed to reduce the performance to that of the enhanced F-18. These can be summarised as follows:

Thrust - A further degradation of 20% from that noted above (ie. to 66kN).

Mass - A further mass growth of 20% over and above the 3% noted above (to 12.8 tonnes).

Radar - Decrease in range from 130km to 50km (on a single look probability of 20%).

(It is not possible to produce similar figures for RCS, but that of the enhanced F-18 is 5 sq m compared with EFA's 1.5 sq m.)

To put this in context, it means that the engine thrust, for example, would have to fall to below that of the RB199 engine fitted to the Tornado. The net result is that, while all

development activities inevitably involve an element of risk, we are confident that the assumed degradations against the Requirement together with the high degree of reliance on proven technology and materials and the risk reduction measures inherent in the management arrangements for the development programme mean that, overall, EFA will be a robust and achievable solution to the requirement.

Q9. What simulations have been done to measure EFA's effectiveness in close combat? Have these just been one-to-one simulations? Or have we measured it against multiple targets? (This is crucial, because if EFA fails here, then the targets get through unscathed to attack us).

Close combat simulations have been performed by the Systems Assessment Department, RAE Farnborough, over the past 4 years; they have concentrated on one-versus-one scenarios.

As in the beyond visual range (BVR) combat studies, a correlation curve was generated which can be used to predict the outcome of close combat for an aircraft against a common opponent. The common opponent used was FULCRUM, with a performance projected forward to a "threat 2000" level. The correlation curve is shown in Figure 1. There is a high degree of confidence in the correlation curve for two reasons: first, manned combat simulations, performed in the twin dome simulator at BAe Warton, fitted the curve closely; and, secondly, both manned and computer simulations carried out in Germany produced results supporting those of RAE.

Aircraft which lie on the top of the curve will consistently win against the threat; those at the bottom will lose. To win consistently, a winning margin of 20% (relative aircraft agility measure of 1.2) is required. An aircraft that meets SR(A)414 would achieve this level of superiority (see Figure 2); P120 would give a similar result. MOD(PE)'s estimate of EFA (ie assuming mass growth and thrust degradations) would achieve parity with the threat. The other options would consistently

lose.

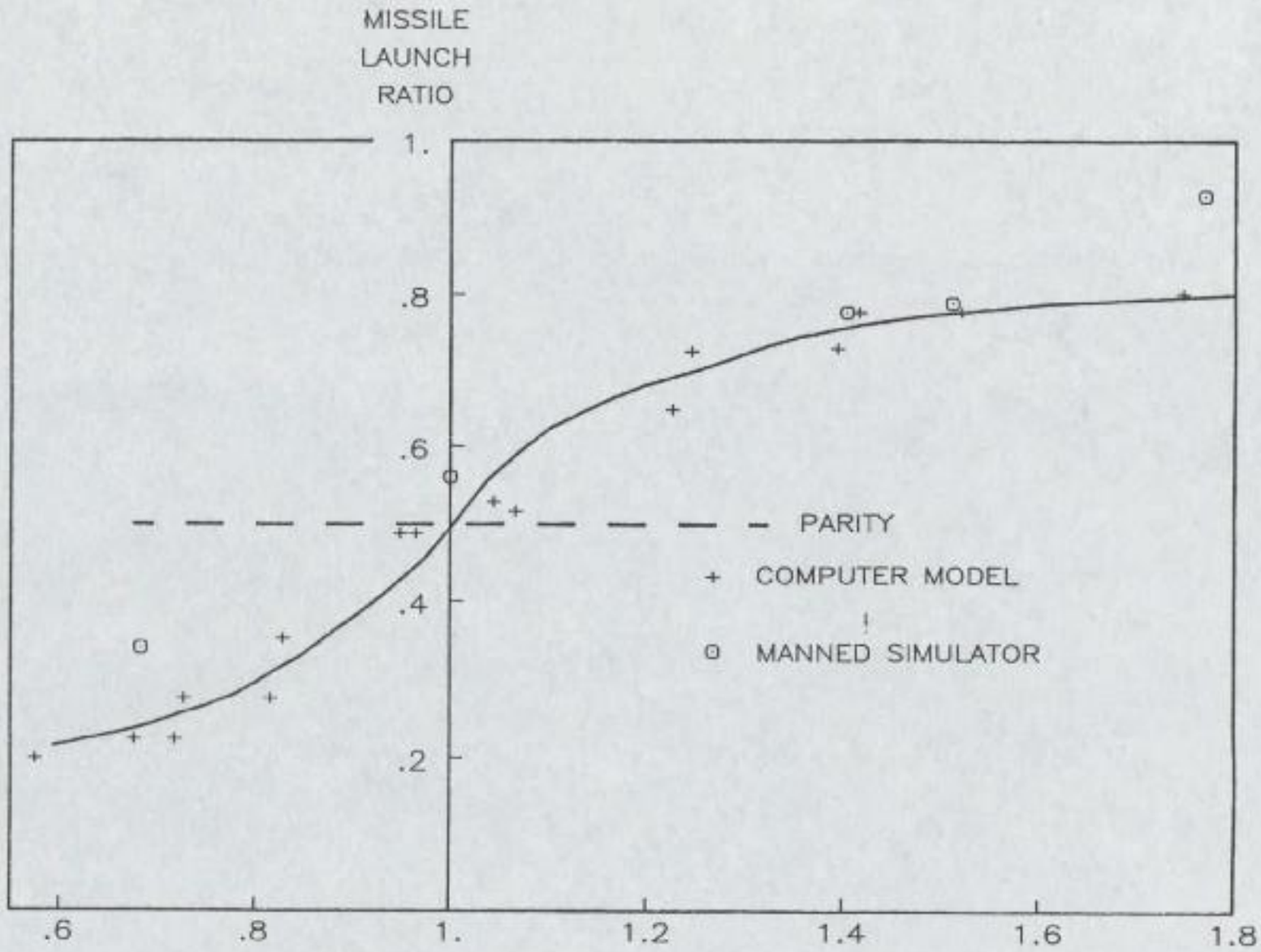
It is important to put EFA's "parity" into context, since the result is for one specific relative fuel state: 100% fuel for EFA and 60% for the enemy aircraft. This is clearly a worse case for EFA as agility increases as fuel state reduces. This is best demonstrated through the effect on the "S" curve of assuming equal fuel states for both aircraft. Figure 2 shows where MOD(PE)'s estimate of EFA would sit, given an equal fuel state to "threat 2000". EFA easily exceeds the required 20% superiority.

Some two versus two combat simulations were carried out. The results show that the correlation curve remained valid. In practice, close combat in a many versus many environment is fought as a series of one versus one engagements. Therefore, it was decided to concentrate on the one versus one scenario, which is an excellent comparative assessment vehicle.

Significantly, BVR combat is likely to be the dominant type of engagement. Most engagements will start with a BVR exchange, even in the shorter range environment of the Central Region, and therefore the ability to survive this is essential. Thus, in any case of conflict in aircraft design, the balance must be biased towards BVR combat performance. Therefore, EFA's inferiority to P120 in close combat is outweighed by its superiority in BVR combat.

Finally, it should be remembered that EFA would be part of a

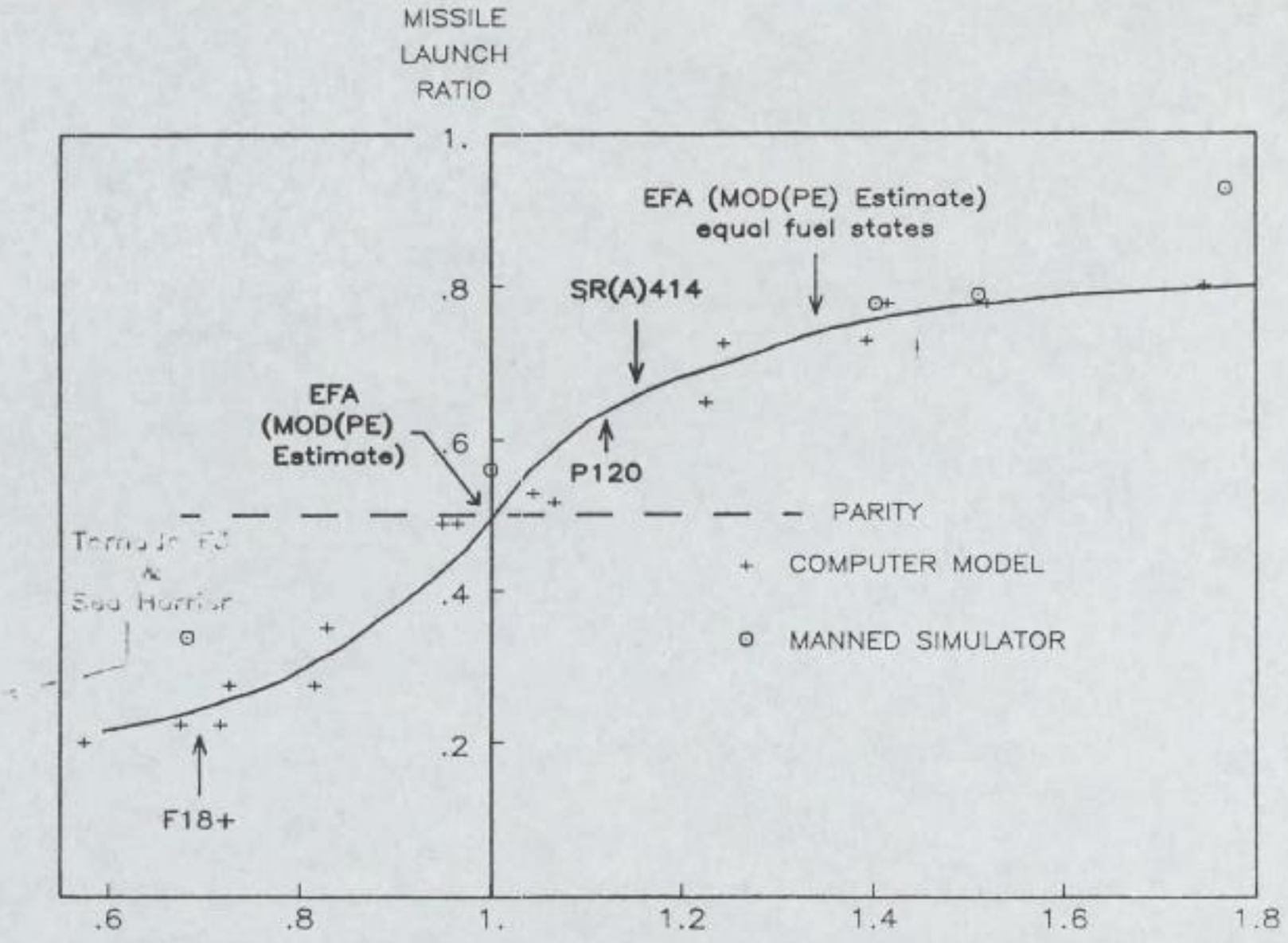
layered area defence with surface-to-air-missiles protecting high value locations.



vs

CLOSE COMBAT THREAT 2000

Figure 1



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CLOSE COMBAT THREAT 2000

Figure 2

TECHNICAL RISK

Avionics

Q10/11. Who will be responsible for integration of the separate sub-systems into the overall system? (Assuming the answer is no single company) why have we allowed ourselves to be overruled on this key management decision? Should it not be reopened?

The task of integrating all equipments including the engine and all the avionics is placed with a single contractor, Eurofighter Jagdflugzeug GmbH, the weapon system prime contractor. Each major design area is the responsibility of one of the four partner companies of Eurofighter. In the case of avionics integration, the responsible company is BAe, who are well aware of both the complexity and the crucial importance of this work and they are actively recruiting additional high-quality staff with the necessary software and avionics integration expertise to supplement their in-house experience gained on the EAP and the Brough avionics rig.

The distributed processing concept to be used in EFA allows consideration of procurement on a "black box" as opposed to a sub-system basis by the contractor responsible for integration. In this respect, the design of the EFA avionics system is fundamentally different from that of earlier aircraft. The principal difference is that the processing of the information needed by the system is not centralised in one main computer, but distributed among the systems in individual manageable packages. Thus each item can be worked on independently, and the transfer of information from one element of the system to another is

minimised. This distributed processing approach is made possible by the use of a databus, a fibre optic highway for information transfer. This concept is well understood from existing technology demonstrators and civil electronics applications and its use will reduce the risk in the EFA avionics system as compared with its predecessors.

Thus, although the UK and the other nations have expressed a preference for sub-system procurement, partly to spread the load of integration, this is not the only way to do it, and indeed it has the disadvantage of reducing the range of options open to the company responsible for overall integration. Since we want the prime contractor to bear the full contractual responsibility for the integration of all equipment into the overall weapon system, we must not undermine the principle that the method of procurement must ultimately be his responsibility. We have no reason to believe that procurement by items rather than by systems would significantly increase the risk in this area.

[parts a lot more BAe]

Q12. It is suggested that the computer language ADA should be used unless the contractor can demonstrate advantage in using another system. Can there really be any reason not to insist on use of ADA?

There are some areas where ADA may not provide the optimum procurement solution:

a. For software/firmware which is a part of an off-the-shelf equipment, and which has been proven to operate satisfactorily. In this case there could be large cost and timescale penalties associated with rewriting the software in ADA.

b. In some sysems, fast processing is of paramount importance (Flight Control System, Digital Engine Control Unit) as all functions have to be computed within a fixed time frame. ADA, like any High Order Language, is not as rapid as assembler level language. However, any alternative solution will still have to be certified and validated satisfactorily.

Every proposed deviation from the use of ADA will be considered by the nations on a case-by-case basis, and will be accepted only where there are clear benefits to the project.

Software Development

Q13. The papers speak of regular and random audit of software systems. This sounds reassuring but how is it to be done? If it was possible, surely we would not have had the problem we did with Nimrod and Tornado?

The Nations' policy for software has been to agree rules with Eurofighter for the system design, from required Standards down to code writing. These rules conform to the MOD Chief Scientific Adviser's guidelines; are based on existing nationally accepted MIL, Def and Civil Standards; and define the procedures Eurofighter will observe in developing all new software. They define the method of ensuring that the system design and the software produced meet the requirement, and do so safely. There will be a formal series of reviews and audits operated by Eurofighter themselves, in which the customer will also be involved. Additionally, we require that the nations have access to the final documentation in such a form that independent reviews of the system can be made, should this be necessary.

In summary, the design process has been structured to allow random audit on the basis of top-down traceable requirements. It was the lack of such a structured approach which made it difficult to audit the development of Tornado software and to introduce modifications.

DASS

Q14. How is the DASS to be integrated into the overall system?

As with all avionics integration [see 10 above], BAe will be responsible for the integration of the DASS (which will itself be procured by competitive tender) into the overall system. This will be done on a step-by-step basis, involving a full programme of rig testing (built on the experience gained on the BAe avionics rig at Brough) which allows integration testing on a progressive basis, before moving on to flight testing.

Radar

Q15. The planned radar is said to be a development of Blue Vixen, but this is not yet operational. When will it be?

One of the two competing bids for the EFA radar is indeed based on Blue Vixen. Early development models of this radar have been flown in a test airframe and production models are due to be incorporated in Royal Navy Sea Harriers from 1992.

Q16. How confident are MOD that we shall not have another Foxhunter experience?

Precisely because of the Foxhunter experience, a great deal of attention has been paid to the level of risk in the development of the EFA radar; we are confident that the radar will meet our requirements in an acceptable timescale, avoiding the difficulties encountered in the Foxhunter programme.

Prior to Nimrod and Foxhunter, UK industry had no previous experience of designing and building look-down radars. The introduction of such a capability required the development of new modes and associated high-capability processing techniques. These projects were the first to try to implement this moding and their problems were largely a result of the conflicting requirements of minimum mass and large processing capability, the extent of which was not fully understood; technology at that time was ill-equipped to resolve these problems within such tight volume constraints. The problem was compounded by engaging one company with no previous experience in airborne radar to develop both simultaneously.

The two bids received for EFA radar are backed by considerable experience in airborne radar development. The proposals are based on existing look-down shoot-down radars from which the EFA radars would naturally evolve, and this gives us our first level of confidence by building on existing programmes and not starting from a blank sheet.

The second level of confidence comes from the fact that the major change in the equipment proposed is to implement the technology improvements of the last five or six years, particularly in the areas of miniaturisation and reduced power consumption which, in their turn, give greater speed and processing power. This also allows the use of a High Order Language, ADA, and the highly structured approach to software development implemented in recent years.

Detailed assessment of the radar proposals has not yet been completed and it would therefore be premature to draw detailed comparisons between the two offers. The assessment work so far confirms our expectation that the manufacturers' claims will not be fully met. However, Italy - and not the UK - has the most demanding requirement, and the Specification and resulting proposals were aimed at fulfilling Italy's requirement. None of the expected shortfalls against the Specification affects the overall weapon system performance required by the UK and, indeed, there remains a margin within which radar performances could be further degraded without detriment to the required UK performance.

A brief outline of the origins of the ECR90 radar bid by Euroradar (the consortium led by Ferranti) will make clear the reliance on proven technology. The grandparents of the ECR90 are the Blue Falcon - a technology demonstrator funded jointly by MOD and Private Venture - and the MOD Technology and Techniques

programme of the late 1970s. These led to the Blue Vixen, which is destined for the Sea Harrier, and to Ferranti's collaboration with Ericsson of Sweden to produce the radar for the SAAB JAS 39 Gripen fighter which shares much of the Blue Vixen architecture. The Blue Vixen programme itself is running late, but to date no fundamental technical difficulties have emerged; airborne performance testing of the first stage has now been satisfactorily completed and the development techniques learned, underpinned by the Supporting Technology Programme, form an excellent basis for the upgrading to ECR90.

Every module within ECR90 has its direct counterpart in Blue Vixen; the difference is in the level of technology, giving direct performance increases and increased testability. If, in spite of it all, serious problems were to arise, this relationship gives us a number of fallback options; for example, the appropriate Blue Vixen module could be provided very quickly for the ECR90 and would allow full use of the weapons, albeit at a reduced level of performance. Thus EFA would not be as susceptible to problems and delays as the previous "all or nothing" approach.

The AEG proposal has been based on the American Hughes APG65 radar in a very similar manner and so, in these terms, there is little to choose between them.

Thus, by adopting the "family approach" to the procurement of the EFA radar, the leap in technology which occasioned the

difficulties within the Nimrod and Foxhunter programmes will be avoided. There will be performance shortfalls against the manufacturers' claims, but ones which have been foreseen and are acceptable, and fallback options to maintain the overall programme are available. The confidence of both nations and industry is underlined by their acceptance of fixed price contracts for this important equipment.

Q17. How realistic is it to go for fixed price bidding for the radar, when the consequence for the loser is to drop out of radar building? Will they not put in artificially low prices and aim to recoup later?

Fixed price tenders have already been received from both consortia bidding for the radar contract. Although assessment is far from complete, the bids do not appear to be out of line with MOD's internal estimate of the development cost of the radar, and, while there is undoubtedly a fierce competition underway, there is no outward sign of commercially-imprudent tendering which would call into question the basis of the competition. The consortia will have avoided any temptation to put in artificially low tenders hoping to recoup later, because they have been required to quote option prices for production and support. The assessment of the bids takes account of the overall acquisition and ownership costs of the radars, and not just the development phase costs.

It is the case that the EFA radar selection will be an important, perhaps decisive, factor in determining which companies stay in the airborne radar business in the long term. However, in the short to medium term, both UK companies involved in the competing bids have a reasonable flow of airborne radar work; Ferranti for the Blue Vixen and the radar for the JAS 39 Gripen, and Marconi in completing the development and production of Foxhunter. In neither case is the short-term independence of the company at stake.

Engine

Q18. How confident are the project managers of achieving the technical parameters?

As explained in the response to question 8 above, the modelling exercises carried out by RAE Farnborough were based, not on the nominal performance set out in the requirement, but on reduced figures for thrust and other associated parameters. In order to maintain the performance of EFA on the "S" curve, therefore, it is these underlying assumptions which have to be fulfilled. Anything above this would be a bonus.

Structurally, the EJ200 engine has a close resemblance to the XG40 demonstrator, which provides the essential technical foundation. However, the technology level of the EJ200 goes beyond that to be generated by XG40.

To control the impact of risk upon the programme, technical milestones have been established and standards are being negotiated which will have to be substantially achieved before moving to the next phase of the development. No shortfall would be acceptable, unless it was small and a secure solution had been identified for it. On this basis, we are confident that the major technical parameters underpinning MOD's assessment of the performance can be achieved.

Q19/21. What happens if the various milestones for development are missed? What are the implications for the rest of the programme? What are the cost implications of delays in the engine's development?

The implications for the rest of the programme of missing the engine milestones would depend on the extent to which the company failed in their achievement; for example, a failure on the part of Eurojet to provide flightworthy development engines in the required timescale would delay the Eurofighter flight trials programme. However, there are means available to minimise the effect; the use of the interim engine in the flight trials programme could be extended beyond Prototype 2 as currently planned. It is precisely to allow us this sort of flexibility that we have insisted on the use of existing interim engines for part of the flight trials programme.

Any significant delay caused by the late introduction of flightworthy development engines could cause cost increases not covered by Eurofighter's maximum price for the aircraft programme. An allowance has been made for such increases within our overall estimate.

Q20. What are the consequences if engine performance falls short of the predicted performance by more than the 4% allowed for?

In fact the MOD(PE) estimate of EFA assumed a 6% thrust degradation.

If engine performance fell short by more than the assumed 6% then combat effectiveness would fall. In the case of BVR combat the measure of effectiveness (position on the "S" curve) would be insensitive to a thrust degradation of, say, 10%; in other words the effect of a further degradation of 4% would be insignificant. On the other hand, close combat performance would fare less well. However, taking a less pessimistic assumption of relative fuel states, say, equality for both sides, - whereas the studies assumed 100% for EFA and 60% for the opposing aircraft - would more than offset the reduction in combat effectiveness due to the additional thrust degradation. Furthermore, a 10% reduction in thrust would actually give lower thrust than is achieved by the latest variant of the RB 199 engine and is, therefore, a pessimistic lower limit to thrust degradation.

Finally, for EFA's performance to fail to match that of the enhanced F-18, a thrust degradation of about 20% beyond the 6% figure would be needed.

Airframe

Q22. The manufacturer is to be asked to guarantee the airframe throughout its life. How will this guarantee be expressed? (US practice is 25 years or 6000 hours). At whose cost would extra airframes be produced?

The Development Specification currently being negotiated with Eurofighter requires the company to design the aircraft with a safe life of 25 years or 6000 flying hours. It is the intention of officials to negotiate a production Specification for the aircraft which will require achievement of this safe life. The acceptance of such a commitment by the company will carry with it liability for repair or replacement.

RMT

Q23. What steps are being taken to ensure EFA meets its reliability/availability targets?

Three steps are being taken to ensure achievement of the R & M targets.

the technical risk is being identified and reduced as far as possible, to allow the development programme to concentrate on a stable design solution.

a disciplined approach to design and test for R & M using US standards is being applied.

R & M targets are included within the basic specification, together with a system of incentive payments to encourage achievement in excess of these levels.

Beyond this, the US philosophy of Integrated Logistic Support (ILS), which is a major new initiative for RAF procurement procedures, will offer the following improvements over previous management approaches:

a. ILS promotes consideration of support early in the programme. This aims to design and develop an inherently supportable weapon system by causing support requirements to be considered with the emerging designs required to meet the performance criteria. This early consideration enables

ownership costs to be significantly reduced with minimum impact on acquisition costs and schedules.

b. Although each element of support has in the past worked to a programme, they were not coordinated and managed to best effect. ILS is a much more positive method of managing support activities. It requires detailed planning, direction, control and coordination of every aspect of support, and the integration of support activities into Programme Management.

Q24. Are we following US practice by saying that these targets should be set at the same level as those of civil airlines? Are MoD talking to BA about RMT targets?

The very different usage seen by civil and military aircraft makes some differences in the absolute levels of R&M inevitable. However, we are following the current US policy of giving R&M equal priority during all phases of the programme. Furthermore, the policy of Flexible Phased Support, which requires equipment suppliers to provide firm price options for support at the point of tender response for development, follows airline practice and will act as a powerful commercial incentive for improved R&M. Lastly, US airline analysis techniques will be used to minimise aircraft maintenance activities for the life of the aircraft consistent with an appropriate level of flight safety.

Frequent informal discussions have taken place in recent years with BA specialists, and the current drive to reduce support costs takes advantage of the lessons learnt from these useful discussions wherever they are appropriate.

[Evasive]

ASSOCIATED WEAPONRY

Q25. How confident are we of development of associated weaponry for EFA, particularly ASRAAM?

AMRAAM

As indicated in answer to Question 9, beyond visual range combat is likely to be the dominant form of engagement for EFA, and hence its prime armament will be the longer range AMRAAM. On current evidence it is expected that AMRAAM will be available in good time for EFA. The missile development programme suffered some initial delays and setbacks, but experience in the last 12-18 months has been very encouraging. The US have already committed to lot 1 production and have released long-lead funding for lot 2 with the intention of maintaining a mid-1989 ISD on the F-15. In the UK, the Sea Harrier Mid-Life Update programme is already proceeding on the basis of an ISD for AMRAAM in the early 1990s.

ASRAAM

The programme has encountered difficulties following rejection by the US earlier this year of the missile configuration proposed by the European partners. The US concerns centred on the mass of the proposed configuration (although mass was a low priority non-mandatory requirement in the agreed Trilateral Operational Requirement)

following recent studies of the F-16 installation which indicated that the likely mass of the missile could give rise to serious flutter problems on the F-16 and F-18. As a consequence, the European Partners, together with industry, are urgently examining possible ways ahead on a revised configuration. If European ASRAAM were to fail, the US would still need to meet their requirement which is the same as defined in the Family of Weapons Memorandum of Understanding. They would probably meet this with an equivalent weapon (probably an advanced derivative of Sidewinder) which European nations would be able to purchase.

RCS

Q26. Even if the aircraft meets our target for the radar cross section, what about the non-conformal weapons? How much will they increase the radar signature?

The RCS value of 1.5 sq m used as the basis for our modelling exercises includes four AMRAAMs, two ASRAAMs, two pylon stubs (for external fuel tank carriage) and the full Defensive Aids Sub-system fit. Eurofighter have accepted that this figure should be contractually binding. Recent measurements on EAP and Tornado, together with proposals to shield the seeker heads of AMRAAM, give confidence that EFA in the above configuration will achieve less than 1.5 sq m which has been shown by the RAE studies to be operationally acceptable.

Q27. One for one replacement of existing Phantom and Jaguar aircraft seems to be envisaged. Ought not EFA to be more reliable? Ought we not therefore to need fewer?

The exact numbers of EFA required to replace Phantom and Jaguar have not yet been decided. However, now that the definitive characteristics of EFA have emerged from the results of Project Definition, the additional studies required to determine the numbers needed have been identified and questions have been added to the MOD Analytical Studies Master Question List. Regional Campaign studies will be conducted at the Defence Operational Analysis Establishment to determine the total number of aircraft required to cover the 4 areas of operation. The studies are planned to be completed by the end of 1989 and the results will be submitted to the MOD's Equipment Policy Committee for its consideration. A decision on overall numbers is not required until production go-ahead is authorised. This is currently planned for late 1992. Pending the outcome of the studies, one for one replacement has been assumed.

The fundamental benefit of improved reliability, however, will be cost-effectiveness - the required availability should be achieved at lower cost in terms of manpower and support.

COST

Q28. MoD have great faith in the unlimited liability of the fixed price contract. But what is meant by unlimited liability? Is it just unlimited liability to lose your profits?

Initially, because of the risks involved in the development and integration of a weapon system over 12 years, the contractors' financial liability under maximum prices is limited to a sum equivalent to 75% of profit. The contracts will then be subjected to progressive fixed pricing of packages of work. Within the packages, it will be possible to identify risk much more precisely, and therefore unlimited liability will be accepted by the contractors package by package. Once the whole of the work is subjected to the fixed price discipline, the contractors' liability will be to achieve the requirements of the contracts within the sum of fixed prices. If this is not achieved, the customer will have the right to require the contractor to continue working not just without profit but entirely at his own expense until the requirement is fulfilled, or to negotiate an appropriate price reduction if the performance shortfall is judged to be operationally acceptable.

TIMESCALE

Q29. What exactly are the milestones? How moveable are they likely to prove in practice?

It is our aim to negotiate milestones for each of the agreed packages of work subject to fixed pricing. These milestones will be representative of demonstrated technical progress and achievement and will be used both for technical monitoring and payment release. In addition, it is intended to have milestones, at about annual intervals, which will represent progress across the total programme as opposed to within a work package. The milestones will be event related and therefore, whilst the event may move in time, the required achievement and criteria for payment will remain unchanged.

The UK's internal, confidential, assumption is that the programme will slip by two years on the industrial plan, and our costings were prepared on this basis.

Q30. What will be the cost of slippage? How will it be met?

It is the intention that all work will be contained within the maximum price. Slippage which is occasioned by a contractor's default will be his liability within his maximum price.

Q31. Are there viable alternatives to EFA, which might not be as effective, but would nonetheless be adequate?

There is not a linear relationship between fighter capability and measure of combat effectiveness. The relationship actually follows the shape of the RAE "S" curves. In other words, if the less capable aircraft still sits on the top, flat part of the curves, it will still be successful against the threat. If not, then its combat effectiveness rapidly falls and it soon consistently loses to the threat. All the dismissed options, other than the more expensive P120, do just this.

Since the RAE studies were completed, the US has produced proposals for a further enhancement of the F-18 Hornet called the 'Hornet 2000'. The US claims that the performance of the postulated 'Hornet 2000' is better than the 'Hornet F-18 Plus' measured in our studies, but it fails to meet a number of the performance points in the EFA requirement even though the US brochures assume only a 60% internal fuel load (a considerable shortfall against the 100% assumed in our requirement). In addition, the 'Hornet 200' is limited to 7.5g as compared to EFA's 9g and its radar cross section is expected to be significantly greater than our requirement.

In short, there is no viable less effective alternative to EFA which would perform adequately against the threat.

Q32. Ought we to wait for the Americans to develop their Advanced Tactical Fighter (ATF) and hope to persuade them to let us have it?

The requirements for the ATF, as we understand them, are low observability, high manoeuvrability and supersonic persistence, in order to maintain air superiority over both friendly and enemy territory. The fulfilment of these aims will necessitate a large aircraft; the basic mass empty (BME) is planned to be around 14 tonnes compared with EFA's BME of approximately 10 tonnes. The in-service date for the first two ATF squadrons has already been delayed by one year to 1997.

The technical risk is reflected in the uncertainty that the minimum US performance requested could be achieved at the target weight and cost ceilings. The risks will be revealed only when the two prototypes are evaluated in 1989/90. There is a significant probability that both weight and cost growth will be substantial in view of the especially demanding (and conflicting) technical requirement to achieve stealth on an aircraft with the ATF's particular performance characteristics.

Development costs are expected to be at least $10B-15B. The average flyaway cost was originally so high (of the order of $110M) that an official target of $35M on a production run of approximately 700 has now been set. However the actual figure for the F-15 - which the ATF will replace - is $40M on a production run of around 1500, and it is unlikely that the final outturn for the ATF will be much less than $80-100M. This figure

compares with a unit production cost figure of £19.5M for EFA. Quite apart from the risk of further slippage to the US in-service date for the ATF, it is very unlikely that the UK would have access to the programme until the US demand for the aircraft had been met. There can be no realistic prospect of a licence build in any acceptable timescale.

In summary, while there is not yet a reliable statement of the ATF's capabilities, we believe it is most unlikely to be available in the required timescale to the full US standard. It will cost far more than EFA, it will have to be paid for in dollars, and its purchase would very significantly weaken the UK aircraft and avionic industry.

DEF! produced pt 6.

MINISTRY OF DEFENCE WHITEHALL LONDON SW1A 2HB

TELEPHONE 01-218 9000
DIRECT DIALLING 01-218

MO 26/4L

8th April 1988

Dear Chief Secretary,

TRIGAT

When we corresponded last year about the trilateral Memorandum of Understanding for the full development of the collaborative Long Range (LR) and Medium Range (MR) Third Generation ATGW (TRIGAT) Weapon Systems we concluded that the UK should withhold signature pending the conclusion of satisfactory contractual negotiations. At that time, we both attached importance to key aspects of the contractual terms but we did not know how far we could count on the support of our collaborative partners (France and Germany) in our negotiations with the tri-national industrial consortium, EMDG.

I am pleased to report that these negotiations have now been completed. A set of terms and conditions has been agreed in principle between the participating nations and the industrial consortium which satisfy the negotiating objectives we set ourselves at the outset. They also meet, in all essential respects, the Tri-lateral Staff Requirement. In the light of this, I hope that you will now feel able to agree that I should sign the tri-national MOUs. Details have already been passed to Treasury officials.

The contractual terms now secured are based on a fixed price against agreed specifications, including performance and proof of compliance, with payments tied exclusively to achievement. When my

The Rt Hon John Major MP

Chief of Defence Procurement (Mr Levene) met his fellow National Armament Directors in June last year, they set as a negotiating objective a ceiling of 8000MFF for the LR and MR TRIGAT development contracts. This was subsequently incorporated as a condition into the MOUs. At the same time, a negotiating target of 7700MFF was set. Notwithstanding subsequent pressure (brought about by items not previously fully identified, such as the detailed requirement for nuclear hardening) which added to the cost - and for which EMDG sought to claim some 17% over the former maximum - the negotiators have now concluded a fixed price of 7780MFF. This is within 1% of the target.

Payments will be linked to two mechanisms. Successful achievement in a series of parallel work packages (known as "lots") will trigger, at approximately quarterly intervals, payment of up to 90% of the price profile at that point on each lot. Approximately annually, there is to be a key milestone designed to embrace the critical technical issues which, if not met, will result in the suspension of payments across the contract as a whole. Achievement of the key milestone would allow the 10% retention to be paid on successful lots. The key milestones have been identified and precise acceptance criteria will be specified in the contracts. Payment on the contract will be limited to 90% of the total price pending delivery of hardware and successful completion of acceptance trials by the users. Finally, there will be no advance payment, as would normally apply under French contracting practice.

I believe that we have secured through these conditions a contractual mechanism which will ensure the proper management of the remaining technical risks in the programme. I am also satisfied that the tri-national management machinery is sufficient to ensure full UK participation in decisions on payments as the contract progresses. Moreover, decisions to proceed with payment in the event of any dispute over achievement at a key milestone will require the unanimous decision of the Steering Committee on which we sit.

There is one important issue as yet not fully resolved and that is the involvement of the five, so-called, Associate Nations (ANs). Our estimates of the cost of the programmes to the UK, and their affordability, assume the contribution of all five ANs and, ideally, we would have wished to have secured their involvement before proceeding to the trilateral contract. But it was concluded that to finalise the contract negotiations in a timely fashion effectively precluded prior guarantees of AN participation. It is hoped now that the multinational MOU can be signed by the end of June, a matter of weeks after the date we expect for the final issue of the trilateral contract. All the industrial planning at the moment envisages the full participation of all of the ANs. If none of the ANs were to participate - and at present only Italy's participation is in any real doubt - the UK contribution to the cost of development would increase by £53M. Exclusion of Italy alone would reduce the extra bill to some £30M. As is normal in a project at this stage, our forward costings still assume a substantial contingency and the failure of one or more of the ANs to participate would not be an unmanageable risk to the forward defence budget.

Another feature to which we attached importance was the establishment, even at this early stage, of an upper limit on future production costs. There was considerable resistance to this both from our partners and within the industrial consortium. But we have now secured binding maximum prices which would cover an initial production order placed with EMDG. These maximum prices are in excess of the unit prices we have been assuming in our own forward costings, although, at the same time, we have also received from the industrial consortium budgetary estimates for volume production which would come in under our own estimates. Commitment to the MOU for Full Development involves no formal commitment to production; and there is everything to play for in securing lower production costs in due course. There must be residual uncertainties over future exchange rates, final prices, volume and the like in a programme stretching so far ahead; but again I do not believe that this maximum price should

cause us to revise our judgement on the affordability of TRIGAT in the forward Defence programme.

TRIGAT does of course have a high R & D cost (some £310M to the UK for the two versions); but this is a great deal less than would have been the case for a national project. If we proceed with it, as I am recommending, the pressures created by the ceilings on Defence R & D spending will be further intensified. In this respect it resembles the European Fighter Aircraft (EFA). As you know I have argued to OD, and am about to argue to E(ST), that if EFA is to go forward the ceilings will need to be raised. But if colleagues are unwilling to do this, the affordability in R & D terms of TRIGAT, as well as EFA, is called into question.

In short, I am confident that we have a satisfactory contract which will deliver weapons which will work. I am now anxious to proceed to MOU signature and formal agreement to contract terms (although I cannot of course do so unless and until the problem of affordability in terms of R&D expenditure is resolved). Our partners accepted a significant delay to the start of the programme during the conduct of the recent, difficult negotiations. While the very satisfactory conditions we have secured from industry will benefit all participating nations, I judge that any further prolonged delay on our part now will be seen as the UK failing to reciprocate the significant concessions the French and the Germans consider they have made in the various negotiations and I would wish to avoid this if we can. Neither France nor Germany has any further major staffing processes to go through. Accordingly, I should be grateful for your confirmation that you are now content that I may proceed to the full development of both Long Range and Medium Range TRIGAT at an estimated total cost of £313.6M at LTC 86 ECs (MR £81.3M; LR £232.3M). These costs include contingencies, trials etc costs outside the fixed price contract negotiated with EMDG.

Although the contract terms are now, in my view, entirely satisfactory, I shall be unable to commit myself to proceed with Trigat until I know the outcome of E(ST) colleagues' consideration later this month of future limits on Defence R&D expenditure. I should be grateful nevertheless for your agreement to my signing the trilateral MOUs and for your approval of the contract terms.

I am sending copies of this letter to the Prime Minister, OD Colleagues and to Sir Robin Butler.

Yours sincerely

George Younger

(Private Secretary)

Approved by the Defence Secretary and signed in his absence.

DEFENCE: Procureme: PTG

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SECRET - UK EYES A

CHIEF SECRETARY TO THE TREASURY

Treasury Chambers, Parliament Street, SW1P 3AG

The Lord Trefgarne
Minister of State for Defence Procurement
Ministry of Defence
Main Building
Whitehall
London
SW1A 2HB

7th April 1988

Dear Minister,

EUROPEAN FIGHTER AIRCRAFT

I am grateful for the interesting presentation on 30 March. I undertook to write with some outstanding queries.

I absolutely understand the case that has been made for EFA but I do not consider we are yet in a position to dismiss Hornet 2000. I was concerned at some apparent contradictions at the presentation. For example, the plane was said to be "ill defined" and could not "be pinned down for objective analysis". Despite this uncertainty the place was said to show up no better on the graphs than the version of F18 used in the studies and its costs was said to be high. I find it odd that we seem to know so little and so much.

Several of the comments referred to a presentation in Bonn on 7 March. I have seen press comment at the time of this presentation which suggests the cost of Hornet 2000 might be a good deal lower than EFA. These reports may, of course, be inaccurate but I would welcome your views on them.

We had an interesting, but inconclusive, discussion of US requirements. It was said that the US had no plans to develop Hornet 2000 (which surprised me very much indeed in view of press comment) but that, if there were the opportunity for collaboration, the US Navy would develop it.

In view of these uncertainties and apparent contrasts, I believe we would be wise to obtain a clearer view of the US position. I assume that the only way to do this effectively and comprehensively would be to get answers from the US Government to the questions that are relevant. These seem to me to be the following:-

(i) to what extent do the US have a military requirement for an EFA type capability around the year 2000? To the extent they do, what aircraft do they see meeting this requirement?

(ii) what is the position of Hornet 2000 in the US development process? What approvals does it have?

(iii) what are the main areas of improvement postulated for Hornet 2000 over F18 as currently in production?

(iv) what is the projected in service date and unit cost of Hornet 2000?

(v) what balance between stealth and agility does the US consider appropriate for Hornet 2000? I remain unclear about this and yet it seems to me to be critical.

(vi) what work sharing would they envisage on a collaboration programme.

I appreciate that such an approach to the US would have to be handled delicately and I appreciate that you may wish to answer these questions yourself in the first instance since these matters must have been considered in your assessment of the case for EFA.

As a separate matter I would be grateful for clarification of the following points made by MOD at the presentation on 30 March:

(i) in the recent submission on Foxhunter radar it was suggested that Tornado equipped with ECM would be credible against escorted bombers in the year 2000. This is difficult to reconcile with the graphs we saw at the presentation; I did not raise this point at the presentation since I was not sure I had remembered the fact accurately. However, you will recall that I did mention it to you as I left;

(ii) it was said that the results for Tornado shown on the graphs assumed it had ECM. My officials had understood that the underlying studies had not considered electronic warfare - hence my question to that effect;

(iii) it was said the ECM could "alter the sums dramatically" if it were assumed we had an edge over the opposition. How much of an edge are we expected to have and how much difference would this make to the sums? How many years are the Soviets judged to be behind in this area at present?

(iv) it was suggested that DIS is starting to change its assessment of Soviet stealth capability. It would be useful to know more about this;

(v) it was said that, in relation to the chart on multiple engagement, the level of Soviet escort losses against EFA armed with AMRAAM would be "unacceptable" to Soviet commanders. What do we expect to be their response e.g. in terms of tactics and/or equipment development? Presumably it was at least in part the prospect of unacceptable unescorted bomber losses against Tornado that has led them towards the escorted bomber (against which, on your charts, Tornado seems to perform inadequately);

(vi) at the start of the presentation, four roles for EFA were identified. To what extent could we use other aircraft for one or more of these roles?

(vii) a pie chart was shown showing cost reductions agreed by George and his German opposite number. Will these have any impact on projected EFA performance?

(viii) if we sought a fixed price now, how much higher might it be (in broad terms) than the maximum prices shown in the OD paper?

(ix) was the F18 used in the models of the plane as MOD currently expect it to be around the year 2000? If it is, why is the US going for a plane which appears inadequate against Threat 2000?

(x) what is the side on radar cross section on EFA?

(xi) how much degradation would there need to be in EFA engine, weight and radar taken together (not individually) to make it no better than F18 as modelled?

(xii) it was said that it would be hard to combine EFA agility and stealth. It was also said that, over the life of EFA, NATO countries were expected to have a lead over the Soviets in stealth. Is there a case for playing to our strong suit and going for more stealth even at the expense of some agility?

(xiii) how confident can we be that the Soviets can achieve the improvements in both stealth and agility postulated in Threat 2000?

(xiv) there was some suggestion that the weight constraints on EFA had pushed the plane in a different direction from the US. How far is this the case?

I am sorry to burden you with such a comprehensive list of questions but this is a most critical decision and I am concerned to ensure that all relevant factors are fully understood and considered before it is made. I would, however, like to thank you for the care that had gone into your presentation.

I am copying this letter to the Prime Minister, to other members of OD and to Sir Robin Butler.

Yours sincerely,

JOHN MAJOR

Agreed by the Chief Secretary and signed in his absence.

SECRET

10 DOWNING STREET

LONDON SW1A 2AA

From the Private Secretary

4 April 1988

Dear Ian,

EUROPEAN FIGHTER AIRCRAFT

The Prime Minister remains concerned that the case for collaboration with the US on Hornet 2000 as an alternative to EFA has not been given sufficient consideration (or at least that she herself has not seen the arguments spelled out in sufficient detail). She also notes that in the Defence Secretary's OD paper it is asserted that EFA can only be chosen if there is agreement to raise the ceilings on defence R & D. That particular issue has still to be addressed. But one possible outcome must be that we shall be forced to look for a cheaper alternative to EFA.

The Prime Minister would therefore like answers - in writing and with the Defence Secretary's full authority - to the following points:

- with Hornet 2000 are we dealing with a genuine competitor to EFA? Or is it just a sales pitch to help a faction in the Pentagon fight for its share of the defence budget? The Prime Minister thinks that it might be worthwhile Mr. Younger seeking a frank, personal impression from Mr. Carlucci on this point.

- it is argued that EFA sacrifices stealth to obtain greater agility, while the Hornet sacrifices agility to obtain greater stealth. Is this a valid argument? Is it more important to have an agile fighter (EFA) or a much less visible platform armed with agile missiles and sophisticated avionics (Hornet 2000)?

- does Hornet actually fit this exacting bill, particularly in terms of Stealth technology?

- is it the case that Hornet 2000 would have more combat time and better loitering time with 60 per cent fuel that EFA has with 100 per cent?

- is it the case that with a full internal fuel load Hornet 2000 can engage in combat with up to ten AMRAAM and two Sidewinders aboard? How does this compare with EFA? And how useful is it?

- where does Hornet 2000 stand in the US defence budget?

SECRET

Is it just a 'spoiler'? Or is there real demand for it? Is it more likely to proceed than e.g. the ATF?

- is it the case that Hornet 2000 is intrinsically likely to be a safer option than EFA because it contains a higher proportion of proven technology and sunk costs?

- how do we assess the claim that Hornet's recurrent fly away cost would be $25 million, rising to $35-36 million if additional spares and support and amortisation of R & D is included? What saving would this offer over EFA?

- is it possible to think of meeting Threat 2000 with a combination of Hornet (perhaps as a collaborative US/European project) and enhanced Tornado?

- is there enough common ground between EFA and Hornet 2000 to make a single collaborative project possible?

- would such a collaborative place have better export potential than EFA on its own?

The Prime Minister would like full and objective answers to these questions, together with an assessment of Hornet 2000 in the round, before there is further Ministerial consideration of EFA (although this is not a bar to the meeting of E(ST) going ahead as planned). You will be best able to judge to what extent it is necessary to approach the Americans for further information about the Hornet 2000 programme in order to provide the necessary full answers, bearing in mind the sensitivities both in Europe and in the British aerospace industry.

For the same reason of sensitivity, I am not for the time being giving any wider distribution to this letter.

Yours sincerely,

Charles Powell

CHARLES POWELL

Ian Andrews, Esq.,
Ministry of Defence.

PRIME MINISTER

cc Mr. O'Sullivan
Sir P. Cradock

EUROPEAN FIGHTER AIRCRAFT

I attach a long note by Mr. O'Sullivan about the European Fighter Aircraft.

Mr. O'Sullivan has been in direct touch with the Americans about the Hornet 2000 programme. You will want to read his note in full. But his conclusions can be summarised as follows:

- MOD are looking for the wrong qualities in the future fighter aircraft. They want a highly agile plane. They ought to want an invisible platform armed with agile missiles and sophisticated avionics. That's what Hornet 2000 offers;

- the Hornet 2000 has a better chance of surviving budget cuts in the US than does the Advanced Tactical Fighter (ATF). The MOD are wrong to see it as a programme with no future in the United States;

- the Hornet 2000 will rely more than EFA on existing technology and is therefore a safer bet. The new technology is mainly in the soft-ware and processing where the US are known to be ahead;

- the Hornet 2000 will be significantly cheaper than EFA;

- there would be much better export prospects for a collaborative US/European Hornet 2000 programme than for EFA;

- before any further decisions are taken on EFA, the MOD should be instructed to approach the Americans with a view to a much more serious examination of the case for collaboration on Hornet 2000.

These are perfectly legitimate points and Mr. O'Sullivan has done a great deal of work. It is of course desirable that alternative options are properly considered and not dismissed too lightly. But, to be Devil's Advocate, his points need to be weighed against some others:

- Mr. O'Sullivan's contacts have been with the Hornet 2000 'sales team' in the Pentagon, who are desperately fighting to keep this project alive. The Americans have admitted frankly that the project will only go ahead if collaborative partners can be found. There is bound to be quite a bit of talking up of Hornet and talking down of EFA;

- there is no such thing as Hornet 2000 as such. There are several different designs - seven, I believe - for uprated versions of the F-18. The only customers in the US for it are the Navy. But they need it to operate off aircraft carriers, and the version they want is not the one being offered as an alternative to EFA. Only the fuselage structure is common. Are we being lured into a project just in order to help the US Navy get what it wants?

- for all the talk, the Hornet 2000 is very much at the pre-feasibility stage. About $1 million has been spent on it. Pre-development expenditure on EFA has been about £80 million. It is much further along;

- the F-18 is not designed for Stealth and it must be doubtful whether it can be adapted for it. Its radar cross-section is 5 sq.m. compared to EFA's 1.5 sq.m. (Discussion of Stealth characteristics is of course inhibited by security considerations.);

- the costs quoted for Hornet 2000 are pretty speculative. It is not at all clear how far they allow for future development. But what is sure is that the American estimate is based on production in a single facility in

the US, not on a collaborative project. This can make quite a difference;

- if Hornet 2000 has such sophisticated equipment as the Americans claim, will the export potential really be so big? Surely there will be security objections to releasing it in most markets;

- I am told that the reliability and maintainability of the F-18 has been very disappointing. The Canadians have had major fatique problems with it.

At the end of the day, these are questions for technical people to discuss. We can bat them to and fro endlessly without reaching a conclusion. It is quite clear that MOD do not believe in Hornet 2000: but they may be biased by their commitment to EFA.

The points which you will need to consider and perhaps discuss with the Defence Secretary and the Chief Secretary are:

- with Hornet 2000, are we dealing with a genuine competitor to EFA? Or is it just a sales pitch to help a faction in the Pentagon fight for its share of the defence budget? It may be that Mr. Younger should discuss this frankly at the political level with Mr. Carlucci (or if you wanted it done more discreetly, I could have a word with General Powell); I think we have to work through George Younger.

- assuming we concluded that Hornet 2000 was a real option, would we even so go for it if the result was to end for all time the capability to build sophisticated military aircraft not just in the UK but in Europe?

- depending in part on the answer to these questions, what are the implications at this late stage of starting a major investigation of an alternative to EFA? We are poised for a crucial decision on EFA, due to be taken in May. The other countries concerned - including most

importantly the Germans - have dismissed Hornet 2000 and are virtually committed to EFA. The British aerospace industry believes in EFA and wants it. With so many competing interests involved, there is no way in which the approach to the Americans proposed by Mr. O'Sullivan is going to be kept quiet. The risks are of upsetting the Europeans: getting involved in another political row on the choice of US v Europe in defence procurement (shades of Westland): and unsettling market confidence in BAe and Rolls Royce. These risks may be worth taking if it prevents us from an unsound commitment to a £14 billion EFA programme. But my own view is that we need to be much surer than we are at present that there is a real alternative, which makes it worthwhile incurring these risks.

I agree – but we have to use the MoD info. in the terms to challenge the views they gave re Hornet 2000

In view of the Navy/ Boeing similarity we must have their opinion in writing in answer to precise questions. MT

Also – we must know what sort of engine would NOT be ordered MT

C.D.P.

(C.D. POWELL)

1 April 1988

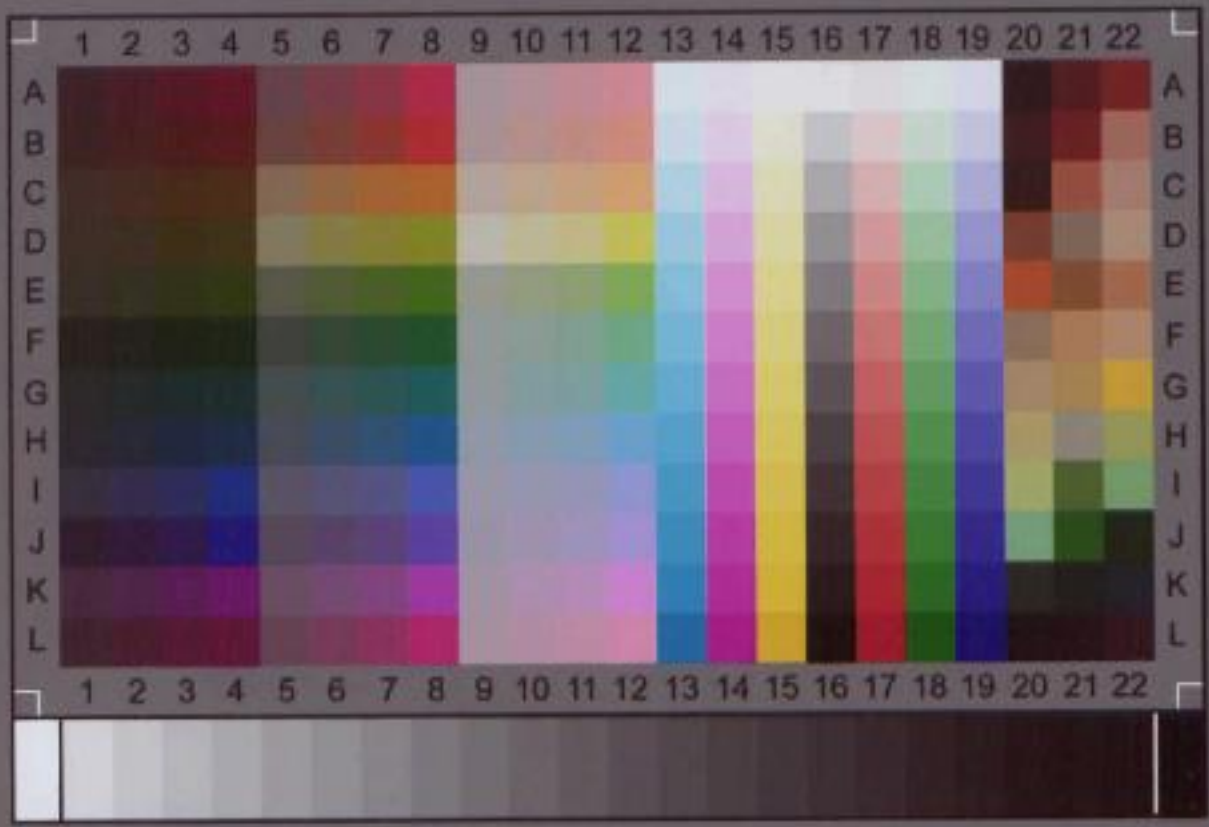
DA1AFH

PART 5 ends:-

JO's to PM 31.3.88

PART 6 begins:-

CDP to PM 1.4.88



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