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Defence Committee

Strategic Lift

Eleventh Report of Session 2006–07

Report, together with formal minutes, oral and written evidence

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Summary

The Ministry of Defence (MoD) needs the capability to transport personnel, equipment and stores from the UK to operational theatres across the globe. This capability known as Strategic Lift, can by delivered by sea, land or air. Its annual cost to the MoD is almost £800 million a year.

The Strategic Defence Review of 1998 highlighted an urgent need to improve the UK's Strategic Lift capability to support the expeditionary policy. In the short term, the improvements were to be delivered through the acquisition of Roll-on Roll-off (Ro-Ro) container ships and the leasing of C-17 large transport aircraft. In the longer term, ageing transport aircraft were to be replaced by the new A400M transport aircraft.

The MoD has made good progress in improving its strategic sea-lift. The Ro-Ro ships have proved to be very effective and the acquisition of Landing Platform Dock (Auxiliary) vessels has also been useful.

Progress in improving strategic air-lift has been less good. The leasing of four C-17 large transport aircraft has greatly increased strategic air-lift capability. The MoD is purchasing the four aircraft when the lease ends in 2008 and a fifth C-17 aircraft. Given the tempo of current operations, there are likely to be substantial benefits in acquiring additional C-17 aircraft, but a quick decision may be needed as the C-17 production line might be closing in the near future.

The MoD plans to acquire 25 A400M military transport aircraft which were originally planned to enter service at the end of 2009. The programme has experienced a 15 month delay which has required the MoD to extend the lives of some of its ageing air transport fleet. Several transport aircraft have been lost during current operations. The MoD should consider acquiring additional A400M aircraft, given possible future losses, to maintain the pool of 25 A400M aircraft.

A key role for the A400M will be to transport the Army's Future Rapid Effect System (FRES) medium-weight armoured vehicles quickly to trouble spots around the globe. There is concern that FRES is increasing in weight during its development. The increased weight of FRES could lead to it becoming too heavy to be transported by the A400M, or could substantially reduce the distance that the vehicles could be transported. The weight of FRES needs to be closely monitored to ensure that the UK does not acquire a new generation of armoured fighting vehicles which cannot be deployed rapidly overseas.

In addition to providing air-to-air refuelling, the MoD's elderly tanker fleet also provides a Strategic Lift capability by transporting passengers and freight. The MoD announced in early June 2007 that it had decided to proceed with a Private Finance Initiative deal to acquire new tanker aircraft, although the contractor still has to raise the required funding. The MoD needs to work closely with the contractor to ensure that the deal can be finalised as quickly as possible, as the current tanker aircraft are coming towards the end of their lives and the new aircraft will provide greatly improved air transport for UK Service personnel.

1 Introduction

1. The 1998 Strategic Defence Review[1] (SDR) highlighted the urgent need for the UK to improve its Strategic Lift capability—the ability to transport personnel, equipment and stores from the UK to operational theatres across the globe, by sea, land or air. Strategic Lift is vital for both launching and sustaining military operations.

2. During our visits to Afghanistan, Iraq and Cyprus in 2006, we heard concerns about the airbridge which transports Service personnel to and from the UK and operational theatres. On 15 February 2007, we announced an inquiry into Strategic Lift.[2] Our inquiry examined the progress of the Ministry of Defence (MoD) in delivering the Strategic Lift requirements set out in the SDR and whether these requirements needed to be revisited given the experience of the operations in Afghanistan and Iraq. Strategic air-lift was a particular concern given the age of many of the aircraft. We examined the progress of two major equipment programmes which are to deliver new transport aircraft (the A400M transport aircraft) and new tanker aircraft (the Future Strategic Tanker Aircraft).

3. We held two oral evidence sessions, the first on 24 April 2007 with Air Vice-Marshal (AVM) Kevin Leeson who was, until 5 April 2007, Assistant Chief of the Defence Staff (Logistics Operations); Brigadier Jeff Mason, Director Defence Supply Chain Operations and Movements, MoD; and Air Commodore Anthony Gunby, Air Officer Air Transport and Air-to-Air Refuelling, Headquarters 2 Group, Royal Air Force (RAF). These witnesses represented the military customer, tasker, and one of the providers of Strategic Lift (the RAF). The second oral evidence session on 22 May 2007 with Lieutenant General Andrew Figgures, Deputy Chief of the Defence Staff (Equipment Capability) and Mr Tim Rowntree, Director General Air Support, was followed by representatives of Airbus, the prime contractor for the A400M programme.

4. We received written evidence from the MoD, defence companies, and others.[3] We are grateful to all those who contributed to our inquiry including our specialist advisers.

1 Strategic Defence Review, Cm 3999, July 1998

2 http://www.parliament.uk/parliamentary_committees/defence_committee/def070215___no__25.cfm

3 Ev 1–51

2 Overview of Strategic Lift

Strategic Lift and Tactical Lift

5. Strategic Lift covers the movement of personnel, equipment and stores to an operational theatre, whereas Tactical Lift covers the movement within an operational theatre.[4] These definitions have become blurred in recent years. For example, in the past Strategic Lift aircraft used to fly to a benign location outside the operational area and the personnel, equipment and stores would be transported into the operational area by tactical transport which provided some protection against enemy action by means of tactics and defensive systems. However, Strategic Lift aircraft, such as TriStar and C-17, now fly from the UK into the middle of the operational theatre. Aircraft such as Hercules, which provided the Tactical air-lift, are also now being used in the strategic air-lift role. AVM Leeson accepted that there had been some blurring of the boundaries between Strategic Lift and Tactical Lift:

> our various aeroplanes have the flexibilities and capabilities to operate in a strategic way as well as, in some cases, a tactical way. The nature of the operations means that we need to cover quite a wide spectrum.[5]

6. The MoD estimates that Strategic Lift tasks cost almost £800 million a year. In 2006–07, some £700 million was spent on strategic air-lift, some £70 million on strategic sea-lift, and some £10 million on Strategic Lift infrastructure.[6]

Strategic Lift requirements in the 1998 Strategic Defence Review

7. The Strategic Defence Review (SDR) published in July 1998 stated that:

> We cannot at present deploy Joint Rapid Reaction Forces quickly enough to meet operational requirements in the changed strategic environment, nor is commercial shipping or air-lift likely to be available in sufficient quantities to meet rapid deployment deadlines, although it will have an important place in transporting follow-on forces.[7]
>
> We have an urgent need to improve our strategic transport, to allow us to move more powerful forces quickly to an overseas theatre. In the short term we expect to do this through acquiring four additional roll-on roll-off container ships and four large C-17 aircraft or their equivalent. In the longer term, we will also need to consider a replacement for our remaining elderly transport aircraft. The European Large Aircraft is a contender for this requirement.[8]

4 Ev 44

5 Q 2

6 Ev 47–48

7 Cm 3999, *Supporting Essay Six, Future Military Capabilities*, para 18

8 *Ibid.*, Chapter 5, para 96

8. The following table provides the MoD's overview of the progress made to date in meeting the SDR requirements for Strategic Lift.

Table 1: MoD's overview of the progress in meeting the SDR requirements for Strategic Lift

Strategic Lift requirement in the SDR	MoD's overview of progress
Four roll-on roll-off container ships	"The SDR stated a requirement for a four-ship Ro-Ro capability. This was converted into a PFI [Public Finance Initiative] for six Ro-Ro ships, which entered service between 2002 and 2003".
Four C-17 large aircraft or their equivalent	"In 2000, we contracted with Boeing to lease 4 C-17 aircraft and announced last year [2006] our intention to procure these aircraft at the end of their lease in 2008. We are also procuring a fifth C-17, to enter service next year [2008]".
European Future Large Aircraft	"The Committee will also be aware of our plans to procure 25 A400M aircraft to replace the C-130K Hercules currently in-service with the RAF".

Source: MoD[9]

9. We examine below the Ro-Ro container ships and the four C-17 transport aircraft, and the progress in acquiring the 25 A400M aircraft, later in the Report (Parts 3, 5 and 6).

Current Strategic Lift assets

10. The MoD has a range of assets which can perform Strategic Lift tasks. These are set out in Table 2 below. At any one time, a proportion of these assets will be unavailable for use owing to routine maintenance or other reasons, such as being withdrawn for modifications.[10]

Table 2 : The MoD's current Strategic Lift assets

Assets	Quantity	Lift Capability	Procurement route / Ownership
Roll-on Roll-off container ships	6	Freight	Private Finance Initiative [PFI] arrangement
Landing Ship Dock (Auxiliary) vessels	4	Freight and passenger	MoD owned (3 in service, 1 being fitted out)
C-17 aircraft	4	Passenger and freight	Leased until 2008, then purchased
TriStar C2 aircraft	3	Passenger	MoD owned
TriStar KC1 aircraft	4	Passenger, freight and tanker	MoD owned

9 Ev 45

10 Ev 44

Assets	Quantity	Lift Capability	Procurement route / Ownership
TriStar K1 aircraft	2	Passenger and tanker	MoD owned
VC-10 CMk1K aircraft	10	Passenger, freight and tanker	MoD owned
C-130K Hercules Mk3 aircraft	20	Passenger and freight	MoD owned
C-130K Hercules Mk1 aircraft	4	Passenger and freight	MoD owned
C-130J Hercules Mk4 aircraft	14	Passenger and freight	MoD owned
C-130J Hercules Mk5 aircraft	10	Passenger and freight	MoD owned

Source: MoD[11]

Future Strategic Lift assets

11. The MoD plans to have the following Strategic Lift assets in 2017 and also expects these assets to be in service in 2027:

- 6 Roll-on Roll-off (Ro-Ro) container ships
- 4 Landing Ship Dock (Auxiliary) (LSD(A)) vessels
- 5 C-17 aircraft
- 24 C-130J Hercules aircraft
- 25 A400M aircraft[12]

12. The MoD also plans to have the Future Strategic Tanker Aircraft (FSTA) in service by the turn of this decade which should be available to undertake some Strategic Lift tasks. We examine the progress on the acquisition of the FSTA in Part 7 of the Report. Vessels which are expected to be procured under the Military Afloat and Sustainability (MARS) programme, may also contribute to the MoD's Strategic Lift capacity.[13]

Options for Strategic Lift

13. For operations in Afghanistan and Iraq, Strategic Lift is provided by either sea or air because of the distances involved. Strategic land-lift using lorries has been used for moving equipment and stores, for example during operations in Bosnia, but is not a viable option for operations in Afghanstan and Iraq. We asked what were the key factors which were

11 Ev 44–45

12 Ev 45

13 *Ibid.*

taken into consideration when choosing between sea-lift and air-lift. Brigadier Mason, Director Defence Supply Chain Operations and Movements, told us that:

> As long as one has the timelines with the preparation and planning, and applies an element of foresight to the plan, one will look at what one can move by sea to the operational theatre, because that means moving much greater volumes and it is better value for money. But there will come a time when we are into routine sustainment where we have to send high priority stores by air and we will always move Pax [people] by air. I suppose it comes to the decision points and timelines of planning and operation.[14]

14. It is important that decision-making by the Government and the military customer is quick enough to allow the option of using sea-lift as an alternative to air-lift. Brigadier Mason said that he sought to "influence" the military customer to make decisions early so that sea-lift could be used. He said that there had "been occasions when that has been difficult to do, but in the main we have managed to achieve it". Air-lift was generally used to transport Urgent Operational Requirements (UORs) to the operational theatre as they were needed quickly.[15]

15. **Strategic sea-lift enables large volumes of defence equipment and stores to be transported to operational theatres in the most cost-effective way, but early political and military decision-making is needed if sea-lift is to be possible. We recommend that the MoD identify how the speed of its decision-making could be improved further in order to maximise the use of sea-lift.**

16. One of the Members of the Committee had flown to Afghanistan earlier in the year on a C-17 transport aircraft and had been surprised to see that bunk beds and flat packs of building timber were being transported.[16] AVM Leeson considered it "highly improbable" that there would be an emergency requirement for such things because they were not in short supply, although local sourcing in Afghanistan was difficult.[17] Brigadier Mason suspected that the explanation was that "there was space to be filled and rather than fly fresh air we moved stock".[18] The MoD subsequently informed us that:

> There was a flight on the 15 Feb 07 that contained cargo that was to be used for Force Protection purposes, including re-enforced bunk-beds to protect the incumbent in the event of insurgent indirect fire…. it was determined that the equipment was required in theatre as quickly as possible and air transport was the quickest available method.

17. **Strategic air-lift is an expensive option for transporting equipment and stores when compared with strategic sea-lift, but is the fastest option for transporting equipment and stores needed urgently in theatre. When using strategic air-lift, the MoD must ensure that the lift capacity of aircraft is fully utilised, giving priority to the equipment**

14 Q 6

15 Q 8

16 Qq 10–11

17 *Ibid.*

18 Q 10

and stores urgently needed in theatre. However, where spare capacity is available, it makes sense to transport other items which are not needed as urgently, rather than "fly fresh air".

18. We were surprised to hear that Warrior armoured vehicles were to be flown to Afghanistan rather than transported by sea-lift. AVM Leeson acknowledged that using air-lift was an expensive way to move "sizeable items like heavy armour". However, he told us that "moving warlike stores through third countries obviously gives rise to interesting intelligence as well as political issues and we try to avoid that where we can".[19]

19. We asked about the difficulties of transporting equipment through third countries. AVM Leeson considered that

> our record so far is simply exceptional. We have had tremendous support significantly from the Kuwaiti and Pakistani governments in terms of permitting us to operate through commercial ports, and by and large we use commercial transport arrangements.[20]

The MoD confirmed that there had, to date, been no significant issues regarding air transport through third parties and "the same is largely true of shipping". Equipment transiting Pakistan by road to Afghanistan had generally moved freely.[21] **We note that the transportation of equipment through third countries to support current operations in Iraq and Afghanistan has generally not caused any problems.**

19 Q 9

20 Q 12

21 Ev 50

3 Strategic sea-lift

Roll-on Roll-off container ships

20. The MoD has access to six Roll-on Roll-off (Ro-Ro) container ships under a Private Finance Initiative (PFI) arrangement. The ships entered service between 2002 and 2003. Four of the Ro-Ro ships are permanently contracted to the MoD with the other two at notice for MoD tasking.[22] For the two ships at notice, one can be accessed in 20 days and the other in 30 days.[23] The six ships are supplied and manned by Foreland Shipping.[24]

21. Brigadier Mason considered that the six Ro-Ro ferries had performed "extremely effectively". The ships had provided "assured delivery for the MoD in support of operational activity", but were also used to support other MoD activity such as "to support the South Atlantic islands".[25] The MoD had not come across an item which had been too large to be moved in one of the Ro-Ros.[26]

22. Given the tempo of current operations, we asked whether there was a case for acquiring more Ro-Ro ships. The MoD considered that the six Ro-Ro ships were sufficient to meet its current needs.[27] AVM Leeson was "very comfortable" with the MoD's sea-lift position.[28] **We are pleased to learn that the Ro-Ro container ships have performed very effectively in both supporting current operations and undertaking other tasks, and note that the MoD considers that the six ships are sufficient to meet its current needs.**

Landing Ship Dock (Auxiliary) vessels

23. We examined the progress of the Landing Ship Dock (Auxiliary) (LSD(A)) programme in our Report on the Ministry of Defence Annual Report and Accounts 2004–05.[29] The procurement of the LSD(A) ships was poorly managed and losses totalling some £102 million were reported in the MoD Annual Report and Accounts 2004–05.[30]

24. During this inquiry we enquired about the LSD(A) vessels and their possible use in a strategic sea-lift role. Brigadier Mason said that there were four LSD(A) vessels, but "a number are still to enter commissioned service". When the vessels were not undertaking their core activity of supporting amphibious operations and training, the MoD plans to utilise these vessels in the sea transport role. He added that they were

22 Ev 45–46

23 Q 27

24 Ev 46

25 Q 21

26 Q 22

27 Ev 46

28 Q 24

29 Defence Committee, Sixth Report of Session 2005–06, *Ministry of Defence Annual Report and Accounts 2004–05*, HC 822, para 76–82

30 *Ibid*, para 76

> very effective ships. They are half the size of the Roll-on Roll-off ferries, but if one is delivering only half the stores they should be very useful platforms to utilise…We have used them only once to date.[31]

25. **We note that in addition to the six Ro-Ro container ships, the MoD's four Landing Ship Dock (Auxiliary) vessels can also be used in a strategic sea-lift role, although they have only been used once to date in such a role.**

Commercial shipping

26. Short-term peaks of tasking, or major deployments, may require additional shipping over and above the capacity provided by the Ro-Ro container ships and the LSD(A)s. The first option to obtain additional shipping is through the use of allied shipping provided through the Sealift Coordination Centre, which allows allies to make use of spare capacity from other nations, on a repayment basis. The MoD stated that the cost of this shipping was less than for chartered commercial shipping and the capabilities of the vessels and their condition was well known.[32]

27. When additional sea-lift is required from the commercial market, a Statement of Requirement is prepared which sets out the quantity and type of equipment, the timescale and loading / discharge ports. The Statement of Requirement is submitted to the market through a panel of brokers and ships offered in response are evaluated in terms of their technical ability to achieve the task, safety management and cost.[33]

28. There had been occasions when the commercial shipping market was busy undertaking other commercial activity. A need for "surety" is the reason why the MoD has its own strategic sea-lift assets. Brigadier Mason told us that if the MoD did not have the Ro-Ro ships and "were looking at deploying a multi-national force, the other nations would also be looking for the same commercial shipping". This could result in the UK not getting what it needed and potentially not putting the "force elements into theatre in the right order or, more importantly, the right time".[34]

29. The design of new commercial ships is continuously changing. Brigadier Mason confirmed that the commercial shipping market was reducing all the time because ships were getting bigger.[35] He added that "a lot of the Ro-Ros in the commercial market are used solely from point A to point B to match the infrastructure of those ports".[36] We asked where commercial ships chartered by the MoD would dock if they were not able to dock at the Marchwood military port in Hampshire. Brigadier Mason said that in such situations,

31 Q 32

32 Ev 46

33 *Ibid.*

34 Q 25

35 Q 28

36 Q 29

the MoD could use commercial ports and had done so in the past.[37] Ro-Ro ships were used to transport munitions and the MoD had a number of munitions dock facilities.[38]

30. We asked whether the MoD was chartering shipping to supplement its own ship-lift capacity for the current operations in Afghanistan and Iraq. Brigadier Mason told us that "over the past couple of years we have chartered a number of ships but not, as far as I am aware, in direct support of Afghanistan or Iraq".[39] For low priority stocks, the MoD had a contract for a container ship that would move containers "full of our stock either to Kuwait or Karachi and then a civilian firm will move it up country".[40]

31. Brigadier Mason considered that getting access to commercial shipping was not a problem.[41] He said that for the first stage of the operation in Iraq (TELIC 1), the MoD had secured what it had required, some 60 ships, "as a result of foresight because we got in before other nations did".[42] AVM Leeson added that the Defence Supply Chain Operations and Movements Centre watched for the "movements, fluctuations and trends in the marketplace from the point of view of warning us if there appear to be difficult periods….on sea-lift by and large that is not an issue".[43] In 2006–07, the MoD spent £64 million on sea-lift charter, which included the Ro-Ro container ships.[44]

32. **The MoD has good arrangements to access commercial shipping and has, to date, secured the commercial shipping it required to supplement its own sea-lift capability. However, the commercial shipping market is reducing. We recommend that the MoD undertake a detailed analysis of the commercial shipping market with the aim of assessing whether it will be able to secure access to commercial shipping in the quantities and timeframes necessary to meet its future needs.**

37 Q 31

38 *Ibid.*

39 Q 33

40 *Ibid.*

41 Q 34

42 Q 36

43 *Ibid.*

44 Ev 47

4 Strategic air-lift

Current transport and tanker aircraft fleet

33. The MoD provided details of its transport and tanker aircraft fleet in a written answer to a Parliamentary Question in January 2007. The information provided by the MoD is set out in Table 3 below.

Table 3: Details of the MoD's current transport and tanker aircraft fleet

Aircraft type	Total fleet planned to be in service in Financial Year 2006–07	Number of aircraft available for tasking (average for November 2006)[45]
C-17 Globemaster	4	3
C-130K Hercules	25	10
C-130J Hercules	25	16
TriStar	9	6
VC-10	16[46]	9

Source: MoD[47]
Notes: (i) The figures are rounded to the nearest whole number. (ii) The figure for C-130K Hercules aircraft does not reflect the loss of an aircraft in Afghanistan on 24 May 2006 or the retirement of four aircraft during Financial Year 2006–07.

34. All of the TriStar aircraft fleet (some 30 years old) and ten of the VC-10 aircraft fleet (some 40 years old) provide strategic air-lift, such as transporting people and freight. The Future Strategic Tanker Aircraft (FSTA) is planned to replace the air refuelling and air transport capability currently provided by the RAF's fleet of VC-10 and TriStar aircraft. We examine the progress of the FSTA programme in Part 7 of the Report.

Availability of transport and tanker aircraft

35. Of 75 Hercules, TriStar and VC-10 aircraft, only 41, some 55%, were available in November 2006 for immediate deployment to undertake the required task. We asked at what point there would be an insufficient number of aircraft available to undertake the tasks required. AVM Leeson said that the number of aircraft available to be tasked varied with each of the aircraft fleets "because of the age of the aeroplanes and the various maintenance and fleet overheads that go with those". The point at which the MoD would worry about availability would differ between the different aircraft fleets. He emphasised that there was

45 Aircraft that are available for immediate deployment and capable of undertaking the required task on a given day. Aircraft are not available for tasking if they are undergoing scheduled maintenance, modification programmes or any other unforeseen rectification work that can arise on a day to day basis. The figures do not reflect the fact that an aircraft not available for tasking may be returned to the front line at very short notice to meet the operational need.

46 Of the 16 VC-10 aircraft, six (4 VC-10 K3 aircraft and 2 VC-10 K4 aircraft) have a very limited passenger carrying capability, as they are predominantly air-to-air refuelling aircraft (Ev 45).

47 HC Deb, 9 January 2007, Col 525W

> constant tension between my capability colleagues who wish to install new and useful facilities to aeroplanes and those of us who have to operate the airbridge in a sustainable and minimised risk fashion where clearly we would like to maximise the number of aeroplanes.[48]

36. AVM Leeson considered that the future A400M transport aircraft and Future Strategic Tanker Aircraft would provide a "seriously modern and capable fleet". However, he acknowledged that there was a great element of "jam tomorrow" and that there was a very difficult period ahead in which the MoD would have "to continue to manage with our older ladies". He told us that he would become very concerned if the aircraft availability level fell below 50% "because to operate at that level is a reasonable yardstick".[49]

37. In evidence to us on 6 March 2007, the Chief of the Defence Staff (CDS), Air Chief Marshal Sir Jock Stirrup, admitted that "air transport, we all know, is a serious concern".[50]

38. **We are very concerned that a high proportion of the current transport and tanker aircraft are not available for immediate deployment to undertake the required tasks. While modifications are often the reason for aircraft not being available, maintenance is also a key factor, and reflects the fact that the MoD has an ageing transport and tanker aircraft fleet which is being flown at an unexpectedly high level in very punishing conditions. While new transport and tanker aircraft are in the pipeline, it will be some years before they enter service. We have real doubts as to whether the current transport and tanker fleet can provide the level of availability required between now and when these new aircraft come into service.**

Forward planning for new strategic air-lift assets

39. Given that the Out of Service Dates for aircraft are known long in advance, it has to be asked why the MoD is operating an ageing transport and tanker aircraft fleet, which requires increasing maintenance to keep the aircraft operational, yet new tanker and transport aircraft are some years away from entering service. A possible explanation was provided by the Royal Aeronautical Society in its written submission to the inquiry:

> The gap between "peacetime" and higher tempo operations has often caught governments unprepared. This is true not only of the UK but also elsewhere; even the US which appears fully capable of sustaining global forces has in the past found itself short of critical airlift components. The explanation is a mixture of prudence—the temptation is to avoid procuring costly equipment to meet a worst-case logistic scenario; and institutional—the natural tendency of the armed services to afford priority to combat equipment.[51]

40. We asked Lieutenant General Figgures, Deputy Chief of the Defence Staff (Equipment Capability), whether the position that the MoD found itself in reflected a failure of long-

48 Qq 74–75

49 Q 76

50 Uncorrected transcript of oral evidence taken before the Defence Committee on 6 March 2007, HC (2006–07) 381-I, Q 7

51 Ev 34

term planning. He did not consider it a failure of long-term planning, "because the manifestation of a failure would be that we suffered operational disadvantage". He added that "we have matched the demand to the supply and we have managed the supply".[52] However, he acknowledged that there was concern "about the probability of the impact of the risk increasing".[53] Later in this Report (paragraphs 47–53), we examine the issue of the airbridge. We consider that the damage to morale caused by problems with the airbridge may well amount to the "operational disadvantage" referred to by General Figgures.

41. General Figgures considered that the question of whether the MoD gave too much priority to combat equipment and not sufficient priority to support equipment was a fair one. But he believed that the MoD's planning process took account of this and the MoD looked at "the interaction between the effectors and the enablers".[54]

Commercial air-lift

42. The MoD uses military aircraft to transport Service personnel into operational theatres, such as Afghanistan. AVM Leeson explained that for military aircraft:

> we can then put the defensive aid protection systems on board the aeroplane because the safe transport of Armed Forces personnel….is the absolute priority.

Military transport aircraft are also used to transport weapons and munitions.[55]

43. For other purposes, the MoD also makes use of commercial air-lift. AVM Leeson said that the MoD "use quite a considerable amount of charter lift both in the passenger and freight sense to supplement what we own as military aircraft".[56] For routine air transport activity, for example the support of BATUS [British Army Training Unit Suffield, Canada], the MoD has a long-term contract with DHL who "move the item by whichever carrier they utilised". For the support of the operational theatres, the MoD used brokers and enabling contracts with them.[57] The price of these contracts was negotiated in advance. Brigadier Mason explained that the cost depended on seasonal activity, as it was more difficult to get passenger aircraft during the spring and summer, the main holiday season. He considered that the enabling contracts were "extremely valuable and we could not operate without them".[58]

44. As there were times when it was difficult to obtain the commercial air-lift required, we asked whether the MoD had got the balance right between the air-lift assets it had and the air-lift it required from the commercial market. AVM Leeson said that over the past 18 months there had been an increasing number of Service personnel deployed and the "sustainment package and everything else that goes with it" had progressively moved

52 Q 112
53 Q 113
54 Q 120
55 Q 19
56 Q 18
57 Q 19
58 Q 20

upwards. The MoD kept this issue under constant watch so that it could make decisions on what it needed to do. He recognised that the MoD had a "large reliance" on the commercial sector to provide freight and personnel air-lift.[59] In 2006–07, the MoD spent £82 million on air-lift charter.[60]

45. On the issue of whether the MoD had the right balance between the military transport aircraft it owns and the transport aircraft it charters from the commercial market, AVM Leeson told us that he was "becoming increasingly nervous as to whether, looking at the marketplace and the risk to aeroplanes, we got the balance quite right". The MoD is undertaking a review to examine the volumes that it predicts will be moved over the next 12 months.[61] This review will assess the risks faced in the future and the "cost-effectiveness of the operation and whether or not one has the balance right".[62]

46. **The MoD makes extensive use of commercial air-lift for transporting freight and personnel to supplement its own air-lift assets, and is reviewing whether the current balance between the air-lift capacity provided by its own air-lift assets and the air-lift capacity it requires from the marketplace is right. The MoD should complete its review as quickly as possible and ensure that the recommendations are implemented fully.**

Airbridge

47. During our visits to Afghanistan, Iraq and Cyprus in 2006, we spoke to Service personnel about the airbridge which transports Service personnel to and from the UK and operational theatres. We heard concerns about the reliability of the airbridge and witnessed at first hand some of the frustrations experienced by Service personnel whose return home had been delayed owing to failures of aircraft.

48. In our inquiry into the MoD Annual Report and Accounts 2005–06 we examined support to operations and the issue of the airbridge.[63] We questioned Mr Bill Jeffrey, the MoD's Permanent Under Secretary of State (PUS), about the airbridge from Afghanistan and Iraq to the UK. He recognised that the airbridge had experienced significant shortcomings and said that the MoD was considering how airbridge reliability could be improved. In our Report we expressed our concern that the unreliability of the airbridge had implications for morale and for operational effectiveness. We looked to the MoD to "provide the case to the Treasury for a significant increase in investment in the transport fleet".[64]

49. The Government Response to that Report, published on 9 March 2007, set out how the MoD was seeking to address the shortcomings of the airbridge. These included: an end-to end review of the airbridge; improvements to RAF Main Air Transport Bases, such as Brize Norton; improvements to the runway at Kandahar Airfield, Afghanistan; and the possible

59 Q 48

60 Ev 47

61 Q 48

62 Q 50

63 Defence Committee, Second Report of Session 2006–07, *Ministry of Defence Annual Report and Accounts 2005–06*, HC 57, paras 25–27

64 *Ibid., para* 27

forward basing of TriStar aircraft.[65] The Government Response stated that airbridge reliability was affected by the availability of suitably protected TriStar aircraft able to fly directly into operational theatres.[66] AVM Leeson told us that more TriStar aircraft had now been equipped with defensive aids and the MoD was "now in a much better position to provide the service".[67] He was keeping a watch on passenger satisfaction statistics and considered that "we are now getting the sorts of numbers where I am beginning to feel more comfortable". The improvement in the service was because the MoD could "now provide a spare aeroplane that is properly equipped".[68]

50. Air Commodore Gunby, Air Officer Air Transport and Air-to-Air Refuelling, Headquarters 2 Group, RAF, told us that a very significant improvement was transporting personnel direct to Kandahar in Afghanistan, whereas before they had had to go to Kabul and then be transported in a Hercules aircraft.[69] He also provided examples of more modest improvements to improve the level of service. These included: a refurbished and expanded café at the Brize Norton terminal; a customer helpline; and the installation of air-conditioning in the lounges at RAF Akrotiri, Cyprus.[70]

51. We asked what the MoD was doing to ensure that the charter aircraft used to transport personnel provided sufficient space.[71] We were concerned that aircraft normally used for short-haul holiday travel were being used on long flights to transport service personnel. Brigadier Mason said that the MoD was now chartering Boeing 747 aircraft for transporting personnel to the South Atlantic. The MoD did not ask the airlines to adjust the seating on the aircraft because "frankly, none of them would want to have a contract with us if we so asked". However, AVM Leeson agreed that having "rough-and-tough, big, solid chaps sitting in seats built for the average tourist" was an issue and said that he did not pressure the Defence Supply Chain Operations and Movements organisation to achieve 100% load occupancies. He said that when the Future Strategic Tanker Aircraft came into service it would provide improved seating.[72]

52. We asked General Figgures, in the context of his comment that the manifestation of a failure of long-term planning would be that we had suffered operational disadvantage, whether the difficulties experienced with the airbridge led to operational disadvantage. He said that the operational outcome had not been affected adversely, but accepted that it had an impact on the morale of service personnel.[73]

53. **We welcome the action that has been taken to improve the reliability of the airbridge and to improve the experience of service personnel being transported to and**

65 Defence Committee, Seventh Special Report of Session 2006–07, *Ministry of Defence Annual Report and Accounts 2005–06: Government Response to the Committee's Second Report of Session 2006–07*, HC 376, para 6

66 *Ibid.*

67 Q 103

68 *Ibid.*

69 *Ibid.*

70 Q 104

71 Qq 106–107

72 Q 107

73 Qq 114–115

from the UK and operational theatres. The MoD should not underestimate the impact on the morale of Service personnel of delays returning to the UK, particularly if the delays cut into a short period of leave. The MoD must monitor closely issues relating to the airbridge and ensure that the improvements in hand are fully implemented.

5 C-17 transport aircraft

Background

54. The National Audit Office (NAO) Major Projects Report 2004, provided the following details on the leasing of the four C-17 aircraft:

- Following a competitive process, the decision was taken to lease four C-17 aircraft from Boeing
- The lease was for a period of seven years commencing mid-2001, with the option of extending for up to a further two years
- The aircraft are leased directly from Boeing, but most of the support is provided under US Government Foreign Military Sales (FMS) arrangements through the US Air Force (USAF) / Boeing C-17 support contract
- The forecast cost of the project was £769 million against an approved cost at Main Gate of £785 million
- The in-service date was achieved in September 2001 against an approved in-service date at Main Gate of December 2001[74]

55. In its memorandum, the MoD provided the following details on the leasing of the C-17 aircraft and the decision to procure an additional C-17 aircraft:

- In 2000, the MoD contracted with Boeing to lease 4 C-17 aircraft and announced last year our intention to procure these aircraft at the end of their lease in 2008. The MoD is also procuring a fifth C-17, to enter service next year[75]
- The cost to procure the five C-17 aircraft is commercially sensitive but an indicative cost of a C-17 is around $220 million[76]
- The fifth C-17 aircraft is currently in production at Boeing to meet an In-Service Date of May 2008[77]

Decision to purchase C-17 aircraft

56. We asked why the MoD had decided to purchase the four C-17 aircraft at the end of the lease. AVM Leeson said that at the time of the SDR the need for "additional outsize airlift" was identified, but there were uncertainties about the "future large aircraft contract which subsequently became the A400M procurement". He said that when the SDR was produced, the UK was "nowhere near the tempo [of operations] that we have been experiencing in the intervening period". Leasing the C-17 aircraft was, therefore,

74 National Audit Office, *Major Projects Report 2004, Project Summary Sheets*, HC 1159-II, Session 2003–04, pp 37–39

75 Ev 45

76 Ev 47

77 *Ibid.*

considered the most cost-effective option at the time. However, around 2002, the MoD looked at the likely volumes required to be transported by air-lift and "it became clear that a review was then needed of our overall lift position with the C-17s". He told us that the MoD had taken the decision that it was more cost-effective to own, rather than continue to lease, C-17 aircraft.[78]

57. Mr Tim Rowntree, Director General Air Support, updated us on the purchase of the fifth C-17 aircraft. The aircraft is in production and leaves the production line in February 2008. Upgrade work will then be undertaken to ensure that the aircraft is in the right configuration for the MoD. He considered that the fifth aircraft "is on track and we expect it to be delivered by May next year [2008] as planned".[79]

Performance of C-17 aircraft

58. The Royal Aeronautical Society stated that the C-17 is "rightly regarded as the most versatile strategic and tactical airlifter currently available".[80] AVM Leeson considered that the four C-17 aircraft

> have been absolutely first rate aircraft in terms of their capacity, speed, reach, reliability, availability, the arrangements with Boeing and the flexibility to keep them modified to the same standard as their American cousins so we have minimal overheads. They have been a resounding success.[81]

59. In its submission, The Boeing Company stated that the RAF's C-17 aircraft "currently flies at a rate well above its original planned usage".[82] We asked the MoD about the usage of its C-17 aircraft and for how long the aircraft were planned to remain in service. Table 4 provides details on the MoD's actual usage rate of its C-17 aircraft against the planned usage.

78 Q 40

79 Q 207

80 Ev 34

81 Q 37

82 Ev 44

Table 4: Planned and actual usage rates for C-17 aircraft

Financial Year	Planned usage rate Hours for the C-17 fleet	Actual usage rate Hours for the C-17 fleet
2001–02	3,000	3,377
2002–03	3,000	5,745
2003–04	4,000	5,592
2004–05	5,800	5,727
2005–06	5,800	6,375

Source: MoD[83]
Note: The increase in planned usage rates in 2003-04 and 2004-05 was because of additional crews.

60. For the financial year 2006-07, the C-17 aircraft fleet had accumulated in the region of 5,720 flying hours by the end of January 2007 and was expected to achieve some 7,000 flying hours by the end the financial year.[84] We were concerned about the high level of usage of the C-17 aircraft and how this might affect the lease, and also whether the increased usage rates put more stress on these aircraft. AVM Leeson told us that the lease was very flexible and allowed the MoD to "increase the hours beyond the baseline entry". He acknowledged that the MoD had, because of the tempo of current operations and the usefulness of the aircraft, "certainly increased quite considerably the number of hours that we get off that fleet".[85]

61. In terms of stress to the aircraft, AVM Leeson did not view this as a problem as when the aircraft were undertaking Strategic Lift tasks they spent a lot of time airborne rather than manoeuvring close to the ground in tactical flying. He said he was "very comfortable that we are not in any way putting ourselves into a difficult period because we are using them much more than originally planned".[86] The MoD expected all four leased C-17 aircraft to remain in service until 2031.[87]

62. **The leasing of four C-17 large transport aircraft, which are to be purchased when the lease ends, has greatly increased the MoD's strategic air-lift capability and performed extremely well. We welcome the fact that these four aircraft will be purchased once the lease ends and that the MoD is to purchase a fifth C-17 aircraft. We recommend that the MoD should commission a detailed analysis of the medium and longer term consequences of the high level of use of the C-17 and C-130 Hercules fleets, and should publish the results of that analysis as soon as possible.**

83 Ev 47

84 *Ibid.*

85 Q 38

86 *Ibid.*

87 Ev 47

Possible additional purchases

63. Given the good performance of the C-17 aircraft and the continuing high tempo of operations, and the fact that it will be some years before the A400M aircraft comes into service, we asked if the MoD had enough C-17 aircraft and whether consideration should be given to purchasing additional C-17 aircraft. AVM Leeson said that the MoD was reviewing whether the balance between the air-lift capacity provided by the MoD's air-lift assets and the air-lift capacity it required from the marketplace was right.[88] He acknowledged that the MoD had "configured a programme for a situation that is now being exceeded" and that "causes a number of stresses and stretches in the programme".[89] We pressed AVM Leeson further on whether the MoD needed another C-17 aircraft. He said that it was not a simple "yes or no answer", but acknowledged that "there is a need for analysis of the risks faced in future and the cost-effectiveness of the operations and whether or not one has the right balance".[90]

64. In its submission, The Boeing Company said that the United States Department of Defense had not requested funding for additional C-17s in the Fiscal Year 2008 budget. Boeing and its suppliers had been spending their own resources since late 2006 "to protect the option for production of additional C-17s". Based on the 34 month lead time necessary to build a C-17, and in the absence of any US Government commitment to procure additional C-17s in the future, Boeing directed its suppliers on 2 March 2007 "to stop work on aircraft beyond current customer commitments….the production line heads towards complete shutdown in mid-calendar Year 2009".[91] This position was also highlighted by the Royal Aeronautical Society who noted in its submission that the production of C-17 aircraft was at risk of termination because of a lack of orders.[92]

65. AVM Leeson told us that Boeing's closure date for the C-17 production line had been delayed very slightly after a recent re-order by Congress, so that there was "no longer the need to have a decision tomorrow morning, as it were". He added that:

> Clearly, there is a complex dynamic between the A400M balance, the C-130J balance, the commercial balance and the C-17 which is why we must get that answer right.[93]

66. We asked General Figgures whether there were any plans to purchase any further C-17 aircraft in addition to the five already being purchased. He said that:

> I am looking at all options as part of this constant review of how we deal with the risk of the strategic airbridge, so I am in the process of producing advice for ministers. In due course they will decide and all this will become apparent. That does not say we are going to buy *x, y* or *z*.[94]

88 Q 48
89 Q 49
90 Q 50
91 Ev 44
92 Ev 34
93 Q 52
94 Q 208

67. **MoD officials are producing advice to ministers setting out options for addressing possible risks relating to the MoD's future air-lift requirements. Given the performance of its C-17 large transport aircraft, the MoD must give consideration to the acquisition of additional C-17 aircraft. Such a decision needs to be taken quickly given that the C-17 production line may be closing in the near future.**

68. On 20 June 2007, NATO Allies agreed to set up a new NATO agency to acquire and manage C-17 strategic transport aircraft on behalf of a group of 15 NATO nations (the UK is not one of the 15) and two Partnership for Peace countries. NATO Secretary General, Jaap de Hoope Scheffer, welcomed the decision and said that:

> The Strategic Airlift Capability (SAC) initiative will help address NATO's, and Europe's, critical shortfall in strategic airlift. This capability will support our current operations, including in Afghanistan, and will be a pillar of the Alliance's long-term transformation".

The SAC plans to acquire 3-4 C-17 aircraft, the first is expected to be delivered in mid-2008. The SAC aircraft are to be configured in a similar way as the C-17 aircraft flown by the US Air Force, Canadian Air Force and the RAF. [95]

95 NATO Press Release "Allies Agree on Strategic Airlift Capability initiative", 20 June 2007

6 A400M transport aircraft

Background

69. The NAO Major Projects Report 2006 published in November 2006 provided the following information, as at 31 March 2006, on the A400M programme:

- The A400M is planned to provide tactical and strategic mobility to all three Services. It will have the ability to operate from airfields and semi-prepared rough landing areas in extreme climates and all weather conditions by day and night; carrying a variety of equipment including vehicles and troops over extended ranges; air dropping paratroops and equipment; and unloaded with the minimum of ground handling equipment. It will replace the remaining C-130K Hercules fleet.
- A400M is a collaborative programme involving seven European nations (Germany, France, Turkey, Spain, Belgium, Luxembourg and United Kingdom). A total of 180 aircraft (25 for United Kingdom) are being procured through a contract with Airbus Military Sociedad Limitada. The design phase is nearing completion and manufacture activities have commenced.
- The Current Forecast Cost was £2,616 million (£2.62 billion) against an Approved Cost at Main Gate of £2,744 million (£2.74 billion). This equates to a cost underrun of £128 million.
- The Current Forecast In-Service Date (ISD) was March 2011 against an Approved ISD at Main Gate of December 2009. This equates to a variation (delay) of 15 months. The ISD definition is: delivery of 7th aircraft with Strategic Military Aircraft Release and support arrangements.
- The operational impact of the ISD variation: the Out of Service Date of C-130K aircraft has been extended to 2012. This matches the planned capability build-up of A400M. The cost of the life extension of 14 C-130K aircraft is £26 million.[96]

In-Service Date

Current forecast In-Service Date

70. We asked the MoD to provide an update on the current forecast ISD for the A400M programme and the reasons for the ISD slippage. It confirmed that the ISD slippage had not changed since the position reported in the Major Projects Report 2006 and remained at 15 months. The slippage was "due to historic reasons associated with the time required for German approvals and changed customer requirements".[97] Mr Rowntree said that the 15 month slippage had not resulted from poor performance by industry, but was because of budgetary and approvals difficulties following the initial approval of the programme.[98]

96 National Audit Office, *Major Projects Report 2006, Project Summary Sheets*, HC 23-II, Session 2006–07, pp 1–7

97 Ev 47

98 Q 124

Review of the A400M programme

71. Airbus has experienced problems on its A380 commercial aircraft programme.[99] The Royal Aeronautical Society noted that "there is some concern that further delays might be caused [to the A400M] by Airbus's current problems with its commercial programmes".[100] In its memorandum, Airbus provided the following reassurance:

> Following the production difficulties faced by Airbus on the A380 aircraft, EADS [the parent company of Airbus] initiated a review of the A400M programme to assess risks to the final assembly and delivery schedule….The review validated that the A400M programme is currently progressing according to the contractually agreed schedule. However, the programme challenges ahead until first delivery to the French Air Force in October 2009 are assessed as significant and the review clearly identified several critical risk areas: maturity of some systems design, maturity of military mission systems and engine modifications, all of which would have resulted in too much work remaining to be done at the Final Assembly Line, putting first flight and the flight test programme at risk….It was in this context that a potential three-month delay in starting final assembly (until the second quarter of 2007) of the aircraft was announced in January….We are confident that any time lost during A400M assembly will be recovered in the test phase. Therefore important milestones such as aircraft certification and the latest forecast in-service date for the UK can still be met.[101]

72. Mr Rowntree referred to the review undertaken on the A400M programme and said that lessons learned from other programmes were being learned on the A400M programme.[102] He accepted that there could never be absolute certainty that an In-Service Date would not slip and acknowledged that there were a number of risks in the current phase of the programme. He said that the three month slip to the final assembly line was regrettable, but he was fairly optimistic that there was "nothing major wrong with this programme".[103]

73. Mr Richard Thompson of Airbus Military Sociedad Limitada, believed that the company was on track to deliver the first seven aircraft on time which would enable the MoD "to declare the in-service date by the due date".[104] Mr Fabrice Brégier, Chief Operating Officer, Airbus, told us that the company had devoted more resources to the A400M programme, an additional 1,500 people, as Airbus wanted to keep the programme on track as it was considered a key programme.[105]

99 Q 220

100 Ev 34

101 Ev 38

102 Q 125

103 Q 127

104 Q 224

105 Qq 220–221

74. **We note that the In-Service Date slippage on the A400M programme remains at 15 months, as reported in the Major Projects Report 2006, and that Airbus has devoted more resources to the programme to keep it on track.**

Impact of In-Service Date slippage

75. The original Out of Service Date for the C-130K had been 2010, but had been delayed by two years because of the delay on the A400M programme. The MoD confirmed that the cost of extending the lives of 14 C-130K Hercules aircraft remains unchanged from that reported in the Major Projects Report 2006.[106] We asked whether, if there were any further delays to the A400M programme, it would be possible to extend further the life of these aircraft. AVM Leeson considered that "more work can be done on the C-130K. The issue becomes whether or not it is a cost effective thing to do".[107] He told that for the C-130K aircraft the MoD has "a small dip in the number of airframes available prior to the current A400M programme. Should the A400M slip any further that will most probably get slightly worse".[108]

76. We asked how many C-130K aircraft were being retired in the current financial year, 2007–08. Air Commodore Gunby told us that the MoD had announced the retirement of four aircraft when they required "very major servicing", but these were "without theatre entry standard of equipment" and were not of use to the MoD in current operations.[109] Three C-130 aircraft had been lost in current operations in Afghanistan and Iraq. AVM Leeson said that the MoD had the "capacity to be able to backfill the lost frames with UK fleet aeroplanes which are to theatre entry standard".[110] However, he recognised that

> whilst one can do various neat tricks to extend capability and capacity, at the end of the day sometimes one needs the aeroplane where one needs it and therefore numbers, rather than activity or volume, count.[111]

77. **The delay to the A400M programme has required the lives of ageing C-130K aircraft to be extended. If there are any further delays on the A400M programme, the scope for further extending the lives of C-130K aircraft may be limited, and expensive, leaving a potential capability gap. We recommend that the MoD undertakes a full analysis of the options for bridging a potential capability gap if the A400 programme experiences any further delays.**

Defensive Aids Systems

78. The A400M will be able to undertake Tactical air-lift within the operational theatre, which the C-130 aircraft currently does.[112] The NAO Major Projects Report 2006 refers to a

106 Ev 47

107 Q 59

108 Q 62

109 Qq 63–66

110 Qq 67–69

111 Q 69

112 Q 157

reduction in the number of A400M aircraft "to be equipped with Defensive Aids Sub-System (DASS) from 25 to 9". The cost saving from this measure is estimated to be £238 million.[113] We asked if the A400M would have defensive aids, given that it would be operating in potentially hostile environments. Mr Rowntree said that the aircraft would be protected[114] and would have a "very capable defensive aid suite".[115] However, he added that there was not an "absolute defensive aid solution" and, that even if "you could embody defensive aids on the production line, that certainly would not protect us through life" given that threats evolve over time.[116] The MoD subsequently told us that "Fuel Tank Inertion systems", which perform a similar function to Explosive Suppressant Foam, are to be fitted to the A400M aircraft.[117]

79. **The MoD has assured us that A400M aircraft will be fitted with a Defensive Aid System and a Fuel Tank Inertion system for protection. We assume these systems will be fitted to all A400M aircraft and call on the MoD to confirm, in its response to our report, that this will be the case. It would be a false economy not to fit these systems to all A400M aircraft during manufacture, only then to retro-fit the systems later at great expense.**

Attrition batch

80. The MoD has lost three C-130 aircraft during current operations and some commentators have asked whether, if operations are going to be the norm rather than the exception, the MoD should acquire additional A400M aircraft as an "attrition batch".[118] We asked General Figgures if he was satisfied that 25 A400M aircraft would be enough, given the aircraft losses seen during current operations. He told us that he was not satisfied and that was why he was reviewing the work looking at the overall air-lift position. He agreed with us that "we have to identify what our potential attrition is—how we would make that good".[119]

81. **The MoD is acquiring 25 A400M aircraft to replace its C-130K Hercules aircraft fleet. Several C-130 Hercules aircraft have been lost during current operations and the MoD is undertaking work to identify likely future attrition rates. We recommend that the MoD consider acquiring additional A400M aircraft to ensure that the pool of 25 available aircraft is maintained.**

113 National Audit Office, *Major Projects Report 2006, Project Summary Sheets*, HC 23-II, Session 2006–07, p 3

114 Q 160

115 Q 164

116 Q 161

117 Ev 49

118 Defence Analysis, Vol. 10, No. 3, p 19, March 2007

119 Q 137

Future Rapid Effect System

Weight challenges

82. We examined the progress on the Future Rapid Effect System (FRES) programme, which is to provide the Army with a family of medium-weight armoured vehicles, in our Report *The Army's requirement for armoured vehicles: the FRES programme*[120], published on 21 February 2007. In our Report we examined the weight challenge facing FRES vehicles, as the requirement for additional armour in response to the latest generation of Improvised Explosive Devices (IEDs) inevitably added weight. The additional weight has made it impractical to transport FRES by C-130J Hercules aricraft, but it is still intended that it should be transported by the A400M. Sir Peter Spencer, Chief of Defence Procurement, told us during our FRES inquiry that any further delays to the A400M project would delay the deployment of FRES.[121] In our FRES Report we noted:

> the tension between the requirements that the FRES Utility vehicles provide sufficient protection and that they will be quickly deployable. The requirement that the FRES Utility vehicle should be transportable by the C-130J Hercules proved over-ambitious. It remains to be seen whether transportability by A400M is achievable.[122]

83. The Government Response to our Report, published on 11 May 2007, said that:

> The decision to remove the requirement for C-130 Hercules deployability reflects the anticipated change in the balance of the air transport fleet in favour of A400M. It also reflects the increased protection levels required for FRES which cannot be accommodated within the C-130 load limit. Transportability by A400M is recognised as a risk to the programme but is being carefully managed.[123]

84. The memorandum from the Royal Aeronautical Society stated that the A400M will be able to carry FRES "as currently defined (a 37 tonnes payload)", but points out that "vehicular weight, airborne or ground based, tends to creep upwards during design, as well as once in service—20% growth is not unusual. Clearly it would be sensible to ensure that the FRES specification is consistent with A400M performance".[124]

85. AVM Leeson acknowledged that there had been a trend for armoured vehicles to become heavier to provide improved protection. He said that, given the security situation currently faced by UK Service personnel, it was a "considerable worry that with each threat change there is an inexorable rise in the weight of armour or protection that our various vehicles are carrying". As a consequence "it will constantly stress the ability to lift these vehicles around". AVM Leeson considered that, so far, the design of the A400M was "living

120 Defence Committee, Seventh Report of Session 2006–07, *The Army's requirement for armoured vehicles: the FRES programme*, HC 159

121 *Ibid.,* Q 37

122 *Ibid.,* para 42

123 Defence Committee, Ninth Special Report of Session 2006–07, *The Army's requirement for armoured vehicles: the FRES programme: Government Response to the Committee's Seventh Report of Session 2006–07*, HC 511, para 8

124 Ev 35

up to the FRES demands". However, he recognised that, if the threat situation changed further, this issue would have to be looked at very carefully.[125]

86. We asked whether the A400M aircraft could cope with the increasing weight of FRES. Mr Rowntree said that the floor strength of the A400M had been recently strengthened. He said that the A400M was at a more advanced stage of development compared with FRES. FRES was "working to around a 25 tonne total size" which would enable A400M to transport it about 2,000 miles which "would be a very useful lift capability". However, if the weight crept up to 32 tonnes, this would reduce the distance that an A400M could transport FRES.[126]

87. Mr Rowntree emphasised that the FRES and A400M teams were in very close dialogue and the FRES team knew where "the bounds are" for the A400M.[127] The MoD did not know to what extent the A400M could be upgraded through life. However, if FRES weight increased through life it would "create problems".[128] Mr Thompson said that the floor reinforcements and the ramp reinforcement for the A400M was a "UK-unique configuration".[129] He added that it was more difficult to retrofit aircraft than incorporate a change while it was being built. He thought that with the A400M "we have probably reached the end of the easy modifications".[130]

88. We asked about the implications if the weight of FRES went above 32 tonnes. General Figgures told us that as threats changed, the protection for FRES would have to be adjusted, and would have to be tuned to a particular threat. This could mean that there would be different mixtures of armour for different threats which could be taken on and off the vehicle. He considered that if FRES went above 32 tonnes, the MoD would be "able to fly the base vehicle with a base level of protection and then we would increase that protection once we got into theatre".[131] We asked whether this would mean that more aircraft would be required to transport the same number of FRES vehicles. General Figgures said that would be the case if the MoD deployed all its FRES vehicles by air:

> but the proposition would be that we would fly FRES, if necessary, for say a small scale focused intervention where speed of reaction was important, and we would have sufficient air fleet to be able to air land the appropriate sub-unit and framework of the battlegroup that was going to be deployed.

He added that for a small scale focused deployment "we require that rapidity. For a more deliberate intervention….the Strategic Lift could well be provided by sea".[132]

89. It has recently been reported in the media that the MoD had asked Airbus whether a FRES vehicle weighing 36 tonnes could be transported on A400M aircraft and that, while

125 Q 108

126 Q 151

127 *Ibid.*

128 Q 152

129 Q 253

130 Q 256

131 Q 153

132 Qq 154–155

the company considered this achievable, it was not within the current price and schedule terms of the UK's A400M contract.[133]

90. **It is intended that the MoD's Future Rapid Effect System (FRES), a family of medium-weight armoured vehicles, are to be transportable to operational theatres by A400M aircraft. However, the increased weight of FRES could lead to it becoming too heavy to be transported by A400M or could substantially reduce the distance that the vehicles could be transported. The weight of FRES must be carefully monitored and managed, both during development and when in-service, to avoid a situation where the UK Armed Forces will have a new generation of armoured fighting vehicles which cannot be deployed rapidly overseas.**

Support and maintenance

91. In its memorandum Marshall Aerospace stated that the A400M would provide a significant boost to the MoD's air-lift capacity, but raised concerns about the MoD's approach to supporting the aircraft as it could see "no evidence that the MoD is taking due account of the sovereignty issues for A400M, as specified in the DIS [Defence Industrial Strategy]".[134] We asked the MoD about the arrangements for supporting and maintaining the A400 aircraft when it enters service. The development and production contract with Airbus includes some support provision, but was not "a full support solution of a modern kind".[135] Mr Rowntree said that further work was being undertaken to consider what the support solution might look like which included looking at "possible collaborative and UK national options".[136]

92. We sought confirmation that the support arrangement would provide the UK with sovereign national capability. Mr Rowntree said that the design authority for the aircraft was not "at the moment UK-based" and this required the MoD to make sure that there were arrangements with an "onshore expert provider….and we are working, along with a number of suppliers, to make sure that we make those right decisions to keep the capability we need".[137] He considered that there were certain elements of the support arrangement that "sensibly should be pan-European".[138] **The MoD is undertaking work to identify a support and maintenance arrangement for the A400M aircraft when it enters service. The MoD needs to ensure that the arrangement identified provides the UK with operational sovereignty.**

Lessons from the programme

93. Collaborative defence equipment programmes, for example Eurofighter Typhoon, have in the past often experienced both cost overruns and delays. We asked how the lessons from such programmes had been learned on the A400M programme. Mr Rowntree said

133 Jane's Defence Weekly, 23 May 2007, *UK MoD concedes FRES frustrations*

134 Ev 42

135 Q 165

136 *Ibid.*

137 Q 166 and Q 168

138 Q 170

that in launching the A400M programme, efforts were made to ensure that some of the inflexibilities and difficulties experienced on the Eurofighter Typhoon programme were not brought into the A400M programme. He said that:

> On Eurofighter we had some inflexible arrangements, such as fixed work shares between nations, and quite a bureaucratic process. With A400M we are following what we call a commercial approach, which is a fixed price contract with Airbus with key delivery milestones, and once the contract is placed, the nations really do not manage it by committee any more. It is the same as a commercial Airbus product would be managed. It is then up to the company to manage the programme and, in fact, we do not have a fixed work-share arrangement.[139]

94. In its submission, the Royal Aeronautical Society said that the acquisition of the A400M had not been one of Europe's successes and "must hold some kind of all-comers record for protracted development". However, it acknowledged that an important breakthrough came when responsibility for developing the aircraft was assumed by the Airbus consortium, as Airbus had brought commercial discipline to the programme.[140]

95. Mr Francisco Fernández Sáinz, Managing Director, Airbus Military Sociedad Limitada, had been involved in the Eurofighter Typhoon programme and considered that the arrangements for the A400M programme were much better because "you have one company, you have one agency, no interference from the nations". However, he considered that the nine years to develop the specification and to refine the A400M aircraft had been too long. He thought that more money should be spent on the development phase of programmes like the A400M.[141] Mr Thompson considered that:

> If there is a lesson to be learned, I think it is that a single-phase, fixed-price, fixed deadline contract with very little opportunity….for the customer to change his mind, because of the shortness of the delivery period, is a positive lesson to be learned".[142]

96. **The A400M programme is a European collaborative programme, but has been structured in a way to avoid some of the problems experienced on past collaborative programmes, such as Eurofighter. We recommend that the MoD evaluate those aspects of the A400M programme which have gone well, and those aspects which have gone less well, such as the very long development phase, and ensure that the lessons are applied to future collaborative programmes.**

139 Q 130

140 Ev 34

141 Q 241

142 *Ibid.*

7 Future Strategic Tanker Aircraft

Background

97. In addition to providing air-to-air refuelling, the MoD's elderly tanker aircraft fleet also provides a Strategic Lift capability by transporting passengers and freight. The MoD plans to replace its current tanker aircraft with new tanker aircraft which will also transport passengers to operational theatres. The NAO Major Projects Report 2006 provided the following information, as at 31 March 2006, on the Future Strategic Tanker Aircraft (FSTA) programme:

- FSTA is planned to replace the air refuelling and some elements of air transport capability currently provided by the RAF's fleet of VC-10 and TriStar aircraft.
- FSTA was nominated as a potential Private Finance Initiative (PFI) project in 1997. An Assessment Phase, designed to confirm whether PFI would offer best value for money, was launched following Initial Gate approval in December 2000. The Assessment Phase is intended to confirm industry's ability to meet the service requirement, programme timescales and costs. It is also required to determine whether the inclusion of Air Transport capability in the contract will represent value for money, and clarify the manning and personnel implications.
- After a competition and several years of complex PFI negotiations AirTanker Ltd, a consortium of EADS, Rolls Royce, Cobham, and Thales were judged to offer the best prospective PFI solution. VT Group joined the consortium shortly after.
- Following subsequent resolution of key commercial terms, the Secretary of State announced on 28 February 2005 that AirTanker Ltd had been selected as Preferred Bidder for FSTA. A final decision on the PFI deal for the FSTA programme can be made only when negotiations are complete, the detailed contract is agreed, and the risks to the programme are fully understood.
- While the MoD, in consultation with the rest of Government, hopes to complete its assessment soon, further progress has to be made with AirTanker towards agreeing a fully developed contract covering all the commercial terms and service provision aspects. This has led to a further extension, and increase in investment to the Assessment Phase in order to further de-risk the Main Gate Business Case.[143]

98. No details are provided in the Major Projects Report 2006 on the forecast cost or forecast In-Service Date for the FSTA programme. The NAO Major Projects Report 2005, published in November 2005, provided the following details on the target date for Main Gate Approval, forecast In-Service Date, and the forecast cost of the PFI programme:

- Target date for Main Gate Approval—January 2002; Current forecast date of Main Gate Approval—September 2005; Variation—44 months later than planned.
- Forecast In-Service Date at Initial Gate—January 2007 (Earliest), January 2009 (Latest).

143 National Audit Office, *Major Projects Report 2006, Project Summary Sheets*, HC 23-II, Session 2006–07, pp 163–164

- Forecast cost of PFI programme at Initial Gate—£12.4 billion (Most Likely), £13.9 billion (Maximum).[144]

99. Table 5 summarises the key points on the FSTA programme provided in the written submissions by AirTanker and Rolls-Royce.

Table 5: Key points on the FSTA programme from the AirTanker and Rolls-Royce written submissions

Organisation	Key points from written evidence
AirTanker	We are…. proud to have been chosen by the MoD to provide the RAF with a fleet of new, modern, highly reliable, commercially proven Airbus A330-200 aircraft equipped with modern Defensive Aids Suites (DAS) and capable of carrying 300 passengers under the Future Strategic Tanker Aircraft (FSTA) programme. AirTanker has been in discussion with the MoD about providing a replacement for its air transport (AT) and air-to-air refuelling (AAR) service since 2001. AirTanker will operate a fleet of 14 converted Airbus A330-200 tanker transport aircraft, and provide integrated all-inclusive services, enabling the RAF to utilise these aircraft in both AAR and AT roles in all scenarios. The RAF is able to fly and retain full operational control of the aircraft, which are provided under a PFI service. AirTanker anticipates contract signature by the end of 2007, with the first aircraft entering service in 2011; the 27-year contract will ensure the availability of the capability until 2034. The flexibility, capability and availability offered by AirTanker means each aircraft can be significantly more productive than those in today's fleet and markedly improves the customer experience of passengers. It is already widely recognised that FSTA will modernise the RAF's vital AAR capability, and we believe that it will become increasingly understood that it will also bring about a profound and much-needed improvement in the RAF's strategic lift capability.145
Rolls-Royce	There is confidence that the AirTanker service will begin on time – it is a carefully constructed low risk programme for MoD….The contract has been designed to allow flexibility in the usage of the fleet between AAR [Air to Air Refuelling] and AT [Air Transport]….From the outset, aircraft can be tasked for either AAR of for AT. Rolls-Royce recognises the pressure on the RAF's transport fleet and the desire to see the FSTA fleet enter service. The Company is working with fellow shareholders and MoD to close this deal and launch the programme.146

Source: AirTanker and Rolls-Royce

Requirement for new tanker aircraft

Current tanker aircraft fleet

100. The MoD has a mixed tanker fleet consisting of TriStar and VC-10 aircraft. The MoD has nine TriStar aircraft. All previously saw airline service, six were owned by British Airways and three by Pan American. The aircraft were purchased by the MoD in the early 1980s. Six of the aircraft were modified into air-to-air refuelling tanker aircraft and also

144 National Audit Office, *Major Projects Report 2005, Project Summary Sheets*, HC 595-II, Session 2005–06, pp 139–140

145 Ev 36–37

146 Ev 49

provide air-transport (passengers and freight). Three of the aircraft are largely unchanged from their airline days and operate only in the passenger role.[147]

101. The TriStar aircraft were manufactured between 1979 and 1980 and, on current plans, the TriStar fleet will reach its Out of Service Date "towards the middle of the next decade".[148] Given the age of the TriStar fleet, we asked about TriStar's availability. Table 6 provides details on the MoD's planned TriStar availability rates and the achieved availability rates, and shows that for 2003–04, 2004–05 and 2005–06, the achieved availability rates fell well short of the planned availability rates. In 2005-06, the TriStar's achieved availability was only 69% of the planned availability.

Table 6: Planned and achieved availability rates for TriStar aircraft

Financial Year	Planned availability rates Hours	Achieved availability rates Hours (%)
2003–04	9,561	8,879 (92.9%)
2004–05	10,561	8,657 (82.0%)
2005–06	11,191	7,693 (68.7%)

Source: MoD[149]

102. In its submission, Marshall Aerospace stated that it had offered additional TriStar aircraft to supplement the RAF's fleet.[150] AVM Leeson was not aware of the offer, but said that the analysis undertaken to date did "not favour the purchase of more old aircraft like TriStar" and the analysis in recent months showed that the purchase of more TriStar aircraft was not a viable option.[151]

103. The MoD has 16 VC-10 aircraft. Six of these aircraft are predominantly air-to-air tanker aircraft with very limited passenger carrying capability. The other ten aircraft provide air-to-air refuelling and air transport (passengers and freight). These aircraft were procured by the MoD in the 1960s[152] and were converted to the air-to-air refuelling role in 1993.[153] The RAF's website states that "the VC-10 is now reaching the end of its service life".[154]

104. We asked how long the VC-10 aircraft could keep flying. Air Commodore Gunby was confident that that the VC-10 aircraft could be maintained in service and would continue flying until the introduction of the FSTA.[155] AVM Leeson acknowledged that the cost of keeping the VC-10 aircraft in operation was "already very high" and more expensive than a

147 http://www.raf.mod.uk/equipment/tristar.cfm

148 Ev 45

149 *Ibid.*

150 Ev 42

151 Q 94

152 Q 81

153 http://www.raf.mod.uk/equipment/vc10.cfm

154 http://www.raf.mod.uk/equipment/vc10.cfm

155 Qq 81–82

TriStar, because of the aircraft's age.[156] Air Commodore Gunby accepted that there would be some point beyond the introduction of the FSTA when "one would have to invest a disproportionate amount to maintain the fleet in service".[157] We asked at what point it would become prohibitively costly to keep the VC-10 fleet in service. AVM Leeson did not think that the MoD were "at the prohibitive point yet", although he added that:

> I would dearly love the FSTA service to start earlier….We would be delighted to be in a position to have got rid of the VC-10 far earlier than we have, but technically the programme can be continued even if FSTA slipped further.[158]

Mr Rowntree considered that both TriStar and VC-10 had the capability to run longer and it was "just a matter of making those investments and making those decisions at the right time points".[159]

105. **The MoD's current tanker aircraft fleet consists of elderly TriStar and VC-10 aircraft which are becoming increasingly expensive to keep in service. We note that MoD considers that these aircraft can be maintained in service until the Future Strategic Tanker Aircraft (FSTA) is available, although it acknowledges that there would come a point where the cost of maintaining the aircraft would become prohibitive.**

Safety issues

106. We had heard concerns about the safety of the TriStar and VC-10 fleets. AVM Leeson told us that the MoD

> take the safety of our air, land and sea systems extremely seriously and the process by which we ensure that those best able to discharge those safety responsibilities, the people in charge, do so, is subject to some very firm and careful delegations.[160]

We asked AVM Leeson whether he was satisfied that the TriStar and VC-10 fleets were safe. He said "yes, absolutely".[161]

Issues on the FSTA programme

Forecast In-Service Date

107. In its memorandum, the MoD states that it plans to have the FSTA in service by the turn of this decade. We asked when the first FSTA would be in operational service. Mr Rowntree told us that "assuming that the approval comes through very shortly….and the programme runs as expected, it will start to deliver its first aircarft in 2011".[162] He added

156 Q 83

157 *Ibid.*

158 Q 84

159 Q 199

160 Q 91

161 Q 93

162 Q 178

that if the approval was given, the next phase was to enter a "funding competition", and "we would expect to close the contract in November [2007]".[163] General Figgures' planning assumption was that the first FSTA would be in service in 2011, although he added that, as for the A400 programme, there were risks which had to be managed.[164]

Private Finance Initiative

108. Given that the FSTA was nominated as a potential Private Finance Initiative (PFI) project in 1997, we asked why the process of agreeing a deal had taken so long. Mr Rowntree said that this was "about the biggest PFI" the MoD had been involved in and it passed a large amount of risk to industry and

> the consequence of that risk transfer is that industry needs to be very confident that they understand the requirement and how they are going to deliver it, and that does take a long time….we have done a massive amount of work in these early phases to make sure that the solution is very robust, both financially and technically.[165]

109. Mr Rowntree considered that the FSTA PFI solution was a value for money solution.[166] We asked what analysis had been undertaken to demonstrate that PFI was the best solution. Mr Rowntree said that they had compared the PFI deal with the cost of a conventional procurement, and it was value for money compared to a conventional procurement. He added that the MoD had "taken an informed judgment as to what the through-life cost of this deal will be, considering also the availability of this service". He emphasised that the MoD was buying a service, not an aircraft.[167] Mr Fernández Sáinz considered that "PFI is a process, in my opinion, that is too long….it is an expensive way".[168]

110. We asked the MoD how much the FSTA PFI deal would cost and how much it would have cost under a conventional procurement approach.[169] The MoD told us that the price of the PFI deal was commercially sensitive and that "premature release of FSTA financial data" could harm MoD's commercial position during the PFI funding process. The MoD would not, therefore, release the information we had requested. However, the MoD informed us that:

> AirTanker was declared Preferred Bidder following competition and the consortium's bid has been subjected to Investment Appraisal against a Public Sector Comparator. Our analysis has confirmed that AirTanker's PFI proposal offers a Value For Money solution. The overall Whole Life Cost of the programme is expected to be in the order of £13 billion.[170]

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163 Q 182

164 Q 184

165 Q 186

166 Q 188

167 Q 189

168 Qq 245–247

169 Q 206

170 Ev 51

111. **We note that the MoD considers that a Private Finance Initiative (PFI) deal for the Future Strategic Tanker Aircraft (FSTA) programme offers better value for money than acquiring the aircraft under a conventional procurement approach.**

112. **The FSTA programme was nominated as a potential PFI project in 1997, but some ten years later a deal has yet to be finalised. We expect the MoD to identify the reasons why this project has taken so long, and the lessons for future projects where the MoD is considering a PFI approach.**

113. On 6 June 2007, the Minister of State, Adam Ingram, announced that the MoD had decided

> to proceed towards financial and contractual close of the Future Strategic Tanker Aircraft (FSTA) project PFI deal….Extensive evaluation of the final bid has demonstrated that PFI offers a cost effective solution to this requirement and we are now proceeding towards financial and contractual close of the deal with AirTanker Ltd. We expect AirTanker Ltd. to now begin the fund raising process.[171]

In his statement, the Minister said that the FSTA remained "a complex and challenging PFI programme" and contract signature was "dependent upon the outcome of the PFI fund raising process".[172]

114. The announcement was welcomed by Air Chief Marshal Sir Glenn Torpy, Chief of the Air Staff, who said that:

> Air-to-air refuelling and strategic airlift are fundamental to the UK's expeditionary capability and FSTA is a crucial part of that. Although our current fleets of VC-10 and TriStar aircraft are doing a superb job, both fleets are coming towards the end of their useful lives. I am, therefore, delighted that this key milestone has been achieved, and I look forward to getting the new aircraft and facilities into service as soon as possible.[173]

115. **We welcome the news that MoD has decided to proceed towards financial and contractual close of the FSTA PFI deal. However, challenges still remain on the project as the funding has still to be raised. It is important that the MoD works closely with the contractor, AirTanker Ltd, so that the PFI deal can be finalised quickly. We consider it vital that the FSTA aircraft enter service as soon as possible, given the need for improved air transport for Service personnel.**

International partners on the programme

116. Other nations, such as Australia, France and the United States also have a requirement for new tanker aircraft. We asked whether there was an opportunity for other nations to join the UK's FSTA programme. AVM Leeson said he was "not aware of significant

171 HC Deb, 6 June 2007, Col 21WS

172 *Ibid.*

173 Ministry of Defence website, *Defence News*, 6 June 2007, Lord Drayson announces financial solution for new RAF tanker and transport aircraft programme.

overtures for participation in the FSTA programme as currently configured".[174] Mr Rowntree said that the MoD had spoken to other countries, including France, and General Figgures added that the discussions with France were not about a joint programme, but about the lessons that "the French could take from us in terms of providing this service".[175] However, as part of our inquiry into the future of NATO, a representative of the Committee was told by François Lureau, National Armaments Director at the Délégation Générale pour l'Armement, that France was interested in becoming a partner in the FSTA programme. **We note that other countries also have a requirement for new tanker aircraft. The MoD should consider whether there is scope for another country to become a partner on the FSTA given the financial and inter-operability benefits that this might offer.**

174 Q 89

175 Q 202

Annex: List of Abbreviations

AAR	Air-to-Air Refuelling
AT	Air Transport
AVM	Air Vice-Marshal
BATUS	British Army Training Unit Suffield
CDS	Chief of the Defence Staff
DAS	Defensive Aids Suite
DASS	Defensive Aids Sub-System
DIS	Defence Industrial Strategy
FMS	Foreign Military Sales
FRES	Future Rapid Effect System
FSTA	Future Strategic Tanker Aircraft
IED	Improvised Explosive Device
ISD	In-Service Date
LSD(A)	Landing Ship Dock (Auxiliary)
MARS	Military Afloat and Sustainability
MoD	Ministry of Defence
NAO	National Audit Office
PFI	Private Finance Initiative
PUS	Permanent Under Secretary of State
RAF	Royal Air Force
Ro-Ro	Roll-on Roll-off
SAC	Strategic Airlift Capability
SDR	Strategic Defence Review
UK	United Kingdom
UOR	Urgent Operational Requirement
US	United States
USAF	United States Air Force

Conclusions and recommendations

1. Strategic sea-lift enables large volumes of defence equipment and stores to be transported to operational theatres in the most cost-effective way, but early political and military decision-making is needed if sea-lift is to be possible. We recommend that the MoD identify how the speed of its decision-making could be improved further in order to maximise the use of sea-lift. (Paragraph 15)

2. Strategic air-lift is an expensive option for transporting equipment and stores when compared with strategic sea-lift, but is the fastest option for transporting equipment and stores needed urgently in theatre. When using strategic air-lift, the MoD must ensure that the lift capacity of aircraft is fully utilised, giving priority to the equipment and stores urgently needed in theatre. However, where spare capacity is available, it makes sense to transport other items which are not needed as urgently, rather than "fly fresh air". (Paragraph 17)

3. We note that the transportation of equipment through third countries to support current operations in Iraq and Afghanistan has generally not caused any problems. (Paragraph 19)

4. We are pleased to learn that the Ro-Ro container ships have performed very effectively in both supporting current operations and undertaking other tasks, and note that the MoD considers that the six ships are sufficient to meet its current needs. (Paragraph 22)

5. We note that in addition to the six Ro-Ro container ships, the MoD's four Landing Ship Dock (Auxiliary) vessels can also be used in a strategic sea-lift role, although they have only been used once to date in such a role. (Paragraph 25)

6. The MoD has good arrangements to access commercial shipping and has, to date, secured the commercial shipping it required to supplement its own sea-lift capability. However, the commercial shipping market is reducing. We recommend that the MoD undertake a detailed analysis of the commercial shipping market with the aim of assessing whether it will be able to secure access to commercial shipping in the quantities and timeframes necessary to meet its future needs. (Paragraph 32)

7. We are very concerned that a high proportion of the current transport and tanker aircraft are not available for immediate deployment to undertake the required tasks. While modifications are often the reason for aircraft not being available, maintenance is also a key factor, and reflects the fact that the MoD has an ageing transport and tanker aircraft fleet which is being flown at an unexpectedly high level in very punishing conditions. While new transport and tanker aircraft are in the pipeline, it will be some years before they enter service. We have real doubts as to whether the current transport and tanker fleet can provide the level of availability required between now and when these new aircraft come into service. (Paragraph 38)

8. The MoD makes extensive use of commercial air-lift for transporting freight and personnel to supplement its own air-lift assets, and is reviewing whether the current

balance between the air-lift capacity provided by its own air-lift assets and the air-lift capacity it requires from the marketplace is right. The MoD should complete its review as quickly as possible and ensure that the recommendations are implemented fully. (Paragraph 46)

9. We welcome the action that has been taken to improve the reliability of the airbridge and to improve the experience of service personnel being transported to and from the UK and operational theatres. The MoD should not underestimate the impact on the morale of Service personnel of delays returning to the UK, particularly if the delays cut into a short period of leave. The MoD must monitor closely issues relating to the airbridge and ensure that the improvements in hand are fully implemented. (Paragraph 53)

10. The leasing of four C-17 large transport aircraft, which are to be purchased when the lease ends, has greatly increased the MoD's strategic air-lift capability and performed extremely well. We welcome the fact that these four aircraft will be purchased once the lease ends and that the MoD is to purchase a fifth C-17 aircraft. We recommend that the MoD should commission a detailed analysis of the medium and longer term consequences of the high level of use of the C-17 and C-130 Hercules fleets, and should publish the results of that analysis as soon as possible. (Paragraph 62)

11. MoD officials are producing advice to ministers setting out options for addressing possible risks relating to the MoD's future air-lift requirements. Given the performance of its C-17 large transport aircraft, the MoD must give consideration to the acquisition of additional C-17 aircraft. Such a decision needs to be taken quickly given that the C-17 production line may be closing in the near future. (Paragraph 67)

12. We note that the In-Service Date slippage on the A400M programme remains at 15 months, as reported in the Major Projects Report 2006, and that Airbus has devoted more resources to the programme to keep it on track. (Paragraph 74)

13. The delay to the A400M programme has required the lives of ageing C-130K aircraft to be extended. If there are any further delays on the A400M programme, the scope for further extending the lives of C-130K aircraft may be limited, and expensive, leaving a potential capability gap. We recommend that the MoD undertakes a full analysis of the options for bridging a potential capability gap if the A400 programme experiences any further delays. (Paragraph 77)

14. The MoD has assured us that A400M aircraft will be fitted with a Defensive Aid System and a Fuel Tank Inertion system for protection. We assume these systems will be fitted to all A400M aircraft and call on the MoD to confirm, in its response to our report, that this will be the case. It would be a false economy not to fit these systems to all A400M aircraft during manufacture, only then to retro-fit the systems later at great expense. (Paragraph 79)

15. The MoD is acquiring 25 A400M aircraft to replace its C-130K Hercules aircraft fleet. Several C-130 Hercules aircraft have been lost during current operations and the MoD is undertaking work to identify likely future attrition rates. We recommend that the MoD consider acquiring additional A400M aircraft to ensure that the pool of 25 available aircraft is maintained. (Paragraph 81)

16. It is intended that the MoD's Future Rapid Effect System (FRES), a family of medium-weight armoured vehicles, are to be transportable to operational theatres by A400M aircraft. However, the increased weight of FRES could lead to it becoming too heavy to be transported by A400M or could substantially reduce the distance that the vehicles could be transported. The weight of FRES must be carefully monitored and managed, both during development and when in-service, to avoid a situation where the UK Armed Forces will have a new generation of armoured fighting vehicles which cannot be deployed rapidly overseas. (Paragraph 90)

17. The MoD is undertaking work to identify a support and maintenance arrangement for the A400M aircraft when it enters service. The MoD needs to ensure that the arrangement identified provides the UK with operational sovereignty**.** (Paragraph 92)

18. The A400M programme is a European collaborative programme, but has been structured in a way to avoid some of the problems experienced on past collaborative programmes, such as Eurofighter. We recommend that the MoD evaluate those aspects of the A400M programme which have gone well, and those aspects which have gone less well, such as the very long development phase, and ensure that the lessons are applied to future collaborative programmes. (Paragraph 96)

19. The MoD's current tanker aircraft fleet consists of elderly TriStar and VC-10 aircraft which are becoming increasingly expensive to keep in service. We note that MoD considers that these aircraft can be maintained in service until the Future Strategic Tanker Aircraft (FSTA) is available, although it acknowledges that there would come a point where the cost of maintaining the aircraft would become prohibitive. (Paragraph 105)

20. We note that the MoD considers that a Private Finance Initiative (PFI) deal for the Future Strategic Tanker Aircraft (FSTA) programme offers better value for money than acquiring the aircraft under a conventional procurement approach. (Paragraph 111)

21. The FSTA programme was nominated as a potential PFI project in 1997, but some ten years later a deal has yet to be finalised. We expect the MoD to identify the reasons why this project has taken so long, and the lessons for future projects where the MoD is considering a PFI approach. (Paragraph 112)

22. We welcome the news that MoD has decided to proceed towards financial and contractual close of the FSTA PFI deal. However, challenges still remain on the project as the funding has still to be raised. It is important that the MoD works closely with the contractor, AirTanker Ltd, so that the PFI deal can be finalised quickly. We consider it vital that the FSTA aircraft enter service as soon as possible, given the need for improved air transport for Service personnel. (Paragraph 115)

23. We note that other countries also have a requirement for new tanker aircraft. The MoD should consider whether there is scope for another country to become a partner on the FSTA given the financial and inter-operability benefits that this might offer. (Paragraph 116)

Formal minutes

Tuesday 26 June 2007

Members present:

Mr James Arbuthnot, in the Chair

Linda Gilroy	Mr Brian Jenkins
Mr David Hamilton	Robert Key
Mr Adam Holloway	Willie Rennie

Strategic Lift

The Committee considered this matter.

Draft Report (Strategic Lift), proposed by the Chairman, brought up and read.

Ordered, That the Chairman's draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 116 agreed to.

Annexes (Summary and List of Abbreviations) agreed to.

Resolved, That the Report be the Eleventh Report of the Committee to the House.

Ordered, That the Chairman make the report to the House.

Ordered, That embargoed copies of the report be made available, in accordance with the provisions of Standing Order No. 134.

Ordered, That several Papers relating to Strategic Lift be reported to the House for printing with the Report [together with certain Memoranda reported and ordered to be published on 24 April].

[Adjourned till Tuesday 3 July at 10.00 am.

Witnesses

Tuesday 24 April 2007

Page

Tuesday 22 May 2007

List of written evidence

List of Reports from the Committee during the current Parliament

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

Session 2005–06

First Report	Armed Forces Bill	HC 747 (*HC 1021*)
Second Report	Future Carrier and Joint Combat Aircraft Programmes	HC 554 (*HC 926*)
Third Report	Delivering Front Line Capability to the RAF	HC 557 (*HC 1000*)
Fourth Report	Costs of peace-keeping in Iraq and Afghanistan: Spring Supplementary Estimate 2005–06	HC 980 (*HC 1136*)
Fifth Report	The UK deployment to Afghanistan	HC 558 (*HC 1211*)
Sixth Report	Ministry of Defence Annual Report and Accounts 2004–05	HC 822 (*HC 1293*)
Seventh Report	The Defence Industrial Strategy	HC 824 (*HC 1488*)
Eighth Report	The Future of the UK's Strategic Nuclear Deterrent: the Strategic Context	HC 986 (*HC 1558*)
Ninth Report	Ministry of Defence Main Estimates 2006–07	HC 1366 (*HC 1601*)
Tenth Report	The work of the Met Office	HC 823 (*HC 1602*)
Eleventh Report	Educating Service Children	HC 1054 (*HC 58*)
Twelfth Report	Strategic Export Controls: Annual Report for 2004, Quarterly Reports for 2005, Licensing Policy and Parliamentary Scrutiny	HC 873 (*Cm 6954*)
Thirteenth Report	UK Operations in Iraq	HC 1241 (*HC 1603*)
Fourteenth Report	Armed Forces Bill: proposal for a Service Complaints Commissioner	HC 1711 (*HC 180*)

Session 2006–07

First Report	Defence Procurement 2006	HC 56 (*HC 318*)
Second Report	Ministry of Defence Annual Report and Accounts 2005–06	HC 57 (*HC 376*)
Third Report	Costs of operations in Iraq and Afghanistan: Winter Supplementary Estimate 2006–07	HC 129 (*HC 317*)
Fourth Report	The Future of the UK's Strategic Nuclear Deterrent: the Manufacturing and Skills Base	HC 59 (*HC 304*)
Fifth Report	The work of the Committee in 2005 and 2006	HC 233 (*HC 344*)
Sixth Report	The Defence Industrial Strategy: update	HC 177 (*HC 481*)
Seventh Report	The Army's requirement for armoured vehicles: the FRES programme	HC 159 (*HC 511*)
Eighth Report	The work of the Defence Science and Technology Laboratory and the funding of defence research	HC 84 (*HC 512*)
Ninth Report	The Future of the UK's Strategic Nuclear Deterrent: the White Paper	HC 225-I and –II (*HC 551*)
Tenth Report	Cost of military operations: Spring Supplementary Estimate 2006–07	HC 379 (*HC 558*)

Oral Evidence

Taken before the Defence Committee

on Tuesday 24 April 2007

Members present

Mr James Arbuthnot, in the Chair

Mr David S Borrow
Mr David Crausby
Linda Gilroy
Mr Mike Hancock
Mr Adam Holloway
Mr Brian Jenkins
Mr Kevan Jones
Robert Key
John Smith

Examination of Witnesses

Witnesses: **Air Vice-Marshal Kevin Leeson,** Assistant Chief of the Defence Staff (Logistics Operations)(until 5 April 2007), **Brigadier Jeff Mason,** Director Defence Supply Chain Operations and Movements, and **Air Commodore Anthony (Tony) Gunby,** Air Officer Air Transport and Air-to-Air Refuelling, Headquarters 2 Group, RAF, gave evidence.

Q1 Chairman: This is the first evidence session of our inquiry into strategic lift. We shall be looking at the progress made by the MoD since the *Strategic Defence Review* in improving strategic lift and whether the current arrangements are adequate. This morning we have before us MoD witnesses who are involved in identifying the logistical support needed for operations, tasking the various providers of strategic lift and directing the RAF's strategic lift assets. Gentlemen, welcome to the Committee. Perhaps you would introduce yourselves and explain very briefly in your introduction your role in the strategic lift sphere.

Air Vice-Marshal Leeson: Chairman, thank you for the introduction. I am Air Vice-Marshal Kevin Leeson. Until two weeks ago I was Assistant Chief of the Defence Staff responsible for logistics operations. I have since changed appointment, but it is felt that as the man who has been doing that job for the past two years and seven months it is right that I come before the Committee in order to give the most relevant evidence. My responsibilities were the direction of defence-wide logistic policy and specifically the direction at the strategic level of logistics operation and support for current operations. I have with me today Brigadier Jeff Mason, Royal Marines, and Air Commodore Tony Gunby of Headquarters Air Command. I will ask them to outline their responsibilities.

Brigadier Mason: I am Brigadier Jeff Mason, Director Defence Supply Chain Operations and Movements. Essentially, I set up and run the coupling bridges to the operational theatres and monitor the flow of PAX and materiel primarily into Afghanistan and Iraq. In my previous job I was a lead personnel and logistics planner at Permanent Joint Headquarters.

Air Commodore Gunby: I am Air Commodore Tony Gunby from Headquarters Air Command. I am Air Officer Air Transport and Air-to-Air Refuelling and therefore responsible for enacting the plans which Brigadier Mason and his colleagues construct, delivering the air bridges from military air transport and facilitating passengers of passengers and freight through Brize Norton and Lyneham.

Q2 Chairman: Perhaps we can start by defining "strategic lift". It has been suggested to us that in recent years there has been some blurring of the boundaries between strategic lift and tactical lift. What would be your definition of "strategic lift? Do you agree that there has been a blurring of the boundaries?

Air Vice-Marshal Leeson: I would agree. Our various aeroplanes have the flexibilities and capabilities to operate in a strategic way as well as, in some cases, a tactical way. The nature of the operations means that we need to cover quite a wide spectrum, so in common parlance the working definition of "strategic lift" as in the memorandum tends to be the capabilities necessary to move from the UK main base to the deployed operational theatre, and "tactical use" becomes the aircraft that we would have deployed forward in that theatre operating under the local command rather than strategic direction from the UK.

Q3 Chairman: At the beginning of the month the Defence Transport and Movements Agency ceased to be an agency. Obviously, there has also been the merger of the DLO and DPA. Will that change the way that strategic lift is managed and delivered within the MoD and the Services?

Air Vice-Marshal Leeson: Perhaps I may start with the second question and then ask Brigadier Mason as the former chief executive of DTMA to deal with that aspect. A fundamental principle that was followed in merging the DLO and DPA into the Defence Equipment and Support organisation was to move as quickly as we could to get the job done, but fundamentally to ensure that nothing affected the support of current operations. That was the

guiding principle of Ministers, CDS and now the CDM before us all. As a result, therefore, a minimum change policy was adopted to effect the merger. It was accepted that once the new organisation had stood up and moved forward it would adapt its shape, size and style as time went by. Effectively, the management of operations from within that organisation—the Defence Supply Chain Operations and Movements Centre—is utterly unchanged, so in that respect DES makes no difference.

Q4 Chairman: Because the merger was aimed at achieving completely different effects?
Air Vice-Marshal Leeson: The issue was one of achieving better through-life management of the equipments that the organisation supports and fundamentally the direction of operational movements to and from the theatre is not per se involved in that deal, but perhaps Brigadier Mason can talk about the de-agencification.
Brigadier Mason: About 15 months ago I looked at the benefits that an agency brought to my organisation and, frankly, I could see very few if any. When it was set up nine years ago I think the principle was absolutely right: it allowed the flexibility to surge manpower and flow resources around. I had no flexibility; I was just another business unit in the then DLO. Of course there was parliamentary accountability which is a good thing. We have kept a number of those in the governance piece as I moved across to a directorate, but the key point is that how we support the operational theatres is not affected one iota.

Q5 Chairman: Therefore, the changes that we are discussing—the loss of agency status and the merger of DLO and DPA—are not expected of themselves to produce any benefits. Is it correct that what we are hearing is that if it is managed right it should not produce any disbenefits?
Air Vice-Marshal Leeson: I would not say no benefits, because better through-life management of all systems, equipments and capabilities will eventually have pay-backs, whether it be the freeing up of resources through more efficient delivery which can then be redirected to the greater benefit of the programme, but as a first order effect and in the immediate term none whatsoever.
Chairman: Let us move on to how one decides which type of strategic lift to use.

Q6 John Smith: What are the key factors you take into consideration when choosing between sea lift and air lift?
Brigadier Mason: As long as one has the time lines with the preparation and planning and applies an element of foresight to the plan one will look at what one can move by sea to the operational theatre, because that means moving much greater volumes and it is better value for money. But there will come a time when we are into routine sustainment where we have to send high priority stores by air and we will always move Pax by air. I suppose it comes to the decision points and time lines of planning and operation.

Q7 Chairman: When you say "Pax" do you mean people?
Brigadier Mason: Passengers. It is a fine dividing line, but we would prefer to move all freight in routine sustainment by sea and high priority stores by air.

Q8 John Smith: Are you satisfied that the decision-making process about what you need in theatre is quick enough to allow you to make a correct judgment on which type of lift to use?
Air Vice-Marshal Leeson: Perhaps I may answer that first as the strategic director and then let the tactical manager whose job it is to fulfil my wildest dreams comment from his perspective. We have put in place quite a lot of metrics management over the past two years so we can get a quantifiable feel for how well it is going. There is an enormous amount of stuff moving down that line of communication and one must be quite careful in observing these statistics to keep up one's game. One can get lost in an awful lot of very odd one-off detail, but as a general principle our performance so far is good. We identified a number of lessons as a result of Operation TELIC and management in both the command and control sense of the line of communication and our ability to deliver capacity down that line was one of the things that we had to improve. We put an awful lot of work into that over the past three or four years to achieve that. I am not content with where we need to be yet because we have a set of stringent priority codes with required delivery times against them. We are not meeting them to 100 per cent satisfaction yet, so a lot more needs to be done, but I am thoroughly content with the progress.
Brigadier Mason: I would try to influence Permanent Joint Headquarters for the military organisations to make decisions early in order that we can move equipment by sea. There have been occasions when that has been difficult to do, but in the main we have managed to achieve it. When one is looking at moving urgent operational requirements to theatre clearly there is an imperative to get those equipments integrated in theatre as quickly as one can. In that case it is more likely that we would fly them.

Q9 John Smith: If you are able to answer this question, is it right that we intend to fly Warriors to Afghanistan as opposed to sea-lift them?
Brigadier Mason: That was our original intent. My understanding is that if we move them up the line of communication there will be an intelligence issue and we do not wish to expose our Warriors to the line of communication, so at the moment we plan to fly them.
Air Vice-Marshal Leeson: You are correct to identify that in this open forum you are pushing us into a slightly difficult area. Clearly, there are a number of constraints on what one can move through third-party countries where one is not enabled by UN resolutions or whatever. Therefore, we keep under

frequent review a number of operating principles to see what is most effective. Clearly, the simple conflict here is: aeroplanes are an extremely expensive way to move sizeable items like heavy armour, so we always love to do it a different way if we can, but moving warlike stores through third countries obviously gives rise to interesting intelligence as well as political issues and we try to avoid that where we can. In the case of other sensitive equipments such as cryptography the risks would be too great other than in an organic way to use military transport and convoy techniques.

Q10 Mr Holloway: About a month ago I and a colleague visited Kandahar in a C17 with the marvellous Armed Forces Parliamentary Scheme. We were absolutely flabbergasted to see that half the aircraft was full of bunk beds. How can they be a high priority store? Is there a problem with supply chain management because that was quite bizarre?
Air Vice-Marshal Leeson: The construction of air bridges generally in terms of how we schedule the various aeroplanes is all about ensuring that we can provide for an assessment of the freight and the people we have to move into theatre over a period at required delivery times. Effectively, that builds in a certain amount of volume over capacity on a daily basis which can then be backfilled by lower priority freight. I suspect that despite the excellent ability of the director of DSCOM to manage the business, he is probably unable to comment on the movement of bunk beds that time ago. But we would backfill if we had to do so. I would conjecture that we had adequate supply of things that could be held at an air head and they were used to fill up available space on a daily basis. That was probably what happened. It is highly improbable that there would be an emergency deployment of such things because they are not in short supply.
Brigadier Mason: I would have been surprised as well if I was sitting on that aircraft. Normally, it is a theatre pull, ie they call for priority stores, but the only explanation I have—we do not have the exact reason at our fingertips—is that, as the AVM has said, there was space to be filled and rather than fly fresh air we moved stock.
Air Vice-Marshal Leeson: As an example, it is the sort of stores that coincidentally is relatively close to Brize Norton.

Q11 Mr Holloway: There were also flat packs of building timber. Is the air bridge not having increased pressure put upon it by an unwillingness to source items that perhaps are more readily available locally?
Air Vice-Marshal Leeson: We aim to source locally where we can, but local sourcing in Afghanistan is incredibly difficult.
Mr Holloway: Pakistan is next door.

Q12 Mr Hancock: One would imagine that bunk beds would be essential if one had nothing else on which to sleep. I am sure that a number of our servicemen were grateful that they were on the aircraft. That aside, I want to ask about the difficulty of transporting equipment through third countries. Have you experienced significant difficulties with that? How much do you have to disclose about what is being transported, and how do you organise that transport through a third country?
Air Vice-Marshal Leeson: Our record so far is simply exceptional. We have had tremendous support significantly from the Kuwaiti and Pakistani governments in terms of permitting us to operate through commercial ports, and by and large we use commercial transport arrangements. The statistics of the initial deployment into Afghanistan merit public acknowledgement of the hard work and effort that an awful lot of people put in. We moved something like 1,800 lorry loads of equipment on a commercial contract via either the Quetta or Khyber Passes without loss, so frankly it was a tremendous performance by the commercial sector and it was well managed by my colleagues in the Defence Logistics Organisation as it then was.
Brigadier Mason: But that inload into Afghanistan was risky. We looked at other opportunities to get the equipment into theatre. We ruled out air because, frankly, 18,000 linear metres equates to about eight roll-on-roll-off ferries worth of loads. It was far too much. We ruled out coming in from the north because of the number of borders we had to cross to get the equipment through the Caucuses and down through Afghanistan. We were not allowed, and did not want to use, UK or Pakistani military convoys, so we went for a contractor. It was relatively costly but, as AVM has said, it was extremely successful.

Q13 Mr Hancock: Have drivers been killed when transporting our equipment around Afghanistan?
Air Vice-Marshal Leeson: There have been some equipment losses in Afghanistan.

Q14 Mr Hancock: And in Pakistan?
Air Vice-Marshal Leeson: Not in Pakistan.

Q15 Mr Hancock: Have drivers been killed?
Brigadier Mason: As far as I am aware no drivers have been killed in Pakistan, but there are a number of drivers who have been killed within Afghanistan itself when moving either our stores or our food.

Q16 Mr Hancock: What do you have to disclose about what you are transporting to a third country in advance of leaving?
Brigadier Mason: As far as concerns Pakistan, we put a liaison officer into the embassy in Islamabad. We also have a task group liaison officer in the port of Karachi and we deal with the authorities and expose exactly what we are moving.
Air Commodore Gunby: I should perhaps add that sometimes we face a similar challenge when we have to inform the nation that we are overflying if we are carrying certain classes of dangerous cargo.
Air Vice-Marshal Leeson: I am conscious that we have talked about process rather than provided an exact answer to the question. I think I need to take

advice from Foreign Office colleagues on that, if you specifically want to press me on what we are required to do.

Q17 Chairman: That is fair enough. What we do not want to do is expose valuable information to people who would use it against us.
Air Vice-Marshal Leeson: I am certainly content that we have a process that has not yet caused any hindrances.

Q18 Mr Jenkins: To paraphrase what has been said, you have that much spare air lift that you can fly in low priority goods rather than fresh air. For me, that does not sit true with the alternative suggestion that our airlift is under critical pressure and is hardly able to perform its function. Which is true?
Air Vice-Marshal Leeson: We use quite a considerable amount of charter lift both in the passenger and freight sense to supplement what we own as military aircraft. There is a very large proportion of charter activity to support what we have. As a result, therefore, that offers Brigadier Mason the opportunity to set a daily normal response time capability that we must fulfil, and whether freight goes on the chartered aeroplanes or military aeroplanes can be prioritised on the basis of when the next most appropriate aeroplane is flying, the protection systems on the aircraft and prioritising it in that particular way. As a result, therefore, clearly we plan to make sure that with these rather long-term contracts with charter companies we have enough capacity to cope with the day-by-day and week-by-week variations that we need to achieve. One can imagine a ripple effect going on around a norm. All I am talking about is that we have space on that ripple around the norm occasionally to backfill with lower priority items which conceivably could have gone by sea. But I mentioned that I did not want to go too far into the example that was quoted without checking the specific facts.

Q19 Mr Jones: As to the use of the charter sector, clearly flying things into a theatre like Afghanistan is different from flying things to, say, BATUS in Canada, Kuwait or somewhere else like that. You just said that you had a contract with various suppliers. How does it work? Is there a ranking? For example, if you fly in something that is not sensitive to, say, Kuwait or Canada is that done on just a commercial basis like DHL or one of those big suppliers, or is it a contract that you can just pull down as and when you need it?
Air Vice-Marshal Leeson: It is for the brigadier's staff to manage it specifically, but perhaps I may give a few classic examples. Passengers into Afghanistan go on military aeroplanes. The Chief of the Defence Staff insists on that in principle. We can then put the defensive aid protection systems on board the aeroplane because the safe transport of Armed Forces personnel and the personnel of other government departments we are helping out is the absolute priority. Effectively, that becomes one of the defining marks of the brigadier's approach. Certain critical equipments, for example expensive short-supply items, would be a priority for air-freighting but it would not necessarily be charter. We would not necessarily be concerned about the losses of those equipments through a tragic incident as we would with people. We tend to transport weapons via owned air assets. Clearly, munitions transport is difficult because of explosive safety constraints in civilian ports and that sort of thing. There are a number of definite moments like that which effectively go from me to the brigadier as policy. Thereafter, it becomes a matter of best asset utilisation.
Brigadier Mason: For routine activity as you imply—let us say the support of BATUS—if we were not flying RAF military transport there we would swivel chair within DSCOM. We have DHL imbedded in my organisation. That is a long-term contract. They would move the item by whichever carrier they utilised. For support to the operational theatres and general bidding for aircraft we would use brokers and enabling contracts with them; otherwise, the commercial process would take too long. Therefore, we have enabling contracts imbedded with the brokers and when we want to utilise airframes we go through the brokers.

Q20 Mr Jones: How is that done? Is it a contract that is negotiated in advance and so is at a set price?
Brigadier Mason: It is not a set price but it is negotiated in advance.[1] There are all sorts of issues that affect the costings. It depends on seasonal activity. For example, it is more difficult to get passenger aircraft in the main holidays in spring and summer; it may be there are some force protection issues that may increase the cost. Therefore, how much it costs depends on the time, but those contracts are extremely valuable and we could not operate without them.

Q21 Linda Gilroy: The MoD has acquired six roll-on-roll-off ferries through a PFI deal. How have those assets performed?
Brigadier Mason: Extremely effectively. As you rightly say, it was a PFI. They have come in from 2003. It provides assured delivery for the MoD in support of operational activity, but we have also managed to use them to support the South Atlantic islands and BATUS routine sailings. When we have planned out and there does not appear to be any activity we can go out to the market and either allow other nations to utilise them or go to the commercial market. Currently, we have four of the six ro-ros

[1] MOD has enabling agreements in place for a number of key airlift freight capabilities, including outsized lift. This process, in which pricing and capability have already been commercially competed and agreed, gives rapid access to available commercial lift by effectively 'fast-tracking' the individual approach to the market. It does not, however, guarantee availability which is subject to the vagaries of the market. The complexity and diversity of passenger airlift precludes the use of enabling agreements for those tasks and both prices and availability are subject to normal commercial pressures.

working for us full time; the other two are, if you like, on a longer string with the owners Foreland Shipping.

Q22 Linda Gilroy: Are there assets that are too large for the ro-ros to transport and what do you do in those circumstances?
Brigadier Mason: I do not believe we have ever come across an item which has been too large to be moved in a ro-ro.

Q23 Linda Gilroy: The *Strategic Defence Review* identified a requirement for four ro-ros and you have just said that four are deployed at the moment and six have been acquired. What was the rationale for requiring two more?
Air Vice-Marshal Leeson: We originally had two ro-ro-style vessels already. I think that in SDR we actually referred to four additional ones and when we went to the new contract effectively we terminated the previous arrangement, so that explains the numbers.

Q24 Linda Gilroy: From what you have said it is probable that my next question has been answered but I shall ask it anyway. Given the tempo of current operations, is there a case for acquiring more ro-ro ferries and, if so, how many?
Air Vice-Marshal Leeson: I am very comfortable with our sea lift position. I think that the four plus the vessels that are part of the Royal Fleet Auxiliary and amphibious force essentially give me what I need for the sea line of communication, even against the stressed planning assumptions and conditions to which CDS referred when he appeared before the Committee.

Q25 Linda Gilroy: Can you tell the Committee why the MoD needs to have its own strategic sea lift if chartered shipping is available?
Air Vice-Marshal Leeson: I think it is a matter of surety. This is the very difficult balance that at the strategic level I and my colleagues in the equipment capability area have to make. There are times when the market is busy doing other commercial activity but we happen to need to be able to do something, so as long as we can provide flexible ways of surety with the appropriate security where necessary the commercial sector represents a hugely valuable way of doing the business, with all of the useful economies to which a commercial answer tends to drive one towards.
Brigadier Mason: If we did not have the ro-ros and were looking at deploying a multi-national force the other nations would also be looking for the same commercial shipping and that would turn into a bit of a bun fight. We might not get what we want and, therefore, potentially not put the force elements into theatre in the right order or, more importantly, the right time.

Q26 Linda Gilroy: Is the present balance what you judge to be right? Would it be right if the tempo increased?
Air Vice-Marshal Leeson: In terms of sea lift it feels right, and certainly with the additional two JRRF ro-ros on the longer string that we can call in there would be other elements of the defence programme that would be the constraining factor before there was a problem with sea lift. But time is always the pressure. How quickly does one need to get there?

Q27 Linda Gilroy: Can you tell us a bit more about the two on the longer string that you have described? What sorts of things do they do when they are not required for operations?
Brigadier Mason: As to timeline, one we can access in 20 days; the other we can get in 30 days. We can support the medium-scale exercises that we do once every four years; we can call them back to support that, but there is a limit. We have to deploy over 15,000 linear metres of equipment to call them back. As to what they do on a routine basis, essentially Foreland hires them out. I believe that on a routine basis they are working in Finland moving timber from A to B.

Q28 Mr Hancock: What is the opportunity at the moment in the market for roll-on-roll-off ferries? The design has changed. Every design change makes it difficult to dock them. Coming from Portsmouth, we have our own ferry port. I know that every time a new ferry arrives we have to spend literally millions to reconfigure the dock so that the ship can be berthed. One of the issues is the size of the current fleet that is available. Would that be appropriate for you? Could you get them into Marchwood? You can with the current ro-ros, but what is in the market if you need to bring in ships? The market that you need is reducing all the time, is it not, because ships are getting bigger?
Brigadier Mason: Yes.

Q29 Mr Hancock: The configuration of the bow and stern makes it difficult to dock them.
Brigadier Mason: You make a very fair point. A lot of the ro-ros in the commercial market are used solely from point A to point B to match the infrastructure of those ports. We run a system where if we were looking for further roll-on-roll-off ferries we would have to go to the market and lay down the requirement to see what was available, but you are right to say that it is a reducing market.

Q30 Mr Hancock: Do you have a fallback position where you would be able to dock and load if you could not get the ships that you are bringing in in and out of Marchwood?
Brigadier Mason: I am sorry; you will have to rephrase that question.

Q31 Mr Hancock: If you are bringing in ships from trade and they do not fit what you have available to dock them at Marchwood do you have a standby relationship with one of the commercial ports which would allow you to bring in those ships and unload and load them?
Brigadier Mason: We could use commercial ports and that we have done in the past.

Air Vice-Marshal Leeson: The style of cargo we move and the way we would prioritise it leads me to conclude there is a very low probability we will find ourselves in that situation. If it is routine, non-contentious freight then with UK port capability the world is literally our oyster. We tend to use the JRRF ro-ros for bulky specialist stuff such as munitions and rolling vehicles. We have a number of other munitions dock facilities. Marchwood is ideally positioned as it is on the south coast and is central, but there are a couple of other assets further north that can be used for munitions if we need to.

Q32 Chairman: You have four landing ship dock (auxiliary) vessels. Do you use them differently from the ro-ros or not?
Brigadier Mason: There are four of them but a number are still to enter commissioned service. Our intent is that when they are not doing their core activity of supporting amphibious operations and training we will utilise those platforms in the sea transport role because they also are very effective ships. They are half the size of the roll-on-roll-off ferries, but if one is delivering only half the stores they would be very useful platforms to utilise. We have already been engaged with Fleet Command to make sure we can plan them. We have used them only once to date.

Q33 Mr Borrow: I should like to touch on the issue of chartering lift. To what extent is the MoD chartering shipping to supplement its own lift capacity to get into both of the current operations in Iraq and Afghanistan?
Brigadier Mason: Over the past couple of years we have chartered a number of ships but not, as far as I am aware, in direct support of Afghanistan or Iraq. But we do have what is known as the liner service where if we want to move low priority stocks essentially we have a contract for a container ship that will move containers full of our stock either to Kuwait or Karachi and then a civilian firm will move it up country. It does not make financial sense to charter a ship for that, so we have a weekly container movement. We are talking about 30 containers per week in each theatre.

Q34 Mr Borrow: At the moment there is no real problem about getting access to commercial shipping that you need for service operations. You are moving a few containers each week.
Brigadier Mason: Currently, that is the case because we have the assured use of the ro-ros.

Q35 Mr Borrow: In a hypothetical situation where you need much more commercial shipping do you have contingency plans should the commercial shipping that you have contracted for come under attack or threat so you do not lose that market, which is always a possibility?
Air Vice-Marshal Leeson: All things are possible, but I think that the determining case becomes: what is the operation? What is one planning to do and how quickly does one have to do it? Therefore, the circumstances that your question leads towards tend to be the challenging task of quickly moving one of our small-scale capabilities—perhaps a battle group or something of that order—to do a deliberate intervention or activity of that kind. Unfortunately, in terms of the planning assumptions system that would need to operate to shape one's defence programme that would tend to operate in a rather shorter timescale than sea-lift usually presents. Sea lift tends to lend itself to the routine sustainment case or where one's warning and preparation time is much longer, because sailing time becomes a discriminator in the effect one is trying to achieve.
Brigadier Mason: You referred to increased threat. We review the threat states every month and can put armed servicemen onto our current ro-ros, as we put armed servicemen on charter shipping during initial ops in Iraq.

Q36 Mr Borrow: It is hypothetical but it is looking at what has happened in the past. Things can suddenly jump up and bite you; you do not expect them to happen. It is 25 years since we had a major operation in the South Atlantic. Would we be capable of securing the commercial shipping that would be necessary if that happened again?
Brigadier Mason: We secured a significant amount of commercial shipping for the inload for what we call TELIC, the first stage of the operation in Iraq. We secured some 60 ships as a result of foresight because we got in before other nations did. We secured what we required.
Air Vice-Marshal Leeson: The brigadier probably cannot say it but I can because I supervise his organisation. The Defence Supply Chain Operations and Movements Centre is now very good at watching movements, fluctuations and trends in the marketplace from the point of view of warning us if there appear to be difficult periods. As we have just explained, on sea-lift by and large that is not an issue; as to chartered air lift it is much more so. Therefore, he is particularly good at warning me that there are periods when lift may become somewhat difficult. Therefore, major commercial sector product launches—XBox, Playstation 3 and that sort of thing—make a significant change to air-lift availability in the commercial sector. It is those sorts of things that we have to watch very seriously.

Q37 Mr Hancock: Moving to strategic air-lift, how have the four C-17s performed? How would you evaluate their performance and the benefits they have brought to you?
Air Vice-Marshal Leeson: They have been absolutely first rate aircraft in terms of their capacity, speed, reach, reliability, availability, the arrangements with Boeing and the flexibility to keep them modified to the same standard as their American cousins so we have minimal overheads. They have been a resounding success.

Q38 Mr Hancock: Boeing has told us that it believes we are flying those aircraft way above the original specification and the usage is much higher than was first envisaged. What is the consequence of that?

Air Vice-Marshal Leeson: The original contract under which we took them on was very flexible and it allowed us to increase the hours beyond the base line entry if we wanted to, because clearly it would be sensible to do that. We have certainly increased quite considerably the number of hours that we get off that fleet because of the tempo of current operations and the usefulness of the aircraft. We do not yet find ourselves in the position of approaching the fleet leader owner which is still the United States Air Force. Our aeroplanes are integrated into the overall fatigue and health-monitoring programme as the American owned aeroplanes, so effectively we have the advantage of being on the coat tails of that. There are elements of the way that we have been using them for operations where our aeroplanes are less stressed because when doing the strategic tasks they spend a lot of time airborne in a relatively static configuration rather than manoeuvring close to the ground in tactical flying, which we do not do with them. Essentially, we are very comfortable that we are not in any way putting ourselves into a difficult period because we are using them much more than originally planned.

Q39 Mr Hancock: You do not share the view that as a consequence of what we have been doing—flying them a lot more than was first envisaged—they will go out of service sooner than previously planned for?
Air Vice-Marshal Leeson: Certainly, if you use any aeroplane more there comes a point when it will reach its ageing stage earlier, so we will have used more of the life of those aeroplanes, but they have so much life remaining that they are not on any planning horizon with which we need concern ourselves.

Q40 Mr Hancock: What was behind the decision to swap from leasing them to purchasing them? Did our usage of them have any relevance to that?
Air Vice-Marshal Leeson: No. It was always to be looked at as the most cost-effective way of operating these aeroplanes. I believe that at the time of the *Strategic Defence Review* which identified the need for additional outsize airlift, there were still uncertainties over the then future large aircraft contract which subsequently became the A400M procurement. We were not quite sure where that would actually end up. When SDR was authored we were nowhere near the tempo that we have been experiencing in the intervening period. As we do with all capabilities, we keep these things under constant review. I believe that in about 2002 we looked again at the likely volumes required in the outside airlift sector by which time the A400M programme had been determined insofar as how many aeroplanes we would be buying. It became clear that a review was then needed of our overall lift position with the C-17s. The decision was that it was more cost-effective to own rather than continue to lease.

Q41 Mr Hancock: So, we were not under pressure from Boeing to buy these because otherwise the caveats in the lease would have made it more difficult for us to continue to operate them?
Air Vice-Marshal Leeson: Not at all. Boeing have been splendid contractors in regard to listening to our real requirements and making sure they deliver as best they can towards them. It was very much an internal decision that we wanted to maintain ownership of these items.

Q42 Mr Hancock: Do we now own them?
Air Commodore Gunby: We will progressively take over the title deeds, if you will, of the aircraft so that next year at specified periods they will transfer piecemeal over to the MoD accounts.

Q43 Mr Hancock: Was that at the end of the original leasing period?
Air Commodore Gunby: That is correct.

Q44 Mr Hancock: You did not pay a penalty?
Air Commodore Gunby: No. The original lease was for a seven-year period, which at that time was termed the short-term strategic air lift requirements—the STSA—and, as the air vice-marshal has indicated, we have subsequently reviewed the situation and think we need these aircraft on our own books. We shall do that next year. At the same time if that comes with the delivery of the fifth aircraft all five aircraft will ultimately be of the same specification and will meet a very rigorous design standard.

Q45 Mr Jenkins: I am glad that they perform well and we have the fifth one coming into place. There is something going round in my head. If it is such a great aircraft and we have an older decaying air lift capacity and know we want the A400 but it is being pushed back and back, and if we know we have the present operation with the C-17, do we have enough C-17s at the present tempo to fill the gap between now and when the A400 comes in, if ever? Do we need seriously to consider putting in for the purchase of another C-17, if not more?
Air Vice-Marshal Leeson: As far as I am concerned the A400 programme is static; it is not slipping. We have no indication that there is anything tangible out there that causes a problem.

Q46 Mr Jenkins: Who is building this?
Air Vice-Marshal Leeson: It is the Airbus military company which is part of the EADS organisation.

Q47 Chairman: We shall come to deal with that in a moment.
Air Vice-Marshal Leeson: To some extent I was going to use my get-out-of-jail-free card. In terms of dealing with that element of the programme my good friend General Figgures will deal with that when he comes before you in a few weeks' time.

Q48 Mr Jenkins: Do we need another C-17?
Air Vice-Marshal Leeson: If I may drift back to the present position, over the past 18 months there has been an increasing number of troops deployed and therefore the sustainment package and everything else that goes with it has progressively moved upwards. We keep that under constant watch to decide what it is we need to do. For example, the decision last year to go to five C-17s was very much based on what we were charting ourselves forward to do. We have a large reliance on the commercial sector to provide freight and people lift and I must say that I am becoming increasingly nervous as to whether, looking at the marketplace and the risk to aeroplanes, we got the balance quite right. There is now an extensive piece of work going on to repeat the review of the middle of last year of the volumes that we predict will be moved around over the next 12 months and assess that number again.

Q49 Mr Jenkins: Is that a yes or a no?
Air Vice-Marshal Leeson: At the moment we are delivering well beyond our planning assumptions and, as the CDS mentioned, that itself is not necessarily an issue. It means that one has configured a programme for a situation that is now being exceeded. That therefore causes a number of stresses and stretches in the programme. There is no doubt that the outsize air lift sector and secure passenger lift sector of my owned base is the most stressed. As the logistics deliverer I would certainly wish to improve on that, but we have to find ways to deliver it in the relevant timescales against what the conditions will be at that time. That piece of work is going on.

Q50 Mr Jenkins: Obviously, you have more information and knowledge about the present situation than the Committee. In your opinion do we need another C-17—yes or no?
Air Vice-Marshal Leeson: I am sorry; it is not a simple yes or no answer. At the moment, by prioritisation and use of the chartered sector we can deliver sufficient support to where we are. Therefore, there is a need for analysis of the risks faced in future and the cost-effectiveness of the operation and whether or not one has the balance right. That piece of work is going on at the moment, so I would not like to prejudge its conclusion.

Q51 Chairman: But you say that you are becoming increasingly worried about those risks?
Air Vice-Marshal Leeson: I am concerned that we carry a greater risk.

Q52 Mr Jenkins: Boeing told us that it intended to shut down production in 2009. It takes three years to build one of these aircraft, so we have already passed the deadline. Therefore, if we need to order another we will have to buy a used one. If we need these aircraft someone should face up to it and say that we cannot take the risk, the gap is there, the present aircraft are being worked to maximum capacity and to fill that gap another C-17 is needed. That is what I am asking.
Air Vice-Marshal Leeson: Boeing's closure date for the line has gone back very slightly after a recent reorder by Congress, so there is no longer the need to have a decision tomorrow morning, as it were. We have time to make sure that we have the right answer here. Clearly, there is a complex dynamic between the A400 balance, the C-130J balance, the commercial balance and the C-17 which is why we must get that answer right. As I say, that work is in hand at the moment. We are not time-pressed by Boeing to make that decision this week.

Q53 Mr Jenkins: What weight can a C-17 carry?
Air Vice-Marshal Leeson: It depends on the range that one wishes to achieve. Clearly, the more one loads it the lower the range, but it is our longest haul and biggest freight aeroplane.

Q54 Mr Jones: I understand that work is going on at the moment to assess whether or not another C-17 is needed. Is there an option to do what we did earlier on in terms of leasing a C-17 rather than buying one off the production line? Would that option be open to us if we decided that we needed one?
Air Vice-Marshal Leeson: Again, that is a matter for General Figgures in terms of the exact detail of where the work at the moment is going on. The original calculations to buy out the lease under the original terms of the lease made financial sense at that stage. Given the fact that we decided last year to buy the fifth one because we would want it for a long time I suspect that the same answer would apply when work is done on how best to achieve whatever de-risking we deem necessary.

Q55 Mr Jones: When we were at NATO a few weeks ago there was talk about acquiring heavy lift simply for NATO's purposes. Is that being taken into consideration in the work on what we need?
Air Vice-Marshal Leeson: It has. We have worked very closely with our colleagues in Brussels on their proposal. First, they wish the UK to join in that proposal because clearly as a pretty large player in moving stuff around any offtake that we would have had would look quite attractive in that respect. We did some initial work on whether or not shared ownership or a shared lease with a bunch of other nations would work and it did not look right to us. We were sufficiently confident that in terms of our ability to assess volumes and cost the UK did not need another half or quarter of an aeroplane's lifting capacity; it would be a rather bigger package than that, and therefore there was minimum advantage to us in entering into that, albeit at the time we were alive to the fact that encouraging constructive good behaviour in new capability in Europe is always something to which we would wish to have an eye. We certainly offered to work with them very closely. In terms of what NATO colleagues are looking at and the cost-effective way in which they might operate their aeroplanes, for example by add-ons to our maintenance contract with Boeing, such that they could achieve a cost-effective answer which would also have advantages to us, we are still

working that through with NATO at the moment, but we will not participate in that programme other than to assist.

Q56 Mr Jones: You have already referred to the A400M. Estimates are that the in-service date has slipped by 15 months. Can you give an update on where we are at with this programme?
Air Vice-Marshal Leeson: I prefer to take a bye and say that that really needs to be answered by General Figgures as that is not strictly my area.

Q57 Mr Jones: Perhaps I may ask a related question which may be your area. As to the knock-on effect of any delay in terms of taking the C-130Ks out of service, in terms of capability what assessment has been made of the possible need to extend the life of those aircraft?
Air Vice-Marshal Leeson: In the previous planning round we took steps to do some life extensions on a certain number of airframes to deal with the current programme as is known. There is a little more space to do a bit more, but not very much. Therefore, C-130K availability will become a problem if the A400 programme slips any further.

Q58 Mr Jones: What timescales are you looking at? At what point does the decision become crucial?
Air Vice-Marshal Leeson: We already face a modest but containable gap, so it is already with us.
Air Commodore Gunby: It is currently planned that the C-130K will go out of service after the introduction of the first A400Ms, and the C-130J will continue in service until 2030, so there is still a significant amount of air lift during that transitionary period, not all of which is currently employed on operations. There is a little bit of a header there to provide for some contingency.

Q59 Mr Jones: What happens if we have a situation whereby there is further delay of the A400M? For example, in its submission Marshalls Aerospace has told us, for understandable reasons, that it is seriously concerned about the retirement of the C-130Ks ahead of the entry of the A400M. Will we have to bring in something to fill that gap, or can you extend the life of the C-130Ks?
Air Vice-Marshal Leeson: More work can be done on the C-130K. The issue becomes whether or not it is a cost-effective thing to do. Given the style of aeroplane, you can extend it for ever if you are prepared to continue to replace the outer wings and the centre sections which is the area where we face difficulty with the C-130K. The work that we did last year has got us back into broad balance with any quantitative difficulties because of FSTA programmes and the freight capacity that is new and available as part of FSTA. It can carry a significant amount of freight below the floor as well as passengers above it. At present we have a programme that works. If any further slippages are announced we will have to go through those numbers again and decide what is the best answer.

Q60 Mr Jones: But are you looking at an alternative in case there is slippage, because you cannot continue the C-130Ks for ever, can you? Would you have to bring in another alternative?
Air Vice-Marshal Leeson: We will have to look at everything subject to what those circumstances may be. One cannot go through endless analysis exercises against what might happen.

Q61 Mr Jones: The MoD is usually good at doing that.
Air Vice-Marshal Leeson: I take that as a compliment.

Q62 Mr Jones: It is usually a method of delay.
Air Vice-Marshal Leeson: We have done the numbers and we have a small dip in the number of airframes available prior to the current A400 programme. Should the A400 slip any further that will most probably get slightly worse.

Q63 Mr Jones: In terms of this financial year when will the first C-130Ks go out of service?
Air Commodore Gunby: The C-130Ks that we are retiring from service are the ones without theatre entry standard of equipment, so they are not of use to us in current operations. We are not losing any operational output in respect of current operations by retiring those aircraft.

Q64 Mr Jones: How many aircraft are you talking about?
Air Commodore Gunby: We have announced the retirement of four aircraft.

Q65 Chairman: You have announced the retirement of four aircraft.
Air Commodore Gunby: That was last year.

Q66 Chairman: When are those retirements to take place?
Air Commodore Gunby: Those aircraft will cease to operate when they reach the point at which they require very major servicing that would otherwise be required for continued service. I stress that those aircraft are without the theatre entry standard of equipment.

Q67 Mr Jones: What pressure has there been as a result of the loss of aircraft in Afghanistan and Iraq? You have lost one in Iraq.
Air Vice-Marshal Leeson: We have lost a total of three.

Q68 Mr Jones: Does that include the special forces aircraft?
Air Vice-Marshal Leeson: The total is three.

Q69 Mr Jones: What effect has that had in terms of operational ability?
Air Vice-Marshal Leeson: We have had the capacity to be able to backfill the lost frames with UK fleet aeroplanes which are to theatre entry standard. We have had to uplift the fitting of certain systems to aeroplanes that were not to theatre entry standard to

backfill that, but clearly there is an issue over the airframes themselves. Whilst one can do various neat tricks to extend capability and capacity, at the end of the day sometimes one needs the aeroplane where one needs it and therefore numbers rather than just activity or volume count. At the moment we are looking at what is the best replacement. As to the first C-130 for whose loss we were recompensed the money was used towards the fifth C-17 as that was the most effective way to deliver capacity.

Q70 Mr Jones: You are not necessarily replacing like for like?
Air Vice-Marshal Leeson: That is correct. We are very close to a conclusion as to the best way to use the compensation for the most recent two, but we do not have the absolute answer to that question.

Q71 Mr Jones: Obviously, I do not want to go into detail, but in terms of the special forces C-130s, are they separate from you? How are they managed?
Air Vice-Marshal Leeson: They are all part of the main fleet but clearly they are tasked separately.
Air Commodore Gunby: They are all available as part of the total fleet of C-130s, so they could be used for routine tasks and other more discrete tasks; they have utility across the range of potential tasks.

Q72 Mr Jones: You have lost three and you have been recompensed for those?
Air Vice-Marshal Leeson: For one so far, but we have not formally made a submission for the other two until such time as we know the best way to replace them. As we said, it is not necessarily two more C-130Js; it may well be one C-130J and some range and capacity extension equipment to make the best use of the ones we have got. We are still working through those numbers.

Q73 Mr Jones: Is that part of the larger review that you are conducting in terms of air lift capacity?
Air Vice-Marshal Leeson: Yes.

Q74 Mr Jenkins: On 9 January in a Written Answer the Secretary of State said that of our 75 Hercules, Tristar and VC10 aircraft only 41 were available for service on that day; that is, 55 per cent of the total fleet was available. I presume that in the short period since then there has been very little difference in the figure, but when do we get to the point where due to the stress and strains of operational demands on these aircraft we no longer have enough aircraft to do the job? Let us say we drop below 45 per cent availability. What is the percentage?
Air Vice-Marshal Leeson: The number of aircraft fit for purpose and available to be tasked by Brigadier Mason's and Air Commodore Gunby's organisations varies with each of the fleets because of the age of the aeroplanes and the various maintenance and fleet overheads that go with those.

Q75 Mr Jenkins: I accept all that.
Air Vice-Marshal Leeson: Therefore, with something like the C-17 we would have very high availability; we would expect three or three and a half out of four on a daily basis to be available to the lift programme. The point where we would worry about availability, or not get ourselves into in the first place, will be different fleet by fleet. Clearly, we have been under great pressure to fit various systems to the C-130 fleet which has caused dips in availability and which are truly complex to manage at the moment. I do not wish to go any further with the equation for the fitting of urgent operational requirements that we have at the moment, so there is constant tension between my capability colleagues who wish to install new and useful facilities to aeroplanes and those of us who have to operate the air bridge in a sustainable and minimised risk fashion where clearly we would like to maximise the number of aeroplanes. Therefore, it is a constant process.

Q76 Mr Jenkins: To put the question another way, we have an ageing fleet that includes VC10s and Tristars. It used to be said, "Join the RAF like your father and fly the same 'plane", but now we work on the basis of, "Join the RAF like your grandfather and fly the same 'plane." The way we are going it will not just be the same type; it will be the very same aircraft. When does one get to the point where, irrespective of the commercial side of it, one says that one cannot meet all the requirements and there is such pressure that one is failing to do the job that one wants to do? We are trying to be helpful as far as putting the case as bluntly as we can to government that it should be mindful of this. This is not a secondary matter; it is a vital cog in the machine, but at times we forget that. We have 55 per cent availability. The question is: if we had 45 per cent availability would it function?
Air Vice-Marshal Leeson: I will ask Air Commodore Gunby to answer it from the practitioner's standpoint. He is the man who has to deliver day to day and he can explain the challenges and pressures in the system. From my standpoint of where we shall be over a number of years I am very confident that the forward equipment programme looks very good in volume terms for what we need to have available. The future strategic tanker aircraft and the A400 programme will bring us to the end of the job to which Mr Jenkins referred. It will be a seriously modern and capable fleet. A lot of people are working in it extremely hard at the moment and are truly proud of the range of equipments they have, particularly with the arrival of the fifth C-17 which volumetrically gives us another great leap. Four aeroplanes in a fleet is a small number. If you add one more you are able to deliver good flow patterns and you have some good capacity increase as a result. The forward equipment programme is extremely attractive, but there is a great element of jam tomorrow in that. We have a very difficult period in front of us to continue to manage with our older ladies. At the strategic level I certainly do not underestimate the challenges faced by the guys out in the force. I do not want to be pulled on the particular percentage number. I become very concerned when we drop below 50 per cent availability because to operate at that level is a reasonable yardstick. We

have had to do that because the fitting of defensive aid systems, explosive suppressant foam and so on has taken rather more out of the order of battle than I am reasonably comfortable to do because I am a cautious kind of chap, but at the end of the day I can see the great advantages of those systems going on because it makes my situation in six months' time much more attractive in terms of the number of aeroplanes with theatre entry standard equipment. It is a constant balance.

Air Commodore Gunby: I am afraid that I cannot offer a figure either in terms of the level below which we would fail to do something. The fleet management of our current air transport fleet is an extremely complex and dynamic situation, as I am sure you appreciate. Both scheduled maintenance and unforeseen occurances—things that happen out of the blue—and a fairly extensive programme of capability grades either through the current programme or through urgent operational requirements need some very careful massaging across the totality of the fleet to ensure that we can maintain an appropriate operational outlook for the current demands which, as we all know, place us beyond the planning assumptions such as they are. Just to focus on a figure would be a little awkward. A forty-five per cent availability on one particular area would be pretty disastrous; 45 per cent availability somewhere else might be more manageable depending on the compensatory factors from other portions of the fleet. On literally a day-to-day basis we look at the fleet disposition and at what has happened to each platform within the force and veer and haul on programmes of maintenance and the capability insertion. A lot of the work that we are doing at the moment is to try to future proof some of these platforms to ensure we do not run into issues of obsolescence as certain equipments become unsupportable because they are no longer de rigueur in commercial aviation. For instance, we are installing a new flight deck system on the Tristar which will overcome some of those potential obsolescence issues on which you may attack us in future if we do not do that. It is a complex and very demanding process, but it is focused on delivering output for current operations.

Mr Jenkins: I understand the difficulties. When older aircraft are taken out of the system because they are constantly being maintained and modernised they are not much use to you anyway. Judging by the way you have couched your answers it is getting close, is it not?

Q77 Chairman: For the record, I should reflect for the record—otherwise, it will not be recorded—that you nodded your head in answer to Mr Jenkins' question.

Air Vice-Marshal Leeson: Yes.

Q78 Mr Holloway: Referring to the C-130s, were you implying that the shortage of aircraft in the first place is drawing out the timelines for the fitting of UORs by Marshalls?

Air Vice-Marshal Leeson: Do you mean: if I put in more aircraft could be done more efficaciously?

Q79 Mr Holloway: No. Does the fact you have so few aircraft in the first place draw out the timelines in which Marshalls are doing this important work?

Air Vice-Marshal Leeson: Clearly, if you give them only one aeroplane at a time it will take longer than if one gives them two at a time, if they have the capacity to parallel track that work.

Q80 Mr Holloway: What I am getting at is that the important pieces of equipment are the crews and those who need to be transported. Is the fitting of that stuff being delayed because we do not have enough aircraft in the first place?

Air Vice-Marshal Leeson: The maximum embodiment rate is affected by the number of aeroplanes that we can make available to the programme. That is the real balancing world in which we have to operate.

Q81 Mr Jones: Perhaps I may talk about what you refer to as two old ladies: the Tristar and VC10. Can you explain their role in the strategic lift and what the constraints are because of the age of these aircraft?

Air Commodore Gunby: Perhaps I may talk first about the VC10. We have three types of VC10. There are two types of tanker so they are air-to-air refuelling aircraft with a very small passenger-carrying capability. Usually just the support crew flies with the aircraft. Then we have 10 VC10s C1 mark Ks which are multiple role; they are both air-to-air refuelling aircraft and air transport in the sense of passengers and all freight. Those aircraft were procured for the Ministry of Defence in the 1960s so the C1Ks have been ours throughout. They will be maintained in service until the introduction of the FSTA. We are confident that we will be able to keep those aircraft in service until that point.

Q82 Mr Jones: I think that your website refers to the VC10s as now reaching the end of their service. I remember going on a refuelling exercise six years ago in a VC10 and being told that it was coming to the end of its life. I will come to the strategic tanker fleet in a minute. Realistically, great aircraft as they are—I think they are beloved by those who fly them—for how much longer will it be cost-effective to keep them flying?

Air Commodore Gunby: They are also greatly loved by me as a former squadron commander and navigator. They can continue flying until the FSTA comes into service and that is our plan. We are confident that we can do so.

Q83 Mr Jones: What is the financial cost of that? One can keep anything flying at a cost.

Air Commodore Gunby: Indeed. There would be some point beyond the introduction of FSTA when one would have to invest a disproportionate amount to maintain the fleet in service.

Air Vice-Marshal Leeson: It is already very high; it is more expensive to run a VC10 than to run a Tristar because it is such an old lady.

Air Commodore Gunby: You asked about both the VC10 and Tristar.

Q84 Mr Jones: Let us deal with the VC10 to begin with. There must be a point on the graph when it becomes prohibitively costly?
Air Vice-Marshal Leeson: It is certainly not at the prohibitive point yet because we still have it in a relatively stretched defence programme and it is the best way to deliver. I would dearly love the FSTA service to start earlier, but there is a certain time to contract on that programme because of the scale and nature of that complex PFI, which General Figgures will deal with fully. We would be delighted to be in a position to have got rid of the VC10 far earlier than we have, but technically the programme can be continued even if FSTA slipped further. Such is the nature of what we have and its capabilities.

Q85 Mr Jones: As the person in charge from the RAF's point of view, you are saying that the sooner we get the strategic air tanker in service and working the better?
Air Vice-Marshal Leeson: Absolutely.

Q86 Robert Key: When do you expect the first new tanker aircraft to be in operational service?
Air Commodore Gunby: The service is expected to enter in 2011.

Q87 Robert Key: Meanwhile, which other NATO countries can provide air refuelling aircraft that are compatible with our aircraft?
Air Commodore Gunby: Off the top of my head, the French, Italian and Dutch Air Forces have a tanker capability but it is not compatible with our fast jets, for instance. We can give you a note if that is helpful.
Robert Key: It would be helpful.

Q88 Chairman: Do any of them use VC10s?
Air Commodore Gunby: None of them uses VC10s.

Q89 Robert Key: When I was in Paris last month with the armaments directorate it expressed the hope that it might be able to be partners with Britain in the future strategic tanker aircraft. Are you aware of any such discussions?
Air Commodore Gunby: I believe that is really a question for General Figgures.
Air Vice-Marshal Leeson: In my previous job I had experience of international logistics engagement and I am not aware of significant overtures for participation in the FSTA programme as currently configured.

Q90 John Smith: As to the retention of the VC10, an absolutely superb job has been done at St Athan in maintaining and extending the life of that aircraft. Given the announcement on the DCR, do you anticipate any changes in where you will maintain and overhaul the VC10 in future, or is it going to stay at Twin Peaks in St Athan?
Air Commodore Gunby: I do not know the answer to that question. Perhaps we can provide a note.
Chairman: Perhaps you would do so.

Q91 Mr Holloway: When chatting to one of your engineers he referred to the VC10 fleet as rotting old aircraft, and in talking to others about the Tristars it was said that there were dozens of reds and greens, which are maintenance terms that I do not understand. Is there a safety issue in regard to the Tristar and VC10 fleets as the families of some of the aircrews seem to believe? As a passenger on the Tristar it was horrifying. There are doors without any lining. I know that that is superficial, but is there a deeper safety issue?
Air Vice-Marshal Leeson: We take the safety of our air, land and sea systems extremely seriously and the process by which we ensure that those best able to discharge those safety responsibilities, the people in charge, do so is subject to some very firm and careful delegations. We never put people in a position where they have to take undue risks with the lives of people who operate. That said, when systems age their reliability falls off and one constantly has to look at the reliability of those systems compared with any duplications or triplications that the aircraft carry, to make continuing safety judgments. The cost of maintaining a safe system is effectively the metric against which all operators of aeroplanes are challenged. I am completely confident in the safety of our systems.

Q92 Mr Holloway: My understanding is that there have been rows at aircraft doors between flight engineers and crew or senior officers who are determined to get aircraft to leave and engineering staff have not been happy that the aircraft is in a fit condition to go.
Air Vice-Marshal Leeson: Clearly, I cannot comment on hypothetical moments or anecdotes in that form. My expectation is that when there is a complex aeroplane with a variety of back-up systems and a particular deficiency exists by and large the "go, no-go" list as authorised by headquarters will always be followed. There may well be the occasional moment when something is sitting on a margin that warrants discussion between the experts at the time.

Q93 Mr Holloway: But would it be right to say that with all these defects in these two classes of aircraft what is happening continually—again, I do not understand it but you are an engineer—is that a component has six layers of redundancy and we are eroding those layers so perhaps we are one or two away from a failure? I ask again whether you are satisfied that the VC10 and Tristar fleets are safe.
Air Vice-Marshal Leeson: Yes, absolutely.

Q94 Mr Jones: Turning to the Tristar fleet, we understand from Marshalls that it has offered additional aircraft to supplement the fleet that you already have. First, would it benefit you; second, has it been considered?
Air Vice-Marshal Leeson: I am not aware of that offer. When looking at our activities over the past year and the fitting of defensive aid systems to the aeroplanes obviously we have made judgments on how many of them would be so equipped and the

various challenges to and effects on the fleet. By and large, to date the analysis that we have carried out does not favour the purchase of more old aircraft like Tristar. The determining feature in that is by and large the availability of spares for Tristar that are in a usable condition. Clearly, Tristar was quite a large fleet in its heyday and there are a number of airframes mothballed in the desert in Davis-Monthan in the US. The issue becomes one of providing spares to the standards of onboard equipment for which one has complete maintenance records that they have been maintained either to FAA or UK CAA standards. Therefore, the Tristar constraining factor is rather more to do with onboard equipment obsolescence than particularly the airframe or the availability of older airframes that we could acquire. Certainly, the analysis we have made in the recent months is that the purchase of more Tristars is not a viable option.

Q95 Robert Key: Air Vice-Marshal, right at the start of this session you referred to the importance of security of flight in and out of theatre. This Committee has been concerned for many years with progress on the fitting of defensive aid suites. We consider it inappropriate to discuss this in public session. Could you send us a note in confidence on the progress in fitting explosive suppressant foam to Ministry of Defence transport and tanker aircraft including the Tristars?
Air Vice-Marshal Leeson: Yes. It is being fitted to the Hercules, not the Tristar.

Q96 Robert Key: But can you also deal with the security measures fitted to the Tristars?
Air Vice-Marshal Leeson: Yes, we can do so.

Q97 Robert Key: I move on to aircrews. Do you have enough aircrews per aircraft or does the shortage which we have heard about limit the use of your airframes and also the use of strategic lift, transport and tanker aircraft?
Air Commodore Gunby: Aircrew availability like aircraft availability is a determining factor in what we consider at any time. The number of crews that we apportion to each aircraft in the inventory varies between aircraft types. It is specified in our management plan and planning assumptions how many crews we should have per aircraft type. The way in which we employ them is very different from the commercial sector. We are not in the business of revenue-earning where in the commercial sector the key determinant is to keep the aircraft on the ground for the minimum amount of time because it is not earning revenue. We are not in that game, or in the game of just flying aircraft in the hope that people book seats or deliver freight for that aircraft. Therefore, a balance must be struck between those contingencies where we need a surge requirement of air lift—in a moment I will come back to how we do that—and, if you like, the steady state when we are not going through those surge periods. If we were to crew our aircraft to deliver always that surge requirement in the most expeditious fashion what would we do with all those crews in peacetime? There might not be enough tasks out there in peacetime to keep all of them current or competent in the range of skills which they have. The method by which we employ our crews varies depending on perhaps whether the aircraft is employed in a tanker role or an air transport role. The most efficient use of our aircraft is to run what we call slip patterns. We would pre-position crews such that they will take over a particular aircraft at the point at which the first crew has expended its available crew duty time which is specified for each aircraft type. It is based on extensive aero-medical advice and also best practice in commercial aviation. In that fashion we can keep the aircraft moving and maximise its utility, if you will. Obviously, that is quite crew-intensive because one has to place the crews in various positions. Our tanker employments tend to be based on one task on a given day or they are on deployed duties. Similarly, currently the C-130s in Iraq and Afghanistan are on deployed duties. We will send enough crews to deliver the task in those theatres but will not need as many crews per aircraft as we would to run an aircraft in a slip pattern if it was travelling a long distance. As a matter of course, for many years we have done veer and haul on the crew ratios—the number of crews per aircraft—across the fleets, and we continue to do that. Several years ago when we withdrew a number of VC10s from service we shifted some of the crews from that aircraft to the Tristar to enable us to generate more output from the Tristar. Similarly, on the back of the decision to retire four C-130Ks we have shifted some crews across to the C-130J both to enable us hopefully to buy back a little of the air lift capacity which we have now retired but also to ease some of the harmony issues in relation to the C-130J. As to the C-17, when it was originally brought into service under the lease programme we crewed it at three crews per aircraft. We have now raised that to four crews per aircraft. With the introduction of the fifth aircraft next year another four crews will come along. Whatever the number is—four to one for the C-17s is our highest ratio—that does not compare directly with commercial aviation at all. I do not have the figures to hand but commercial operators, depending on the scale of their operation, may have anything up to 10 or 12 crews per aircraft, but that is in the interests of earning revenue. We have to balance the surge and peacetime requirements in crew ratio terms and we do veer and haul as a matter of course. It takes time to requalify aircrews for different types. We keep that under review. Wherever it is appropriate we will run aircraft tasks fast and use slip crews. For our current operational air bridge sorties for both passengers and freight we make maximise use of the assets. We run them fast with the positioning of slip crews.

Q98 Robert Key: In the past couple of years has it become more difficult to meet surge demand, or, putting it another way, do you have to put in more slip crews than you used to?
Air Commodore Gunby: I do not think we need to put in any more slip crews than we used to. In my 10 or 15 years of recollection my sense is not that we do

that on any greater basis than historically. We have the dynamic between the military air lift output in terms of delivery of lift and the commercial element of that.

Air Vice-Marshal Leeson: We have probably been fairly successful in programming the number of crews on each type to reflect the way our internal market, if you like, has changed the use of certain types and the style of the operation. The air transport force manpower is certainly under strains similar to those applying to certain other existing niche capabilities around Defence at large, so it is fair to reflect that they are working harder than an ideal plan would require in terms of both hours per day when they are at task or time away from home in the case of the deployed crews. But at the balancing end of the business we are probably content that at the moment that can be maintained and does not reflect an undue negative balance compared with other sections of Defence which are similarly stretched.

Q99 Robert Key: We know that you lose aircrew to commercial airlines like Virgin. Is that problem becoming greater?

Air Commodore Gunby: There are indications that an increasing number of people are exercising their option to leave at the end of their engagements. Without the figures to hand, again the incidence of premature release from the service shows no marked increase, but people are probably a little more inclined, if you will, to leave at the end of their engagement. I think that when he gave evidence CDS referred to this as an indicator in terms of morale and the like.

Q100 Robert Key: What reasons do those aircrews give for leaving? Is it lack of money or being away from home?

Air Commodore Gunby: Perhaps we can give the Committee a note on that because I do not have the specific survey results.

Mr Jones: I would be interested to see the figures in that note. When I was in Afghanistan last week I spoke to a number of aircrew who said that the tempo of operation there—a month on and a month off, basically, and up to six months away from home—was having an effect on them. I know that the ups and downs of the commercial airline business have always affected the recruitment of pilots from the RAF. A few years ago a retention bonus was paid. Do we need to do that again? Clearly, although they enjoyed their experience in Afghanistan the pressure of operations on the aircrew had an effect on them.

Q101 Chairman: Could you include that in the note?

Air Vice-Marshal Leeson: The Principal Personnel Officers of all three Services keep a very close eye on the retention and loss rate figures. A range of financial retention incentives is available. They are not levers that we particularly like. You referred to the FRI which was last paid to aircrew. I had a substantial involvement in its creation in a previous job. That was a rather interesting process in that the tragic events of 9/11 occurred and there was a complete collapse in civil aviation. Before I knew where I was I had a serious extra number of aircrews who were not exercising the options that we would normally expect them to exercise. That is part of the problem of being a modest aviation player in a very large sector, so it is a difficult and demanding task. That is why the panel here is slightly cautious about giving you the answer because you have to rely on the best evidence which is what people write on the questionnaire that they complete when they leave the service. My recollection is that it is a standard mixture of things: life change, family circumstances and so on. Across Defence generally we have not found the tempo of operations and the dangers and risks of operations to be a significant determinant across the piece. There are other things in play which tend to dominate the equation.

Q102 Mr Jones: I do not expect the answer today, but perhaps the note could contain the figures and also some of that information. That would be helpful possibly in trying to discount some of the anecdotal evidence that has been put to us.

Air Vice-Marshal Leeson: We will put it together.[2]

Q103 Mr Holloway: Obviously, the air bridge is important for operations but also quite important for morale, that is, leave and so on. When I was in the Armed Forces I formed the conclusion that air transport was run for the convenience of the Royal Air Force, not the people travelling. I remember checking in 72 hours early for a flight to Canada and last summer the experience of a Member of the Committee was quite similar, but since then there have been some huge improvements. Can you take us through them?

Air Vice-Marshal Leeson: Perhaps you would allow me to deal with the major equipment improvements and then I will hand it over to the operators to deal with some of the elements of the process below. The fundamental concern of the Defence Staff is to ensure the safe transportation of our people into the threat theatres. You are kind enough to acknowledge that we have had some dispatch reliability difficulties in the past 12 months where because we have had a relatively small number of aeroplanes equipped with the relevant defensive systems we have fallen foul of the reliability of those aeroplanes in dispatch terms, and therefore somewhat regrettably people have formed the view that with the Defence-owned assets we do not deliver a particularly effective service. Since more aeroplanes have passed through the defensive aids equipping programme at Marshalls—I am talking predominantly of the Tristars—we are now in a much better position to provide the service. Indeed, I keep a very close eye on the statistics of disappointment to make sure that we are strategically doing everything we can. We are now getting the sorts of numbers where I am beginning to feel more comfortable. A good example of that is that in the past two months—Brigadier Mason runs

[2] *See* Ev 49

the numbers for me—we have not disappointed. We have been delivering a good service because we can now provide a spare aeroplane that is properly equipped. In the event that the primary aeroplane has a start-up issue that cannot be fixed quickly we can revert to a back-up and deliver the sort of service of which the Royal Air Force can be proud. At the high technical end we have done a lot of work and spent a lot of money on delivering it. Post Mr Lancaster's experiences we have also invited the customer—Headquarters Land Command—to do a route review of all our tracks to see what sorts of things are irritants to the vision of a gold standard service. Land Command has provided a report which is being progressively worked through. A number of simple things can be done to make people feel as if they are valued customers and the problems that you previously highlighted are a thing of the past.

Air Commodore Gunby: The other very significant improvement that has been made since last summer is that we are now delivering personnel direct to Kandahar in Afghanistan whereas previously they had to go to Kabul and then move down country in a Hercules. That has significantly reduced the transit time for passengers reaching the point where they are requirement. The reviews to which the air vice-marshal referred are not entirely new. The identification and addressing of customer satisfaction, or customer irritants if you will, has been a continual process for many years, but events over the past 12 months have brought those into particularly sharp focus. A number of independent snapshot reviews have been conducted supplemented most recently by the Land Command-led review which was a small team of Army and Royal Navy personnel who for a couple of weeks were allowed free rein to look at the whole process of delivering the air bridge.

Q104 Mr Jones: Was that because they were the complainers?

Air Commodore Gunby: They are the predominant customers. To be fair, if the Air Force came along and said everything was rosy it would not smack as being entirely independent and necessarily fair. They had the opportunity to look behind the scenes at the whole process from concepts to planning to delivery and geographically they ranged very widely to both operational theatres and the Balkans. They looked at the South Atlantic, Akrotiri, Brize Norton and so on.[3] They looked at what was going on at those locations and picked up what they saw as anomalies, inconsistencies in approach and made infrastructure recommendations, whether modest or major. One major improvement would be to introduce more reliable air transport aircraft. I wholeheartedly endorse that, and there are plans to do that in a certain timescale. But there is a whole raft of other rather more modest and in the view of some people perhaps trivial improvements in process and infrastructure that can be made and have been made which collectively improve the level of service provided. To give a few examples, at Brize Norton we have increased the number of people who are on movement shifts and handle passengers. We have introduced a contract element to bolster availability. It has also released some uniformed air movements personnel to do the operational job out of theatre. We have refurbished and expanded the café in the terminal. It is perhaps a relatively trivial thing, but it is a very welcome improvement. We have installed a customer helpline with a call waiting facility. These are relatively trivial things but collectively they mount up. In the recent past at Akrotiri air-conditioning has been installed throughout the lounges. There have been upgrades to the ablution facilities. A Tannoy has been installed there. A mobile phone service is available so that people can call home from Akrotiri. There is access to JPA facilities at the terminal in Akrotiri. We are focusing on these sorts of customer care initiatives, if you will. We have also focused very strongly on the training of our personnel who interface with customers. Perhaps for understandable reasons over the years the customer service mentality in a military organisation has not been strongly to the fore, but we have reintroduced and reinforced a requirement for customer handling training through our training processes. Therefore, there is a raft of relatively minor improvements which collectively contributes to the good of the service. Many have been enacted and many more are in progress. Looking beyond that, the CATARA programme at Brize Norton will deliver us the infrastructure to enable us to march forward with the new aircraft types.

Q105 Mr Holloway: For the record, most of the people to whom I have spoken believe that the Royal Air Force has done a magnificent job since last summer in improving it, but are there still shortcomings? Can you give some examples of what they are from your viewpoint?

Air Vice-Marshal Leeson: The infrastructure at Brize Norton is pretty creaky, which means that people probably have to work a lot harder and more diligently. To achieve a modernised freight-handling system and a rather more swept-up and laid-out terminal. Ramps-space can sometimes be a challenge at peaks of movements, given that we have already started the work to increase the apron area. Those are probably the testing areas, apart from the stresses and strains of operating relatively old aeroplanes which do not conform to good modern standards, because that is what people expect from when they go on holiday.

Brigadier Mason: Whilst it is dangerous to use statistics because they have a nasty habit of creeping up behind you and kicking you in the head, I know that we have significantly improved our statistics for supporting Afghanistan. I asked for the most recent statistics covering the very difficult period of the relief put in place in Afghanistan when we were trying to move in 6,500 troops and move 6,500 out. The statistics for the Tristar over the period February to April show a 91 per cent success rates

[3] The review team did not visit the South Atlantic but did visit RAF Brize Norton, RAF Lyneham, RAF Akrotiri, Basra, Kandahar, Pristina, Banja Luka, Al Udeid, DSCOM, Hannover, HQ Land, 104 Logs Brigade and South Cerney.

within 3 hours of planned arrival. That equates very well with the charter aircraft that are flying into Al-Udeid at 93 per cent. We must work to maintain that.

Chairman: This is a very important issue in maintaining the morale of the people who are doing such important work in Afghanistan.

Q106 Mr Jones: I want to ask about some of the work you are doing with the commercial operators you are using. I spent 18 hours flying to the Falklands on a Tristar. Just because it is a military aircraft there is more room; it is designed for military personnel. I also spent seven hours flying back from Qatar on a 767 Excel Airways which is not exactly designed to seat some large marines and others for a seven-hour flight. What work are you doing to charter aircraft which will provide accommodation so it is more comfortable for people to travel back from, say, Qatar for seven hours? It is perhaps all right to travel to Spain on a 767 charter flight, but if the passengers are marines with all their equipment it is a pretty tight fit. Some of the people I saw on that Excel Airways aircraft went through hell for seven hours. The service from the airline itself was not fantastic.

Brigadier Mason: Did you fill in a chit to say you were not satisfied with it? I am being slightly flippant, but it is an important point.

Q107 Mr Jones: There is a big difference. I have flown on a Tristar military aircraft which is designed to accommodate personnel, but these aircraft are not so designed; they are designed to take people on holiday.

Brigadier Mason: A good example is the support of the South Atlantic islands for which the Tristar was originally bought to support after the Falklands war. Because the Tristars are supporting Afghanistan we now charter 747s through Excel Airways. They are big enough and wide enough to take any number of troops. To answer your specific question, when we go out to contract we do not ask the airlines to adjust the way they do their seating because, frankly, none of them would want to have a contract with us if we so asked.

Air Vice-Marshal Leeson: There is the pragmatic consideration of conforming to IATA standards which clearly all of these aeroplanes do for the distance travelled, but I agree that we have rough-and-tough, big, solid chaps sitting in seats built for the average tourist. That is an issue. I do not pressure the DSCOM to achieve 100 per cent load occupancies; I am perfectly content that they have a certain overcapacity in the Pax fits. Our statistics show that we are 80 per cent loaded also on charters. One must have some cognisance of the fact that a bit more space is needed for chaps who have done a serious job and are on their way home, but one cannot go much further and have, say, two seats per person. In most of these aeroplanes one is not able to lift the arm rest anyway. When we have the FSTA in service one of the rather useful spin-offs is that that aeroplane has a seating fit which will be very much more like modern standards of acceptability and will be more suitable for the larger framed individual we tend to employ. Again, it is another jam tomorrow answer, but the mitigating factor is that we just do not stretch the elastic too thinly in terms of the contracts we place. Occasionally, it is a completely full aeroplane and it is not the most pleasant experience, but we do our best to minimise the times when that occurs.

Q108 Mr Jenkins: I asked earlier about the carrying capacity of the aircraft. The figure I have is that the C-17A can carry 45 tonnes but for the A400M it is suggested that the carrying capacity is 32 tonnes. Does anyone ever consult you as to what the carrying capacity of the aircraft should be, and do you ever match it up with your obligation to carry? How would you feel if the new FRES vehicle could not be carried in the A400M because it was too heavy?

Air Vice-Marshal Leeson: As I am sure the Committee is aware, there has been a lot of debate with Airbus and quite recently we have increased the floor loading specification for the UKA—400s to cope with those elements of the FRES variants and capabilities that have now been identified. In the past two years' worth of activities that have been carried out the trend has been for armoured vehicles to become heavier to provide the required defence. Conscious of the security situation that we are now, it is a considerable worry that with each threat change there is an inexorable rise in the weight of armour or protection that our various vehicles are carrying. I think that is a very legitimate concern for the Committee and ourselves to pursue because it will constantly stress the ability to lift these vehicles around. The business that we are in is to try to find ways to achieve that. So far the A400 design is living up to the FRES demands. Should the threat situation suddenly change further then all of that will have to be looked at very carefully, but General Figgures is probably the best man to speak to that topic in the next couple of weeks.

Q109 Chairman: As we said, there is a trade-off between mobility and protection.

Air Vice-Marshal Leeson: Yes.

Chairman: Gentlemen, thank you for the interesting session this morning. We are grateful to you for your frank and open answers and for a most useful start to our inquiry into strategic lift.

Tuesday 22 May 2007

Members present

Mr James Arbuthnot, in the Chair

Mr David Crausby
Mr Mike Hancock
Mr Adam Holloway
Mr Bernard Jenkin
Mr Brian Jenkins
Willie Rennie
John Smith

Examination of Witnesses

Witnesses: **Lieutenant General Andrew Figgures CBE**, Deputy Chief of the Defence Staff (Equipment Capability), and **Mr Tim Rowntree**, Director General Air Support, Ministry of Defence, gave evidence.

Q110 Chairman: Good morning, gentlemen. Thank you very much for coming to talk about strategic lift. Could we begin, please, by asking you to introduce yourselves and to say what your roles are in the realm of strategic lift?
Lieutenant General Figgures: My name is Andrew Figgures. I am the Deputy Chief of the Defence Staff (Equipment Capability). I am responsible to the Chief of the Defence Staff and the Permanent Under-Secretary for generating the equipment and the Equipment Support Plan. It is my job to determine the capabilities we require in the light of the direction I am given and balance those such that I can produce an affordable equipment programme which meets our defence needs.
Mr Rowntree: I am Tim Rowntree; I am the Director General Support within the new Defence Equipment and Support Organisation, and my role is the procurement and through-life support of the Ministry of Defence's large aircraft fleets such as C-17, C-130, Future Tanker, etc.

Q111 Chairman: Thank you very much. A couple of months ago the Chief of Defence Staff was in front of us and he said that strategic lift gave cause for serious concern. How have we got into a position like that?
Lieutenant General Figgures: Chairman, if I may answer this question. The Chief of Defence Staff in his answer said that we were operating at above our defence planning assumptions. The defence planning assumptions are not an indicator of our total capability, but they are an indicator of what we are going to plan and resource to, so we can do more but we cannot do more indefinitely. Inevitably the world is changing and there are risks with respect to our capabilities in certain areas. It is part of my job to look at how we might mitigate those risks and I do that in conjunction with the defence equipment and support and the front-line commands.

Q112 Chairman: Yes, but we have known what the out-of-service dates of the tankers and of the transport aircraft have been for many, many years now; so is it a failure of long-term planning, do you think?
Lieutenant General Figgures: I do not think it is a failure of long-term planning because the manifestation of a failure would be that we suffered operational disadvantage. We have matched the demand to the supply and we have managed the supply, I think, very much as the Assistant Chief of Defence Staff Logistics, Air Vice-Marshall Leeson, suggested last time, by putting our militarily owned lift assets where it was most appropriate and filling in the gaps with assets, whether of aircraft or ships, that we have taken up from trade.

Q113 Chairman: Do you not think that with CDS saying that it gave cause for serious concern, that is evidence of operational disadvantage?
Lieutenant General Figgures: Concern, I think, about the probability of the impact of the risk increasing, yes, but we have yet to suffer operational disadvantage because of this. One of the reasons why we have yet to the suffer risk is because, of course, the logistics world and, indeed, my world and the frontline commands have been working to anticipate this increased demand and we have met it. It does not mean to say, though, that if the demand increased asymptotically we would be able to meet it, but there again this is a question of probabilities.

Q114 Chairman: Would you not describe the difficulties we have had with the air bridge as operational disadvantage?
Lieutenant General Figgures: The operational outcome has not been affected adversely, but, speaking from personal experience and, indeed, the experience of many, they have not always arrived home when they anticipated they would arrive home, nor have they arrived in the operational theatre at the exact time that they anticipated, but that has not had an impact on our operations. It, of course, has had an impact upon our perceptions.

Q115 Chairman: And on the morale of our troops?
Lieutenant General Figgures: Yes, and on the morale of our troops, but not to the extent that it has had an impact on operations. I think we have all suffered the late train, the late plane, the late bus, I think our people are very much more robust than that, but it is not something that we can be complacent about, and so, on a weekly basis, we review our operational

risks and on this planning round and every planning round we look at what we must do to ensure that we have a robust capability to support the operation.

Q116 Mr Holloway: General, one of the reasons stipulated for people in key jobs not having longer tours in both theatres and, therefore, perhaps to perform better, we have been told, is because there simply is not the lift for people to have those longer tours with more frequent leave breaks. So, just at that very small level, it has had an effect?
Lieutenant General Figgures: I think there is a balance between tour length and your role in the operation. Our commanders, where appropriate, have been extended more than six months, but I think it is quite reasonable for a soldier, sailor or air marine who has been involved in high intensity operational activity to be ruled at the six-month point or less in certain cases. We balance the air-lift necessary to do that, but, of course, we have looked at tour lengths and whether it would be appropriate in certain instances to increase them or not, but I think you need to balance the human requirement. We are asking our people to do a lot in these operations.

Q117 Mr Holloway: That was not really the question. People do postulate that, by having shorter tours, people do not have the necessary experience and that people would like to keep you in the key jobs there for longer. Has the difficulty with the air bridge been a factor in our not doing that, because you would have to give people different leave patterns?
Lieutenant General Figgures: I am not aware that this has been a decisive factor in not doing it.

Q118 Mr Holloway: Okay, but it is a factor?
Lieutenant General Figgures: Of course it is a factor, because if you have a short tour, if you are there for a month, then you have a much greater turnover and, therefore you have a higher requirement for air-lift, but that is not an operationally sensible thing to do. As a soldier you are not at your best if you have just had a month's tour. It is a huge training burden to get you there.

Q119 Mr Holloway: I am not necessarily talking about soldiers, I am talking about commanders. I am just trying to establish that in this one small area the situation of the air bridge has made a difference and I wonder whether there are any others?
Lieutenant General Figgures: No, I do not think there are. With commanders we have extended them in post to reflect the operational requirement. So, General Lamb has been extended in post with the handover of General Casey to General Petraeus.

Q120 Chairman: Are we giving too much priority to combat equipment and not sufficient priority to support equipment?
Lieutenant General Figgures: I think it is a very fair question, but I believe our planning process, of which we are in the midst now, takes account of this. We look at the interaction between the effectors and the enablers. So, there is no point in having precision attack unless you have the information, surveillance target acquisition, intelligence in surveillance target acquisition and reconnaissance capability to find those targets and you do not have the command control and information infrastructure to communicate to the precision attack capability, but, importantly, you also need the logistics to enable you to provide the weaponry and the fuel to fly the aircraft and to fire the guns, or whatever. So, we have a balance in our system and we pay a lot of attention to that to make sure that we do get that, as far as is possible, right.

Q121 Mr Jenkins: When you said, "We have all suffered the late plane, the late train, the late bus", or whatever, "but our people are more robust than that", do you mean that the burden falls on the passenger? Surely we have a right to ask: Why should it? If that is the case, it means that you have failed to deliver the timetable as set out. So, if you are not complacent when you have that attitude, what exactly are you?
Lieutenant General Figgures: I had rather hoped that my previous reply indicated that we were not complacent, but I am certainly not complacent. I do not accept that delay is something that one just sits down and accepts, but we do live in a world where the unexpected happens. There are risks. We must identify those risks, determine what the probability is, make the appropriate provision, but with the best will in the world, things do go wrong. I do not think that is acceptable and we should, by all means, attempt to prevent it, but things do go wrong; it would be naive to think that they do not.

Q122 Mr Jenkins: Every large organisation has things that go wrong, and they have back-up systems and they have risk assessments and they make sure things are in place. I do not think the Chairman was attacking you when he said: "Have we got to the point now where we do not have the back-up, we do not have the support, our equipment is getting old." Are we really getting stretched in this one area? All we are trying to do is to assess the facts so we can maybe press the department and maybe the Treasury for extra resource or ask, "Why is this provision not being delivered on time?" We are on your side, but the answers we get sometimes lead me to think, if everything is alive and well and you are guarding your back and making sure that no mud sticks, we are not throwing mud at the present time, and so I think it would be a lot more helpful to the Committee if we could have sometimes franker answers: "Yes, we do have a serious situation because, through no fault of our own, the delivery date for the vehicles, the delivery date for the planes, there has not been enough capacity in the system" and that is what we are trying to establish.
Lieutenant General Figgures: Thank you, and I appreciate that, and I appreciate the support the Committee gives to us working in the Ministry of Defence, but I think—

Q123 Chairman: It may not always seem like that.
Lieutenant General Figgures: No, but there is nothing like a bit of constructive criticism to get us to step up to the mark. I think it is very helpful support. I would not wish you to believe that I and my staff are complacent, far from it, and I would not want you to think that it is easy managing this. Speaking to Air Vice-Marshal Leeson and his team, I rather hope that they did not give the impression because I do know the logistic chain of command is working extremely hard. The Chief of Defence Staff and the chiefs pay a lot of attention to ensuring that we provide the necessary support to our people. As we are currently constituted, I believe that we are able to meet the requirement. However, there are risks that we would have to manage, and, indeed, we are doing quite a lot of work now as to what we would have to put in place in this planning round to take account of those. If you could influence the Chancellor to be generous in the Comprehensive Spending Review, I can tell you, my job and the job of my fellow service men would be a lot easier.

Q124 Mr Crausby: The Major Projects Report 2006, published in November 2006, tells us that as of 31 March 2006 the forecast in-service date for the A400M was March 2011, which is a 15-month slippage. Is that still the case, or what is the current forecast for the in-service date?
Mr Rowntree: Yes, that is still the case. Fifteen months slippage is our current forecast. I would explain this also. That 15 months arose, not because of poor performance from industry, but because of budgetary difficulties and approvals difficulties following the initial approval. So, since contract award the company has really kept pace with the programme.

Q125 Mr Crausby: Have the problems with the A380, the production difficulties that were suffered on commercial aircraft, had any impact on the A400M?
Mr Rowntree: Not directly. The A380 is in a more advanced phase of its development than A400M, so it is drawing on different industrial resources. However, what is interesting is that the review that Airbus did of all its programmes last November, including A400M, was able to bring some lessons learned into our programme, and one of them was that we should make sure that the sub-assemblies—the wings, the fuselage and the various elements of the aircraft—are very mature in themselves before we bring them together in final assembly. In fact, you will note that there is now a three-month declared slip to the final assembly line opening in Seville—it should have opened at the end of March—but part of that is Airbus could have opened the facility at that point but actually chose to make sure that it is ready for that final assembly so that they do not get into the difficulties that they have experienced with A380 where they are trying to do lots of things in parallel; in other words fix the component parts in parallel with bringing the aircraft together.

Q126 Mr Crausby: Can we be absolutely confident that there will be no further delays and no further slippage on March 2011: because the out-of-service date for the Hercules C-130 is 2012, is it not?
Mr Rowntree: It is as currently planned. Can I answer the first question?

Q127 Mr Crausby: Yes?
Mr Rowntree: You can never be absolutely certain that an in-service date will not slip. We are now entering some of the most critical phases of the programme—the test and evaluation programme, maturing systems on the aircraft and preparing for final assembly and making sure everything is working as planned—so there are a number of risks in this area of the programme, but, as I have said, up until March this year when Airbus, regrettably, declared a slip to the final assembly line, they had achieved all contractual milestones since 2003 when the programme was launched. So, I am fairly optimistic that there is nothing major wrong with this programme. We have not yet seen any detailed plans from Airbus as to how they will recover that three months, but I understand that they are working on it and I expect you can ask them later where they have got to with that. The second part of your question was actually about the C-130.

Q128 Mr Crausby: About Hercules. It is pretty tight, is it not?
Mr Rowntree: 2012 is the planning assumption. With those old aircraft, the out-of-service date is really a balance of investment decision and it is a planning assumption at this point. So, we can invest in replacing the structural components, which are the outer wings and the centre wing box on the Hercules, and those are actually cost drivers if we need to keep the aircraft going. In terms of how we manage the through-life capability, this is where we have a huge opportunity in the new Defence Equipment and Support Organisation to do this, and we are keeping a very close watch on the A400M programme on the one side and the Hercules plot on the other and, if necessary, we will make sure that we change those planning assumptions and what we are doing with the existing fleet to make sure that, if we do need to keep the Hercules a little bit longer, we do that and we pull those levers and make those plans in sufficient time to make that happen.

Q129 Chairman: But from what you said, Mr Rowntree, if the delays have been caused by budgetary and approval issues and not by industry itself, there are things that need to be gripped in the Ministry of Defence, are there not?
Mr Rowntree: Do not forget that this is a six-nation collaborative programme, so it was about getting the budgetary processes and approvals of six nations together at the same time to launch this programme as an entity.

Q130 Mr Hancock: It is a very interesting comment you have just made, saying that there was nothing intrinsically wrong with the programme. I can remember that being said about Eurofighter time

and time again: people sitting in your seat giving evidence to this Committee saying, "There is nothing wrong with the programme", but the in-service date just went back further and further. It went from being a full squadron to being a half squadron to being one plane, in the end, the date we ended up with, and that was also a multi-country exercise. I am curious to know whether you see this in some way going down the same position as Eurofighter went?

Mr Rowntree: You will not be surprised to learn that Eurofighter has been a painful experience for all of us, as it has taken so long to come into service, and in launching the A400M we have sought to make sure that some of the inflexibilities and difficulties that were in the Eurofighter programme were not brought in to the A400M programme. On Eurofighter we had some inflexible arrangements, such as fixed work shares between nations, and quite a bureaucratic process. With A400M we are following what we call a commercial approach, which is a fixed price contract with Airbus with key delivery milestones, and once the contract is placed, the nations really do not manage it by committee any more. It is the same as a commercial Airbus product would be managed. It is then up to the company to manage the programme and, in fact, we do not have a fixed work-share arrangement. Work-share is an issue that we monitor closely, but it is not an inflexible driver. Therefore we have learned from Typhoon and we believe that the A400 is on a much sounder project management footing.

Q131 Mr Hancock: I think we should have a big banner at the top of the report saying, "We have learnt the lessons from Typhoon", and see if that is true at the end of the day. I hope it is. General, you said at the end of the question from the Chairman we should put some pressure on the Treasury and put a plea in for you. My question to you was going to be: "Okay, General, you want us to put this plea in to get you extra resources. What would your number one priority be in respect of this issue if you had that extra money?" What is it that you have got that you need money for?

Lieutenant General Figgures: I think I would like to do more work and, indeed, I have got work in hand to provide advice to ministers on reducing the risk, which is really the point that Mr Jenkins made, to the strategic air bridge. I think we would know the impact of anything adverse happening to the air bridge (i.e. if the demand rose and we could not meet it for whatever reason). It is the probability with that. Soldiers are essentially (I was going to use the word "conservative" but that might be inappropriate) "conservative" with a small "C", but we do not wish to take any more risk than is necessary. So, if we could increase our capacity, that, I think, would enable me to help the Defence Equipment and Support Organisation manage that risk.

Q132 Mr Hancock: I still do not understand. What sort of money are you talking about and how would you spend it? Would you bring in a pile of planes or what would you do?

Lieutenant General Figgures: Would I?

Q133 Mr Hancock: I want to know (1) how much more you need and (2) what would you actually do with the money? Would you buy in other planes? Would you rent planes? What would you do?

Lieutenant General Figgures: That is really the nub of my work at the moment.

Q134 Mr Hancock: I am curious to know what it is. You said you did not have the money and, if we could get it for you, you would do something. I want to know what it is you would do with it, general. You must have a plan.

Lieutenant General Figgures: Yes, I do have a plan. Clearly we have made our submission to the Treasury and the Permanent Under-Secretary and the officials have made that and ministers are in contact. It is hugely helpful, if you are in the business of executing these plans, for there to be decisions as soon as possible and decisions which meet the requirement rather than do not meet the requirement. So, we have a bid with the Treasury, and really it would be hugely helpful if that bid could be met because then we would be able to cover the various issues. What am I going to do? I have a number of things I need to look at. I need to look at the overall air-lift, not only in support of this operation but also to meet our defence policy and whether I need to have more in-service air-lift run by the RAF or whether it is appropriate to continue with the contracts. Inevitably, as the operational context changes, that must have an impact on contracting price, and we have actually seen that as the situation has changed over time. There comes a point when it is perhaps more appropriate to own the asset and run the asset than it is to lease it or hire it. The outcome of my work will be advice to the Minister of Defence (Equipment and Support) and it will put forward a number of options and it will have costed those options and it will have identified how we will fund those options, so that is work-in-progress now, and once I have delivered it to him and he has made the appropriate decision, then I am sure it will be made public as soon as is possible.

Chairman: We ought to try to move on.

Q135 Mr Hancock: Yes, but I am curious, Chairman, because I think it is important. The two questions that were asked, I did not think we got clear answers on. If you have put a bid into the Treasury currently, does that include the sort of contingency you are talking about?

Lieutenant General Figgures: The current bid includes our overall requirement. I would have to do some rebalancing work, I think, if I were to meet some of our options. I admit here that I am not being as clear as I would like to be, but, of course, I am in this rather difficult position of producing the advice to the Minister and, clearly, I do not decide, I advise, he makes the decision, and I have to be careful that I do not constrain him in any way. There are a

number of commercial sensitivities too, which I am sure you will understand. Going back to Mr Jenkins' point, I very much appreciate your assistance in this, but, again, you will recognise that being the Ministry of Defence—

Q136 Mr Hancock: It is never easy.
Lieutenant General Figgures: —it is never easy, no.

Q137 Mr Hancock: In that case, we are procuring 25 A400Ms. We have lost three planes since January 2005. Are you satisfied that, with hopefully not that same sort of attrition in loss of planes, that the 25 is sufficient for all our needs, bearing in mind what has happened historically?
Lieutenant General Figgures: I am not satisfied, and that is why I am doing this work. As you have rightly identified, we have to identify what our potential attrition is—how we would make that good. One of those planes we have lost, one of the C-130s. Instead of buying another C-130 the money which we received to replace it we put towards the fifth C-17, which is part of improving our overall strategic air-lift, and, of course, was influenced by our perception at the time of when Boeing was going to close the C-17 line.

Q138 Mr Hancock: To be fair, when that was said to this Committee, I think nobody on this Committee dissented from that?
Lieutenant General Figgures: Yes.

Q139 Mr Hancock: On the out-of-service date for the Hercules C-130K, that has been delayed for two years. To have some coherence in what that decision originally was and the in-service date for the A400M, who is paying for that extra work needed to be done to keep those planes in flight?
Lieutenant General Figgures: The Equipment and Support Plan will have to find the money to do that. You could argue at the first level that, if we do not have the A400M, then the support money for that can be used in part to continue the C-130. I set the requirement but Tim actually does the detail for that.

Q140 Mr Hancock: Who actually pays? Where was the money—
Lieutenant General Figgures: I would have to find the money to enable Tim to do the work.

Q141 Mr Hancock: You have had to find it, because we are extending the—
Mr Rowntree: We have found the money that covers the 15-month slip that is reported now.

Q142 Mr Hancock: Why did not Airbus have to contribute to that?
Mr Rowntree: The slip that we have got up until now, as I said earlier, was to do with the approvals process, so from the contract award.

Q143 Mr Hancock: If it went beyond 2012, if there was a further delay, that would all be now presumably down to Airbus (so finding a stop-gap between 2012 and the eventual in-service date), and is the in-service date for one plane or for several of them?
Mr Rowntree: It is for several.

Q144 Mr Hancock: What: five?
Mr Rowntree: I believe it is seven.

Q145 Mr Hancock: So the in-service date is when we get seven handed over, fully operational A400Ms?
Mr Rowntree: Yes.

Q146 Mr Hancock: So, if that was delayed from 2012, presumably Airbus would have to pick up the tab for whatever else we had to do to cover our capability gap?
Mr Rowntree: The contract does not work exactly like that. As I said, it is a commercial approach. Airbus is working to a fixed price contract. We have deferred payments if they are not delivering against milestones and there is provision for liquidated damages. However, whether or not the remedies against Airbus would be sufficient to continue the Hercules, I could not say.

Q147 Mr Hancock: So what is your fallback then?
Mr Rowntree: The forecast is it goes back into the planning round, as soon as we identify it with General Figgures and his team and we make the provision by readjusting priorities across defence to make that happen.

Q148 Mr Hancock: Is that a long process of being able to acquire aircraft to fill that sort of gap?
Mr Rowntree: No, because the C-130K is already in-service and well-known and the IPT are keeping tabs on the fatigue management of those aircraft, and they make known, through me and to Andrew's team, when the decision points are when we would retire an aircraft, or we could preserve it, so we do keep those levers and those dates at which we would need to make investment decisions in those aircraft very closely in mind.

Q149 Mr Hancock: Is there any preference in the overall plan—Airbus deal with various countries on these aircraft—to give some preference to the UK? If there were aircraft destined for other countries, could they be made available to the UK in advance?
Mr Rowntree: The UK has very early deliveries anyway. There is only France and Turkey in the front of us and, once the UK programme starts to be delivered, we do have a high rate. France and Turkey are also very keen to get these early aircraft, so I would not think there is any real scope to do that.

Q150 Willie Rennie: When Air Vice-Marshall Leeson came before the Committee in April he said, "Conscious of the security situation we are now in, it is a considerable worry that with each threat change there is an inexorable rise in the weight of armour or protection that our various vehicles are carrying."
Mr Rowntree: Yes.

Q151 Willie Rennie: Do you think that with the evolving situation of FRES that the A400M will be able to cope with what we come up with?
Mr Rowntree: As you may be aware, we have increased the floor strength of the A400M recently to make sure that we can carry FRES. The A400M is clearly at a higher state of development than the FRES, so the way this now works is that the FRES is working to around a 25 tonne total size, and that would enable 400M to move it around about 2,000 miles, which would be a very useful lift capability. There is a little bit of growth beyond that. If it creeps towards 32 tonnes, that would just reduce the range that a 400M could move it, but very much at the moment the FRES team and the A400M team are in very close dialogue. FRES knows where the bounds are for 400 and FRES is working within that 400M envelope.

Q152 Willie Rennie: So if there are changes once it comes into service, there will be certain limitations on how far it could go because of the A400M?
Mr Rowntree: Yes. Of course, we do not know to what extent the A400M may be upgraded through life, but, yes, there is a planning assumption that, if FRES grew significantly through life, it could create problems and we would have to very carefully manage the weight of FRES as it goes through life.

Q153 Mr Jenkin: Can I come in there. We have heard evidence about the FRES programme that it may go considerably over 32 tonnes. What would be the implications of that?
Lieutenant General Figgures: Could I answer that. Clearly, as a threat changes we have to adjust the protection, develop the protection, and we would have to tune it to a particular threat; so we would have different mixtures of armour for different threats. One of the implications of that is that you have to be able to take it off and put it on. So, we would be in the position, if indeed we did arrive at 32 tonnes plus, of being able to fly the base vehicle with a base level of protection and then we would increase that protection once we got into theatre.

Q154 Mr Jenkin: That rather suggests you are going to need twice as many aircraft to deploy the same number of FRES vehicles?
Lieutenant General Figgures: It might if we deployed all our FRES vehicles by air, but the proposition would be that we would fly FRES, if necessary, for say a small scale focused intervention where speed of reaction was important, and we would have sufficient air fleet to be able to air land the appropriate sub-unit and framework of the battle group that was going to be deployed.

Q155 Mr Jenkin: So the "R" of "FRES", which means rapid, only applies to part of the deployment?
Lieutenant General Figgures: For a small scale focused intervention, yes, we require that rapidity. For a more deliberate intervention or a police enforcement, the strategic lift could well be provided by sea.

Q156 Mr Jenkin: I do understand you have inherited all these programmes and we cannot hold you personally responsible, but is this not cart before the horse stuff and does this not underline what the Royal Aeronautical Society have said, that this was always a political aircraft and we have been desperately trying to match our other equipment capabilities to fit into this aircraft even though there were quite a lot of people who would have preferred us to stick with C-130s and C-17s?
Lieutenant General Figgures: Being a member of the Royal Aeronautical Society and, indeed, I have to take responsibility for the FRES programme and, indeed, I was a member of the Joint Capabilities Board for the A400, you are looking at someone who is responsible for providing the appropriate advice.

Q157 Chairman: That makes a change. It is usually me!
Lieutenant General Figgures: But there is always a balance. We have aircraft capable of outsize lift—C-17, the A400 is hugely capable in comparison with the C-130. Currently we do tactical air landing with the C-130; we will be able to do that with the A400M. We will have to balance protection and threat. There are no absolutes in this.

Q158 Mr Jenkin: One very final question. If the A400M cannot actually carry the FRES vehicle, then the A400M is more than we need and the C-130 would have done because that does the tactical lift as well as the small strategic lift?
Lieutenant General Figgures: It does for CVRT, but FRES with a higher level of protection, we anticipate—

Q159 Mr Jenkin: That is assuming we can get it in?
Lieutenant General Figgures: As I said, we can tune the armour to the threat. If the all-up weight is 32 tonnes max, then we can provide the appropriate protection, which will not be possibly the same as if it were 35 tonnes, but the application of force is about the balance of risk.

Q160 Willie Rennie: The defence aid suites. Will the A400M have defence aid suites on it?
Mr Rowntree: Yes, it will be protected.
Chairman: Do you recognise the concept of the false economy of failing to put in proper full defensive aid suites and explosive-suppressant foam at the beginning of a project like this?

Q161 Mr Jenkin: Not least in lives lost.
Mr Rowntree: We need to be careful to understand that there is now an absolute defensive aid solution. Threats evolve over time and sometimes we need to go to radically different kinds of solution just to keep pace with technology. Even in an ideal world where we had infinite funding, if you could embody defensive aids on the production line, that certainly would not protect us through life anyway.

Q162 Mr Hancock: It would give us a good start though, would it not?

Mr Rowntree: Yes.

Q163 Mr Hancock: That is what we are intending to do, is it?
Mr Rowntree: Yes, we are. The A400M will have a defence aid system.

Q164 Mr Hancock: It will have defensive aids, but does that mean the most comprehensive defensive aids that are available today?
Mr Rowntree: Yes, it will have a very capable defensive aid suite.
Chairman: Thank you. We have made the point. John Smith.

Q165 John Smith: Thank you, Chairman. Support for the A400M: what arrangements have been made to provide frontline support, deep repair and maintenance and overhaul, and have any contracts been signed?
Mr Rowntree: Yes. The development and production contract for A400M, in order to make sure that this risk, particularly during the early years, is managed, includes what we call support modules so that the Airbus company is obliged, assuming we accept the options which come up later this year, to give us support provision on a fairly piecemeal basis, on a transactional basis that will bring us through the in-service date and make sure the aircraft is properly supported when it comes into service. However, those are not a full support solution of a modern kind. For instance, an availability type of contract takes some time to mature and, quite sensibly, we need to see how the technical design is maturing before we can make sure we take the right judgments on what the support solution looks like. So, in parallel, we are working on an assessment phase to look at possible collaborative and UK national options for how we will support this aircraft, and that is a very active piece of work at the moment.

Q166 John Smith: Can we be confident that whatever solutions will provide us with a sovereign national capability? This is not a derivative airline. We have seen a vast number of major modifications of the C-130 fleet, some modifications, special forces modification with security implications. Are we going to have an independent sovereign national capability either within the service or in partnership with a British partner, British industry?
Mr Rowntree: The ability to deliver urgent operational requirements and special roles, if there are special roles with this aircraft, is key to our work on the support solution.

Q167 John Smith: That is not an answer.
Mr Rowntree: Do not forget that to deliver urgent operational requirements it is not necessarily the case that we need to have all the means on shore. For instance, the C-17 has been upgraded with urgent operational requirement upgrades, and that is entirely supported as part of the global US fleet. So, it is a matter of thinking about what the aircraft is there to do and making sure that, considering Andrew's future plans for the aircraft, we have the means to deliver what is necessary.

Q168 John Smith: You can imagine, there is considerable concern here: because we have seen a major, radical overhaul of the whole support programme for all our military aircraft. In fact, this Committee has reported on it and expressed deep concern about the arrangements that have been brought in. We now have this major programme on the horizon, a couple of years away, but we have not yet reached a decision on how we are going to maintain and support those aircraft through life.
Mr Rowntree: We need to understand that the design authority for this aircraft in any case is not at the moment UK-based. So, we will need to make sure that there are arrangements with an onshore expert provider if we do decide that that is necessary, and we are working, along with a number of suppliers, to make sure that we make those right decisions to keep the capability that we need.

Q169 John Smith: Will that be made harder as a result of the fact that BAE Systems are no longer part of the design authority, as they are disposed of?
Mr Rowntree: No.

Q170 John Smith: Do you anticipate that the final solution will be a pan-European one because of the nature of the company?
Mr Rowntree: There are certain elements of the support solution that sensibly should be pan-European. It would not make any sense, for instance, to have the technical publications for the aircraft being fundamentally different between six nations. It makes sense, for instance, to have common provision of spare parts, probably, for economy of scale reasons, and it makes sense, as we have learned hugely from the C-17 experience, that we keep a configuration control so we have a similar standard of core aircraft to our European colleagues. Again, that makes for spreading the cost of modification six ways rather than paying six times the cost for the UK to go its own way. So, there are certain core pieces that really make sense to do on a six-nation or at least a multinational basis. There are other elements, for instance deep aircraft repair, for which probably you do not get that same driver to find a collaborative solution.

Q171 Mr Jenkins: When you talk about support and maintaining aircraft, the contract for support and maintaining, has it got a start date and does that start date—I know this sounds silly—coincide with the date we actually get the aircraft; or, if the aircraft has a two-year slippage, will we be paying a contractor to maintain aircraft for two years that we have not got?
Mr Rowntree: No, the logistic support date is the point of maturity. I know we have had some projects where we have got into that position in the past.

Q172 Mr Jenkins: You have. Let me tell you, the Apache helicopter sat in a hanger for two years, dozens of them, and they dusted them off and we paid 74 million pounds for maintaining them but they did not turn a rotor-blade because they had not trained the pilots. That is how good we are at maintenance contracts. I want to make sure we do not pay to maintain aircraft we have not got, because our past record shows that we have done it.
Mr Rowntree: As I said, because Airbus have those obligations to deliver those support elements alongside the aircraft, then those two aspects are doved-in, the development and delivery of the aircraft at ISD, and we will make sure that we have made the decisions in the right time to take on those modules as we need them.

Q173 Mr Jenkin: Can I come back to this question of design authority. It is my understanding that for certain operations we have to use aircraft over which we have design authority. Is that the case?
Mr Rowntree: For certain operations we---?

Q174 Mr Jenkin: We have to use tactical lift aircraft over which we have design authority?
Mr Rowntree: You are talking about a particular role for this?

Q175 Mr Jenkin: Yes.
Mr Rowntree: There are ways of achieving those ends by, for instance, industrial partnership arrangements. I would not imagine the design authority ship for A400M moving from the Airbus consortium, certainly in the short-term, because this aircraft is the first military aircraft that Airbus have ever built and there will be design and maturity issues to be managed over the five years. I think the important thing for us is to keep Airbus very focused on supporting us in a design authority way, at least for the first few years. As you know, the C-130K is now supported by a design authority partnership between Lockheed Martin and Marshals, and I think that is an appropriate situation for the phase that we find C-130 in now, with it being an old aircraft and where it is in its lifecycle.

Q176 Mr Jenkin: But my guess is that maybe for certain operations we will have to extend the life of C-130K rather than rely on A400M?
Mr Rowntree: It would not be appropriate for me to get into special roles of aircraft other than to assure you that we do take those very seriously. In fact, Andrew would not let me get away with not doing so. We will have plans to mature—

Q177 Mr Jenkin: I think, General, you know the kind of assurance I am looking for.
Lieutenant General Figgures: Yes. Our operational capability, in terms of the various roles that we might use the aircraft, will not be impaired by the support arrangements.

Q178 Chairman: Moving on to the Future Tanker Aircraft, when is it expected to enter service? What does "by the turn of this decade" mean?
Mr Rowntree: Assuming that the approval comes through very shortly, and we believe that is now in the approval process, if that happens and the programme runs as expected, it will start to deliver its first aircraft in 2011.

Q179 Chairman: When did the MoD first expect it to enter service?
Mr Rowntree: Because it has only just gone through main gate, we did not have an approved level. I would have to send you a note on that, I am afraid, rather than go through my notes.

Q180 Chairman: Would it be right to say that at the initial gate the forecast in-service date was January 2007.
Mr Rowntree: Let me check.

Q181 Chairman: Which is a few months ago now. That was the earliest possible in-service date, and the latest was January 2009.
Lieutenant General Figgures: I think, Chairman, if we may, we must drop you a note to confirm that.
Mr Rowntree: The dates that you suggest sound about right to me.

Q182 Chairman: Yet we have not signed a contract yet. When do you expect to sign a contract? AirTanker expect it by the end of 2007. Does that sound consistent?
Mr Rowntree: Yes, pending the approval coming through, the next phase is to enter a funding competition, and we would expect to close the contract in November of this year.

Q183 Chairman: You do expect approval to come through, do you, because CDS said when he came in front of us we have a fifth C-17 coming along the next year, we have the A400M somewhat down the track—we have heard about that—and, hopefully, the Future Strategic Tanker Aircraft. That does not sound very promising, does it?
Mr Rowntree: I cannot really comment on where this is in the approvals process and on the likelihood of that happening.

Q184 Chairman: General Figgures?
Lieutenant General Figgures: Again I have to be careful about pre-empting my elders and betters. My planning assumption is the FSTA coming into service, the first one, and being able to use it, in 2011. That does not mean to say everyone has signed up, agreed or anything, but that is my plan for the moment. It is back to: there are risks and how would I manage them, and so on and so forth. That is my plan, Chairman.

Q185 Mr Holloway: Is anyone thinking about other solutions like going shopping in Utah and converting things?
Lieutenant General Figgures: No, we are committed to the FSTA in-service 2011 with the current procurement strategy.

Q186 Mr Holloway: If people started talking about this as a potential PFI deal in 1997 and it has taken until just now, 2005, to get AirTanker as a preferred bidder, why has it all taken so long?
Mr Rowntree: I think the point about the Private Finance Initiative is that it passes a huge amount of risk on to industry. This is about the biggest PFI we have ever done, but the consequence of that risk transfer is that industry needs to be very confident that they understand the requirement and how they are going to deliver it, and that does take a long time. This will move quickly once we get the contract closed, because a lot of the risks that we would normally bottom out after the main contract placement we have done a massive amount of work in these early phases to make sure that the solution is very robust, both financially and technically.

Q187 Mr Holloway: Have you done any analysis of what premium you will be paying over the long-run for the person who takes this risk as compared to if we had just done it ourselves?
Mr Rowntree: Yes, very much so.

Q188 Mr Holloway: How much more is it going to cost over the long-run, how many millions or billions of pounds?
Mr Rowntree: It is a value for money solution.

Q189 Chairman: I am not sure that is a fully comprehensive answer.
Mr Rowntree: We have compared it considering, if you look at conventional procurements, what the historic trends tell us in terms of what cost growth there is in those. So we have taken an informed judgment as to what the through-life cost of this deal will be, considering also the availability of this service, because we are buying a service, not an aircraft, and it is value for money compared to a conventional procurement.

Q190 Mr Holloway: You say you are buying a service, but there is also the question of third-party revenue for whoever has these aircraft?
Mr Rowntree: Yes.

Q191 Mr Holloway: Are there any issues with restrictions from the US in terms of the electronic equipment on this aircraft which might restrict third-party revenue and deployment?
Mr Rowntree: That issue has been assessed and addressed through the assessment phase and we are confident that we have a way forward on any of those sorts of issues. That is a mature position.

Q192 Mr Holloway: What about this question of them switching between being on military registers and then on civil registers? I do not understand this, but this is an issue that someone suggested I raise. What is behind that and what is your answer to it?
Mr Rowntree: We have a means of achieving that quickly and effectively when necessary.

Q193 Mr Holloway: What does the caveat "when necessary" mean?
Mr Rowntree: Well, when we need it for military use, that is when necessary. So, when it is going to be earning civil revenue, we have a means of making sure that it can do that and that any security conditions of the type that you have mentioned are properly addressed.

Q194 Mr Holloway: Finally, are you confident that in 20 years' time people will not look back at this gigantic PFI contract as a long-run thing where the British taxpayer has paid a gigantic premium that we could have avoided?
Lieutenant General Figgures: I think the answer is in your question "which we could have avoided". The proposition would be that the supplier is better able to manage some of these risks than perhaps the Ministry of Defence, because we want the service, we do not necessarily want to run all that goes with the provision of that service. So, in terms of availability of aircraft, support costs, capability, all that is dealt with by the supplier.

Q195 Mr Holloway: So it has got nothing to do with the inability of the Treasury at the moment to put money up front; it is all about getting a better service and something that the MoD does not have to trouble itself with over the long-run?
Lieutenant General Figgures: We trouble ourselves with getting value for money because of course we have to ensure that the money that we are allocated is spent to best effect. In terms of our assessment of how we were going to meet this requirement over time, this looked the best option.

Q196 Mr Holloway: I am trying to get at whether this, probably gigantic, premium that these people are going to earn over the long run is because the Treasury is not in a position to put its hand in its pocket now and fund it that way rather than doing a PFI?
Lieutenant General Figgures: If you turned it over, we would have to find a premium within our own budgetary system because there are risks attached there. We would have to make some provision either to manage these risks out and retire them or to buy out the impact should these risks mature. The idea that we pay a premium over and above the contingency we would have to put aside in the equipment plan is not valid. The question is: Where best are these risks managed?

Q197 Willie Rennie: Are the problems being experienced on other Airbus aircraft programmes having an impact upon the FSTA programme?
Mr Rowntree: The FSTA programme is based on a mature aircraft, the A330, so we would not foresee that the problems with the A380, which are primarily problems of development and production, would impact on that, no.

Q198 Willie Rennie: You have not experienced any knock-on effects of those problems?
Mr Rowntree: No.

Q199 Willie Rennie: Would the MoD be able to maintain and support the current fleet of VC10 and Tristar aircraft if there are delays in the FSTA programme?
Mr Rowntree: My answer to that is along the same lines as I answered slightly more comprehensively on C-130. Tristar and VC10 fit within my cluster of projects, as does Future Tanker, and the team leaders concerned are working closely together with Andrew's people to make sure that we pull the right levers to make the right sort of investments to keep the Tristar and VC10 running longer. Both Tristar and VC10 have the capability to run longer and it is just a matter of making those investments and making those decisions at the right decision points.

Q200 Willie Rennie: Could you elaborate on some of the difficulties in extending the life and what the cost would be?
Mr Rowntree: A lot of it is to do with ageing aircraft issues and making sure that the systems have the right sorts of lives and the structural type for modifications. If you would like more detail on that, I could send you a note.
Chairman: I think we would.

Q201 John Smith: We had the decision earlier this year on a preferred bidder for the defence training academy. It is going to be sited at St Athan, where the VC10 is currently maintained and serviced. There is, as I understand, a three to five year running period for the construction and occupation of the academy. Is that going to impact on your ability to extend the life of the VC10?
Mr Rowntree: The contingency plans for the extension of the VC10 are being factored into the DTR planning at St Athan.

Q202 Chairman: Could I ask about other countries. France is considering the Airbus A330 aircraft for their refuelling and air transport needs. What is the possibility of other countries taking part in our FSTA programme? What would be the advantages of doing such a thing? Are these being explored? What would be the disadvantages?
Mr Rowntree: We are in dialogue with other countries, including France. As you say, we certainly are on track for an A330 solution, and we will need to see where those discussions go.
Lieutenant General Figgures: We have discussed these arrangements with the French. Indeed, I am going to Paris on Thursday and this will be on the agenda—not with respect to a joint programme but with respect to whether there are lessons that the French could take from us in terms of providing this service. They have shown great interest in that and we have kept closely in touch.

Q203 Chairman: Mr Rowntree, earlier you said that Eurofighter "has been a painful experience for all of us". We heard that the delays in the A400M were caused not by industry but by budgetary and approvals processes grinding through six countries. Do you think there is an inherent disadvantage in trying to mount these huge projects across national boundaries with different national procurement processes and different timetables in mind and different expectations and goals as to how these are to be used?
Mr Rowntree: Collaborative programmes have very significant advantages in terms of sharing cost with partners, but, as you say, also very significant complications in the sense of aligning requirements with other nations and making sure that national approvals and funding processes work at the same pace as ours do and making sure that national commitments stay lined up through life. So they are challenging, but for A400M we have taken the judgment that the advantages are worth taking on.

Q204 Mr Jenkins: In answer to a previous question you mentioned that with regard to this PFI we had value for money.
Mr Rowntree: Yes.

Q205 Mr Jenkins: Since we offset the risk, I understand totally the argument, because I know there are three stages to a decent PFI: the funding, the building and the maintenance afterwards. I presume you are doing it in three sections. If you are doing it in three sections and getting value for money, you have obviously done all the figures.
Mr Rowntree: Yes.

Q206 Mr Jenkins: Could you supply us with a note of what the PFI is going to cost us over that time and what the calculated figure would have cost us anyway over that time. We will therefore we have a chance to establish how much we are paying for the risk. If you could let the Committee have that, we would be very grateful.
Mr Rowntree: The cost of the PFI is commercially sensitive. Let me take that away and I will take advice on what is releasable to the Committee.
Mr Jenkins: Thank you very much.
Chairman: That is a helpful answer.

Q207 Mr Crausby: Turning to the C-17 transport aircraft, can you update us on how the procurement of the five C-17s is progressing? Will the fifth C-17 be in service in May 2008?
Mr Rowntree: May 2008 is the declared in-service date for the fifth aircraft. The aircraft is in production now and it is going satisfactorily. It leaves the production line next February and then it goes through some further upgrade work to make sure it is at the right configuration to be delivered to us. So it is on track and we expect it to be delivered by May next year as planned. The other four, of course, are already in use, so that is a financial exercise in buying out the lease. The funding is in the budget, the contracts are placed and, again, that process of buying those four aircraft is well advanced and proceeding to plan.

Q208 Mr Crausby: We are advised that the four C-17s currently in use and being leased are performing well. Are there plans to procure any further C-17s in addition to the five that have already been procured?

Lieutenant General Figgures: I am looking at all these options as part of this constant review of how we deal with the risk to the strategic air bridge, so I am in the process of producing advice for ministers. In due course they will decide and all this will become apparent. That does not say we are going to buy *x, y* or *z* but, if I could ask for your understanding in this, I cannot constrain them in any way within the propositions being put forward to them.

Q209 Mr Jenkin: This would seem to be, I hope, going to reflect the fact that, contrary to the SDR assumption that we do one major operation and one smaller operation alongside, we must be capable of doing two large operations concurrently quite a long way away. Would you agree with that and that it is something we have to factor into consideration?
Lieutenant General Figgures: The planning assumptions are currently subject to a piece of work interim guidance. It is a fine decision: Do you plan for the future in the light of what is happening today or do you plan for the future in the light of what you anticipate happening tomorrow? Has the world changed since the strategic defence review? Yes, it has. Has the Ministry of Defence changed its approach? Yes, it has, with the new chapter and the last Defence White Paper. So we have adjusted capabilities required to meet the new threats and, indeed, we will continue to do so.

Q210 Mr Holloway: Is there an issue of trust or competence on either side between the MoD and Boeing after the debacle with these warehouse Chinooks?
Mr Rowntree: Certainly we keep a very close dialogue with Boeing. Boeing understand that these are difficult, complicated decisions for us and of course Boeing are alongside us in taking those decisions forward from where we reached. They are happy to inform our work on the recovery of these aircraft and the options that we have.

Q211 Mr Holloway: Do you mean the Chinooks?
Mr Rowntree: Yes.

Q212 Mr Holloway: I know we are not talking about that, but it is relevant to the C-17 programme. Why is that not moving rather more quickly then?
Mr Rowntree: It is moving pretty quickly. Work is in hand.

Q213 Mr Holloway: How long have they been sitting in the warehouse for?
Mr Rowntree: It is moving quickly now. I would prefer not to go over that ground because I think you have dug into it well and truly in the past, but the minister has made the decision: we are going to turn these helicopters into support helicopters.

Q214 Mr Holloway: The question really is about trust and competence on either side. Is there an issue between you and Boeing in terms of either our competence or our trust in them or vice versa?
Mr Rowntree: Boeing understand that our key priority is support operations and they are very happy to work alongside us to turn these aircraft back into support helicopters and back into use as quickly as possible.

Q215 Mr Crausby: In the event of further delays in A400M, is there scope within the equipment programme to purchase more C-17s? At what point would we have to make that decision? If Boeing have closed the production line, surely that decision would have to be a pretty quick one, would it not?
Mr Rowntree: If I go back to my previous point—

Q216 Mr Crausby: I am trying to ask it in a different way.
Mr Rowntree: Even I recognised that. We are back to looking at the demand, the supply, timeframes, money and so on. All that will be wrapped into the advice which I shall put to ministers.

Q217 Mr Crausby: We can expect a fairly early decision on that then, can we not? Because, as I said, if the production line is closing, we should soon know.
Mr Rowntree: I am sure the ministers will make a decision.

Q218 Mr Crausby: Do you anticipate any problems on spare parts for the C-17s?
Mr Rowntree: No. We are part of a global fleet of some 180 or so C-17s. One of the benefits of joining a global fleet as big as the C-17 fleet, with such a big, powerful customer for it as the US, is that there is an economy of scale and a surety of spare parts into the future. As you have seen from the figures, I am sure, the delivery of support to our C-17 has been extremely good to date.
Chairman: Thank you very much, gentlemen. We are most grateful to you for coming to give evidence. It has been most helpful. We now move on to representatives for Airbus.

Witnesses: **Mr Fabrice Brégier,** Chief Operating Officer, Airbus, **Mr Francisco Fernández Sáinz,** Managing Director, **Mr Richard Thompson,** Senior Vice President, Airbus Military Sociedad Limitada, and **Mr Charles Paterson,** Head of A400M programme, Airbus UK, gave evidence.

Q219 Chairman: Gentlemen, good morning. Thank you very much for coming to give evidence to us about the A400M. You have been listening to the evidence session we have had already. We are grateful to you for coming. I wonder if you could possibly introduce yourselves and say what the roles of your companies are in the A400M programme, please. Mr Brégier, would you like to start, please?
Mr Brégier: Mr Chairman, thank you very much. My name is Fabrice Brégier. I am the Chief Operating Officer of Airbus and I am also Chairman of Airbus Military. As you know, Airbus Military is the prime contractor for the A400M, and Airbus is a principal shareholder of Airbus Military.
Mr Sáinz: My name is Francisco Fernández Sáinz. I am the Managing Director of Airbus Military. At the same time, I am the Head of the Military Transport Aircraft Division in EADS.
Mr Paterson: Good morning. My name is Charles Paterson I am Head of the A400M activities here in the UK with specific responsibilities for the wing.
Mr Thompson: Good morning, Mr Chairman. My name is Richard Thompson. I am the Commercial Director of Airbus Military. I was in at the beginning of this programme when we drew up the specifications for the contract, negotiated the contract, signed the contract. One of my responsibilities is on contractual affairs for this programme.
Chairman: Thank you very much. You have heard the evidence this morning. There is usually a problem both of cost and delay in defence equipment programmes but this is a programme which seems to be coming in under cost—which is, I think, unusual—and we have heard about the delay but this has not been attributed to you, so you might have an easier ride of it than you otherwise would have done.

Q220 Mr Crausby: In your memorandum to us you refer to difficulties faced by Airbus on the A380. How are these difficulties impacting upon the A400M programme, if they are at all?
Mr Brégier: You know that the A380 is facing difficulties in the production phase. We have had big problems in what we call the harnesses of the cabin because we did not develop the appropriate set of tools at that time. But the A380 development is complete. The A380 was certified by both European EASA and American FA, our fitness agencies, in December last year, so the development is over. A400M is in the middle of a full-scale development, so the first thing which is very clear is that we do not use the same resources. As an example, we have decided to bring additional resources on the A400M. We have the equivalent of 6,500 full-time equivalent headcount working on the development programme, which is in excess of about 1,500 compared to our previous plan, because we want to keep the programme on track The second point: we have also learned the lessons of our difficulties on the A380. As was mentioned previously, we went through an external audit. That helped us, first of all, to check that the A400M design was without failure but we had also to take care of some risks and so put in place a mitigation plan which three years before the first delivery of the aircraft makes sense. It is about reinforcing the programme management. It is about making sure that we use a harmonised set of tools in the development—which was the case and which is totally different from the A380—and it is also about not rushing in the final assembly line before making sure we have sub-assemblies which are mature enough to avoid a bottleneck in this assembly line. These are the main actions we have undertaken. I think the crisis on the A380 opened our eyes within Airbus and we had to take all the possible actions to avoid another crisis on a big priority programme like A400M for Airbus and for EADS overall.

Q221 Mr Crausby: Can we be absolutely assured that a commercial aircraft will not have priority over the military aircraft programmes?
Mr Brégier: I think what I said regarding the allocation of resources is a good example. We have put more than 1,500 people on top of what was expected. I can tell you that we consider A400M as a key programme for Airbus. Airbus is also part of EADS and you should know that this is the biggest defence programme under the responsibility of EADS. The military activities of Airbus are for us a big opportunity to grow our business and to grow it in a profitable way. This is exactly what Boeing did perfectly well, and you are probably aware that Boeing, A400M, FSTA, are also part of a competition for a US tanker. It means that we spend more money, we invest more in military derivative aircraft off the Airbus platform. So you should not worry about this risk of prioritisation and, again, A400M is on its way. We are reinforcing the teams and the A380 problems have helped us to find additional actions to secure the development of this exacting programme.

Q222 Mr Crausby: The EADS initiated a review of the A400M programme and identified several critical risk areas. Can you tell us how these critical risk areas are being addressed?
Mr Brégier: The critical risk areas which you identify were more towards the sub-systems of the aircraft: the engine, for instance, the military systems with a lack of maturity, and also the necessity to slightly redesign the engine to get more power. These actions have been taken with the main suppliers. We have reviewed with them to monitor the progress. As I said, we have also slightly delayed the entry in the final assembly line, because you should know that when we have to fix a problem on a sub-system, when we do it in the plans it takes one hour, when we do it on the final assembly line it could well take three/four hours because it is much

more complex. In fact, we have decided to look at what is important, which is the delivery of the aircraft and to try to minimise the risk with this milestone and not to rush to meet an interim milestone which was a bit artificial. These are the actions we have taken. We have also optimised the flight test plan, which we will be starting at the beginning of next year, so as to allow additional buffers to recover the delay of its entry to a final assembly line.

Q223 Mr Crausby: Are these problems likely to result in further delays or affect the performance of the aircraft?
Mr Brégier: No, we do not think so. Regarding the performance of the aircraft, we consider that we will deliver the committed performance which has been signed in the contract.
Mr Sáinz: Additionally, over the weeks, we have studied and we are very closely following the certification and our moderation of the aircraft—because this aircraft, as you know, has civil certification plus military moderation. The six nations, working with us, have developed all the processes and procedures and the rules to follow. This is an important issue in the flight test, in which even the nations have to be prepared to work with us very closely, because the certification and the moderation too is part of our job, not only in our eyes but also in the eyes of the nations.

Q224 Chairman: When do you think this aircraft is going to enter service with UK armed forces?
Mr Thompson: Mr Chairman, our understanding is March 2011 but of course this is a date which does not just depend on industry. We are contracted to deliver aircraft by certain time periods in the contract and those are the things against which we define our performance. The in-service date is something which is declared by the Air Force and the Ministry of Defence and it draws upon a number of factors which are outside the contractors control, like the training of crews, the infrastructure being in place, the requisite number of airplanes being in place and the squadron being up and running and operational. The linkage is through the contract on us. We believe that we are on track to deliver those first seven aircraft in time. I believe the last one of those seven aircraft is due for delivery in December 2010 and that would enable, therefore, the Ministry of Defence to declare the in-service date by the due date.

Q225 Mr Jenkins: You have a contract at the present time to deliver the first French aircraft in two-and-a-half years' time. Will you meet that, do you think?
Mr Thompson: The first delivery to the French Air Force is due for October 2009. At the moment we see no reason in our planning as to why that will be delayed in any way. The three months that Mr Brégier spoke about in terms of deliberately delaying the start of final assembly to avoid bottlenecks down the line, pre-supposes that we will have a more efficient final assembly process, and, as Mr Brégier mentioned, there are also some buffers in the flight test programme and we believe that is fully recoverable. Having said that, we must not at any point become complacent and we must manage probably the most difficult phase of any aircraft programme which is the certification and in this case the military qualification phase of the programme with great diligence obviously. We are having daily discussions with the certification and qualification authorities, which includes the EASA, of course, for the civil certification and the military certification body which has been set up by the participating nations. Those plans are well in hand and we believe as we speak that there is no reason why we should face any delays on those deliveries.

Q226 Mr Jenkins: You have said that the certification process does take some time. How long do you think it will take you to certify this vehicle commercially and militarily?
Mr Thompson: The flight test programme, as Mr Brégier says, will start at the beginning of next year and first delivery to the French Air Force is October 2009, so that gives you an indication. It is almost a two-year programme. The programme has been designed at the moment to be quite a conservative programme. One of the lessons we have learned from the A380 is that in fact the programme that we have designed for A400M has elements of slack in that programme; so there are buffers, as Mr Brégier mentioned. However, again, we must not be complacent, because this is not just a civil certification, there is a military qualification as well, but we have designed the flight test programme so that the two can run in parallel.
Mr Sáinz: May I add something for the benefit of everybody. When you say you make a certification, like this aircraft, and introducing civil rules, you are now doing one thing after the other, okay. But when you open the envelope of the aircraft, you combine in the flight test several things, all right. That means you can be at the same time doing a flight test for a civil purpose and a military purpose as well.

Q227 Mr Jenkins: I am trying to get in my head some sort of timetable in so far as you expect this plane to fly. Will it be starting next year?
Mr Thompson: Early 2008.

Q228 Mr Jenkins: So in January, February, March 2008 this will be flying.
Mr Thompson: Correct.

Q229 Mr Jenkins: And then the production line will be up and running, all the bottlenecks will be sorted out and it will flow through, so that we can expect planes to come off at a regular pace.
Mr Thompson: Yes. There are five flight test aircraft which will go through the final assembly process and there is a sixth aircraft which will also go through that process which will be held back as a spare if we need it. Those aircraft will be instrumented, as you can imagine, and those are the aircraft that will be used as part of the flight test programme for certification purposes and qualification purposes. But certification of course starts before the aircraft

even flies. We have quite comprehensive test benches on the ground. In fact one of the key milestones in the contract we have with OCCAR is the presentation and acceptance of something we call an "iron bird", which is running on schedule at the moment and will be delivered and presented on time—we are fully confident on that—which effectively is a facsimile of the aircraft on the ground. That process will kick off the certification process before even an airplane is taken to the air.

Q230 Mr Jenkins: If you are rolling planes off, to start with, for certification, you are not going to cease production until they are certified; you are going to continue production. If the first one is March 2008 and then they start the trials, there should be no reason why by 2011 we do not have sufficient planes off to meet Britain's needs.
Mr Thompson: Absolutely. That is in our plan. That is how we see it. We use production tooling to manufacture the first airplane. There is no gap. It is a continuous phase. Although the first aircraft will go into the flight test programme, simultaneously we will also be producing aircraft for action delivery to our customers.

Q231 Mr Jenkins: By this time next year if you do not have that first plane flying, and we are doing tests and we have a problem, then we can get concerned from that point.
Mr Thompson: If we are delayed in the start of a flight test programme by anything more than a couple of months I would say then that there is cause for concern and we would be the first ones to raise that issue with OCCAR.

Q232 Chairman: We have heard that the French and Turkish requirements come before the UK's but otherwise we are pretty early in the programme, is there any scope for diverting any of those aircraft to the UK if we were to need them early? Is the French requirement and the Turkish requirement quite as urgent as ours?
Mr Thompson: My understanding is that their requirement is urgent, particularly the French one, who only operate some very old C-160s and C-130s at the moment. They are almost in a worse position than the Royal Air Force in terms of ownership of modern assets and really need these airplanes very urgently. There is not just the issue of having to "swap slots", as we say in the industry, between one country and another but also the configuration of these airplanes is fairly well designed and fixed at the moment and we would have to start changing configuration from what the French Air Force has specified to what the Royal Air Force has specified. We might enter into a counterproductive cycle there, in that we would probably end up doing modification to those airplanes that would actually save you no time at the end of the day.

Q233 Chairman: You might get into A380 problems.
Mr Thompson: Precisely.

Q234 Mr Jenkins: There are different configurations. People who intend to fight together need an interoperable system. Why are we now talking about different systems? It is cost-effective to have the same systems throughout, so why?
Mr Thompson: That is a very valid question. There is something called a "common standard aircraft" which is, I suppose, the highest common denominator of aircraft across the fleets from the six nations, and that is, believe you me, a substantial portion. About 90 per cent, of the airplane will be common. We must not get too worried, however, because when we talk about configuring an aircraft for a particular country we are doing so with what we call "configuration items" which are common across the six nations as well in the majority of cases. There are only very few examples of equipments which will go on a particular airplane that will not be known to the other nations. When I talk about configuration, that is that I want aircraft numbered 1-10 delivered with defensive aid sub-systems, for example; aircraft 10-20 delivered with casualty evacuation equipment, for example, or extra oxygen bottles to deal with evacuation purposes, or whatever the configuration item might be; but it is drawn from a list of common configuration items. Therefore, although we are going to have separate configurations, it is still largely fundamentally a common programme.

Q235 Mr Jenkins: It does not add to the cost at all as far as the requirements each nation would put in there.
Mr Thompson: The fixed-price contract includes the non-recurring development of those configuration items as well, not just the basic aircraft, yes, so that is already budgeted and in the contract planning.

Q236 Mr Jenkin: You are being helpful but may I press you a little further on this question of what individual nations might uniquely require. Does that flexibility within the overall design authority, fixed through you, give flexibility to nations to stick secret equipment (equipment the content of which cannot be disclosed) onto your aircraft? Is that a problem?
Mr Thompson: I do not see any reason why it should ever become a problem. There are means of setting up structures that will cater for that sort of requirement. The biggest problem is that such a requirement might be, for example, "UK eyes only". People who are British citizens with British security clearance can work on that particular modification, let us say, and that would not be a problem because you would have an organisation set up in the United Kingdom that could interface between that particular special requirement and the design authority that would say whether such a modification was safe or not safe to perform on that and there would exist a security wall between the two.

Q237 Mr Jenkin: There would not be any documentation which appears beyond "UK eyes only" that would give away, perhaps, vital information about that equipment or the power sources for that equipment.
Mr Thompson: The closest I can draw upon in terms of an example is that we have already exported this airplane, as you know, to South Africa and Malaysia. Clearly there are NATO specific items on this airplane that are not exportable to those two countries and we have managed and we will manage to support those aircraft for those countries. We have managed to make those countries aware of many of the issues associated with the programme without at any time putting at risk the security of NATO countries.

Q238 Mr Jenkin: But that is about taking something off the aircraft, not those countries putting something on.
Mr Thompson: In the case of South Africa we have to add some data link equipment which is specific to South Africa and which South Africans hold very dear to them because they contain algorithms which are South African developed algorithms. We will be able to manage that without necessarily—

Q239 Mr Jenkin: Without you knowing or anyone else in Europe knowing.
Mr Thompson: Correct. That will he handled by South Africans. We will provide technical support but we will never get sight of documentation or anything that might put South African security at risk, so there are structures that allow this.

Q240 Mr Jenkin: I am not qualified to know whether that was the assurance I am looking for, but I am grateful for it anyway. Somebody will tell me. This has been a very protracted procurement. Would you say it was about the worst in history?
Mr Thompson: As I said at the beginning, I was involved from the day that we wrote the proposal for the initial submission back in 1999 in fact. It is true that some countries moved quicker than others in making up their minds and funding the programme. Yes, it would have been beneficial for everybody had this programme been launched earlier. But I do not think we can get away from the reality of the situation, which is that inevitably some countries do make decisions quicker than others and at the end of the day we need all those countries onboard if the programme is going to be viable. At the end of the day I think you will get a very capable aircraft which is far superior to the C-130 and it is affordable because it is funded by a community of nations in Europe.

Q241 Mr Jenkin: What are the lessons for future multilateral procurement projects of this type.
Mr Sáinz: May I just say, I was involved in the Eurofighter. By far, this process is better: you have one company, you have one agency, no interference from the nations. It is not always 100 per cent direct but by far it is much better than Eurofighter. This is one thing. The second thing is that nine years to develop the spec and to refine the aircraft is too much. Especially from the industrial point of view, we are losing competition with the US, where they have one customer and one agency. Europe, in my opinion, has to think a little bit on all that, and, second, to spend some more money for the development of the product they like. Sometimes we start from the beginning without previously the nations and allies spending some money on whether the product they want is the product they want, and we later on discover these issues during the development, that the nation has changed its mind, and we cannot get the grounds of the discussion in balance and so on and so on.
Mr Thompson: To answer that question, although it did take a long time to launch, once it was launched, the nature of the programme is such that things are happening a lot more quickly than would be the case in Eurofighter, where there was an umbrella contract, with a development contract and then a series of production batches, etc, and with stops and starts between whether the next batch would be funded or not. This being a single-phase programme following the commercial approach, we will bring this capability into the market a lot quicker once the gun has been fired than would have been the case otherwise. If there is a lesson to be learned, I think it is that a single-phase, fixed-price, fixed deadline contract with very little opportunity, as Mr Fernández Sáinz said, for the customer to change his mind, because of the shortness of the delivery period, is a positive lesson to be learned.

Q242 Mr Jenkin: You do not feel, as the Royal Aeronautical Society has said that the industrial issues have overtaken the operational requirements of the project?
Mr Thompson: Not at all. As has already been mentioned, in any large programme where public funds are at stake, are being used, there are clearly political and industrial issues. It would be disingenuous to suggest otherwise. But we are developing an aircraft, as far as we are concerned, according to a very exacting technical specification. The United Kingdom was at the forefront of leading the development of that technical specification. It was developed after a European staff requirement. The United Kingdom, again, led in the development of that staff requirement. We will produce an aircraft according to that technical specification, which is a very demanding specification.

Q243 Mr Jenkin: Does BAE Systems' sale of their stake affect the relationship between the British Government and the project and has it affected any work share?
Mr Brégier: It does not change the work share at all. I think Airbus in the UK is well recognised as a strong aircraft manufacture. We have excellent relationships with the UK DTI, UK MoD and with OCCAR, so I do not think it changes anything.

Q244 Mr Holloway: Mr Thompson, you referred to public funds when you were sitting in the earlier session as well. In your opinion, are the British

public going to get value for money from these PFIs. Your company must have done some analysis of this. We could not get the answers from the MoD but what is your take on it?
Mr Thompson: I am sorry, I am going to disappoint you because I do not think I am qualified to answer that really. I am not involved in the FSTA programme. Our programme, as you know, the A400M has been funded very differently.

Q245 Mr Holloway: As a corporate entity, presumably one of you had some knowledge of some sort of analysis of this.
Mr Sáinz: I am involved also in the FSTA programme. The PFI is a process, in my opinion, that is too long, because, as Mr Rowntree said before, we need the industry to be sure for the rigs and all the analysis and all the requirements before, to be sure under the contract. On the other hand, I can put to you an example. When we sold aircraft to Australia, Australia made the analysis. They came here to talk with you and they decided not to go to PFI.

Q246 Mr Holloway: But it is an expensive way for the British—
Mr Sáinz: It is an expensive way.

Q247 Mr Holloway: It is an expensive way, is it?
Mr Sáinz: Yes. But at the end of the day I have to recognise that all of us go to the tailor and make the jackets in the way that we prefer, and we can, all right, but it is difficult to say to a country that this is wrong or this is not right. You are familiar with PFIs, you have made several businesses. This is the biggest PFI ever.

Q248 Mr Holloway: Roughly by how much do you think the British taxpayer will pay over the odds in the long term? Are we talking tens of millions, hundreds of millions?
Mr Sáinz: I cannot answer this question. It is the first time we have been involved in a PFI. It is a good business for banks and lawyers, that is for sure.

Q249 Chairman: When you say it is an expensive solution, are you talking expensive in terms of money or in terms of time? Has it added to the delay?
Mr Sáinz: All things.

Q250 Chairman: Has it added to the delay in the approvals process in different countries?
Mr Sáinz: I can give you the example of Australia: in three years, we went from the proposal to seeing the contract: a similar aircraft; a similar type of product.

Q251 Chairman: So if you were buying this aircraft, you would not be doing it like this.
Mr Sáinz: I say it again—

Q252 Chairman: I recognise the point about the tape.
Mr Sáinz: I prefer to buy an aircraft, not to go through a PFI.

Q253 Willie Rennie: You helpfully explained earlier on that 90 per cent of the aircraft is common across all the six nations. Is the extension of the floor space on the A400M to cope with the FRES part of the 90 per cent or is that an extra element that is needed?
Mr Thompson: Off the top of my head I cannot remember exactly what the percentage is; it might be even more than 90 per cent. The UK contract amendment is reinforcing the floor and the ramp for the UK aircraft to be sure that FRES will be able to be transported by A400M. And it is not just FRES; there are one or two other things. The terrier springs to mind, which is a very heavy, very dense load. So it is the floor reinforcement and the ramp reinforcement and that is a UK-unique configuration. The UK has specifically asked for that to be modified upon the UK aircraft.

Q254 Willie Rennie: So it did not require negotiation with other countries in order to make that modification.
Mr Thompson: It did not require negotiations with other countries. The other countries demanded, quite rightly, that that modification would not introduce changes to the basic aircraft that they would be getting. So long as we could say there was a UK-only modification that would not affect aircraft to the other nations, then they were happy for the UK to go ahead and do that.

Q255 Willie Rennie: Was that an easy thing to do, to extend the floor space on the ramp as you were discussing? Was that a simple process?
Mr Thompson: Negotiating with the DPA is not a simple thing, but, yes, I think I can say it was a fairly straightforward process.

Q256 Willie Rennie: If the scope of FRES changes, if the specification changes, do you think you would be able to cope with further changes?
Mr Thompson: It depends on the type of change. Once you freeze a design and start manufacturing an aircraft, further changes would have to be retrofit changes, and it is always much more difficult to retrofit aircraft than it is to incorporate a change whilst it is still being built, if you see what I mean. I think we have probably reached the end of the easy modifications. Subsequent modifications to the aircraft would be more difficult.

Q257 Willie Rennie: Do you think, if there is going to be any flexibility in the system, that it would need to come from the FRES side rather than the aircraft side?
Mr Thompson: I remember for years the standard workhorse of most NATO Air Forces was the Hercules. For years, all vehicles that had to be air transported had to be sized to fit inside a Hercules. The A400M will obviously deliver the capability to carry loads which are almost twice the size and weight of a C-130 and so it will give you a quantum leap in terms of capability. But, once that design becomes a standard design, in European NATO

certainly, yes, if you want to continue to carry things using A400M, clearly you are going to have to size those things to fit inside an A400M.

Mr Sáinz: If you are asking for our experience of flexibility in preparation, we have a lot of history behind us. We know that this type of product will be modified in the next 20 years by new customers, by the ATOL customer when they operate the aircraft and they see they can improve on it and so on. It is the history of the military aircraft, all right. If I go to the 295 aircraft: as you know, it belonged to us, and we have sold 60 aircraft and I have seven different versions for it. For the C-212, we sold 400 and I have 50 or 40 different versions of that one.

Q258 John Smith: How do you anticipate through-life support for the UK A400M being implemented after it comes into service in Britain? That is all support; that is maintenance, upgrade, deep repair and modification.

Mr Sáinz: We are working with the authorities, with the MoD, in the following manner. We are following the requirements they have put on the table. As you know, that is part of this contract, that support, ILS. But for the rest we are following the following idea: of course we cannot maintain a fleet like the UK model from Spain or from France. We know that we have to place here enough people to support what we can say is 90 per cent of the requirements of the customer, including that we are ready. We already start to talk with some of the UK companies to make arrangements and so on for different topics of the maintenance of the aircraft. This is going to be the core of the solution. Besides that, as Mr Rowntree has said before, this ought to be all together, like a publication, all spare parts and so on. At the end of the day, my opinion is that every nation will tailor his solution to his needs and operational needs, and we are going to follow a similar model. I know that the nations are going to launch a request for proposals trying to see this unique solution for the seven nations, including our support. We shall see what is the end of this request for proposals.

Q259 John Smith: Will that solution provide Britain with a sovereign capability for all its maintenance, service and upgrade requirements for this aircraft?

Mr Sáinz: It has to. I have said for those deep modifications that are going to the core of the aircraft, which can be aerodynamics and so on, we have to go to the people that have designed the aerodynamics, but the idea is to place here a maintenance unit in the UK.

Q260 John Smith: Do you think this will be a PFI?

Mr Sáinz: This is not a PFI—I hope!

Chairman: On that note, we ought to say thank you very much indeed for coming to give evidence to us. It has been a very helpful session.

Written evidence

Memorandum from the Royal Aeronautical Society

1. The Royal Aeronautical Society (RAeS) is the Learned Society for the Aerospace and Aviation community. Based in London, it has a world-wide membership of over 19,000, with over 13,000 in the UK. Its Fellows and Members represent all levels of the aeronautical community both active and retired. Through its various Boards and Committees, it can draw upon considerable experience and expertise in aviation matters. In addition, the Society has over 120 organisations who are members of its Corporate Partners scheme.

2. Military airlift narrowly defined refers to those specialised fixed-wing or rotary-craft capabilities designed to provide strategic or tactical support to the armed services in the field. The equipment is usually specially designed or adapted for deployment, with features such as rough-field landing, rear and/or forward opening doors and other systems required of meeting potentially hostile elements, particularly if operating close to the "frontline" (these days flying into a recognised airport may require defensive aides). Other support tasks such as in-flight refuelling also require converted commercial aircraft (although these may also double-up as troop and material transports). Other aspects of logistical support can be discharged by chartering of conventional freighter or passenger aircraft.

3. Such rugged and versatile equipment, as well as the operational skills of the military that use them also makes this equipment and its personnel highly desirable, rapid reaction forces to respond to natural disasters and other emergencies.

4. It is often the case that the full requirement for airlift is only fully apparent when it is needed. This reflects the gulf between routine operations in support of frontline forces, even if located if widely separated locations, and the demands of expeditionary warfare. Any deficiencies in either tactical or strategic airlift immediately become apparent or emerge as the tempo of operations increase and existing capabilities are stretched to the limit. Additional pressure may arise from the need to respond to natural disasters.

5. The gap between "peacetime" and higher tempo operations has often caught governments unprepared. This is true not only of the UK but also elsewhere; even the US which appears fully capable of sustaining global forces has in the past found itself short of critical airlift components. The explanation is a mixture of prudence—the temptation is to avoid procuring costly equipment to meet a worst-case logistic scenario; and institutional—the natural tendency of the armed services to afford priority to combat equipment. In the UK this may have been compounded by the fact that until recently most heavy-lift aircraft (including some helicopters) had to be bought from abroad, with little domestic industrial or technological interest. (The C-130J was a partial exception, having a significant UK content).

6. The supply of specialised airlift equipment is limited to a small number of extant programmes, mainly in the US. These are the Boeing C-17, Lockheed Martin C-130 (J & K), the Boeing Chinook helicopter, the CASA CN 235 and the Alenia C-27 J) The European A400M is currently still in development. Production of the C-17, rightly regarded as the most versatile strategic and tactical airlifter currently available, is at risk of termination due to lack of orders.

7. The A400M is Europe's most important military airlifter programme since the Franco-German Transall of the late1950s. The UK has not produced a specialised military freighter since the Belfast dating from a slightly earlier period. Now developed by Airbus, the A400M has a UK-designed composite wing, UK manufactured wingbox (Airbus UK Filton) and wing spars (GKN) an engine with Rolls-Royce participation and other UK supplied equipment. It is specifically designed as a tactical freighter with a capability roughly between the C-130 and C-17.

8. Procuring the A400M has not been one of Europe's successes. It must hold some kind of all-comers record for protracted development. In one form or another, roughly the same coalition of European governments, including Britain, France, Germany, Italy and Spain, have been considering a European military airlifter (initially called FLA) since the European Staff Target of 1993. Its antecedents are even earlier in a failed bid to launch a programme that then included the Americans. The specification has continually evolved and changed, but has been largely fixed since 2003 when the development and production MOU was signed. An important breakthrough came when responsibility for developing the aircraft was assumed by the Airbus consortium. Airbus was to bring commercial discipline to the programme but delays have continued and its in service date is now 2011. There is some concern that further delays might be caused by Airbus's current problems with its commercial programmes. These problems may of course, added to the view that the A400M is a "political" project where industrial issues take precedent over operational requirements.

9. From a British perspective, the continued delays in the progress of the A400M added to the pressure to acquire 4 C-17s under lease from Boeing to fill a major gap in strategic airlift. Subsequently, the RAF ordered one more making a total of five and is now in the process of buying-out the lease. The A400M will, when deployed, add significantly to UK capability but it does leave the RAF with an inventory of three types of aircraft where two (C130J and C17) might have been a more satisfactory outcome (although the C130 fleet should be retired or sold off as the A400M enters service). Equally, a single airlifter can only be in one place at one time so total freight capacity of a fleet is not the only consideration for devising force structure.

This is a particular consideration in expeditionary operations over dispersed theatres where a hub and spoke arrangement is required. It offers the potential to transport relatively heavy equipment longer distances than the C-130 and direct to the "frontline".

10. This capability of course in practical terms must be seen in the context of other planned UK procurement, primarily the FRES system. The A400M will able to carry the Future Rapid Effects System (FRES) as currently defined (a 37 tonnes payload) But it should be noted that vehicular weight, airborne or ground based, tends to creep upwards during design, as well as once in service—20% growth is not unusual. Clearly it would be sensible to ensure that the FRES specification is consistent with A400M performance. The in-service date for FRES remains set at 2012, but a more realistic estimate would be 2017, which should ensure that the A400M is available to guarantee tactical air mobility. While the A400M performance is likely to improve through later development, this should facilitate further growth in FRES overall weight as it evolves in service, but improvement in A400M baseline performance should not be anticipated in defining the FRES platform.

11. Although an obvious reference point, it is not always the case that the development of aircraft and an important item of cargo are successfully coordinated. In this respect the history of the US Army Stryker programme may offer a cautionary tale. This family of Armoured Personal Vehicles was conceived as part of the Army's rapid global response capability. The vehicle was to be carried with crew to the tactical theatre by C-130 transports. In the event, increased design weight plus the addition of extra external armour meant that the Stryker could not be carried with its crew, thus doubling the aircraft requirement; nor could it be carried safely over the designated combat radius nor operate from "hot and high" locations. While it is too late to effect major changes to the A400M design, it should be an essential task to ensure the FRES system does not exceed this aircraft's performance and dimensions.

12. In conclusion, the Society would encourage the Committee to consider the following points:

— If the UK is to maintain an effective expeditionary warfare posture as well as make a contribution to humanitarian relief, airlift should be given an equal priority to any other front line capability.

— The MoD must ensure that the procurement of heavy lift aircraft and the development of key items of cargo equipment must be synchronised.

— The A400M remains an important element in the UK aerospace industry, especially in terms of the development of a composite wing technological capability in the UK.

27 March 2007

Memorandum from Borough of Telford and Wrekin

1. I enclose evidence on behalf of the Borough of Telford & Wrekin to the Defence Select Committee, for your inquiry into the UK's ability to support military operations across the globe.

2. You are focusing particularly on Strategic Lift. We understand that internal factors within UK procurement of matériel are likely also to affect the resourcing of front-line operations, and should be grateful if this aspect of provisioning is also explored by the Select Committee.

3. Stafford Park in Telford is a primary location for ESSPA, the Equipment Support Procurement and Provision Agency. ESPPA was formed in 1995 from the technical equipment division at Donnington, the procurement branch at Andover and the vehicle spares division at Chilwell. More than 400 employees work at Sapphire House, in Stafford Park.

4. It is highly specialised in its procurement functions, and supports tri-service mission critical activities, including current front-line deployment in Iraq and Afghanistan.

5. Jointly with Andover, the Telford contingent provisions the Manoeuvre Strike Cluster (M/S) which is the UK's "battle winning capability". Support systems include field artillery, light armour and tanks. Telford also provisions the Combat Support Cluster (C/S) which is essential to the M/S capability, and includes specialist and general utility vehicles, and workshop, engineering and combat support equipment.

6. There is a current and foreseeable high operational tempo, which requires continuity of specialist logistical support. However, as part of the DLO's co-location policy, the Telford contingent is due to be relocated to Bristol in March/April 2008 (Integrated Project Teams supporting M/S), and in late 2008 (IPTs supporting C/S).

7. There will be a major dislocation of skills if the move to Bristol goes ahead on the present timescale. A current evaluation is that over 90% of Sapphire House staff will either not be able to relocate to Bristol or are not required after the end of 2008. These staff and their current unique and critical skills will be lost by then and are already starting to leave as the effects of co-location planning bite.

8. The Member of Parliament for Telford, David Wright MP, said in a Commons armed forces debate on 17 November 2005: (Commons Hansard col 1169–70) "The MOD will find it incredibly difficult to recruit staff in Bristol, certainly skilled staff. These are skilled jobs. Those people procure products for the armed

forces. It will be difficult to replace them when most of them will not want to move from the Telford area. Of course, it is also more expensive to live in Bristol and I am sure that many people will not want to move because the costs of living are greater there".

9. The Member of Parliament for The Wrekin, Mark Pritchard MP, said in the same debate: (Commons Hansard col c1195) "Shropshire has a long, proud tradition of service in Her Majesty's armed forces, both on the front line and in the defence supply chain."

10. The long term practicality and impact of the co-location policy, and its wider effects on the defence services, is a separate matter from the Committee's current questioning about Strategic Lift. (We would trust that the maintenance of a defence footprint across the UK would be an outcome of MoD location policies.)

11. Therefore the immediate purpose of this note is to draw the Committee's attention to the matter of whether Strategic Lift will itself have an adequate and continuing DLO back-up within the UK, during the current and foreseeable UK commitments in the Middle East. We believe that the co-location activity for ESPPA may need to be reconsidered for the time being.

29 March 2007

Memorandum from AirTanker

AirTanker fully understands the importance to the RAF and (especially) to personnel involved in the ongoing campaigns in Iraq and Afghanistan of having at its disposal a fleet of reliable and capable air transport aircraft. We are therefore proud to have been chosen by the MoD to provide the RAF with a fleet of new, modern, highly reliable, commercially proven Airbus A330-200 aircraft equipped with modern Defensive Aids Suites (DAS) and capable of carrying 300 passengers under the Future Strategic Tanker Aircraft (FSTA) programme

Background

1. AirTanker has been in discussion with the MoD about providing a replacement for its air transport (AT) and air-to-air refuelling (AAR) service since 2001. Throughout this period, the pressure on the existing fleet of VC10s and Tristars has increased inexorably. Despite the herculean efforts of the RAF, it is inevitably proving more and more difficult and expensive to keep the extant fleet in the air. Recently, there has been widespread media coverage of the delays which troops en route to or from such theatres as Iraq and Afghanistan have been forced to endure; and there are numerous anecdotal examples of the damaging effect which this has had on morale.

2. AirTanker will operate a fleet of 14 converted Airbus A330-200 tanker transport aircraft, and provide integrated all-inclusive services, enabling the RAF to utilise these aircraft in both AAR and AT roles in all scenarios. The RAF is able to fly and retain full operational control of the aircraft, which are provided under a PFI service.

3. AirTanker anticipates contract signature by the end of 2007, with the first aircraft entering service in 2011; the 27-year contract will ensure the availability of the capability until 2034.

Step-Change in Aircraft Availability and Reliability

4. Arguably the greatest difficulty currently afflicting the RAF's air transport capability is the (inevitable) reliability problems resulting from a VC10 and Tristar fleet which has been in service for many decades. The availability levels and reliability of the FSTA service will provide dramatic improvements. AirTanker's modern aircraft and the accompanying dedicated service delivery organisation (supported by state-of-the-art arrangements with the companies who produce the equipment) will provide the RAF with a step-change in levels of availability and reliability—we are underwriting performance levels which are better than those of the world's best airlines.

Significant Improvement in Air Transport Capability

5. The A330-200 is a modern, wide-bodied aircraft, and the market leader in its long-haul commercial passenger segment. The aircraft will be significantly more capable than the VC-10 and TriStar, and will thus provide the RAF with a new standard in air transport.

- The modern, comfortable, fully equipped passenger cabin provides some 300 seats—44 more than the Tristar C Mk 2.
- The cargo holds are fully available for the widest range of pallets and containers, including up to 8 military pallets.
- The RAF will fly FSTA Aircraft equipped with modern "switch on and forget" DAS and Link-16 communications systems.

— For aeromedical evacuations up to 40 stretchers with ancillary medical support can be carried.

— FSTA's range will enable direct flights from the UK to more destinations, reducing journey times and stop-over requirements. For example a FSTA can take its 43 tonnes maximum payload (which corresponds to 300 fully equipped soldiers in addition to 8 tonnes of payload) 4,100 nm—from RAF Brize Norton to destinations well beyond the Middle East.

Fully-Flexible Fleet and Service

6. The FSTA Service will be fully flexible.

— From the moment the MoD accepts the first aircraft, the RAF can, at its discretion, task any FSTA aircraft for AAR or for AT.

— The air transport capability of the FSTA fleet is not compromised by its AAR role equipment, as the fuel for refuelling is carried within the existing fuel tanks. With no reconfiguration required, the aircraft can be assigned quickly to either AT or AAR roles, or can undertake combined roles on a single mission.

Conclusion

7. The flexibility, capability and availability offered by AirTanker means each aircraft can be significantly more productive than those in today's fleet and markedly improves the customer experience of passengers. It is already widely recognised that FSTA will modernise the RAF's vital AAR capability, and we believe that it will be become increasingly understood that it will also bring about a profound and much-needed improvement in the RAF's strategic lift capability.

2 April 2007

Memorandum from Airbus UK: A400M

1. Background to the Programme

The A400M launch contract was signed on 27 May 2003 between Airbus Military (its shareholders comprise Airbus, EADS-CASA of Spain, TAI of Turkey and FLABEL of Belgium) and the European procurement agency OCCAR representing France, Germany, Spain, Turkey, Belgium, Luxemburg and the United Kingdom. The development of the aircraft takes place primarily in Toulouse and Madrid and at Airbus sites across Europe under the management of Airbus. This combines Airbus' experience of managing large aircraft manufacturing programmes and the Spanish expertise in the construction of smaller military transport aircraft. The final assembly and the delivery centre for A400M is located at the Seville plant of EADS Military Transport Aircraft Division.

The powerplant for the A400M is being developed and manufactured by EuroProp International (EPI), a European joint venture company consisting of Industria de Turbopropulsores, MTU, Rolls-Royce and Snecma. The 4 high-speed turboprops are equipped with advanced fuel efficient 8-blade composite propellers, supplied by Ratier-Figeac. This unique powerplant combination will confer near jet speeds to the A400M, while improving on the excellent versatility of previous propeller-driven tactical transports, consuming some 20% less fuel throughout the life of the aircraft than equivalent turbofan designs.

The launch contract provides for a total of 180 A400M transport aircraft for seven NATO nations with the Airbus partners Germany (60), France (50), Spain (27) and the UK (25) placing the largest orders. The other national partners' and customers' orders are Turkey (10), Belgium (7) and Luxemburg (1). South Africa and Malaysia have added orders of eight and four aircraft respectively and have subsequently become industrial partners in the A400M programme. South Africa's participation will be worth at least €750 million and that of Malaysia at least €400 million. EADS conservatively estimates that the global export potential of A400M will be around 200 aircraft over 20 years (excluding US, China and Russia).

In January 2005, the A400M production was launched with the first metal cut for a major airframe component at the Airbus site in Varel, Germany. In 2006 the assembly of major airframe components such as Wing Boxes, Fuselage Sections and Empennages was begun, the First Engine and Propeller run was performed, and the Customer's acceptance of the Engineering Cockpit Simulator was achieved. Delivery of components to the Final Assembly Line started in the first Quarter of 2007.

2. A400M: Meeting the UK's Strategic and Tactical Airlift Requirements

The MoD's Strategic Defence Review of 1998 underlined the vital need for enhancements to the UK's airlift capabilities:

> "the trend towards force projection operations, for which we may need to deploy very rapidly in order to be successful, place an increasing premium on transport or lift capabilities."[1]

The MoD's principal response to satisfying this requirement was the commitment in 2003 to the procurement of 25 A400M aircraft. The support for A400M and the importance of the programme were reiterated in the Defence Industrial Strategy of 2005:

> "A400M will be an extremely flexible aircraft that will provide tactical and strategic airlift capability to all three Services in peace and crisis and will become the mainstay of the UK's tactical transport force."[2]

We agree with the MoD's assessment of the A400M's capabilities and are confident that it will be a very versatile aircraft able to simultaneously supplement the strategic role currently undertaken by C-17s and surpass the tactical capability provided by the current ageing fleet of C130s.

A brief summary of the aircraft's capabilities illustrates this flexibility:

- **Large cargo hold** (340m^3 volume, 37 tonnes payload), which can be quickly converted to carry containers, pallets, vehicles, seated troops or casualty evacuation stretchers.
- **Long range capability** enhanced by a basic capability to be refuelled in the air to reach any part of the world.
- **High cruise speed** up to Mach 0.72, which is at least 30% faster than the generation of military transport aircraft it will replace.
- **Short, soft field performance** removing dependence on paved runways with autonomous capability on the ground removing the need for specialist support equipment.
- **Rapid Descent and Climb Capabilities** ease operations into difficult airfields and the fly-by-wire system provides unmatched protection during violent manoeuvres.
- **High Survivability Features** (such as flight deck armour, on-board inert gas generation for fuel tanks, dispersed and duplicated aircraft systems and active and passive defence aids) giving excellent protection for crew and troops in hostile environments.

In addition to setting new standards in the military transport environment, the A400M is also significant in the broader security context. The A400M is an important step towards the modernisation and inter-operability of European forces, to the development of a joint European defence and security policy and for the maintenance of a viable European defence industry, breaking the U.S. monopoly in large military transport aircraft.

3. Current Status of Programme

Delivery

We would like to clarify to the Committee the current situation regarding the project and delivery milestones of the A400M programme.

Following the production difficulties faced by Airbus on the A380 aircraft, EADS initiated a review of the A400M programme to assess risks to the final assembly and delivery schedule. This review was the most comprehensive assessment ever done on an EADS development programme. The review validated that the A400M programme is currently progressing according to the contractually agreed schedule. However, the programme challenges ahead until first delivery to the French Air Force in October 2009 are assessed as significant and the review clearly identified several critical risk areas: maturity of some systems design, maturity of military mission systems and engine modifications, all of which would have resulted in too much work remaining to be done at the Final Assembly Line, putting first flight and the flight test programme at risk. The review team's proposals for mitigating actions to comply with the delivery schedule committed to customers have been endorsed by the CEOs of EADS, Tom Enders and Louis Gallois, and the Board of Directors.

It was in this context that a potential three-month delay in starting final assembly (until the second quarter of 2007) of the aircraft was announced in January. This will help ensure that the sections delivered to Seville are at the required level of completion for final assembly to commence efficiently. Indeed, the majority of the risk-mitigating proposals made have already been implemented, and by careful re-scheduling of specific test items the date for first flight will not be delayed.

We are confident that any time lost during A400M assembly will be recovered in the test phase. Therefore important milestones such as aircraft certification and the latest forecast in-service date for the UK can still be met. Implementation of the A400M review is being monitored by the CEOs personally, on a bi-monthly basis.

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[1] Strategic Defence Review, Supporting Essay 6, "Future Military Capabilities".
[2] Defence Industrial Strategy, Chapter B4, "Fixed Wing", p 85.

4. Industrial Benefits for the UK

The A400M programme with its cutting edge use of composite technology and application of the latest lean and efficient manufacturing techniques, firmly positions Airbus UK and the UK aerospace sector at the forefront of this high technology industry.

Airbus UK—the Airbus Wing Centre of Excellence—at Filton, Bristol, is responsible for the overall design, management, and assembly of the A400M wing.[3] Airbus UK has been investing over €200 million in the A400M infrastructure over the 5 years from 2003–08, involving some significant alterations to assembly buildings. At the official opening of the centre on 21 September 2006, the Minister of State for Defence Equipment and Support, Lord Drayson, said:

> "The A400M is a vital part of the UK's future military capability. I am delighted therefore to open this fantastic facility, which is an important step towards delivering the aircraft to the seven partner nations. The A400M wing was designed here in the UK and basing the manufacturing facility here in Filton, further reinforces the UK's tradition as Europe's centre of excellence for hybrid composite wing technology."

Final assembly of the first set of wings began in July 2006. The A400M wing represents a major step in Airbus wing technology as it features the first-ever composite (carbon fibre reinforced plastic, CFRP) wingbox for an Airbus-built aircraft. It is also believed to be the largest composite wing ever made.

The wing box consists of pre-assembled leading and trailing edges made of composite spars, metallic ribs and 20 metre-long composite wing skins. The Wing Assembly Facility is equipped with new, state-of-the-art, jigs and tools—including automated drilling and laser tracking making this the most advanced aircraft assembly plant in the world.

After assembly of the wingbox, each wing will be fully equipped with hydraulic, pneumatic, fuel and electrical systems and fitted with moving surfaces. It will then be fully tested before delivery from Filton by Airbus "Beluga" cargo aircraft, to the final assembly line in Seville. The first six sets of aircraft wings and the fatigue and static test wings will also be specially equipped with additional instrumentation and other equipment for ground and flight testing of the whole aircraft in due course. The first wing was removed from its assembly jig in Filton in November 2006 and is to be delivered to Spain in April 2007.

In addition the fuel team at Filton is responsible for the overall definition of the complete fuel system including air-to-air refuelling and fuel tank inert gas protection, technical recommendation for supplier selection, supplier management, and fuel system test and integration.

In local terms the engineering, design and manufacture of the wings for the A400M will grow to offer employment to around 950 people at Filton (450 in design engineering and around 500 in manufacturing). Many of these jobs will involve training to acquire the new skills needed to design and assemble wings built both in metal and composites.

In February 2007, Airbus announced proposals for establishing a new business model for its industrial processes and procedure, known as the Power8 restructuring plan. The company has focussed on 3 key areas in order to bring about the change needed for future development and success.

The three areas are:

- Lighter and more cost-efficient processes.
- Refocus industrial base on core activities.
- Integrated organisation.

The programme will seek to rationalise the company's supply chain by reducing the number of first tier suppliers and developing closer partnerships in risk sharing arrangements with specialist suppliers. There is also the intent to streamline core design and manufacturing processes through the reduction of development cycles and improving engineering and manufacturing productivity. These are processes already pioneered within the A400M programme, which will prove in no small way to be a model for future Airbus programmes. The Power8 programme however, will have no direct impact on the A400M itself.

The economic benefit to the UK is not confined to Filton, or to the South West. Across the country, the huge number of livelihoods already secured by Airbus work is being swelled by an estimated 8,000 additional jobs (direct and indirect) as A400M gathers pace.

March 2007

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[3] Wing design and manufacture is led from Filton and includes specific design and manufacturing work from Airbus UK, Airbus France, Airbus Germany, Airbus Spain, Turkey, Belgium, South Africa and Malaysia.

Memorandum from Lockheed Martin UK

Introduction

1. Headquartered in Bethesda, Maryland, the Lockheed Martin Corporation employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. Lockheed Martin UK is a wholly owned subsidiary of Lockheed Martin Corporation, and a leader in systems integration working on major programmes spanning the aerospace, defence and civil sectors. Lockheed Martin UK works with more than 100 business partners in the UK and employs in the region of 1,700 people at 10 UK sites. The Corporation reported 2006 sales of $39.6 billion.

2. As the designer and manufacturer of the C-130 Hercules military transport aircraft, Lockheed Martin has provided the mainstay of the Royal Air Force's airlift capability, both strategically and tactically, for the past 40 years and, following introduction of the C-130J in the mid-1990s, the RAF is likely to continue to use the Hercules in support of military operations until at least 2030. The C-130 has been in continuous production for over 50 years, and has current and anticipated orders which should ensure continued production well into the next decade.

The Strategic Transport Requirement

3. The rationale for having the capabilities and structures to conduct expeditionary military operations abroad in support of the UK's National Security objectives were clearly stated in both the 1998 Strategic Defence Review and in the 2002 Strategic Defence Review: New Chapter. The requirement to improve the UK's strategic transport capability to support this objective was highlighted and plans to acquire additional sea and airlift capabilities were announced.

The Airlift Contribution to strategic Transport

4. With the need to transport rapidly outsize and very heavy loads over strategic distances the MoD has acquired four C-17s with a fifth due in service in mid -2008. However, the bulk of the airlift capability will continue to be provided by the Hercules fleet of 23 C-130Ks, which are due to be replaced by the A400M during the next decade, and by 25 C-130Js (currently 24 as one was lost on operations in February this year).

5. In seeking to provide the optimum mix of capabilities which will meet tactical, strategic and outsize airlift requirements, it is our understanding that the MoD has had to take into account many factors such as the availability of existing assets, international acquisition commitments, the operating environment, the need for concurrency and, given the competing MoD funding priorities for other urgent capabilities, affordability. Current operations show that the fixed wing transport assets are being very heavily utilised and that operational factors such as the incorporation of Urgent Operational Requirements, loss of assets on operations, or damage due to rugged environmental conditions are placing ever greater demands on the air transport fleets and on industry. It is within these constraints that a balance has had to be struck between the need to provide support to current operations and to plan for the longer term.

Hercules Contribution to Current Operations

6. The Hercules fleet is being heavily used on current operations in both the strategic and tactical airlift roles, with the C-130J, because of its superior performance, as the preferred in-theatre, tactical transport aircraft for both logistic supply and in support of special operations. Managing the use of current assets to ensure maximum availability with aircraft fit-for-purpose, and planning airlift to optimise the use of aircraft capabilities and crews by using, for example, a "hub and spoke" operation with C-17 providing much of the strategic airlift and the Hercules providing the in-theatre tactical airlift, are the most significant challenges faced by MoD and industry.

7. The award of the Hercules Integrated Operational Support (HIOS) contract in May 2006 to the industrial team led by Marshall Aerospace with Lockheed Martin and Rolls Royce as sub-primes in a long term partnering arrangement, has formed a sound basis for industry to work closely with the MoD to provide a performance based, cost effective way of managing the entire Hercules fleet to provide maximum availability to the front-line. The closer working relationship with both the RAF and the Hercules IPT and industry has been instrumental in addressing quickly and efficiently issues which impact badly on the number of aircraft fit-for-purpose.

8. In support of operations, Lockheed Martin and Marshall Aerospace have been responding to urgent operational requirements which when fitted will improve both protection and survivability of aircraft deployed in theatre. We are also working with MoD to assess the options for replacing as rapidly as possible the capability lost in February this year when a C-130J which was destroyed in Maysan Province in Iraq

Hercules and the UK Industrial Base

9. UK Industry and the Lockheed Martin C-130 platform have a long and positive history stretching back over 40 years. In particular, Lockheed Martin has had a very special, long standing relationship with Marshall Aerospace, who won the competition for a UK Technical Centre for the C-130 K in 1966. Since then Marshall Aerospace and Lockheed Martin have worked together to modify and extend the capabilities regularly of the C-130 aircraft to meet the changing needs of the MoD. With the introduction of the C-130J, the relationship expanded through the creation of an Industrial Support Group of 40 first and second tier key suppliers who interact regularly both with Lockheed Martin and with each other to promote their capabilities and to advocate the benefit of what today we would describe as collaborative working or partnering.

10 Approximately 20% of every C-130J built is supplied from UK owned businesses with the supply chain extending to in excess of 150 suppliers at all tiers including a significant number of Small and Medium Enterprises (SMEs). The C-130J shows how SME's can work with higher tier suppliers and the primes directly to get their product and service specified as part of the base line product, something which is strongly advocated in both MoD's Defence Industrial Strategy and Defence Technology Strategy.

11. The positive UK industrial contribution to the C-130J program extends beyond the basic flying platform into ground support, training, simulation and many other areas that contribute to the UK's Defence Industrial Base. With over 200 of the new C-130J's either delivered or on order the foresight of UK industry to partner and invest with Lockheed Martin, over a decade ago, is predicted to continue to provide business base and market access for many years to come.

10 April 2007

Memorandum from Marshall Aerospace

Executive Summary

Marshall Aerospace is pleased to submit written evidence to the House of Commons Defence Committee Inquiry on Strategic Lift. This submission records the early success of the joint MoD/Marshall Aerospace Hercules Integrated Operational Support (HIOS) programme in providing Royal Air Force C130s for operational tasking and notes that valuable lessons learnt from HIOS are being applied to the forthcoming Tristar Integrated Operational Support (TRIOS) programme. Marshall Aerospace highlights that sustainment of the Tristar fleet will be challenging for the MoD and Industry as the Royal Air Force becomes the only mainstream operator of the Lockheed 1011 aircraft. It recommends that further consideration be given to options to purchase or lease additional Tristar aircraft which could alleviate the intense pressure on the "airbridge". For the future support of the new A400M aircraft, Marshall Aerospace notes that the MoD is pursuing strategies which appear to run contrary to the DIS in terms of maintaining the operational independence and sovereignty of UK airlift assets. A change of strategy is required if the A400M is to be subject to urgent operational requirements and the MoD requires industry's immediate response in a similar manner to the RAF C130 fleet.

1. Marshall Aerospace was identified in the Defence Industrial Strategy as the Domain Leader for strategic airlift due to its knowledge and experience of supporting both military and civil transport aircraft for more than forty years. This evidence to the House of Commons Defence Committee's Inquiry draws on this substantial experience and concludes by offering an alternative view on the emerging A400M support arrangements. The Marshall Aerospace evidence has four main themes:

- Effectiveness of Industrial Partnering.
- Early retirement of C130K aircraft.
- Effectiveness of the current strategic "airbridge".
- UK Support Strategy for A400M.

Effectiveness of Industrial Partnering

2. The Defence Industrial Strategy sought to embed the culture of partnering between the MoD and Industry where clear benefits could be demonstrated, in particular improved equipment availability for the Armed Forces and value for money for the UK taxpayer. One such partnering programme is underway for the RAF's Hercules C130 fleet where, 10 months after contract award, the joint MoD/Industry team is working through its initial set up period of Hercules Integrated Operational Support (HIOS) programme.

3. Since June 2006, HIOS has provided an outstanding level of support and levels of available aircraft have exceeded the contracted levels of 75% for the Hercules C130K and approached 80% on Hercules C130J. This HIOS support has been achieved against a backdrop of operational upgrades, direct support to operational theatres, and over-flying of the Hercules C130J against original targets. From a wider perspective, HIOS has developed new ways of working:

- Providing accessible Industry support directly to front line squadrons.

— Combining MoD and Industry technical specialists to reduce investigation timescales.
— Streamlining aircraft maintenance programmes.
— Providing single management of the engine and wider supply chain.

Whilst such effectiveness is planned to be applied to the Tristar fleet, it would appear that A400M will not benefit in a similar manner (see paragraph 7). Furthermore, the Committee may wish to be satisfied that arrangements for C-17 and FSTA provide incentives for all parties to deliver faster, cheaper and better support.

4. Overall, the HIOS programme is already showing promising signs of delivering a stable and cost-effective solution to RAF Hercules support. The lessons learnt from this partnering are already being fed into the next aircraft programme for Tristar Integrated Operational Support (TRIOS). Expected to start in January 2008, the TRIOS programme should provide the MoD with a sustainable support solution for the RAF's 9 Tristar aircraft and thus enable them to reach their Out of Service date, notwithstanding the many technical and logistics challenges which lie ahead. The Tristar aircraft (L1011) has been phased out by all major civil airlines and hence there is an increasing risk of Tristar spares shortages over the next few years. To mitigate this risk, the MoD and Marshall Aerospace are working together, as per the DIS, to prepare a robust and credible TRIOS solution. Costs are expected to rise above current funding levels as industry will have to maintain a unique spares inventory for the RAF aircraft but effective partnering should help to minimise this additional cost and ensure that the Tristar remains an available and sustainable aircraft for at least the next 5 years.

Early Retirement of C130K Aircraft

5. Building on the success of HIOS, Marshall Aerospace is currently working with the MoD to develop a true through-life C130 capability, ensuring that capability gaps are identified and managed in a timely and appropriately funded manner. In this respect, we are seriously concerned that C130Ks are being retired from active service ahead of the A400M's entry into service, leading to an airlift shortfall. In as much as FSTA has been delayed, this too will place further pressure on the existing airlift fleet. We recognise the financial burden in maintaining ageing aircraft but the premature retirement of C130Ks is a high risk to MoD's overall airlift capability given the uncertainty of the delivery schedule for A400M. Interim solutions, such as wing changes and avionics upgrades could be funded to extend the life of these aircraft. Such an approach would bridge the capability gap while generating resalable aircraft to a high standard for the MoD.

Effectiveness of Current Strategic Airbridge

6. It is recognised that the RAF's existing fleet of 9 Tristar ageing aircraft are challenging to manage and hence the TRIOS programme, described earlier, is underway to guarantee their availability in the strategic transport role. One major difficulty for the RAF is to generate sufficient Tristar aircraft to provide the required troop carrying capacity. As recently reported in Hansard, the unserviceability of a passenger Tristar aircraft causes a significant, adverse reaction on morale from the troops who are due to fly back to their families in the UK.

7. Marshall Aerospace has offered (informally) additional aircraft, in the form of ex-civilian Tristar aircraft, to supplement the existing RAF fleet of nine aircraft. Many suitable second hand aircraft are available from reputable sources and Marshall Aerospace is prepared to work with the MoD on either a purchase or lease arrangement. Some additional MoD expenditure would be required to bring the aircraft onto the military register and, if required, to fit defensive aids equipment. However, additional Tristar aircraft would add immediate benefits for the MoD:

— Increased certainty in maintaining the "airbridge".
— An extra source of essential spares to sustain the long-term fleet.
— A support arrangement from Industry to add experienced manpower into RAF Brize Norton.
— A reduction in charter airlift expenditure by the Defence Transport & Movements Agency.

Overall, delays in FSTA and A400M, at a time of very high operational tempo, has placed additional strain on the existing fleets, particularly C130, VC10 and Tristar, all of which have suffered "creeping" delays to out-of-service dates. The effect is to blight difficult decisions on upgrades to structures and systems, in order to meet the high demands of the Nation.

UK Support Strategy for A400M

8. The arrival of the A400M will provide a significant boost to the MoD's airlift capacity but there are significant questions regarding the MoD's approach to the support of this new platform. The DIS states (on page 17) that "we must maintain the appropriate degree of sovereignty . . . to ensure operational independence . . . and the ability to respond to Urgent Operational Requirements (UORs)". We see no evidence that the MoD is taking due account of the sovereignty issue for A400M, as specified in the DIS. Indeed, we understand that the UK MoD is investigating a pan-European support solution by joining with

other A400M operators, which presumably would lead to a European industrial competition. This approach runs contrary to the experience and success of the RAF's C130 fleet which has, in part, been attributed to the ability of the UK MoD to control the configuration of the aircraft and task industry to modify its fleet with equipment to perform roles bespoke to UK operations, including Special Forces. Over its lifetime, the RAF C130K fleet has received over 700 major modifications and the new C130J has already received almost 100 modifications. Therefore, without a robust national support solution for the A400M which specifically addresses the sovereignty issue, the MoD will restrict its ability to adapt and modify the A400M aircraft and thus ensure operational independence. It is also important to recognise that both A400M and C130 are not airliner derivatives, unlike FSTA, and demand similar upgrade "autonomy" afforded to fast jets, like Harrier and Tornado, where operational independence is the norm.

9. In summary, we are surprised that the UK MoD has elected to ignore the virtues of UK partnering for the A400M programme. Moreover, we believe that the MoD and UK Industry should work together to embed an indigenous technical capability to support and modify the RAF's A400M aircraft, and thus provide the rapid industrial response to UORs, as witnessed today on many other military platforms. (Marshall Aerospace is able to provide much greater detail on this matter if required by the Committee).

12 April 2007

Memorandum from The Boeing Company

In response to the House of Commons Defence Select Committee's request for evidence regarding its inquiry into Strategic Lift, The Boeing Company is pleased to submit the following evidence. In this document Boeing provides information about: the Boeing Company; Boeing Integrated Defense Systems; Boeing's C-17 Globemaster III programme; and of the status of the programme as of April 2007.

General Information

1. Boeing is the world's leading aerospace company and the largest manufacturer of commercial jetliners and military aircraft, with capabilities in rotorcraft, electronic and defence systems, missiles, satellites, launch vehicles and advanced information and communication systems. Our reach extends to customers in 145 countries around the world, and we are the number one US exporter in terms of sales. Headquartered in Chicago, Illinois, USA, Boeing employs more than 153,000 people in more than 67 countries.

2. Boeing has a long standing relationship with the UK dating back almost 70 years and today the UK remains a critically important market for the company, as a supplier base and a source for technology partners. Boeing's annual spend in the aerospace industry supports thousands of jobs around the UK, in the process generating intellectual property and facilitating exports.

3. Boeing sources more from the UK than from any other country in the world, except the USA. In 2005, the company bought more than $1billion of services and materials from around 300 UK suppliers. There are currently more than 600 Boeing UK employees, in locations from Glasgow to Dorset.

Boeing Integrated Defense Systems

4. Boeing Integrated Defense Systems combines weapons and aircraft capabilities, intelligence and surveillance systems, communications architectures and extensive large-scale integration expertise across three business profit and loss centers. A $32.4 billion business with 72,000 employees worldwide, Boeing Integrated Defense Systems' strategy is to understand the enduring needs of customers and provide capability-based solutions to meet their rapidly evolving requirements. The strategy includes understanding the art of using current and emerging technologies to improve the capabilities of existing products and delivering new solutions.

5. The UK is a critically important market for the Integrated Defense Systems (IDS) business of The Boeing Company, as a supplier base and a source for technology partners. IDS continues to grow its extensive partnership operations with the best of British industry to bring best value solutions to the MoD and other governments around the world.

Boeing C-17 Globemaster III

6. A Nation's Strategic Airlift Capability is an essential linchpin in their National Security Strategy to conduct operations. Airlift delivers the Global Reach that allows the United Kingdom to deploy and sustain forces globally to meet their security interests whenever and wherever necessary. The Boeing C-17 Globemaster III is designed to fulfill military and humanitarian airlift needs well into the 21st century. A high-wing, four-engine, T-tailed aircraft with a rear-loading ramp, the C-17 can carry large combat equipment and troops or humanitarian aid across international distances directly to small austere airfields anywhere in the world. With a payload of 160,000 pounds, the C-17 can take off from a 6,700-foot airfield,

fly 2,400 nautical miles, and land on a small, austere airfield in 3,000 feet or less. The C-17 is equipped with an externally blown flap system that allows a steep, low-speed final approach and low-landing speeds for routine short-field landings.

C-17 Status (April 2007)

7. The Boeing C-17 Globemaster III is the Royal Air Force's most reliable and capable airlift aircraft, and currently flies at a rate well above its original planned usage. As the United Kingdom enters its sixth year of fighting terrorism around the world, the C-17 stands out for its proven record as the RAF's true workhorse in both combat and humanitarian relief missions. In current operations, the C-17 has a proven capability of delivering more cargo, troops and supplies than any other UK aircraft.

8. Boeing is currently on contract for 190 C-17s with the US Government, of which 164 have been delivered to date. In addition, Boeing is on contract for four aircraft to Australia, four aircraft to Canada, and four aircraft leased to the UK, where the purchase option has been exercised, and the purchase of one additional UK C-17 aircraft. A Letter of Intent (LOI) has been received from NATO for three- four aircraft, but it is unlikely that NATO will be on contract before later in 2007.

9. The United States Department of Defense (DoD) did not request funding for additional C-17s in their Fiscal Year 2008 budget. Boeing and its suppliers have been spending their own resources since late last year to protect the option for production of additional C-17s. However, based on the 34 month lead time necessary to build a C-17, and in the absence of any US Government commitment to procure additional C-17s in the future, Boeing directed its suppliers on 2 March 2007 to stop work on aircraft beyond current customer commitments. As a result, the C-17 supply base will start to shut down later this year and significant workforce reductions will begin in early Calendar Year 2008 as the production line heads towards complete shutdown in mid Calendar Year 2009.

Conclusion

10. The UK remains an extremely important market for the Boeing Company, as a supplier base and a source for technology partners. Boeing currently works with the UK Ministry of Defence across a range of programmes and the company looks forward to building on this relationship in the future. The Boeing Company has a strong desire to continue to provide a reliable and capable airlift aircraft to the Royal Air Force.

17 April 2007

Memorandum from the Ministry of Defence

Definitions

1. *What are the MoD's definitions of Strategic Lift and Tactical Lift?*

In simple terms, strategic lift tasks are from the UK to an operational theatre; a tactical lift task is one within an operational theatre.

Strategic Lift Assets

2. *Please provide a list of the different types of Strategic Lift assets which the MoD has; the number of each type of asset; and explain whether the assets are owned, are leased, or are provided under a PFI arrangement (or other arrangement).*

The table below outlines the total number of MOD assets that can perform strategic lift tasks. At any one time, a proportion will be unavailable for use due to routine maintenance or other reasons, such as being involved in a modification programme.

Platform	*Quantity*	*Capability*	*Ownership*
Roll-on Roll-off (Ro-Ro) ships	6	Freight	PFI arrangement
Landing Ship Dock (Auxiliary)	4	Freight and passenger	Owned (3 in service, 1 still being fitted-out)
C-17	4	Passenger and freight	Leased until 2008, then purchased.
C-17	1	Passenger and freight	Owned, from 2008
TriStar C2	3	Passenger	Owned
TriStar KC1	4	Passenger, freight and tanker	Owned
TriStar K1	2	Passenger and tanker	Owned

Platform	*Quantity*	*Capability*	*Ownership*
VC-10 CMk1K[4]	10	Passenger, freight and tanker	Owned
C130K Mk3	20	Passenger and freight	Owned
C130K Mk1	4	Passenger and freight	Owned
C130J Mk4	14	Passenger and freight	Owned
C130J Mk 5	10	Passenger and freight	Owned

3. *TriStar aircraft are used for the Strategic Lift of personnel. How old is the current TriStar fleet and what is the planned out of service date for these aircraft? For the last three years, please provide availability figures for TriStar aircraft, showing how these compare with the planned availability rates.*

The TriStar aircraft were manufactured between 1979 and 1980. On current plans the TriStar fleet will reach its out of service date towards the middle of the next decade.

The table below details the planned availability figures (in hours) for the TriStar fleet and that which was achieved.

	TriStar	
Financial Year	*Planned (hrs)*	*Achieved (hrs)*
2003–04	9,561	8,879
2004–05	10,561	8,657
2005–06	11,191	7,693

4. *What Strategic Lift assets does the MoD plan to have in 2017 and 2027?*

In both 2017 and 2027 the MoD plans to have the following Strategic Lift assets:

- 4 LSD(A) ships;
- 6 Ro-Ro ships;
- 5 C-17 aircraft;
- 24 C130J aircraft;
- 25 A400M aircraft.

We also plan to have the Future Strategic Tanker Aircraft in service by the turn of this decade and it is possible that some of these aircraft will be available for strategic lift tasks. We are currently finalising the commercial arrangements with Air Tanker Ltd, including the number of aircraft that will form part of the service they will provide. There are also other assets which the MoD plans to have (in both 2017 and 2027), such as the vessels to be procured under the Military Afloat Reach and Sustainability (MARS) programme, which may contribute to our strategic lift capacity.

Strategic Defence Review

5. *What progress has the MoD made in meeting the Strategic Lift requirements set out in the Strategic Defence Review (SDR) 1998?*

The MOD has met the strategic lift requirements as set out in the SDR in 1998. Paragraph 96 from Chapter 5 articulated these requirements as:

> *"We have an urgent need to improve our strategic transport, to allow us to move more powerful forces quickly to an overseas theatre. In the short term we expect to do this through acquiring four additional roll-on roll-off container ships and four large C17 aircraft or their equivalent. In the longer term, we will also need to consider a replacement for our remaining elderly transport aircraft. The European Future Large Aircraft is a contender for this requirement."*

The SDR stated a requirement for a four-ship Ro-Ro capability. This was converted into a PFI for six Ro-Ro ships, which entered service between 2002 and 2003. In 2000, we contracted with Boeing to lease 4 C-17 aircraft and announced last year our intention to procure these aircraft at the end of their lease in 2008. We are also procuring a fifth C-17, to enter service next year.

The committee will also be aware of our plans to procure 25 A400M aircraft to replace the C130K Hercules currently in-service with the RAF.

[4] The RAF also has 4 VC-10 K3 aircraft and 2 VC-10 K4 aircraft which have a very limited passenger carrying capability, as they are predominantly air-to-air refuelling aircraft.

6. *Have the Strategic Lift requirements set out in the SDR been reviewed? Has this led to any change i.e. in the type / number of Strategic Lift assets required (if so, please provide details)?*

We regularly review our requirements and planning assumptions as part of our planning cycle. Hence, we announced in 2006 our intention to buy a 5th C-17.However the principle set out in the SDR of maintaining a capable, deployable and balanced force has remained the basis on which we plan, structure and equip our Armed Forces.

7. *What lessons relating to Strategic Lift have been/are being learned from operations in the Balkans, Iraq and Afghanistan? How are these being applied?*

Lessons and evidence are gathered at the tactical, operational and strategic levels. The information provided is verified and supplemented by independent research, theatre visits and interviews including observing of the planning, preparation and initial deployment phase of an operation.

A number of lessons identified have been confirmed from operations in the Balkans, Iraq and Afghanistan. Operation Resolute (Bosnia-Herzegovina 1995/96) confirmed that UK military strategic lift was limited, resulting in the requirement to approach the commercial market to hire civil sea and air lift. Also, US usage of C-17s to deliver outsize cargo loads at austere forward delivery points was noted. This helped inform the MoD's requirements for the Ro-Ro ships and C-17s identified in the SDR.

Lessons pertinent to the build-up to Operation Telic, in Iraq, in 2003 cover a broad spectrum of strategic lift. They include tactical lessons, such as ensuring chartered sea-lift vessels have suitable containers for the stowage of personnel weapons and ammunition to larger baggage allowances for personnel on chartered aircraft. They also include wider lessons such as the ongoing recognition of the utility of chartered aircraft to support airlift, in freeing up RAF aircraft to undertake more dangerous operations.

An additional lesson identified relates to the performance of the enduring airbridge between the UK and both theatres of current operation (in Iraq and Afghanistan) and the experience for those using the airbridge. Personnel involved with the airbridge process at the various hubs have had new training, including enhanced passenger handling skills. Additionally, movement personnel are collecting customer feedback from those using the airbridge to identify and, if necessary, implement future improvements required. Other recent improvements to the airbridge include: direct TriStar flights to Kandahar, which help reduce the overall journey time to Afghanistan; procurement of additional security screening equipment at RAF Brize Norton and the Joint Air Mounting Centre at South Cearney; the refurbishment of facilities in the RAF Brize Norton Air Terminal (such as a large café); an increase in air movements contractor support staff at RAF Brize Norton; and closer integration of RAF and Army movements personnel at airheads.

Sea Lift

8. *Are the six Ro-Ro ferries sufficient to meet the MoD's current requirement for Sea Lift? Where additional Sea Lift is required, does the MoD have access to sufficient Sea Lift from the commercial market? What arrangements are in place regarding access to Sea Lift from the commercial market? What is the MoD's assessment of the effectiveness of these arrangements?*

The Strategic Ro-Ro requirement emanates from the SDR and was endorsed in the Defence White Paper entitled "Delivering Security in a Changing World" in July 2004.

Four Ro-Ro ships are permanently contracted to the MoD with a further two at notice for MoD tasking. These 6 ships are supplied and manned by Foreland Shipping and their readiness profiles are matched to meet MOD requirements. We judge that this is sufficient to meet our current needs.

Short-term peaks of tasking, or major deployments, may require additional shipping over and above the capacity provided by the Ro-Ros. The first option to provide this would be through the use of allied shipping provided via the Sealift Coordination Centre, which allows allies to make use of spare capacity from other nations, on a repayment basis. The cost of this shipping is less than that for chartered commercial shipping and the capabilities of the vessels and their condition is well known.

When additional sealift is required from the commercial market, a Statement of Requirement is prepared which sets out the quantity and type of equipment, the timescale and loading/discharge ports. This is submitted to the market, through a panel of brokers. Ships offered in response are evaluated in terms of their technical ability to achieve the task, safety management and cost.

Since the introduction of the 4 x Strategic Ro-Ros, charter requests for additional shipping are around 15 per year. Most of these tasks are for routine re-supply to overseas garrisons, most notably the South Atlantic Islands, and support to exercises. The UK has a robust safety management system in place to ensure the quality of the vessels chartered and has excellent working relationships with the brokers who acquire the ships. These arrangements work extremely well and are able to meet Defence's requirements.

Air Lift

9. *The MoD is procuring the four C-17 aircraft which are currently being leased, and an additional C-17 aircraft. How much are the five C-17 aircraft expected to cost the MoD to procure? How old are the five aircraft being procured and how long are they expected to remain in-service? Are the four C-17s currently being leased operating above the planned rates and, if so, by how much?*

The cost to procure the five C-17 aircraft is commercially sensitive but an indicative cost of a C-17 is around $220 million.

As at end February 2007, the four leased C-17 aircraft are just under 6 years old (the oldest is 5 years 9 months old). The fifth C-17 aircraft is currently in production at Boeing to meet an In Service Date of May 2008. All four leased aircraft are planned to remain in-service until 2031. The table below details the planned and achieved availability figures for the C-17 fleet.

	C-17	
Financial Year	*Planned (hrs)*	*Achieved (hrs)*
2001–02	3,000	3,377
2002–03	3,000	5,745
2003–04	4,000[1]	5,592
2004–05	5,800[1]	5,727
2005–06	5800	6375

1. Increase in planned hours due to additional crews.

In 2006–07 the fleet has accumulated in the region of 5720 flying hours as at the end of January 2007 and is forecasting circa 7,000 flying hours at the end of the financial year.

10. *What is the current in-service date for the A-400M aircraft (the Major Projects Report 2006 reports that the programme was forecast to be 15 months later than the approved in-service date)? What is the out of service date for the Hercules C130K aircraft which the A-400M aircraft is replacing? What is the current forecast cost of the life extension to the Hercules C130K aircraft?*

The in-service date (defined as the 7th aircraft delivered to the UK) for the A400M aircraft is 2011 (50% confidence). The ISD variation, as reported in the Major Projects Report (MPR) 2006, is due to historic reasons associated with the time required for German approvals and changed customer requirements. The out-of-service date (OSD) for the C130K Hercules is 2012. The original OSD for the C130K was 2010 but has been delayed by two years in order to be coherent with the entry of A400M. The cost associated with this measure is unchanged, as recorded in MPR 2006, at £26 million.

11. *What arrangements are in place regarding access to Air Lift from the commercial market? What is the MoD's assessment of the effectiveness of these arrangements?*

The MoD makes regular use of the commercial aviation markets, both for longer-term core contracts, such as movement to and from Germany, and for operational and exercise tasking. The majority of ad hoc business is done through established brokers as experience has shown that this provides greater robustness. In addition, MoD has enabling agreements in place for a number of key airlift freight capabilities, including outsized lift. This process, in which pricing and capability have already been commercially competed, gives rapid access to available commercial lift by effectively "fast-tracking" the individual approach to the market. It does not, however, guarantee availability. The complexity and diversity of passenger airlift precludes the use of enabling agreements for those tasks.

MoD is subject to the normal vagaries of the commercial market, hence there are no guarantees of availability of commercial aircraft under these arrangements. However, experience has thus far showed that the process in place is effective and able to meet demand. As with sealift, the MoD also moves individual consignments of freight using scheduled commercial airline services.

Costs

12. *How much does Strategic Lift cost the MoD each year? Please distinguish between direct and indirect costs. What proportion of the total Strategic Lift cost relates to chartering from the civil market?*

We estimate that strategic lift tasks cost the MoD over £750 million per year, key elements of which are (using 2006–07 figures):

- Airlift charter—£82 million;
- Sealift charter (including Ro-Ros)—£64 million;
- Strategic lift infrastructure on Ops TELIC and HERRICK—£11 million (this figure includes cost of personnel, infrastructure and air cargo handling equipment);

— Annual operating costs of RAF Brize Norton—£200 million;
— Cost of using C-17, TriStar and VC10 aircraft in 2006–07 is in the region of £430 million;
— LSD(A) support costs—£2.4 million.

This does not include the cost of the C130 fleet as the majority of C130 tasks are likely to be tactical rather than strategic lift. The above costs also exclude the support costs for sub-system IPT's which support the Strategic Lift platforms (eg providing Defensive Aids Systems), or basing costs for the LSD(A), which are shared with other maritime platforms.

It has not been possible to distinguish between direct and indirect costs, given how the overall "Strategic Lift" cost figure, above, was constructed.

Key Players

13. *Please provide a diagram setting out where the various players fit into the Strategic Lift process, eg which part of the MoD: identifies the assets/stores/personnel to be transported; tasks the provider of Strategic Lift; and provides the Strategic Lift.*

The diagram below indicates the key players and their interaction within the operational "Strategic Lift" process. The diagram contains a number of abbreviations, which are:

— Assistant Chief of Defence Staff Logistic Operations (ACDS Log Ops).
— STC (Strike Command), renamed Air Command with effect from 1 April 2007.
— PJHQ (Permanent Joint Headquarters).
— DE&S (Defence Equipment & Support).
— DSCOM (Directorate Supply Chain Operations and Movements).
— FLC (Front Line Command).

The wider strategic lift delivery process includes the planners in the Equipment Capability Customer (ECC) organisation, who advise on the future size and shape of MOD's strategic lift capability, and the DE&S who, through the relevant Integrated Project Teams, deliver the equipment to the front line.

19 April 2007

Memorandum from Rolls-Royce

Future Strategic Tanker Aircraft

1. Rolls-Royce is a shareholder in AirTanker, the Joint Venture company that will provide a service to replace the air-to-air refuelling (AAR) and air transport (AT) capability currently provided by the RAF's VC-10 and TriStar aircraft. Rolls-Royce will also be the supplier of the Trent 700 engines to power the A330-200 FSTA fleet and will provide through life support for these engines

2. The Company is aware of the importance to the UK Armed Forces of the AAR and AT capability and recognises the importance of the task of the industrial team that will work with the RAF in modernising the programme.

Air-to-Air Refuelling

3. With double the fuel offload capability of the VC-10 and more refuelling hoses than the TriStar, the A330-200 FSTA will provide the RAF with a more capable and flexible refuelling aircraft. This will benefit the deployment of receiver aircraft and the in-theatre support of sustained operations.

Air Transport

4. The FSTA programme was launched with AAR as the headline requirement but with a requirement to also provide AT capability. Currently, it is the RAF's AT task that is gaining greatest attention. The shareholders have always understood that the mix between and the demand levels for these two roles will vary during a long contract and that responsiveness is a key part of the FSTA deal. To deliver this, the capable and flexible A330-200 tanker transport aircraft was selected and a supporting AirTanker business and supply chain is under creation.

5. The A330-200 is proven in the commercial world and will provide the RAF with a modern passenger capability.

Private Finance Initiative Service

6. The FSTA PFI has enabled—and driven—industry to optimise the design of the daily provision of these aircraft to the RAF. We will be driven by high service level targets throughout the 27-year deal and the shareholders are investing in a dedicated organisation with new facilities at Brize Norton to deliver the integrated all-inclusive service. The organisation will include seconded RAF personnel and reflect a military ethos. The aircraft will be supported in service by the Original Equipment Manufacturers; embodied within FSTA is the best practice Rolls-Royce has developed in providing support to the RAF under Mission Ready Management Solutions (MRMS®) and to airlines with TotalCare® packages.

7. There is confidence that the AirTanker service will begin on time—it is a carefully constructed low risk programme for MoD. Additionally, under the PFI arrangement, shareholders are strongly incentivised to achieve committed in-service dates, for example, AirTanker will not be paid until service is provided (and continues). The contract has been designed to allow flexibility in the usage mix of the fleet between AAR and AT, through the structuring of the charging and task planning. From the outset, aircraft can be tasked for either AAR or for AT.

8. Rolls-Royce recognises the pressure on the RAF's transport fleet and the desire to see the FSTA fleet enter service. The Company is working with fellow shareholders and MoD to close this deal and launch the programme.

OTHER PROGRAMMES

9. Rolls-Royce supports existing RAF strategic lift and AAR aircraft—TriStar, VC-10 and C-130—under MRMS arrangements and with its EuroProp International (EPI) partners will deliver the TP400 engine for the A400M.

19 April 2007

Supplementary memorandum from the Ministry of Defence

IMPACT OF LOCATING DEFENCE TRAINING REVIEW (DTR) FACILITIES AT ST ATHAN

It is not anticipated that the decision to locate the DTR at St Athan will adversely affect support for VC-10. Work is ongoing to understand the potential interactions between the two projects, and appropriate action will be taken to ensure that both projects are able to achieve their objectives until such time as VC-10 reaches its current planned out-of-service date.

DEFENSIVE AID SYSTEMS (DAS) AND FORCE PROTECTION ENHANCEMENTS FOR AIR TRANSPORT (AT) AIRCRAFT

We keep our assessments of potential threats and the methods to counter and mitigate those threats, under continual review. DAS are one component of this strategy. We are very near to the completion of our programme to fit DAS to those TriStar we employ for the transport of personnel to and from operational theatres. We are also upgrading the DAS fitted to the majority of our C130 aircraft and, on current plans, this programme will reach fruition in 2008.

The HCDC will be aware of the programme to fit Explosion Suppressant Foam (ESF) capabilities to the majority of our C130 Hercules fleet—those aircraft with the most capable DAS. We expect this work to complete by the end of this year, and we are approximately halfway through the programme. Whilst there have been fuel leaks that have occurred to some of the C130K aircraft which have had ESF embodied, these have been thoroughly investigated and rectified. The Department is satisfied that crew and aircraft safety have not been placed at risk as a result of the leaks.

Fuel Tank Inertion systems, which perform a similar function to ESF, are fitted to the C17 and will be fitted to the A400M, as that aircraft will undertake a similar, tactical, role as the C130K Hercules it will replace. We do not, currently, have any plans to fit ESF to the TriStar aircraft although we keep under review the requirement for defensive and survivability aids, including ESF, on all our deployed aircraft.

AIR TO AIR REFUELLING CAPABILITIES OF NATO NATIONS

While it is not appropriate that we should comment in detail on other nations' military capability, Canada, France, Italy, the Netherlands, Spain, Turkey and the United States all have air-to-air refuelling aircraft. However, the Dutch and Turkish aircraft and many of the US tankers, operate a boom system (as opposed to the probe-and drogue arrangement employed by the UK) that is not compatible with refuelling our aircraft.It should be noted that, while some countries have aircraft that are technically capable of being used, there are factors that may prevent or limit this being achieved. First, the fleets operated by most other countries are limited in size and the priority clearly will be to support their own operations. Second, those tankers based on C-130 Hercules do not provide the offload capacity or high altitude, high speed capability

of the UK's large-jet-aircraft tanker fleet. Finally, an engineering and operating clearance, for each tanker and receiver combination of aircraft, needs to be obtained (and possibly trialled) for compatibility and operational safety reasons.

AT Crew Retention Analysis

There has not been a noticeable downturn in pilot applications. We have a healthy ratio of applicants for training places available and the quality of those joining is high.

Premature Voluntary Retirement (PVR) rates for the RAF in the period 01 Sep 06 to 30 Mar 07 were 1.53% for Officers and 2.3% for other ranks. This is not significantly higher than other years. PVR rates for AT/AAR crews, in the same period are 2% for Officers and 1.5% of other ranks. There does not appear to be any significant difference between the PVR rates for AT/AAR crews and the RAF as a whole. Due to the introduction of a new Personnel Administration system these statistics are provisional and subject to review.

Personnel are not obliged to give a reason when requesting early release from the RAF.

The RAF has also launched an ambitious retention initiative: from 1 April Career Stream Senior Officer Aircrew (Pilots and selected Weapons Systems Operators in the ranks of Squadron Leader, Wing Commander or Group Captain) will receive £50 000 at their Initial Pension Point. An additional £50 000 will be paid at the same time to Career Stream Senior Officer pilots only. We keep our plans under review in case we need to do more.

Transport of Bunk Beds and Timber into Operational Theatre via Air Transport

There was a flight on the 15 Feb 07 that contained cargo that was to be used for Force Protection purposes, including re-enforced bunk-beds to protect the incumbent in the event of insurgent indirect fire. Consequently, it was determined that the equipment was required in theatre as quickly as possible and air transport was the quickest available method.

Transport Through Third Countries

Diplomatic clearance procedures for the transit of UK military flights through third party countries is similar for all countries and usually involves permissions granted by foreign ministries in addition to the routine notifications to airspace management authorities. While military flights are often allowed to operate on standing, or 'block', arrangements, each flight requires to be separately notified. While the clearance process is similar, the details required for overflight notification and the period of notification will vary between countries with some countries requiring more detailed information and time than others—for flights carrying ammunition, all countries require longer notice. In addition to clearance procedures for transiting airspace some countries place restrictions on military aircraft operating into civil airports, most commonly in the Gulf region. The reasons given are often to do with congestion at the airports and not unreasonable concerns about foreign troops transiting national commercial airport facilities. There have been no significant issues regarding air transportation through third parties to-date—the key being an appreciation that while the process is broadly similar, different countries have different rules.

The same is largely true of shipping—the procedure is similar for all countries but the period of notice and data each individual country requires does vary. Close liaison with the embassy is maintained, especially if there are any contentious issues such as hazardous cargo or military boat parties onboard. Some nations require full cargo lists prior to entry, for instance Pakistan. Equipment subsequently transiting Pakistan by road to Afghanistan has generally moved freely, although there have been minor delays as a result of local unrest or closure of border crossing points which have temporarily restricted movement on one or other of the 2 routes used.

5 June 2007

Further supplementary memorandum from the Ministry of Defence

FSTA In-Service Date

The Committee will be aware that our policy is not to declare an In-Service date until a project has been through Main Gate. However, in the case of the FSTA, a PFI project, a fund-raising process is required before the final costs and timescales can be confirmed. Therefore an ISD will not be formally confirmed until completion of the fund raising process.

Difficulties in Extending the In-Service Date of RAF Tristar and VC10

On our current assessment, both VC-10 and Tri-Star could, in principle, be extended in service until at least 2020 as there are no known major risks to the supply and integrity of engines, airframes and systems. However, the cost of maintaining airworthiness and availability would increase significantly during this time driven by the need for safety audit, possible structural repair, increased depth and frequency of maintenance and the dwindling economies of scale associated with becoming the main operator for increasingly small fleets of aircraft. This, together with the significant investment needed to maintain compliance with airspace regulations and military interoperability requirements, would need to be weighed against the benefits of switching investment to new platforms with long lives ahead of them.

Cost of FSTA PFI Arrangement

On 6 June 2007 the Department announced its intention to proceed to financial close on a PFI deal with AirTanker Ltd, subject to satisfactory completion of the PFI funding process. The price of the deal is commercially sensitive and premature release of FSTA financial data could harm the Department's commercial position during the funding process. In view of this, the requested information cannot be released. However, AirTanker was declared Preferred Bidder following competition and the consortium's bid has been subjected to Investment Appraisal against a Public Sector Comparator. Our analysis has confirmed that AirTanker's PFI proposal offers a Value For Money solution. The overall Whole Life Cost of the programme is expected to be in the order of £13 billion.

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