

THE ARMS PROCUREMENT COMMISSION

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GENERAL W.H HECHTER

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THE ARMS PROCUREMENT COMMISSION

STATEMENT OF LIEUTENANT GENERAL WILLEM HENDRIK HECHTER

I the undersigned,

LIEUTENANT GENERAL WILLEM HENDRIK HECHTER

state that:

1. I am a retired Lieutenant General formely employed by the South African National Defence Force.
2. I have been requested to assist the Commission with evidence on the history and backround of the strategic defence packages for the acquisition of armaments as it applied to the South African Air Force, with particular relevance to the rationale and utilisation of the armaments.
3. I joined the SAAF in 1965 and was involved in the SDPP acquisition process then in my capacity as the then Chief of the SAAF from 1998. I refer to a copy of my curriculum vitae hereto as annexure "WHH 1".
4. As appears from my curriculum vitae, I was appointed as the Chief of the SAAF from 1 May 1996 until end of February 2000.

MANDATE OF THE SANDF

5. The mandate of the South African Defence Force is set out in Section 200(2) of the Constitution of 1996 ("the Constitution"), which provides that it is the primary objective of the South African Defence Force (SANDF) to defend and protect the Republic, its territorial integrity and its people in accordance with the Constitution and the principles of international law regulating the use of force
6. This mandate is further given flesh in the Defence Act of 2002, which the other witnesses have already traversed.

DEFENCE FUNCTIONS

7. Section 227(1) of the 1993 Interim Constitution, read with schedule 6 , section 24 of the Constitution, set out the functions of the SANDF as follows:
 - 7.1 service in the defence of the Republic, for the protection of its sovereignty and territorial integrity;
 - 7.2 service in compliance with international obligations of the Republic with regard to international bodies and other states;
 - 7.3 service in the preservation of life, health or property;
 - 7.4 service in the provision or maintenance of essential services;
 - 7.5 service in upholding law and order in support of the SAPS; and
 - 7.6 service in support to department of state for socio-economic upliftment

THE RATIONALE IN ACQUISITION OF THE HAWKS AND THE GRIPENS

8. The South African Defence Review was approved by Parliament during April 1998. The Force Design as recommended in the Defence Review, provided the following in so far as the SAAF equipment was concerned:

SA Air Force

Fighters

Light Fighters	16
Medium Fighters	32

Helicopters

Combat Support Helicopters	12
Maritime Helicopters	5
Transport Helicopters	96

9. The force design contained specific air systems and when I refer to the force design I am referring to the specific air systems and not to the number or the quantities of the aircraft listed above. These systems were the fighter system, reconnaissance system, a transport/maritime system, helicopter system, air space control, in-flight refuelling and electronic warfare aircraft.

10. EXPLANATION OF DIFFERENT SYSTEMS

- 10.1 Basic training in the air force is done on the Pilatus Astra aircraft which is used as the entry level for all the systems mentioned above and as such a first time trainee would start off with the Pilatus Astra until he or she receives wings.
 - 10.2 After receiving wings the trainee would then proceed to the Impala Mk 1 and Mk 11 for introduction into fighter training
 - 10.3 Once the trainee has finished with this introduction and after the necessary consolidation is done, then the trainee would proceed to the combat capability of the air force, namely the Cheetah C and D.
 - 10.4 The same Pilatus Astra, as I have referred to above, that is the entry level aircraft, is used in helicopter system followed by the Alouette III then the Oryx and the Rooivalk helicopters respectively.
 - 10.5 In the case of the transport system, you have got transport line. It is combined with the maritime, so the transport/ maritime line form one capability. This would still start with the Pilatus Astra, then the Cessna 185 and the Casa 212,235 aircraft and then eventually the C130 transport aircraft.
11. Those are the flying systems the air force used to carry out its tasks. Every system, or systems mentioned above has a specific life and for strategic planning purposes a life cycle of 30 years is accepted internationally as the norm. Included in this life year life span of an air system is the so-called half-

life or mid-life update which should take place from about the 13th to the 17th year of the specific air system.

12. THE AIR FORCE INVENTORY

12.1 The Cheetah D

The cheetah D is the dual aircraft in the fighter system. This aircraft has certain combat capabilities. It has been in operation in the air force since 1986. So in all practical terms is still a new aircraft. What is of utmost importance is that the air frames, that is the body of the aircraft and the wings were produced in 1963/64. It was planned to stop flying these aircrafts in 2012 and is taken out of service and written off the inventory in 2012 as planned in the air force.

12.2 The Cheetah C

This is a solo aircraft and such is referred to as the fighter. It has been in operation with the air force since 1993 and provision was only made for a 15 year life cycle in this case because of the similar air frames restrictions I referred to earlier, that is they were produced in 1963/4. The cheetah C therefore has a half life cycle it is planned in the air force service that it should remain until year 2012 when it is written off the inventory and out of operations.

12.3 The Impala Mk I and Mk II

These came into SAAF's service progressively from 1966 up to and including 1975. Because of lack of funds no mid-life update or half-life update were

done on these aircrafts. Only flying safety modifications were done to ensure safe operations of the aircrafts.

12.4 The Alouette III

This came into service of the SAAF progressively from 1964 onwards. Also no mid-life was done and only flying safety modifications were done due to lack of funds.

13. From what I have mentioned above, it is quite clear that there is an urgent need to replace major air systems in the air force and the air force priority for replacement of its major air systems was identified in the early 1990s.
14. The process of replacement had the Alouette III helicopter as the first priority which ran concurrently with the Impala Mk I and Mk II though the second priority. The fighter program requirement and replacement started in the early 1990s and was based on a three-tier system which I would explain herein.
15. The three-tier system referred to above consists of basic training that is what we do on the Pilatus Astra, then advance fighter trainer and then medium fighter. The staff target for the advance fighter trainer was approved on 18 October 1994 by the MOD and the staff requirement on 4 October 1995 by AASB.
16. The supporting studies in respect of the AFT and the medium fighter respectively were conducted and these studies indicated that the medium fighter capability would be completely unaffordable within the national budget, irrespective of what we did.

17. The AFT would be an aircraft of the type of the Gripen, and the medium fighter would be an aircraft of the type of the Euro Fighter class which is a twin – engine multi crew aircraft. These systems were at a much higher level in terms of performance, range, weapons capability and load in relation to the ALFA and LIFT. Due to the withdrawal of the Impala MkII and II the the Air Force Command Council was left with no option but to investigate the option of moving from a three-tier system to a two-tier system.
18. This new fighter strategy was based on the two-tier system of the basic trainer and the light fighter and it was approved in principle on 5 August 1997.
19. On 23 September 1997, letters, the contents of which, included the three programs for the air force: the ALFA, the advanced light fighter aircraft based on the two tier training system, the LUH or the light utility helicopter, and the third air system or third program been the maritime helicopter force were sent by the MOD to embassies requesting them to respond by 31 October 1997.
20. Further studies into this two tier training system confirmed specific problems that will be encountered using this method of training. As such additional studies which proved conclusively that the two-tier system was not in the best interest of South African Air Force or South African Defence Force.
21. The problems with two tier of training system included that the basic trainer Pilatus Astra, had no and repeat no weapons training capability and the aircraft could not be modified to do basic and advanced weapons training. The gap between the basic trainer and the light fighter, the advanced light fighter aircraft, was therefore deemed huge and it would be very expensive to



- do all your basic and advanced weapons training on the ALFA aircraft which was at the top of the range of our combat capability and the flying hours were excessively expensive.
22. The other reason was that the number of aircraft was minimal only 28, and the chance of losing aircraft through accidents being flown by inexperienced pilots was great. The risk was too high to accept.
 23. Another reason was that my predecessor, Lieutenant General James Kriel, undertook in writing to the supplier of the Astra, the Pilatus Company and to the minister of defence of Switzerland that the Pilatus would not be used for anything but training.
 24. It was decided that due to the problems encountered above the three tier training system had to be maintained and this new approach was approved by AAC and was accepted formally as the South African Air Force's future fighter requirement and this approval was on 17 November 1997.
 25. Due to unaffordability, the SAAF settled for a reduced combat effective capability of the three tier training system. This fighter system consisted of Pilatus Astra as the basic trainer, the LIFT and the ALFA.
 26. The three tier training consisted of basic trainer, the AFT and the advance light fighter aircraft where the Gripen type aircraft was considered to be an advanced fighter.

27. During the beginning of 1998, the LIFT was included in the strategic defence packages and the combined staff target, staff requirement for the LIFT was approved by AAC on 6 March 1998. At the same meeting the updated staff target and staff requirement for the ALFA was also approved.
28. The combined staff target was implemented to bring the LIFT in line with the rest of the SDPP program because it came about six months later.
29. It also became clear to us and the Department of Defence was eventually briefed on that, this new process would be an interdepartmental or a multi-departmental approach was to be followed with each department responsible for certain specifics.
30. The specifics were divided as such throughout the departments. The Defence department was for the functionality, The DTI for the IP and the NIP on the financial side including the Department of Public Enterprises.
31. As explained by other witnesses, the selection of the best aircraft stood on three legs: the technically, finance and counter trade, which were all weighed at 100 points each namely the NIP and DIP 100, finance 100 and counter industrial participation 100.
32. The Air Force Command Council as it was then known, of which I was the Chairman, made a conscientious decision that we will supply the decision makers with short lists from which they could make appropriate selection and appropriate decision on what they want to buy, when and from whom.
33. As the process continued responses for the different air systems were as follows: there were total of 21 aircraft that had to be evaluated and measured

against the evaluation system, against the user requirement specification for the lead fighter trainer.

34. After the dual process six aircrafts out of 21 complied with the minimum requirements as specified by the URS and the technical evaluation system.
35. These aircrafts which complied with the requirements for evaluation were the MIG8, the AMXTT, the YAK130, the Hawk, the L159 and the MB339.
36. As far as the ALFA is concerned eight aircrafts were evaluated and only three met the requirements set for evaluation. Those aircrafts were the Mirage 2000-5, the Gripen and the AT2000.
37. As far as light utility helicopter is concern only three helicopters were evaluated and all three met the evaluation requirement, those three helicopters were; EC653, the Bell 427 and the Agusta 109.
38. As far as the maritime helicopter is concerned two helicopters were received and GKN Super Lynx met the requirements, the other one, KUGA had specific shortcomings on operation. The shortlists s were eventually approved by COD and the AAC, but I must mention that the LIFT list for six aircraft was reduced by the COD and the AAC to four aircrafts which were YAK130, the Hawk, the L159 and the MB339.
39. The approved aircraft list for the LIFT is the four mention, Three other aircraft for ALFA, the three helicopters mentioned in the LUH and the two maritime helicopters above and this list was then sent to next higher level and the decision makers.

40. The other rejected aircrafts, in particular the MIG80 and AMXTT were paper model and not flying models and as such they could not meet the time scales, the deadlines, and dates as required. Furthermore, it was not certain whether these aircrafts could do what it was said they could do.
41. This as above was the involvement of the air force during the initial stage of the acquisition program. Then in August 1998 the Minister Committee approved the preferred bidders as far as the LIFT, the Hawk aircraft, as far as the ALFA, the Gripen Aircraft and as far as the LUH, the Agusta 109. The above decision was ratified by Cabinet on 18 November 1998. Thereafter, the Air Force Board and the Air Force project teams again came into play with the contract negotiation process by giving support in the technical evaluations.

SIGNED AT PRETORIA ON 23 SEPTEMBER 2013



LT GENERAL WH HECHTER

WHH / 12

CURRICULUM VITAE: LT GENL (Ret) W. H. HECHTER

PERSONAL PARTICULARS

- ◆ 420526 5044 082 Willem Hendrik Hechter
- ◆ Born 26 May 1942 at East London, Cape Province
- ◆ Attended school at Barclay East, Cape Province and Welkom Gymnasium, Welkom, Orange Free State.
- ◆ Matriculated December 1959 at Welkom Gymnasium with university exemption.
- ◆ Married to Estelle Hechter and they have four children, three boys and a girl.

SOUTH AFRICAN AIR FORCE (SAAF) CAREER

- ◆ Joined the SAAF in January 1960
- ◆ Received SAAF Wings in December 1960 at Central Flying School (CFS), Dunnottar.
- ◆ Qualified as an Air Traffic Control Officer, AFB Waterkloof, Pretoria.
- ◆ Qualified as a flying instructor at CFS, Dunnottar.

Postings

- ◆ Flying instructor, CFS, Dunnottar.
- ◆ Flying instructor, 8 Squadron, AFB Bloemspruit, Bloemfontein.
- ◆ Flying instructor, 4 Squadron, AFB Zwartkop, Pretoria.
- ◆ Pilot Attack Instructor, 85 Advanced Flying School (ADFS), Langebaanweg.
- ◆ Member of the Silver Falcons Aerobatic Team.

Appointments

- ◆ Flight Commander, 85 ADFS, AFB Pietersburg.
 - ◆ Pilot, 1 Squadron, AFB Pietersburg.
 - ◆ Flight Commander, 2 Squadron, AFB Waterkloof, Pretoria.
 - ◆ Flight Commander, Advanced Flying School, Pietersburg.
 - ◆ Officer Commanding, Advanced Flying School, Pietersburg.
 - ◆ Officer Commanding, 1 Squadron, AFB Waterkloof, Pretoria.
 - ◆ Staff Officer Fighters, Air Force Headquarters, Pretoria.
 - ◆ Senior Staff Officer Fighters, Air Force Headquarters, Pretoria.
 - ◆ Military Adviser, Dept of Foreign Affairs, Pretoria.
 - ◆ Officer Commanding, AFB Pietersburg, Pietersburg.
 - ◆ Officer Commanding, Western Air Command, Windhoek, South West Africa.
 - ◆ Director Force Preparation, Air Force Headquarters, Pretoria.
 - ◆ Deputy Chief of Staff of Operations, Defence Headquarters, Pretoria.
 - ◆ Chief of Air Staff Operations, Air Force Headquarters, Pretoria.
 - ◆ Chief of Air Staff, Air Force Headquarters, Pretoria.
 - ◆ Chief of the Air Force, Air Force Headquarters, Pretoria.
- Appointed CAF as from 1 May 1996.

Qualified on the following SAAF aircraft

- ◆ Harvard, Vampire, Impala(Aermacchi), Sabre, Mirage III E & D and Mirage F1 and Dakota.
- ◆ Total hours flown: 3873 hours

Qualifications

- ◆ A1 Flying Instructor
- ◆ Pilot Attack Instructor.
- ◆ Air Traffic Control Officer.
- ◆ Senior Command and Staff Course, Air Force College, Pretoria.
- ◆ Joint Staff Course, SA Defence College Pretoria.

Decorations and Medals.

- ◆ Star of South Africa (Military) Class II
- ◆ Southern Cross Decoration.
- ◆ Southern Cross Medal.
- ◆ Military Merit Medal.
- ◆ 10, 20, 30 and 40 years Good Service Medals
- ◆ Southern Africa Medal
- ◆ Pro Patria Medal.
- ◆ Unitas Medal
- ◆ General Service Medal.

W. H. Hechter, Lt Genl (Ret) SAAF.
16 September 2013.

V225-4-98

Winchester Policy file CPO

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For your attention. Please ensure that a copy is placed on the Policy file. 12 14

CACQ/D WPN S/S/302/6/W3083

073259

Telephone : 355 5407
Enquiries : Capt(SAN) D. Dewey

Ministry of Defence
Acquisition Division
Weapons System Directorate
Private Bag X910
Pretoria
0001
17 April 1998

PROJECT WINCHESTER : COMBINED STAFF TARGET AND STAFF REQUIREMENT

1. Enclosed please find the original submission of the project WINCHESTER combined Staff Target and Staff Requirement referenced LMH/D OPS PLANS/S/302/6/W3083 dd 30 Feb 98.
2. The schedule for MOD ratification of the Strategic Defence Package options, for consideration at Cabinet/Parliament level is during June 1998. The recommendation of the SDP Management Committee will be presented to the AAC directly. It is consequently deduced that the project WINCHESTER option selection should be completed in time for submission to the 10 June AACB in order to be brought in line with the SDP time scales.
3. The recommendations of the AACB and AASB on the enclosed submission must be taken into consideration in the compilation of the June submission.

Dewey

(CAPT(SAN) D. DEWEY)
SECRETARY FOR DEFENCE : DIRECTOR GENERAL
(DCD-WIN-COMB-gmj.24.3-98)

Enclosure : LMH/D OPS PLANS/S/302/6/W3083 dd 20 Feb 98.

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30 April 1998

MINUTES OF SPECIAL UKHOZI CONTROL COUNCIL MEETING 22b/98 HELD AT SAAF HQ ROOM B101 ON 30 APRIL 1998 AT 07H00.

12

PRESENT	PRESENTING	APPOINTMENT
Lt Gen W.H. Hechter	SAAF	CAF (Chairperson)
Maj Gen A. Burger	SAAF	CoAFS
Maj Gen P.R. Müller	SAAF	CAS LOG
Maj Gen R.J. Beukes	SAAF	IGAF
Maj Gen N.A.L. Venter	SAAF	CAS PERS
Brig. Gen. J.C.S. van der Merwe	SAAF	Acting CAS OPS
Brig. Gen. P.J. Vivier	SAAF	D PROJ
Brig. Gen. J.J. Botha	SAAF	CAS INT
Brig. Gen. P.S. du Plessis	SAAF	CAS FIN
Brig. Gen. E.H. Dert	SAAF	DMGCS
Col O.A. Schür	SAAF	SSO PROJ CONTROL
Col P. du Plessis	SAAF	PSSO CAF
Col J.W. Bayne	SAAF	CPO UKHOZI
Mr A.J. Kok	ARMSCOR	PM : UKHOZI
Mr J. Ferreira	ARMSCOR	PM LOG : UKHOZI
Mr F.B. Linde	ARMSCOR	PM AVIONICS : UKHOZI (Secretary)

APOLOGIES

Maj Gen C.B. Lombard	SAAF	CAS OPS
Brig. Gen. C.H. Hartzenberg	SAAF	CAS PLAN
RAdm (JG) A.F. Steyn	MOD	DFS
Col J. Vermeulen	SAAF	Acting D ENG
Col E.P.Q. Nel	SAAF	PO LOG UKHOZI
Lt Col M. Edwards	SAAF	PROJECT ENGINEER : UKHOZI
Capt J.J. Rossouw	SAAF	FLIGHT TEST ENG : UKHOZI
Mr C. Shaikh	DEF SEC	CHIEF OF ACQUISITION
Mr H. de W. Esterhuysen	ARMSCOR	GM Aeronautics & Maritime
Mr J.J. Britz	ARMSCOR	SENIOR MANAGER : Aircraft

AGENDA POINT	DISCUSSION	ACTION
1.	<u>WELCOME</u> The Chairperson welcomed all members present.	
2.	<u>CONSTITUTIONALISATION</u> Apologies for the members as mentioned above were accepted.	
3.	<u>CONFIRMATION OF AGENDA</u> The purpose of this meeting was to confirm the decisions taken at Special Ukhozi Control Council Meeting No 22a held on 24 April 1998.	

AGENDA POINT	DISCUSSION	ACTION																																							
4.	<p><u>APPROVAL OF PREVIOUS MINUTES</u></p> <p>Not applicable to this meeting.</p>																																								
5.	<p><u>Results of the first round evaluation of the replies received for the LIFT.</u></p> <p>5.1. The CPO presented to the meeting the results of the evaluation that was done on the replies to the RFI, as well as the replies to the additional questions asked to the Contenders for the LIFT. The same presentation material used for the previous meeting (No 22a of 24 April 1998) was used.</p> <p>5.1.1. <u>Decision</u> : The following aircraft are eliminated from further evaluation, as a result of non compliance to mandatory requirements (no change from the previous meeting):</p> <table border="0" data-bbox="432 857 1007 1070"> <thead> <tr> <th>Country</th> <th>Supplier</th> <th>Aircraft</th> </tr> </thead> <tbody> <tr> <td>1. Canada</td> <td>Canadian Aerospace</td> <td>Monitor Jet</td> </tr> <tr> <td>2. Canada</td> <td>Bristol Aerospace</td> <td>CF-5</td> </tr> <tr> <td>3. Sweden</td> <td>FMV</td> <td>SK-60</td> </tr> <tr> <td>4. France</td> <td>Dassault Aviation</td> <td>Alpha Jet</td> </tr> <tr> <td>5. Germany</td> <td>DASA</td> <td>Ranger 2000</td> </tr> <tr> <td>6. China</td> <td>CATIC</td> <td>F7</td> </tr> </tbody> </table> <p>5.1.2. <u>Decision</u> : The following Manufacturers / aircraft should receive an RFP, based on a Military Value result from the value system above 68% and cost not taken into account at all:</p> <table border="0" data-bbox="432 1196 1070 1379"> <thead> <tr> <th>Country</th> <th>Supplier</th> <th>Aircraft</th> </tr> </thead> <tbody> <tr> <td>1. Czech Republic</td> <td>Aero Vodochody</td> <td>L159</td> </tr> <tr> <td>2. Italy</td> <td>Aermacchi</td> <td>MB 339</td> </tr> <tr> <td>3. Italy</td> <td>Aermacchi</td> <td>YAK 130</td> </tr> <tr> <td>4. United Kingdom</td> <td>British Aerospace</td> <td>Hawk 100</td> </tr> <tr> <td>5. Russia</td> <td>Kulkoni</td> <td>MIG - AT</td> </tr> </tbody> </table> <p><u>Note 1:</u> Although the AMX - ATA also had a Military Value above 69, it was excluded on the basis that it is primarily an operational aircraft and not a trainer, adding huge cost to functions not required for the LIFT.</p> <p>5.1.3. <u>Decision</u> : The shortlist will be tabled at the AAC meeting scheduled for 13:30 on 30 April 1998, for their approval.</p>	Country	Supplier	Aircraft	1. Canada	Canadian Aerospace	Monitor Jet	2. Canada	Bristol Aerospace	CF-5	3. Sweden	FMV	SK-60	4. France	Dassault Aviation	Alpha Jet	5. Germany	DASA	Ranger 2000	6. China	CATIC	F7	Country	Supplier	Aircraft	1. Czech Republic	Aero Vodochody	L159	2. Italy	Aermacchi	MB 339	3. Italy	Aermacchi	YAK 130	4. United Kingdom	British Aerospace	Hawk 100	5. Russia	Kulkoni	MIG - AT	<p>APM</p> <p>APM</p> <p>APM</p>
Country	Supplier	Aircraft																																							
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4. United Kingdom	British Aerospace	Hawk 100																																							
5. Russia	Kulkoni	MIG - AT																																							

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30 April 1998

6.	<u>ADDITIONAL POINTS</u> There were no additional points.	
7.	<u>NEXT MEETING</u> The next Control Council meeting will be held on 5 May 1998, at 14h00 in room B101 at SAAF HQ.	

(F.B. Linde)
SECRETARY

Date: 30/4/98

(W.H. Hechter.) (Lt. Gen.)
CHAIRPERSON

Date: 5/5/98

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30 April 1998

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ARMSCOR

GM : Aeronautics & Maritime
SENIOR MANAGER : Aircraft
PROGRAMME MANAGER : UKHOZI
PROJECT MANAGER AVIONICS : UKHOZI
(Secretary)

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28 April, 1998

MINUTES OF SPECIAL UKHOZI CONTROL COUNCIL MEETING 22a/98 HELD
AT SAAF HQ ROOM B101 ON 24 APRIL 1998 AT 10H00.

PRESENT

Maj Gen A. Burger
Maj Gen C.B. Lombard
Brig. Gen. P.J. Vivier
RAdm (JG) A.F. Steyn
Col J.W. Bayne
Lt Col M. Edwards
Mr C. Shaikh
Mr J.J. Britz
Mr A.J. Kok
Mr J. Ferreira
Mr F.B. Linde

PRESENTING

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DEF SEC
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ARMSCOR
ARMSCOR

APPOINTMENT

CoAFS (Chairperson)
CAS OPS
D PROJ
DFS
CPO UKHOZI
PROJECT ENGINEER : UKHOZI
CHIEF OF ACQUISITION
SENIOR MANAGER : Aircraft
PM : UKHOZI
PM LOG : UKHOZI
PM AVIONICS : UKHOZI
(Secretary)

APOLOGIES

Lt Gen W.H. Hechter
Maj Gen P.R. Müller
Maj Gen R.J. Beukes
Maj Gen N.A.L. Venter
Brig. Gen. C.H. Hartzenberg
Brig. Gen. J.J. Botha
Brig. Gen. P.S. du Plessis
Col O.A. Schür
Col J. Vermeulen
Col E.P.Q. Nel
Capt J.J. Rossouw
Mr H. de W. Esterhuysen

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Acting D ENG
PO LOG UKHOZI
FLIGHT TEST ENG : UKHOZI
GM Aeronautics & Maritime

AGENDA POINT	DISCUSSION	ACTION
1.	<u>WELCOME</u> The Chairperson welcomed all members present.	
2.	<u>CONSTITUTIONALISATION</u>	
2.1.	Apologies for the members as mentioned above were accepted.	
2.1.1.	<u>Decision:</u> The members present did not satisfy the requirements for a quorum, therefor the decisions made at the meeting will have to be confirmed at the next Ukhozi Control Council meeting.	Secretary
3.	<u>CONFIRMATION OF AGENDA</u> No additional items were added to the agenda.	

AGENDA POINT	DISCUSSION	ACTION																																				
4.	<p><u>APPROVAL OF PREVIOUS MINUTES</u></p> <p>Not applicable to this meeting.</p>																																					
5.	<p><u>Results of the first round evaluation of the replies received for the LIFT.</u></p> <p>5.1. The APM presented to the meeting the results of the evaluation that was done on the replies to the RFI, as well as the replies to the additional questions asked to the Contenders for the LIFT. The detail presentation is attached as Appendix A.</p> <p>5.1.1. Decision : The following aircraft are eliminated from further evaluation, as a result of non compliance to mandatory requirements:</p> <table border="0" data-bbox="422 828 1157 1041"> <thead> <tr> <th>Country</th> <th>Supplier</th> <th>Aircraft</th> </tr> </thead> <tbody> <tr> <td>1. Canada</td> <td>Canadian Aerospace</td> <td>Monitor Jet</td> </tr> <tr> <td>2. Canada</td> <td>Bristol Aerospace</td> <td>CF-5</td> </tr> <tr> <td>3. Sweden</td> <td>FMV</td> <td>SK-60</td> </tr> <tr> <td>4. France</td> <td>Dassault Aviation</td> <td>Alpha Jet</td> </tr> <tr> <td>5. Germany</td> <td>DASA</td> <td>Ranger 2000</td> </tr> <tr> <td>6. China</td> <td>CATIC</td> <td>F7</td> </tr> </tbody> </table> <p>5.1.2. Decision : The following Manufacturers / aircraft should receive an RFP, based on a Military Value result from the value system above 60% and a life cycle cost-effectiveness above 8,0:</p> <table border="0" data-bbox="422 1164 1157 1332"> <thead> <tr> <th>Country</th> <th>Supplier</th> <th>Aircraft</th> </tr> </thead> <tbody> <tr> <td>1. Czech Republic</td> <td>Aero Vodochody</td> <td>L159 / L59</td> </tr> <tr> <td>2. Italy</td> <td>Aermacchi</td> <td>MB 339</td> </tr> <tr> <td>3. Italy</td> <td>Aermacchi</td> <td>S211A</td> </tr> <tr> <td>4. United Kingdom</td> <td>British Aerospace</td> <td>Hawk 100</td> </tr> </tbody> </table> <p>Note 1: Aero Vodochody has to be informed that only one proposal is required with one aircraft type which will best fulfil the SAAF requirement, being a combination of the L159 and the L59.</p> <p>Note 2: The HAWK 100 is the only aircraft in the recommended shortlist that could be linked to the ALFA procurement in the Government - to - Government packages.</p> <p>5.1.3. Decision : The latest date for the RFP to go out to the 3 Companies is 12 May 1998.</p> <p>5.1.4. Decision : The shortlist approval at an AAC meeting will be scheduled to meet the issue of RFP date requirement as soon as possible.</p>	Country	Supplier	Aircraft	1. Canada	Canadian Aerospace	Monitor Jet	2. Canada	Bristol Aerospace	CF-5	3. Sweden	FMV	SK-60	4. France	Dassault Aviation	Alpha Jet	5. Germany	DASA	Ranger 2000	6. China	CATIC	F7	Country	Supplier	Aircraft	1. Czech Republic	Aero Vodochody	L159 / L59	2. Italy	Aermacchi	MB 339	3. Italy	Aermacchi	S211A	4. United Kingdom	British Aerospace	Hawk 100	<p>APM</p> <p>APM</p> <p>APM</p> <p>Chief of Acquisition</p>
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6.	<p><u>ADDITIONAL POINTS</u></p> <p>There were no additional points.</p>	
7.	<p><u>NEXT MEETING</u></p> <p>The next Control Council meeting will be held on 5 May 1998, at 14h00 in room B101 at SAAF HQ.</p>	

(F.B. Linde)
SECRETARY

Date: 28/4/98

(A. Burger.) (Maj. Gen.)
CHAIRPERSON

Date: 5/5/98

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28 April, 1998

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- PROGRAMME MANAGER : UKHOZI
- PROJECT MANAGER AVIONICS : UKHOZI (Secretary)

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FILE CAF/D PROJ/C/302/6/B256

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the Police, humanitarian aid and objectives set for the year should be included. Additionally pending Bills like the Veteran's Bill could also be included. The Ministry would then decide on the themes and the physical writing thereof. Any other ideas from the Secretariat, Defence Force and Armscor will be welcome.

Decision : Inputs to reach the Ministry by 30 March 1990.

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ALL

The Minister took leave at 16:30 and handed the chair to the Deputy Minister.

ITEM 6.8 : AAC

- 6.8.1 The Deputy Minister welcomed Gen Hechter and his team of Messrs Shaikh and Kok and Brig Viviers and Col Bayne.
- 6.8.2 Mr Shaikh introduced the item by saying that the projects to be presented were UKHOZI - the Advanced Light Fighter Aircraft (ALFA) and WINCHESTER - Lead-in Fighter Aircraft (LIFT). The project UKHOZI is already included in the Government-to-Government offers.
- 6.8.3 Gen Hechter briefed Council on the Air Force's amended requirements by means of slides (appendix L).
- 6.8.4 Reviewing the Air Force's fighter master plan (page 5 appendix L) Gen Hechter said that originally project KAMBRO was the Cheetah replacement and UKHOZI the Impala MK II light fighter replacement. Since then it became obvious that the Air Force could not afford the projects.
- 6.8.5 Project KAMBRO would have to be combined with project UKHOZI to meet all future Air Force operational fighter requirements. The Air Force would therefore replace 102 fighter aircraft (48 Cheetah ; 22 Mirage FIAZ and 32 Impala MK II) with 38 ALFA type aircraft in the GRIPEN, Mirage-2000 and AT-2000 class.
- 6.8.6 The proposed two-tier fighter training system would have to be replaced with a three-tier system using the ASTRA for ab initio training, a new light lead-in fighter trainer (LIFT) - project WINCHESTER for weapons training onto the advanced light fighter aircraft (ALFA) - project UKHOZI because the jump was

too great from Astra to ALFA and it would be too expensive to do weapon training on the ALFA (page 7 appendix L).

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- 6.8.7 Col Bayne presented the ALFA as a modern, multi-mission, fully operational aircraft to form the backbone of the national air defence network. It would act as a credible air deterrent and contribute to the national projection of stability through air power.
- 6.8.8 The LIFT needed to be a dual seater, modern, sub-sonic aircraft capable of cost-effectively bridging the gap between the ASTRA and the ALFA. It will only have collateral capabilities and no operational capabilities. It would have to carry out a wide spectrum of fighter training missions and have collateral capability to carry out telstar radio relay; search and rescue; border line patrol; limited tactical reconnaissance and photography; limited close air support; airborne forward air control, Army and Navy co-operation and joint Army/Navy exercises.
- 6.8.9 Time scales presented reflected (page 10 appendix L) LIFT being operational by the end of 2004 and ALFA being operational by the end of 2007. Life span was projected as being 30 years.
- 6.8.10 Col Bayne presented the acquisition costs for 38 ALFA as being R11,0 billion in 98 rand value terms. The operating costs for 38 aircraft flying 6400 hours per year at R25 000 per hour is R160 million per year (page 13 appendix L).
- 6.8.11 Acquisition costs for 24 LIFT aircraft was projected as being R2,2 billion in 98 rand value terms. Operating cost for 24 aircraft flying 4800 hours per year at 15 000 per hour is R70,0 million per year.
- 6.8.12 Approvals requested were :
- 6.8.12.1 The revised combined staff target 2/94 and the staff requirement 2/95 of project UKHOZI.
- 6.8.12.2 The spending of R200 000 in 1998/99 for project studies, visits and the acquisition plan.
- 6.8.12.3 The revised combined staff target 1/98 and staff requirement 1/98 of project WINCHESTER.

- 6.8.12.4 The spending of R200 000 in 1998/99 for visits and the interim and final project study report.
- 6.8.13 Col Bayne pointed out that the same evaluation team will be doing both evaluations so the R200 000 requested for each project may not be spent in full.
- 6.8.14 Mr Kok presented a list of potential contenders. If approved a request for information (RFI) will go out on Monday with the closing date on 6 April 1998. Ad hoc meetings of AACB and the AASB would be held in order to submit a short list by 8 May 1998. The request for proposals (RFP) could be issued on 11 May with a closing date 13 July 1998 using the rest of July to come up with a recommended LIFT solution. This ties up with the dates provided by the strategic Defence Package and Steering Committee.
- 6.8.15 Mr Haywood asked if it was possible that offset programmes could be evaluated between the 13th and the end of July. Mr Kok replied no, it was purely a technical evaluation. C SANDF said it would be possible regarding countries who have already submitted offers as part of the package deal.
- 6.8.16 Mr Haywood pointed out that Mr Erwin had made the suggestion that the packages and the LIFT should run concurrently in case we wanted to negotiate both projects with any one Government. If the cutoff dates mentioned are achieved it will be a major achievement.
- 6.8.17 The Secretary for Defence said there had been very little debate in the Armaments Acquisition Steering Board considering the logic of the requirement. The board had two considerations. The first being the requirement which should be related to the Air Force's need as expressed in their force design and force structure. The considerations by C SANDF and his Military Command Council had not been shared previously. Had this been done then his own thoughts would have been in the direction of a three-tier system - it makes sense. From a principle point of view you should first firm up your force design then say what your requirements are. As far as the operational choices are concerned the considerations put before Council at this stage were adequate. He recommended that Council support the Chief of the Air Force.

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6.8.18 The second aspect worth noting is that the requirement is to a very large extent influenced by the need to expand the investment base. That is a strategic and political decision. There is general recognition of the Minister's initiative in this particular manner, and whether we like it or not the acquisition process is now heavily influenced by political, economic and other social considerations from a national strategic point of view. The Secretary for Defence felt that our participation in the acquisition programme will need to be supported by an official vote either to expand our present budget vote or be given additional funding.

6.8.19 Therefore the recommendation the Secretary for Defence want to make was that in order to gain information to make decisions you have to pay for it and he recommended on behalf of the AACB and AASB that we spend money on the project study as suggested. Having done that the team will be ready by September next year to put together an acquisition plan. He was also hoping that the formal considerations by Cabinet and the way it will be funded will also be approved by then.

6.8.20 The Secretary for Defence pleaded that the financial strategy to support whatever choice there is going to be in the future, be done as soon as possible.

6.8.21 Mr Haywood enquired if the Secretary for Defence had said September next year, to which he replied yes, the project study will be completed by next year. The request made has to do with a project study which advances one from a staff requirement stage to an acquisition plan. The acquisition plan is based upon your consideration of the project study report which spells out how you can satisfy your requirement and then you make an informed choice on that. When you make the choice you can link it to a mature developed investment package.

6.8.22 The Deputy Minister queried the date mentioned namely July this year. The Chief of the Air Force said that date applied only to the military operational requirement evaluation. It is one of the first steps in the acquisition process.

6.8.23 Mr Haywood said that by then tenders would have already been received for the ALFA's. We were hoping to adjudicate those

offers this year. Now, when talking of the trainer aircraft we are talking of next year.

Action

6.8.24 Chief of the Air force said we must remember that the trainer falls outside the packages. Therefore the normal acquisition processes must be followed. The package deal has a year and a half head start. We must also remember that the ALFA is only coming on line in 2004/5.

6.8.25 Mr Haywood said he questioned the dates. Cabinet will probably be taking a decision on the package this year. Gen Hechter warned that for the trainer we will have to go through the whole acquisition process. If we don't, we will miss some very important steps, and we will end up with a product at the end of the day with which does not meet all our requirements.

6.8.26 The Secretary for Defence emphasised that the process leaves behind you an auditable trail of considered decisions. So the project study moves you from the requirement to a position where you can present your political principles with choices. This is not possible to condense in the time frames Mr Haywood was referring to. Any other route is a deviation from the precepts of Government which the Secretary for Defence strongly advised against. The C SANDF supported the Secretary's argument.

6.8.27 Mr Shaikh said he thought that confusion was coming from trying to dovetail the LIFT to the package deal. The package deal will influence our acquisition of the LIFT aircraft. The LIFT programme should therefore not be seen outside the package deal. The report which will show what the aircraft must be able to do functionally should be ready by end of March 1999. Then we will be in a position to go out and specify what we want in the aircraft itself. It is two different processes. What is being asked today is to go ahead with staff target and staff requirement for the LIFT programme. The report will be ready by March 1999 - not the procurement.

6.8.28 Mr Haywood said he felt this aspect must be discussed with the Minister. It is different to the whole rationale from day one. The Government-to-Government deals require the bidders to have their act on the table by the middle of the year including offsets so that we can make a decision. They are spending millions on the business plan to influence Government. There

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has been a firm understanding up to now. There is just no way that we can now say a decision will only be taken next year.

6.8.29 Mr Shaikh said ~~what~~ he said had nothing to do with the packages deal. He was only speaking of the LIFT project.

6.8.30 The Deputy Minister summed up by saying that the Governments bidding for the package deal will have their offers in by mid-May. These will not include the LIFT programme. The Deputy Minister felt the bidders would be happy to see an additional item added to the list. They most certainly would like to extend their offers.

6.8.31 The Deputy Minister said that the Minister must be appraised of what has been said today. Possibly a smaller group could brief the Minister the following week. He was of the opinion that the Minister will agree.

6.8.32 Mr Kok asked if a decision could be taken on the request for information. From a practical point of view they would like to get the RFI's out by Monday. The project team will not be available for the next three weeks. C SANDF supported the request. No costs were involved - it was like window shopping - no commitment at all.

Decision : RFI's may sent out to potential bidders.

6.8.33 The Chief of the Air Force asked if he may raise one quick point. He said that the Air Force had presented its force structure to the Military Command Council the day before. This force structure called for 9 X C130's instead of 12. Gen Hechter sought permission to approach Marshall's to renegotiate the contract with them and Denel aviation. CAF's big concern was that this change was in all probability running into the business world causing further uncertainty. He therefore requested permission to negotiate a new contract with Denel and Marshall. C SANDF and the Secretary for Defence supported the request.

Decision : The Air Force may approach Denel Aviation and Marshall with the view to amending the contract.

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DEF SEC/
EXEC CHMN
ARMSCOR

C SANDF

6.8.34 C SANDF asked if he may have one point recorded. It concerns witness protect in the Richmond area. The SA Police Service had withdrawn their request for assistance.

Decision : Noted.

6.8.35 The Deputy Minister enquired about the move of 2SSB from Pomfret to Zeerust. The C SANDF said that a Cabinet memorandum was being prepared for the Minister. The Deputy Minister asked if it was not possible to move them to Upington. C SANDF replied that Upington was already full and no vacant facilities existed there. Zeerust had a camp standing empty. It was the most cost-effective way to accommodate 2SSB.

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ITEM 8 : CLOSURE

8.1 There being nothing further to discuss the Chairman closed the meeting at 16:18.

(K.W.M. SNOWBALL)
SECRETARY
(COD)2/88

(J. MODISE)
MINISTER OF DEFENCE

March 1998

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WHH 6

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LMHD OPS PLANS/S/302/6/W3083

Telephone: (012) 312-2456
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Air Force Headquarters
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0001
20 February 1998

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SUBMISSION REGARDING SOUTH AFRICAN AIR FORCE COMBINED STAFF TARGET No 1/98 AND STAFF REQUIREMENT 1/98: PROJECT WINCHESTER: ACQUISITION OF A LEAD-IN FIGHTER TRAINER AIRCRAFT (LIFT) SYSTEM FOR THE SOUTH AFRICAN AIR FORCE FIGHTER TRAINER CAPABILITY

Reference A: SAAF Operational Requirement 14/97 dated 16 January 1998

Appendix A: Aircraft Performance Sensitivity Curves
B: Comments by Chief of Joint Operations

INTRODUCTION

1. In its fighter training role the Impala Mk I, and as a light fighter the Impala Mk II, have served the SAAF for 30 years and 23 years respectively with impressive and very cost-effective results. With the advent of the ASTRA and the Cheetah C acquisitions, although the transition to higher aircraft performance remained similar, a far greater gap was experienced with respect to the more sophisticated avionics systems and greater emphasis on advanced cockpit management techniques. This is particularly due to the fact that the student receives ab initio training on the modern digitally orientated ASTRA and then returns to an analogue cockpit on the Impala before moving on to the sophisticated Cheetah system. This gap was managed by extending fighter pilot training and consolidation on Impalas for periods up to two years

2. The Impala Mk II also fulfilled an operational role as a light fighter with distinction up to 1986 after which the aircraft's operational capabilities regressed. This was due to age, lack of performance against high threat targets and systems unreliability.

3. During the review cognisance was taken of the emerging national political stance and strategy of the projection of stability in the region. The current Force Design, as defined in the DOD Transformation Target Force Design (TTFD), was merged with the future financial guidelines and Defence Package Alliances, which were initiated by the issuing of a Request for Information (RFI) by the Minister of Defence in October 1997. An assumption has been made that the current Force Design, which specifies 24 lead in fighter trainer aircraft, has forced the SAAF to compromise on the future planned fighter programme requirements and needed to redefine the Master Plan requirements to make this capability area affordable. This staff requirement is based on this assumption. Changes to the force design will necessitate a adaptation of the acquisition plan.

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4. During the review the SAAF confirmed the need for a three tier fighter training philosophy and system requiring three aircraft types. These are an ab initio trainer (the ASTRA), a Lead In Fighter Trainer (LIFT) and an Advanced Light Fighter Aircraft (ALFA).

5. The ASTRA training programme, which combines computer based ground training, simulation and aircraft systems has already proven itself as an excellent foundation for further fighter training.

6. A further revision is that the SAAF will no longer be able to procure and operate modern, supersonic, medium (F22, Rafale, Euro fighter class) fighters in the future. The SAAF needs to rationalise and replace the phased out Mirage F1AZ fighter fleet of 22 aircraft, the current Impala Mk II light fighter fleet of 32 aircraft and the current Cheetah C/D medium fighter fleet of 48 aircraft (ie 102 fighter aircraft), with a fleet of 38 modern, supersonic advanced light fighter aircraft (ALFA) by 2012. Project UKHOZI is currently addressing this replacement programme. The ALFA fleet will be required to remain in service for 25 to 30 years and will be required to form the primary air defence and multi-role air weapon system of the SANDF.

7. With the phasing out of the ageing Impala Mk I and Mk II fleet of aircraft from 2004 onwards the SAAF requires a fleet new, modern, cost effective and proven LIFT aircraft to fill the training gap between the ASTRA and the ALFA. The LIFT fleet needs to be operational by January 2005 by which time the current Impala fleet will be phased out. The LIFT fleet will be required to be in service from 2005 till 2040.

8. During the recent detailed fighter options studies one of the options was to contract out Lead In Fighter Training. This option was discarded early in the study due to the high cost and loss of own expertise, especially wrt the fighter instructors corps.

DOCUMENT STATUS

9. The approved documentation of Project Winchester is SAAF Ops Requirement 14/97 dd 15 January 1998. A broad value system for the LIFT was approved by the Air Force Command Council on 16 January 1998.

FIGHTER TRAINING PHILOSOPHY

10. The current SAAF fighter training philosophy, proven successful over many years, propagates a preferred three tier training system, namely ab-initio training up to wings standard, combat training and consolidation up to flight leader qualification (modernly referred to as Lead In Fighter Training) and front line fighter operational conversion training and employment.

11. This proven process has achieved an extremely high success rate in the fighter line, ensuring that fighter air crew become operational within a single Operational Conversion Course (OCC) and facilitated rapid transition to operational status on the

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air combat capability is a universal practice by most airforces world wide who maintain a modern combat capability.

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CURRENT SITUATION

12. The current ASTRA has already proven to be an excellent ab-initio training aircraft. By means of an optimised curriculum the ASTRA can fulfil the needs of fighter orientation training in aspects such as agility, battle formation, basic fighter manoeuvres, tactical navigation, visual reconnaissance and basic simulated air to ground and air to air profile patterns. The fact that actual weapons delivery is an essential requirement emphasises the need for a LIFT. The estimated flying hours required for wings training plus the fighter orientation phase is approximately 230 hours over a period of approximately 2 years.

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13. The ASTRA flight- and manoeuvre envelope, specifically the maximum speed limitation, engine handling and lack of stores carrying capability restricts its application in the basic weapons and Air Combat Manoeuvring (ACM) training category without seriously impacting on its structural design life and resultant life expectancy.

14. The present three tier system is ineffective as a result of the fact that the Impala offers no real training progress as far as integrated mission management with an advanced / modern weapon delivery system is concerned. Consequently much of the above exposure is only received on the Cheetah D for the first time requiring increased flying at a much higher cost. Replacement of the Cheetah with the ALFA will exacerbate this problem and will be very difficult to overcome, irrespective of the number of flying hours spent on the Impala.

FUTURE TRAINING CONCEPT

15. Despite the fact that the ALFA fleet of aircraft will be easier to fly in terms of modern handling capabilities and built in safety devices, the aircraft will have a much higher performance and be far more sophisticated, in terms of systems, when compared to the ASTRA. This is especially applicable in aspects such as modern mission management during combat, digital systems awareness, beyond visual range combat capabilities and the necessary skills and maturity to cope with this sophisticated combat environment. For this reason it is important that the training strategy be that of a that of a systems approach. Maximum commonality and continuity between the ASTRA, LIFT and ALFA should be strived for wrt cockpit layout, ergonomics, ground training systems and flying training modules. This approach will ensure the lowest investment in the trainee while risk of failure of the trainee remains high.

16. The entry requirement to the ALFA OCC should remain a Flight Leaders Qualification on the LIFT with between 500 and 550 hours total. This will be after a time period of approximately 18 months to 2 years after wings qualification depending on annual flying hours, instructor availability and individual progress. The reason for this is to allow the young fighter pilot to mature and consolidate the knowledge, skills and mental attitudes nurtured during the initial training phases.

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17. The theoretical basics of aspects such as Weapons Effort Planning, Electronic Warfare (EW), Squadron Management, Flight Leadership, Deployment Doctrines and Modern Combat and Tactics need to be taught and then applied practically during at least one cycle of mission training. This would be achieved during Golden Eagle type exercises, Army and Navy co-ops, EW training camps and deployed weapons camps. This initial exposure can thus be matured under controlled supervision in a cost effect manner. Once having gained Flight Leader status on the LIFT, the fighter pilot will be well equipped and exposed to the full spectrum of fighter operations prior to entering the more costly and demanding ALFA front line fighter system. This will provide for greater assurance that selected candidates will succeed with confidence based on a well established knowledge, skills and mental attitude base.

18. This implies that the future SAAF fighter training system will continue to require a stepping stone aircraft between the ASTRA and the ALFA. This aircraft will need to be a modern subsonic LIFT with an optimal progressive airframe/engine performance gap from the ASTRA and similar but less costly cockpit architecture and layout to the ALFA. The estimated total flying hours, excluding co-pilot hours generated, per student for lead-in fighter training is approximately 250 to 350 hours including the Operational Training Course (OTC). This should take place over a period of 18 months to 2 years depending on individual progress. This includes a period of consolidation and further training to mature, gain experience and progress from wingman to flight leader status.

19. The added advantage of the LIFT system is that it affords the SAAF the flexibility and safety gap to meet the needs of the fast tracker, yet accommodate the average student without the risk of too early an exposure to very expensive and strategic equipment.

REQUIRED CAPABILITY

20. The SA Air Force requires a LIFT fleet to form an integral part of the fighter training capability of the SANDF. The LIFT system must have the capability to carry out a wide spectrum of fighter training and co-lateral missions successfully. In the training role it must be able to optimally and cost effectively bridge the gap between the ASTRA and the ALFA. The system must therefore be robust, reliable and effective in the training environment.

21. The Impala Mk I and Mk II fleet of aircraft must be replaced by the new LIFT by January 2005. The SAAF requires the first LIFT to be released to service by 2003 and the fleet available for training by January 2005 in its first life cycle phase.

22. These timescales necessitate an interim Project Study Report to be completed by 24 July 1998, and a final Project Study Report to be completed by 31 March 1999. Unless mandated otherwise the study will be based on the requirement for a fleet of 24 LIFT's and in parallel with but outside of the Strategic Defence Packages.

23. The LIFT system should be capable of having a mid-life upgrade at approximately 2020 to remain effective until 2040. In order to ensure long term affordable logistic support of the LIFT fleet, the aircraft system shall still be in service

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with other air forces by 2020. The aircraft should still be in service with the supplier by 2025. The aircraft shall not be a refurbished second hand aircraft.

24. In order to reduce the risks associated with the acquisition of the LIFT system the SAAF should not be the launch customer for this aircraft and the aircraft should be at least at pre-production status or in early production by 2001. There shall also be a significant number of the same type in service with, or on order by, other air forces. The minimum modifications should be required to ensure the aircraft system meets the SAAF requirements.

25. In order to meet the requirements of a modern SAAF, the LIFT fleet must have the following training capabilities:

- a. Able to optimally and cost effectively bridge the fighter training gap between the ASTRA and the ALFA aircraft in accordance with the SAAF Fighter Training Philosophy, as well as the training gap to the Cheetah system until the latter is phased out.
- b. Full dual cockpit to maximise pilot and navigator training and maturity development, thereby building flying experience at a faster rate.
- c. Able to generate sufficient cost effective flying hours to feed the front line fighter system and maintain the fighter instructor capability.
- d. Able to expose the student to a modern integrated cockpit. Thus the cockpit layout and avionics systems incorporated must be a logical stepping stone from the ASTRA to the UKHOZI system.

TRAINING ROLE

26. The LIFT fleet shall be capable of flying the following primary training missions effectively in accordance with the SAAF Concept of Operations to stated user requirements. The aircraft shall fulfil it's training roles in day and night in marginal weather conditions (defined according to Airline Transport Pilots Category C limitations), as indicated below:

- a. Ranging and Tracking.
- b. Air to air agility exercises.
- c. Air to air gunnery.
- d. Basic and advanced air combat manoeuvres.
- e. Academic and profile air to ground gunnery.
- f. Academic and profile air to ground rocketry.
- g. Academic and profile air to ground bombing.

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- h. Tactical navigation.
- i. Visual and photo reconnaissance.
- j. Night navigation.
- k. Night weapons delivery in Moonshine conditions.
- l. Advanced weapons delivery profiles, e.g. low level toss bombing.

27. The LIFT aircraft shall be integrated with and carry at least the following stores/systems either internally, conformally or on compatible pylons:

- a. External jettisonable fuel tanks.
- b. Short range **trainer** air to air missiles.
- c. At least one 20mm (minimum calibre) cannon pack (preferably internal).
- d. Practice rockets.
- e. 12.5 kg practice bombs.
- f. 150 kg bombs.
- g. Reconnaissance pods.
- h. Mission Planning System (MPS).
- i. Mission De-briefing system (MDS).
- j. Digital avionics suite including a Head Up Display (HUD), colour multi-function head down displays and Video Control Unit (VCU).
- k. Hands On Throttle and Stick (HOTAS).
- l. Health Usage and Monitoring System (HUMS).
- m. Identification Friend or Foe (IFF) in accordance with South African Identification System policy.
- n. A-A Flag/Drone towing.
- o. Compact Radar Warning System (CRWS) for effective fighter pilot training.
- p. Flare dispensing.

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28. The LIFT should be integrated with the following stores/systems either internally, conformally or on compatible pylons:

- a. Two 20mm (minimum calibre) cannon packs (preferably internal).
- b. Live short range infra-red air to air missiles.
- c. Smoke generators for display purposes.
- d. Chaff dispensing.
- e. Forward Looking Infra Red (FLIR) Targeting System.
- f. Simulated air to air radar and tactical EW simulation.

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COLLATERAL ROLE

29. Despite the fact that the LIFT aircraft will be procured for training and have no specified operational role, the aircraft's inherent capabilities ideally enable the fleet to be utilised for a number of collateral tasks in a low threat environment. There must be no additional equipment requirement or expenditure to enhance any of these collateral tasks. These tasks could include:

- a. Telstar Radio Relay.
- b. Search and Rescue.
- c. Border Line Patrol.
- d. Limited Tactical Reconnaissance - visual and photo.
- e. Limited Close Air Support.
- f. Airborne Forward Air Control.
- g. Army and Navy Co-Ops.
- h. Army and Navy joint exercises

30. These collateral tasks could be carried out during the advanced consolidation phase after the young fighter pilot has qualified in that particular aspect as a wingman in an element. This training must allow for a progression to flight leader status, which will be the minimum entry requirement for nomination to a Cheetah/ALFA OCC.

ESTIMATED NUMBERS AND FLYING HOURS

31. The future SAAF fighter force design LIFT air crew requirement of one cycle per year to maintain the fighter line is as follows:

- a. 8 Pilot Attack Instructors (PAI's) each flying 80 hours per year.
- b. 10 students each flying 150 training hours per year at 85 Combat Flying School.
- c. 14 pilots each flying 165 consolidation hours per year at 8 Squadron or an Operational Flight of 85 Combat Flying School.
- d. Certain test flying will be required at Test Flight and Development Center (TFDC) on a baseline aircraft of approximately 50 hours per year.
- e. Approximately 300 hours per year for a formation aerobatics team and other unique requirements, e.g. flag tow.

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32. This implies a total of 4800 hours per year for the co-located LIFT fleet. This equates to 28 flying hours/flying day assuming 15 flying days per month.

33. A modern LIFT in which the rear cockpit is compatible with the front cockpit would enable effective co-pilot flying to enhance maturity, expand air experience and build flying hours. Navigator training could be done effectively and in parallel to pilot training to ensure an effective growthpath for multi-crew application of the ALFA system.

34. The final number of aircraft required will depend on a mission readiness of 14 aircraft flying 2 hours per day 15 days per month. Assuming an average serviceability of not less than 65% the available aircraft required per day amounts to 22 aircraft. One Baseline aircraft is required at TFDC for test and evaluation purposes and is not available for training. Thus it is estimated that a fleet of a minimum of 24 LIFT aircraft would be required. The required number of flying hours per tail number per year is 200 hours. At 200 hours per aircraft per year for 30 years the 6000 life hours are met.

35. The final number of aircraft will be determined during the transformation process and is under constant review. A final decision will have to be made during the Project Study to enable contract placement. The Defence Review (DR), as approved by the Parliament in August 1997, includes 24 dual seater LIFT's.

36. The requirement for flying hours is 4800 hours per year on the aircraft fleet. With the aircraft life expectancy of 30 years, a total of approximately 144000 hours should thus be flown. This implies 6000 hours per aircraft over 30 years and translates to 200 hours per aircraft per year. In order for the fleet to last 30 years and fly 4800 hours per year the fleet numbers cannot be reduced any further.

37. The above requirement does not make any provision for either aircraft attrition over 30 years (approximately 6 aircraft), or additional training capacity to meet possible future SAAF requirements.

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37. The above requirement does not make any provision for either aircraft attrition over 30 years (approximately 6 aircraft), or additional training capacity to meet possible future SAAF requirements.

DEPLOYMENT

38. The SAAF Force Structure 2000 dictates that the LIFT system be based at Air Force Base Hoedspruit (AFB Hspt) or AFB Bloemspruit (AFB Bspt) at 85 Combat Flying School for the type Conversion and OTC training, co-located with either 8 Squadron or an operational flight of 85 Combat Flying School for the consolidation and Flight Leaders Course (FLC) qualification. The detailed force structure for the system will be determined during the Project Study.

39. The aircraft will be permanently stationed at SAAF permanent bases for 80% of its operational life. Temporary deployment will constitute some 20% of its operational life, with the system designed to support a deployment of 12 aircraft whilst retaining a limited flying capability at the home base. Aircraft which are not deployed will be towed into hangars or revetments when not in use. The LIFT may be deployed outside the borders of the RSA for airshows, joint training and joint exercises for periods up to 14 days.

MISSION UTILISATION

MISSION RATES AND ENVIRONMENT

40. Each aircraft will fly approximately the 200 hours per year as follows:

- a. Approximately 60 missions of 45 minutes each (45 hours)
- b. Approximately 107 missions of 60 minutes each (107 hours).
- c. Approximately 20 missions of 90 minutes each (30 hours).
- d. Approximately 5 missions of 120 minutes each (10 hours).
- e. Approximately 3 missions of 150 minutes each (8 hours).

41. Plus minus 40% of the above missions will be training/collateral sorties carried out at low level below 500 ft Above Ground Level (AGL) at speeds up to 360 Knots Calibrated Air Speed (KCAS), for a time duration which could vary from 30 minutes to 90 minutes per mission.

42. Plus minus 60% of the above missions will be training / collateral sorties carried out between 500 ft AGL and 40 000 ft Above Mean Sea Level (AMSL) at speeds ranging from 100 KCAS to 350 KCAS, ideally 400 KCAS, at load factors which may vary between the +6 g and -2.5 g for between 45 minutes to 150 minutes per mission.

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43. The LIFT system should be capable of a flying potential as follows:
- For normal training schedules 30 flying hours / 24 hours (day and night).
 - For intensive training schedules 45 flying hours / 24 hours (day and night) for 14 days. A warning period of 3 to 4 weeks will be given prior to commencement of operations.
 - Intensive training schedules 45 flying hours / 24 hours (day and night) for two to three days without a warning period are considered normal (in order to maintain training schedules).

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AIRCRAFT PERFORMANCE AND UTILISATION REQUIREMENTS

44. Sensitivity curves were drawn up for certain specific aircraft performance criteria to indicate the client's value allocation to that particular requirement. These curves are reflected in Appendix A.

PHYSICAL CHARACTERISTICS

45. The aircraft structure shall be of proven technology construction for ease of maintenance and repair. The primary structure of the aircraft shall be designed for a safe life of 6000 flying hours. All specified rear cockpit equipment shall be a duplicate of the front cockpit equipment. All essential aircraft systems shall be operable from both front and rear cockpit. Rear cockpit override facilities as specified shall be supplied. The cockpit man machine interface (MMI) and high level functionality should be similar to that of the ALFA.

46. The aircraft should be fitted with an autopilot which has attitude hold, altitude and heading intercept and hold functions.

47. The aircraft shall be capable of operating out of and being replenished in existing SAAF revetments, at existing SAAF Bases and at recognised forward airfields. The extreme point turning radius shall not exceed 12 metres. The aircraft and associated external fuel tanks shall be able to be pressure and manually refuelled and defuelled. The aircraft and engine shall be designed to operate within existing SAAF Petrol, Oil Lubrication (POL) requirements. All external replenishment couplings shall be to the NATO standard.

48. The cockpit shall permit safe operations up to at least 25000 ft AMSL, but should permit same up to 30000 ft AMSL, with no limitations. The environmental control system shall operate such as to permit safe flight and reliable functioning of all systems under specified environmental conditions on the ground and in the air. The oxygen system shall be capable of supplying 5 hours dual flying time at 15000 ft AMSL based on maximum hourly consumption by the air crew.

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49. The aircraft shall be fitted with light weight zero-zero ejection seats suitable for the anticipated pilot mass and size ranges. Enough space shall be available in the seat pan for land/sea survival equipment. A command ejection function shall be fitted.

50. The flight control system shall be fully flyable from both cockpits with specified overriding controls from the rear cockpit. The minimum positive normal acceleration for a clean aircraft should not be less than 7,33 g. The minimum negative normal acceleration for a clean aircraft should not be less than -3,0 g.

51. Electrical power supply shall be sufficient to provide electrical power to all required systems during ground and airborne operations. There shall be a dual redundancy electrical generation system incorporated, as well as a battery back-up system. The aircraft shall be capable of an engine start using internal electrical power only. All external electrical couplings shall be to the NATO standard.

52. The functionality of the hydraulic system should be able to be fully operated from both cockpits. Two independent systems shall be incorporated for safety reasons and an emergency back-up system shall be available. The emergency system shall be capable of supporting essential systems to allow for dead stick landings.

53. External and cockpit lighting with variable dimming facilities from zero luminescence to clear readability in full direct sunlight under RSA conditions and for night operations shall be available. All lighting should be Night Vision Goggle (NVG) compatible.

54. The airframe shall be corrosion protected and suitably painted according to SAAF specifications.

55. The aircraft shall be capable of emitting smoke for display purposes without requiring major refits. A selected number of aircraft will be modified to this standard.

OPERATIONAL CONVERSION TRAINING REQUIREMENTS

56. To ensure safe conversion of the ASTRA graduated fighter pilot onto the LIFT, the aircraft shall display excellent airframe and engine handling characteristics throughout the entire flight envelope in all configurations.

57. The aircraft shall have excellent flying qualities, displaying good stability, control response and precision about all three axes. The aircraft should maintain good handling characteristics when equipped with external stores. The aircraft shall be fully aerobatic and exhibit very good resistance to departure modes outside the normal flight envelope.

58. The aerodynamic characteristics and handling qualities should be well suited to jet conversion and combat fighter training by being safe yet demanding. There shall be no tendency towards inadvertent departure. The behaviour approaching the stall should be predictable and the controls should remain effective throughout. Recovery from the stall shall be immediate from unloading the aircraft. The aircraft should be spin resistant, but shall be cleared for deliberate upright spinning both clean and with

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bare inboard wing pylons. In the event that of aircraft inadvertently entering any spin it shall be recoverable.

59. The aircraft should be cleared for clean take-off and landing with a cross-wind component of at least 20 knots. With underwing stores, a cross-wind component of at least 15 knots should be applicable. The aircraft's flight limitations should be the same for both dual and solo flights with solo flights being conducted from the front cockpit.

60. The aircraft should be capable of inverted flight at zero or (negative 'g') for at least 30 seconds at military power at sea level. All the aircraft systems must make provision for this.

61. The aircraft shall be capable of being flown at night, either dual or solo, without any additional flight limitations in all training and collateral roles.

62. In the flying and weapon training roles the aircraft shall be capable of being trimmed at all speeds above 200 knots even with the most adverse asymmetric store condition.

63. There should be no restriction imposed on the handling of engine controls throughout the entire flight envelope.

GROUND BASED TRAINERS

64. Most of the pilots converting to the LIFT will be recently qualified ASTRA pilots with SAAF wings qualification and approximately 230 total flying hours. The LIFT phase is expected to last between 18 and 24 months. The ASTRA graduate would have been exposed to all basic aspects of flying and be familiar with a modern ground based training system incorporating task trainers, computer based trainers and simulators with mission planning and mission debriefing centres.

65. The LIFT ground based training system shall form a logical growth path from the ASTRA task simulator to the ALFA full mission simulator. The LIFT system should thus consist of at least an Operational Flight Trainer (OFT) to ensure that the ASTRA graduate can adequately cope with the additional pilot workload, with respect to both performance and cockpit management aspects. The OFT shall be equipped to simulate all aircraft systems, capabilities and profiles including radar simulation. This will enhance conversion safety and ensure the ASTRA graduate is not over extended during the flying phases of the operational conversion. The system also allows cost effective continuation and flight leaders training under controlled conditions and is an integral and essential part of any modern fighter training system.

66. All training aids shall be managed according to the same configuration management principles and discipline as, and in conjunction with, the aircraft system.

67. All ground crew training shall be included in the ground based training system and centres. Commonality of the various aspects of training must optimised.

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108**CONVERSION TRAINING PROFILE**

68. The aircraft shall be capable of flying a 90 minute general flying sortie with 2 pilots and internal fuel only.

WEAPONS TRAINING PROFILE

69. The aircraft shall be capable of flying the following typical weapons training profile with 2 pilots and external fuel tanks if required:

- a. Ferry 100 nm to a weapons range at best flight conditions.
- b. Hold at medium altitude for 5 minutes.
- c. Carry out 8 attacks consisting of a circuit flown at 4000 ft AMSL with 2 minutes at full power and 3 minutes at intermediate power.
- d. Ferry back to same base.
- e. Land with 15% of internal fuel.
- f. Minimum configuration for such a profile shall be 60 rounds of cannon ammunition plus two 70mm rocket pods or one 70mm rocket pod and one practice bomb carrier.

AIR TO GROUND TRAINING PERFORMANCE

70. The aircraft air to ground training performance configured with 2 x 150 kg bombs, cannon with full ammunition, 2 pilots and external fuel tanks if required, shall be at least as follows:

- a. From take-off to a cruise speed of not less than 220 KCAS, ideally 280 KCAS, a dash speed of not less than 280 KCAS, ideally 340 KCAS, to give a Radius Of Action (ROA) of not less than 180 nm in a Low-Low-Low profile. A minimum of 2 knots per second Specific Excess Power (SEP) is required at the dash speed.
- b. A maximum bomb load of not less than 2 x 150 kg bombs.
- c. Carriage and release of all air to ground weapons within the following envelope:
 - i. Load factor: $-0.5g < n < +6g$.
 - ii. Dive and toss angles: +40 to -60 degrees.
 - iii. Rolling 'g': +4g.
 - iv. All external stores, excluding pylons, be jettisonable selectively except for training missiles and hard mounted (bolted) stores.

- v. All weapons delivery shall be at no less than 300 KCAS.

AIR COMBAT TRAINING PERFORMANCE

71. The aircraft air combat training performance at ISA + 15°C and configured with 2 pilots, 2 trainer missiles and full cannon ammunition, shall be able to take off from 3500 ft AMSL and climb to 25000 ft in less than 12 minutes and be able to accelerate to not less than M0.6, ideally M0.8.

72. In the above air combat weight and configuration (including external fuel tanks), the aircraft air combat training performance at 15000 ft (AMSL) shall be as follows:

- a. A ROA of 100 nms with a 1 hour combat air patrol (CAP) time.
- b. A sustained turn rate of not less than 8, ideally 10, degrees per second, with 50% internal fuel.
- c. An instantaneous turn rate of not less than 14, ideally 18, degrees per second, with 50% internal fuel.
- d. A maximum roll rate of not less than 120, ideally 180, degrees per second.

73. SEP should be such that the climb and turn rates as specified shall be met.

74. The carriage and firing of all cannons and training missiles should be possible throughout the envelope. The aircraft shall be capable of effective air to air cannon firing at a minimum of 300 KCAS and 400 metres at 10000 feet AMSL on a 30 X 6 foot target.

AIRFIELD PERFORMANCE

75. The runway length required for take-off shall not exceed 7500 ft, ideally 5000 ft, at 3500 ft AMSL and +35 degrees C ambient temperature at Maximum All Up Weight (MAUW).

76. The runway length required for landing shall not exceed 6500 ft, ideally 4000ft, at 3500 ft AMSL at +35 degrees C and at maximum landing weight without the use of a dragchute or excessive use of the brake system.

TURN AROUND TIME

77. Overall system design shall be such that, in the same configuration and a serviceable aircraft, the following turn around times are not exceeded:

- a. Mission programming 30 minutes.
- b. Pre-flight, between flight and after flight inspections 5 minutes.
- c. Cockpit entrance and strap-in 5 minutes.

- d. Aircraft start to taxi not to exceed 5 minutes (excluding inertial platform alignment).
- e. The time required for all avionics related and engine replenishment activities during turn around should not exceed 30 minutes.

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AVIONICS AND ELECTRONIC WARFARE (EW) PERFORMANCE

78. Suitable technologies shall be applied to meet the type conversion, continuation training and support requirements for the years 2005 through 2040. The LIFT avionics technology should be comparable with or better than that of the Cheetah C. The SAAF operational strategy doctrines and concepts should be embedded into the hardware and software design of the avionics system. The design concept of the avionics system should be of an open architecture type, using standard hardware interfaces at all levels in the system, in order to readily facilitate the modification and expansion of the avionics suite. This requirement further requires independence between hardware and software, the usage of standard interfaces between hardware and software and the use of standard software formats. Maximum use of Commercial-Off-The-Shelf (COTS) and Military-Off-The-Shelf (MOTS) equipment should be strived for. The architecture should make provision for a standard multiplexed MIL-STD-1553B data bus and discreet and video interfaces should be provided at all pylons.

79. The aircraft supplier shall ensure that the capability is established in the RSA to add functionality to mission software, as well as to integrate new weapons and avionics sub-systems onto the aircraft.

80. The avionics system should be an integrated management system which continuously provides the pilot with all relevant mission information in an analysed and prioritised format, and should allow the weapon system to be effectively employed under the full spectrum of operational training missions.

81. Mission parameters shall be down-loadable from the MPC to the aircraft avionics suite via a data transfer system. Manual programming of the avionics system shall nevertheless be possible in the cockpit before and during the mission. Post flight downloading of mission recorded data via the data transfer system to the MDC shall also be possible. A moving colour geographical map display should be available in the cockpit on one of the displays.

82. The primary navigation system of the LIFT shall consist of a hybridised INS Inertial Navigation System (INS) / Global Positioning System (GPS) with a system accuracy of 100m (with GPS coupled) and an independent INS error of better than 4,0 nm per flight hour.

83. The avionics suite in the LIFT shall enable the aircraft to perform cannon HOTLINE and Lead Computing Optical Sight (LCOS) firing in the air to air mode and shall enable the delivery of bombs and rockets using a Continuously Computed Impact Point (CCIP) and a Continuously Computed Release Point (CCRP) indication in the air to ground mode. The weapon delivery system shall also include an air to ground low

level TOSS mode. The aircraft shall be fitted with a VOR/DME and an ILS cleared to perform an ICAO category 1 approach and landing.

84. The avionics system shall incorporate a ranging radar as the primary sensor. The radar shall be fully integrated with the rest of the avionics suite which shall include a Hands On Throttle And Stick (HOTAS) concept. The HOTAS shall be the main interface to the aircraft mission system. The aircraft should have the capability of realistically simulating a modern airborne pulse Doppler radar in the cockpit during flight.

85. The aircraft shall be fitted with a modern internally fitted Radar Warning System (RWS). The RWS shall warn the trainee pilot of incident Radio Frequency energy in the 2 -18 GHz band, and with a sensitivity which would enable the detection of emissions from a modern airborne pulse Doppler radar at a range of 25 nm. The RWS shall be capable of having its threat library changed in order to modify the threat identification capability of the RWS as required. The RWS shall be integrated with the avionics suite including the HOTAS.

86. The aircraft shall be fitted with a flare dispensing system and should be fitted with a chaff and flare dispensing system. Dispensing of the flares shall be manually controlled by the pilot via the HOTAS.

87. Where applicable, maximum use should be made of the building blocks developed under project ADOBE, and other related projects, for the implementation of the required EW capability.

DISPLAYS

88. The aircraft shall be fitted with multi-function, multi-colour head down displays (MFD) in the front and the rear cockpit. The MFD's shall operate and be controlled independently of one another in both cockpits in order to ensure maximum flexibility and mission reliability. The number of displays should be such as to enable the display of two sets of information simultaneously. The aircraft shall be fitted with a Head Up Display (HUD) in the front cockpit and shall have a HUD repeater in the rear cockpit. The HUD shall be capable of displaying a FLIR image.

COMMAND, CONTROL, COMMUNICATION, COMPUTER AND INTELLIGENCE (C⁴I)

89. The aircraft shall be fitted with an integrated communications system that will ensure integration with the SAAF Operational System Master Plan as well as the SAAF Communication Master Plan. Project ENLACE standards, which includes new generation communication equipment and architecture for the SAAF, shall be used to ensure successful, integrated communications. Each communication suite shall consist of the following sub-systems:

- a. Operational Communication Facilities. The following communication facilities shall be provided in the 30.000 to 88.000 MHz, 116.000 to 136.000 MHz and 225.000 to 420.000 MHz frequencies bands.

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- b. Communication Management. The communication suite shall have a Communication Management System which shall integrate with the avionics suite and enable control of the set-up parameters.
- c. Communication Modes. The following communication modes should be included:
- i. AM.
 - ii. FM.
 - iii. SSB.
 - iv. Data functions.
- d. Communications Security. Encryption and transmission security should be incorporated.
- e. Communications Control. The communications control shall provide the Man Machine Interface (MMI) to the communications suite and shall be fully integrated with the rest of the avionics suite. The display unit shall be fully night vision goggle (NVG) compatible and readable in direct sunlight.
- f. Configuration Transfer. Provision shall be made for the storage of communication parameters. A configuration transfer system shall be used in order to transfer pre-programmable information to the communication suite. This transfer system shall be incorporated into an avionics data transfer system.
- g. Intercom. Intercom control, integrated with the communication control and with an emergency back-up, shall be provided between air crews and between air crew and ground crew.
- h. Emergency Locator Transmitter (ELT). An ELT with the ability of transmitting on the emergency frequencies of 121.500 MHz, 243.000 MHz and 406.025 MHz shall be fitted to the ejection seat and shall be automatically activated upon seat ejection. It should have the ability to pre-programme a specific V/UHF frequency when required.

CERTIFICATION

90. The aircraft shall be certified by the SAAF Military Aviation Authority (MAA). The preferred certification standard is the WINCHESTER Minimum Airworthiness Requirements (MAR) document based upon DEF STAN 970, but which is not mandatory. Any approved equivalent standard can be agreed upon by the MAA.

LOGISTICS

INTEGRATED LOGISTIC SUPPORT PROGRAMME

91. The acquisition of the total support system and its components shall follow a controlled, interactive system engineering process, just as for the prime equipment. Final acceptance of the aircraft will only take place after all systems have been fully integrated and functionally demonstrated on the aircraft and its operating environment. Final acceptance should include acceptance of the support system. Support development shall proceed concurrently with aircraft engineering and manufacturing development.

92. The proposed Logistic Support concept shall be revised during the period after selecting the final aircraft system and prior to final negotiations with the main contractor. The current transformation process logistical result could also affect this aspect.

RELIABILITY AND MAINTAINABILITY

93. The LIFT shall have a total system mean-time-between-failures (MTBF) of not less than 6 hours with a reliability growth potential up to at least 8 hours.

94. The following mission reliability targets should be strived for:

- a. Probability of catastrophic failure should be $2,5 \times 10^{-6}$. A catastrophic failure is defined a failure which results in the loss of life and / or aircraft.
- b. 95% for defects of any nature.

95. Powerplant Reliability. The LIFT shall be propelled with a proven, reliable, modern and economical powerplant with a life expectancy of at least 6000 hours and 30 years which is based on the SAAF utilisation spectrum. All engine accessories should have a Time-Between-Overhaul (TBO) of not less than 1200 engine flying hours based on the engine item with the lowest TBO and also based on the SAAF utilisation spectrum. The engine should have no limitations on accumulated time at maximum continuous thrust or rpm settings during the engine's life. MTBF of at least 100 operating hours is required. There should be no limitations with respect to throttle usage. Steady state inspection intervals for the engine shall be at intervals exceeding 300 operating hours.

96. Airframe Structural Integrity. The aircraft shall have an airframe life expectancy of at least 6000 flying hours and 30 years based on the SAAF fatigue spectrum.

97. System Maintainability. The following maintainability criteria should be adhered to:

- a. The powerplant should be of full modular construction to facilitate quick replacement of worn or damaged parts and must be able to maintain the required mission rates.

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- b. Provision shall be made for the usage of onboard integrated maintenance diagnostics (Health and Usage Monitoring System - HUMS) supported by a comprehensive Logistic Support Analysis (LSA) as approved by the Original Equipment Manager (OEM).
- c. Adherence to testability, standardisation, interchangeability, accessibility, communality, reparability specifications all supported by good engineering principles.
- d. The aircraft system must be able to interface with the total maintenance support environment within the SAAF. Some of the most critical interfaces are:
 - i. SAAF Logistic Information System (SLIS).
 - ii. Revetments and maintenance support facilities/equipment at the main SAAF fighter bases.
 - iii. NATO standard fuel, oxygen, oil and hydraulics replenishment couplings.
 - iv. NATO standard power supply and power supply couplings.
- e. The total Turn-Around-Time (TAT - defined as the total direct time on aircraft to get it serviceable after a failure/s and does not include the time to repair line-replaceable-units), for the aircraft at all levels of maintenance should not exceed 4 hours (tools-in-hand-time). The TAT excludes structural and battle damage repairs/ replacements but includes all other scheduled and unscheduled maintenance actions. The mean direct Maintenance-Man-Hour-Per-Flying-Hour (MMpFH) at all levels, as defined in the UKHOZI Integrated Logistic Support Plan (ILSP) should not exceed 8 hours. MMpFH is the direct average maintenance man-hours spent on the aircraft per every flying hour. The man-hours spent on maintaining the subsystems are excluded ie Line Replaceable Units (LRU) repairs etc.
- f. Sufficient engineering data to allow local engineering support of the aircraft shall be transferred to the SAAF in order to carry out fatigue control and repair schemes. Where it is cost effective to do so, all levels of support, including Depot level, should be established in the RSA.
- g. The flight control system shall meet laid down protection against lightening strike specifications.

FINANCES

98. Acquisition Budget. The total acquisition costs required for 24 aircraft at not less than SM10 fly away cost, is expected be in the order of Rb 2,2 (98 Rand Value ie \$1=R5,1). This is including an initial logistic package for 2 years, taxes, mission

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equipment, mission simulator and programme management costs. The Acquisition Plan will be submitted for approval by 31 September 1999.

99. Operating Costs. The operating costs of the LIFT system for 24 aircraft flying 4800 hours per year at an estimated R15000 per flying hour is estimated to be in the order of RM 70 per year.

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CONCLUSION

SECURITY

100. The security classification for the project, including the code name, remains "RESTRICTED" and the detailed budget and the aircraft performance "CONFIDENTIAL". The security plan remains in effect. Certain specifications will be classified as "SECRET".

MEDIA

101. A Media Plan will be drawn up and approved by the SA Air Force Command Council. The media plan will be revised after each media release or after each approval milestone.

APPROVAL

102. Approval is requested for:

- a. This combined Staff Target 1/98 and Staff Requirement 1/98 of Project WINCHESTER.
- b. The spending of R200,000 in the 1998/1999 financial year for the interim and final project study report. This includes visits as required. The final project study report will be submitted by 31 March 1999.

(C.B. LOMBARD)
CHIEF OF AIR STAFF OPERATIONS: MAJ GEN

Date: 18 February 1998

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COMMENTS BY CHIEF OF AIR STAFF PLANNING

Recommended as requested

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[Signature]

(C.H. HARTZENBERG)
CHIEF OF AIR STAFF PLANNING : BRIG

Date:

COMMENTS BY CHIEF OF AIR STAFF

Recommended

[Signature]

(A. BURGER)
CHIEF OF AIR FORCE STAFF: MAJ GEN

Date: 20 Feb 98

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APPROVAL

103. Approval is hereby granted for:

- a. This revised combined Staff Target /98 and Staff Requirement /98 of Project WINCHESTER.
- b. The spending of R200,000 in the 1998/1999 financial year for the interim and final project study report. This includes visits as required. The final project study report will be submitted by 31 March 1999.

APPROVED/~~NOT APPROVED~~

Remarks.....

Project Winchester is an urgent requirement since the life cycle of the Superdome fleet cannot be extended cost-effectively any longer.

(W.H. HECHTER)
CHIEF OF THE AIR FORCE: LT GEN

Date: *23 Feb 99*

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RECOMMENDATION BY CHAIRMAN OF THE ARMAMENT
ACQUISITION CONTROL BOARD

APPROVAL


104. Approval is hereby granted for:

- a. This combined Staff Target 1/98 and Staff Requirement 1/98 of project WINCHESTER.
- b. The spending of R200,000 in the 1998/1999 financial year for the interim and final project study report. This includes visits as required. The final project study report will be submitted by 31 March 1999.

RECOMMENDED/REFERRED BACK

REMARKS

1. The Staff Target is recommended for approval by the AAC subject to:
 - a. The required performance parameters be interpreted to include a potential Turbo propulsion solution: and
 - b. the solution be investigated within the authorised financial ceiling which is currently RM1,5 (98R) according to the authorised schedule 11.3, and not the RM2,2 quoted in par 98.
2. The Staff Requirement is recommended for approval by the AASB provided that the R200,000 required for the project study is exactly that recommended for the project UKHOZI SR approval. Submission LMH/D OPS PLAN/S/302/6/U 3083 dd 20 Feb 98 refers.


(P.O. DU PREEZ)
CHAIRMAN OF THE ARMAMENT ACQUISITION CONTROL BOARD:
LT GEN

27 February 1998

CONFIDENTIAL

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CONFIDENTIAL

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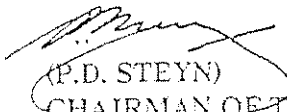
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RECOMMENDATION BY CHAIRMAN OF THE ARMAMENT ACQUISITION STEERING BOARD

105. It is recommended that approval be granted for:
- a. This revised combined Staff Target 1/98 and Staff Requirement 1/98 of Project WINCHESTER.
 - b. The spending of R200,000 in the 1998/1999 financial year for the interim and final project study report. This includes visits as required. The final project study report will be submitted by 31 March 1999.

RECOMMENDED/REFERRED BACK

- 1. Neither this three tier nor the anticipated alternative two tier system can be funded solely from the Defence budget. Both the three and two tier system are linked to the "Strategic Defence Package" for which funding from other sources is required.
- 2. It is recommended that a study be done to coherently present information regarding both the three tier and the two tier alternative options so that a responsible decision can be made. This study (a three tier project study, and an informed two tier study) must include
 - a. affordability of the above alternative options within the new MTEF allocations per arm of service.
 - b. aircraft performance specifications (benchmarks) within the above alternative options.
 - c. reference and correlation to the new approved Force Design and Force Structure, with specific consideration of affordability.
- 3. It is further recommended that the Minister of Defence consider soliciting support from Cabinet colleagues for the preferred tier approach.



(P.D. STEYN)
CHAIRMAN OF THE ARMAMENT ACQUISITION CONTROL BOARD:
DIRECTOR GENERAL

Date : 3 March 1998

CONFIDENTIAL

494

CONFIDENTIAL

30 25 96
073285

APPROVAL BY THE CHAIRMAN OF THE ARMAMENT ACQUISITION COUNCIL

APPROVAL

106. Approval is hereby granted for:

- a. This revised combined Staff Target 1/98 and Staff Requirement 1/98 of Project WINCHESTER.
- b. The spending of R200,000 in the 1998/1999 financial year for the interim and final project study report. This includes visits as required. The final project study report will be submitted by 31 March 1999.

APPROVED/NOT APPROVED

Remarks: The project team/SAAP must consider the leasing of the above mentioned aircrafts as a option before any final recommendations are to be forwarded to the AAC for approval. Project Winchester must be brought in line, together with project UKhosi, with the SOP time scales.


(J. MODISE)

CHAIRMAN OF THE ARMAMENT ACQUISITION COUNCIL: MINISTER

Date: 16 March 1998

CONFIDENTIAL

495

CONFIDENTIAL

~~SECRET~~

45

30 073286
APPENDIX A TO
LMH/D OPS PLAN/302/6/W3083
DATED 16 FEBRUARY 1998

57

PROJECT WINCHESTER:

LEAD IN FIGHTER TRAINER

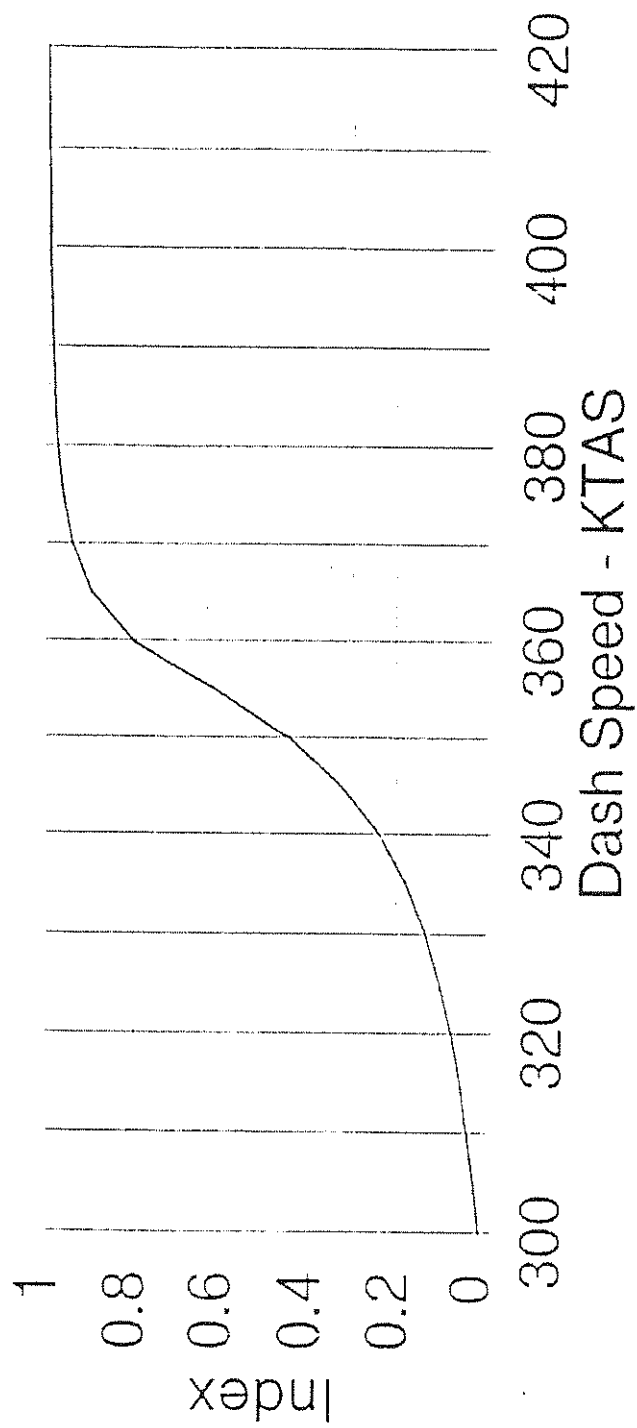
PERFORMANCE SENSITIVITY CURVES

CONFIDENTIAL

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LL Dash Speed - Full dry pwr

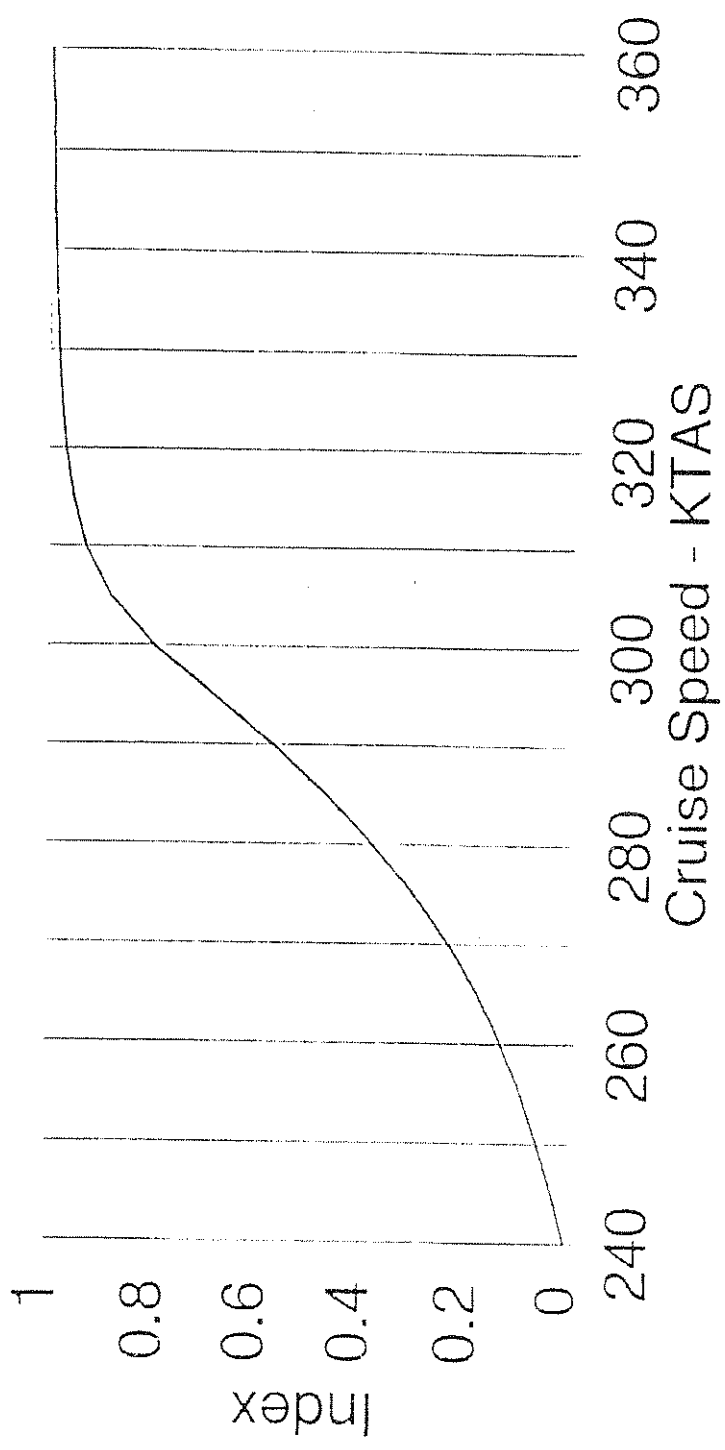
2x150Kg bombs,Cannon, Drop Tanks



58

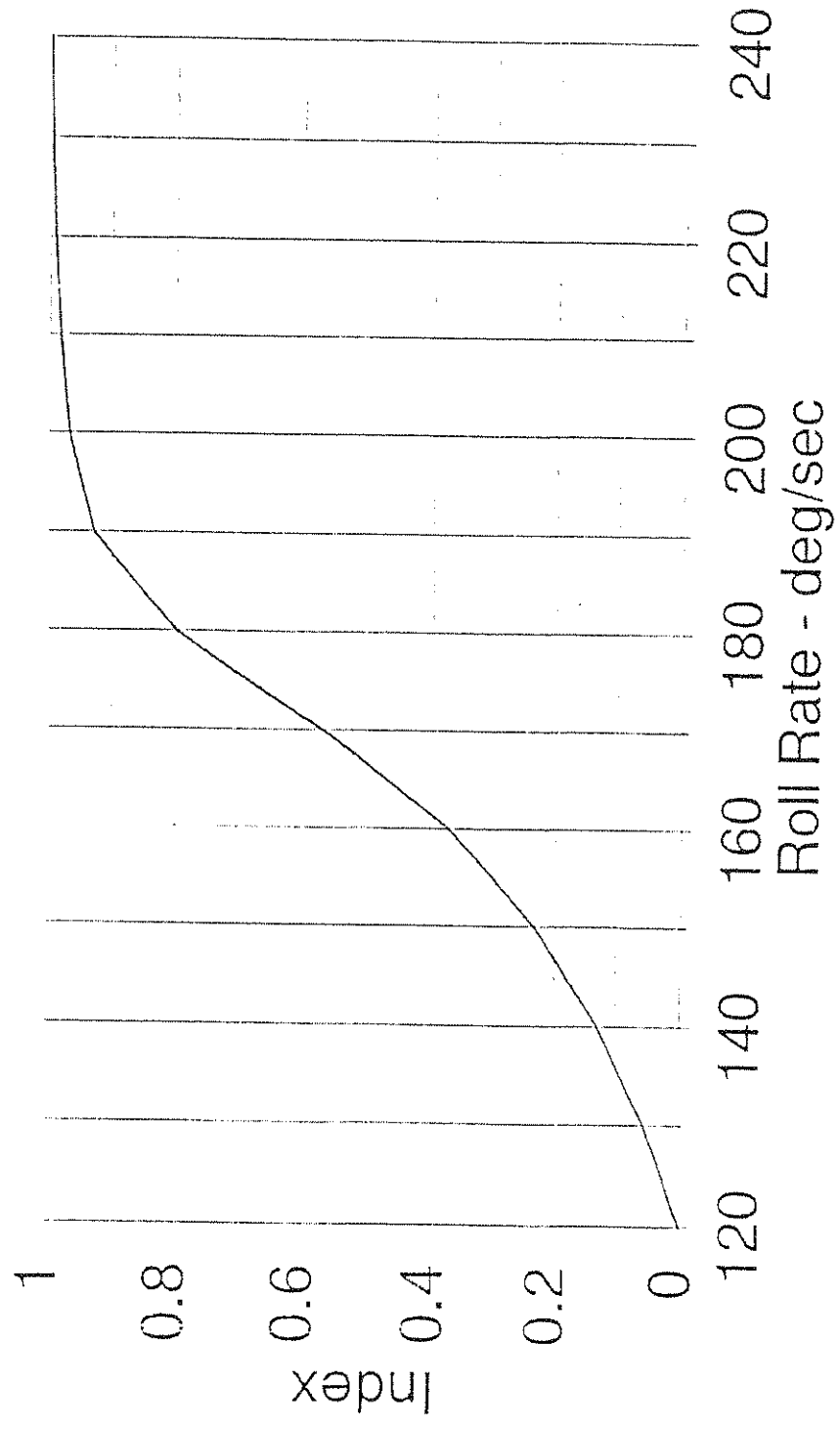
LL Cruise Speed

2x150 Kg bombs, Cannon, Drop Tanks



59

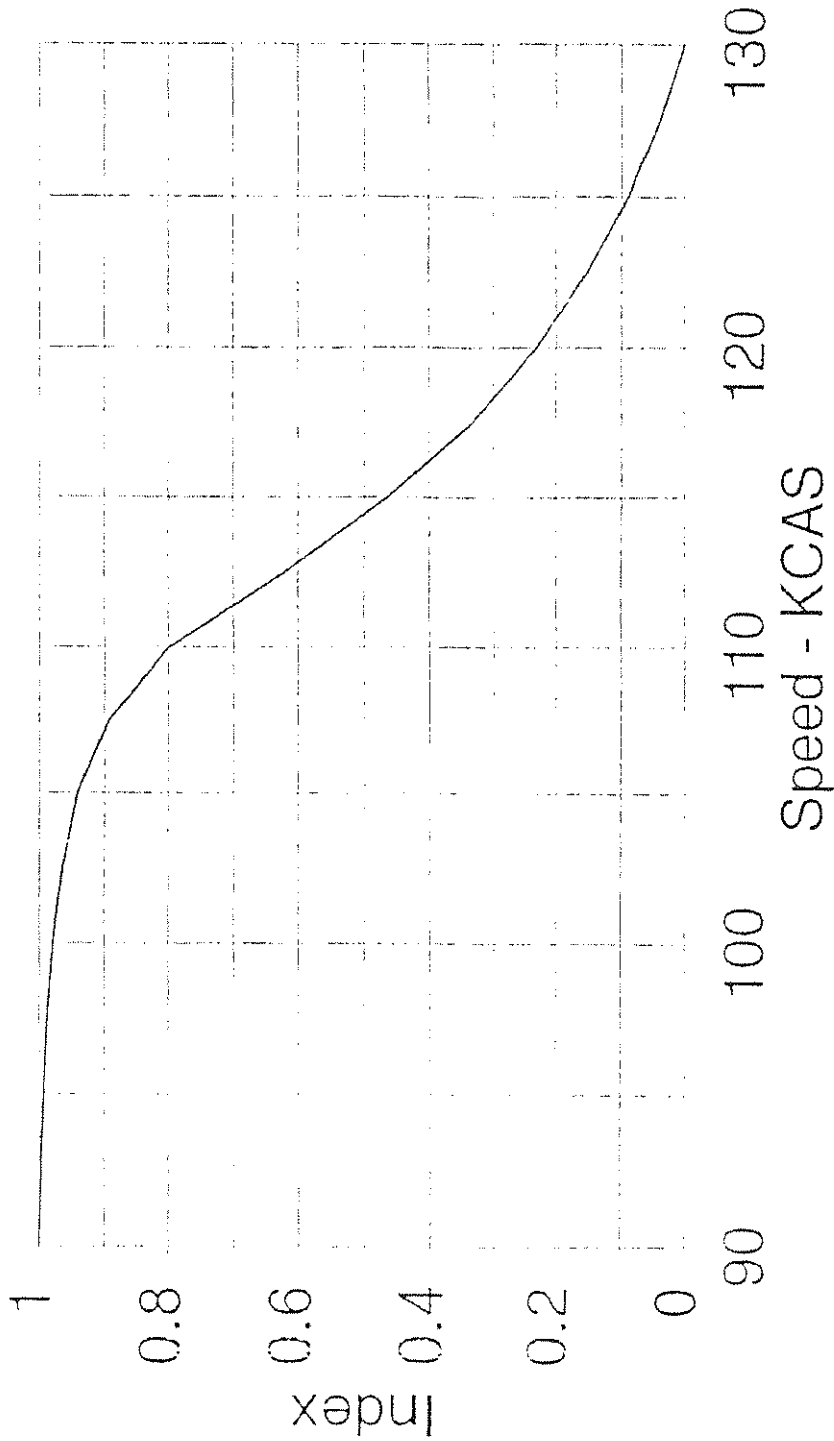
Roll Rate Combat Configuration



60

Landing Approach Speed

Clean, 50% fuel

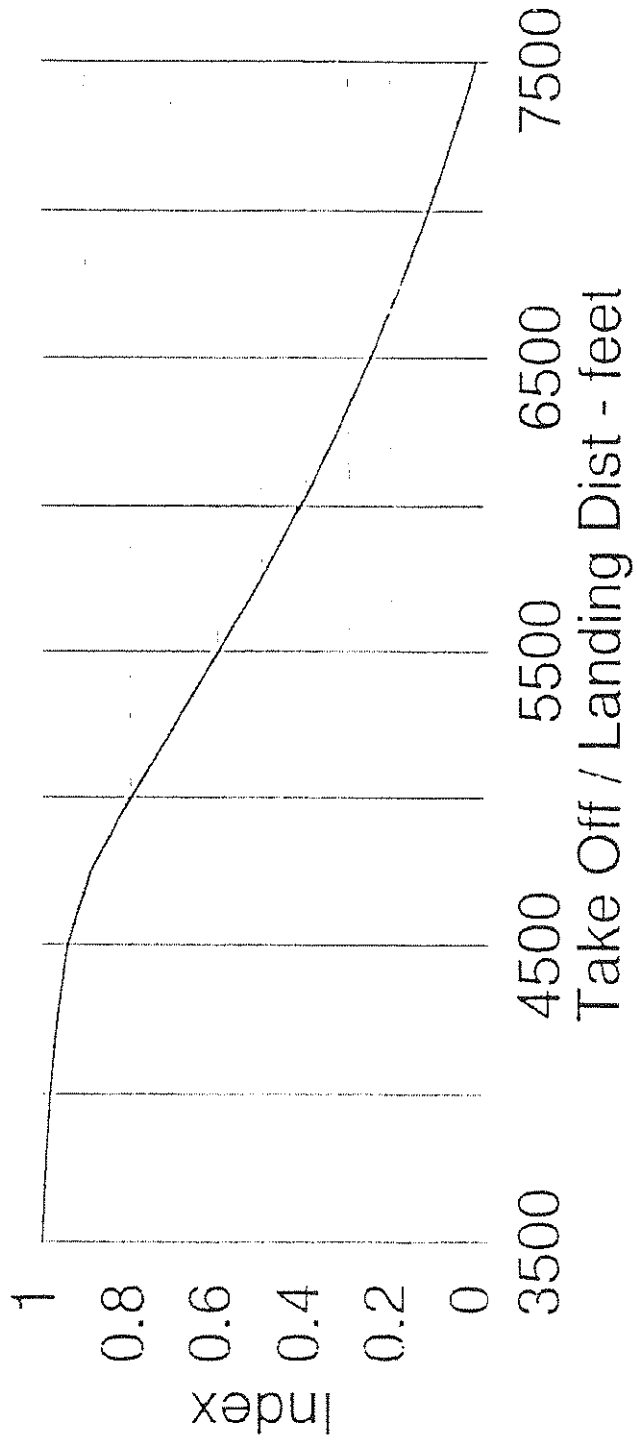


61

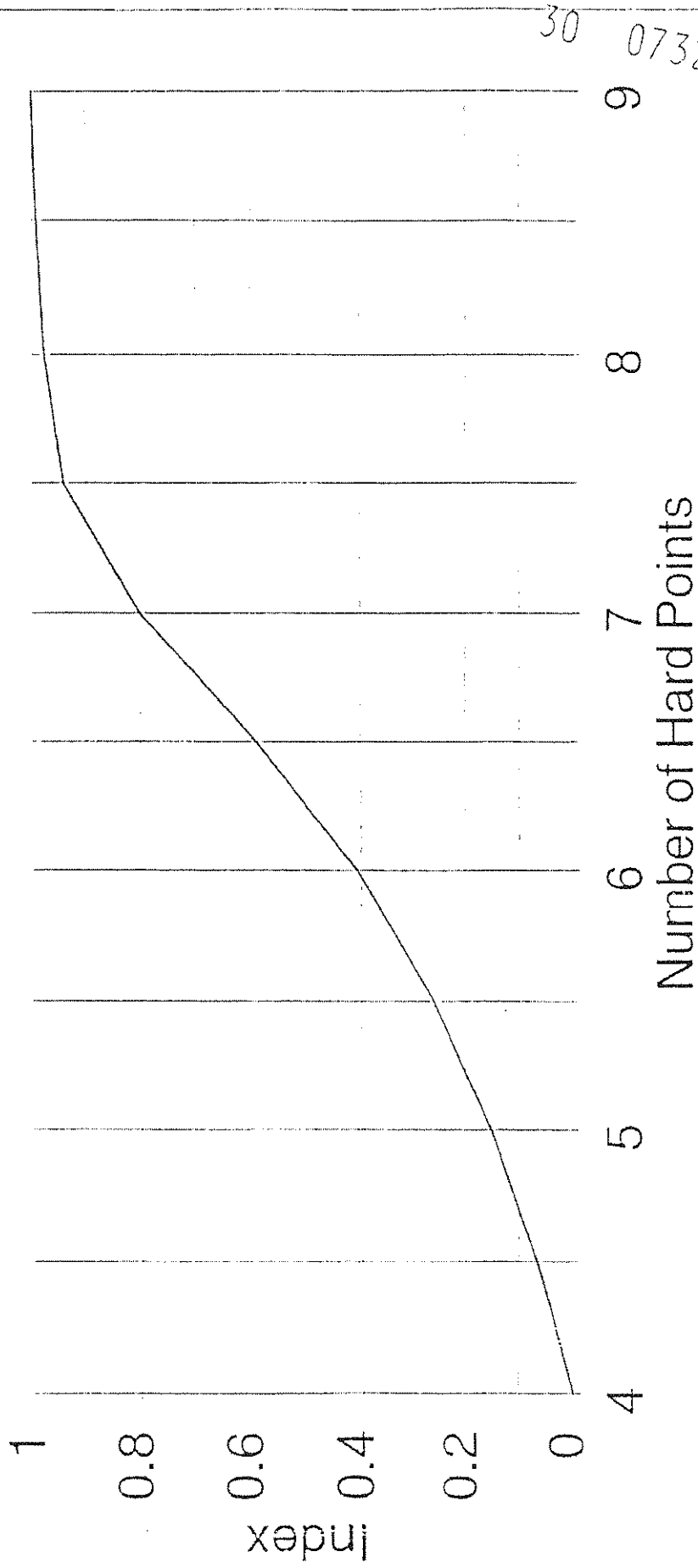
62

Take Off / Landing Distance

MAUW, ISA+20



Hard Points



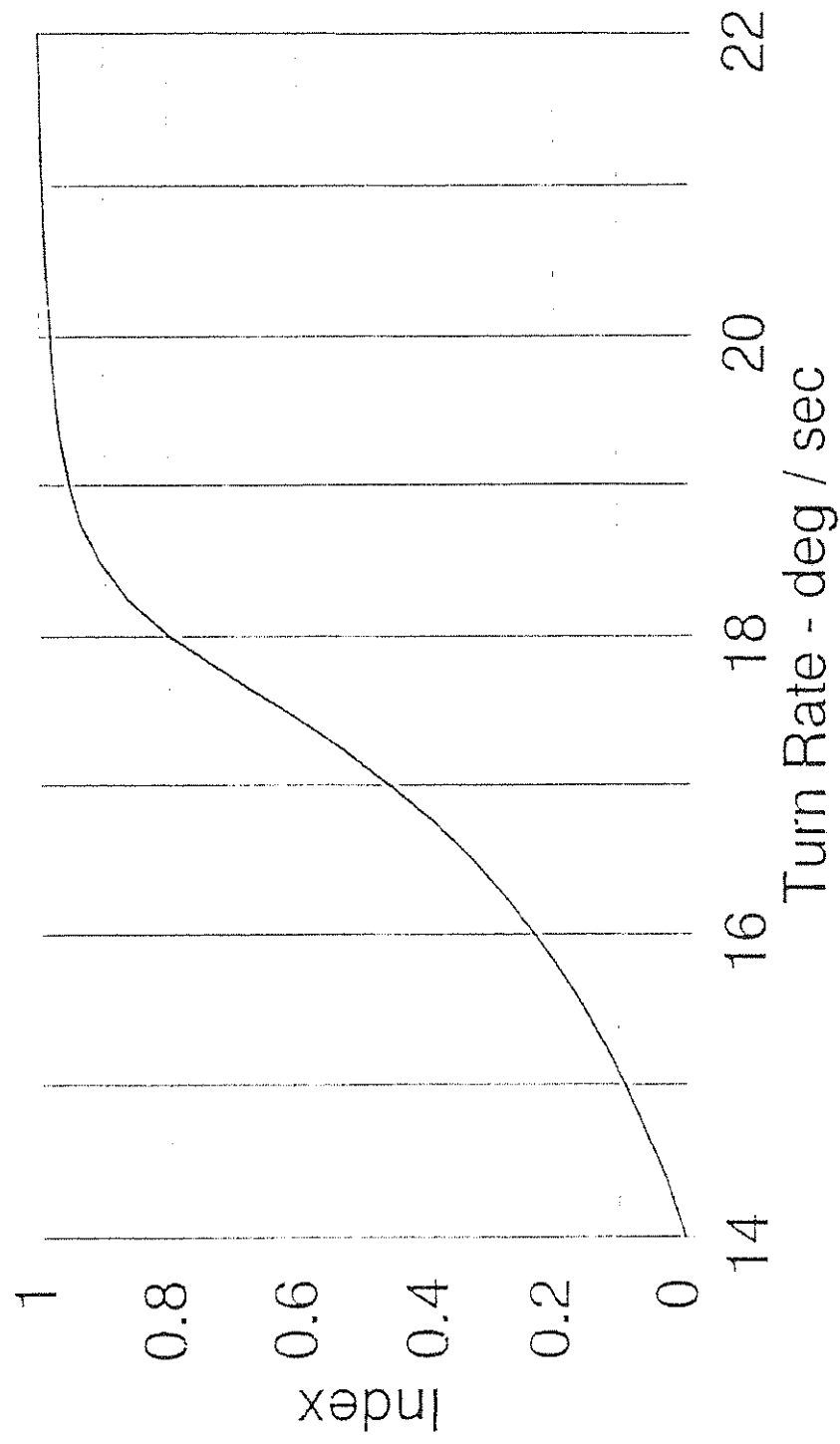
30 073292

89

63

Instantaneous Turn Rate

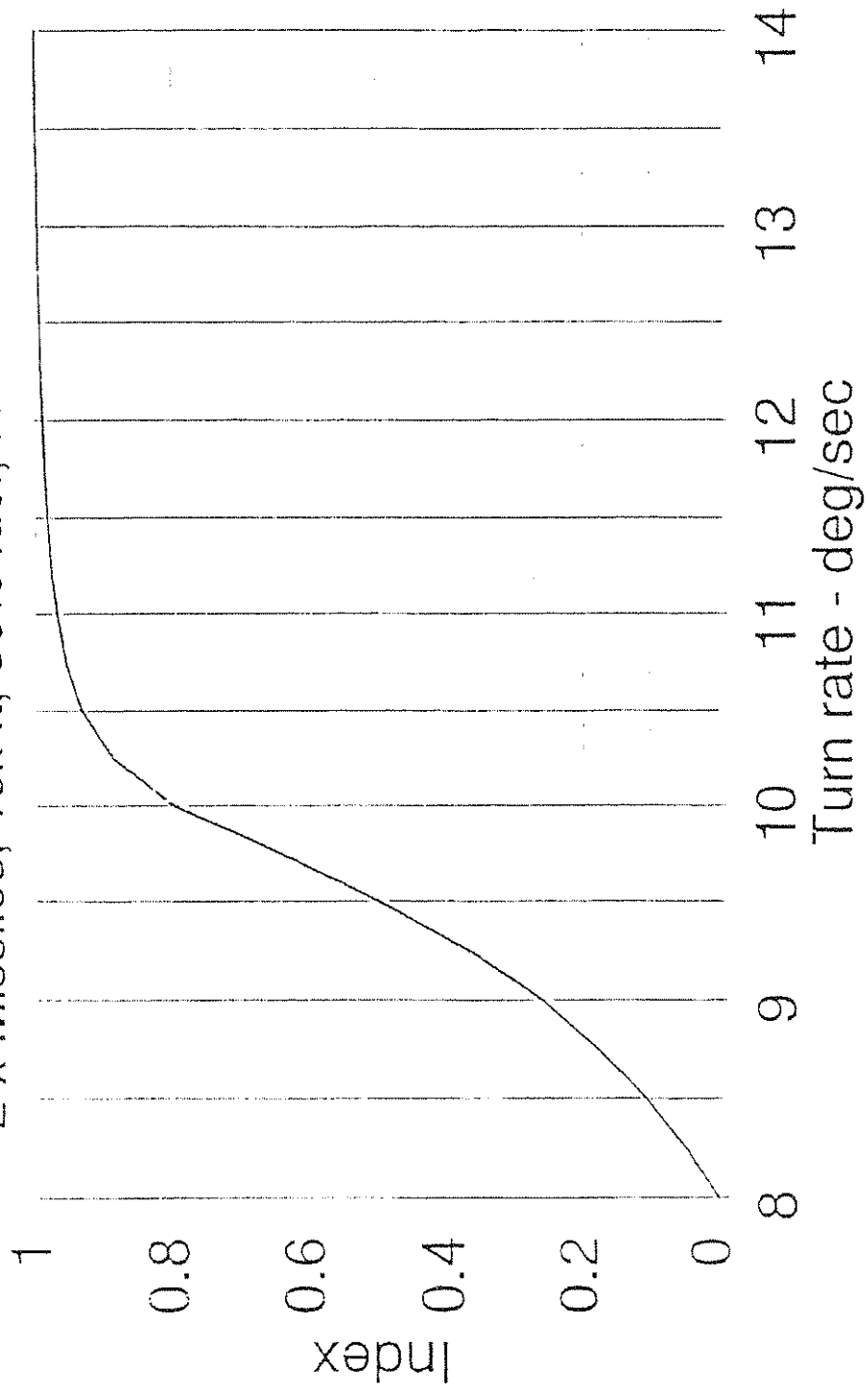
2 x Missiles, 15k ft, 50% fuel, ISA+15



~~64~~

Sustained Turn Rate

2 x Missiles, 15k ft, 50% fuel, ISA+15



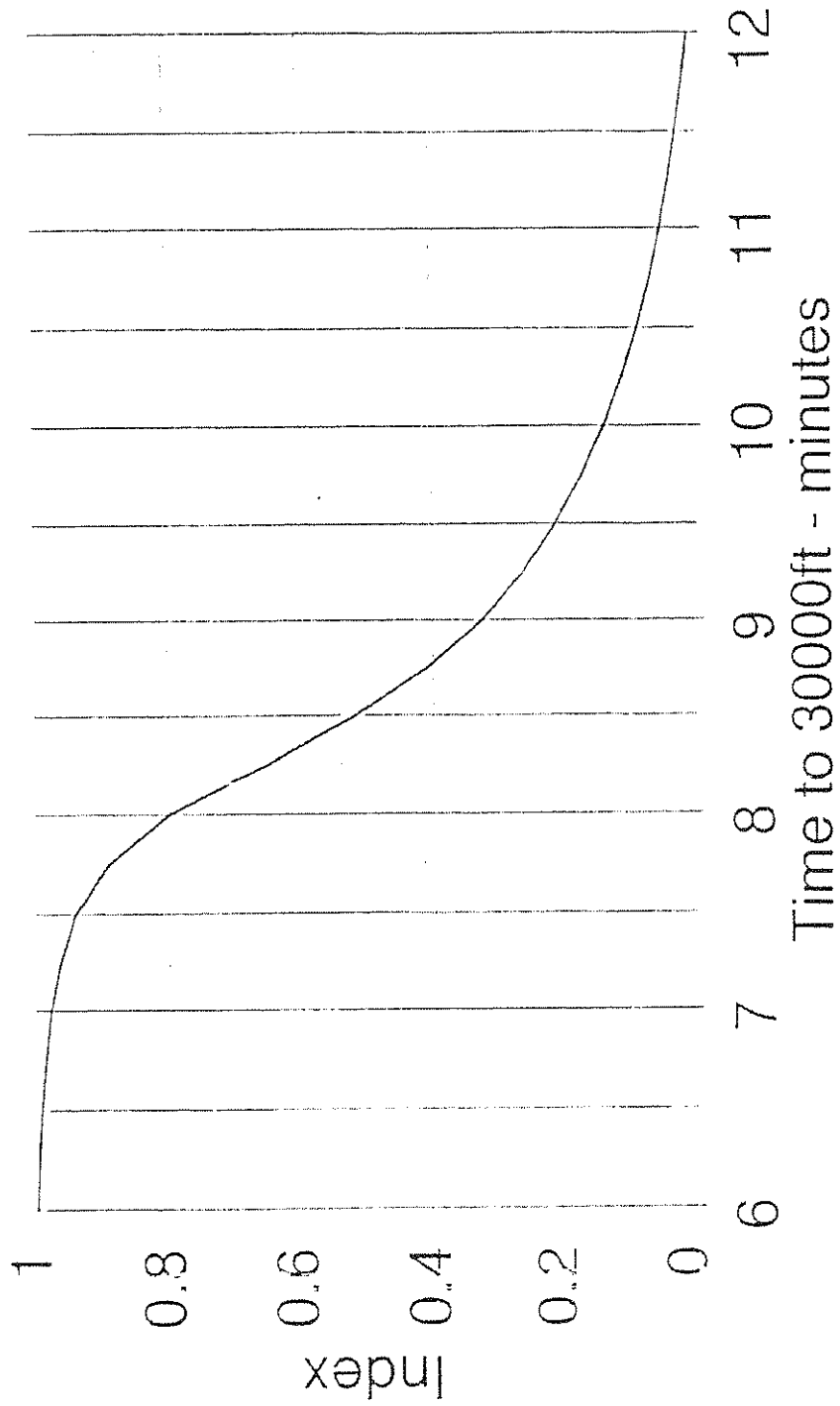
30 073294

(87)
65

30 073295 (86)

66

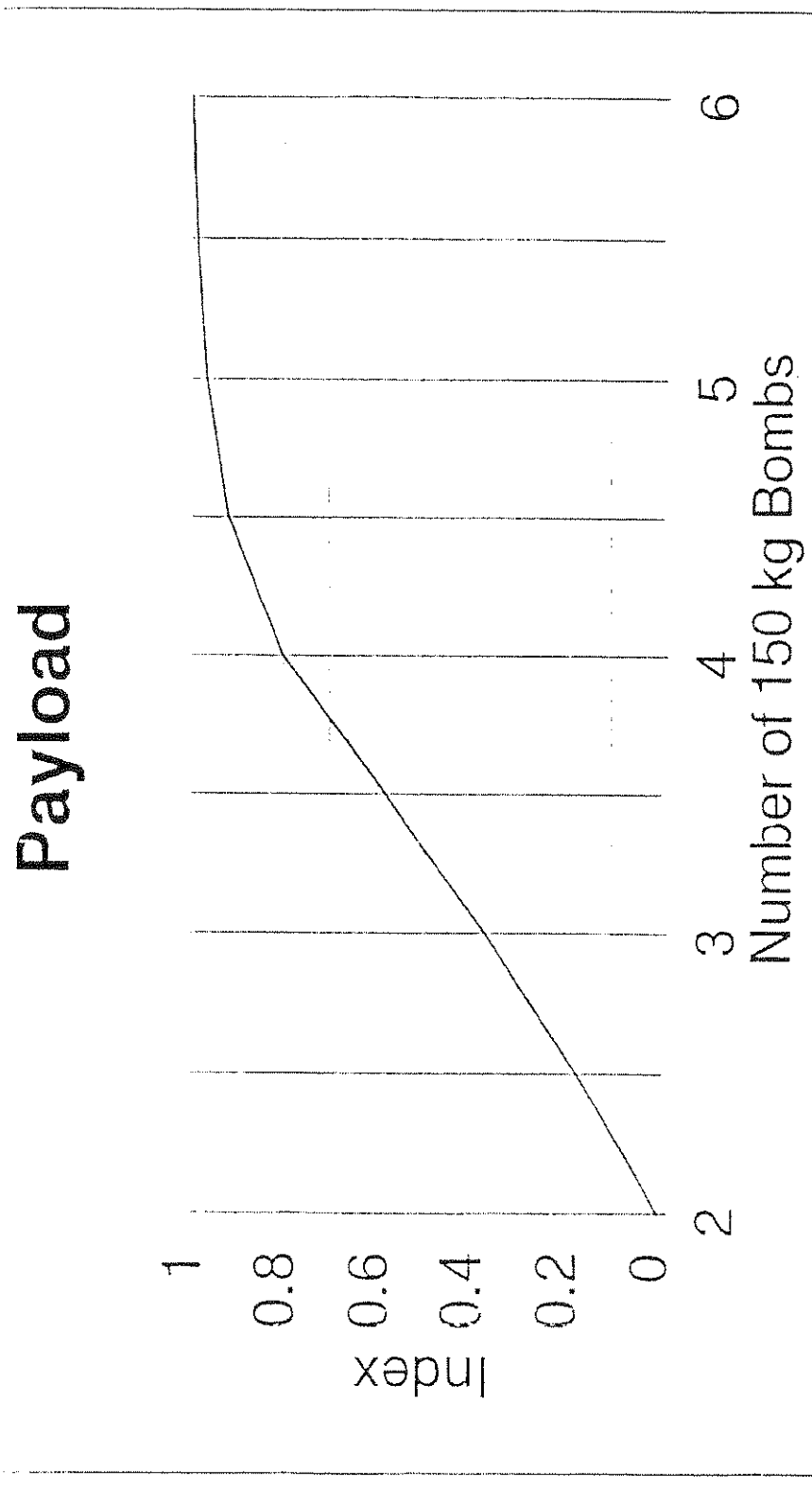
Climb Rate



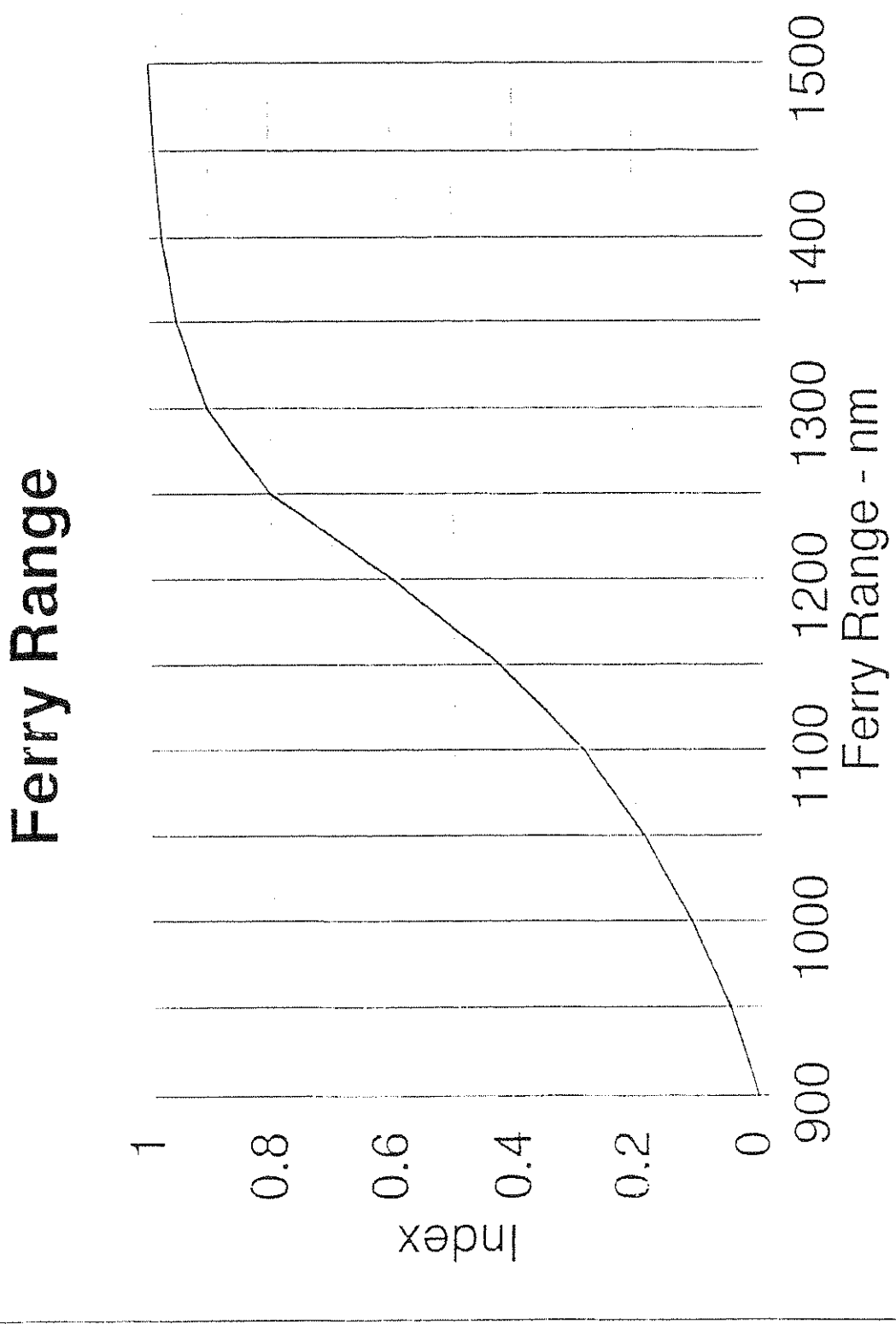
30 073296

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67

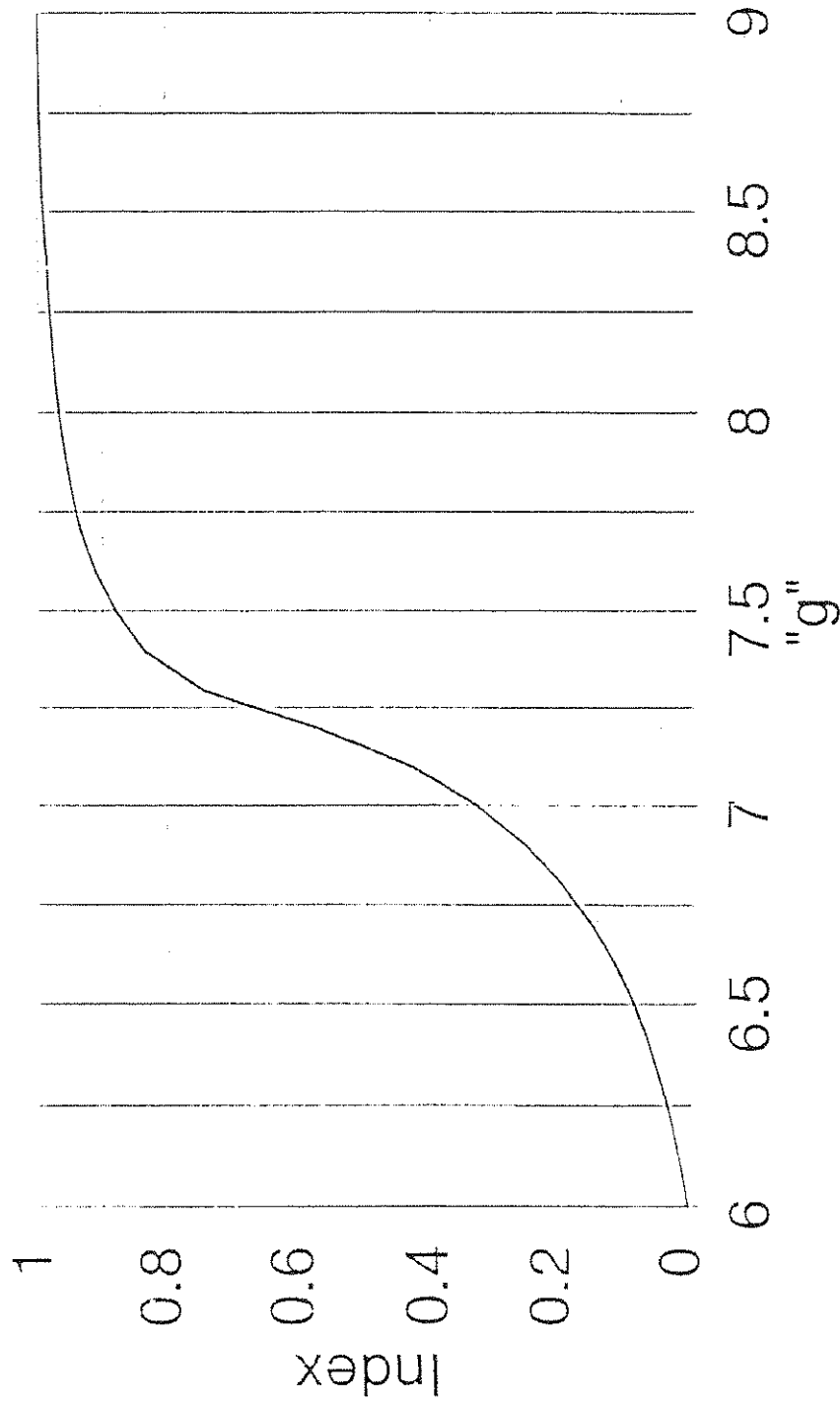


68



69

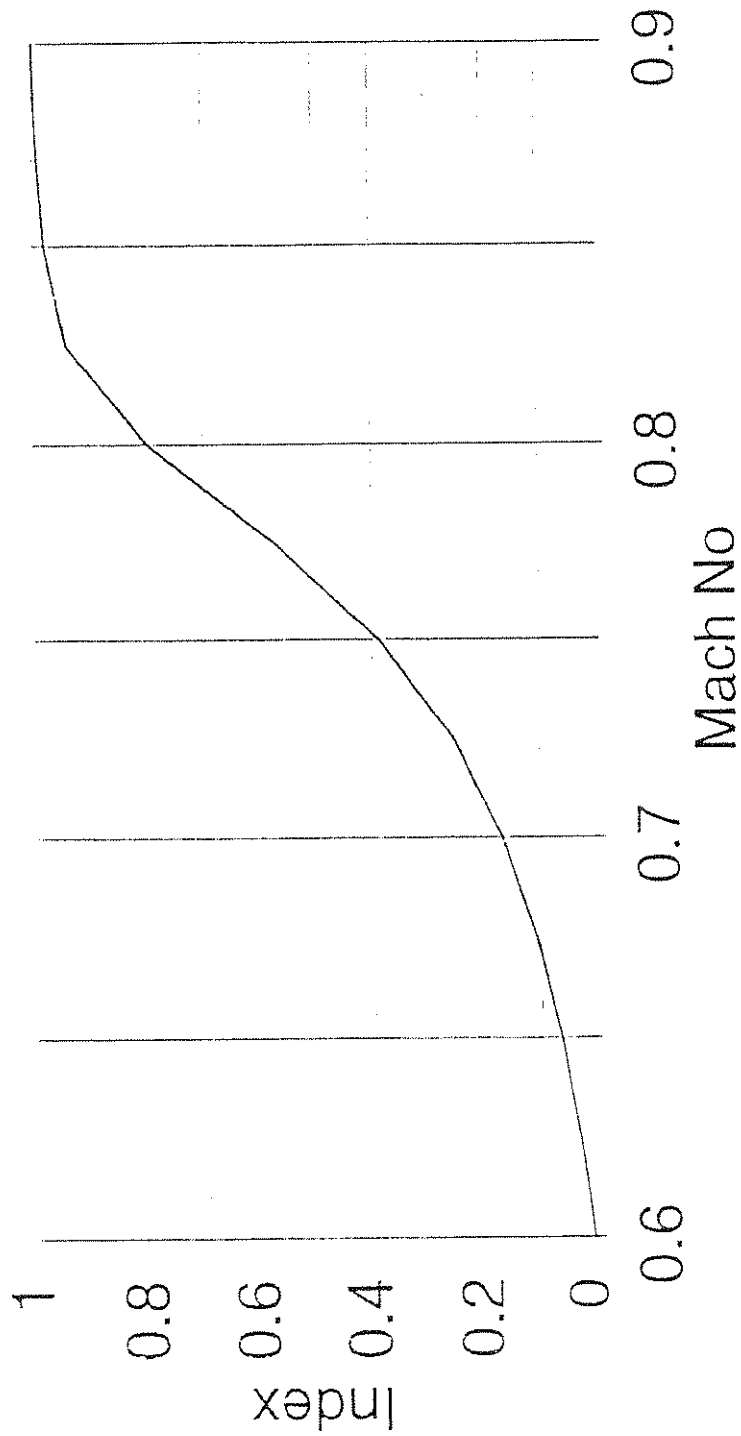
Normal Acceleration - Clean



70

Maximum Mach Number @30k ft

Combat Config - ISA+15 deg



APPENDIX B TO
LMH/D OPS PLAN/302/6/W3083
DATED..... FEBRUARY 1998

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RECOMMENDATION BY CHIEF OF JOINT OPERATIONS

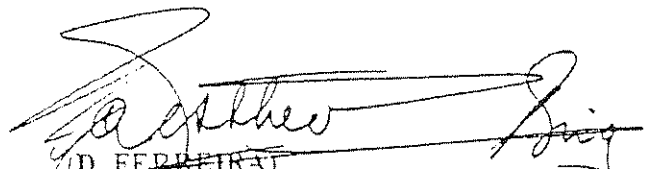
107. Approval is hereby granted for:

- a. This revised combined Staff Target 1/98 and Staff Requirement 1/98 of Project WINCHESTER.
- b. The spending of R200,000 in the 1998/1999 financial year for the interim and final project study report. This includes visits as required. The final project study report will be submitted by 31 March 1999.

APPROVED/NOT APPROVED

Remarks: *Approved in principle -*

The aircraft numbers to be determined by the finally approved fore design.


 (D. FERREIRA)
 CHIEF OF JOINT OPERATIONS: LT GEN

Date: *10 March 1998.*

30 111518
 W447

02

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NOTES OF CONFIRMATION OF SAAF COMMAND COUNCIL MEETING HELD AT SAAF HQ ROOM B101 ON 17 NOVEMBER 1997 AT 08H00.

Members present, related to ALFA presentation, additional to SAAF Command Council:

PRESENT	PRESENTING	APPOINTMENT
Brig P.J. Vivier	SAAF	D PROJ
Brig J. Wesley	SAAF	D ENG
Cdre A.F. Steyn	MOD	DFS
Col O.A. Schür	SAAF	SSO PROJ CONTROL
Col S.C. Ferreira	SAAF	CPO UKHOZI
Lt Col E.P.Q. Nel	SAAF	PO LOG UKHOZI
Lt Col R.J. Coertze	SAAF	LOG ENGINEER : UKHOZI
Maj M. Edwards	SAAF	PROJECT ENGINEER : UKHOZI
Mr H. de W. Esterhuyse	ARMSCOR	GM Aeronautics & Maritime
Mr J.J. Britz	ARMSCOR	SENIOR MANAGER : Aircraft
Mr A.J. Kok	ARMSCOR	PM : UKHOZI
Mr J. Ferreira	ARMSCOR	PM LOG : UKHOZI
Mr F.B. Linde	ARMSCOR	PM AVIONICS : UKHOZI (Secretary)

AGENDA POINT	DISCUSSION	ACTION
1.	<p><u>WELCOME</u></p> <p>The Chairperson welcomed all members present.</p>	
2.	<p><u>OBJECTIVE</u></p> <p>CAS OPS stated the objective of the meeting as the following:</p> <p>To formulate a SAAF recommendation for the acquisition of fighter and / or fighter trainer aircraft as part of the package deal proposals put forward by the countries invited to do so.</p>	
3.	<p><u>BACKGROUND</u></p> <p>After receipt of the proposals from the different countries on 4 November 1997, the Ukhozi project team evaluated the proposed aircraft against the ALFA requirement, for which a previously approved value system was used. The CPO presented the meeting with a summary of the activities of the project team, and the results of the evaluation. (See Appendix A for the presentation.)</p>	

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<p>4.</p>	<p><u>DILEMMA</u></p> <p>The CPO presented the meeting with the dilemma that the project team had to face during the evaluation of the proposals:</p> <p>The RFI's were issued to the respective Governments with the by then currently envisaged SAAF Force design in mind. This Force design required only one type of fighter aircraft as the front line fighter, that will also fulfill the fighter training role. Subsequent to the issue of the RFI's, and the receipt of the proposals from different countries, it became clear that another type of aircraft would be needed as an interim trainer aircraft between the Astra and the ALFA. (Advanced Fighter Trainer Aircraft.) Although some of the proposals received from the different countries did include aircraft that satisfy the training requirement, the request to the suppliers was for an ALFA and not a LIFT. (Lead In Fighter Trainer.)</p>	
<p>5.</p> <p>5.1.</p> <p>5.2.</p> <p>5.2.1.</p> <p>5.2.2.</p> <p>5.2.3.</p>	<p><u>DISCUSSIONS AND DECISIONS</u></p> <p>Col. Willcok presented the meeting with the results of an exercise which was held by a strategic planning workshop. The objective of the workshop was to seek a solution to the dilemma stated above. The result can be summarised as follows:</p> <p>Option 1: The SAAF must accept one of the proposals presented in the package proposals, and continue with the acquisition of the ALFA.</p> <p>Option 2: The SAAF must seek to satisfy both the ALFA and the LIFT requirements through the package proposals.</p> <p>Option 3: The SAAF should not accept any of the aircraft proposed in the package deal proposals, and go into an Impala replacement programme immediately.</p> <p>See attached Appendix B for the detailed presentation.</p> <p>With the above in mind, the members of the meeting discussed the alternatives and concluded with the following:</p> <p>Decision: The SAAF requires both a LIFT and an ALFA, which implies a 3 - tier training system.</p> <p>Decision: Both the LIFT and the ALFA requirements have to be satisfied through the Government to Government package deals.</p> <p>Decision: The LIFT requirement is an additional requirement to the package deals, and has to be registered as such.</p>	<p>SAAF</p> <p>CAS OPS</p> <p>D STRAT PLAN</p>

5.2.4.	<u>Decision:</u> The LIFT is the more urgent requirement, which has to be satisfied first. As a result of this, the ALFA requirement could be satisfied at a later stage, but not later than 2012.	Project Team												
5.2.5.	<u>Decision:</u> The number of aircraft required by the SAAF, and as indicated in the Defence Review, is now revised to be 38 (previously 48) front line fighters, and 20 - 24 (previously 42) fighter trainer aircraft.	All												
6.	<u>RECOMMENDATION</u>													
6.1.	With the above decisions taken, the Ukhozi project team recommendation to the Management Committee for an ALFA through the package deal proposals could now be finalised as the following:													
6.1.1.	<p><u>Decision:</u> The aircraft recommended by the Ukhozi project team, for further consideration by the Management Committee, and with which the SAAF would be satisfied should any of the aircraft be chosen, is the following:</p> <table border="0" data-bbox="403 920 1145 1048"> <thead> <tr> <th><u>Aircraft</u></th> <th><u>Supplier</u></th> <th><u>Country</u></th> </tr> </thead> <tbody> <tr> <td>AT2000</td> <td>DASA</td> <td>Germany</td> </tr> <tr> <td>JAS 39 Gripen</td> <td>British Aerospace</td> <td>United Kingdom</td> </tr> <tr> <td>Mirage 2000</td> <td>Dassault</td> <td>France</td> </tr> </tbody> </table>	<u>Aircraft</u>	<u>Supplier</u>	<u>Country</u>	AT2000	DASA	Germany	JAS 39 Gripen	British Aerospace	United Kingdom	Mirage 2000	Dassault	France	Project Team
<u>Aircraft</u>	<u>Supplier</u>	<u>Country</u>												
AT2000	DASA	Germany												
JAS 39 Gripen	British Aerospace	United Kingdom												
Mirage 2000	Dassault	France												
7.	<p><u>CLOSE</u></p> <p>The meeting was closed by the Chairperson after he thanked all the participants for their valuable contribution.</p>													

MF

FBL

(F.B. LINDE)
SECRETARY

Date: 21/11/97

(C.B. LOMBARD) (MAJ. GEN) (CAS OPS) Date:
CHAIRPERSON

The Big 'Un: British Aerospace and the Agent System

Of all the Arms Deal's contracts, the two signed by British Aerospace (BAe) and SAAB were the most lucrative. The purchase of 24 Hawk and 26 Gripen aircraft constituted just over 50 per cent of the total outlay of the Arms Deal: it was costed, in 1999 prices, and with a range of hidden costs excluded, at R15,772bn, while the total Arms Deal was costed at a total of R29,992bn. Considering its importance, one would have expected that the contract would have been run professionally, with little space given to the manipulation of the tender process with corrupt intent. Information that has emerged since the deal was signed, however, points to huge and widespread malfeasance and corruption.

Making a mockery of process: the selection of the Hawk and the Gripen

Before moving on to discussing the various claims and counter-claims of corruption, it is useful to track how the selection process operated: a process that could not but raise suspicions of criminality considering the extent and range of irregularities. The origin of the purchase of Gripens and Hawks can be traced to 1994. In this year, the South African Air Force started to investigate a plan to re-equip its ageing complement of jet fighters. It is important to note that the SAAF had long used, and would continue to use, a three-tiered system. According to this system, pilots would first train on the

newly acquired Pilatus Astra Trainer (itself mired in allegations of corruption, as discussed in Chapter 2), after which they would move to train on the slightly faster and more sophisticated Impala MKI and MKII aircraft. After completing these two phases of training, pilots would be moved on to the third 'tier', namely the supersonic Cheetah jet fighter that would be used in actual combat situations.¹

As of 1994, it was only considered necessary to replace a single 'tier' of this system: the Impala trainers. The other two aircraft were considered to be suitable for a while yet: the 50 Cheetahs would be operational until at least 2012, with the possibility of further upgrades to extend their life, while the Pilatus Astra trainers had only recently been acquired. These needs were codified in 1995 by the completion of a 'staff target', which outlined the military and technical needs of the SAAF at the time, specifying that only the Impala trainers had to be replaced in the short to medium term. Equally important was a central stipulation of the 'staff target': the aircraft bought had to be able to fulfil two roles, the first as a trainer that pilots could use to get ready for the supersonic Cheetahs, and the second as a fighter that could be used in combat situations. This would have allowed two roles (training and fighting) to be fulfilled by one jet – a workable system that would have noticeably decreased acquisition and life-cycle costs for the SAAF.²

With these needs elaborated, the SAAF embarked on a Request for Information process. Of the potential bidders contacted to ask for information, a total of 23 responded, including British Aerospace, offering both the Hawk and the Gripen aircraft. Both were dismal failures in this process, failing to make it onto the shortlist of four potential suppliers. The Hawk, it was argued, did not meet all the operational requirements of the SAAF, while the Gripen was rejected as 'unaffordable'. British Aerospace, despite submitting two separate aircraft, were thus completely out of the loop at this stage, neither of their offerings considered to be suitable for the SAAF's needs.³

With this harsh reality stinging the ears of BAe, it was decided to begin an intensive lobbying process to secure contracts for BAe in the Arms Deal. The first 'arm' of this process was undertaken by the Defence Export Services Organisation (DESO), an official UK government body that was established to promote the UK defence industry, as we saw in Chapter 2. DESO offered a number of potential 'deals': the most notable being the offer to supply all of the equipment required in the Arms Deal (submarines,

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corvettes, helicopters and jets), to be funded either by loans or, bizarrely, the transfer of South Africa's entire gold reserves. These softly-softly approaches directed towards South Africa were met with considerable worry among some members of the SAAF. HD Esterhuysen, a key figure in the procurement process, later recalled that, as early as March 1997, DESO was 'clearly in discussions with other government officials and the Minister [Modise] ... At this stage we were already concerned about the actions of DESO and British companies regarding South African politicians and parliamentarians.'

Both General Pierre Steyn (then Secretary of Defence) and General George Meiring (then chief of the SANDF) decided to intervene directly and wrote a cautionary memo to Mandela. In it, they warned that the British proposal does not correspond with the SAAF preference option. The Hawk option is not optimal because cheaper options exist for the niche requirement satisfied by the Hawk.' General Hechter, then the Chief of the SAAF, wrote that 'neither the Hawk nor the Gripen systems as offered by BAe during its formal response ... satisfied the full requirement specifications [BAe] would only be considered under extreme duress.'

The second arm of the lobbying process was BAe's decision to invest in a number of ANC-linked projects. One of these was funding an ANC archive project, which we shall deal with in considerably more detail later. Another controversial project was BAe's commitment, announced in March 1998, to invest R4.5m in a scheme to empower MK veterans. The R4.5m would be used to fund a training institute, as well as provide housing on a farm south of Johannesburg. As will be discussed below, this scheme was surrounded by controversy, with claims that the money had been misappropriated for use by the 'life-president' of the MK Military Veterans Association, Joe Modise. At this point, however, what is clear is that it formed one 'arm' of an intensive and relatively well-publicised attempt to lobby for the selection of BAe's equipment, despite the stated abhorrence to this course of action by the SAAF and other arms of service.

In 1997, a decision was made to switch from a three-tiered system to a two-tiered system, largely as a means to reduce the operational cost of the SAAF. According to the two-tiered system, pilots would move straight from the Astra to a supersonic jet fighter after it was confirmed that this was feasible. This fighter was referred to as a mid-range fighter, or Advanced Light Fighter Aircraft (ALFA). While this reconstitution of the system allowed the

Gripen to be re-submitted as a potential candidate to fill this role, it completely cut the Hawk out of the running.⁸

In November 1997, the SAAF Command Council, busy overseeing the selection of preferred bidders, met to discuss the tiered system once again. During the November 1997 meeting, apparently on the strict instruction of Modise, this system was again changed, and it was decided to revert to a three-tier system.⁹ This decision had been made, it was claimed, after the SAAF had sent out RFIs for a two-tier system (i.e. for just a combat fighter or ALFA): when the responses were received, it apparently became clear to the SAAF, and especially Minister Modise, that an additional tier was needed.¹⁰ The important difference, however, was that the 'middle' tier would no longer be made up of a plane that could both fight and train; instead, it would be a plane that could only train pilots to graduate to the final tier. This, of course, meant that the Hawk, which was only used for training and could not fight in combat situations, could now be reconsidered. The Gripen, too, could also be submitted as a competitor for the third tier – a pure fighting plane without training capacity.¹¹

It was a bizarre decision, however one looks at it. If the two-tiered system was used, South Africa would have saved considerable amounts of money as only one class of plane would have had to be purchased. However, even if a three-tiered system was to be used, surely it would have made sense to ensure that the 'middle' tier could be used to train *and* fight, thus increasing the overall combat capacity of the SAAF. By selecting a plane that could only train in the middle tier, a decision was effectively made to *increase* the number of planes bought, but effectively *decrease* the combat capacity of the SAAF.

The SAAF was alert to this absurdity and was clearly unconvinced that a three-tier system was necessary. During a meeting on 19 and 20 November 1997 (merely two days after the decision to revert to the three-tiered system was made), a steering committee meeting was called to discuss various aspects of the Arms Deal, with the aim of making decisions that could be presented to the Arms Acquisition Council and Cabinet. As the draft versions of the Auditor-General's Report indicate, a key presentation during this meeting was made in which it was mentioned that all suppliers, except for the Mirage 2000, confirmed that pilots could convert to proposed aircraft directly from the Astra ... This is in direct contrast to the conclusion

fratched by the SAAF Command Council on 17 November 1997.¹⁶ The reason for switching to a three-tier system, with a Lead-In Fighter Trainer in the middle, was that it was considered essential in order to train pilots in-service from the Astra to the combat fighter – but this was completely false. All the suppliers had confirmed that pilots could move straight from the Astra to a combat fighter, making the two-tier system a perfectly acceptable and indeed preferable option. The outcome of this process was that BAE/SAAB could now submit both the Hawk and Gripen anew.

The Gripen's selection had been bedevilled with irregularities and inconsistencies. In October 1997, a month before the decision to re-adopt the three-tier system was made, three suppliers were officially shortlisted to provide the ATEFA component (remember that, at the time, a two-tier system was required, which would have necessitated a combat jet, of which Gripen was one). The three options selected were Germany's Daimler-Benz Aerospace's AT2000 fighter, France's Dassault Mirage 2000 fighter, and BAE/SAAB's Gripen.¹⁷ At this point, the Gripen was the least preferred of all the planes submitted. The AT2000 received the highest score as it was credited with 'the best cost-effectiveness [and] best operational capability'; the Gripen, meanwhile, was acknowledged to be a 'capable modern fighter with low development risks', but, vitally, was still considered to be 'high cost'.¹⁸

Two key elements of the procurement process, however, went in favour of the Gripen. First, BAE/SAAB earned a substantial offsets score, which dwarfed that of the corvettes discussed in the previous chapter, fairly first, however. Initially, when BAE/SAAB submitted the details of their offset programme related to the Gripen, members of the procurement team argued that the proposals were close to being an insult. After a meeting where BAE/SAAB's initial offsets proposal was presented, S de Lancey, a member of Denel's aviation team, wrote to the head of Staff Logistics, noting that 'industry was behind the fact that the BAE/SAAB industrial participation offer was very poor, and was aimed at the absolute minimum that they could get away with. The IP offered by BAE/SAAB has been assessed by all industry parties present as being very disappointing ... It appeared that BAE/SAAB might have thought that they had already won the SA competition and did not feel compelled to make sacrifices for SA trade and industrial imperatives'.¹⁹

The decisive area in which BAE/SAAB out-scored their competitors was in the evaluation of the financing proposals. Remember that the Strategic Offsets Committee (Sofcom) scored each bid on three domains: the technical suitability, the offsets proposals, and the financing offers, each of which was to count 33 per cent towards the final normalised score to determine the preferred bidder. In the case of the Gripen, it was selected after Dassault and Daimler-Benz had failed to submit any information regarding their financing offers: this meant, in short, that only the Gripen was given a score for a part of the bid that would count 33 per cent towards the final score. Needless to say, it was largely on this basis that the Gripen emerged as the preferred bidder: not on the basis of an equal competition between bidders, but as a result of the alleged failure of Dassault and Daimler-Benz to submit their financial information. As the Joint Investigation Report noted: 'There was no competitive financial evaluation. The aforementioned lack of a competitive financial evaluation played an important role during the overall evaluation process, as the financial evaluation score comprised 33.3 per cent of the total evaluation'.²⁰ The prejudice to the taxpayer, who would not benefit from competition over how its money would be spent over close to two decades, seemed to be ignored.

During the meeting at which the Gripen was eventually chosen, it was claimed that Dassault and Daimler-Benz had failed to offer financing, notwithstanding repeated requests. If this is true, it is bizarre. It beggars belief to claim that the German and French bidders would fail to submit such a key part of their proposal after they had already completed such an extensive amount of work: work that included putting together a sophisticated bid package and entertaining the visits of South African officials keen to evaluate their facilities. As we saw with regard to the corvette contract, bidders were usually only too happy to submit new information in their bid if it kept them in the race: the selection of the German Frigate Consortium to provide the corvettes, for example, relied heavily on this ability. James Myburgh, however, has alleged that, in the review of the Arms Deal, the Auditor-General's office could not locate any requests that had been sent to either Dassault or Daimler-Benz requesting further information – a claim that was allegedly supported by both Dassault and members of the Department of Finance, who noted that no attempt was ever made to approach Dassault and Daimler-Benz for additional information regarding their bids.²¹

The Hawk, meanwhile, only emerged as the preferred bidder after a series of manipulations. In April 1998, after the decision had been made five months previously to re-adopt the three-tier system, Requests for Information to supply 24 Lead-In Fighter Trainers were sent out to various bidders. Of the 20 that responded, four were chosen as short-listed contenders: BAe with the Hawk 100; AerMacchi with the MB339FD; Aero Vodochy offering the L-159; and, finally, a joint Russian and Italian bid by Yakovlev and AerMacchi with the YAK/AEM-130. This, in turn, was followed by the Request for Offer, which asked each of these four bidders to supply more detailed bids, including a full offset and financing proposal.²⁷

Initially, the Hawk was considered to be one of the least desirable planes. During the technical evaluation of the various aircraft, which was to be combined with the price to determine their cost effectiveness, the Hawk was placed in a lowly third position, with the AerMacchi MB339FD clearly the preferred option. Indeed, the MB339FD was considered to be twice as suitable as the Hawk with regard to technical competence: it received an indexed score of 100, while the Hawk managed merely 44.2.²⁸ That the MB339FD was considered to be the best plane for the job was obvious: it was, in developmental terms, the natural successor to the Impala trainers that were already in use, and was offered at roughly half the cost of the Hawk.²⁹

Interestingly, during the entire process, the SAAF was deeply concerned about meeting its acquisition targets without massively exceeding its budgetary allocations. The MB339FD helped, in part, to allay these fears, as it could be purchased without exceeding an already strained Department of Defence budget. The Hawk, if it was selected, would do the exact opposite: the budgetary allocation for the LIFT (Lead-In Fighter Trainer Aircraft) (R2,2bn) would have to be exceeded by a remarkable degree. This, as will be discussed in much more detail below, would eventually become a major sticking point in the selection of the Hawk and the Gripen, with farcical results.

The Hawk bid was saved, however, by the direct intervention of Joe Modise. During a meeting of the Arms Acquisition Council on 30 April 1998, Modise argued that it was necessary to take a 'visionary approach': the cost of the deal would be put aside in the selection process, as it was the industrial participation programme, in the end, that would

determine the economic benefits or shortcomings of the anticipated deal. As such, Modise instructed that two separate evaluations be completed: one evaluation with the cost included, and another evaluation with the cost excluded.³⁰ Even after this had been done, the Hawk was unable to emerge entirely victorious: in the non-costed model, the MB339FD still emerged the preferred bidder as it was simply the best plane for the job.³¹ Nevertheless, the Hawk now came in second place (up one from third), and was given a score that would ensure that, once other factors had been evaluated (the offsets and financing terms), it could be considered a contender, rather than a dead duck.

This situation was deeply worrying to the then Defence Secretary, General Pierre Steyn. In July 1998, shortly after Modise's instruction that a non-costed option be included, Steyn had chaired a meeting of the Arms Acquisition Steering Board at which he argued that this option should not be provided to Cabinet for consideration. As a result, it had been resolved that only the costed option, which placed Hawk in last place, would be forwarded to Cabinet.³² Modise was having none of it, however. During a meeting of the same Board in August 1998, he overruled Steyn's suggestion, despite Steyn pointing out the absurdity of a situation where the Hawk doubled the cost of the LIFT aircraft for an increase in performance of approximately 35%.³³ Modise argued that 'the political decision needed must not revolve around operational aspects of the aircraft ... we must not prejudice – let the politicians decide.'³⁴ In other words – whatever the technical specialists found, the decision would ultimately be made by Cabinet. This, of course, raises the question: if it was to be a purely political decision, why go through the selection process in the first place?

Once the non-costed option had been shoe-horned in by Modise, the next step was to examine the financing and offsets proposals. It was here that BAe scored their biggest triumph: they submitted an offsets proposal that was roughly ten times larger than that of any of their competitors. Indeed, the Hawk received a normalised score of 100 points for its civilian offsets programme (NIP), while AerMacchi, the Hawk's closest contender even without cost included, received only 25. Interestingly, the DIP offers made by all the bidders were roughly the same, suggesting that it was the NIP element alone that would be used to discriminate between the various bidders. Here, what was notable was that the NIP offer submitted in support

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of the Hawk was considered by the South African Department of Trade and Industry to be of considerably less value than declared to Cabinet.

In July 1999, the DfI noted that, due to a 'breakdown' in communication, the DfI had provided Cabinet with a misleading picture of the value of the Hawk offset offer: a picture that might have provided Cabinet with an incorrect impression of the quality of the offer.²⁰ This was a remarkable mis-statement. When the DfI finally re-examined the Hawk NIP offers, it was found that the amount of NIP offered by BAE was 'grossly inflated' in the DfI presentation. In the initial presentation, it was claimed that BAE would generate roughly R1bn in offset commitments. After a review, it was found that the sum was roughly R1.5bn, or 15 per cent of what Cabinet had been told they could expect.²¹

Even these figures had to be taken with a pinch of salt. When the DfI reviewed the offsets proposals that had been submitted by BAE for the Hawk deal, they discovered that two major projects that formed the bulk of their offsets proposal were without any foundation. The first of the two projects was a plan to invest in a company that would supply parts for power stations to the rest of Africa. This, it was discovered, was a reorganisation of a project (titled the 'National Power Project') that BAE had submitted at an earlier stage, and which had been rejected because 'neither the investments nor the local manufacturers have been defined and African projects are not yet firm'.²² The second project was to supply the funding to build a titanium plant, which was to be built by a US company called Ti-Met. The major problem: Ti-Met had pulled out of the project, meaning that it was unlikely ever to go ahead.²³ Even the Joint Investigation Report noted that 'without these two projects, BAE had virtually no NIP package'.²⁴

BAE's emergence as the preferred bidder to supply both the Hawk and Gripen aircraft as the SAAF's new ALEA and IJFT was achieved after a considerable amount of manipulation, the most obvious being the use of a 'non-costed' option to ensure the Hawk's selection. Nevertheless, at this point (late 1998), the deal was not a complete certainty. Two attempts were made to refigure and contest the selection of the ALEA and the IJFT. The first involved General Pierre Steyn, who, soon after the decision to exclude cost was made, resigned from the SANDF because, as secretary of defence, I was going to have to account for the costs to Parliament, which I couldn't do.²⁵ In August 1998, after considerable contestation about whether the

Hawk should be selected, a special Ministerial briefing was held, perhaps the most important moment in the selection of the Hawk and the Gripen. The minutes of the meeting were clear: the Hawk and the Gripen would be chosen as a result of national strategic imperatives, including the role that partnering with BAE could play in salvaging the struggling local aerospace industry. To quote from the minutes:

n. After a discussion it was decided by the ministers present that the HAWK (Option B) should be recommended as the preferred option. This decision to recommend the HAWK was based on national strategic considerations for the future survival of the defence aviation sector and the best teaming-up arrangements offered by the respective bidders. Strategically important industrial participation programmes offered with the best advantage to the state and local industries were also a determining factor in the final recommendations for the preferred bidders per programme.²⁶

Only days later, however, General Pierre Steyn attempted to set the matter straight. According to Steyn, the meeting that these minutes reflected was not formally constituted and had no official decision-making powers. Even more importantly, he was of the opinion, along with HD Esterhuysen, that no decision had been reached at all, despite what the minutes reflected. In a long memorandum to Chippy Shaik sent on 7 September 1998, Steyn wrote:

I question the completeness and accuracy of paragraph n. I cannot recall that a decision was made. The merits of either the Hawk and the MB 339 were discussed. The fact that the MB 339 meets the SAAF IJFT requirements adequately (with reference to the pre-determined criteria) is not reflected. The Hawk is not the 'best' option from a military point of view - the fact that its acquisition cost would solicit substantially more IP apparently carries the day. The SAAF however will have to absorb considerably higher operating costs during its life cycle. As far as I can recall the choice between the Hawk and MB 339 will be made later by the Cabinet. Hence the Italians should be afforded the opportunity to respond with other successful bidders. If we fail to do this, I submit that the ensuing fracas could derail the initiative completely.

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attached to the memorandum was a new version of the minutes that Hew Swan and HD Esterhuysen had drafted, and which they thought accurately captured the contents of the meeting. This included a reworded paragraph in which it was noted that after a discussion it was decided that both the HWCK (topon B) and MR330 (topon A) should be investigated further – both countries will be requested to submit further information in this regard. Esterhuysen, who was central in the acquisition process, agreed with Swan, and signed the newly reconfigured minutes – but he was the only one to do so. Although it is unclear what happened to the new minutes, it is clear that they were ignored. Indeed, only two months later, on 18 November 2008, the Hawk and Gripen were presented to the full Cabinet as the preferred options, and their selection was confirmed. Steyn, as noted above, resigned shortly thereafter; Esterhuysen, meanwhile, urged Armscor's internal auditors to investigate, which they had failed to do by the time Esterhuysen resigned from Armscor.

Once the Hawk and Gripen had been approved by Cabinet, permission was now given to the International Offers Negotiating Team to begin the negotiations towards a final contract, the outcome of which would be the final terms and conditions that were eventually signed in December 1999. Considering that the Hawk and Gripen had made it this far, it would have been fair to assume that their purchase was a certainty. The situation was, however, more complex than this. Part of the IONF's mandate was to look at the affordability of the Arms Deal as a whole (dealt with in much closer detail in Chapter 8). One of the major problems the IONF faced was the fact that the State never really had the money to pay for much of the Arms Deal; hence the focus on industrial participation as a means of 'offsetting' this risk. Indeed, during one meeting held on 21 August 1998, Joe Modise argued as follows:

The minister enquired as to what the recommendation of the Minister of Trade and Industry was. The availability of funds was secondary. The amount of investment coming in was of primary importance. The business plan was all important. That is why so many of the companies involved are trying to improve on their bids. From the very beginning we knew we did not have the funds to pay for the packages. That is why we opted for the way we have been operating – not through a normal tender

process but through option of partnerships in which the participating countries empower us through investments and favourable deferred payments to buy their equipment.

A major sticking point was that the Hawk and Gripen aircraft were going to cost so much – over half of all the money that was to be spent on the Arms Deal. With the focus now on acquiring two planes according to the refigured three-tier system, rather than a single plane under the old two-tier system, the government was consequently committed to purchasing far in excess of what had initially been budgeted for the Arms Deal and for the fighter planes specifically. So large was the burden of the Hawk and Gripen on the focus that the IONF began to express concern about whether the purchase of the Gripen would be feasible or prudent. At a meeting of the Cabinet sub-committee on 20 May 1999, the IONF, in fact, started to make the argument that the purchase of the Gripen should be shelved at the time. Amongst other reasons, the IONF pointed out that the SAM only had nine pilots, meaning that if the full complement of Gripens was acquired, there would be no one to fly them. To quote, in full, from the briefing of the IONF:

Following consultation with the Chief of the Airforce, the Chief of the Navy, the Chief of the SANDF and the Minister of Defence on the need for the defence equipment under consideration, the timing of these needs, alternative approaches to meeting these needs and the requirements of an affordable package, it is recommended that the procurement of the AFA be deferred on the basis and terms outlined below.

Currently the airforce has 50 super sonic, Cheetah fighter aircraft (including 12 dual passenger Cheetah aircraft) which have recently had a multiple upgrade. These aircraft are able to operate until 2012.

Currently the airforce has only nine pilots who are able to fly these Cheetah fighters (plus an additional seven staff officers who are currently based at the airforce headquarters). There is therefore a capacity constraint to absorb the Gripen should these be supplied earlier than the time required.

From a financial perspective it is risky to procure the equipment in advance, due to the currency risk (exchange rates) as well as the possibility that there may be better priced suitable alternatives available should

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the equipment be procured at the appropriate time; also, the financing costs of procurement would be higher to the Department of Defence than if it would otherwise have been should the equipment be procured later.

There are two options – to cancel the procurement of the ALFA and to re-tender at a later stage or to defer the procurement until appropriate while keeping BAE/SAAB as the preferred bidder/contracted supplier on such terms and conditions as may be negotiated. The terms could possibly include frontloaded delivery by the supplier, the industrial participation obligations, pegging the price to an international benchmark to avoid cost escalation, and retaining the right to cancel the procurement prior to the appropriate time as a result of affordability or currency shocks.

The recommendation of the negotiating team is to engage the suppliers, to seek to negotiate a detriment of the procurement on terms and conditions which are practical and favourable, failing which the tender should be scrapped for the present moment.⁶

We couldn't afford the Gripen, and didn't even have the capacity to fly them if they were bought. This should have been a fatal blow to the Hawk and Gripen contracts – the government's own negotiating team had run the figures, looked at the scenario, and decided that buying the Gripen would be unwise, foolish and financially irresponsible if its terms could not be radically changed. Not so. The minutes of the meeting at which the IONT recommendations were discussed included a further set of recommendations. While not rejecting the IONT's ideas outright, they argued that the decision to purchase the Gripen should be 'deferred' – the IONT would be sent back to BAE/SAAB to discuss potential options and report back to the Ministers. Most important, however, was the fact that the minutes reflected the idea that the Hawk and Gripen were an inseparable combo – they simply *had* to be bought simultaneously, according to this logic:

The chief negotiator recommended to the ministers that the decision to defer the requirement for a ALFA (advanced light fighter aircraft) should be considered. This recommendation was based on the fact that the ALFA requirement is for 2005 to 2010. However, the military's requirement for a fighter programme is still valid, hence, a combined HAWK and GRIPEN requirement could be considered as a addendum contract to a HAWK

contract. The letter submitted by the Department of Finance to the chief negotiator was tabled and discussed by the ministers. After a brief discussion the ministers decided to defer the Gripen decision and to allow the negotiating team to try to conclude a single contract with BAE for both Hawks and Gripens.⁶

This seems, at first glance, to be reasonable – why would you buy a trainer and not a fighter? But, looking more closely, it was a very strange decision. First, as we noted above, numerous suppliers had confirmed that pilots could move straight from the Astra trainer to an advanced fighter, which meant that, of all the things purchased in the Arms Deal, the Hawk was the least necessary. Surely this would have meant that the wise decision would have been to cancel the Hawk and, instead, go straight for a supersonic fighter with training capacity like the Gripen? By linking the two as an inseparable unit, however, it was ensured that, regardless of the cost implications, if we bought one, we had to buy the other. The second strange feature of the minutes is the question of whether or not they were accurate and reasonable. The draft version of the Auditor-General's Report noted that 'the minutes at our disposal at this stage was only signed by the Secretary of the meeting, Chippy Shaik.'⁷ This may, of course, have been a mere administrative oversight, but considering the way in which official minutes drawn up by Shaik had earlier been contested by Steyn and Esterhuysen, it cannot but raise questions as to whether this decision had actually been reached, and whether the minutes were accurate.

Nevertheless, the IONT went back to BAE/SAAB to try and negotiate a better deal. BAE/SAAB rejected, off the bat, the idea of 'front-loading' the delivery of offsets on the Gripen in return for the security of knowing that if a fighter was to be bought at a later stage, BAE/SAAB would be guaranteed to get the contract. The deal that was suggested, instead, was the idea of 'tranching' the acquisition. This would mean that the government would enter into three separate contractual agreements, known as tranches: the first tranche would be 12 Hawks and 9 Gripen dual-seaters (at an estimated cost of R6.56bn); the second would be 12 Hawks (R1.29bn); and the third and final 'tranche' would be the purchase of 19 Gripens (R5.3bn).⁸ At any time in the procurement, the South African government would reserve the right to cancel the second and third tranches if this was necessary; the