

12 NOVEMBER 2013

PHASE 1

CHAIRPERSON: Thank you. Good morning. Can the witness confirm that he is still under oath?

MR FERREIRA: I do.

ADV MPHAGA: Thanks Chair. Chair, may I just mention
5 that we have furnished yourselves with a copy of the Supply
Terms of the Gripen and Hawk's. We'll later maybe refer to
relevant passages in those documents. Thank you Mr Ferreira,
yesterday we were still about, we were still talking about
paragraph 4.12 on page 8 of the first bundle and we were about
10 to discuss the evaluation of the RFO. Can you proceed from
there?

MR FERREIRA: Morning Chair, good morning
Commissioner. We're now going to move to the bundle page
163. Commissioner, Chair, this is a very detailed report and I
15 do not intend to go into all the detail on every paragraph but
rather to look, go through the report to give an idea what work
was done and how the decision was made. If there is any
request from anybody to go deeper into any of the evaluation
results I'm prepared to discuss that but the overall results I
20 will discuss at the top level analysis will be done. If I move
through this report ...

ADV MPHAGA: But maybe before you do, before you do Mr
Ferreira, just to identify the document, that it is a project study
report dated November 1998 and it was also compiled by, you
25 were part of the compilation of the report, I see your name

12 NOVEMBER 2013

PHASE 1

there, is it correct?

MR FERREIRA: That's correct.

ADV MPHAGA: And I see the report is dated
26 August 1999 and it was signed also on the
5 30th of August 1999, in September also on the 14th and the
18th, am I correct?

MR FERREIRA: That's correct.

ADV MPHAGA: You may proceed then to take us through
the material details in the report.

10 MR FERREIRA: Commissioner, the reason why the report
is signed later than we finished the evaluation, it takes time to
compile a report to this size and we were also at that time
doing the LIFT Evaluation also, the same thing. To refresh
ourselves on page 167 ...

15 CHAIRPERSON: Just before you proceed with this report
there's another report on page 684, is it the same type of
report or what is the difference between the two reports?

MR FERREIRA: Chair, that report on that page goes
around the LIFT, Lead-In Fighter Trainer, it's more or less got
20 the same layout but it's got different values inside the
(indistinct).

CHAIRPERSON: Same layout but it has got different
values?

MR FERREIRA: Yes, that was for the Lead-In Fighter
25 Trainer, that's the second programme we are going to speak

12 NOVEMBER 2013

PHASE 1

about later in the week.

CHAIRPERSON: Thank you.

MR FERREIRA: Thank you. Chair, yesterday we start and we spoke about the Request for Offer that went out for the ALFA, now we are looking at the results of the evaluation after we have evaluated the proposals to remind ourselves this goes around the replacement of the Cheetah-C's, the Cheetah-D's, the Mirage F1 and Impala MK2 Aircraft with the Advanced Light Fighter System, the ALFA Aircraft. Halfway down page 167:

10 *"The ALFA must have the capability to carry out a wide spectrum of multi-role combat missions successfully. In the air combat role it must be able to intercept and attack enemy aircraft at supersonic speeds up to 200 nautical miles from home ..."*

15 The home base. In a strike role, that's the air-to-ground role:

"... the ALFA must be able to deliver a credible payload at high subsonic speeds, 255 knots calibrated air speed at low level with a radius of action of 108 (indistinct) miles and it must be able to survive and be effective in a high-threat environment".

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Yesterday we explained what all these terms mean and I hope we (indistinct). Unfortunately a lot of these are repetition, the same words will appear in the RFI or in the RFO, it appears in the Evaluation Value System and again it appears here, so it's

25

12 NOVEMBER 2013

PHASE 1

a repetition of the same thing but only to remind ourselves we're speaking about the ALFA. On page 168 two thirds down the page:

5 *“On the 28th of February 1997 the AAC approved that the request for best and final offer (RFO) is sent out to three suppliers to solicit offers for the three shortlisted contender aircraft, the RFO was issued to the shortlisted suppliers on the 14th of February 1998. The companies were given up to the 14th of May to respond to the RFO, the Project Team completed their evaluation of the RFO by mid-June 1998 and presented the results to the Strategic Offers Committee (SOFCOM) during the first week of July”.*

15 When the, if we look at when the Value System was accepted for the ALFA it was accepted after the closure date of the RFO's but there was an instruction that no RFO would be distributed until the Value System has been signed off, so we didn't, we didn't wait for the Value System or we didn't wait for
20 the proposals, the proposals was kept by the Procurement Secretariat until the Value System was approved and was put away in a safe. On page 169:

25 *“The objective of this report is to recommend a ranking from most preferred to least preferred based on the Military Value of a shortlist of aircraft*

12 NOVEMBER 2013

PHASE 1

types that received an RFO who satisfied the requirement of the South African Air Force for an Advanced Light Fighter Aircraft”.

I need you to, where we were in terms of the approvals we had to revise Staff Target, Staff Requirement, that was approved by the AEC on the 6th of March, we had the Bidders Conference in February and all questions were noted and replied in writing, the minutes of the proceedings being sent to all the suppliers. On the bottom of the page:

10 *“As the down selection process of the RFI was there to determine the shortlist of contenders to receive an RFO investigated a company profile of the contending suppliers as well as the major operational characteristics of the contending aircraft and resulted in a shortlist of aircraft that would satisfy the SAAF requirement should any of the shortlisted contenders be selected. The final selection Value System concentrates mainly on operational support, contractual issues to provide a*

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20 *measure of depreciation between the contenders”.*

So we are now actually looking, the final Value System (indistinct) operational support and contractual issues. On page 171 was the process that we followed, we received proposals, we verify that it satisfies the mandatory requirements, if not we look at what cost and schedule

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12 NOVEMBER 2013

PHASE 1

implications would be in order for them to comply, we then evaluated them in terms of the final Value System, we needed to determine a Military Value, we (indistinct) order on Military Value, then we looked at cost effectiveness by dividing the military value through life cycle cost and we ranked the order again on the Military Value. We performed a risk analysis and then we made a final recommendation in order of preference.

ADV MPHAGA: Before you proceed any further in respect of the mandatory requirements a contender does not satisfy the military requirements, it does not mean that that contender will be rejected, can you maybe explain that to the Commission?

MR FERREIRA: Chair on the next page, page 172 we're going to answer that question alright? On page 172 we said"

"The User Requirement Statement for the ALFA contains a number of mandatory requirements to which a contender must comply in order to satisfy the ALFA requirements, these mandatory requirements were incorporated in the RFO. Where contenders do not comply the impact of non-compliance in terms of loss of operational ability was to determine to decide whether a waiver could be granted. Where possible the cost and scheduled impact to rectify the non-compliance was also determined. The results are summarised on page 184".

12 NOVEMBER 2013

PHASE 1

I'll request us to move to page 184 and we can finish the requirement, the mandatory requirement. In fact we move to 185, there is the table. There's a note that say:

5 *"No non-compliance to mandatory requirement is considered serious enough to warrant exclusion of the contender".*

And then we go through the list:

"There was non-compliance that could be contractually included, ...".

10 There is a list of which, you can see all of the contenders had some of those requirements, there was non-compliance that required contract negotiation, we had to speak to them and get it into the contract, non-compliance that required clarifications, a few of them, non-compliance that need to be waived and all
15 the aircraft had non-compliance that we need to be waived. If you have to eliminate an aircraft meeting the non-compliance we would choose one of these aircraft. If you go to page 186 all these non-compliance are there then described in the document. On the first paragraph it says:

20 *"The following amendments to the URS prior to receipt of RFO's were approved at the Project Ukhozi Control Council meeting of 24 of 1998. This approval include corrections of an error in an approved, revised Ukhozi Staff Target Requirement
25 dated 20 March 1998".*

12 NOVEMBER 2013

PHASE 1

So there was a correction in a Staff Target which we rectified, the correct version of requirements contained in the RFO and the Value System for project Ukhozi.

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“The runway length required for takeoff shall not exceed 7 500 feet at 3 500 feet above sea level and 35 degrees Fahrenheit with a maximum (indistinct) weight”.

The previous length was wrong and we had to rectify the length of the runway.

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“The only mandatory requirement not met and warranted specific investigation was the CAP time (Combat Air Patrol) time of the Gripen”.

Our requirement was at 15 000 feet above sea level we need an hour specified and that's not less than one hour in combat configuration.

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“This was discussed with the test pilot at the Test Flight Development Centre and from their discussion a consensus was reached that the mandatory specified combat air patrol attitude of 50 000 feet was much lower than the most effective altitude of such a CAP will be flown above 35 000 feet where missile and radio performance is greatly enhanced for first firings wherever combat would resume at low altitudes. These facts were presented to the Project Ukhozi Control Council

25

12 NOVEMBER 2013

PHASE 1

2498 and resolved. The decision was taken that the Gripen was not eliminated for this parameter. When we moved up to that altitude the Gripen's endurance would have exceeded one hour, for that reason it was not eliminated by that point. The maximum speed at altitude in an air-to-air combat configuration of the AT-2000 is Mach 1.25 and less than the mandatory requirement of Mach 1.4. DASA discussed this parameter with the Project Team during the visit in March 1998, the parameter is an envisaged missile limitation and not an aircraft limitation. The aircraft limitation is Mach 1.6. For that reason this non-compliance was also waived as manageable. None of the other non-compliance mandatories by any contender were specifically investigated as all that was (indistinct) as manageable and not worthy of a contender disqualified from further evaluation. All mandatories not met were presented to an ad hoc Project Ukhozi Control Council meeting on 8 June as part of the evaluation results presenting and waived approved [sic]. These non-compliance will need to be addressed and resolved during the contract negotiations with the successful contender".

12 NOVEMBER 2013

PHASE 1

Then I would like us to move back to page 172.

ADV MPHAGA: Just to clarify you mentioned DASA, what does it stand for?

MR FERREIRA: That was the German company that offered
5 the AT-2000 to us. Paragraph 4.2:

“A hierarchical Value System to determine a scientifically based quantitative value for each contender was established before embarking on the actual evaluation”.

10 Now you find this Value System, I'd like now to move to page 187, the second paragraph:

“The Military Value is a measure of the total value that an aircraft system will have for the South African Air Force over its full intended service life and satisfying the specific operational requirement as specified in the user requirement specifications. The Military Functional Value therefore takes into consideration not only the aircraft characteristics but also long term logistic support and mission and training systems valued. Also contained in the Value System are programme management and engineering management requirements, factors that were greatly contributing to the successful execution of an acquisition programme”.

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Let me turn to page 188, we see the Value System and the

12 NOVEMBER 2013

PHASE 1

results, in terms of Military Value the Gripen received a score of 76, the Mirage 2000 a score of 60 and the AT-2000 a score of 58. If I go one level deeper you would see in terms of programme management the Gripen scored 39, the AT-2000 39 and the Mirage 2000 29. That count 8% of the final decision. In terms of engineering plans the Gripen scored 76, the Mirage 2000 41 and the AT-2000 33, that counts 7%. And then on routine functionality the Gripen scored 80, the Mirage 2000 65 and the AT-2000 62.

Now in the rest of this report all these scores and even the low level scores are explained, I don't know if the Commission would like us to go through it but it's a lot of detail and perhaps for an example if you look on page 90 of, there is a programme management score.

ADV MPHAGA: Is it 190?

MR FERREIRA: 190. I only intend to do this as an example, (indistinct) to take us into the document. On page 190 "Programme Management" the Gripen scored 39, the AT-2000 39, the Mirage 2000 29. If you turn the page to 191 what we measured there was items like the master schedule, the work breakdown structure, the statement of work, the detailed schedules, the cost breakdown, the payment master plan, the data requirement list, the cost and schedule control system and meetings and reports.

If you look at that table the Gripen scored 10 on

12 NOVEMBER 2013

PHASE 1

statement of work, it didn't provide a very good statement of work where it was measured, also the data requirements list, it didn't provide a good data requirements list as measured. As you can see on the AT-2000 some of them didn't even provide that documentation which was requested in the RFO. In the paragraph below that table we then described why the Gripen scored low or the value of the Gripen scored.

"The British Aerospace SAAB Programme Management Plan which addresses the Programme Management elements included in the Value System whilst of varying quality ranging from acceptable to poor, in general the response was disappointing and not in keeping with the cooperation with the stature and the repetition of either the British Aerospace or SAAB. The Master Schedule and dealer schedules were sufficiently comprehensive and detailed for the RSA programme, but failed to indicate the interfaces with the export baseline standard. The schedules indicated that design standard, test clearance would take place on the first series production aircraft after delivery to the SAAF. This is unacceptable and would have to be renegotiated before a contract can be concluded. The description of the cost and scheduled control system was provided in a very brief summary but it

12 NOVEMBER 2013

PHASE 1

seemed to be well integrated, automated and in general use. It may require some customisation for the ALFA RSA Programme”.

Now for every value that we measured and evaluated we wrote
5 a report down to this level of detail, this is only an example to
indicate to you to what level did we report the evaluation. I
don't know if there is any specific ...

ADV MPHAGA: Insofar as the final recommendations are
concerned arising from the RFO maybe you can take us through
10 them.

MR FERREIRA: Can you please repeat the question?

ADV MPHAGA: The final recommendations arising from the
evaluation.

MR FERREIRA: As we move through the document we will
15 get to the final recommendation, I'm taking you what was
happened and how it was recorded. The next page I would like
us to go to is on page 259. Chair, all the pages between 172
and 259 is the documentation of the results of the evaluation,
it's in total 80 pages that covered that section. On page 259
20 we're now looking at cost, again the cost is blanked out
because of the sensitivity but the total programme cost is
indicated at the bottom, the total programme cost for a Gripen
would have been \$2.234bn, for the Mirage 2000 \$2.313bn and
for the AT-2000 \$2.156bn.

25 On page 260 there's a further breakdown of these

12 NOVEMBER 2013

PHASE 1

costs, but what is important, then on page 262 I would like to indicate the difference in prices, for instance when we asked, when we spoke about the mission support equipment like pylons the Gripen included all that pylons, were included in their proposal. The Mirage only included the tanks and nothing else into their proposal, the AT-2000 has not included the items into their proposal, so you need to include these prizes to get a comparative baseline between these programmes.

ADV MPHAGA: Maybe you should just explain to the Commission what are pylons.

MR FERREIRA: Chair, I did explain yesterday that if you buy an aeroplane it's a clean vehicle, if you want to go and deliver weapons onto a target or if you want to add fuel, a fuel tank to the aircraft you need an interface called a pylon that either fits onto the wing or onto the fuselage and onto this pylon will fit your tank for fuel or will fit your bombs or any other external sensor that you might carry on an aircraft, so that is where the pylons ... Usually you buy them as part of the system, preferably a full set per aircraft but due to financial considerations you might buy less pylons than actually aircraft [sic].

Now we asked for this to be included in the price, some people did include it, some excluded it and you had to take this into account when you calculate the price of the aircraft. I would like us to go ...

12 NOVEMBER 2013

PHASE 1

ADV MPHAGA: Maybe to take you back, sorry Mr Ferreira, take you back to page 259, 259.

MR FERREIRA: Chair, I want to move back to 259 again yes, page 259.

5 ADV MPHAGA: Yes, I think if you look at 259 you will see that as you explained the AT-2000's price was the lowest than the Gripen because it was \$2.156 52bn and the Gripen was \$2.234 3 billion, so I think you will be able to explain that as you go on.

10 MR FERREIRA: Chair, I would like to go through the total table and then we'll get to the bottom answer. If you look on table, on page 259 right, we start with the cost of the main equipment which is the aircraft. I want to take you through the table Chair, we start at the top, we get the price for the main
15 equipment, you will be able to see the prices and in our documentation it's been masked, you will actually see the prices there. Then you see the price for a mission and training support system, that is the flight simulators.

Then you see the price for operational support
20 which included all the pylons and tanks, then you see the price for the logistic support, those are the spare parts and the training and technical publications that you require, then you see a line which says "The Offer Price", this was the price that the offerer put in his tender for us in his proposal. Then as I
25 said some excluded, like for instance the support equipment,

12 NOVEMBER 2013

PHASE 1

we had to add a cost to their price in order to bring them all to the same baseline, that is that addition to bring up to comparative baseline.

Then we made a provision for contingency based on the things that the mandatory says that we still need to negotiate with them, then we get (indistinct) which says the contract cost, from the contract price we had to add the shipment and insurance, as they explained yesterday sending an aircraft overseas and transport in Africa is much more expensive than assembling the aircraft in South Africa, so we had to take that account in our calculations.

We also had to make provisions for value added tax, import duties and surcharges which is effectively 60% of the contract price and only then we got to the figure which is called the programme cost, so the programme cost is not a cost that the offerer put on his tender. Then to that we also added our own programme management cost because we also need to spend money in order to manage these programmes which then give us a total acquisition cost and then you must convert it to Rand at a certain rate. On top of that we would then look at operating costs over 30 years to give us a total, and a total lifecycle cost.

The important figure on this table is the programme cost, the Gripen \$2.234.3bn, the Mirage 2000 \$2.313.5bn and the AT-2000 \$2.156 52bn. Now if you recall the AT-2000 is a

12 NOVEMBER 2013

PHASE 1

paper aeroplane, when you look at the risk (indistinct) a whole lot of risk around possible cost, we use this value going forward to the next step. Chair, the next page I would like to move to is page 266, that table. The Military Value Index as we explained on page 188 for the Gripen was 76, the Mirage 2000 60, and AT, 58. The programme cost as we explained on page 259 for the Gripen was \$2.234bn, the Mirage \$2.314bn and the AT-2000 \$2.157bn.

In order to get cost effectiveness you divide the programme cost into the military index, then if you divide in billions, the \$2.2bn and (indistinct) would give you a cost effectiveness of 34.02, the Mirage was 25.93 and the AT-2000 26.89. Although the AT-2000 was the cheaper of the aircraft in the programme cost the value that we got from it was also lower and if you look at cost effectiveness how much value do I get per billion Dollars spent, I got far less value with the AT-2000 than I received with the Gripen.

Then we went through a process of normalisation, normalisation means you take your best one and you make it a 100, the way of doing that is dividing the value by itself, multiply it by 100 but now you also have to bring the others also to the same level, so you divide the Mirage 2000, the 25.93 by 34.82, you multiply that by a 100 and you got a normalised value of 76 for it, and the AT-2000, 79. In terms of ranking the Gripen came first, the AT-2000 second and the

12 NOVEMBER 2013

PHASE 1

Mirage 2000 came third. These were the values that were put forward in the SOFCOM in terms of Military Value and these values count 1/3 to the final decision.

5 ADV MPHAGA: When you say 1/3 what would be the 2/3d's comprised of?

MR FERREIRA: The published formula used at the, for selecting the products was the Military Value would have counted 1/3, the DIP and NIP 1/3 and the financing 1/3.

10 ADV MPHAGA: So that was the end of the valuation in respect of the aircraft systems?

MR FERREIRA: No Chair, we still need to look at risk analysis which is on page 267.

ADV MPHAGA: Yes.

15 MR FERREIRA: *"A risk assessment proforma was prepared to perform a risk analysis on each of the contenders, the risk assessment proforma consists of 36 predetermined risk factors, a description of the impact of each of the risk factors on the ALFA Programme should the risk realise and the severity score ranging from 1 to 5, the 1 indicates a very low programme impact and 5 an extreme severe impact. The risk assessment proforma was approved by the Ukhozi Control Council and Chief of Acquisitions Defence Secretary with the final*
20 *section Value System and it is included here as part*
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12 NOVEMBER 2013

PHASE 1

5 *of the final selection Value System. The risk assessment proforma was completed for each contender in a workgroup session with the participating of the majority of the ALFA evaluation assessors, each risk factor was debated until consensus on the probability of the risk occurring for a specific contender was reached within a group. In most cases the risk probability and motivation can be traced back directly to the submitted final offer”.*

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On page 268, the risk score for the Gripen was 140, the Mirage 153 and the AT-2000, 2000 [sic], now the highest score you got here the more risky the programme was. We do describe from the table why these risks were given to these programmes, as

15 an example from the table it can be seen that the JAS 39 Gripen with a risk amendment score of 40.5 has the lowest programme risk, the Mirage 2000 RSA with a risk score of 53.5 represent a 10% higher risk in comparison to the Gripen, while the AT-2000 a score of 82.5 is more than double as risky as the

20 Gripen.

“Risk can usually be abated, managed or controlled by taking proactive actions or compromising on the requirements but this almost invariably goes hand-in-hand in increased cost, extended schedule and a

25 *reduction in performance”.*

12 NOVEMBER 2013

PHASE 1

We've got a saying that any risk can be resolved if you put enough money into it.

"In some cases, however, no control can be exerted over the risk or its ensuing consequences, it must then be decided if the impact of the risk, should it be realised, can be accommodated, if not, such a risk is unacceptable and the contender should be eliminated from the preferential list".

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One of, a good risk example here is if any American components in an aircraft we need approval from the United States Government to utilise or to use that technology, if they do not give us that approval then we have to redevelop that technology ourselves which can be at a high cost or when we decide not to go for that programme because of the risk involved in that.

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I would only like to look at the unacceptable risk, the unacceptable ..., on the AT-2000 the unacceptable risk associated with the AT-2000 are all directly related to the fact that no business case currently exists for the programme, without a business case the programme cannot continue and should either be cancelled or be put on ice at the moment.

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"The consequences of not having a business case are as follows; there will be insufficient funds to finance development through to completion and the programme is abandoned midway through the

12 NOVEMBER 2013

PHASE 1

development”.

If you look in the trend of the world today there is very few countries that build fighter aircraft on its own, in Europe the Germans, the Belgians, the Italians and the Brits together
5 developed the Euro-Fighter, it's a very expensive item to go and develop, even the Americans are looking to Britain as partners in their new generation fighters that they build:

*“If all the customers do not make the business case (indistinct) business case not found during the
10 development then the programme is cancelled before the development is completed”.*

I mean if we contract them at a certain amount and nobody else comes to the table they as a company will not continue financing a programme if there is nobody else to help assisting
15 them with the finance and they could cancel the programme and we lose our money.

*“Because the quoted prices are only budgetary estimates the acquisition costs for the SAAF requirement can increase beyond acceptable budget
20 limits before contracting or after contracting to compensate for a lack of a business case”.*

And the other one is:

*“The Logistic Support concept has not yet been developed, it is possible that the logistic
25 acquisition cost can increase beyond the allocated*

12 NOVEMBER 2013

PHASE 1

budget which is currently based on budgetary estimates. Should the client not be able to afford the additional logistic acquisition cost it may end up with certain (indistinct) supported”.

5 Now we are the only client that flies an aeroplane like this, then we will have to fund the total support environment which means that it becomes unaffordable for us, if there are more clients flying the same aircraft you can share the cost of the support environment amongst all the clients. On the Gripen:

10 *“A re-export license has not yet been granted by the United States State Department of the USA for the USA source equipment on the Gripen”.*

The engine on the Gripen is derived from F-404, it's got a lot of American technology in it, the flyby wire system on the Gripen got American technology in it as well as the composite wings of the Gripen all have American technology in it.

15 *“An acquisition contract for the Gripen cannot be entered into without an export license. This issue must therefore be resolved before final selection of the preferred ALFA contender”.*

If the Americans do not give an export license we could not continue with the Gripen, no matter how good this aeroplane was.

20 *“All the other risks were manageable and were accepted”.*

12 NOVEMBER 2013

PHASE 1

Chair, then I would like to go to page 277 paragraph 16, the "Recommendation":

"Taking the current situation with respect to the non-existence of a current business case for the AT-2000 and the pending USA approval of a USA export license for the sale of the Gripen to the SAAF into account then a recommended ALFA preferential list as motivated in this report is:

1. *Preferred offer. The YAS 39 Gripen, the normalised Military Value of 100. Conditional on the USA export license being granted for USA sourced content.*

2. *Alternative Offer. Mirage 2000 with a normalised Military Value of 76.2. It must be noted that because the detail in the offer has only been deferred to the definition phase a high risk exists that the contract cost may be significantly higher than currently after price.*

3. *The least preferred offer was the AT-2000 with a normalised Military Value of 79. Because DASA does not currently have a business case to complete development and deliver the AT-2000 aircraft at the offer price and because of the high risk associated with the development and certification of the AT-2000 it's recommended*

12 NOVEMBER 2013

PHASE 1

that this offer not be considered until proof of the development planning or a commitment to a fixed firm unit price is provided”.

Although it scored higher than the Mirage 2000, because of the risk it was the least preferred offer. On page 278:

“The results of the evaluation of ALFA final offers as documented in this report was presented to the SOFCOM on the 1st of July 1998, the summary ALFA Contenders Evaluation Report dated June 1998 and submitted to the SOFCOM on June (indistinct) as appendix”.

So this is what we gave to the SOFCOM.

“The presentation to the SOFCOM by the Ukhozi Team based on their recommended (indistinct) we made the presentation to the SOFCOM, separate presentations to the SOFCOM were made by different evaluation teams on Industrial Participation Value and the Financing Value. It is the task of the SOFCOM to combine the three individual values into a single recommendation per defence equipment system and to combine the defence equipment recommendation into a single strategic defence equipment package recommendation. The SOFCOM will then present their recommendation to the AASB, the AAC for

12 NOVEMBER 2013

PHASE 1

5 *approval and once approved compile a cabinet memorandum stating the AAC's approved recommendation. The Minister of Defence will submit the Cabinet Memorandum to the Cabinet for their consideration and approval. The Project Team acting in support of the SOFCOM presented their Military Value evaluation results and recommendations to the AASB on the 8th of July 1998 and to the AAC on the 10 13th of July 1998".*

Chair, and that concludes the ALFA Evaluation.

ADV MPHAGA: So you have been able at least to show the differences between the RFI and the RFO and why the fact that the Gripen was excluded or in the RFI or at least got lesser did not mean that it could not be evaluated differently in the RFO stage.

MR FERREIRA: Chair, the Gripen was not excluded in the ALFA RFI, it didn't make the AFT a recommended list, we were looking at the AFT. As you will recall in the AFT we were looking at a replacement of the Impala MK1 and MK2 and in that evaluation the Gripen was unaffordable, therefore it was not considered to be shortlisted as part of the AFT. In the ALFA RFI it did, it was included in the ALFA RFI and based on the ALFA RFI it was shortlisted to become one of the (indistinct) to receive an RFO.

12 NOVEMBER 2013

PHASE 1

ADV MPHAGA: Thank you for that explanation. So, the AT-2000, the fact that it rated number 1 in the ALFA RFI, at least you have been able to explain why in the RFO it did not make it because of the evaluation criteria which is different from the RFI?

MR FERREIRA: The AT-2000 ranked 1 in the AFT RFI, it was identified as also with the ALFA RFI that they should consider further looking into the programme. For that reason it did receive from RFO. If the AFT have continued it might also have received an RFO.

ADV MPHAGA: Okay, may we then revert back to your statement.

MR FERREIRA: Chair, we are back on page 8. We have discussed paragraph 4.12 as part of the RFO discussions, on page 9 we have discussed the Figure 1 and there we also did look at the Value System, so we have completed that page 9. On page 10 we have discussed the Value System results and therefore I would like to continue with paragraph 4.30:

“Given the limited evaluation time afforded to the technical evaluators the final project study report ...”.

Which we discussed:

“... documenting the full evaluation process was only completed in mid-September 1998. This report recommended a ranking based solely on the military

12 NOVEMBER 2013

PHASE 1

5 value for the shortlist of aircraft types that were received during the ALFA RFO which satisfied the requirement of ALFA. The Ukhozi Control Council meeting of 8 June 1998 approved the ALFA aviation recommendations to the SOFCOM, the SOFCOM accepted the Military Value Technical score results and consolidated these with the other evaluation results namely the NIP Evaluation results, the DIP Evaluation results and the Financial Evaluation results. The consolidated scores were presented to the SOFCOM, by the SOFCOM to the Cabinet in 1998. Once these scores were presented to the SOFCOM this led to the termination of the IPT's involvement in the evaluation process of the SDP's. 15 The SOFCOM managed a comprehensive selection process until Cabinet announced the identity of the preferred supplier on 18 November 1998 as being BAe Systems. From the 18th of November 1998 to 31st of October 1999 the IPT was revived to assist 20 the IONT (International Offers Negotiation Team) in the negotiating of the Supply Terms agreements with BAe Systems as the preferred supplier for the Gripen ALFA. The IONT negotiated the umbrella agreement whilst the IPT negotiated the Supply 25 Terms for the Gripen".

12 NOVEMBER 2013

PHASE 1

In that figure ...

ADV MPHAGA: Chair, maybe it may be the right time to adjourn for tea as we move into discussing the Supply Terms.

CHAIRPERSON: You know there is something which still
5 bothers me, maybe let me go back to the initial question that I asked. Let me go to back to the initial question that I asked and that is the Evaluation Report of Project Winchester. I think that will be on page 684 and in particular paragraph 6.3. It says that:

10 *“The internal project study phase on (indistinct) Military Order of Merit according to the approved Military Value System excluding cost but including a risk abatement moderated value”.*

Do you know why in this report or in this programme there was
15 that change which resulted in calculations being made which excluded cost because I realise in most of these programmes costs played a major role.

MR FERREIRA: Chair, when we discussed the LIFT programme we will revisit this report because this was
20 specifically one of the options on the Lead-In Fighter Trainer and one of the things we need to explain when we discussed the aircraft there we provided them with two, we provided them with a costed proposal and then we were requested to provide them with a non-costed proposal which as you see from the
25 calculations you then divide the Military Value by the cost.

12 NOVEMBER 2013

PHASE 1

That was the difference between the two. When we discuss the LIFT we'll come back and we'll try and answer this question for you.

CHAIRPERSON: And when we discuss the LIFT I'm sure you will be in a position to explain to us the reason why you were requested to do the non-costed calculations. I think we will want to hear you on that.

MR FERREIRA: Chair, I will explain what led us to provide a non-costed proposal during the LIFT presentation.

CHAIRPERSON: Thank you, then let's break for tea.

(Commission adjourns)

(Commission resumes)

NOTE: Witness confirmed to be still under oath.

ADV MPHAGA: Chair and Commissioner Musi, apologies for the delay. After having done the pagination we are advised that it might be prudent to have the whole file in respect of the Supply Terms declassified by ARMSCOR, so we have now thought it wise to do so and we will deal with the Supply Terms of both the Gripen and the Hawk which are similar at the end of the presentation of the Hawk pending the declassification if it's okay with you Chair. Then we'll proceed and leave paragraph 4.17 and proceed to 4.18 on page 11 of bundle 1.

MR FERREIRA: Chair, Commissioner, we were asked at 4.17 where we say that:

"On the 18th November 1998 to 31 October the IPT

12 NOVEMBER 2013

PHASE 1

was revived to assist the IONT, the International Offers Negotiation Team in the negotiating of the Supply Terms Agreements with BAe Systems as the preferred supplier for the Gripen offer”.

5 The IONT, as I said, negotiated an umbrella agreement while the IPT negotiated Supply Terms. There's a drawing under 4.17 that give a schematic overview of the agreement we had with BAe Systems, the agreement, the umbrella agreement included four schedules, the Schedule A was the Hawk Supply
10 Terms, Schedule B the Gripen Supply Terms, Schedule C the DIP Terms and Schedule D the NIP Terms.

As the IPT we were responsible to negotiate Schedule B, the Gripen Supply Terms, the Gripen Supply Terms consists out of terms and conditions normal courses for
15 contracting, it then had 19 commercial annexes to it, as part of the Supply Terms there were 12 specifications, there were 13 logistic support plans, there were 10 project management plans and 19 engineer management plans and if you put all these together it's rather a big set of documents that we had to
20 negotiate and agree upon in a year's time.

“During the year various (indistinct) options were investigated in order to finalise the approved functional baseline for the Gripen's. The important ones identified were as follows;

25 • *The Power Plant. This involved the*

12 NOVEMBER 2013

PHASE 1

investigation of the Euro-Jet (indistinct) 200 engine as an alternative for a Volvo RM12.

- *BAe SAAB had no intention to integrate the (indistinct) 200 as it would have required a single engine certification of the engine”.*

5

So, after our study it was decided that they are going to stay with the RM12 engine, with the Volvo engine. We also negotiated on the electronic warfare suite. Now to describe your electronic warfare suite, it's a system that measure magnetic energy around the aircraft and from there it analyses what types of threats are there or (indistinct) of illuminating the aircraft and then based on the radar, that in-flight radar it can perform certain countermeasures to reduce the risk of the threat.

15

“The Gripen Aircraft was proposed to us with external electronic warfare parts which would mount onto the aircraft through a pylon. The Swedish Air Force and FUV [sic] which is the Swedish equivalent of ARMSCOR carried out a tradeoff study and decided to change to an internal electronic warfare suite due to improved aircraft performance, (indistinct) capabilities and antenna coverage”.

20

So, although will speak about an external (indistinct) we get it up with the systems mounted internally as part of the baseline.

25

What I did mention in my statement but I think it's worthwhile

12 NOVEMBER 2013

PHASE 1

to record is that the IONT were the main negotiators and one of the tasks they were looking in is doing an affordability study and during the programme they drafted a record of understanding with BAe Systems because the price of the Hawk and the LIFT together exceeded the money available. In this
5 record of understanding they proposed a certain amount of removal of functionality, the Project Team made a counterproposal in terms of what functionalities should be removed.

10 Now some of these functionalities that was removed was then added as options inside the contract and when we discuss the contract we will look at some of these options.

*“The approved budget of acquisition plan for Project Ukhozi was an amount of R11 213bn or equivalent
15 at 6.25 rate given and the acquisition was conducted within the budget”.*

In the presentation that will follow we will indicate what happened and where we got some funds, how we got more money available to incorporate some of these options, the
20 umbrella agreement number 118-1, the Hawk Supply Terms 118-5, the Gripen Supply Terms 118-4 and the DIP Terms 118-3 were signed on the 3rd of December 1994 and this effectively now we had a contract in place. To end the submission here we'll leave an empty space until what the Air Force presented
25 on their utilisation.

12 NOVEMBER 2013

PHASE 1

As ARMSCOR is responsible for the execution of the contract we then added a short description of what happened from the signing of the contract until these aircraft must be handed over to the Air Force. The best method for me to indicate this with the process of what happened is with a short presentation which I would like to continue with now.

ADV MPHAGA: Thanks Chair, we propose that at this stage you should do a presentation which should cover paragraph 5 of the statement. I would request the Chair, if possible, to look at the presentation together with us from the floor.

MR FERREIRA: Chair, we are speaking about Project Ukhozi, we are speaking about the ALFA Aircraft and as you can see on the screen that is the ALFA Aircraft, the Gripen. What I'd like to point out that is a pylon and attached to that pylon is a missile, there is a wing pylon with also a missile attached to it and as we go through the presentation we will indicate more of this aircraft. I would like to start with the schedule. It should be noted that although I was not directly involved in the process referred to in this paragraph of this statement I'm able to provide the Commission with a summary of activities which occurred post-December 3, 1999 until delivery of the Gripen due to the input from the Gripen Team and the documents at my disposal.

Project Ukhozi stretched over a period of 12 years

12 NOVEMBER 2013

PHASE 1

with deliveries of the dual seat aircraft taking place in 2008/9 and the single seat aircraft in (indistinct). Now sorry, if we look from where we signed the contract the project actually started a year later in terms of things and until the end there is a 12 year period, there was the delivery of the dual aircraft and there was the delivery of the single aircraft. The acquisition of contract was split into three tranches, tranche 1 over there included the nine dual seat aircraft, tranche 2 which became effective at the update in April 2 included some additional spares to support tranche 1 and tranche 3 which became active in April 2004 includes the 19 single seat Gripen's.

In terms of the Supply Terms the supply of the Gripen's there was an option to pull out of tranche 3 at no cost by 31 March 2004, so what we say is up to that period we had the option to cancel the programme going ahead. On the 3rd of December 2003 the Cabinet approved the continuation of tranche 3 which we are indicating there as well as the incorporation of the required additional functional changes, some of which were included in the Gripen Supply Terms as options. The Cabinet also approved that up to two single seat aircraft may be cut to fund the required functionality including the integration of the short range missile selected by the SAAF.

The reduction of the aircraft from 28 to 26 aircraft was confirmed, AAC (indistinct) on 20 May. Now over here the Cabinet approved that we can cut the aircraft numbers to

12 NOVEMBER 2013

PHASE 1

reduce the number of aircraft, the AAC approved here that the aircraft reduction and in June 2009 the functionality was contracted for that was left out. These aircraft were also then ... Okay, during the late 2007 it became apparent that SAAB would not be able to deliver the full contract functionality with the scheduled aircraft deliveries which were due to start in March 2009, the results would have been that the frontline air defence capability gap as a phasing out of the Cheetah weapons system was beyond reversible and the South African Air Force needed to prepare for the FIFA 2010.

ADV MPHAGA: Just a correct, I think it's March 2008, not 2009.

MR FERREIRA: You are correct. ARMSCOR entered into negotiations with SAAB to ensure maintenance of the aircraft deliveries and delivery of a deployable weapons system and an agreement was reached whereby functionality would be delivered over three defined phases. This agreement was cleared in the DoD at all levels including the then-Minister of Defence. ARMSCOR ensured that (indistinct) were applied and that payments were about to ensure leverage.

What we are saying is that there the aircraft should have been delivered at that time at full functionality, we then agreed that the aircraft will deliver in three blocks, block 1 there that was available at that time, the block 2 functionality in October and the block 3 functionality a year later.

12 NOVEMBER 2013

PHASE 1

What I also want to, as I said there was the FIFA World Cup Schedule and we had to use these aircraft as part of the FIFA, so those, why those refer those decisions. I also want to indicate here and I don't want to confuse with the presentation made by Mr Griesel, is that in the project we on a regular basis have to provide feedback to our Baseline Review Board in terms of our baseline of the product, the maturity status of the development.

We're starting with a requirements baseline which was held in October, the next one we had, we had a project baseline which we held in March as the development became more mature, we had an allocated baseline in March 2004, we had a project manufacturing baseline which we did in November that year and our last baseline that we do as an ARMSCOR was held this month is an initial operating baseline where we make sure that everything is in place to operate this aircraft in the Air Force environment.

I also want to point out here that the (indistinct), the short range air-to-air missile and the reconnaissance capability was delivered as part of block 4 and then there was a 4.4 to resolve all outstanding issues. The aircraft today is at its contractual functional baseline and there is no more development taking place on the aircraft.

The Gripen Aircraft, characteristics of this aircraft is first of all its flight performance and low signature. Meant

12 NOVEMBER 2013

PHASE 1

by low signature if you illuminate this aircraft with a radar it absorbs or deflects some of the radar signals, so there is a very low radar signal cross-section of this aircraft, so your ground radar or the illuminating radar must be very strong in order to detect this aircraft or it will detect the aircraft very late in a mission when the aircraft is right on the target.

The sensors and weapons capability of these weapons make it unique. The situational awareness, while the pilot sits in the cockpit he knows exactly what is going on around him through data links, other aircraft, the way it displays, the motion is displayed to him, so only, he does not only have the mental image of himself but he's got a whole mental image of everything happening around it.

Survivability. The aircraft is designed for war, it can take a certain amount of surface-to-air shots, ground shots, it's got an EW system built into it in order to protect it and all these characteristics make it a multi-role combat performance aircraft, (indistinct). Then on the support side it's highly reliable, it's very maintainable, you need very few people to turn this aircraft around. If you go to Sweden this aircraft is designed to land on roadways, special paths of the normal roads is wide, so the aircraft can land on there. It can be pulled into the bush and it can be maintained by technicians in the bush, so the things we need to get to is easy accessible and you can turn it very quick around.

We have even witnessed a hot turnaround where the aircraft engines were running while the aircraft was turned around for its next mission. These characteristics makes this aircraft, it gives it a very high capability to fly (indistinct) a
5 low cost, lifecycle cost makes this a high performance affordable, tactical fighter.

If we look at the aircraft this is a single seater, it's 14.1 metres long, the wingspan from there to there is 8.4 metres, the height up to the point of the tail is 4.5 metres and
10 the maximum takeoff weight is 40 000 kilograms. These are canards which makes this aircraft very agile in an air combat manoeuvre because of the way they operate with the fly-by-wire systems. We spoke about the wings, this is a single seat cockpit and there is the radar fitted in front of the aircraft.
15 This is a very high level schematic of what the aircraft is so we know what we are speaking about.

The versions, we've got the single seat version, as we indicated there with an auxiliary power unit behind it and the engine, then we got the dual seater version which is a long,
20 and slightly longer and some modifications in order for the air auxiliary power unit to be taken in at the bottom of the aircraft.

This is an indication how the Gripen is being built, I don't want to go on in details but basically they are building the left wing, they are building the right wing and they are
25 building the fin on the one line. On a separate line they are

12 NOVEMBER 2013

PHASE 1

starting with the side of the cockpit, the two panels which is then assembled, with that they are assembling the rear of the aircraft, the fuselage, build it together and then they, the fuselage, the front of the cockpit to get the airframe, the cigar part of the airframe.

From there they add the wings to it and you get the aircraft that flies out, this is the canopy. Important to note that all the Gripen aircraft were assembled in Sweden, were test flown in Sweden and then it became our responsibility to move them from Sweden to South Africa. Because of the security implications these aircraft were brought out by boat with no other cargo on the boat, so you had to hire a complete boat in order to transport these aircraft, the maximum we had was four aircraft on a single shipment.

When the aircraft arrived in Cape Town it was fully assembled, we used one of the cranes to move it out of the boat, it was stored underneath, inside the boat, it was pulled by road from the harbour to Ysterplaat Air Force Base where it was serviced and from there you flew up to Makhado. Now all the cost for this is part of our transportation costs that was added to the price of the aircraft when we did the analysis.

The Gripen, there's three different baseline Gripen's, you get the Swedish baseline which is as the baseline is as flown by the Swedish Air Force and if I go through their baseline that include the basic aeroplane, a FADEC, a FADEC

12 NOVEMBER 2013

PHASE 1

is a Full Authority Digital Engine Control which gives you a hand-free operation of the engine.

JUDGE MUSI: I just wanted to hear what about the combat suite, was it also fitted in Sweden?

5 MR FERREIRA: Commissioner, we are busy addressing the combat suite as part of these baselines, it's part of the aircraft.

JUDGE MUSI: I'm just following on your evidence that the whole craft was built, tested in Sweden and everything. Was it
10 without a combat suite?

MR FERREIRA: Commissioner, the whole aircraft was assembled, even the components that, the mission computers were all from Sweden, were integrated and tested there as part of the aircraft, the items that we provide to them like our
15 radars were exported to Sweden, integrated into the aircraft and tested there. When the aircraft arrived in South Africa it was combat ready, we did no more work on it, we provided a service on the aircraft, it flew to the base and the next mission could have been an operational mission. We did, however, do
20 some operational testing and evaluation on the first few aircraft to make sure it operates in our environment correctly.

JUDGE MUSI: Thanks.

MR FERREIRA: What we are indicating here is the aircraft is based on a Swedish aircraft with the Swedish systems and
25 these were part of the baseline aircraft that we procured. I

12 NOVEMBER 2013

PHASE 1

don't want to (indistinct), there's an environmental (indistinct) system, the onboard oxygen generation system. What happens in these aircraft, at the altitudes you fly you need to take oxygen with you. Previously you had external canisters that you filled with oxygen to take with you, here you are creating oxygen while you fly, onboard oxygen (indistinct) which (indistinct) in our Air Force, an auxiliary power unit which provides power to you when the engine is not running or when there is a failure, a digital recording, the electronic warfare, then there is an upgraded systems computer, a stores management computer.

This is, becomes equivalent to what we speak about the combat suite on the Corvette, it does all the calculations where (indistinct) calculations, it does all your displays of information received and also your radar. Commissioner, if you don't have this in your aircraft you have a piece of flying metal that can do nothing, you need this, these computers, the displays, the displays is how you communicate with the aircraft, your, it's got a (indistinct), hands-on stick and throttle, that's where all your switches sit, so all those things allow you to speak to the aircraft and the aircraft to speak back to you through displays.

The aircraft as it flies through the radar and its sensors collect information in an environment which the (indistinct) display to you. Also the aircraft got onboard

12 NOVEMBER 2013

PHASE 1

systems and navigation to say what speed you are flying, what altitude you are flying and where you are on earth in terms of like a GPS and IS, that's all part of the aircraft system that makes you, the aircraft would do its job. Then that's the
5 Swedish baseline.

Then the (indistinct) baseline, they proposed an export baseline. Now this is what is marketed throughout the world by BAe is external drop-tanks, the Swedes don't fly with drop-tanks, an export electrical power system. The power
10 system that the Swedes use is different than the (indistinct), so we have to look at the different (indistinct), so it will, the aircraft can be operated from NATO basis. An export escape system, what we are speaking about here is the ejection seat inside the cockpit that, and the canopy fragmentation system.

15 The Swedes had their own system, we had to convert that to an export baseline for other people also to use. The radar we get is not exactly the same radar that the Swedes have because there are some functionalities that's secret or not included that had to be removed from this radar, so there is
20 an export radar baseline. We had to change the air crew equipment, now we'll get back later to the aircraft equipment again but with the aircraft we had to buy boots the pilots had to wear, we had to buy G-suits that allowed him to experience high G-loads, we also had to buy South African (indistinct)
25 cooling clothes to wear while they are in the cockpit because

12 NOVEMBER 2013

PHASE 1

the aircraft was developed for Swedish (indistinct) and our environment, so you have to cool the pilot down while he sits in the cockpit.

We were looking at an exports arms control system,
5 these are all things that the Swedes are very sensitive of giving to us, so you had to redo that for the export basis. The NATO bombs that we had to carry because Swedes don't carry bombs and then there was a turnstile carrier, if I remember correctly, developed by Denel and cleared on to the Gripen.
10 We had to integrate these export weapons onto the aircraft and NATO standard pylons, an (indistinct) landing system, the Swedes, of their environment, they don't need the (indistinct) landing system because our country is vast and big and other countries we need to have landing systems. What's meant here
15 is that we are speaking to ground stations in order to determine where you are and that you are close to land on an air strip if the time and conditions doesn't allow you visibility.

We had to look at the worldwide climate, remember with the Swedes most of the time it's cold and icy, we had to
20 look at flying at hot and high environments, some of the other potential customers for this, these aircraft can even be in desert areas, so they had to look at the worldwide climate clearance, clear the aircraft for that environment.

The fuel system, the upgrading of that in order to
25 use the fuels available, the (indistinct) and imperial units

12 NOVEMBER 2013

PHASE 1

which we use in our aircraft on the displays because otherwise you first have to teach the pilots Swedish before they can start reading the deck systems and then the communication system. Again it's one of those treasures that the country would not like to sell off is his coms system, especially when you get to encrypted coms or secured coms.

Then as South Africans on top of this we add our own requirements. We have put in a South African secure coms system, not even an export baseline. As I said we got our own communication system, therefore we had to put in our own secure coms that will take our secure coms algorithms. We had a combined interrogated transmitter the SA Secure Mode, this is on the identified friend or foe system.

What happens here with this unit is that when the aircraft illuminates another aircraft with a radar he also asks him a question: "Who are you?" and if that aircraft then responds back: "I'm your friend" through a secure encrypted message you know it's your friend. If that aircraft does not answer you back you know it's an enemy or it's a foe. This is also uniquely South African, we can't put this in open market because everybody else will know how we identify our aircraft, this will also allow you to communicate with the Corvette because the Corvette also got this system onboard, it also illuminates and you will know it's a Gripen aircraft.

We had our own human machine interface

12 NOVEMBER 2013

PHASE 1

adaptations, that is the displays and the controls where we were looking at helmet mounted display. Now a helmet mounted display allows you if you look anywhere around you and as you look around some critical data are kept in front of your eyes, you don't need every time to look back into the cockpit to get your orientation or your air speed or to see where the target is.

The helmet mounted display also allow you to point one of the missiles onto the target by looking at the target or you could use your radar to point the missile onto a target. We had our South African specific weapons integration that we had there. Then we had a (indistinct) memory unit into the aircraft, if anything goes wrong and we lose the aircraft we can go, we can recover the data to determine what happened, this is equivalent to a so-called Black Box in a civilian aircraft although they are painted orange.

We have an South African ejection seat Mach 10 in the aircraft, the EW System, there were some upgrades done to that and then we have a capability to do selective jettison. If you have eight bombs on this aircraft you can select which of these bombs you want to jettison, jettison means you want to get rid of it, you want to get rid of the weight and it falls away in a safe condition, it won't explode. So, this is a South African baseline that we brought. The problem with the South African baseline is it becomes more expensive to maintain as

12 NOVEMBER 2013

PHASE 1

nobody else contribute to this support environment.

JUDGE MUSI: Why do you call these export baselines, how do they differ from the other categories?

MR FERREIRA: Commissioner, the export baseline is what they are offering to Hungary, to all the other world players out there, they can't give them the full Swedish baseline because of some secured components in the Swedish baseline, therefore they've got the export baseline and if the countries buy these some of these might also have their own baseline on top of the export baseline.

JUDGE MUSI: What do you mean, we export them from Sweden, are they exported from Sweden or what do you mean?

MR FERREIRA: Commissioner, they are exported from Sweden but they are also offering these at the moment, I think Hungary bought some of these aircraft or using them, they are trying to sell them, if I'm correct, I don't know whether it's Singapore or one of the countries in the East, and they were also looking at Brazil, so they can't sell them the Swedish baselines, the Swedish won't allow that. So, therefore they offer to them the export baseline and those countries who are buying these aircraft might even have their own adaptations to that baseline.

The system consists out of the aircraft ... Ag sorry. Out of the aircraft, but with the aircraft we bought a training system, the simulator, in the case of the Gripen this is a dome

12 NOVEMBER 2013

PHASE 1

simulator, it's like you are sitting in an air, it's totally around you where the images are displayed onto the dome and the area where you are looking you get a high definition display with much more detail. This allows you to train for certain
5 missions, also to practice emergencies.

You got the mission support systems where we plan our missions, from here I can download the data onto the aircraft, I can fly the missions and when I come back I can debrief my missions. You got the air crew equipment, the pilot,
10 the helmet and all equipment that he wears and if you change any of these equipment it needs to be recertified on that aircraft, even the gloves are certified to use in this aircraft, you can't wear anything when you get to that aircraft, you can only wear this clear piece of equipment flying that aeroplane.

15 We've got the external role equipment, this looks like an external fuel tank that fits onto the aircraft, we got the maintenance support equipment, all the ground support, the ladders, the trolleys you need to pump the wheels, all that, the spare parts is part of the ground support equipment.

20 Then on the weapons side it was not supplied by BAe Systems, we looked at our (indistinct) with the 84 bombs, these are bombs in our inventory that we used, the MK181 if I remember correctly is a 125kg bomb and they go up to MK84 that's got the 500kg bomb. We had the R-Data which is our
25 locally developed air-to-air missile and we got a clever piece of

12 NOVEMBER 2013

PHASE 1

weapony called the OB12 onto that also, which is like a laser guided bomb and the GBU, the laser guided bomb unit. The same picture we saw before but in a different format, this might give us more in case of what is actually happening, if I look at the aircraft there's the single seater, the dual seater and the (indistinct) aircraft, there is the internal role equipment, the internal role equipment like the in-flight refueling probe which I can fit onto the aircraft, it's not always fitted but as required I can fit it on to that.

10 Then I have my, I identified friends or foe mode SA onto the aircraft, that's inside the aircraft, the NATO pilots, the FDR which is my flight test instrumentation and there is a built-in internal jammer. This is all part of the aircraft. Then the role equipment which is (indistinct) Africa, we are looking at the twin-store carrier, the air-to-air launcher and drop tanks, air crew equipment, the lightweight suit, the air ventilated vest, as I say it's very hot so you need to ventilate the pilot, it's better than to try and bring down the temperature of the whole cockpit, an emersion suit if he accidentally falls into the water or have to escape in water, the anti-G-Suit, the anti-gravity suit. What this suit does, it provides pressure to your legs to force blood back into your head when you are pulling high G's. The flight jacket, the gloves, the boots, the helmet with and without the helmet mounted display.

25 Mission support. You've got a digital map

12 NOVEMBER 2013

PHASE 1

generation system where we prepare the maps that goes into the aircraft as well as into the mission planning system, we've got the mission support system and we got the data transfer unit for the pilot, all the data that the pilot needs to fly the mission and that's recorded for him to debrief after a mission is recorded on this data (indistinct).

On the training system, we have a computer-based training system, we have a computer-based mission system which is a simulator, the air crew training courses, the ground crew training courses. On the maintenance system the ground support equipment, mission ground support is the equipment that we downloaded data in where you can track the failure trends, what (indistinct). Technical publications, spares and all the data required by the ground crew in order to maintain this aircraft is recorded on a data transfer unit ground crew.

Every, this includes all the clocks on the aircraft , whenever you start the engine you are recording time, the number of hours the engine has run because you need to know that to determine what was the fuel used, or the oil used, we were still using the exit oil. The fatigue, the profile experienced during the flight, those things are all monitored and recorded, so you know what is the health status of this aircraft. On the weapons we spoke about the MK81, 82 the A-Data. The RST was, and a missile was especially brought in for the World Cup and the laser guided bomb.

The South African adaptation I can say, I spoke about the helmet mounted display, we spoke about the man/machine interface looking at (indistinct) and switching, we spoke about the IFF mode, the attack and navigation, we are
5 still one of the few countries that use attack and navigation in the country, other countries have phased this out already, the South African Communication data link and our weapons.

The HMI changes as you can see looking through the cockpit, that is a head-up display, we had our own
10 symbology on the head-up, some symbology on the head-up display that is uniquely South African. We have multi sensor displays, these three, they are big things, with our own symbology on some of them. The control stick, on there we have our own switches for certain switchology, and then we got
15 horizontal situation display levels and which are own symbolic, so these were all changes made for us to operate in our environment by our pilots.

The radar is the Ericsson PS50/A, there is it, there is a picture of it, this whole area is the radar, that's only the
20 antenna, the rest is an electronic unit that is behind the radar. There is a Pulse Doppler Multi-Mode Radar, it had different modes for operation, it is fully programmable signal and data processers so you can programme the data to detect different signals or to interpret the signals differently if required. You
25 must remember the signal arriving through the antenna is a

12 NOVEMBER 2013

PHASE 1

very noisy signal, you have to extract intelligence out of that signal in order to get it.

It's got excellence electronic counter measures, what happened here is if you illuminate a threat it will try, through counter measures to put you off the target. You can
5 pick that up and you can then provide counter measures against that again, so it's very difficult to fool this radar and the antenna is a slotted (indistinct) antenna in front, a very light antenna.

10 Coming back to the phased approach, in the late 2007 it became apparent that SAAB would not deliver the full functionality with the scheduled (indistinct) aircraft, there was a frontline gap due to the phasing out of the Cheetah aircraft. The SANDF has to prepare for the FIFA 2000 World Cup, it was
15 a prerequisite by FIFA that we must be able to protect our stadiums from the air and the Gripen's weapons system for the integral part of this protection provided.

If you will recall on the World Cup there were always aircraft around the stadiums keeping other aircraft away
20 from the stadiums, it was part of our commitment otherwise they would have taken away from us. There was agreement to deliver this functionality in three blocks and we took some look at the damages for the functionality not delivered in time and we also withhold some payments to ensure some leverage for
25 them to complete the contract.

12 NOVEMBER 2013

PHASE 1

The new requirements, in June 2009 the (indistinct) capability enhancements were approved as part of block three (indistinct), it was scheduled for October 2011. The additional requirements functionality is the reconnaissance part, we come
5 back to that later, and the A-Data Short Range air-to-air missile functionality. As you will see the aircraft numbers were reduced from 28 to 26 to provide funding for these new requirements and as I said before the Cabinet approved the reduction and that was confirmed by AAC on 20 May 2005.

10 The A-Data Integration, the A-Data is a missile developed by Denel Dynamics here in Midrand, we are doing this in cooperation with Brazil, so this is a joint programme between us and Brazil but we see our part as South African. In order to integrate this missile up to the aircraft you don't only
15 go and hook it on and fly, there's a whole process, first of all we had to verify the physical compatibility, the (indistinct) compatibility where the aircraft can provide enough power for this, the missile or not, the digital communication, you must remember the pilots are speaking, or the aircraft the whole
20 time speaking to this missile and the missile is the whole time speaking back to the aircraft.

For instance the missile will tell the aircraft where it's looking at the moment or whether it has locked onto target, these are all done through the digital communications. We had
25 to look at the operating and mechanical, climatic environment

12 NOVEMBER 2013

PHASE 1

where this operates, hot and high, our aircraft profile, whether it's at slow speed, high altitudes, all these things need to be verified.

Now operating in an electromagnetic environment, we make sure that the electrical magnetic defence from the aircraft will not influence the missile operation or safety and the same time that the missile EMI (indistinct) it creates will not influence the aircraft. Every piece of the component you put onto the aircraft, electrical component have some electromagnetic interference capability, it either are sending out voice or signals or anything, or it might be able to detect these and they might impact, so we always have to make sure that these two are integrated, it would not interfere with each other, and we had to look at the structure, strength and the fatigue.

This missile looks different than a standard A-9 missile, it has different weights, weights is allocated to different places. The aircraft was cleared for an A-9, so you have to make sure that the stresses from this missile is not going to impact the life of the aircraft and that's all part of structure, strength and the fatigue you have to do.

If you look at the digital joint reconnaissance pod, the pod there very similar that we flew on the Cheetah, except this one is digital and the Cheetah one is still using a photographic film. As part of the integration onto Gripen the

12 NOVEMBER 2013

PHASE 1

following were taken into consideration, where will we mount this pod, on the shoulder, the end of the wing or should we put it on to the (indistinct) of the aircraft because that's where we have to integrate it. This pod was not previously integrated onto the Gripen, so we were the first customers that had to do it and made those decisions.

We had to control this pod again from the aircraft through a 50/50 (indistinct). As you can see there's a lot of information displayed on the aircraft from the pod, there's also, you plan your mission there, that information, the pod can either automatically switch on and take the reconnaissance photos or you can manually turn the front end to look in the direction in order to take an image on the ground.

And the video that we see on the cockpit is also transferred back into the cockpit, so the pilot there can actually see what the pod, what photographs the pod is taking and there was a (indistinct) option that from the pod you could have sent the data in real time back to the ground where the people can analyse their data. Reconnaissance forms a very important part of operations because first of all you can go and take photos of your targets, analyse, these people analyse, they see if there is targets and from there you plan your attacks on these targets and also you could do an assessment how well your attack was afterwards.

The last slide I would like to show you is that the

12 NOVEMBER 2013

PHASE 1

last problem we had on the aircraft was the data link, now what the data link is, is that while the aircraft is flying aircraft are communicating the whole time between them without the pilot even knowing that and we in South Africa had our own South African standard (indistinct) link ZA protocol that was used,
5 this is uniquely for us and will only be used on our defence equipment.

When we experienced a problem that there was loss of data synchronisation occurred between the aircraft under a
10 certain condition of flight (indistinct) fed the signals from the ground. So the aircraft, although they will fly together they will not always get in the right information between these two aircraft and it was not possible for us to change the data link protocol without affecting secure communications and
15 interoperability with other South African weapon systems. The same data link is on the Hawk Aircraft, the same data link is on the Oryx Aircraft, helicopters, as well as on the Corvette's, so this allow us even while we fly to speak to the Corvette's on the data link and the pilot might not even know what he is busy
20 telling the Corvette's on this data link. It will give your speed, altitude, you can send data, target data up to this, you can send messages up to the aircraft the whole time without using voice and this problem was rectified by the repositioning of antennas and this was the last contractual problem to be
25 resolved by the contractor. And as I say now the aircraft is

12 NOVEMBER 2013

PHASE 1

now at the contractor baseline and this was my last slide.
Thanks.

ADV MPHAGA: Thank you. So you finalised this statement
in respect of Project Ukhozi?

5 MR FERREIRA: Chair, I believe with this I have now
finalised paragraph 5.8 which was my last part statement on
Project Ukhozi, the next part we will now move over to Project
Winchester, the Lead-In Fighter Trainer.

ADV MPHAGA: Thank you Chair, I see it's past 13h00, it
10 may be the right time to go for lunch.

JUDGE MUSI: Can I just ask one question before we
leave? In the aircraft we may be, you may have been using the
wrong term when I asked you about the combat suite, you don't
use such term in this aircraft do you?

15 MR FERREIRA: Commissioner, if you look at the functions
that's been performed by the so-called combat suite, things like
navigation, communication, weapons control, sensor data,
(indistinct) sensor data, all those functions is done in the
aircraft by the combat suite on top of the aircraft. We do
20 navigation, we do fuel control on the aircraft, what fuel usage,
we do weapons delivery algorithms on that, we got our sensors
onboard and the radars, we do manage the radar looking
around and we do see the information that comes back on that,
and we got the EW System which is integrated into the aircraft.

25 The functions are all doing the same things like a

12 NOVEMBER 2013

PHASE 1

combat suite is (indistinct). If you take a Corvette out on
(indistinct) some navigation activities (indistinct), it's also
doing some weapons control and release, it's also got some
radar and sensors that it needs to integrate in order to
5 determine what's going on. It might apply some electronic
warfare counter measures while flying.

On the Corvette it might be a major unit (indistinct),
on the aircraft these are small electronic boxes that you fit into
the aircraft because our space is very important to us. At the
10 end of the day we can detect the target, we can (indistinct) the
target and we can destroy the target and we can get home
safely and we know where we are.

JUDGE MUSI: Thank you.

CHAIRPERSON: I think maybe we can pause now.

15 **(Commission adjourns)**

(Commission resumes)

CHAIRPERSON: Can the witness confirm that he is still
under oath?

MR FERREIRA: I do.

20 CHAIRPERSON: Thank you.

ADV MPHAGA: Thanks Mr Ferreira. When we adjourned
we had to move over to the Project Winchester which is the
acquisition of the Lead-In Fighter Trainer, can you just take us
through that?

25 MR FERREIRA: Chair, Commissioner, we're now moving to

12 NOVEMBER 2013

PHASE 1

the third part of my presentation, if you recall yesterday morning on page 3 I indicated that coloured diagram, we are now moving to the green part of that diagram which is the Lead-In Fighter Trainer, we have only to refresh ourselves on page 3. We have completed the AFT, we have completed the ALFA and now we are moving down to the LIFT which is the green block.

We'll now move to page 14. Alright? On 17 November 1997 the SAAF Command Council confirmed the requirement for a three-tier fighting training system and resolved that Project Winchester should continue in order to satisfy the LIFT requirement. The rationale between the two-tier and the three-tier fighter training system was discussed in detail by Generals Bayne and General Hechter in their submissions.

On 16 March 1998 the AAC approved the Staff Target 1/1998 and the Staff Requirement 1/1998 for Project Winchester with the instruction to consider leasing the aircraft as an option. I understand from General Bayne and General Hechter have given evidence on the Staff Target 1/1998 and the Staff Requirement 1/1998. The project also had to be brought in line with Project Ukhozi to be concluded within the SDPP timescales.

Project Winchester was for the replacement of the ageing fleet of Impala MK1 and MK2 Aircraft with a robust cost

12 NOVEMBER 2013

PHASE 1

effective jet trainer and fighter trainer referred to as the LIFT, capable of effectively bridging the training gap between the ASTRA Basic Trainer and the ALFA. The LIFT Aircraft was primarily a training aircraft that was required to perform collateral operational missions.

The LIFT fleet had to be operational by January 2005 by which time the current Impala fleet would have been phased out. The LIFT fleet had a lifespan of 35 years and had to be in service from the year 2005 up to and including the year 2014. The LIFT system consists out of air vehicle system with a ground-based training system, both including the required support systems. All specified systems including the weapons system were to be fully integrated, qualified and operational before delivery to the SAAF.

The ground based training system for the Lead-In Fighter Trainer (LIFT) provided all the flight and theoretical ground training requirements for the training school. The conversion and the continuation training, lectures, briefings aspects and procedures were presented by operational and technical staff. The training was conducted by means of computer-based training, past staff training and operational flight training, simulation for air crew. There was no requirement for a full mission simulator.

Based on the user requirement specifications ARMSCOR prepared a Request for Information under the

12 NOVEMBER 2013

PHASE 1

number of EVIA 971560 for the acquisition of the LIFT aircraft and I would like us now to move to page 366.

CHAIRPERSON: Which page is that?

MR FERREIRA: Page 366. Ready? Commissioner, all the documents have got the same format, if you page through these documents you get a feeling I've seen it before because it's exactly the same layout and type of document for the ALFA. And some of the details inside these documents are different than for the ALFA and instead of redoing the full document again I will highlight where there was differences between the ALFA RFI and the LIFT RFI rather than to go through the LIFT RFI in full detail if that ...

ADV MPHAGA: Just maybe, just for the edification of the Commission you were party to the preparation of the RFI on the part of ARMSCOR?

MR FERREIRA: I can confirm, we were an integrated Project Team that were involved on both programmes over the full period up to the date of contracting and there project teams split into two separate project teams, the integrated Project Team, so I was involved on the LIFT from the first initialisation with the drafting of the RFI right up to the final selection that we made, I was part of that Integrated Project Team. On page 367 of the RFI, and it might be like a repetition before, but I only want again emphasise the difference between the RFI and the RFO.

12 NOVEMBER 2013

PHASE 1

The RFI, the objective of this RFI is to obtain information from your company in respect of an aircraft system that can satisfy the above requirement of replacing, that could provide services for the South African Air Force for a Lead-In
5 Fighter Trainer, that was the RFI. Again the main aspect of the RFI LIFT Programme would have included the main equipment, the mission support equipment, the clearance of RSA weapons, the integrated logistic support and programme management.

If you look at the product system the South African
10 Air Force (SAAF) requires LIFT Aircraft to carry out a wide spectrum of combat training missions, we are now moving onto the emphasis of training, successfully under icy conditions within the ground (indistinct) temperatures of (indistinct) specifications.

15 The aircraft shall be a fighter trainer aircraft that is robust, reliable system capable of cost effectively training pilots for combat. We say very little about the combat role for this aircraft, we must concentrate on training, the (indistinct) to meet the operational training and support requirements for
20 the years 2005 to 2040.

The deployment date of this aircraft we were looking at 12 aircraft to be operational by January 2005. On the next page if you look at 368 the roles of this aircraft, the missions were basically all training missions and I would like to
25 go through these training missions because it would give us a

12 NOVEMBER 2013

PHASE 1

feeling of what we are expected to do. It was general flying training or aspects, tactical navigation where you have to fly a predetermined route and navigate onto that and get to your target, instrument flying, you would be able to fly this aircraft with no visual clues from an outside environment, this would typically happen if you are flying in clouds or if you have bad visibility, night flying, formation flying, able to fly in pairs or even up to in groups of four. That is basic training.

Then we need to go into combat training, combat training, and you see all these were day roles, ranging and tracking, that is following another aircraft, air-to-air agile exercises where you actually do air-to-air combat against another aeroplane, first one-be-ones and later one-be-two's or two aircraft against two aircraft, air-to-air gunnery, that is practicing shooting with your guns on a moving airborne target, they usually use a flag or attacks a pod that can measure how accurate you shoot, basic and advanced air combat maneuvers, they do all funny things like pulling G's, doing rolls, things like that.

Academic and profile air-to-ground gunnery, attacking a target on the ground, academic profile air-to-ground, rockets, we're using rockets, the academic and profile medium and high level air-to-ground bombing. We're having different ways of doing bombing, the CCIP means you calculate, the continuous calculate an impact point, it always

12 NOVEMBER 2013

PHASE 1

calculates where the bomb will fall if you release it now, or it continues calculating the release point to give you a target and it tells you when to release the bomb in order to achieve your target. Academic and profile low level air-to-ground bombing, there is different ways of bombing, you can have a high attack, you can have a low attack, pulling up, releasing your bombs and going back into (indistinct).

All these profiles ... All these, you must remember up to this point a pilot that has trained in an ASTRA had no combat experience and haven't done any of these before, the first time he's learning to fly these missions he's in the training aircraft, so as all these, they might be academic and then it becomes more tactical, how we do our task.

Visual and photo reconnaissance. Because there is some inherent capability in these aircraft it can do some operational roles, collateral roles with tasks we call it, you can put up one of these aircraft as a Telstar Radio Relay to relay a message from a front aircraft back to a base because radio communications are limited by the earth and how far you can communicate.

You can use it for (indistinct) search and rescue, if you go and meet somebody (indistinct) the aircraft can be used in that role because it's capable of it. You can do borderline patrol, seeing that people is not getting over the border illegally. You could limit the tactical reconnaissance, the

12 NOVEMBER 2013

PHASE 1

reconnaissance pod that we flew on the Cheetah flies, can be flown on this aircraft, so we only do some tactical reconnaissance. You can provide limited air, close air support, if the Army is somewhere involved in an operation you can provide some air support for them, you can also do with the Army and Navy (indistinct) operations or joint exercises but where you use this aircraft in an operational are limited by its self-protection capability, so it must be a low threat environment. The moment the threat environment becomes high you cannot use this aircraft in this environment, so this is the type of aircraft we were looking at in missions.

On page 369 we again say how we are going to utilise this aircraft, our mission rates, what must be the turnaround time of the aircraft and as you can see from the missions rate most of our missions will be flown around 45 minutes, what we say there (indistinct) aircraft will fly, it will fly 60 missions in 45 missions, 107 and 60 minutes. We very seldom have missions longer than 90 missions, the aircraft is capable of doing missions at a rate of 50 minutes but most missions are with inside an hour for this aircraft.

Paragraph 3; the LIFT Requirements is attached in Appendix "A" and that will be page 374. If you go to page 374 we will look at our, the questions we asked them as our minimum requirements. Alright, in terms of our minimum requirements it's very much like a questionnaire to be

12 NOVEMBER 2013

PHASE 1

completed, you look at the structure and the layout. We start again with the company profile, this is new, this table did not appear in the ALFA RFI, so this was a new table that we added on the LIFT RFI. Looking at the company structure, the
5 shareholders where it's been accredited to ARMSCOR.

Then we also look at financial, it's also a new paragraph that was added from the ALFA where asked their banking details, annual reports to make sure they are financially stable and be able to do the programme. On page
10 375 we ask the track record, what contracts they have and what are the experience since 1998 in the training environment, that was new.

Paragraph 1.4 the Policy Procedures, the insurance was also a new thing that we added in our RFI. From that point
15 onwards the rest were the same as on the RFI for the ALFA, it was nothing new, the type of questions we asked from them. There might have been a difference in the numbers, but we asked them the same type of question. This stayed the same up to paragraph 384.

20 CHAIRPERSON: Paragraph?

MR FERREIRA: 384.

ADV MPHAGA: The logistic requirements, there was a very small section in the ALFA, this was expanded in a LIFT RFI and as you can see there we've asked them for typically the flying
25 potential, the maintenance concept and we asked them specific

12 NOVEMBER 2013

PHASE 1

questions, some of these is yes, no, but all of them was to give us an idea how this aircraft will be supported. Interesting if you look on page 385 question number 6 at the bottom:

“Against what standard was the LSA performed?”.

5 We were specifically asking in order to determine your support of an aircraft you need, you do a logistic support analysis (indistinct) process, that will determine what is your requirement in terms of, what’s your maintenance policy and what will be your requirement in terms of manpower, tooling,
10 spares, consumables, so we asked the question did you perform an LSA if, against what standard. These two standards (indistinct).

So, all of these questions were there to build up confidence that this aircraft will be supportable over a life
15 cycle. As you page through the document you will see we also under page 386 we look at the personnel, what skill level is required to support this aircraft at operational level because we are moving forward where we would like to reduce the skill level at the front to turn the aircraft around. You can’t have
20 highly qualified technicians putting in fuel or doing some work at the front, you (indistinct) away with it, so we were looking at that to see, to determine how it would impact our log environment.

Then if we go to page 394 we asked them to provide
25 the cost breakdown for the programme and the contractors had

12 NOVEMBER 2013

PHASE 1

one month to complete this activity. The Ukhozi Control Council approved that the RFI's be issued to the identified suppliers for the (indistinct) of LIFT, the Ukhozi Control Board advised that the RFI process had to be managed and considered for inclusion of the SDP and if you look on page 414, sorry no, I'm wrong, the wrong reference, that was included, if you look on page 399 item 5.4:

"The chairperson reported that the inclusion of the LIFT into the package deals was already been formally agreed by Mr Tony Yengeni but that (indistinct) process still has to be followed through the AAC".

On paragraph 5.2:

"The following countries should receive Requests for Information for the LIFT"

Page 400:

"All the countries that were originally approached for proposing an ALFA, all the countries that were later added to the original list, Russia and the Czech Republic".

And we also included Switzerland. Are you with me on page 400?

MR FERREIRA: Okay. T

"The IPT approached the suppliers by means of a LIFT, Request for Information to identify suppliers

12 NOVEMBER 2013

PHASE 1

who could satisfy the LIFT requirements. In doing so the Project Team took into account the result of Project Ukhozi interim AFT Project Study Report, ...”.

5 Referred to earlier:

“... LIFT RFI was also published on the ARMSCOR Bulletin and on the internet”.

So it was an open Request for Information. The op...

ADV MPHAGA: You can just refer the Commissioners
10 where you are reading, you are back to your statement.

MR FERREIRA: I'm at the statement, I'm back on page 15
and paragraph 6.10. Right?

*“The objective of the LIFT RFI was to obtain information from prospective suppliers in respect of
15 aircraft systems that could satisfy the LIFT requirements. A Value System methodology was compiled in order to enable ARMSCOR to make a final selection of the aircraft and the supplier. The purpose of the Value System Evaluation
20 Methodology was to assist ARMSCOR in selecting suppliers that could best satisfy the requirements of the South African Air Force and thereby qualify these suppliers to receive a Request for Offer”.*

So, the evaluation process, to summarise on page 16, not 17,
25 that is also included in the project, the Evaluation Report

12 NOVEMBER 2013

PHASE 1

which is on page 414. If you go to 414 we can move from that point forward. 414 is Project Winchester, the Interim Project Study Report, shortlisting for a single Request for Offer, it's our Evaluation Report on the RFI data we received. In 414 I would start on 421, page 421.

“Project Winchester involves the replacement of the ageing fleet of Impala MK1 and MK2 Aircraft to a cost effective jet trainer and fighter trainer referred to as the Lead-In Fighter Trainer (LIFT) capable of effectively bridging the training gap between the ASTRA basic trainer and the Cheetah-C Medium Fighter and its replacement Advanced Light Fighter Aircraft. The LIFT Aircraft must be capable of executing a wide spectrum of jet conversion and combat training missions. Two units will be equipped with the LIFT aircraft, one unit will be the Advanced Flying Training School responsible for all fast jet and operational training co-located in the same base with the squadron responsible for consolidation and continued training including collateral operational tasks”.

Once a pilot has been trained to fly the LIFT Aircraft he still needs to build up a certain amount of hours on an aircraft to gain experience before he move into the ALFA. For why we say the two squadrons, the one squadron will do the actual

12 NOVEMBER 2013

PHASE 1

training, then the pilot will stay behind for the reason they don't have 150 hours of flying or one year, to build up more experience using the LIFT Aircraft because you will then transfer to the ALFA Squadron, that's the concept why we speak about two squadrons here. On page 422 paragraph 1.3:

"The Council on Defence has approved in principle that the LIFT requirements be included in the Strategic Defence Equipment Packages initiative launched by the Minister of Defence. On approval of the shortlist as recommended in this report by all approval levels up to and including the Arms Acquisition Council (AAC) the Project Team will issue a request for best and final offer to lowest contenders in the approved shortlist. It is planned that a Request for Proposal would be issued on 9 March 1998 ..."

Which then happened.

"... to comply with the very restrictive schedule of the Strategic Defence Equipment Packages Process. Replies to the RFO must be submitted by 6 April. The Project Team must conclude the evaluation of the RFO's by the end of June to present the results within the first two weeks of July 1998. Because of the limited evaluation time the final project study report will be completed by the end of

12 NOVEMBER 2013

PHASE 1

November 1998. Contract negotiations and contract (indistinct) schedules will be determined by the Strategic Defence Equipment Package Process”.

That was our intention how to move forward. You will notice if
5 you get into the other things we did delay this by about a
month eventually. The objective again, it sounds like a
repetition but I think it's important that we understand:

*“The objective of this RFI Report is to recommend a
shortlist of aircraft types that potentially can satisfy
10 the requirement of South African Air Force for a
Lead-In Fighter Trainer (LIFT) and to obtain
approval to issue a Request for Proposal for a best
and final offer to the suppliers of these aircraft”.*

I would like to go to page 423.

15 *“The evaluation of the 20 contenders to determine
who should receive request for best and final offers
is based on the process of establishing that the
South African Air Force operational and support
requirements and taking cognisance of ARMSCOR
20 contractual requirements. The systematic gathering
of information was achieved by means of a Request
for Information submitted to each of the contenders.
In order to determine the suitability of each
contender to satisfy the requirement an analysis of
25 the results established their relative merit. This*

12 NOVEMBER 2013

PHASE 1

was measured against the Approved Value System taking all relevant factors into account”.

We received 20, well:

5 *“The information was gathered on all 20 contenders, the quality of the replies varied greatly. In the best replies the information was very detailed and specifically addressed the RFI ...”.*

The list that we put down before:

10 *“... whilst in the worst case were no more than a statement of interest to be included in the evaluation process. Most replies fell somewhere between these two extremes”.*

On page 424, “The LIFT Evaluation Process, we are speaking about the Defence Strategic Equipment, there was a high level Value System. We as the Project Team had the LIFT URS, User Requirement Statement, from there we derived a Value System, we issued an RFI to measure some of the parameters in the Value System, we received the proposals, we looked at the mandatory requirements, those that were not rejected (indistinct) applied discriminatory Value System on them, we’ve done a cost analysis, we determined value for money, we’ve done a risk analysis, we did a tradeoff and we made a recommendation. It’s the same process we basically followed on all the aircraft programmes. On page 425 paragraph 4.1:

25 *“The User Requirement Statement (URS) of the LIFT*

12 NOVEMBER 2013

PHASE 1

contained a number of mandatory requirements to which a contender must comply in order to consider for a LIFT Requirement”.

From that point I would like to move to page 430 paragraph 7.1,
5 the attached sheets which we will get on to now:

*“The attached sheets show the mandatory requirements per contender not met with a short description and the reason for each. The contenders on the attached pages 18 and 19 of
10 those aircraft either secondhand, a single seater only or an experimental prototype versions. These six contenders namely the ALFA jet, the F7-MG, the CF5, the (indistinct) were also the first group of contenders eliminated from a shortlist for non-
15 compliance. (Indistinct) 101, the T6-Texan and the K8 submitted (indistinct) information were also eliminated for further evaluation”.*

Sorry for jumping around but we should first look on page, which offer, on page 426 and then from there we can discuss
20 (indistinct) because it has to follow logical, page 426 Commissioner. Okay, in total we received 20 offers for the LIFT Aircraft, they were from Canada, Bristol Airspace, the old ASTRA CFR, Canada, the Canadian Aerospace offered ASTRA Monitor, China, (indistinct) and the F7, they only had 16 F7
25 Aircraft. The Czech Republic offered as the Aero Vodochody,

12 NOVEMBER 2013

PHASE 1

the L139, the L159 and the L59. The French Dassault Aviation offered ASTRA ALFA Jet. Germany DASA offered us the Ranger 2000, Italy (indistinct) offered us the AMX, Italy Aermacchi offered us the S211A, the MB-339, the FD and the
5 Yak-130.

Russia (indistinct) offered us the MIG80 and South Africa Denel Aviation offered us a Turboprop Advanced Trainer Aircraft that they developed. Spain ICASA offered us a C101, Sweden (indistinct) offered us the old SK60's excluding
10 avionics, Switzerland Pilatus offered us the PCTT, the United Kingdom British Aerospace offered us the Hawk 100 and the USA (indistinct) offered us the T6A. Those were the 20 contenders that was offered.

Now with those background of which aircraft were
15 offered we can start seeing how they were eliminated from the process if we go back to page 430. When we get to the tables we will revisit these aircraft. The AMX 80A and the AMX Yak-130 met all mandatorys although the timescales for a Yak-130 were questionable. The nine remaining aircraft all had certain
20 mandatorys which were not met but none were considered worthy to disqualify them from the value evaluation, thus 11 aircraft were valued system (indistinct).

So, after we eliminated the first aircraft there were
11 aircraft that were put through the evaluation. Discussed in
25 this chapter are those aircraft not fully compliant which

12 NOVEMBER 2013

PHASE 1

mandatories were not met and a brief note on each. Referring to this the Aero Vodochody L139 and 59 contenders both have Russian standard handling characteristics and would not be acceptable to the SAAF. The L159 will have western standards and that's the contender that should be requested to submit only one Request for Offer (indistinct), which in (indistinct) best meets the requirements including the western standard handling characteristics.

The MB339 Weapons Trainer rate of action was clarified with the company and corrected to read 110 nautical miles. The S211A would require structural changes to meet requirements and Aermacchi did indicate that the cost involved would probably exceed that of the MB339. The MIG80, although Russian standards would be applied as fly-by-wire system later would require careful evaluation before the SAAF acceptance.

The Super Ace proposed by Denel and the PCTT lacked performance and are far from ideal but remain a partner solution if funding is hypercritical. The Hawk 100 lacks (indistinct) performance as a relative low reliability and had marginal endurance but has many capabilities well above the required specification. All mandatories not met were presented to an *ad hoc* Project Ukhozi which is the Control Council meeting on the 30 April 1998 as part of the evaluation results presentation and (indistinct) approved or the contenders

eliminated. These non-compliance will need to be addressed in greater detail during a Request for Offer.

On Table 7.1 is the contenders eliminated on non-compliance to mandatories, the ALFA Jet. No information was provided, they were secondhand X of the French Air Force. The F7 (indistinct) from China was a single seat aircraft and only 60 aircraft were offered. The CF5 from Canada had a service life problem, a mix-up of (indistinct) and eight single aircraft would have required an avionics fit and they were also secondhand out of the Canadian Air Force.

The Monitor from Canada insufficient information was provided, it's a new development, a little-known manufacturer Canadian Aero, so they did provide that information. The Ranger from Germany, again it was a prototype and then it had no hard points, had no canon, missiles not integrated and it had a very small payload, so we could not use that for tactical training.

And then the SK60 of Sweden, again it was a secondhand aircraft out of the Swedish Air Force, it was a side-by-side aircraft and (indistinct) last due to upgrade, it was questionable whether this aircraft would be supported after 2015 and then you also had some performance issues that did not meet the mandatory requirements.

Then the aircraft with mandatories not satisfied but it could be clarified, the L159 had (indistinct) turn rate of 10.8

12 NOVEMBER 2013

PHASE 1

degrees per second, the L139, the sustained turn rate, the climbing rate and the handicap characteristics, as I said it was a Russian standard design. The L59 also had (indistinct) turn rate and its handling characteristic were Russian. The S211A
5 missiles not integrated, no cannon, only a machine gun part. The MB339 Weapons Trainer (indistinct) but that was rectified, later rectified to a 110.

The MIG80 (indistinct) Russian standards. The Super Ace, the aircraft built by Denel, its sustained turn rate
10 was only 6 degrees per second, its climb rate seven minutes to 30 000 feet, low speed, it had a problem with the cockpit field of view and (indistinct) knots. The PCTT, it's Mach number was also very low because it's a turboprop engine, 0.44, a low dash speed and the cockpit field of view.

15 The Hawk 100 (indistinct) turn rate, sustained turn rate did not meet the mandatory, meantime between failures (indistinct) and endurance marginal. On ICASA we received insufficient information, the T6-Texan insufficient information and the K8 insufficient information. Next I would like to move
20 to page 433 paragraph 7.2, the Value System Results.

*"The Military Value is determined by mathematically calculating the contribution of each parameter in a Value System from bottom to top according to the hierarchical structure of the Value System. The
25 evaluation results for the lower levels of the Value*

12 NOVEMBER 2013

PHASE 1

System leading up to Military Value are described in detail below. The Military Value is a measure of the total value that an aircraft system will have to the South African Air Force over its full intended service life and satisfying a specific operational requirement as specified in the user requirement”.

5

On page 434 we indicated the Military Value for all 20 contenders, although we say some of them should be eliminated we still went through the process to look at their value, Military Value according to the Value System, the Hawk Aircraft came out at the top, followed by the L159, the AMX, the Yak, the MB339, the MIG80, the L59, the S211, the PCTT, the T6A, the L139, the TAW (indistinct), the Ranger SK60, C101, the K8, F6, CF5, Monitor and right at the bottom was the ALFA Jet. This was used in the value that they supplied to us.

10
15

On page 435 if you only look at those aircraft that met the basic mandatory requirements you can see the aircraft there, again the Hawk was at the top with the K8 as the lowest value. The six highest scoring contenders were also the contenders that scored the highest in the military operation functionality with the exception of the MB339 rated number 7. The high sustainability strategic industrial score of MB339 as well as the strong company profile of the supplier Aermacchi puts it in the top scoring bracket.

20

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I'm referring here, I'm reading on page 435 but I'm

12 NOVEMBER 2013

PHASE 1

referring to a table on 436. Commissioner, I would like now to move to page 464. On page 464 you will see the cost of the different proposals and if we move to 467 we're dealing with the cost effectiveness and the analysis. 467. Right, cost effectiveness is therefore calculated by dividing the Military Value as determined by the Value System by the last (indistinct) cost as calculated by the cost breakdown analysis.

Now if you look at table 20 the S211A were the most cost effective aircraft because of its low price and the high Military Value it received it came out as the top cost effective aircraft. The 339 came in, were in the third place, the Hawk, Hawk came in, in the eighth place and the L159 in the ninth place. I only point out these few aircraft.

"The higher the cost effective index the higher the value for money. It does, however, happen that a low Military Value with a very low associative cost can lead to a high cost effectiveness. The acceptability of the low Military Value must be determined before (indistinct) on cost effectiveness".

If you look on Military Value the S211 scored 61 and (indistinct). Again the project price is very cost effective whereas if you consider the Hawk scored 81 but because it is very expensive it had low cost effectiveness. The question one has to ask you is whether the 61 that the S211 is acceptable or

12 NOVEMBER 2013

PHASE 1

not and that debate we will come later into the submission again. On page 468 there is a diagram showing the aircraft where they sit and the cost and the Military Value.

5 If you look at those aircraft there is a cluster of aircraft, around a 1 000 lifecycle cost which include the Hawk, the AMX80A, the MIG80, the L159 and the Yak-130. They were called the high performance aircraft. Then there was a cluster of aircraft in the middle, the MB339, the L159, the S211, there were definitely two different clusters of aircraft. We then redo
10 this exercise but instead of looking at total lifecycle cost we are only looking at acquisition cost and the results of that was indicated on page 469. The clustering of these aircraft didn't change.

15 On page 469, now it's going to take some time here because a lot of things happen, we start with the Discussion and Conclusion.

20 *"Six contender aircraft namely the Monitor Jet, the CF5, the SK60, the ALFA Jet, the (Indistinct) are considered unacceptable because of their failure to satisfy a number of mandatory requirements based on the information provided by suppliers and are recommended for elimination from the evaluation".*
Even though these contending aircraft were put through the formal Value System the results are not
25 *included in the report and they are considered*

12 NOVEMBER 2013

PHASE 1

meaningless. The Value System analysis of the remaining 14 aircraft is given below; ...”.

And I would like us only to look at the first six aircraft there, the Hawk 100, the L159, AMX, the Yak-130, the MB339 and the
5 MIG80, all aircraft were with a Military Value above 69. On page 470:

*“The above 14 aircraft can be divided into three different categories as follows; the more capable higher cost fighter trainer aircraft, the Hawk 100,
10 the AMX80A, the MIG80, the Yak-130 and the L159. These aircraft although primarily designed as fast jet trainers has the performance and weapons (indistinct) capability to also present a considerable operational capability. The less capable low cost
15 jet contenders were the 339, the L159, the L139, the S211A, the (indistinct) 101 and the K8. Because of the limited performance and low weapons load capability these aircraft cannot be effectively used for operations in the medium to
20 high threat scenario where flight power is important. They may have a collateral operational role if a low threat situation allows it”.*

And then we had the turboprop aircraft, the TAW Trainer, the one from Denel, the T6A-Texan and the PCTT, these were not
25 jet aircraft but they were trainers.

12 NOVEMBER 2013

PHASE 1

5 *"The turboprop aircraft can provide lead in fighter training at a very low cost compared to a jet trainer but is limited in (indistinct) as it cannot match the speed, high output performance (indistinct) of the more capable jets".*

Then in the table below the aircraft are then grouped together in terms of fighter trainers, of jet trainers and turboprop trainers on page 471:

10 *"During a work session with the member of the Project Ukhozi Control Council held on 24 April 1998 the Project Team recommended that taking into consideration an acquisition cost limit of approximately \$300 million the selection should be done from the jet trainer class on aircraft because*

15 *of the affordability while providing an acceptable Military Value and real jet handling and performance. The recommendation included the MB339, the ICASA C101, the L159, the L139. The*

20 *(indistinct) also recommended that the L139 be included as a (indistinct) high cost contender in the shortlist with the S211A as the low cost (indistinct) option".*

What was said there is if you look at the price of the fighter aircraft, the acquisition cost were all above \$500 million except

25 for our L159 at \$448 million. If you look at the jet trainers on

12 NOVEMBER 2013

PHASE 1

page 471 their acquisition cost were between \$199 million up to \$377 million, so what we could then propose is that we should look in this middle group as the proposed trainer by limiting the cost around \$300 million.

5 *"The Workgroup, however, decided that a recommendation to the Ukhozi Control Council should not use acquisition cost as a limiting factor as no firm acquisition budget allocated existed, but rather base the shortlist on a Military Value of 60*
10 *and higher and the lifecycle cost effectiveness above 8".*

That was the decision made.

15 *"The resulting shortlist for recommendation to Ukhozi Control Council look as far as then to provide applying these rules [sic]. The L159 or L59 to present only one option Aero Vodochody, the MB339-FD, the S211A and the Hawk 100. On 30 April 1998 the special Ukhozi Control Council meeting was held to present the evaluation results*
20 *of the replies to the LIFT RFI. The presentation (indistinct) was as agreed to during Ukhozi Workgroup session. The Ukhozi Control Council approved that the following aircraft as a result of their non-compliance to mandatory requirements*
25 *should be eliminated from further evaluation, the*

12 NOVEMBER 2013

PHASE 1

5 *Monitor Jet, the CF5, the SK60, the ALFA Jet and
the F6. With regard to the shortlist recommendation
the Ukhozi Control Council debated at length the
indication by the Minister of Defence that the
financial constraints should not be an overriding
10 consideration in determining the shortlist as well as
the fact that the budget for Project Winchester was
only preliminary. The meeting decided that the
shortlist should be selected on Military Value only
and that the cost impact should be referred for
discussions to the AAC and for detailed analysis
during the final source selection. The Ukhozi
Control Council hence approved that the
15 recommendation to be tabled at the AAC meeting for
the approval state that the following manufacturing
aircraft should receive a request for best and final
offer based on Military Value, results from a Value
System above 68 and cost not taken into account.
The Czech Republic with the L159, Italy Aermacchi
20 with the MB339, Italy the Aermacchi with the Yak-
130, the United Kingdom Hawk 100 and Russia MIG
(indistinct) with the MIG80. It was noted that the
AMX80-A offered by (indistinct) Italy also has a
Military Value above 68 but that it was excluded
25 from the shortlist recommendation on the basis that*

12 NOVEMBER 2013

PHASE 1

it is primarily an operational aircraft. It is utilised also for training as a secondary role, thereby adding a necessary operating cost because of the complexity of maintaining an operational aircraft with higher redundancy”.

5

CHAIRPERSON: I'm sorry, maybe let me go back to my earlier question, I see again on page 473 under "Recommendation 1" there is a mention that cost should not be taken into account, do you know what could be the reason for that?

10

MR FERREIRA: Chair, as I said there was a question and I will give a specific response to that question later in the submission where the cost and not-costed came up again. This was, as I said here, if you go back to the minutes and the minutes said we should not take into account at this level, at the RFI level the cost, we only look at the Military Value, when we get to the RFO phase we were going to address the issue of cost and non-cost. That was part of the RFI, it was decided that we would only look at performance above 68 and not at the cost.

15

20

CHAIRPERSON: Yes, I understand that but then you are not answering my question. I understand that (indistinct) that RFI level, in other programmes even at RFI level costs were taken into account, now the only simple question that I'm asking is do you know the reason why would this problem at RFI level it was

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12 NOVEMBER 2013

PHASE 1

said that cost should not be taken into account?

MR FERREIRA: Chair, I don't know the reason. I've got the minutes of the meeting where it was reflected but I do not know the reason why it was made, that decision.

5 CHAIRPERSON: Okay.

MR FERREIRA: But it is supported with the minutes of the meetings. If I go to page 473 ...

ADV MPHAGA: But maybe before you proceed, had cost been taken into account at RFI level what difference would it have made in terms of the aircraft that were shortlisted?

MR FERREIRA: Chair, if we take cost into account and we are speaking about cost effectiveness, we are speaking about the Military Value received by the aircraft divided by its acquisition cost, then I need to look back into our recommendations on that and I would ... If we look at on the table on page 468 the aircraft on cost effectiveness taking only into account acquisition cost should have been the S211A because it got 25 points there and it only had a Military Value of 61. That would have been the impact if we did look at cost in this decision. Back on page 473:

"On 30 April 1998 the Project Team with the approval of Ukhozi Control Council recommended to the Combined Armaments Acquisition Steering Board and Arms Acquisition Council that:

25 1. *Based on the Military Value result from the*

12 NOVEMBER 2013

PHASE 1

5 *Value System of above 68 and cost not taken into*
account the following shortlisted contenders be
sent a request for best and final offer (RFO) to
satisfy the SAAF's requirement for Lead-In
Fighter Trainer, to provide a progressive jet and
fighter trainer capability to bridge the gap
between the ASTRA basic trainer and the
Cheetah-C and its replacement Advanced AFT
Aircraft. The Czech Republic the Aero
10 *Vodochody L159, the 339 from Italy, the Yak-130*
from Aermacchi Italy, the Hawk 100 from the
United Kingdom and the MIG80 from Russia".

Our second recommendation was that:

15 *2. The RFO be issued to the shortlisted suppliers*
on 30 May 1998 were well enough proposed for
preparation period and the two week proposed
evaluation periods so that the LIFT Evaluation
Process may be phased into the strategic Defence
Equipment Packages Process. During the AASBAC
20 *meeting the Minister of Defence once again*
reiterated that the shortlisted (indistinct) should not
be based on an unsubstantiated cost limit that could
prevent the SAAF and the industry from sustaining
or improving on their current technology base as the
25 *move into the 21st Century. The meeting also*

12 NOVEMBER 2013

PHASE 1

5 *decided that to limit the workload on the Project Team to assist them in completion of the evaluation within the extremely restrictive schedule of the Defence Equipment Packages Process the shortlist*

10 *be limited to four contenders only. The MIG80 was eliminated from the recommendation shortlist in the reduction down to four contenders who (indistinct) offered the lowest Military Value at the highest lifecycle cost and also because some doubt exists*

15 *over the long term economic viability of (indistinct) market cooperation. Also taken into consideration was previous experience and working directly with the Russian companies including MIG Meko on the Re-Engine Programme and the information obtained*

20 *from other operators of MIG Aircraft. In contrast to the MIG80 the Yak-130 is offered as a fully westernised product supplied by Aermacchi as if their own product. Additionally a high risk also exists that the SAAF could be the launch customer*

25 *for the MIG80, possibly the only customer if the decision on the LIFT is made in the near future, this is a highly undesirable situation”.*

Then on page 475 there is a “Summary of the Approvals”.

25 *“This section serves a quick reference to the approvals pertinent to the Project Winchester*

12 NOVEMBER 2013

PHASE 1

(indistinct) of a Lead-In Fighter Trainer aircraft to satisfy the SAAF fighter requirement. At a SAAF Command Council meeting at Air Force Headquarters on 17 November 1997 the SAAF Command Council confirmed the requirement for a three-tier fighter trainer system, ASTRA, LIFT, Cheetah, ALFA, and the (indistinct) to satisfy the LIFT requirement. The SAAF operational requirement for a Lead-In Fighter as defined in the LIFT Operational Requirement document 14/1997 dated 16 January 1998 was approved by Major-General (indistinct) Lombard on 16 January 1998. On 6 March 1998 the AAC approved the combined Staff Target and Staff Requirement for LIFT. The Ukhozi and Winchester Control Panel approved on 30 April 1998 that they recommended to the AAC for their approval the following aircraft ...".

As we mentioned, including the MIG18:

"The combined AAC (indistinct) approved on 30 April 1998 but RFO's be sent to the following shortlisted contenders, the L159, the MB339, the Yak-130 and the Hawk 100".

Commissioner, I would now like to go back to my submission page 16.

ADV MPHAGA: Maybe before you go to that I see on page

12 NOVEMBER 2013

PHASE 1

476 it indicates the approval excluding the MIG80.

MR FERREIRA: That's correct. If you recall the AASB approved that the MIG be removed in order to reduce the workload before and because after risk involved with the MIG as indicated on, if I go back to page 474 the fourth paragraph from the top.

ADV MPHAGA: Thank you, you may proceed then.

MR FERREIRA: Page 16, we have described that diagram on page 16 about the Evaluation Process, paragraph 6.13, the responses to the LIFT RFI and the request for additional information were measured against each of the parameters in the Value System indicated on page 17 and not 21:

"This was done to determine the compliance of suppliers against a specific requirement. A cost analysis exercise was conducted by firstly establishing within a margin considered to be negotiable whether a quantity of 24 aircraft plus required log support could be acquired from inside the project financial baseline".

What that total project cost would be.

"An analysis was also conducted to determine whether the system could be operated within the operating budget determined".

On page 17:

"The process and results of the cost analysis

12 NOVEMBER 2013

PHASE 1

(indistinct) were described in the interim project study report ... “.

Which we went through now.

5 *“... which have verified the aircraft shortlist types that potentially could satisfy the requirements for the SAAF LIFT Aircraft. The IPT provided the Military Value as defined for a second order evaluation system as (indistinct)”.*

10 On page 18 you will see the graph again where we indicated the two clusters of aircraft which we described.

15 *“The LIFT RFI Evaluation Results were presented to Ukhozi Control Board Council Meeting on 24 April 1998. On 30 April 1998 the second Ukhozi Control Council Board meeting took place and in that meeting the recommended LIFT shortlist was approved and tabled to AAC the same afternoon. The AMX80-A which had the Military Value above 69 but was excluded by the Ukhozi Control Board Council on the basis that it is a primary and*

20 *operational aircraft and not a trainer, adding a huge cost to fund requirements not required for LIFT”.*

If you look on page 493 and more specifically 494, there's the minutes and notes of the minutes of the meeting which excluded the AMX.

25 *“Pursuant to the evaluation process and on*

12 NOVEMBER 2013

PHASE 1

30 April 1998 the following recommendations were made to the AASB and the AAC; that only aircraft with a Military Value above 69 and ...”.

It's a typing error:

5 *“... based on the Value System were recommended for shortlisting, the RFO was issued to the shortlisted suppliers on 15th of May 1998 with a one month proposal preparation period and two weeks’ proposal evaluation period so that the LIFT*
10 *Evaluation process may be phased in the SDP. The MIG80 was eliminated from the shortlist because it offered the lowest Military Value at the highest lifecycle cost and also because some doubt existed over the long term economic viability of MIG*
15 *(indistinct) Corporation. In the end the AASB and AAC approved that the RFO to satisfy the South African Air Force requirement for the LIFT be issued”.*

Now unfortunately I have not attached the minutes of the AASB,
20 AAC meeting here but they are available and if you would like them we could attach them for completeness to the submission, they only need to be declassified, which will confirm the removal of the MIG80.

25 *“On 12 May 1998 the request for final offer was issued to the shortlisted suppliers (LIFT RFO). The*

12 NOVEMBER 2013

PHASE 1

5 *LIFT RFO consisted inter alia of the (indistinct) documents, a request for final offer documents in the URS, concept integrated log support plan, a minimum airworthiness requirement, flight test instrumentation. The proposals were received from the shortlisted suppliers on 15 June 1998. These shortlisted suppliers were evaluated in the LIFT RFO Value System described below”.*

10 *“The Military Value will consist out of programme management, engineering management, training functionality and logistic support”.*

Very similar to the Value System of ALFA RFO, and that Value System is attached to the submission at 697, page 697.

15 CHAIRPERSON: Advocate Mphaga perhaps before we read page 697 shouldn't we adjourn until tomorrow morning and we can continue from there tomorrow morning?

20 ADV MPHAGA: I guess it would be a good idea Chair, because ... It would be a good idea Chair because it's quite an extensive document.

CHAIRPERSON: That's quite an extensive document. Thank you. We'll adjourn.

(COMMISSION ADJOURNS)

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NOTE: Note that no bundles were furnished for reference by the transcriber. Note also that the witness speaks extremely fast rendering his voice inaudible. Transcription of his evidence proves difficult.

5