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CHAIRPERSON: Good morning. Advocate Mphaga.

ADV MPHAGA: Thank you Chairperson. Today is the 2nd of September 2013. Chairperson, I beg leave to call General Bayne as the next witness.

5 **(Witness is sworn in.)**

CHAIRPERSON: Thank you.

ADV MPHAGA: Thank you Chair. Insofar as the evidence of General Bayne is concerned Chair we will restrict ourselves to bundle H which contains his statement and the annexures and we'll, we may also refer to bundle B which is the White Paper and the Defence Review and where necessary we'll also refer to bundle G which is the photos that were referred to earlier.

10 CHAIRPERSON: Advocate Mphaga, I see here our ... I'm sorry, I thought it was R, I'll turned it upside down. Thank you.

15 ADV MPHAGA: Thank you Chair.

WITNESS NUMBER 1-SAAF (RECALLED) : BRIGADIER GENERAL JOHN WILLIAM BAYNE ("Hereinafter referred to as "BRIG GEN BAYNE"), GIVES EVIDENCE UNDER OATH

20 **EXAMINATION IN CHIEF:**

ADV MPHAGA: General Bayne you have already given evidence in respect of the photos depicting the Gripen's and the Hawks, am I correct?

BRIG GEN BAYNE: That is correct Chair.

25 ADV MPHAGA: And now your evidence will basically be on

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rationale to some extent and also on the utilisation of the equipment, the Gripen and the Hawk.

BRIG GEN BAYNE: That is correct Sir.

ADV MPHAGA: If I go to bundle H page 1 you are a brigadier
5 general employed by the South African National Defence Force and you are currently the Director Combat Systems of the South African Air Force, is that correct?

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: And some of your duties as a Director Combat
10 Systems, director, you are responsible for the Gripen and the Hawk systems, am I correct?

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: And in paragraph 3 of your statement you
15 indicate that you have been asked to provide evidence within your knowledge that would be relevant to the rationale and the utilisation of the equipment acquired in terms of the Strategic Defence Procurement Package, am I correct?

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: And I see also you indicate, unlike your
20 predecessor General Malinga, that you were involved in the SDPP process from February 1998.

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: If I may refer you to page 13 of your statement
25 which is Annexure "JWB1", the abridged *Curriculum Vitae*, it appears to me that you joined the South African Air Force at

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the tender age of 17 years.

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: And you have since been with the Defence Force from 17 years to date?

5 BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: According to your *Curriculum Vitae* you joined the South African Air Force in 1972 and you completed your officers course which was followed by B.Military degree at the Military Academy, is that correct?

10 BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: What is the officers course, what does it entail?

BRIG GEN BAYNE: In 1972 that entailed, after doing basic military training in the Air Force at the Air Force Gymnasium
15 where all members of the Air Force were trained in those days, which is basically soldiership, you then were selected for flying training and all pilots in those days were officers and then you went to do the officers course, this course was a six month course at the Military Academy, a faculty of the University of
20 Stellenbosch at that time, still is today, and on this course then you were taught officer skills, it also served as first year university degree entrance, accredited by University of Stellenbosch doing Military Economics, Military History, Military Law and certain other types of subjects, so all officers
25 did that at that point in time. It obviously also entailed

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working, and in those days was a joint course with the Army and the Medical Core members and the Navy, so this course was a joint course in those days for to become an officer in the Air Force.

5 ADV MPHAGA: So, after qualifying with your B.Military degree you say you were awarded SAF wings in 1975, can you just elaborate on that.

BRIG GEN BAYNE: Yes. Of the core of officers you were then offered, if you made the marks of your first year and on your
10 course you were offered to remain for two more years and complete a three year degree, which I did, prior to going to Wings, the other members would carry on straight to do their wings and it is correct then that I qualified in, and got my wings in 1975 training on Harvard and Impala jets Chair.

15 ADV MPHAGA: Now after having trained on the Harvard and the Impala jets you indicate that after an operational tour at 5 Squadron in Durban on Impala's you were posted to instructors course and served five years at Dunnottar and Langebaanweg, becoming an A1 Category instructor in the late
20 1970's. Could you just elaborate firstly on what an operational tour means?

BRIG GEN BAYNE: Yes Chair, that was a tour after your training where we went to consolidate the flying that we'd learnt up to Wings Course on an operational squadron, it was
25 to consolidate those skills and also learn what, actually what

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an operational squadron was all about and then some members would be selected to go on instructors course like myself, others would progress straight on to further fighter courses in their career at that point, and then I went to do my instructor
5 courses at the other units.

ADV MPHAGA: And the A1 Category instructor, what is that?

BRIG GEN BAYNE: The A1 is the highest category of instructor that you can attain in the South African Air Force
Chair.

10 ADV MPHAGA: Were you an instructor to new trainees who were flying the Harvard and Impala's?

BRIG GEN BAYNE: Yes that is correct, *ab initio* training from the time they first start flying until they attain their wings
Chair.

15 ADV MPHAGA: Then you say it was then followed by 14 years on fighter flying on Impala and Cheetah aircraft and operational and training units, can you inform the Commission what that entails?

BRIG GEN BAYNE: Yes, as I alluded to earlier I'd now
20 completed instructors course, I then went to do my fighter courses at 85 Combat Flying School in those days up at in Pietersburg and that was a course on Impala's and from Impala's then to the Cheetah's and that was to become a fully qualified operational pilot on first Impala's and then Cheetahs,
25 I also served on 4 Squadron for three years doing an

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operational tour at the Squadron and also back to 85 Combat Flying School as a Pilot Attack instructor, which is the highest qualification you can achieve in the combat line, and I served at 85 Combat Flying School and from there went on to the
5 Cheetah course where I did my course and then remained on Cheetah's and also became an instructor on the Cheetah aircraft Chair.

ADV MPHAGA: What do you mean when you say you were part of the implementation team for the Cheetah aircraft which
10 heralded the first digital cockpit introduction into the South African Air Force?

BRIG GEN BAYNE: I was on the first operational conversion course of the Cheetah coming from Impala's, there was a small staff who were busy implementing this aircraft which was, as I
15 alluded I think the other day when I showed the slideshow that the Cheetah was our first digital cockpit that we received, I then stayed on as staff and also helped to develop the syllabi and some of the training material for that course and also did work with the introduction of the modern simulator system in
20 what we term the Centralised Training Centre for the Cheetah aircraft Chair.

ADV MPHAGA: By the way the Cheetah was simply a development of the, what do you call it, the Impala, am I correct?

25 BRIG GEN BAYNE: No, the Cheetah was the upgraded Mirage

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III, the supersonic aircraft, that was upgraded from analogue to digital cockpit and also had some modifications to it and it then became the Air Force's frontline medium fighter Chair.

ADV MPHAGA: So you were part of that process?

5 BRIG GEN BAYNE: I was part of that process, yes.

ADV MPHAGA: Now you say then that you ended your active flying in 1994 having become the Officer Commanding 85 Combat Flying School, can you elaborate on that?

10 BRIG GEN BAYNE: Yes. Having served on the Cheetah I then did my Senior Staff Course for promotion to, in those days it was commandant, today it's lieutenant colonel, this made me eligible to become a squadron officer commanding and that is probably the pinnacle of command in the Air Force to be given the responsibility to command a unit and I was selected to
15 become the officer commanding at 85 Combat Flying School which at that point was responsible then for all combat flying training up until the time the graduates would go from Impala's onto the Cheetah Chair.

20 ADV MPHAGA: You had already led at that time for three years the National Aerobatic Team, the Silver Falcons. What was that team all about?

BRIG GEN BAYNE: Yes, as you've heard earlier there were some budget cuts at that, around about that time, and many of the Impala squadrons were closed and were amalgamated and
25 most of the assets were placed at 85 Combat Flying School

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including the jet conversion course from Langebaan, and also with that came the Silver Falcons Aerobatic Team and as the officer commanding I could then have the opportunity, a very privileged opportunity to be the leader of the National
5 Aerobatic Team which I did during my tour for three years Chair.

ADV MPHAGA: And in 1994 you were summoned to desk duty at South African Air Force Headquarters where you spent three years at Strategic and Operational Planning Division, can you
10 elaborate on that?

BRIG GEN BAYNE: Yes Sir, normally a squadron OC tour is around about three years, three to four years, so at that point in time I was, it was my turn to go and do a tour of duty at Air Force Headquarters as a staff officer which is normal
15 progression for most fighter pilots in our Air Force and other lines as well, and I had an opportunity to serve at our Strategic Planning Section which does future planning for the Air Force and also looks at the future budgeting and planning of the Air Force at a strategic level. We also in those days had a
20 directorate Operational Planning Chair and that looked more at filling any requirement gaps which were evident in the Air Force at the time and I did my tour there at those two divisions for the next period of my career Chair.

ADV MPHAGA: During that stage what was your rank General?

25 BRIG GEN BAYNE: At that stage I was a lieutenant colonel.

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ADV MPHAGA: And you say that in 1998 you were now selected to head the Technical Project Team to replace the fighter fleet at the South African Air Force, can you explain in detail?

5 BRIG GEN BAYNE: Yes, also just towards the end of my tour at Operational Planning I was promoted to the post of colonel and I became eligible then to be nominated for someone to head up this programme which was developing at the time and so from that post I then became, or was selected to do this
10 task in the Air Force Chair. I think to elaborate a little bit there this meant then also being a project officer and in those days working up until the requirement was placed once the project is fully activated, then become a project officer and move across to Defence Headquarters under directorate Air
15 Force Acquisition. Thank you Chair.

ADV MPHAGA: And you say you were delighted by this appointment because it put you back at a sharp edge, can you elaborate on that?

BRIG GEN BAYNE: Yes, I think any pilot likes to fly aircraft
20 rather than desks, but it is a very much important part of the task but this was then a balance of being, although it was a staff post and not an active flying post it meant that I was still involved with aircraft and very close to aircraft and so it was a very nice opportunity for me Chair.

25 ADV MPHAGA: In 1998 it is the same year where you say that

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you became involved in the SDP, so was this appointment related to the SDP's procurement?

BRIG GEN BAYNE: I don't think it was related necessarily but it became part of the packages and the fighter programmes at that time and then I headed up what was then called the Air Combat Acquisition Team which was the combined team which took the programme from the requirement stage of the project through until contract signature in 1999 Chair.

ADV MPHAGA: And you indicate further that this very appointment gave you the opportunity to fly numerous other aircraft and fighter trainer aircraft, can you elaborate on that statement?

BRIG GEN BAYNE: Yes, as a pilot on the programmes I also was able to fly the aircraft that were flown during the phase of, that early phase of the programme, certain of the aircraft. Thank you Chair.

ADV MPHAGA: Now after having ... You then went to the United Kingdom and spent about five years on the Hawk project. Can you elaborate on that?

BRIG GEN BAYNE: Yes Chair, once the contracts were signed in December 1999 then in order to run a cardinal project a full project team is established, the Air Combat Acquisition Team was then split up into two teams, one for Project Winchester which was the project to deliver the lead-in fighter trainer, the other was the Project Ukhozi which was to deliver the advanced

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light fighter aircraft and at that point in time the preferred aircraft and contracted aircraft being the Hawk from BA Systems in the UK and I then became the project officer of that project, and a separate project officer was appointed to Project

5 Ukhozi and I then took the team with my ARMSCOR counterpart, the ARMSCOR programme manager and we led the team then through the rest of the programme or project phase up until delivery to the Air Force between 2000 and 2005 Chair.

ADV MPHAGA: Was it an uninterrupted five years?

10 BRIG GEN BAYNE: It was an uninterrupted five years Chair.

ADV MPHAGA: And why was it necessary for you to spend five years in the cold United Kingdom on this project?

BRIG GEN BAYNE: As has always been the case when a cardinal programme is run there is a combined DOD and

15 ARMSCOR Project Team that is put together, this happened on all previous programmes as well, and I would say the main purpose of this team is it is an integrated project team which has multi-skills of both military and ARMSCOR personnel, it is very important for that, and they each have then specific areas

20 of responsibility during that time and the task then onsite is to ensure that the project is run according to schedule within financial baseline and to meet the requirements of the end user, so our task primarily on the military side then was to make sure that any aspects relating to requirements was in our

25 domain, ARMSCOR focused and concentrated on the

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contracting and their part of that programme Chair.

ADV MPHAGA: Were you the only one representing the South African Air Force on that project team?

5 BRIG GEN BAYNE: No, of the total of five members of the Air Force and the rest then were from ARMSCOR.

ADV MPHAGA: And you mentioned that you spent three years thereafter having come back from the United Kingdom implementing the Hawk system into the South African Air Force, can you enlighten us on that.

10 BRIG GEN BAYNE: Yes, once the project reaches what is termed the commissioning or implementation phase then the DOD part of the responsibility is then to take the system and to ensure that the environment into which the system is delivered being in this case the Air Force, is properly prepared and also
15 to make sure that all the necessary elements and deliverables are then delivered efficiently and effectively into service in what is termed that phase of the project and so we returned then because the centre of gravity of work I would say on the project was now starting to be much more in South Africa than
20 in the overseas office Chair.

ADV MPHAGA: When you refer to the Hawk system what does it mean, does it mean the aircraft or what does it mean, can you just enlighten us on that?

25 BRIG GEN BAYNE: Yes, I think we'll allude to that a little bit more in detail, but when one acquires and aircraft it is a total

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system, therefore it also includes logistics, it includes engineering, it includes a lot of ground support equipment and test equipment, it includes training, it includes facilities and also of course includes other integration aspects into the environment into which you bring the whole system, so the aircraft is only a part of such a cardinal project Chair.

ADV MPHAGA: And you say that in 2008 you returned to the South African Air Force Air Command at directorate Combat System as the SSO OPS. Can you give us details of that?

10 BRIG GEN BAYNE: Yes Chair, I think you heard earlier from the deputy chief of the Air Force, the Air Force manages and directs its various key assets under what we call system groups and the system I alluded to then makes up all those elements and in the case of fighters in the South African Air Force this is directorate Combat Systems, I returned there in the first year after having completed my implementation part, I handed over to another project officer to continue that work and I then came to the directorate as to the SSO Operations which is in essence the second in command of the directorate responsible for the operations part of the directorate. There is also a logistics SSO who looks after the various logistics aspects and there's also an engineering SSO to look after the engineering aspects as the directorate Chair.

25 ADV MPHAGA: And in 2009 you were promoted to the current rank and also appointed as a director of Combat Systems in the

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South African Air Force, is that correct?

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: Now your current responsibility as Director Combat Systems, what does that entail?

5 BRIG GEN BAYNE: As Director Combat Systems I'm responsible for all the resources and the activities of the Hawk and Gripen systems, also I have a section called Electronic Warfare which also falls under Director Combat Systems, this is not only for fighters, it is for the whole Air Force for which I
10 am also responsible Chair.

ADV MPHAGA: So the whole Hawk and Gripen systems falls under your command?

BRIG GEN BAYNE: Yes, under my directorship. Command in the military would be under the squadron officers commanding
15 and the base officer commanding, they report directly to the general officer commander Air Command, so in my role I am responsible for all the planning, budgeting and resource management of the two systems in support of the command line to carry out operations Chair.

20 ADV MPHAGA: Thank you. Now in paragraph 5 on page 1 of your statement you indicate that following the retirement of the project officer for Project Ukhozi you were appointed as the chief project officer Fighters, directorate Air Force Acquisition. When was that?

25 BRIG GEN BAYNE: That was in, that was in February 1998

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Chair.

ADV MPHAGA: And are you able to indicate to the Commission when was Project Ukhozi commenced with?

5 BRIG GEN BAYNE: Project Ukhozi was commenced in 1994 initially and then ran through until, still is today a running project Chair.

ADV MPHAGA: And you have already indicated that it was established to acquire an advanced light fighter aircraft for the South African Air Force, the ALFA?

10 BRIG GEN BAYNE: Chair, initially it was established to replace the ageing aircraft, fighter aircraft fleets and so it ended up after going through the process of the force design and reviews to make a final decision and the final deliverable would then be an advanced light fighter aircraft under Project
15 Ukhozi Chair.

ADV MPHAGA: In paragraph 6 you indicate that then you were, you served on the newly formed Air Combat Acquisition Team, can you explain to us what that team was all about?

20 BRIG GEN BAYNE: It was a team formed once the decision was taken that the Air Force required an advanced light fighter aircraft and a lead-in fighter trainer aircraft due to the fact that these two aircraft formed a system of replacing the other aircraft or the currently operated aircraft it was decided by the Air Force Command Council that a single team would be formed
25 to pull the resources for both of these projects during that

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period of the project up until contract signature Chair.

ADV MPHAGA: Were you also initially appointed to lead the Project Winchester or you only came to be involved later?

BRIG GEN BAYNE: I was appointed as Project Officer
5 Winchester during the formulation of the staff documentation and then when both of these were included in the packages and the (indistinct) was formed, then I joined the ACAT and I headed up the DOD part of the ACAT team which was I said specifically formed for a phase of the two projects Chair.

10 ADV MPHAGA: You were part of the ACAT up until the signing of the contracts in December 1999, am I correct?

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: You say in your statement that once the contracts were signed two separate project teams were formed
15 for the further project phases and you were appointed as the project officer for Project Winchester until October 2008, what does this entail?

BRIG GEN BAYNE: Once contracts are signed for a project then you enter into what is then termed the production and
20 development phase of the programme, the early part with the contractor, and that was the period in the UK, followed by the implementation or commissioning phase and then that was during when I was implementation officer back here until October 2008 Chair.

25 ADV MPHAGA: You've already indicated that you were

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transferred back to the directorate Combat Systems and in August 2009 you became Director Combat Systems and you are presently responsible for the Gripen and Hawk systems.

BRIG GEN BAYNE: That is correct Chair.

5 ADV MPHAGA: Now we then have to deal with the background on page 2 of your statement and you speak there in paragraph 7 that when you joined the South African Air Force in the 1970's the three tier training system was well established and in that paragraph you deal to a lesser detail with the three
10 tierstraining system, can you elaborate on that?

BRIG GEN BAYNE: Yes, as I alluded to when I did my wings in those days it was done on the piston engine Harvard aircraft which was the first phase of your wings on that aircraft and then about halfway through the course we would go, the
15 trainees would go down to Langebaanweg to the Jet Training School and complete their wings on Impala Mk1 Jet Training System and then go to hone those skills and to consolidate again on Impala's at various of the Impala squadrons. After that the training would then be done on the Impala Mk1 and 2
20 which were the main training aircraft and light combat aircraft of the time, prior to going on to the Mirage course which was the supersonic fighter course in those days and from then go out to the various frontline operational squadrons, so the three tier there referring to Harvard, to Impala and to Mirage Chair.

25 ADV MPHAGA: In paragraph 10 you indicate that the types of

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aircraft were acquired as an ongoing process of renewal of the ageing equipment and were procured from various countries and companies throughout the 1970's and 1980's in which period sanctions were becoming more and more effective and technology was developing at an ever-increasing rate. Can you elaborate on that paragraph please?

BRIG GEN BAYNE: Yes, as also alluded to by the deputy chief of the Air Force once we were qualified in those days, those that qualified on the Mirage III would then go on to a variety of different types of frontline operational aircraft and all these aircraft were in various stages of age, capability and technology. If you look at the, there were both bomber and fighter type of aircraft in those days and these aircraft from time to time would be phased out and replaced by other aircraft, so what I think I'm trying to allude to is that acquisition was an ongoing process like in the rest of the Air Force and very much so in the fighter line, that as aircraft became aged or became, reached their obsolescence they would be replaced and these were from various different countries and from various different companies in those countries.

But as we headed deeper and deeper into the era the sanctions became a major challenge and so you found then that less and less opportunities were available to the Air Force to replace these aircraft platforms from a wide choice of

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suppliers and so it ended up then being a very limited supply from where these aircraft could come, and it is during that time also that technology in aircraft started to take large leaps forward in terms of digital cockpits and moving from what I would term an analogue to a more digital type of aircraft Chair.

5 ADV MPHAGA: I think General Malinga has already taken us through the history in respect of the World War II, the Korean War and the Bush War which went on until the late 1980's. In paragraph 12 you are indicating that the Impala Mk2 was also
10 used in numerous collateral operational roles in lower threat scenarios during the war. Now the conflict I'm trying to say were building up and therefore the defence budget grew over the years to fund, develop and sustain a formidable South African Defence Force of which the SAAF was part of. Can you
15 just take us through that?

BRIG GEN BAYNE: Yes Chair, the ... Although the frontline aircraft were there the South African Air Force, I believe, has always made maximum use of all of its resources. I think you heard from my Navy colleagues and from General Malinga that
20 these assets will always be in high demand, they are normally very scarce for the demands placed on them, particularly when one is in a high level of conflict, and so the Air Force also made use in particular of the Impala Mk2 in the Bush War as a collateral light fighter doing various tasks that it could be done
25 safely and very effectively, although it was a training aircraft

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as such and so what I'm alluding to is that this collateral role has always been part of the Air Force making maximum use of all of its assets, however, this means that the aircraft is not designed for to be a fully operational aircraft but to start to show that already the demands were such on the higher performance platforms that the Impala also played an important role during the Bush War during particularly the late 1970's and early 1980's, but once the threat started to build up very high you found then that the Impala was not able to be employed in as many areas as your frontline fighters, but certainly need not only be a training asset. Thank you Chair.

ADV MPHAGA: Now in paragraph 13 you talk about the Air Force being an integral part of a balanced defence force, can you explain to us what does that mean.

BRIG GEN BAYNE: Yes, I think again my Navy colleagues and General Malinga also alluded to this, but perhaps from a fighter perspective I think due to the complexity of war and operations which were starting to occur in the 1980's certain countries were already starting to realise the challenges of a new role being the peacekeeping type of operations, operations other than war. These were terms which were starting to be looked at by the Military and with this expansion from straight conventional war defence assets has to become even more flexible and adaptable and so I think the Air Force found itself in exactly the same position.

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Any Defence Force as is alluded to worldwide can only be balanced if it has a balance of land forces, air forces, naval forces, special forces and medical services as is the general remit of any good defence force. Obviously if you are

5 a landlocked country or you are surrounded by sea then this balance will change in one way or the other, but essentially if you do not have a balanced capability then you do not truly have an effective defence capability. It also doesn't help if you have a, although you may have all the assets but they are

10 wrongly balanced and mixed, then you also will not achieve such an optimum capability and so already in the 1980's I think that South African Defence Force started to realise the importance of being very aware of these changes and also adapting to them at that time Chair.

15 ADV MPHAGA: General Malinga has to a certain extent dealt with the concept of, or the key tenants of air power, flexibility, mobility and fire power, do you want to add to that and ...

BRIG GEN BAYNE: Chair if I may just go back to my previous statement, and I saw that I did have it in my statement but it's

20 very important also to allude to the fact that it was during this time I think that the realisation of the importance of organisations, not only directly defence forces, but the importance for us of an organisation like ARMSCOR of our research institutes, of our universities, of our local industry,

25 these are key elements of air power that became more and

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more I would say important during this era, and the importance of a partnering and an understanding of these tenants of air power, not only of air power but of a defence force. Apologies, I didn't allude to that in my previous statement.

5 To come to the three tenants of air power namely flexibility, mobility and fire power which can be utilised and delivered rapidly with surprise and over long ranges, I know that General Malinga also alluded to some of this but in terms of the fighter line of course it is your fighter aircraft that
10 deliver a large part of the Air Force's firepower, also they do it with precision because the aircraft are designed to do this and of course can do it over long distances and very rapidly which can turn events in favour of any campaign or battle.

 Generally this will be done earlier in the campaign
15 and also as has been seen in history, very important, is to gain over certain areas at certain times what is termed air superiority, this is to ensure then that enemy aircraft cannot hamper or attack your own ground forces or naval forces when they move into the area, which could probably be a little later
20 in a typical campaign. So, although the Air Force would not bring the bulk of the defence capabilities this would come with the Navy and with the Army, it is the Air Force generally that will go and do some of the early work and very critical work and after doing that initially will then take on the very
25 important secondary role of an air force where the fighter

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combat capability also plays an important role and that is then supporting either the ground forces or naval forces for the remainder of the campaign in what we call air support to those services. Thank you Chair.

5 ADV MPHAGA: And paragraph 15 you indicate that it is for those reasons that it is for those reasons that the South African Air Force acquired a fighter aircraft with an inflight refueling capability. Can we just stop there and please explain for us what does that mean?

10 BRIG GEN BAYNE: Yes Chair, as you saw on the presentation fighter aircraft are not that large so they carry a certain amount of fuel and fuel is very important because it gives you your range and your reach to do the task. In the late 1960's and early 1970's air forces started to develop fighter aircraft
15 with an inflight refueling capability, this meant that in, while flying in the air fighter aircraft could receive fuel from a typical inflight refueler tanker aircraft, normally converted airline-type of aircraft but in our case the Buccaneer which we bought in the 1960's also had what was termed a buddy inflight refueling
20 system, this was a pod that was put under the aircraft, as you saw the Buccaneer was a large bomber aircraft, it could carry a refueling pod under the wing and it was then used to refuel other Buccaneers in that role which gave that Buccaneer system a very long range maritime strike or bombing capability.

25 The Mirage F1 AZ's that we acquired in the 1970's

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came with inflight refueling as did the Cheetah upgrade included inflight refueling into our combat aircraft, this to give further reach for the long range interdiction and long range strike capability which the Air Force is then able to deliver for the country. In the 1980's this reach became more and more important as the Air Force found itself extended not only in the Bush War but as foreseen may be the case in the future and so a more substantial inflight refueling capability was required and the Air Force acquired five Boeing 707 inflight refueling aircraft generally termed the KC135 by many other countries, and these aircraft were also very versatile because they also had the capability of doing electronic warfare on a very large scale that could carry a lot of sensors and do that role, as well as could be used for heavy freight and even troop passenger or ordinary passenger aircraft as well, and so these came in the era of the 1980's and they flew through until 2007 in the Air Force and they were then primarily used as in-flight refueling for the Mirage F1 aircraft as well as the Cheetah aircraft that were upgraded.

I think you also saw on the photo that I showed on Wednesday Sir that we still had these aircraft in the initial stages of the Ukhozi Project and in fact to clear the Gripen with each inflight refueling and the Hawk these were done on our South African Boeing 707's when that was done just before they were phased out in 2007. Thank you Chair.

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ADV MPHAGA: Can you elaborate more on the electronic warfare?

BRIG GEN BAYNE: Yes, in throughout from about the 1970's onwards and today very much so we see in the world today how
5 important electronic media is, you have Chair probably read about and heard about what is now termed cyber warfare and most defence forces now focus on this domain. Electronic warfare was the first time I think when it was realised that
10 aircraft A could be protected from many of the ground threats, the surface-to-air missiles and anti-aircraft type of fire as well as missiles from other aircraft could be protected by means of electronic warfare measures.

These are either what we call flares which create a very high heat source, they are fired from the aircraft and they
15 deflect the missile which is homing in on the high temperature engine of the aircraft and then this flare will deflect the missile away from the aircraft and so protect the aircraft and give itself protection. There is also a thing called Chaff which also can be thrown because some missiles have radar guidance, the
20 Chaff is then used to confuse the radar tracking devices and so not allow the aircraft to be tracked and therefore if the aircraft can't be tracked then it cannot be fired on as accurately.

The next development in electronic warfare was what was called Active where actually then electronic measures
25 are used within the aircraft electronically to defeat the other

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aircraft's missiles or ground systems and this is a type of a cat
and mouse game that has been going on for the last 30 years,
highly technology driven in which you find phases in which the
electronic countermeasures are on top and then your
5 manufacturers of course of the weapons will go and find a
defeat for that and then so it goes on, so you tend to get terms
like electronic countermeasures and then you get electronic
counter-countermeasures for this, and the Air Force has always
had a very good niche capability in this area and so has our
10 local industry and this gave us a very strong capability on our
aircraft platforms from the 1980's onwards in particular Chair,
thank you.

ADV MPHAGA: Did the South African Air Force have this
capability, electronic warfare in the digital era?

15 BRIG GEN BAYNE: Sorry, could you just repeat the question
for me?

ADV MPHAGA: Did the South African Air Force have this
capability during the analogue era?

BRIG GEN BAYNE: Chair yes they did on the Mirage F1
20 aircraft, the system was carried in what was called a pod, an
electronic pod under the aircraft like a drop-tank or a weapon,
so you had to give up a station as such to give you that self-
protection. The Cheetah, when it was introduced had an
internal electronic warfare system which meant that it was
25 embodied inside the aircraft and did not need to carry an

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external store, the same applies for the Hawk and the Gripen today, they have internal what is termed an electronic warfare suite, the suite refers to the makeup of all the equipment that forms the electronic warfare part of the aircraft. Thank you
5 Chair.

ADV MPHAGA: Thank you. The last sentence in paragraph 15 states that in the very same era, you have referred to the mid-1980's, there were dedicated variant of types were required for different roles namely air-to-air defence, air-to-surface attack
10 and reconnaissance. Can you just give details to that?

BRIG GEN BAYNE: Chair, in that era for example if I had to allude to the Mirage F1's there was a dedicated Mirage F1 CZ which was the air defence role aircraft, this would carry an air-to-air radar in the nose of the aircraft, it would be
15 designed to carry maximum air-to-air missiles and it's, avionics would be dedicated to this air-to-air role. The Mirage F1 AZ which was termed the ground attack version would not have an air-to-air radar, but it would have an air-to-ground laser sensing radar for example and this was because it would carry
20 out the role of air-to-ground or air-to-surface attack, throwing bombs, delivering air-to-surface munitions *et cetera*, and each avionic system and its hard points would be then designed for these type of weapons.

And then in the case of the reconnaissance version
25 we did not use the Mirage F1, we still had the old Mirage 3

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RZ's, they had a platform which the nose was adapted to take cameras, photos cameras which would take photographs of targets and gather intelligence through photography and that was a dedicated role, it for example did not carry necessarily any missiles or other types of armament, it was dedicated for that role and would be designed for that and this was how aircraft in general up to the 1980's were designed and operated by air forces worldwide. With the advent of digital cockpits and more modern cockpits of course this changed. Thank you Chair.

ADV MPHAGA: In other words you required more aircraft with different variants in order to perform various tasks, am I correct?

BRIG GEN BAYNE: Chair that is correct, in the case of the F1's we had, we acquired 32 Mirage F1 AZ's and 16 Mirage F1 CZ's and they had separate roles and were dedicated for that role, so in those days for each role you would have a dedicated type of aircraft, although it might have come from the same manufacturer and looked very similar but in terms of its insides or its capabilities it was designed for a particular task Chair.

ADV MPHAGA: You indicate that the South African Air Force retained the three tier system throughout its history and prior to phasing out of the Sabre aircraft in 1980 there was a total of about 350 jet trainer fighter bomber and reconnaissance aircraft. General Malinga alluded to the fact that it were about

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355, can you just give detail there?

BRIG GEN BAYNE: Yes that is so. Remember at this time the Bush War was becoming a higher and higher threat area and far more intense, more forces were being entered into that
5 campaign and so the defence budget at that time of course was high, a large part of the government spending was going into defence, we were in sanctions, so it was not easy to get equipment, if we did this equipment was very expensive and as I said had long, what we term lead times due to sanctions, and
10 so I think what we're alluding to there is that at that time as is typical when you are under threat and you have a very, or are fighting a war then the budget will increase, you will have more assets and we were a very formidable and large air force inside a large South African Defence Force at the time because of the
15 requirement in the 1980's Chair.

ADV MPHAGA: So the Sabre aircraft had reached its life cycle by the 1980's, am I correct?

BRIG GEN BAYNE: That is correct, and as I alluded to then went into their phase-out phase and were then replaced by
20 other aircraft Chair.

ADV MPHAGA: In paragraph 17 you indicate that by the early 1980's many aircraft manufacturers were developing fly-by-wire controlled airframes with electronically controlled engines, digital cockpits with integrated avionics, including electronic,
25 sophisticated electronic warfare suits and precision weapons

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delivery capabilities. Before you deal with it can you explain what is the fly-by-wire controlled airframe?

BRIG GEN BAYNE: Yes Chair, in aircraft before this era the aircraft control system was in the very early days what we
5 called a push-pull rod system, it was very simple, the aircraft's prime control or stick as we call it, and throttle were connected mechanically through series of rods and integrated engineering connections to all your control surfaces as well as in the case of the engine from your throttle or accelerator as would be
10 known in the motorcar to the engine. This was all done mechanically and the cockpit itself of course was designed with many dials to monitor this system in terms of safety and integrity and performance.

And then in this era the leaders in this transfer
15 realised the capabilities and the need to move from what is termed the analogue or push-pull control types of systems to fly-by-wire type of systems which are digitally controlled, so in this era where the input of the pilot to the stick was in ratio to the deflection or to the performance that he required of the
20 aircraft at the time, now the control stick on a digital aircraft or fly-by-wire aircraft is a movement, it's a very small movement and that is then electronically generated through a computer to the controls which will carry out the performance of the aircraft.

25 This meant that aircraft in this era could increase

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performance largely because it was so much more controlled via computer than via input of the air crew member as such, the same on the engine's side this would be controlled. In older aircraft you would have many limitations and restrictions, for example when you wanted to open a throttle very rapidly which you need to do in the fighter line you had to go through stages and gates to open the throttle and you had to monitor before you went to full power that you were not exceeding other limitations inside the cockpit.

10 With a digital system it's what you call engine carefree control and in terms of flying the aircraft you can move the stick and not be concerned of causing damage to the airframe or over-fatiguing the aircraft, this is then digitally controlled by the aircraft to prevent that. So, not only did it increase the performance of the aircraft, it also increased the performance of air crew because now air crew did not have to concentrate or spend so much time training and concentrating on the engine and flying the aircraft, but this was then allowed to be done and spend more time using the aircraft in the role, looking outside of the cockpit and doing the task at hand.

20 So, it was quite an enormous step forward in terms of modern aircraft and this was, at that time led in the military aviation domain, mainly in I think the combat aircraft domain. As you know today all airlines that you fly in today are virtually all gone to the same type of technology and of course have

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advanced it much further as it has in the military and I think in simple terms I hope I answered the question Chair. Thank you.

ADV MPHAGA: You give examples of aircraft which had these capabilities, the F16, the MIG29 and Mirage 2000, can you just
5 explain to us?

BRIG GEN BAYNE: Yes, I think I'm just trying to allude that this was happening both in the west and in the east, it was more driven by, as I said technology and the need to keep up, and so you find that most of the large aircraft manufacturers at
10 the time, as always happens in these matters don't want to be left behind, so you found that all of them were putting effort into this technology jump and that's probably also why it happened quite quickly Chair.

ADV MPHAGA: The F16 and MIG39 and Mirage 2000, when you
15 say it was the west and east, can you explain that in detail?

BRIG GEN BAYNE: Yes. The F16 was built by an American company and the MIG29 was built by a Russian company, and the Mirage 2000 by a French company, so you had a, it was happening in the USA, it was happening in Europe and it was
20 happening in the Eastern Bloc countries as well, this development Chair.

ADV MPHAGA: The Mirage 2000 was the advanced version of the Mirages that the Air Force had utilised in the past?

BRIG GEN BAYNE: Yes, the Mirage 2000 was the replacement
25 in the French and many of the other countries that the French

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have sold Mirage III's to, went to the, eventually went to the Mirage 2000 which was the digital version of the Mirage III with, as I said this new technology and new engine Chair.

5 ADV MPHAGA: When we phased out the Mirages was it not a consideration to look at the Mirage 2000?

BRIG GEN BAYNE: The time when the Cheetah programme commenced to deliver the first Cheetahs in 1986 these were very early days of the development of these other aircraft, in particular the Mirage 2000 for starters, and of course secondly
10 remember that sanctions were still very much alive and well and so at that time the decision taken was to enter into a cooperation with the Israeli aircraft industries and our local industry and ARMSCOR in order to upgrade our Mirage III's to this type of standard of aircraft as an upgrade programme
15 Chair.

ADV MPHAGA: And in paragraph 18 you allude to this fact that to keep with the advances in the airpower domain the South African Air Force, ARMSCOR and local industry embarked on a programme with the Israeli aircraft industry to upgrade the
20 (indistinct) aircraft to the Cheetah standard and enable the South African Air Force to enter the digital era of fighter aircraft operations, it is this partnership that you have alluded to?

BRIG GEN BAYNE: That is correct Chair.

25 ADV MPHAGA: The dual and single seater variants of Cheetah

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aircraft were delivered to the South African Air Force between 1986 and 1994, where did, who was the supplier?

BRIG GEN BAYNE: As I alluded to we already had our Mirage III's, so what happened was the development of this programme was done in conjunction with Israeli air industries, the aircraft then were taken to, in those days Atlas Aircraft Corporation and Atlas Aircraft Corporation together with the Israeli industries and our own local industry and our own resources, these aircraft were what was termed upgraded to Cheetah standard which meant a digital cockpit avionic system was included, the airframe was adapted to get additional controls on them to make them more efficient as had been learnt at that time what was termed canards in the front, if you compare Mirage III to a Cheetah you will notice it has a set of extra small wings in front of the main plane wings, these were termed canards, and they allowed the aircraft to have a much higher angle of attack and other performance attributes that you require for a fighter aircraft than the Mirage III, and also some strengthening was done on certain parts of the old Mirage III's to upgrade them to the Cheetah standard, so these were not new aircraft, these were our already ageing Mirage III aircraft that were given an upgrade and were then able to continue flying for a longer period of time Chair.

ADV MPHAGA: And you indicate further that the exposure to the digital era aircraft, it enabled the South African Air Force

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to grasp the value of a multirole type fighter, can you expand on this?

BRIG GEN BAYNE: Yes, here for the first time the possibilities, again remember that we were in sanctions, we did not have exposure to the world's technology and to the world's other developments in this domain, so this was a large learning curve not only for us but also for industry, for all of those institutes and all the agencies that I mentioned earlier, and when the programme was developing and then when we got the aircraft and started to fly the aircraft we realised that with these new systems that are so highly integrated and capable in the role with the modern equipment that it would in all likelihood be possible to have a single aircraft look at doing different roles.

15 The Cheetah was not there yet fully but certainly compared to the Mirage F1's and the older aircraft that we had this first step was being taken to realise that by changing just the avionics you could change the role of the aircraft, although the Cheetah as I said was not designed to be fully multirole, I would almost call it was a stepping stone to where we are today and I think it was a valuable stepping stone and we had the opportunity to learn about before we went into the modern era as such despite the sanctions Chair.

ADV MPHAGA: Now you mentioned further that after the Bush War in the 1980's then there were peace talks and also a

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political solution in the Republic and you mentioned that there was a budget cut which was drastic, in the early 1990's many squadrons closed and a lot of aircraft were phased out, which included the Canberra, Buccaneer, Mirage F1 CZ and some
5 Impala Cheetah Aircraft. Can you just elaborate on this?

BRIG GEN BAYNE: Yes Chair, I think as you heard it was also alluded to by my Navy colleagues at that period in time and also deputy chief, in the fighter line it was particularly a large cut for us because again coming into a more peaceful situation
10 as normally would happen and your conventional threat receding and the possibility of peace and coming out of that era, the many other priorities, government priorities at the time, and of course the general economic situation at the time forced the government into these large budget cuts in defence.
15 And so, the Buccaneer and Canberra had been flying as you heard earlier since the 1950's and 1960's and these aircraft were phased out.

Also by now we had realised again that the Cheetah could carry out bombing role, fighter role and reconnaissance
20 role as a single platform, so this also I believe at the time, although I was of course not in that, anywhere near that level of decision making, but if I had to look back these were major changes taking place and I think having the lessons at the time, the decision makers in the Military could make these
25 decisions and therefore live with these aircraft also being

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phased out as a reality and also moving towards more modern equipment which of course is more cost effective than the older equipment. And so these cuts were taken and also at the time interestingly when the Navy mentioned about personnel the Air Force also had to for the first time reduce personnel and I remember that was one of the less pleasant tasks of being a squadron commander at the time if you remember and that is why I remember those times, and so they were tough times, but yes, it had to be done and many of the Impala squadrons which were all over the country at that time had to also close down and that's where I mentioned earlier where a lot of the Impala assets were grouped and consolidated at 85 Combat Flying School, so a large impact on our Air Force at that time but prudent I believe looking back, we all know that hindsight is a perfect science but I think at that time it was prudent to have gone through those and I think the decisions of which aircraft were phased out and which were kept was also a sound decision in that we kept the Mirage F1 AZ's, they were in a much better condition than the CZ's and also the Cheetah-C that was coming in had the best or the latest technology in for the air defence role so the Mirage F1's were retained for air-to-ground role in 1990.

I think, I would imagine at the time there was still some nervousness that not all was there yet although the situation in South West Africa was starting to find its feet our

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internal situation was still in early days and so it wasn't a matter of taking all the aircraft out, but once again if I look back now and see the decisions that had to be taken I think they were sound in terms of which aircraft were phased out and which were kept. The Impala's then were shrunk because as I alluded to by now the Impala's were, Impala Mk1's, the trainers were already at that stage about coming up for 30 years old and the Mk2's which had flown extensively in the Bush War in a collateral role with high fatigue factor on them, they had been flown hard in hot and high conditions and although their age was not that long the fatigue on the aircraft was quite high because of the type of flying and the type of operations being a very light type of combat aircraft and put through some pretty harsh flying during the Bush War, they were also starting to show signs.

So, the ones that had the higher fatigue were the ones that were phased out and the aircraft with less fatigue and more hours left were then retained to see the Air Force through until they could be replaced at the time, so I think in short that summarises the situation at that point Chair.

ADV MPHAGA: Reduction of personnel, does it mean also the pilots and the air crew?

BRIG GEN BAYNE: Yes at that time it was across ground crew, air, across all of the services or the musterings sorry, not the services, the musterings within the Air Force, there was

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a balance of that programme Chair.

ADV MPHAGA: Chair, I see it's 11h30.

CHAIRPERSON: Okay thank you, maybe let's break for 15 minutes, we'll be back at 11h45. Thank you.

5 (Commission adjourns)

(Commission resumes)

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

BRIG GEN BAYNE: I do.

10 CHAIRPERSON: Thank you.

ADV MPHAGA: Thank you Chair. General Bayne we were still dealing with paragraph 19 of your statement and in particular I just want to know from you when you say that aircraft, these aircraft were phased out does it mean that they were destroyed or what do you mean about that?

15

BRIG GEN BAYNE: Chair well, aircraft systems and military equipment goes through a defined process of what is termed phase out and disposal, in fact it's also the final phase of a project, so for example as Combat Systems director currently if systems are phased out it would be in my remit now to phase them out and in this case it's done through our chief logistics agency mainly and also ARMSCOR are involved, they are the agency finally that take it to its finality, and this equipment can either be offered for other uses or would often happen is that in the case of the Air Force we would, what we call reduce the

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frame to the frame only, in other words you would take out the useable spares and units in the aircraft that can still be used economically to keep your fleet going, generally termed reduce-to-produce in the aviation game, so you're reducing your fleet
5 but you use some of that to produce more hours and extend those that remain behind if you are not phasing the total system out.

If you're phasing the total system out and replacing it then it will go for a certain amount of time into a marketing
10 support loop where there is opportunity for other agencies to acquire the equipment, or finally then the aircraft are then scrapped in certain cases through a formal process Chair.

ADV MPHAGA: Now in paragraph 20 you indicate that following the 1994 elections and the adoption of the new Constitution
15 there was a White Paper published in 1996 and the Defence Review which followed in 1998. General Malinga and Admiral Green has spoken about this and further that in the same period the defence budget cuts were made in 1997 which shrunk the South African Air Force fighter fleet even more.
20 Can you expand on that?

BRIG GEN BAYNE: Yes Chair, the impact on that for the fighter line was that the Mirage F1 AZ that I alluded to earlier was retained in 1990, it was decided to phase this aircraft fleet out, the Cheetah by now was fully delivered in 1994 and there
25 were adequate Cheetah aircraft and having realised the

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multiple role of that Cheetah the decision was taken then when the further cuts came to phase out the Mirage F1 AZ. Some of the earlier deliverable Cheetahs, some of the, what was the Cheetah E-model which was more focused on ground attack was also phased out and some, but the Cheetah-C's were retained with the Impala's. The Impala fleet, however, was again further reduced due again to the times in which we were now living, there was elections, the country had gone through democratic elections, it was moving to a much more peaceful era and hence indications of the work being done over that period between the White Paper and as alluded to by previous colleagues the Defence Review in process indications were that the threat had largely reduced and for this reason then these cuts could be accommodated and I think understandably there were other priorities for the Government to shift funds to at that point in 1997 Chair.

ADV MPHAGA: You mention in particular that the Impala fleet of aircraft was ageing at that time and with a life to maximum 2003 and the remaining Cheetah fleet was estimated to have an upgrade life until 2008 for the dual seater and 2012 for the single seater, can you expand on that?

BRIG GEN BAYNE: Chair, the Impala Mk1's were now reaching about 35 years and what happens in cases like this is the engineering and logistics musterings and fraternity in the Air Force, their job is continually during the life of an aircraft

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system, is to closely monitor these aircraft in terms of their age, also the fatigue that is put on the aeroplane. As I alluded to earlier fighter aircraft spend a large part of their times under what is termed G-forces, accelerating, rapidly climbing, rapidly descending, carrying weapons, it's a very harsh and a very high workload domain for aircraft as compared for example with airliners or transport aircraft that tend to climb, cruise and descend.

So, this is very carefully monitored by engineers and logisticians and they then continually will predict for you how long this fleet of aircraft with your remaining aircraft will be able to still fly with integrity, with good airworthiness and safely, and at this stage the Impala Mk1 fleet was deemed then to have a life to 2003, and as I alluded to earlier although the Impala Mk2's were brought into service later than the Mk1's they bore the brunt of the day-to-day flying in the fighter line during the bush war and again under very harsh conditions and so you found that although the aircraft in age were younger or less than the Mk1 the fatigue on those aircraft was climbing and this is why air forces have these engineering officers and airworthiness people continually with the manufacturer to monitor this.

And at this point in time it was realised that this fleet of aircraft would not go past the 40 years, it was beyond. The normal predicted life of the average fighter system is

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between about 25 and 30 years and so certainly these aircraft had served very well up to this point in time, but needed to be replaced then for age and also for what was termed obsolescence which is when you start to find that certain of your components on the aircraft due to them being aged and that perhaps model of engine or part has been replaced well before the time and although one acquires larger numbers of these in obsolescence many were acquired as a package of course again during the sanctions era, and so access to these was becoming a problem as well as some of these were becoming very, very difficult and very high cost items to maintain, and so looking at that total picture the Air Force then tabled the need to replace the ageing and obsolescent Impala system at that point Chair.

15 In terms of the Cheetah's they had come into service, remember as I said as an upgrade. Now before you do an upgrade on the system you will weigh up the cost and the advantages of an upgrade *versus* an acquisition, and you will also make sure then that if you are going to expend funds on an upgrade that these will as best one can determine, have the legs to last for that prediction, and so again the engineers with the team that did the Cheetah programme made a prediction that the Cheetah-D's would be able to be operated cost-effectively and safely, with integrity and airworthiness to 2008 and the single seater Cheetah's until 2012. The only

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difference or the reason why is that the duals were delivered first in about from 1986, 1987 because obviously you would want them to first train the pilots on, and as I alluded to earlier the fact that we were taking our pilots for the first time into a digital cockpit in a high performance aircraft, so we did not have any other digital aircraft yet to train them on, those meant that for example my conversion onto the Cheetah was quite a lot longer than counterparts who did their conversion on the Mirage III which went about the flying of the aircraft and not so much on the systems, you will find that the course was a bit longer and also to make sure that that transition was done well and safely, especially initially, and so you found that the single seaters then came quite a lot later because emphasis was put on first getting the Cheetah-D's in service, then the E's and then the C's.

That is the only reason why that gap existed, so you found that your Cheetah-C's which started arriving about around 1991 through to 1994 got their upgrade about four years later and so could last as such four years later. I hope that puts that into perspective, and the reason then being again that the airframes of course by then would be airframes that were acquired in the 1960's through to 2012, so once again in general the South African Air Force has utilised its fleet well beyond the norm of 25 to 30 years in virtually all its cases of its combat and fighter aircraft Chair.

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ADV MPHAGA: Then you are continuing in paragraph 21 to say that from the history that you have already painted the South African Air Force combat capability was developed over decades into a formidable air power capability, so this was
5 despite the isolation and the sanctions?

BRIG GEN BAYNE: Yes Chair, I think that during that buildup and that time certainly for our position and of course the threat was always high, we were isolated and so the capability was built up, but right from the beginning as alluded to by the
10 Deputy Chief of the Air Force the need to have air power in this part of the continent and this part of the world I think was also the reason why the Air Force was always well balanced within the South African National Defence Force.

As is alluded to well is that the air is a domain that
15 does not have the restrictions which landward forces or landward capabilities has, even on the sea it is easier than necessary on the land, but even on the sea as alluded to, weather and conditions and many other environmental and climatic and factors affect those forces. The Air Force on the
20 other hand does not have the same limitations in terms of the environment and therefore by having a balanced air force you always have a capability that can operate in that domain and carry out that role and so I believe that it is important for that part of the defence force to be retained and to be advanced
25 and I think it is shown by the fact that in our history up to now,

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right from the beginning we always made sure that we had a balanced air force with adequate capabilities to meet the requirements of the day.

5 The challenge of course, even though we went into sanctions at great cost but again with a lot of innovation meant that we were able to build up a local industry with the assistance of ARMSCOR and our other agencies, we had good universities, we had good institutes, CSIR and many others who could ensure that together with the Department of Defence and
10 the Defence Force were able to keep South Africa abreast and up to date with these developments because once you start to fall behind in these areas of technology and local industry capability and Air Force, and I think my Navy colleagues alluded how important this is, is once you even fall behind, I
15 don't even want to mention not to have or have a break in these capabilities, it is extremely difficult and risky and costly to retain them and to build them up again Chair.

ADV MPHAGA: Thank you. Now paragraph 22 you reiterate the fact that you retained the three tier combat training system
20 throughout the history of the South African Air Force, gained experience and further built close ties with numerous foreign air forces, allowing it to benchmark and remain a respected force worldwide, so this relationship with the foreign air forces was through the isolation period and the sanctions?

25 BRIG GEN BAYNE: I would go back further than that, alluded

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to again, I mean we're starting right off initially way back in 1920 with the Royal Air Force at the time, then of course the Commonwealth air forces during the 1920's and 1930's, the Allied Forces during the 2nd World War, the American Air Force during Korea where we were actively operating with such air forces, and I think what I'm alluding to is we were not developing in isolation, we were able to benchmark with formidable other air forces big and small, you know, Australia, New Zealand, Canada and others and then of course during the going into sanctions yes, this did become somewhat of a problem but again defence forces being serving the state and being more of a national asset again you are able to keep up perhaps a bit easier with certain of those matters and networks that are there, but I think importantly in that era again was the fact that we were able to innovate and be able to survive through that sanctions period as well.

And then of course in the Bush War we did not have to benchmark but we had a very formidable enemy in the forces that we were building up, particularly in the domain of ground based defence systems, there was a formidable radar coverage, there was a formidable surface-to-air missile and anti-aircraft blanket put down in that area and this forced us then to also counter that and hence I said earlier how important electronic warfare became for us which became a niche and in fact one of our local companies became renowned for the work that they

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did in this domain, and so although we were in sanctions and we perhaps could not benchmark as widely we had the advantage also then of having a very formidable system through which we were able to also learn lessons, benchmark
5 and position the South African Air Force for the times ahead
Chair.

ADV MPHAGA: So you would say that the reduction of our air capability from 755 [sic] aircraft to lesser aircraft did not weaken the SA Air Force?

10 BRIG GEN BAYNE: I think it obviously weakened us numbers-wise and gave us challenges in terms of having perhaps a more variety of platforms a; to operate with and to fly with, but in my opinion if I look back with hindsight I think it was always done professionally, the phase outs were done with good applied
15 military thinking and of course taking cognisance understandably so of the changes and the funding and the government imperatives at the time, so it was managed, it was not a matter of doing something you know rapidly or that was not planned and thought out before the time and I think it
20 proved that we managed to through that transition period from being almost in a full-out war through the peace, the elections, the new Constitution and the new approach to defence and transformation but yet retained an air force that remained a balanced partner of a capable SANDF through that period
25 Chair.

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ADV MPHAGA: The advent of the mid-1990's, you say that there was a debate over the replacement of the Impala and the upgraded Cheetah fleets and the Impala needed to be replaced by 2003 and upgraded Cheetah medium fighter needed to be replaced by 2008 and be operational by 2012. Now why were this debate in the 1990's and not thereafter?

BRIG GEN BAYNE: The replacement of the of course Impala fleet was the most urgent at that time due, as I alluded to earlier that they did not go through an upgrade programme and would only be able to fly until 2003 and therefore they needed to be replaced and I think as alluded to by colleagues the process of replacing equipment of that nature through a cardinal project, and this will even be further alluded to by my colleague from the material division Captain Jordaan when he testifies as to the project processes and that domain, but the average lifespan from the time the requirement is started to be debated, written, contracted, produced, delivered, implemented and operational is a minimum of around 10 years, and can even be longer before that system is fully operational, and what you don't want is you at all costs as I alluded to earlier, you want to prevent Chair a gap developing where your prediction maybe is normally very accurate but let's say the Impala's had to be phased out earlier and were not yet replaced, you would then have a serious gap in your training again to meet your frontline capability and alternatively if you sat without a frontline

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capability that far in advance it's very difficult to predict that there would be no need or you know, that a threat would not develop.

5 So, I think to put that in perspective as I said generally speaking these things are always ongoing, there are engineering teams, there are the pilots who are starting to say but this and this, these, these aircraft is starting to you know have more issues and problems logistically which will happen towards the end and therefore you find that they start to
10 become more costly to operate and so you reach a point where you need to take a decision that something needs to be done and generally then it will be a project which, as I said, takes quite a long time, hence the debate started at that time Chair.

ADV MPHAGA: As a Director Combat Systems what would be
15 the consequences of a gap you are referring to?

BRIG GEN BAYNE: The gap in your training would be very serious and in fact I can allude to a situation that did occur on the programmes, it will be alluded to more later, but with the, as happened with Impala there was a situation where they had
20 to be terminated at a point in time when we thought we might have been able to get a little longer time out of them and then with the new aircraft coming in there was a gap that was created in our training from our then-Astra onto our new lead-in fighter trainer, and I can assure the Chair and the Commission
25 that it took us a long time just to recover from that small gap in

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catching up and getting those pilots back to the same standard that they were at when they lost and this was a small gap that occurred.

5 So, as I alluded to earlier this is not a capability that is easy to recover from, secondly that's in terms of your training, in terms of your system which is not remember only a system for pilots, your ground crew need to practice their skills, they need to work on aircraft and they are trained on a specific aircraft, so yes you can move them to another aircraft
10 but again that takes time, it's costly and you will have to bring them back onto your new platform.

Then there are what we term mission controllers and air traffic controllers. Mission controllers work very closely in the radar domain with pilots. Now if you don't have
15 a training school then you also start to impact on the training of, for example your mission controllers, your firefighters who are specific aviation firefighters, all the other base services that support and deliver the system all slow down and stop training, so the impact is far greater than just pilot training for
20 just the aircraft, it affects your whole system if you have too big a gap or you at any point lose a capability and have to regain that capability Chair.

ADV MPHAGA: Can it also lead to attrition in terms of loss of air crew and pilots?

25 BRIG GEN BAYNE: One would hope Chair that you don't get to

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that but obviously the less then assets that you have and the less training that you can do, because you need an operational need, factors will drive you then yes, and as we know in aviation flying safety is a daily risk but it is well managed, but
5 when you get to these situations you have to put a lot more effort and assets into your programmes *et cetera*, and clearly this is not ideal of where you want to get to, and it could be then that you have to also then stop flying regularly due to these factors.

10 And also the same will happen as I tried to allude to, if you push that equipment too far past its limit because the Air Force has to be very professional, you are training people to do a very highly skilled and high demand job, so I would say that it would be a very difficult obstacle to overcome Chair.

15 ADV MPHAGA: Now you indicate further in paragraph 23 that the South African Air Force rationale in 1996 was to replace the Impala fleet with 48 advanced fighter trainers and to replace the Cheetah fleet with 32 future medium fighter aircraft. What informed these numbers?

20 BRIG GEN BAYNE: I think all, a number of previous colleagues have alluded very much to the White Paper, the Defence Review process, the optimum force design process and the fighter component was part of the, of that review and that approach, and so in this domain the initial what we called
25 fighter master plan, which came out of the Operational Plans

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division in the Air Force, looking again forward into the future of what would be required, first of all looked at replacing our Cheetah's which were medium fighters with a future medium fighter. This aircraft would have been, and I tried to allude to this Chair when I gave my visuals of the difference between a light fighter and I used the Gripen in this case, and the Eurofighter which is a medium fighter.

This would have been a twin-engined large, very high performance aircraft which would have replaced the Cheetah fleet and the number of 32 generally came from the requirement to have two squadrons. In the past and in most air forces if you can, the ideal is not to end up with only one fighter squadron. The reason for that is because in the fighter community it is very important to have competition and to have tactics development and you found in the past, if you ever went into any squadron, it's like that in I'm sure many domains, your professional domain it must be the same but in our domain you are almost fighting each other all the time because that's how you're trained, so you found in the past the guys, the 3 Squadron flying the Mirage F1 CZ and the Mirage AZ, they didn't talk to each other a lot, they trained and they create, you create an environment to prepare and train for conflict and for war.

Yes, when you go together and you go and do the job it's a different story, and hence this 2 Squadron concept

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had come a long way and so ideally this is what was required. In those days a standard, call it, NATO was probably the best squadron, was 16 aircraft, so two squadrons was, it went through the force design process that we required two frontline fighter squadrons, hence the 32 future medium fighters which would be delivered to the two fighter squadrons was the number. At that point in time in the early part of the force design process the number of 32 aircraft was tabled.

In terms of the, in those days the force design did not address the training aircraft, it only addressed the operational platforms, the Air Force however traditionally has included it's fighter trainer aircraft as part of its fighter line, it forms part of your combat line and the reason for that is the type of aircraft that you buy as a fighter trainer will always have some form of what we term collateral operational capability, it just depends how much.

If you looked at the Impala Mk2 which was used extensively, as I said in the Bush War, initially played a large role, however, when the threat built up and many of the ground systems came in, due to its capabilities, its envelope, its speed and its makeup the aircraft then became more and more limited, but always would have a form of collateral capability, and so although formally you will not find if you look at the force design at the time it said 32 future medium fighters and it said another squadron of light fighters was in the force design,

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additional to that would have then been the trainer aircraft.

The thinking at the time then for two squadrons of 32 future medium fighters, you then work out how many training aircraft, sorry, and to supply the 16 light fighter squadron, how many training aircraft would we require to train adequate pilots to sustain those squadrons, so it's not only initial training, because remember like me eventually you get a bit old to fly the aircraft and then you are taken out of the cockpit, others may have a line change, others may lose their flying medical, others may decide to leave the Air Force and so you cannot only just have the exact number, so you work back how many aircraft you require then in what we call to retain a core force capability so that with this rotation adequate pilots, ground crew and all the other services can be trained in order to meet that requirement and the number then that was required would have been 48 AFT aircraft which were advanced fighter trainer aircraft of which 16 would be the light fighter squadron and the remainder would form the Training School as was the Impala at the time Chair.

ADV MPHAGA: General, maybe it's not for easy for us to explain to us the difference between your advanced fighter trainers and the future medium fighters by at least taking us through bundle K, the photo's to show the Commission what do you mean by the future medium fighter?

BRIG GEN BAYNE: Could I, sorry, just ask for someone's

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copy, I didn't have it with me here. Thank you. The, as I said I think we're all comfortable with the future medium fighter, this would have been in the class of a Typhoon or a Eurofighter which is on page where the diagram compares the size and shape of the aircraft, so the Gripen as it is, stands today is an advanced light fighter, a future medium fighter would have been in the class then of a Typhoon or Eurofighter which is extensively used in Europe, which is much larger, it is twin-engined *versus* the single engine on a light fighter, you can also, looking underneath at the photo of the hard points in terms of carriage of bombs, bomb load, missile load and other sensors on the aircraft, obviously there's a lot more space on the aircraft to put more sensors and equipment in the aircraft, hence the need for two engines because now you have to of course have the higher performance but with a much heavier aircraft, it also has to carry more fuel in order to be able to have further reach because it is in that class of aircraft.

The AFT at that point in time was very then similar to a light fighter but with the focus on only carrying out light fighter collateral tasks with a full operational capability for some of the aircraft, the other aircraft, the training aircraft would then be used for training only.

There was a development in certain of the aircraft classes at the time, especially those that were being designed and the example perhaps would be the AT2000 which, as you

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knew, was also part of the contenders, and in modern aircraft such as the Gripen and others you have what is called a war mode and a type of training mode, that purely means that some of the aircraft can be acquired with lesser capability for training but can also be acquired in a certain other version which could act as a light fighter, this was a further technological development which was starting to become evident in the 1990's-type of design and aircraft.

And so, the AFT, the Advanced Fighter Trainer was then seen to be this type of aircraft that could transit the pilot safely from a now-Astra, because the Air Force is no longer flying the old Harvard, it had received the new Pilatus PC7 Mk2, we termed it the Astra which was a more modern trainer from there to an advanced fighter trainer, trainer mode first, little bit less performance, little bit less capability, getting used to that, then a light fighter on the more operational version and finally take him to the top-end which would have been the future medium fighter, still in the three tier training approach Chair.

ADV MPHAGA: So, the Eurofighter Typhoon, is that what is depicted on page 8 of bundle K?

BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: The Pilatus Astra that you have mentioned at the time of the SDP Procurement process it was not part thereof, am I correct?

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BRIG GEN BAYNE: Chair, the Pilatus PC7 Mk2 was not part of the packages, it was already in its project phase or stage and it was at that stage being delivered and replacing the Harvard's which of course as we alluded to earlier had been flying since
5 the 1940's. It was a project, in other words an independent project on its own and it was bought from the Swiss company Pilatus to carry out basic flying training up until the pilot had his Air Force wings Chair.

ADV MPHAGA: The acquisition of the 48 advanced fighter
10 trainers and the 32 future medium fighter aircraft, they were part and parcel of the Force Design Option 1 which General Malinga has already alluded to, am I correct?

BRIG GEN BAYNE: That's where the numbers came from, yes. I think I must perhaps point out which was maybe not done at
15 the time that the military work on the force design was primarily done around 1996 and into 1997 after which the Force Design like the White Paper went through a process to approval and you know if one thinks again in 1997 there was another budget cut that occurred at the time and so just that it's not
20 you know, or realised that this is not something that happens rapidly, it happened over a period of time and during that time there are other factors that happen, and so you find that in certain areas the options were run, the Option 1 as then decided upon as the force design but as turned out eventually,
25 and I think the Navy and General Malinga alluded to the fact

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that that does not mean that that full design will be acquired at that point in time or perhaps may change and be adapted and that is reality of what happened and was alluded to by my colleagues and hence I say at that point what was in the design at that point in time were these aircraft at those numbers
5 Chair.

ADV MPHAGA: In paragraph 24 you mention that the total capability that was ideal at the time was about 70 aircraft which included 32 future medium fighters, 16 advanced fighter
10 trainers and 22 advanced fighter trainers, is it for combat school flying, am I correct?

BRIG GEN BAYNE: Yes Sir, 16 would have gone to the Light Squadron, a standard squadron, the remainder would have been at the Combat Flying School, so and that's why I alluded to this
15 period, as the period moved on there were at times variations of those numbers, particularly on the AFT at that point in time as well, so around about a total of 70 to 80 aircraft Chair.

ADV MPHAGA: And if I look at the last sentence of paragraph 24 it indicates that the Force Design did not include training
20 assets, only operational assets, can you elaborate on that?

BRIG GEN BAYNE: Yes Chair, for example you will not see the Astra's in that Force Design at that time and it only spoke about operational squadrons, the two squadrons of frontline fighters and the squadron of light fighters, it did not talk about
25 the Combat Flying School in the Force Design, it was assumed

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then that the arm of service would then, those would be additional assets that would have to be in place to train to reach your fully operational platforms in the force design as such. I did allude to the fact, however, that the Air Force has
5 always considered its fighter trainer aircraft to have some form collateral capability Chair.

ADV MPHAGA: General, I wanted to refer you to bundle B which is the White Paper and the Force Design, I think page 95 thereof, it's paragraph 74. Well it says that the Option 1 which
10 was chosen ultimately from the four options says:

“The chosen forces design option will become the object of implementation planning for the next decade or longer”.

Does it refer to the 10 years you spoke about that it's required
15 to do the planning for the acquisition?

BRIG GEN BAYNE: I think this is what I tried to say previously, that during this period this is already alluding to the fact that you will have a Force Design and the options remember was a model run by the Department of Defence, I was
20 not part of Optimum, as you know I was not an expert in it but if I read this I think it exactly says that it doesn't mean because of the choice of Option 1 that everything in Option 1 would be acquired for example in the packages or even in that period but it was a design, Force Design which was deemed
25 adequate for the Government at the time in the Option 1

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approach which was cost and not necessarily only needs driven and tailored for what was best thought to be the future requirements at the time and so that was chosen as Option 1, but even being chosen as Option 1 did not mean that you would
5 be able to fund and acquire all of those capabilities immediately, that's how I in a military term would read and interpret that as best I can, but I'm not an expert in that field Sir, but I would say in my interpretation this is exactly what this is saying, the implementation therefore could be longer
10 than the 10 years for all but that that they are also acknowledging I think here the fact that projects take about 10 years to implement and to bring onto inventory Chair.

ADV MPHAGA: When we proceed with the very same paragraph it says that:

15 *“However, the realisation of this Force Design will be influenced by periodic revisions of the Defence Review and subsequent planning to reflect the continuously changing strategic environment and prevailing circumstances”.*

20 Can you elaborate on that?

BRIG GEN BAYNE: Chair, the best I with my knowledge of this domain which is in the, at the level of the directorate of Strategic Planning at a DOD level, and I think Admiral Green alluded to the type of work and what was done in that area, this
25 says to me that as we see today there is a Defence Review on

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the table today, 2013, it's called now. So, from time to time defence reviews will by nature I believe always continue to be done because the situation will change, the geopolitical situation could change, the economics of the country can change, the demands made, I think some of my colleagues have alluded to the fact that at this point in time there was a recognition of the upcoming possibility of peace support operations and the role that South Africa would play in the, in Africa and particular in SADC.

10 These were being, were evolving at the time and so I would imagine that to expect a defence review to last for 30 years or however, you know I don't think in my view as a military man that would not be prudent and I don't think would be expected. So yes, every at least say 10 or 15 years you would need to do a review, I'm sure as all large organisations would do to adapt and that would mean ..., that is why again it comes down to when one does acquisition, is to look at again flexibility and adaptability in terms of air acquisitions, so that you try to make sure that what is acquired is adaptable and flexible also to adapt to these changes until a new review or a new requirement is placed Chair. I'm not an expert but I hope that that has answered your question in context Chair.

ADV MPHAGA: Well, furthermore paragraph it says that:

25 *"The result is that the exact details regarding the type and quantities of main equipment will*

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inevitably deviate from the vision”.

Can you just enlighten us on what it means?

BRIG GEN BAYNE: I think that is a very, I can give a practical example, the final decision then taken which is in my next paragraph of my statement but without going there if you look at what was finally contracted for the SDP's into replace the major equipment in the Air Force in December 1999 it was considerably less than that which was in Option 1 of the Force Design, alluding to the statement here that that was already in fact formally in the design, the acknowledgement that these changes would and could take place during that process Chair.

ADV MPHAGA: Now if we proceed to paragraph 25 of your statement on page 4 you allude to the effect of the budget cut in 1997 and it had an effect that you had to lower your sights in terms of performance class of the future frontline fighter, can you just elaborate on that?

BRIG GEN BAYNE: In 1997 yes, when those budget cuts came into effect and with the current funding on the defence capital programmes I'm sure all my colleagues in the other arms of service would have done, or their organisations would have done the same, but the Air Force then had to adapt to these budget cuts as always because the decision on defence allocations as you know is a Government decision and the task then of the-then Department of Defence and in our case the Air Force needs to cut its cloth to fit in with those realities, and so

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the Air Force had a look at numerous options which were investigated and considered in order to fit in with these budget cuts and the new realities.

I think also some of the debate, and I was at the time at Operational Plans, I was a fairly junior officer in terms of this level of decision and planning, but I would imagine also coming out of the 1994 elections which were, as we all know, a wonderful democratic process and the country was seen to be highly successful, we were also entering into a much more peaceful time, and also if one looked at the realities of the cost to value of a medium fighter *versus* these range of, limited range but available aircraft in the advanced light fighter aircraft capability area which were considerably less costly to acquire and to operate than a medium fighter, and I've alluded to the double engine and size and shape of these aircraft, and yet the capabilities that appeared to be in these type of aircraft, then for the South African Air Force, given the Force Design and the ongoing challenges of that time, the Air Force then realised that it would not be able to afford the Force Design of the 32 frontline future medium fighters and so the requirement for the advanced light fighter aircraft came into being at that point in time.

ADV MPHAGA: So, in other words then there was to be a deviation from the initial Force Design that was envisaged?

BRIG GEN BAYNE: Yes Chair, as I said I think it was a

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lowering of sites, a lowering of capability in terms of the Air Force part of the Force Design yes, in terms of not necessarily at that point numbers, but in terms of capability.

ADV MPHAGA: You proceed in paragraph 25 to indicate that:

5 *“Hence the requirement for an advanced light fighter aircraft and an attempt to try and move to a two tier fighter training system instead of the three tier system that was previously in use”.*

Can you expand on that?

10 BRIG GEN BAYNE: Yes. At that time remember now we had the Astra as the basic flying trainer up until Wings and so again due to these constraints the Air Force with lowering its sites to a light fighter and not a medium fighter the option was looked at prudently to see if the Air Force could move to
15 training our fighter pilots from the Pilatus PC7 Mk2, perhaps look at its expanded envelope in certain areas of training that could possibly fill some of the gap of the advanced fighter trainer, which if you remember then would have been between the two, and look at then taking the pilot from that platform
20 straight on to an advanced light fighter type of aircraft.

This will only be done if you are cost driven and not needs driven to go there and we've all heard that that is where the situation was lying at on the available funding in the capital programme *versus* all the requirements and challenges
25 facing the Department, so the Air Force's attempt to do this I

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think was in line at the time although as I said I was not personally there at all the debates and all of the work that was done, but was attempting to also accommodate the budgetary cuts but still retain importantly a credible and cost effect
5 frontline fighter capability at the time.

ADV MPHAGA: So, the two tier system would therefore mean that from the Pilatus Astra you would move straight to the Gripen, am I correct?

BRIG GEN BAYNE: At that time to the ALFA, today yes, it
10 would have been the Gripen as the selected aircraft for to meet the advanced light fighter aircraft, yes Sir.

ADV MPHAGA: However, it appears that this two tier system did not progress and you referred back to the three tier system ultimately, am I correct?

BRIG GEN BAYNE: Yes, two things were happening at this
15 stage, the advanced fighter trainer programme was in process at this point in time and in parallel was this debate and this review taking place in the Air Force regarding a change in the tier system. The task of the project team, at the time Project
20 Ukhozi, were at that stage in the, what's termed the request-for-information stage and so we were able then to get some information albeit at a request-for-information stage which is not detailed, but it did give the opportunity also for some of the members on that team to fly some of the aircraft. I was not
25 part of Project Ukhozi at that point remember, I was still at

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directorate Operational Planning.

And so, with their information that came back in the RFI's as well as the debate that took place in the Air Force this was a review of the future of where we had to go to and the final decision that was taken then by the Air Force Command Council at the time, having heard the feedback from the RFI process as well as inputs given by the various work groups who looked at all these options at the time was that the Air Force would need to retain and stay with a three tier training system.

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10 ADV MPHAGA: The critics have criticised this abandoning of the two tier system because they say the two tier system would have been more cost effective than the three tier systems, what's your comment there?

BRIG GEN BAYNE: This two tier and three tier training debate was not isolated to the South African Air Force I believe at the time, a lot of air forces were similarly to the South African Air Force at the time due to world economic conditions undergoing similar challenges and similar situations and this will always remain a debate. I think Chair to try to simplify this two tier or three tier if I may perhaps we could allude to a similar situation of our own children.

15
20
25 If you send your child after passing Matric or nowadays perhaps before they pass Grade 12 I think it is, and you send them to driving school they would probably go to driving school and drive a car like a Hyundai I30 or a, perhaps

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a City Golf and be taught to drive that vehicle and pass their test. You as a parent would then have to decide what vehicle, if you could afford it, or afford to let them drive next, and would you feel, how comfortable would you feel to move to the next step in the vehicle, and to have an anomaly it would be going from that probably to a job at Ferrari preparing to drive a Formula 1 car on a Formula 1 track in a competition if I could have that anomaly.

An alternate would be to perhaps if one could afford it perhaps then give your daughter or your son a few years learning to drive a BMW M3 or a, still quite a high performance car but perhaps not competitively yet and not in that same domain. That is to me the simplest way I could explain the difference between a two and a three tier system, it is not impossible to do, anything is probably possible but at a cost, at a risk and in time, and so the proven three tier system which the Air Force had at the time where we could train on a basic trainer, then have a stepping stone of an ex-Impala and in this case a lead-in fighter trainer-type of aircraft and only then put the youngish pilot, probably at the age of 23 or 24 into a high performance, high cost asset aircraft is a matter of safety and risk, not only of cost.

Yes, you must consider cost, we are ... In Government we have a duty to taxpayer and to our own Air Force and to our other lines because what you utilise in cost in

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one area will have to be found from somebody else within an allocated budget, we all understand that, but I would imagine that that would have been a consideration that would have had to be taken into account in terms of two tier, three tier. Yes, 5 there are air forces that have a two tier, you will find, however, that that tier aircraft that is in a two tier is an aircraft that certainly can at least fire weapons, carry a payload.

An example could be the Swedish Air Force which designed the Gripen, they take their Gripen pilots from what is 10 called an SK60, this is a twin-engine jet trainer, this aircraft has full weapons load, a full sighting system and can deliver all of those weapons and do what is termed then to be, albeit an old aircraft but at least be a stepping stone, they are currently looking at replacing that aircraft now and upgrading.

15 However, the Air Force then would have deemed, I would imagine finally the step from an Astra PC7 basic trainer that could do some lead in type of fighter training in the flying domain but did not have weapons and could not fly in the type of environment and envelope that would act as a gradual and 20 middle tier stepping stone towards our frontline fighter and hence the decision to retain the three tier system Chair.

ADV MPHAGA: So you say in paragraph 26 that the retention of the three tier system was informed by the request for information, can you elaborate on that?

25 BRIG GEN BAYNE: Yes some, as I said from that some air

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forces and some of the contenders did indicate that one could transit from a PC7, Mk7 to a frontline fighter, however, I think the ultimate decision for that needs to then also be looked at in terms of the Air Force, South African Air Force's situation and I am sure that it would have been done so and to make sure which is the best decision to go forward on that case. It is true to say that as was alluded to by the various reports and part of the debate is that these modern aircraft being fly-by-wire engine controlled, yes they are simpler aircraft to fly, however, they are highly complex integrated systems.

Perhaps not understood fully at the time was the different demands and I alluded to this I think earlier when I spoke about the dual seater and single seater acquisition of the aircraft is that the workload on the pilot is a lot higher in a multirole-type of cockpit, he needs to be well prepared because he's got to change from being just air-to-ground, air-to-air reconnaissance, now in the same mission.

So yes, in terms of getting the aircraft in the air, flying it in the air, then it is easier to fly but to operate that system in a complex operational and high threat environment in a single cockpit is a high demand and hence again the fact that the three tier system would afford you a far better capability and training capability to reach that level required Chair in my opinion.

ADV MPHAGA: You mentioned that this whole debate and

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finally the, after having received the RFI's, the adoption of a three tier system was presented, was presented, endorsed by the Armaments Acquisition Council, what is the Armaments Acquisition Council?

5 BRIG GEN BAYNE: Chair first of all yes, as all these decisions are taken they are not only taken, there are recommendations and the final approval for these type of decisions in those days was the Armaments Acquisition Council, it was chaired by the Minister of Defence and my
10 colleague from the Navy Captain Jordaan will be elaborating very widely on this process and all the approval boards *et cetera* during his testimony, he is an expert in that area and he will be testifying to that, but I can confirm that the Armaments Acquisition Council at the time was the highest Department of
15 Defence council chaired by the Minister to which these type of decisions would have been taken by the various services at the time for recommendation and approval Chair.

ADV MPHAGA: Thank you. In paragraph 27 of your statement you indicate that:

20 *“Even during a period of peace it is important for the State to maintain a credible deterrent capability as an insurance policy”.*

Can you elaborate on it?

BRIG GEN BAYNE: Similar to what the Navy alluded to in
25 terms of the sea, and I'm sure had an Army colleague been

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here, the same, but in terms of the Air Force the fighter capability of an air force in my view is a national asset and is an important and a key element of a balanced South African National Defence Force as in any country. As it has transpired the Republic has become a very important role-player in the region and I'm sure will continue to be so and so in doing so you also have your fighter line and your whole Air Force being a credible deterrent and projecting peace and stability not only in defending and protecting the country which is its key mandate from the Constitution but also in that role of having that deterrent capability and then projecting stability as well, and all of this could be viewed as a type of national, in simple terms insurance policy.

Yes, it may not be needed every day to carry out that primary mandate but while you have those type of assets airborne or ships at sea or troops in the field, although they may be training and although they may be preparing, remember those pieces of equipment on those aircraft are operating, they are listening, they are looking, they are seeing, they are contributing by virtue of being there to national power and to the country, much wider than just in their main role of preparing for that eventuality when of course no other asset could do the same job and that is when the time comes for that type of capability to be employed should it be in conflict or peacekeeping or peace enforcement as well.

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I think which perhaps was alluded to partly of all countries, and I think the Deputy Chief spoke about some countries that did not have such capabilities but you know, if you look at a country Chair like Switzerland, this is a neutral
5 country, in a region of up to now peaceful and stable part of the world have a formidable Defence Force, they have a medium fighter, currently it's the F18 Hornet, they have a training aircraft, they have an air force even though they are a neutral country in a, call it European Union surrounded area
10 they have that capability as well, so just to add to the debate of the importance of these type of capabilities for a country and for a nation. Thank you Chair.

ADV MPHAGA: Chair, I note it's 13h00.

JUDGE MUSI: Can I just get a minor clarity, currently which
15 aircraft are involved in the three tier system?

BRIG GEN BAYNE: Commissioner, currently the Pilatus PC7 which does the training from the time he starts flying for the first time until he receives his Air Force wings and all Air Force pilots train on this aircraft. Those that are then chosen for the
20 combat line, fighter line then go to the lead-in fighter trainer which today is the Hawk Mk120 which was acquired through the packages and our frontline fighter is the advanced light fighter aircraft which is the Gripen which was acquired under Project Ukhozi in the packages Commissioner.

25 JUDGE MUSI: Thank you.

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CHAIRPERSON: We'll adjourn and come back at 14h00. Thank you.

(Commission adjourns)

(Commission resumes)

5 CHAIRPERSON: Has the witness confirmed that he's still under oath?

BRIG GEN BAYNE: I do.

CHAIRPERSON: Thank you. Advocate Mphaga just before we proceed just for my own understanding can I find out from the
10 witness this Pilatus Astra, when were they obtained by the Air Force and how many were they, what was the purpose of that acquisition?

BRIG GEN BAYNE: Chair, the aircraft were acquired from the, in the early 1990's, delivered from 1994, 60 aircraft were
15 acquired, they are all two-seater aircraft and the purpose that aircraft is for basic flying training. That is up to in the Air Force what we term wing-standard, so the graduate from there has a broad-based flying experience, he has done what we call general flying in good weather, he can fly in bad weather, he
20 has an instrument rating, he can do formation flying, night flying and he can also navigate the aircraft over long distances at low level and at high level, are the basic skills taught on that type of aircraft.

CHAIRPERSON: Still on the same point, am I right to assume
25 that at the time when there was a debate within the Air Force

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community about the two tier training system or about the three tier training system it was assumed at that stage that the Astra will form the basic training complement, and now the question was whether should they add the Hawk in the equation or not?

5 ADV MPHAGA: That's correct Chair, that's correct Chair. The Air Force has had the three tier which was Harvard, Impala to the other aircraft in the past, now the Harvard had been replaced by this Pilatus, so it was the Wings aircraft and then the, in order to stay then when the three tier was decided the
10 lead-in fighter aircraft was the aircraft that would meet that requirement in order to transit the fighter pilot then onto the advanced light fighter aircraft. And it was during the delivery of that aircraft that this debate went on to the period when it replaced the Harvard, yes Sir, Chair.

15 CHAIRPERSON: Thank you. Thank you Advocate.

ADV MPHAGA: Thank you Chair. General, now we are on page 5 of your statement, we are now moving to the project phase, paragraph 28. You indicate that:

20 *"There were numerous options which were considered by the South African Air Force between 1994 and 1997 and the final solution arrived at was 28 ALFA which formed part of Project Ukhozi and 24 LIFT which was Project Winchester which was cost rather than needs driven".*

25 Can you elaborate on that?

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BRIG GEN BAYNE: Yes Chair, as I said as part of this ongoing Defence Review and Optimum process if you remember it was the numbers that were given then and then during 1999 the outcome of the various, of Option 1 was sent to all the arms of services who had to then deliver comments back and the Air Force debated Option 1 in terms of, if you remember it was alluded to in that process that the option would be decided by Government but again it would be your specialists or your arms that would then tailor the numbers within that option and the Air Force came to these numbers, the 28 ALFA, very briefly this meant in terms of operational capability having around about eight aircraft available at each squadron giving 16 aircraft, at that point in time the history of combat aircraft in the Air Force had been roughly about 65% of aircraft available for operations at a given time, the other aircraft would, as alluded to by my Navy colleagues either be in some form of maintenance or upgrade or repair.

And so, if you added that together you came to the number of roughly the 28, two aircraft also dedicated towards a type of reconnaissance and surveillance and then 65% availability gives you a total of around 28, so again the Air Force, based on that in answer to Option 1 recommended that the final number of this acquisition to then be the 28 ALFA aircraft to meet the requirement of Option 1 at that stage, again taking cognisance of the cost driven considerations

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Chair.

Then the number of aircraft required to train as I've said earlier, the training aircraft requirement came from the number of throughput of air crew that you would need to train
5 on this aircraft and obviously in a three tier system you want to train as many air crew as advanced as possible in an ideal three tier system, you want to train as many of them there so you minimise the training on the higher platform and the number that was worked out to meet that requirement at the
10 same sort of availability levels came out at 24 LIFT aircraft and hence the aircraft's [sic] recommendation then that Project Winchester would require 24 aircraft and those were the aircraft that were reflected in the Air Force's requirement statement Chair.

15 ADV MPHAGA: Yes, so the reduction from 70 to 52 aircraft it was the reduction from the Optimum design as it was initially?

BRIG GEN BAYNE: That is correct, from the future medium AFT through to the ALFA and LIFT requirement Chair.

20 ADV MPHAGA: And you say that both these requirements were included in the SDPP process by 1998, can you explain?

BRIG GEN BAYNE: Yes. During this process the ALFA of course was already in the Force Design but when the AFT was then replaced with the lead-in fighter trainer as the trainer,
25 then that was also included into the SDP's after the

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presentation of the RFI process on the Project Winchester in March 1998 and in that decision at that point it was finally accepted that the LIFT would also be included into the SDP process Chair.

5 ADV MPHAGA: In the same paragraph 28 you make mention of the Revised Staff Target and Staff Requirements for Project Ukhozi, that we find on page 14 of bundle H Chairperson. Now the Revised Staff Target and Staff Requirement, what is it all about General?

10 BRIG GEN BAYNE: Chair, the reason why it was a revised one is one must bear in mind that a lot of work in this domain was done on the AFT programme which would have been a 16 light fighter with the training capability, so a lot of the documentation in the Air Force submitted previously to this
15 final decision had already been done, so this was a revision for the advanced light fighter aircraft based on the advanced fighter trainer aircraft but to meet a slightly higher requirement because it was now our only frontline fighter capability, so hence the word "revised", that's the only reason why it was a
20 revised staff target and Staff Requirement.

This is the final document Chairperson that the Air Force submits into the project process, so in the first what's termed definition phase of a project the Air Force in the case of aircraft will be the main driver of the project stating its
25 requirement very clearly for the upcoming process in the

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contracting phase, bidding and contracting phase and so this Staff Requirement outlines in practical functional terms the requirement of the Air Force in, I would say in great detail that is used to submit to the contracting agency in this case being

5 ARMSCOR who would convert the Staff Requirement then further into the contracting phase and that is the responsibility in the process which again will be far more alluded to by Captain Jordaan later, the point at which then the arm of service has the final request in terms of what it requires Chair.

10 ADV MPHAGA: Were you involved in the compilation of this Staff Target and Staff Requirement document General?

BRIG GEN BAYNE: I at this stage of, remember I said I joined the team in February, so I was not part of the compilation of this document, it was the previous project officer but we were

15 the only change, so the same team of people that worked on the advanced fighter trainer programme part did this revision, the same team revised this document Chair.

ADV MPHAGA: But you are able to speak to the contents of the document?

20 BRIG GEN BAYNE: Yes I can then, because this then became my, call it, as project officer the team's baseline on which we would continually measure the process further for the Air Force Chair.

ADV MPHAGA: Now on page 15 of the bundle and of the

25 document itself *inter alia* introduction I see there's a reference

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to Project Kambro, we haven't really referred to such a project, can you explain what is it?

BRIG GEN BAYNE: Yes Sir, apologies Chair. That was the project that would have delivered the future medium fighter, so
5 it actually never went further than a discussion.

ADV MPHAGA: I take it that this document in itself has, it's a repetition of what you've already indicated in terms of the rationale for the acquisition. Can you maybe take us through it without repeating what you have already said?

10 BRIG GEN BAYNE: Yes, certainly. The, this is, as I said this document will cover some of the background and then move into the actual requirements phase, so we have covered all of these points in terms of the positioning of this capability within the Air Force. Perhaps just to point out that it would be
15 required to carry out the combat roles previously executed by the phased out aircraft, namely the Mirage F1 and then Cheetah-D and C fleet of aircraft that would have to take over from and deliver that capability, and then also it would have to do limited operational conversion because now we would be
20 getting the lead-in fighter trainer but you would still need to use the dual seater from time to time to be able to train the new pilot on the actual systems and the flying of the aircraft, that delta would still have to be covered in the dual seater, hence the mix of single and dual seater aircraft.

25 I think in terms of the required capability one can

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see that this would have a supersonic capability, in other words have the capability to fly easily faster than the speed of sound because it had to be able to carry out the air defence capability, it had to carry a wide network of weapons and also
5 be able to do all of the roles in a single aircraft, I think we've emphasised that before. This then is put out in detail in this document that is submitted at this point in the project process.

The "Retired Time Scales" that are referred to, again it gives the guidelines to the contracting parties as to
10 when the capability should be delivered as from the required time scales from paragraph 8 and 9 and it also points out that both aircraft should be capable of having a midlife upgrade. Generally speaking a combat aircraft Chair have what was termed a midlife upgrade somewhere around about 15 to 20
15 years into their life to again see them through to the end, this is normally not a replacement but is just upgrading, obviously if one thinks of new digital and computer systems you know how fast that, we all know how fast that technology changes, so this was already highlighted at that early stage that this must
20 have growth potential in the product which was acquired.

It then goes on to the numbers and the type of flying hours that the system would be prepared to carry out in some detail and also the fact that these aircraft would need to be deployable and deployed and give some indication on that.
25 I will not allude further to all the detail herein other than to

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say it is, the point is to make that this is already a comprehensive requirement that is put down by an air force or an arm of service prior to the process beginning of the project itself Chair.

5 ADV MPHAGA: And I see it was approved by various persons, including the Minister himself, am I correct?

BRIG GEN BAYNE: Yes Sir, this document Staff Targets or in this case Combined Staff Targets, Staff Requirement, it is a requirement in the process that it is approved at the highest
10 forum, the Armaments Acquisition Council chaired by the Minister of Defence.

ADV MPHAGA: On page 29 of the bundle there's a signature by, is it W H Hecther, Chief of the Air Force as at 23 February 1998, can you see that?

15 BRIG GEN BAYNE: I can see that Chair.

ADV MPHAGA: He mentions there that:

" The Project Ukhozi is an urgent requirement since the life cycle of the Cheetah fleet, in particular Cheetah dual ...".

20 I can't see what is that but:

"... cannot be extended cost effectively beyond 2006/2007".

Can you see that, is he correct in saying that?

BRIG GEN BAYNE: He was correct in saying that in terms,
25 remember I said he's referring to the D's at that stage would be

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cost effective, they could then, in other words they would then start to be phased out to be replaced by the new requirement from 2008 onwards, with the new aircraft, dual aircraft.

5 ADV MPHAGA: And on page 30 there's also some, a comment by the chairman page 30 Chair, there's a comment by the chairperson of the Armament Acquisition Control Board, I think it relates to the cost aspects, can you see that?

BRIG GEN BAYNE: I can see that Chair.

ADV MPHAGA: Are you able to comment on what he is saying?

10 BRIG GEN BAYNE: Yes, I think it was clear at this point as alluded to earlier that the amount of funding available within the capital programme of the Department of Defence at that time, there was not adequate funding to meet all of these requirements and the task of the chairman of this Armament
15 Acquisition Control Board then would have been to who is in control of that budget, at that time was pointing out to higher authority that additional funding outside of that would have to be mustered in order for these programmes to, or these requirements to be met, and that is what the packages were all
20 about in terms of that process Chair.

ADV MPHAGA: On page 31 there are also comments made, I think by, is it Steyn, chairman of the Armaments Commission Control Board. He mentions that:

25 *“Neither this three tier nor the anticipated alternative two tier system can be funded solely*

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from the Defence budget, both the three and two tier systems are linked to the Strategic Defence Package for which funding from other sources is required”.

5 Is it a fair comment from him?

BRIG GEN BAYNE: In my understanding at the time he was ratifying what the previous chairperson had said and as the accounting officer of the Department at that time as Secretary of Defence this would be in his domain to comment and advise
10 accordingly Chair.

ADV MPHAGA: He concludes on paragraph 3 I think saying that:

*“It is further recommended that the Minister of Defence consider soliciting support from Cabinet
15 colleagues for the preferred tier approach”.*

Are you able to elaborate on that comment?

BRIG GEN BAYNE: Chair no, I think as a project officer I would have presented the document and these recommendations would have been discussed you know at the
20 end of that meeting, I believe he’s again saying the only way then to find, or to solicit those funds for these acquisitions would have to be at a higher level because he only had a mandate over the funds that were within the capital programme at the time Chair.

25 ADV MPHAGA: Thank you. Over the page on page 32 we see

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the signature of the Minister dated 16 March 1998, am I correct?

BRIG GEN BAYNE: Yes, again Chair at this level I would not have been present at this point but what I understand that this then meant that the approval of, at this level, at a ministerial level is that both projects must be brought in line with the time scales of the SDPP programme as they then were from that point on.

ADV MPHAGA: Now maybe we may proceed further then to look at the combined Staff Target and Staff Requirement on page 50 of the bundle in respect of the Winchester Project. You were responsible for this project also?

BRIG GEN BAYNE: That is Sir, that is correct Chair.

ADV MPHAGA: I take it that the document also, the Staff Target and Staff Requirement document traverses over some of the issues that you've already alluded to. Can you without a repetition take us through the document?

BRIG GEN BAYNE: Yes Chairperson I can allude to some points without I think duplication. I think paragraph 2 of the Introduction just to say again that the Impala Mk2 in the past also fulfilled an operational role as a light fighter with distinction up to 1986 after which its operational capabilities regressed or I explained became difficult to operate in the environment, also due to age, lack of performance and high threat targets and system unreliability. And then once we, I

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had ... Sorry?

CHAIRPERSON: Which page are you reading?

BRIG GEN BAYNE: I'm now reading Sir from page 52. Sorry.
Page 52 Sir. May I proceed Chair? Thank you. In paragraph 3
5 it also alludes to the number that I did explain earlier, the 24
lead-in fighter trainer that were required and in paragraph 4 it
was confirming that this would be within a three tier training
philosophy. By this time we knew that the Astra system or
Pilatus PC7 system had already been flying and trained some
10 of our graduates and we were very comfortable that it
confirmed that the Astra did that job very well and that it gave
a good foundation for recruits to come from that onto a typical
lead-in fighter type training to transit to the light fighter.

I can allude in paragraph 8 just very briefly that
15 during the options study that we looked at and also you will see
that during the project process the team were also asked to
look at certain options of training outside of the country, we
also looked at the extensions of other aircraft, we also looked
at leasing and various other options that were done, so just to
20 make the point that the requirement at this stage had looked at
before this some work had been done around various of those
options and finally then the decision was that it was required to
then acquire a system for that task.

In paragraph 11 on page 51, sorry on page 53 we
25 speak a little bit more around the three tier system, perhaps

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it's just good to allude what was the thinking at the time, we say:

5 *"This proven process has achieved an extremely high success rate in fighter line ensuring that fighter air crew become operational within a single operational conversion course".*

Meaning that by having this system we would only need a short conversion from a lead in-trainer fighter to in this case the advanced light fighter, this means you are minimising the time on the higher cost platform and also making sure that the graduate has been exposed to all types of combat and fighter flying prior to putting him in a cockpit on the frontline fighter.

10 It also facilitated rapid transition to operational status on that aircraft because it was now a matter of just learning the more complex systems that would have been well-trained on the lead-in fighter programme and is also a universal practice by most air forces worldwide who maintain such a modern capability. Also alluded to on page 54 in paragraph 12 where it says:

20 *"The fact that actual weapons delivery is an essential requirement emphasis on the need for a lead-in fighter trainer".*

Which the Astra at that stage did not have.

25 *"Also the Flight and Maneuver Envelope, specifically max speed and engine handling*

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limitation, lack of stores carrying restricts the application of the Astra for basic weapons and what is termed air combat maneuvering training category without seriously impacting on structural design life and resultant life expectancy”.

5

So just to make a point that if you do try to use an aircraft that is not designed for that task you will pay a penalty in the life of that aircraft system as well because you are using it outside of its intended design envelope.

10

If we could go then to page 55 Chair I think just to give the Commission a sort of feeling if I may say for the type of not only air training but sort of ground training that a fighter pilot needs, he needs to also understand theoretical basic aspects which he will utilise in the air of what we term weapons effort planning, this is how you match the right weapons with the right aircraft, how many bombs, how many rounds *et cetera* you carry, I've mentioned electronic warfare before, squadron management, flight leadership, deployment doctrines and modern combat and tactics that need to be taught and then applied practically during at least one cycle of mission training.

15

20

25

So once you've trained this fighter pilot on his lead-in fighter trainer course, after that what we do in the Air Force is we will consolidate him in that area. Why? Because on his course he learns to fly the aircraft but he has to go and fly in

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complex operations as what we term a wingman first before he can become a leader, so he will fly as a number two or a number three or a number four in a combat formation under an experienced leader for about a year or so, again as I spoke
5 about learning and growing these skills and ideally you do this then on your lead-in fighter trainer because you have the two-seater aircraft, it is also more cost effective to establish this training under a slightly more benign situation than what you would have you had sent him straight to the frontline fighter.

10 He would also in this time do some exercises with the Navy and the Army doing what we call cooperation exercises, he would also deploy to other airfields and other places, he would go on camps and go away from home and operate there, either independently in his own cockpit or with
15 maybe two aircraft or four aircraft, and so what I'm trying to allude to the Commission is just to explain that this is all the growing path that happens within this lead-in fighter trainer system and so we state that upfront so that that requirement is adequately met later down in the programme.

20 So once having then gained we believe, and our policy in the Air Force has always been in the fighter line that we want the member who goes to the frontline squadron to be a flight leader, that means that he has the capability to lead a two-ship formation of aircraft into combat, he must be able to
25 then take a younger pilot who is his wingman now and lead him

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in all aspects of combat flying, again an important stepping stone.

So, by the time he gets to the frontline squadron on the ALFA, in our case now from the Hawk to the Gripen he is
5 already a flight leader and then you have a formidable asset that you put in the cockpit with your aircraft and from there on at that high cost and high demand aircraft you have an experienced fighter pilot ready to do the task at the top level.

ADV MPHAGA: General, does age play any role in respect of
10 when you put a pilot in a Gripen or in a Hawk?

BRIG GEN BAYNE: It does not play a role because ... Well, it eventually will play a role yes, this is not a game, this is a game for the young men in the Air Force in terms of getting the initial training, but if I look at myself that first went to become
15 an instructor I started by combat training at the age of 26, 27, but if I hadn't have done that I would have started my Mirage course at the age of around about 22, 23 in those days with those stepping stones around there.

Nowadays we've extended the initial training a little
20 bit and some of the degree training *et cetera*, so in general you will find that the average combat fighter pilot coming from the Astra Wings Course onto the Hawk varies between the age of around 22 to about 24, 25 years of age and then moves onto the Gripen probably from about 26 through to, that can go
25 through to about 30, 32 years of age in the event that he's

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gone and done his instructor's course early. All combat pilots eventually will go do instructors course back on the Astra to become pilot attack instructors because obviously you also need to train your own instructors who you need to bring back then after the operational tour, they then go and become instructors, come back and instruct again on your lead-in fighter trainer and then instruct back on your frontline fighter, so that's more or less, so I wouldn't say that it is restricted by age but you want to get him onto these aircraft at not too old an age to obviously get the return, but in my case then I'd done my instructors course and then I had a full tour through the line, so by the time I left the cockpit at around the age of 42 which is about the average age, 42 to 45 where a combat pilot will then if he is staying in the Air Force for a career or be withdrawn to carry on with staff duties.

I have one pilot currently flying Hawk who is 58, he doesn't fly all the spectrum but he's very experienced and he does some of the more benign jet conversion onto Hawk just to show that it doesn't mean that you have to stop, you can carry on, but as average I would say mid-40's to late 40's would be the limit of a fully-fledged operational pilot on Gripen Chair.

ADV MPHAGA: Thank you. You may proceed to take us through the document.

BRIG GEN BAYNE: I think a point that's made on that same page of page 55 in 19 is also quite important, it says:

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5 *“The added advantage of the LIFT system or lead-in fighter is that it affords the SAAF the flexibility and safety gap to meet the needs of the fast tracker and yet accommodated the average student without the risk of too early an exposure to very expensive and strategic equipment”.*

10 In flying there is a term that’s called a “two-percenter”, these are basically men and women who were born to put an aeroplane under their seat and fly, I think it probably happens in all sports areas, racing drivers and similar type of careers and everywhere. The other 98% of which I certainly was part work hard to become fighter pilots and there will always be varying degrees of the rate at which you go through, so some might get there younger than others, others might have to go and fly longer on the lead-in fighter because you get selected to go to the top range, you have to prove yourself not only in terms of your flying skill, also in terms of your ground skills and your attitude, all of that is important before you get onto the ALFA and so you find that the advantage here is you have more flexibility to accommodate a wide range of trainees through the system who then eventually will get at a point in time to your frontline fighter Chair.

25 From that point on Chair I think again it was the more detailed of all the requirements that would go over to the contracting phase in terms of contract specification and a lot

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more detail in the latter part of that document Chair.

ADV MPHAGA: The required capability that is expressed in this document would be similar to the capability required by the Force Design?

5 BRIG GEN BAYNE: If I understand the question correctly in terms of numbers remember I said that the numbers would be determined by the amount of people that needed to be trained and this aircraft would primarily be a training aircraft, lead-in fighter trainer aircraft but as I alluded to would, depending on
10 its final capability and the aircraft that you acquire, would have varying degrees of what we term collateral operational capability as a light attack aircraft or light fighter aircraft and as we heard earlier there was in the Force Design a requirement for a light fighter squadron which alluded to the
15 fact of a need for a light fighter as well with this sort of capability that could be achieved yes, if that answers the question Chair.

ADV MPHAGA: If you proceed to page 73 of the bundle there is a comment made by General Hechter who was the then-Chief of
20 the Air Force, he says that:

“Project Winchester is an urgent requirement since the life cycle of the Impala Fleet cannot be extended cost effectively any longer”.

Do you agree with that comment?

25 BRIG GEN BAYNE: Chair, I agree.

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ADV MPHAGA: Then on page 75 I think Mr Steyn again repeats what he has stated in the previous document in respect of Project Ukhozi, raising issues relating to the costs, am I correct?

5 BRIG GEN BAYNE: That is correct Chair.

ADV MPHAGA: Over the page on page 76 the comments made by the then-Minister Modise, he says there that:

10 *“The Project Team must consider the leasing of the abovementioned aircraft as an option before any further recommendations are to be forwarded to the AAC for approval”.*

Then:

“Project Winchester must be brought in line together with Project Ukhozi with the SDP time scales”.

15 Can you see there?

BRIG GEN BAYNE: I see that Chair.

ADV MPHAGA: What's your comment there?

20 BRIG GEN BAYNE: That was correct and that option was looked at previously but again was sent out as part of the later process and replied to by the various contenders. As turned out none of them were able to submit an acceptable leasing option and also the, how can I say the pros and cons of leasing which were weighed up during that period of time then ended up not taking that route but acquiring the aircraft Chair.

25 ADV MPHAGA: And over the page on page 77 General, is it

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Ferreira, also makes his comment that:

“The Project is approved in principle, the aircraft numbers to be determined by the finally approved Force Design”.

5 Can you comment on that?

BRIG GEN BAYNE: Yes Chair, I think the previous speakers have alluded to the role of our joint operations, they are the organisation within the SANDF which employ aircraft operationally and so all our project documentation also goes
10 through the Board at Joint Ops. This is to make sure that Joint Ops take cognisance of the requirement and they actually then concur with that requirement as custodians of your capability for Chief of the SANDF and so he is saying here that that is approved in principle and that as was alluded to numbers were
15 being debated and I think what he was again cautioning is that it would not necessarily be the numbers in the Force Design and this is within his, what I understood, I’m not an expert on this but this would have been very much in his domain to make this comment, he would not have commented on for example
20 funding, he would not have commented on the number of training aircraft in terms of detail but he’s saying: “I concur that this is an appropriate comment from that organisation within the SANDF” Chair.

ADV MPHAGA: Now both these documents, they refer to the
25 ALFA and the LIFT without mentioning the type of aircraft, why

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is that the case?

BRIG GEN BAYNE: At this stage of the project there is no mention of which aircraft could even possibly in terms of type or name meet the requirement, this is only the Air Force's stated requirement for the capability, it is not the task then of
5 the Air Force to make those decisions, that would then move to the project phase which would be done under our Director of Air Force Acquisition and his counterpart in ARMSCOR and the process that would run from that point onwards Chair.

10 ADV MPHAGA: Am I correct to say then your role as the South African Air Force would then end with the submission of these documents to ARMSCOR?

BRIG GEN BAYNE: My colleague from Captain Jordaan will explain this in much more detail and in much clearer, being the
15 expert in this field but as a project officer I think I can explain, the Air Force never leaves the project, it's not a matter of only one or the other, it's a process in which different role players play the dominant role throughout this 10 to 15 years. At this phase the end user being the Air Force would play the dominant
20 role in clearly stating its operational requirement for the next dominant party to receive, once approved by the Minister, and that would in this case be ARMSCOR with the user requirement statement which is just an engineering document version of this, and they would then convert this into contractual
25 language. And Chair, I would like to end there in terms of that

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because as I said Captain Jordaan will explain that process in detail during his testimony, but again I say at no point does either the Air Force during that phase or the DOD project members or the ARMSCOR side and many other organisations you know leave the project, it's so complex as you've seen and delivering many requirements and situations that everyone plays a role throughout but yes, at times there's a lead or a dominant party is the best way I would explain it in my understanding Chair.

5
10 ADV MPHAGA: So if you go back then to page 5 of your statement, paragraph 29 you mention that:

"The project processes were carried out for the ALFA and LIFT and the Gripen and Hawk were selected in November 1998 by the Government as the preferred bidder solution to satisfy the South African Combat System Requirements".

15
And then:

"After a year of contract negotiations the Gripen and Hawk contracts were signed in December 1999".

20 You were involved throughout in your capacity as the, is it the project leader in respect of Ukhozi and Winchester?

BRIG GEN BAYNE: That is correct, I was the Department of Defence project officer with my counterpart who would have been the ARMSCOR programme manager Chair.

25 ADV MPHAGA: Paragraph 30 then you were referred to the

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sections of the Joint Investigating Team report which covers the period of your involvement from February 1998 until the contract signature in December 1999. Do you want to take us through the important elements or points in the Joint Investigating Report in respect of your involvement? That is on page 72 of the bundle Chairperson. Can you just mention the necessary portions and not everything? Thank you Chair.

BRIG GEN BAYNE: Yes Chair, I can speak to the process of the Joint Investigation Team Report regarding background and up to the submission of the staff target. At that point the ... Sorry.

ADV MPHAGA: General maybe before you go through the document the Joint Investigation Report, what is it?

BRIG GEN BAYNE: The, in 2000 a Joint Investigating Team from the Public Protector Auditor-General and Special Investigations Unit carried out an investigation into the SDP's and this was their final report which was tabled at the completion of that investigation and covered various aspects of the, that phase of the programme between the beginning of the background through to that point in time of the contracting, and this chapter referred to here was a selection of the ALFA and LIFT prime contractors in that process Chair.

ADV MPHAGA: Were you involved at the Joint Investigating Inquiry or ...

BRIG GEN BAYNE: I was part of the, I wasn't part of the

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team, I was engaged on during that process Chair.

ADV MPHAGA: So you can speak directly about the issues that are reflected in Chapter 4 of the JIT Report?

BRIG GEN BAYNE: Yes, of those that I've tabled here as I
5 said where my role was the lead role up to the submission of the Staff Requirement. ARMSCOR will speak later and be testifying later to the process in that, that fell in that domain of the remainder of that part of the project Chair.

ADV MPHAGA: Thank you General you may proceed to take us
10 through the document.

BRIG GEN BAYNE: Thanks. I think on page 92 it confirms all that I have spoken about so far in terms of the background leading up to the various requirements and then on page 93 it again refers to the Staff Requirement which we tabled as the
15 DOD about the advanced fighter trainer aircraft, it also goes on then to speak about the responses that were received from various of the aircraft for the, that was now for the advanced fighter trainer phase which was before I joined the team, but it does outlay it as background to the chapter on the lead-in
20 fighter, sorry, the advanced light fighter.

You see I mentioned the F16 earlier as a similar type of aircraft, the Gripen was also there and various other aircraft that were looked at. This was that process I spoke about earlier looking at all the various advanced fighter
25 training type of aircraft. And when those replies came in the

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results which were based mainly on technical performance were then presented and as happens in all of these requests for information one must remember that this is at an early stage and as I said this will, the detail of these phases will be
5 alluded to by my colleagues that will still testify in detail.

But I think what is interesting is that you can see that this was not a shortlist of contenders, there were a number of them that replied at the request-for-information stage for this advanced fighter trainer system. It then briefly also
10 reviewed the process that I have covered in quite a lot of detail between 1996 through to 1998, it also explains how the shortlist was reduced which is standard in all programmes because you don't want to go out on further in a programme if you can reduce the number of contenders at an early stage and
15 that is one of the purposes of this part of the programme.

On page 96 it came to some conclusions in March 1997 and this was more or less at the same time that the various defence packages were being introduced into the system and were being offered to the Government on
20 Government-to-Government processes. I cannot speak as an expert on that because I was not involved in that part, I was at this stage if you remember at Operational Plans looking at the various options for the fighter master plan.

ADV MPHAGA: General once you are on page 96 we know that
25 there's a lot of criticism in respect of the acquisition of the

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Hawk and the Gripen in other quarters, for instance if you look at the second block on, under 4.1.12 the Hawk 100 is reflected as not satisfying the South African Air Force operational requirement and also the issue of the high cost and the Gripen is indicated as unaffordable, are you able to comment on this?

BRIG GEN BAYNE: Yes, I think the ... I think one must ... It's very easy to get confused between the AFT requirement and the future medium fighter requirement. This meant that the advanced fighter trainer requirement if you remember would have been below the level of the future medium fighter and many of, certainly what I have read so far seems to sometimes mix the AFT frontline medium fighter requirement in which certainly these aircraft would not have met that requirement because it was not in that class *versus* the requirement then for the AFT over here and then later the ALFA or the lead-in fighter trainer, so hence you will find documentation where the service and comments were made regarding the suitability of offered packages *versus* the normal process and as it turned out the normal process was followed in terms of the acquisition process to go through all of these various phases of the programme. I'm not sure if that answers the question. So, the criticism at that time was for where the Air Force alluded to the fact that it had not met, in other words the Gripen would not meet, was not a medium fighter, it was a light fighter, the Hawk would not have met the advanced fighter trainer because it had

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to have a full light fighter capability as well at that point, similar to other aircraft in its class.

I can't comment on the affordability statements here because I was not part, remember, of the AFT team of that valuation or that visit, but I would imagine at that point in time the aircraft, certainly the Gripen would have still been in fairly early stages of its development in which case very little you know, it was quite early in its life *versus* some of the other aircraft that would have had a lot of proven figures in terms of operating and cost that could be put on the table, so that's the only perhaps comment I could make around that.

The AT2000 for example was still a paper aeroplane, it was a paper that was, it was an aircraft that was still to be developed from start, so that is how wide the Air Force or the Project Team went out to look and also to investigate at this point what sort of aircraft were out there and how suitable would they be to meet the requirements of the various tiers and requirements as put out for the advanced fighter training Chair.

ADV MPHAGA: Thank you General, you may then proceed to take us through the document.

BRIG GEN BAYNE: I think at the bottom of page 97 was a comment about the packages again and the fact that at that early stage then there were comments as I alluded to now that the affordability also I think was highlighted early that unless

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there was going to be a new way of acquiring these systems than the traditional way of the past, then additional funding would need to be found and so it comments on all of this as I think all of us have alluded to at the time in the Force Design and affordability *et cetera* through that process. And the final decision on page 98 I think was that in view of, in paragraph 4.1.7 Chair at the bottom it says:

“In view of the above a decision was made by the UCC ...”.

10 That was the one, in those days we had a Project Control Council which was chaired by again members from all the organisations and the projects reported to those boards in 17 March 1997 to recommend to the ASB that the project be delayed by 12 months. The reason for that delay was a submission was accordingly made and it was approved at that 15 ASB. Again because the packages were just started to be spoken about and were emerging, at the same time the Air Force requirement was in for to be satisfied and therefore the AASB thought it prudent to slow down, reconsider, make sure in 20 my interpretation as I understand it here and from what I was informed at plans-wise was to give time for us to get a better, or the Government and the Department to get a better understanding of the packages and then to proceed once that was clarified. And then over to the, then the next part speaks 25 about requirements of the two tier, three tier, which I think I

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have covered in detail Chair and it basically confirms what was said, and the roles that these aircraft would play in the process.

5 ADV MPHAGA: If you look there at the, I mean page 99 paragraph 4.2.1 the last sentence says:

“The South African Air Force was therefore forced to redesign in terms of costs and not according to its requirements”.

Can you comment on it?

10 BRIG GEN BAYNE: Yes, that was the lowering of sights alluded to earlier from the future medium fighter to the advanced light fighter, in other words we would not be able to afford a medium fighter any longer. And I think it then goes on to the tiers where, which introduced the lead-in fighter trainer
15 as the middle system in the new fighter strategy or fighter master plan.

ADV MPHAGA: And I think critics make mention of the fact that this three tier system was so expensive in that it took almost half of the amount budgeted for the whole SDP process, is that
20 correct?

BRIG GEN BAYNE: Sorry, can you repeat the question?

ADV MPHAGA: My question is that the critics are saying that by moving to the three tier system you basically as the Air Force took almost half of the whole package or the amount of
25 the SDP budget.

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BRIG GEN BAYNE: Clearly by going to a three tier system you would have an additional system to acquire, that speaks for itself. Over life cycle cost one would have to of course weigh that off against the higher cost of the more expensive platform to carry out all the training that I've alluded to in a three tier system, so yes, in terms of acquisition cost it is certainly more expensive to acquire a three tier than to have acquired the two tier, but then one would have to look at, if you looked over life cycle cost of 40 to 50 years of operating those systems at various operating cost levels then these are studies that were carried out and done at the time throughout and would continue to be done through the project process as well, but as it turned out obviously then the fighter component Chair of the SDP's was a large part thereof, together of course with the submarines and the Corvette's and the light utility helicopters did form a large part of the acquisition costs yes, by having the three tier system.

ADV MPHAGA: What would have been the, our financial exposure had we gone for the Eurofighter which was a medium fighter?

BRIG GEN BAYNE: That was the medium fighter vision that had to be lowered. In general I would say probably you would be looking at acquisition costs of at least double for that system and operating costs more or less in the same bracket *versus* the light fighter.

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ADV MPHAGA: Can you give an example of countries who have gone for the Eurofighter on a two tier system and what are the cost effects of that?

5 BRIG GEN BAYNE: I don't know of any European country that has taken the Eurofighter on a two tier system, they all have a three tier system if they've gone for that level which is now above the level even of a Gripen. Currently the Eurofighter was built and was a project by a number of European countries who were actively involved in the aircraft and I don't know the
10 exact number of countries but about, currently about eight countries have acquired the Eurofighter of which about four or five were involved in the programme from the beginning and mainly in Europe and then also the Eurofighter is the down selection in Indian currently with the Raphael, and it is also in
15 a number of other down selections at the moment for some other countries.

Saudi-Arabia has also bought the Eurofighter as well as yes, I think that's my knowledge on the Eurofighter, it's certainly not accurate but what I'm saying is a number of
20 countries have bought the Eurofighter, there are also a number of countries that use lead-in fighter trainers in the bracket of the Hawk for example to convert pilots onto even the Eurofighter for example, there are some examples of that, yes
Chair.

25 ADV MPHAGA: Can you then proceed then to take us through

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the document General?

BRIG GEN BAYNE: On page 99 Chair they again refer to the Staff Target and Staff Requirement updates which I attached and I took the Chair through the, through those documents, the Commission. On page 100 was the request-for-information phase, this is a phase which is again led by ARMSCOR and starts to feed into the process on the ALFA and so I attached this due to the fact that, again just to give an idea at this stage of the sort of aircraft that were replied to on the ALFA request-for-information. And then out of that the down selection for what is termed the RFO stage or request-for-offer, the down selection out of these aircraft was then progressed to the final three which was the AT2000, the Mirage 2000 and the SAAB Gripen which would go out on RF, request-for-offer sorry, through the project process.

It also refers in paragraph, on page 100 Chair in paragraph 4.3.1.3 that it was also decided and again it just alludes to what we spoke about earlier about the change in numbers that the initial requirement from 48 came down at a point, at a stage to 38 at the RFI stage and again came down to 28 to fit within prudent cost constraints by the time we got to the RFO stage, hence my reference to those in my domain as part again of the change to the requirements. And then on page 101 in paragraph 4.3.1.4 perhaps just to allude again to the last phase before the italics:

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“As a result of this presentation four significant decisions were taken, the SAAF required both the LIFT and ALFA, a three tier system”.

Which is in the domain that I have spoken to, both would be
5 satisfied through the Government SDP's as was in the Staff
Requirement approval and the LIFT constituted an additional
requirement that had to be registered as such and the LIFT was
the more urgent requirement that had to be satisfied first
because the Impala's could only fly to 2003 and then there was
10 a little bit more time to replace the ALFA's due to the fact that
the Cheetah's could fly a little bit longer is my area of
expertise I can speak to on that page Chair.

Out of that then the request-for-offer on page 102,
they then went over to speak about the request-for-offer as I
15 said, which were shortlisted above of the three aircraft and at
that point in time it gave a very brief summary of how the
project team viewed the products at this stage, bear in mind
that at this stage there's no commitments, there's no
contractual commitments yet, it's purely an information stage.
20 The most important phase then commences, and this is then
again in the ARMSCOR domain, is the request-for-offer which
would then go out from that point onwards.

And then from there the bids would have come back
and have gone through the value system, evaluation and
25 contracting phase which will be alluded to in more detail by my

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ARMSCOR colleagues as the lead, as the dominant party or lead party for that phase of the project and that ends the reference to the Joint Investigation Team from my domain and understanding Chair.

5 ADV MPHAGA: During this project phase General there's been a lot of criticism in respect of why the Aermacchi from Italy was not preferred but rather the Hawk. Are you able to comment on that?

10 BRIG GEN BAYNE: I'm not sure regarding the scope of the so-called criticism on that, I think in terms of the ALFA for the Gripen it's confirmed that the Gripen was selected. Remember that during the SDP's there were distinct areas of contracting and evaluations that took place being Strategic Defence Packages, there was the Military and in our case we focused on
15 the, sorry, on the technical, on the technical aspects or the technical evaluation. Then there was the financial and then there was the national industrial participation and there was the defence industrial participation, so our remit as the Military was the military only which went about the evaluation and the
20 studies done regarding the aircraft itself in terms of its performance, logistics, in terms of its company, the company profile which is an important part of the evaluation as well which is chiefly looked at again which is why you have the Joint Team, it's looked at mainly by the ARMSCOR members,
25 we would look very much at the flying part because we would

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take part in those part of the evaluations and so when one puts all of those together that is the evaluation and you have a very strict RFO that goes out and you will hear a lot more detail about that later, it is very specific and the replies that come in

5 form the contract baseline, this now is contractually binding on companies as well later in the process and therefore you asses each of those as they come in and when one has completed those assessments remember that the project team only makes recommendations, we have no approval or no authority, we only

10 take those results, we evaluate them, there's a risk analysis that is done, there is an analysis of that and that is then presented and recommended to, as you saw, all the various processes and (indistinct) up the process, and from my perspective that's the process I talk about that was followed

15 and was presented then right up to the top level for a highest level for approval and then once that occurred then we knew which were the products were selected for that programme.

ADV MPHAGA: And what's your comment on the criticism that the Aermacchi had met the ...

20 CHAIRPERSON: Advocate Mphaga I'm sorry, just for my own understanding you know, as I understood the question the question was there's allegations that the Aermacchi was much better equipment than the Gripen, I didn't quite understand what your answer was, how did the, or what was the feeling of

25 the Air Force at that stage as far as these two aircraft are

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concerned after you had made a curtain call evaluation? Thank you.

BRIG GEN BAYNE: Chair, in terms of the ALFA the Gripen came first on the, in terms of the military evaluation, the three
5 aircraft that we evaluated, the AT2000 was at that stage a paper aircraft which was under development, it scored the highest, the Gripen the second and the Mirage the third, so in terms of the risk analysis and the final decision taken on the, with cost included on the ALFA the Gripen was the top product
10 that was selected.

On the LIFT programme there was, and perhaps I can just say that the three aircraft were very similar, they were all, they all three would have met the Air Force's requirement, so it was very important, perhaps this is more in line with your
15 question if I understand it correctly, the Air Force's task at that stage or the task of the project team sorry, was to ensure that whichever aircraft was down selected for the RFO process and evaluated would meet the requirement for the Air Force. Other considerations in the package would have then been the
20 other aspects that I alluded to that we were not involved in, in any way and of course then would be the strategic decisions taken at the higher forums higher up the authority chain.

In terms of the lead-in fighter trainer evaluation there were two classes of aircraft, there was the Aermacchi
25 which was a lower cost aircraft but also in terms of its flying

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performance and capability was of a lower capability, the L159 which came from Aero Vodochody and the Hawk 100 from BAE Systems were aircraft in a higher flying performance domain or capability, however, when any technical evaluation is done

5 Chair many aspects of that aircraft system as I mentioned earlier is looked at, not only the flying performance of the aircraft, there's also logistics, there's engineering and then there is also what's termed company profile or the capability of that company to deliver the requirement and sustain it, and so

10 you find then in the evaluation which again will be alluded to more through the project study by ARMSCOR in summary those aspects are also looked at and so you will find then that in these, in this category on the results of the evaluation as such the Aermacchi yes, still was the, in terms of the total

15 evaluation was the highest, evaluated the highest over the whole spectrum.

If one only had to have a look at the flying performance of those aircraft within the evaluation then the Aermacchi was not the highest, the other two aircraft were of a

20 higher performance category in terms of flying and that confirmed from the flying evaluation that we did that that was the case but like I said in a system of evaluation many aspects are looked at, if that answers the question Chair.

CHAIRPERSON: Thank you, it does.

25 ADV MPHAGA: So, is it correct that what the critics says that

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the Air Force had preferred the Aermacchi?

BRIG GEN BAYNE: Chair, the Air Force does not have any say in the final decision, the Air Force states its requirement and as long as that requirement is met by the delivered project then that is the Air Force's domain. We state the requirement, we do not state which aircraft must be acquired to meet that requirement, the Air Force, as I said in the Staff Requirement makes that clear and then it goes through the rest of the process in order to get to that product that is delivered to meet that requirement. What is very important, and that is the primary task which I would have had as project officer is to ensure the Chief of the National Defence Force and the Air Force that those, those products which were forwarded into the process before being evaluated together with the others would meet the requirement of the Air Force in all three cases, because the Air Force is not the body that decides on the product, that is decided by other forums much higher than the Air Force Chair.

ADV MPHAGA: Thank you. If then we can move back to your statement on page 5, I think we are now on paragraph 31 of the statement.

JUDGE MUSI: But before we go there let me just get clarity on this, General I understand quite clearly that all you are interested is a product that meets your requirement, you don't care much about which one is it as long as it meets your

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requirement, is that correct?

BRIG GEN BAYNE: Commissioner yes, that is so, it must meet the minimum requirements which are set by the Air Force in its requirement, if it cannot meet those minimum requirements you will hear later, if I may just allude a little bit, you also in this requirement when it gets converted from our requirement into the ARMSCOR process and you will have read about this in the report, we talk about mandatory requirements, they have to be met.

10 If an aircraft is offered and cannot meet certain mandatory requirements that the Air Force can say we cannot live with not meeting this requirement, then that aircraft will not go through to the final RFO stage and then after that there are other requirements in which it could be differences of what's called highly desirable, that will be explained a lot later. The Air Force, as long as the Air Force not gets the product as required in the Staff Requirement it will continue with that product Sir.

15
20 JUDGE MUSI: Now the fact is the Gripen and the Hawks have been chosen and they are delivered to the Air Force, do they meet your requirements?

BRIG GEN BAYNE: Sir if you may I will be alluding to that in my next section under Utilisation in the Air Force, I will ...

JUDGE MUSI: Thank you.

25 BRIG GEN BAYNE: I will, when we come to that phase I will

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explain how we evaluate that to make sure that that happens
Commissioner, if I can do it then Sir?

JUDGE MUSI: Thank you, we will come to that. Thank you.

BRIG GEN BAYNE: Thank you Commissioner.

5 ADV MPHAGA: Thank you. General, in paragraph 31 then you
are telling us about the time you spent in the United Kingdom,
five years at the BAE Systems and there you were managing
and overseeing the various project phases and activities with
the BAE System team. This was an everyday kind of a job?

10 BRIG GEN BAYNE: Yes once, Chair once the contracts were
signed in December 1999 while the negotiating phase was
going on with the preferred bidders during 1999, which again
would have been mainly in the domain of ARMSCOR who are
our contracting party and contracting, the DOD part of the
15 team, although we partook in that and were actively involved,
we would now be concentrating on what is termed the
acquisition plan part, in other words our role of being part of
the team during the remainder of the project and leading up to
that for those few months before we actually launched is the
20 formulation of a Joint Project Team.

At this point then I became the project officer for
the, for Project Winchester where I explained we now became
two teams, one to go and complete the project to acquire the
lead-in fighter, the Hawk, another project team was established
25 to do the same in Sweden to take the project through that

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phase with the manufacturer in Sweden. And so the planning took place until April 2000 and then we launched overseas with a joints ARMSCOR and DOD project team, and as I said again what we did in this case is we took the members from the Air
5 Combat Acquisition Team and we more or less split them half-half, so we had a balance in this team of the same members who would come through the process right from the beginning.

This is very important on projects because now you have that knowledgeable people who have gone through all of
10 that process for what, two years already, knowing that product by now very well and then spending a whole year really getting into the detail, who go over to the original manufacturer and stay onsite and make sure then that the product is delivered to the requirement of both the Air Force and the ARMSCOR team
15 will make sure that it is delivered to specification and within contract baseline being finances, cost *et cetera*, and then this team then operates and forms an integrated project team with the manufacturer to make sure then that the project is successful.

20 I would say that the important role there of the members of the Department of Defence is also to act as the first line of information to assist ARMSCOR to make sure that they also along this process fully understand the requirement and also the manufacturers, so if there are questions to be
25 answered: "What do you mean by this? How much, you know to

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clarify?”, you have experts from the Air Force there to answer those questions and that’s the role then that we undertook.

We also were part of all the safety meetings, we were part of the various production meetings, so during this
5 period you act as the knowledgebase on that product at a very detail, from the time where the aircraft starts to be produced right through until you have to go back and deliver it to the Air Force to ensure then that all along the way if there are any issues, risks or problems not predicted or estimated as these
10 change I would then be the conduit through which this would be fed back into the department and into the Defence Force, and particularly back into the Air Force on an ongoing basis reporting back and ensuring that all along the way the Air Force did not lose touch or were not involved, and I think
15 alluded to that.

However, the lead party again would have been there ARMSCOR because you are working with the contractors, so we would be in support of ARMSCOR making sure that they met their mandate of their part of the teamwork that was done.
20 We were quite a small team and then from time to time whilst we were overseas in there we would bring over specialists from time to time from South Africa who would come onsite again in particular areas at particular times and these were the people then that would come back and further start to educate the Air
25 Force and start to what we call prepare the environment to

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5 receive this new equipment, because remember it's not as, it's quite a complex system and so you need, you can't wait until the aircraft actually arrive and then only start educating the system because they have to start to prepare all of the environment to receive this new system.

So, I think in trying to summarise in a nutshell for the Commission this is the main role of the Department of Defence members in this team that goes onsite and the same was done for all the other projects as well Chair.

10 ADV MPHAGA: So, after spending five years you reckon that you were fully equipped on the system together with your team?

BRIG GEN BAYNE: Yes, including the wider team that would come over and get exposure and prepare Chair.

15 ADV MPHAGA: In paragraph 32 you mention that in 2004 the local Hawk Implementation Team was formed, was it while you were still in the UK?

BRIG GEN BAYNE: Yes, this was still while I was in the United Kingdom but the first of our members from that team then returned to South Africa and they started to form what we call the Hawk Implementation Team and this is the team that is
20 tasked to prepare the environment to receive the system once it starts to arrive and also to facilitate the delivery of all the components of the system into the Air Force. They then clearly started to build up other members in South Africa within the Air
25 Force to meet this requirement, so you find that the, for

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example the officer commanding of the new unit that was to be, to receive the aircraft would have been part of this team. The first instructors and the first ground crew would have been part of this what we call the Implementation Team Chair, so that

5 they can at an early stage, even before the aircraft arrive, they start to go through the documentation, they start to understand this new system that is arriving into the Air Force and they, their task is then to make sure that all the facilities are correct, to the right specification so that when the aircraft

10 arrive and you start putting test equipment down or logistics down, that the facilities are ready and if there's any changes to those they need to be prepared and also verified as ready and that then is the Air Force's task to do as well, so again you find in this phase the Air Force starts to become more and

15 more an important role player in the project because they're now starting to receive equipment and will have to operate the equipment in the next few years in its initial stages. That is what is termed in our part of the programme the implementation role and the information team that is formed to do this Chair.

20 ADV MPHAGA: Now during the five years that you have spent in the UK was the air crew in the form of technicians, engineers also trained on the system?

BRIG GEN BAYNE: Yes, part of your implementation phase is then also the training which is contracted and is done by the

25 original equipment manufacturer, in this case it was BAE

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Systems. They would have sent out then their instructors, these are normally ex-Royal Air Force instructors that they employ as test pilots and they came out and trained our first six air crew in South Africa onsite once the aircraft arrived in our environment. In some cases previously our pilots would have gone overseas to do training there but in our case here we did the training here which actually was an advantage because it meant we could be trained in the environment where the aircraft would continue to operate in, I think on the Hawk.

5

10 I can just say at this point I was not part of the Project Ukhozi team overseas but this same process Chair was followed for Project Ukhozi from the DOD side, they had, and again their own project officer and members who went over, did exactly the same, also had an implementation team and then the same

15 process for the, to prepare for receiving the Gripen when they were delivered.

The initial two pilots, some two pilots were trained in Sweden first and the remainder then were trained in South Africa for example, so it will never be exactly the same, but ideally in my view is you want as much training to take place in your, on your own base in your own environment by your initial instructors because as I said that is most cost-effective and gives you the most advantage in terms of you then training your further air crew and ground crew, and the same happened with

20

25 the ground crew, the original manufacturer sends out a team

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and they train your ground crew on your equipment and on your system onsite Chair.

ADV MPHAGA: Thank you General. In paragraph 33 you mention that the Hawk aircraft were delivered from May 2006
5 over 12 months and the Gripen's from April 2008 over 12 months. In this respect you refer to Annexure "JWB5" and 6 and "JWB5" is on page 105. Can you just take us through it, page 104, 105 of the bundle.

BRIG GEN BAYNE: I can allude then to the delivery, this is as
10 requested, this was the delivery of each tail number of the aircraft over that period and as it shows there it proves then that the Hawk aircraft were delivered over 12 months, roughly at two aircraft per month. The reason why this could be achieved Chair was that one of the successors of the, I believe
15 of the Hawk project in terms of the involvement of local industry was that the first Hawk was built onsite in the UK fully and then it was put in a transport aircraft and flown out to South Africa.

This aircraft was what we called a flight test
20 instrumented aircraft which was acquired and it did some initial flying in South Africa at our test flight centre with our test pilots involved as well as BAE's test pilots involved and this aircraft though were still then under the project phase, still owned by BAE Systems. These aircraft I referred to are the
25 ones which arrived onsite at Air Force Base Makhado delivered

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to the Air Force.

Just to clarify that point the aircraft, the first aircraft being Aircraft 250 which was the slight test instrumented aircraft, and I'll speak a little bit more about that during my Utilisation part of my statement Chair. So, the other 5 23 aircraft were built by BAE Systems in the UK up to a certain point where they would have to be assembled and at that point all of the parts of the aircraft were shipped out to Denel in Kempton Park and Denel Aviation did the assembly of all the 10 aircraft in South Africa in our local industry and out of Denel the aircraft were then delivered to Air Force Base Makhado, so this gave local industry a large proportion of work and also allowed them to increase their knowledge base in terms of understanding modern assembly of a modern fighter aircraft 15 system, and therefore the aircraft were able to be delivered at roughly two a month because if you remember going back to the Staff Requirement we said that these aircraft were quite urgent and we needed them to be delivered quite quickly, so that was the process that happened for the Hawks.

20 In terms of the Gripen's it was slightly different, the Gripen was fully built over in Linkoping in Sweden, the main reason being that these were composite aircraft and of a different production type of process and also that their assembly was much more complex in terms of the final product 25 and so it was not deemed then cost-effective to also assemble

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them here, so they were fully built in, in Sweden and then shipped out on aircraft but over a much longer period, they arrived in the country between April, from April 2008 over about 30 month period by ship, roughly two or three aircraft at a time.

The aircraft were then taken ownership of by the project once they were put on the ship in Sweden and they were shipped out to South Africa, we put people on the ship to make sure that the aircraft were safe and that the aircraft were looked after while they were onboard ship and when they got to Cape Town Harbour, I'm not sure many people will have seen pictures but the aircraft were then put down on the quay and actually towed to our Air Force Base in Ysterplaat, they were, the wings were assembled and put on by our ground crew who were trained by SAAB at that time, flown by our test pilots one sortie and then ferried up to Makhado and that's how the aircraft arrived in Makhado into the environment in which they're operating today Chair.

ADV MPHAGA: Is there any significance, the numbering of the Hawk's and the Gripen's, is there any significance in the numbering?

BRIG GEN BAYNE: No. What happens with South African Air Force there are batches of numbers reserved for new aircraft from way back and so when your aircraft arrived, if we look at the Mirage F1's they were also at what we called a 200-series

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but only up to below 250, so the next available block of numbers on the data system was from 250 upwards and so the Hawk's became Hawk 250 to Hawk 273, the 24 Hawk's. The Gripen's had a designation 3901 through to 3925 for their, 26
5 sorry, for their 26 aircraft that were delivered. So no, the numbers do not have any specific significance Chair.

ADV MPHAGA: You say that the South African Air Force took ownership of these Gripen's when they were shipped. Was there no risk in doing that or was there any advantage?

10 BRIG GEN BAYNE: No, the only reason for that, not the Air Force, remember the handover from the manufacturer is first to the project team, then the project is responsible for the aircraft until what we call system handover which I'll allude to a little bit later, that is when the Air Force takes ownership of the
15 total system, that's now the aircraft, all the training has been done, all the logistics is delivered, everything is on the ground, has been checked by the Air Force and made sure that this meets all our requirements, it's been tested and then the Air Force takes system ownership, so, at that point in time the
20 project still owns the assets, not the Air Force yet.

Now had the aircraft that were brought out by ship from Sweden not been taken ownership in Sweden it would have been very expensive for the manufacturer to ensure the aircraft and to transport them, so this was then done under the risk of
25 Government, as you know Government does not ensure these

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assets as such, and so when they were coming out here we put our people on the ship to make sure that those aircraft were safe and were delivered correctly. So that's the only reason why the process happened that way.

5 ADV MPHAGA: So it was a risky but cost-effective measure?

BRIG GEN BAYNE: Definitely, and the risk was, because any case it would have had to be done by the manufacturer anyway, you know he would have done it, or we did it, so it reduced the cost, the risk would have been the same.

10 ADV MPHAGA: In paragraph 33 you also proceed to say that:

“Facilities were prepared, air and ground crews were trained, logistic support was delivered and the unit commenced with operational test and evaluation which is the final testing by the end user in the SAAF environment with own resources to check that the equipment delivered is fit for purpose and meets the South African Air Force requirements”.

15

Can you elaborate on that?

20 BRIG GEN BAYNE: Yes Chair, when this equipment is delivered and adequate aircraft ground crew are trained by the original manufacturer, the simulators are put in place, the test equipment is in place, then the Air Force in the domain where it flies and is an Air Force responsibility is to carry out what we
25 call operational test and equipment and then what happens is

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the squadron or the unit pilots and ground crew will go back and make sure that this aircraft meets the requirement in the Staff Requirement and in the User Requirement Specification from an Air Force useability perspective.

5 During the project, and that is the responsibility again of the project team, ARMSCOR would have done quality assurance control, you will hear more about this later all the way through, we would also have done what is called developmental testing where our test pilots would have been
10 involved with the manufacturer's test pilots to make sure that the aircraft meets the specifications, we don't repeat that now in the Air Force, we take all of those tests that have passed already and now we subject the system to what we term fit-for-purpose-testing in the Air Force.

15 In other words can the pilots and the ground crew trained in this case, in my case of the project by BAE Systems and the project, can they fly the aircraft in our environment, in our conditions, can our ground crew who have been trained with the equipment they have been given fix an aeroplane, replace
20 an engine, turn the aircraft around within a certain time, all those requirements that were put in the Staff Requirement have to be ticked off on what we call a compliance matrix, and once all of those have been ticked off and agreed to, only then does the Air Force accept handover of that system from the project,
25 so there enormous checks and balances that are put on, the

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base will exercise that these aircraft can fly so many sorties in a day, they can fly at night at and at day time, are all the facilities in place, everything has to be ticked off, not only the responsibility necessarily of the OEM but the project part as well as did the Air Force prepare the environment correctly for these aircraft to be able to operate.

So, I think I want to give the assurance to the Commission that if those aircraft get to that stage and pass the OT&E it can then be said that these aircraft then meet that requirement, that is what is operational test and evaluation. Currently the Air Force has taken ownership and handover of the Hawk system into the Air Force, there are some few project deliverables which will still happen, I can give an example of why, the Air Force also during the project phase had the logistics approach that unless proven otherwise the maintenance of the aircraft must be on-base, onsite, if not it must be in local industry and only if it cannot be done cost effectively that way must the maintenance or the support of the aircraft go back overseas to the original manufacturer, so in that process of delivering all of that capability some of the deeper level capability for the Hawk is the major service on the Hawk which is quite a deep level of maintenance which we can do on the base and then at another ASU in Pretoria we are putting down a capability to service the APU on the aircraft, this is the Air Pneumatic System and pressure system which is

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quite a high cost driver of maintenance on any aircraft, this is what keeps the aircraft running before the engine is started, and we're going to do the deeper level servicing of that.

5 The first one is coming June next year and so that delivery was delayed by the project to be delivered specifically so that the putting down of this capability would be at the same time that our technicians needed to do this work. Secondly by putting it down now we retain the warrantee only once it is in place and accepted by the Air Force.

10 If we had brought this equipment too early then you will lose the warranty period because you won't do the service, this is giving some idea of how important it is in terms of the delivery and also why projects take a long time and have quite a long delivery period as well, so this last few pieces will be
15 put down and checked as an entity, but there was adequate proof that the system met the requirement and the Air Force accepted the system and had it handed over, and Commissioner, that should answer then your question to me on the Hawk, it meets the requirement and is accepted into the Air
20 Force.

The Gripen today is still in project phase, it has not been fully handed over to the Air Force today, it has completed, I just want to get to my statement here, it has completed around about 85% of its operational test and
25 evaluation, it still has some to go before the Air Force will fully

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accept the system. The aircraft, however, has been fully delivered, all 26 aircraft and the bulk of the deliverables are in place at Makhado and currently we have done, as I said the bulk of the testing and so far the system has passed the OT&E up to this point in most areas, but I say again it is not completed yet, this should be completed to take place, the final stage of handover of the Gripen system will be in early 2015 Chair.

ADV MPHAGA: Thanks. In paragraph 35 you mention that:

10 *“The Gripen is the South African Air Force’s only full fighter capability whilst the Hawk is primarily a fighter trainer aircraft but with a considerable level of collateral operational capability in low threat environments and has growth in this role when*
15 *operating in a package together with the Gripen”.*

Can you just elaborate on that statement?

BRIG GEN BAYNE: Yes, I think in summary we’re saying we have now, or are about to complete the operational test and evaluation and confirm now that that is our only capability and it meets that capability. The Hawk on the other hand has been accepted we understand, we have already trained pilots on the Hawk from the Astra successfully onto the Gripen, so we have proven that the three tier system as acquired meets the requirements of taking a PC7 Mk2 pilot through the Hawk and on to the Gripen, we have already trained some people in that

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domain and I'll speak a bit more about that under Utilisation.

And then also we have seen that the Hawk has a considerable level of what we term the collateral operational capability in lower threat environments and also we have found out that matched with the Gripen due to its higher performance levels and ability to call it in simple terms, keep up better with the Gripen and operate in a similar type of environment although at lower performance levels we can utilise the two aircraft together also in this collateral role, meaning that the Gripen can operate with the Hawk in a wider environment than what was anticipated originally as a summary of how far we have gone with the operational test and evaluation and I'll speak a little bit more about that in the utilisation part Chair.

ADV MPHAGA: And you further mentioned that:

"The Gripen and Hawk aircraft systems have proven to be highly deployable, adaptable and have the flexibility to satisfy a wide range of airpower and national security requirements for the Republic".

Can you just elaborate there?

BRIG GEN BAYNE: Yes. I think these modern systems such as these by comparison with our previous systems, because they were designed much more with engineering and logistics in mind if we compare them to the Cheetah or the Mirage F1 or the Impala's they have what we term a far smaller logistics tail, meaning that when you deploy these aircraft away from base,

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which you would need to do in operations, you need far less logistical support when they are deployed away from base than we were used to in the past, and I would go so far as to say this has exceeded our expectations in terms of this
5 deployability. Equally I cannot say that it's only these platforms, I'm talking about the new capability had it been the other capabilities I imagine similarly if they were newly developed as well, but the mix of these two aircraft in terms of their commonality and operability not only with each other but
10 also to be able to deploy we have found certainly has exceeded expectations I would say as a highlight of the capabilities.

And as I mentioned early the fighter line does remain, we believe, an important part of our airpower national security and can meet various requirements. Also I think there
15 were a lot of, might I say not critics but a lot of people said wow but you know you are buying an aeroplane from Sweden you know where it snows and it's in the Baltic and we operate here in hot and high conditions in Southern Africa, but we must bear in mind that the Gripen that we acquired was what was
20 termed the export baseline Chair.

In other words it was not the same aircraft that the Swedish Air Force flew originally. They did fly originally an air aircraft that was designed yes, for Sweden as a step one which you often find countries do initially, they will first design their
25 aircraft for their own air force because they need that air force

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to prove it first ideally before selling it to, and putting it on the market, but in this case we then were what was termed the launch customer for the export baseline version, so this aircraft was designed and adapted for worldwide, for example
5 climate conditions, it was designed to operate hot and high, it was designed to operate in different environments and different deployment areas as well.

And also one must remember Sweden coming out of the Cold War also had to adapt and they have now converted to
10 this EBS, it's called the, now called the Gripen CD instead of the AB in Sweden, and they have taken their AB's and converted them and upgraded them to CD version which has also given them their capability and if you had followed the Libyan conflict you would have seen that Gripen's were
15 deployed by the Swedish Air Force into the Libyan conflict showing typically again that they had the capability to deploy outside of Sweden as well and they did so with success and we have seen as well that the aircraft, we believe, the Gripen, is well-suited for the African battle space of the future to support
20 the country as a national asset Chair.

ADV MPHAGA: Now this Gripen that we have acquired, is it limited to the African battle space or what?

BRIG GEN BAYNE: Certainly not, as I alluded to we also have flown the aircraft in Sweden during the acceptance. Before the
25 aircraft was accepted in Sweden the test pilots from SAAB

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would have flown it two or three, or five times to make sure from their manufacturer that they are happy this aeroplane has been built and it checked out, then the project test pilots would have flown it and our test pilots from the Air Force went over to
5 Sweden and did two or three flights, however necessary to make sure that before the aircraft were loaded on the ship to come to South Africa our pilots had flown those aircraft in Sweden to make very sure that everything on the aircraft worked and was correct, and similar processes would have
10 been followed by the onsite team on the ground to make sure of that.

So, what I'm alluding to is these aircraft have already flown in those type of conditions and because the, fortunately because the delivery was over 30 months it flew
15 there in, I mean really in winter and in snow and in quite harsh conditions that our air crew are not normally exposed to here as well, and then in the Libyan campaign of course the Swedes had the opportunity to also fly the aircraft outside of Sweden in that sort of environment and again there are other Gripen users
20 currently which I'll cover in my Utilisation that fly the Gripen currently in other parts of the world as well, so I can, I think we can with confidence say that the aircraft like all fighter aircraft that are offered for sale internationally need to be able to meet worldwide spec and conditions to operate Chair.

25 ADV MPHAGA: Thank you. Chair, General? Thank you Chair,

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I see it's about 16h00, we are about to move into a new topic, maybe it's the right time to adjourn.

CHAIRPERSON: Thanks Advocate, maybe you are correct, we should adjourn now and General we'll see you again tomorrow
5 morning, you have not been excused as yet because we are still proceeding with your evidence tomorrow. Thank you.

BRIG GEN BAYNE: Thank you Chair.

CHAIRPERSON: We'll adjourn.

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(COMMISSION ADJOURNS)