Next-Gen Hawk
TRAINING TO FIGHT

Reprinted from the January 2013 issue of AIR International
The Hawk is so familiar in Royal Air Force service it may seem unworthy of attention. No longer. At RAF Valley in North Wales, the home of UK fast-jet pilot training, there is now in service the next generation of the long-lived BAE Systems advanced jet trainer – the Hawk T2, which is significantly changing the training of RAF and Royal Navy combat pilots.

**Background**

The fast-jet pilot of today flying an aircraft with an advanced cockpit is a manager of systems, expected to comfortably handle and interact with large amounts of information about his or her aircraft, mission and wider battlespace. Countries have realised they need to update their fast-jet training to prepare their pilots more effectively for these demands.

The UK was no different. With the wide gap between the analogue cockpits of the 30-year-old Hawk T1s used for fast-jet training at Valley and the sophistication of the Typhoon, Tornado GR4 and now-retired Harrier, the Ministry of Defence (MoD) recognised it had to act. Although the T1, with its sporting handling and sparkling performance, was still giving sterling service, it was far removed from the technologies pilots encountered when leaving Valley on postings to the Typhoon, Tornado and Harrier Operational Conversion Units (OCUs).

In response, the MoD in July 2003 selected the BAE Systems Hawk Mk128 AJT (Advanced Jet Trainer), with its modern glass cockpit, as its preferred successor to the T1. A design and development contract followed in December 2004 before BAE Systems was...
Students and instructor pilots walk to their awaiting Hawk T2s on the flight line at RAF Valley.

Paul Ridgway

Hawk T2 ZK026/’Q’ onto the flight line.

A student pilot prepares to get in the cockpit as

Paul Ridgway

a panoramic view of the full motion simulator.

The instructor

Paul Ridgway

across all areas of military flying and ground-based training tools managing revised syllabi and training aircraft, designing and international, was given a 50/50 joint venture between Lockheed Martin and Babcock Partner’ in UKMFTS. Ascent, to be its ‘Training Systems Training a 25-year contract 2008 awarded Ascent Flight

process, the MoD in June and learning equipment.

Ascent worked on the

Christopher Moran who had died shortly after inspecting its construction in his capacity as Commandant-in-Chief of Air Command.

Paralleling this work, Ascent and the RAF were building the syllabus and courseware for students and instructors while BAE Systems was working with DE&S on developing software that would form an important part of the new Hawk. This work began in June 2008 and evolved over two years into the Operational Capability 2 (OC2) package the Hawk training now. Meanwhile the first Hawks were delivered from the factory, an initial batch of jets arriving at Valley in mid-2009, with the first students began training on April 2, a second course starting shortly afterwards. They will

graduating, the first UKMFTS-trained fast-jet pilots. So, just what changes are the next-gen Hawk, the new GBTE and ultimately the public-private nature of UKMFTS bringing to UK fast-jet training?

New Aircraft

Pole Thomson, BAE’s Engineering New Business Manager, explained to AIR International that the T2 was not just designed on a blank sheet of paper. The Hawk has been significantly developed over the past 20 years with the Hawk 100 and 200 series variants and Thomson says the “constant evolution” with the progressive developments of Hawk Mk127a for the Royal Australian Air Force, Hawk Mk120s for the South African Air Force and Hawk Mk129s for the Bahrain Defence Forces was very important in feeding into the T2’s design.

There are not many visual differences between the T1 and T2 – a longer nose, wingtip rails and a re-shaped tail. However, make no mistake, this is a completely new jet. “The canopy and the airframe are the only shared components between the T1 and T2, but even those components have undergone material change,” Thomson said. “The fatigue life for T1 has gone up from a 6,000 to a 10,000-hour design life.”

The Hawk, the new GBTE, classrooms with videos training at Valley – housing the GBTE, equipment and Support (DE&S). Ascent supplied by Lockheed Martin and CAE. Ascent established a facility near the MoD’s Abbey Wood complex in Bristol where it could work directly alongside the RAF and civil servants from Defence Equipment and Support (DE&S). Underlining the partnership, the entire management structure is mirrored at every level, with a combined board comprising a one-star Director of Flying Training from the RAF and equivalent senior directors from DE&S and Ascent.

New Infrastructure

The urgent need to modernise fast jet training was one reason why it was chosen as the first element of flying training to be revolutionised by UKMFTS. With the MoD having purchased the Hawk from BAE under a separate procurement contract (BAE Systems is not part of UKMFTS), the focus of Ascent’s work on modernising fast-jet training was the acquisition of the new ground-based training tools and preparation of the supporting infrastructure.

Alongside DE&S and the RAF, Ascent worked on the development of modern Ground Based Training Equipment (GBTE). This consisted of three layers of simulated training –

desk top trainers (DTT), flight training devices (FTDs) and full mission simulators (FMS), the DTTs and FTDs being supplied by Lockheed Martin and the FMS by CAE. Ascent worked on the design of the self-contained facility that would form the new home of training at Valley – housing the GBTE, classrooms with videos and interactive smart-boards, the 28 Hawks and engineering support. Ascent also recruited Qualified Instructors (QIs), who in instructing on the GBTE would work directly alongside RAF and RN Qualified Flying Instructors (QFs). The QIs consisted entirely of ex-military pilots, all with experience working as QFs at Valley and on the front line. All this activity underlined the principles of UKMFTS – the private sector not only providing investment in equipment, facilities and people the MoD would find hard to finance itself, but also the concept of civilian contractors working alongside military personnel under the same roof to provide tuition to students, rather than being contractors in a separate building. The new building was handed over to Ascent on November 1, 2010. It was later named the Moran Building, after the late Air Marshal Sir Christopher Moran who had died shortly after inspecting its construction in his capacity as Commandant-in-Chief of Air Command.

Following a competitive process, the MoD put out to tender its UK Military Flying Training System (UKMFTS) project. This ambitious outsourcing programme aimed to revolutionise the provision of training through a Public-Private Partnership (PPP) between the MoD and a private company. Key objectives were to reduce the cost of flying training to the taxpayer and modernise training with new aircraft, infrastructure and learning equipment.

Following a competitive process, the MoD put out to tender its UK Military Flying Training System (UKMFTS) project. This ambitious outsourcing programme aimed to revolutionise the provision of training through a Public-Private Partnership (PPP) between the MoD and a private company. Key objectives were to reduce the cost of flying training to the taxpayer and modernise training with new aircraft, infrastructure and learning equipment.

with IV(R)’s distinctive red, black and yellow markings. Following the delivery of all 28 Hawk T2s and full GBTE commissioning, the first group of QFs started training in January 2012. The first course of six students began training on April 2, a second course starting shortly afterwards. They will

graduate this spring as the first UKMFTS-trained fast-jet pilots.

So, just what changes are the next-gen Hawk, the new GBTE and ultimately the public-private nature of UKMFTS bringing to UK fast-jet training?

New Aircraft

Pole Thomson, BAE’s Engineering New Business Manager, explained to AIR International that the T2 was not just designed on a blank sheet of paper. The Hawk has been significantly developed over the past 20 years with the Hawk 100 and 200 series variants and Thomson says the “constant evolution” with the progressive developments of Hawk Mk127a for the Royal Australian Air Force, Hawk Mk120s for the South African Air Force and Hawk Mk129s for the Bahrain Defence Forces was very important in feeding into the T2’s design.

There are not many visual differences between the T1 and T2 – a longer nose, wingtip rails and a re-shaped tail. However, make no mistake, this is a completely new jet. “The canopy and the airframe are the only shared components between the T1 and T2, but even those components have undergone material change,” Thomson said. “The fatigue life for T1 has gone up from a 6,000 to a 10,000-hour design life.”

This led to some important structural changes including new, strengthened wings and tailplane, fin and rudder, undercarriage and nose wheel steering. The wing was also redesigned to improve aerodynamic performance and to accommodate more weapons hard points. The fuel tank sizes was increased, bird strike protection around the nose ramp improved, a brake parachute and an flight re-building probe added and the aircraft equipped with new health and usage monitoring systems.

There is a new Rolls Royce Adour MK51 engine featuring full authority digital engine

Hawk T2

Hawk T2
control (FADEC), which at 6,500lb/29kN thrust is more powerful than the T1’s 5,200lb/23kN. The Hawk T2 also boasts an improved time between overhaul (4,500 hours), which Thomson says is “a significant improvement” in enhancing the Hawk’s serviceability and, therefore, availability and airworthiness.

The new Adour has introduced a good reason for this. The contrast between the cockpits of the T1 and T2 is very basic, great fun but lots of dials and pressures – and actually it’s simpler. Rather than having to monitor with three screens and hundreds of pages of data, but Commanding IV(R) Squadron. “It looks quite daunting and intimidating; it’s a systems aircraft,” Shinner says. “You don’t want to start the aircraft.” The T2 project, the RAF and DE&S worked fully alongside BAE during every step in this process. “The requirements capture’ that identified exactly what the RAF wanted was invaluable function here. Being able to dock with the DTIs means students can directly feed the learning into their individual learning, setting their own notes and looking back through video tutorials in their own time to build ‘muscle memory’ in operating the cockpit. After ground school, students move through a number of phases, split between VR/Simulation (S) and Air Combat (C). Arriving first on a T2 flight students start with a ‘convex’ (conversion exercise) phase learning the basic elements of jet flying and progressing through phases on instrument flying, navigation (at medium and high level), formation flying and tactical low level formation flying. This is followed by a medium phase (in medium-level bombing, dive/soft bombing, dive/stalling, smart weapons, various navigation exercises). The conversion phase on a T2, for instance, comprises 12 elements including circuits, handling, maximum performance manoeuvres (formerly aerobatics), stalling, spinning, emergencies, flapless approaches and some initial instrument flying. Each of these elements is now taught initially using the DTIs with tuition from Ascent QIs before a sortie in the FMS and then a ‘live event’ with a QFI. So, for example, initial circuit flying is taught synthetically on the DTIs and in the FMS before a student and instructor fly circuits for real. The student then goes on to the next element, working on the synthetics first before progressing onto a real flight. So, Tomado F5 joint Fabrication Assembly Brown, one of the RAF QIs on a T2, said: “It’s expected that each student will be able to do it synthetically before they fly it for real. By then the idea is that they just do it with the minimum amount of assistance from us.” At the time of AIR International’s visit, the first course was about to start the low-level bombing element of the range phase on A Flight. The students were working with the Ascent QIs and the DTIs on the basics of medium-level attack profiles, using the DTIs to practice managing the DTIs, hotas’ and HUD symbology, using the HOTAS controls. “They need to start learning how to use their hands to operate the systems,” Shinner says. “You don’t want to be thinking about that in the air. Everything you can practise on the ground feeds your capacity to perform key tasks in the air.” The students’ laptops have an invaluable function here. Being able to dock with the DTIs means students can directly feed the learning into their individual learning, setting their own notes and looking back through video tutorials in their own time to build ‘muscle memory’ in operating the cockpit. After ground school, students move through a number of phases, split between VR/Simulation (S) and Air Combat (C). Arriving first on a T2 flight students start with a ‘convex’ (conversion exercise) phase learning the basic elements of jet flying and progressing through phases on instrument flying, navigation (at medium and high level), formation flying and tactical low level formation flying. This is followed by a medium phase (in medium-level bombing, dive/soft bombing, dive/stalling, smart weapons, various navigation exercises). The conversion phase on a T2, for instance, comprises 12 elements including circuits, handling, maximum performance manoeuvres (formerly aerobatics), stalling, spinning, emergencies, flapless approaches and some initial instrument flying. Each of these elements is now taught initially using the DTIs with tuition from Ascent QIs before a sortie in the FMS and then a ‘live event’ with a QFI. So, for example, initial circuit flying is taught synthetically on the DTIs and in the FMS before a student and instructor fly circuits for real. The student then goes on to the next element, working on the synthetics first before progressing onto a real flight. So, Tomado F5 joint Fabrication Assembly Brown, one of the RAF QIs on a T2, said: “It’s expected that each student will be able to do it synthetically before they fly it for real. By then the idea is that they just do it with the minimum amount of assistance from us.” At the time of AIR International’s visit, the first course was about to start the low-level bombing element of the range phase on A Flight. The students were working with the Ascent QIs and the DTIs on the basics of medium-level attack profiles, using the DTIs to practice managing the DTIs, hotas’ and HUD symbology, using the HOTAS controls. “They need to start learning how to use their hands to operate the systems,” Shinner says. “You don’t want to be thinking about that in the air. Everything you can practise on the ground feeds your capacity to perform key tasks in the air.” The students’ laptops have an invaluable function here. Being able to dock with the DTIs means students can directly feed the learning into their individual learning, setting their own notes and looking back through video tutorials in their own time to build ‘muscle memory’ in operating the cockpit. After ground school, students move through a number of phases, split between VR/Simulation (S) and Air Combat (C). Arriving first on a T2 flight students start with a ‘convex’ (conversion exercise) phase learning the basic elements of jet flying and progressing through phases on instrument flying, navigation (at medium and high level), formation flying and tactical low level formation flying. This is followed by a medium phase (in medium-level bombing, dive/soft bombing, dive/stalling, smart weapons, various navigation exercises). The conversion phase on a T2, for instance, comprises 12 elements including circuits, handling, maximum performance manoeuvres (formerly aerobatics), stalling, spinning, emergencies, flapless approaches and some initial instrument flying. Each of these elements is now taught initially using the DTIs with tuition from Ascent QIs before a sortie in the FMS and then a ‘live event’ with a QFI. So, for example, initial circuit flying is taught synthetically on the DTIs and in the FMS before a student and instructor fly circuits for real. The student then goes on to the next element, working on the synthetics first before progressing onto a real flight. So, Tomado F5 joint Fabrication Assembly Brown, one of the RAF QIs on a T2, said: “It’s expected that each student will be able to do it synthetically before they fly it for real. By then the idea is that they just do it with the minimum amount of assistance from us.” At the time of AIR International’s visit, the first course was about to start the low-level bombing element of the range phase on A Flight. The students were working with the Ascent QIs and the DTIs on the basics of medium-level attack profiles, using the DTIs to practice managing the DTIs, hotas’ and HUD symbology, using the HOTAS controls. “They need to start learning how to use their hands to operate the systems,” Shinner says. “You don’t want to be thinking about that in the air. Everything you can practise on the ground feeds your capacity to perform key tasks in the air.” The students’ laptops have an invaluable function here. Being able to dock with the DTIs means students can directly feed the learning into their individual learning, setting their own notes and looking back through video tutorials in their own time to build ‘muscle memory’ in operating the cockpit. After ground school, students move through a number of phases, split between VR/Simulation (S) and Air Combat (C). Arriving first on a T2 flight students start with a ‘convex’ (conversion exercise) phase learning the basic elements of jet flying and progressing through phases on instrument flying, navigation (at medium and high level), formation flying and tactical low level formation flying. This is followed by a medium phase (in medium-level bombing, dive/soft bombing, dive/stalling, smart weapons, various navigation exercises). The conversion phase on a T2, for instance, comprises 12 elements including circuits, handling, maximum performance manoeuvres (formerly aerobatics), stalling,
The operation of the simulated air-to-air radar. This flying is fairly being, so most of this phase is taught in the GBTE. Equally, however, Shinner emphasised that “we don’t pretend the GBTE is good for everything.” Several elements are undertaken in the air with little synthetic involvement because there simply isn’t a substitute for doing it for real. As Wg Cdr Marsh observed, “doing it at five or six g, the adrenaline pumping, looking over your shoulder” still matters.

The rationale of blending synthetics and live flying throughout the course goes back to the T2 being a systems aircraft. Wg Cdr Marsh said that with so much involved in operating the MFDs, HOTAS and HUD it simply “makes common sense” for students to spend time working synthetically at each stage to build confidence. Building is not reduced in flying hours, we’ve just upped the simulation.” He said. No IVR Squadron students will spend approximately 120 hours flying the Hawk T2 – pretty much the same as it’s been on the T1 for years.

**Realism**

And those at Valley say the hours students spend in the air will be far more effective than before. Being able to generate synthetic, aircraft and weapons has led to the most important change in the provision of fast-jet training at Valley – the ability to set up realistic combat scenarios. Looking at parts of the syllabus in more detail reveals exactly how revolutionary the simulation and emulation is in the context of fast-jet training. During the 1 v 1 basic radar and 2 v 1 Vasvachon radar phases early on B Flight, the software allows hostile aircraft, radars and AMRAAMs to be generated which lock onto the student, forcing them to use countermeasures. The interdiction phase allows students to ‘drop’ simulated Paveway IV laser-guided bombs and practice time sensitive targeting. The 2 v 1 evasion/operational phase forces students to self-defend using evasive manoeuvres, electronic warfare techniques and countermeasures. The end of the course is a self-escort composite sortie combining all these skills – fighting BVR on the way to a target against a radar and missile equipped aircraft, undertaking an attack using smart weapons amid radar and SAM threats and fighting out against more aircraft.

Quite simply this is a world away from the T1. The new equipment allows IVR Squadron to provide what Sqn Ldr Caine describes as “a demanding environment within which students can learn their trade.” Indeed, much of the B Flight syllabus – including the basic and advanced radar, the operational training manoeuvres, interdiction and 2 v 1 escort – contains completely new elements to fast-jet training at Valley. Their introduction has been made possible purely because of the new software. On 1 v 1 and 2 v 1 air combat manoeuvres on the T1, students never had radar and missile locks to deal with which flash up on MFDs and HUD in exactly the same way as on the front line. In the close air support phase on the T1, ground radars and SAMs never locked onto them, nor could they practice ‘dropping’ a Paveway or use their own missiles and countermeasures. All of this is now possible. And if the instructor feels a student is coping well with these demands, they can turn up the heat even more. The independent wiring of the Hawk’s front and rear cockpits enables an instructor, by pressing the ‘K’ button on their MFDs, to separate their cockpit and, in Wg Cdr Marsh’s words, “start manipulating things” such as generating threats the student isn’t expecting.

This is the value of the new Hawk. Students are receiving realistic combat training – they are threatened and must act to survive. To all intents and purposes they’re not flying a Hawk but doing it for real in a Typhoon or Tornado. Valley’s students, then, are no longer simply learning the basics of air combat and weaponising but frontline procedures and tactics too.

“The result should be a highly-
trained single-seat pilot capable of managing fourth and fifth-generation aircraft in multi-role missions with advanced sensors, weapons and countermeasures,” said Sqn Ldr Caine.

He added that, crucially, students are also gaining cognitive abilities – the skill sets and cognitive capacities to operate frontline systems, the new technology allows No IV(R) Squadron to teach an operational mindset.

Progress

With two courses now running, how is the new world of fast-jet training bedding down? Since Valley is the flagship for UKMFTS there’s interest in how the new relationship of military and private contractor working alongside each other in the same building is working out. Wg Cdr Marsh said: “We’re in a contracted world but we’ve built a team. No matter whom you work for – Ascent, RAF, DEAS – you’re all part of the squadron. It’s very important for the students to see that civilian personnel are wearing the same squadron badges. It’s the classic ‘who do you work for?’
set the level of learning at the course? Shinner admitted “there was a continual adjustment of the course is under way.”

and live training will be made and the precise mix of synthetic integration.”

they’re flying, they have the skills acquired while growing up equipment brings out intuitive performance. 3. They’re used to using their hands and playing with computer games. 4. They’re familiar with basic fighter avionics – its potential to save the students are better prepared.

previously.” Flt Lt Brown said that with self-study periods in the DTA’s and FTDs available, students “spend hours practicing and playing with the avionics and learning what everything does”. He added that No XVIII Squadron expects to lose fewer students than has traditionally been the case on courses at Valley. Students are also taking the synthetics in their stride, possibly because the equipment brings out intuitive skills while growing up playing with computer games. “The Xbox generation thing stands true. These guys are used to using their hands and handling the throttle and stick,” Flt Lt Brown observed. “They’re prepared for it and they learn very quickly. They know how to manipulate the avionics because it makes sense to them, though part of it is good design.”

More broadly, there is a feeling at Valley that the Hawk is doing what it was purchased to do. Wg Cdr Marsh said: “The T2 takes us back to when training and front-line aircraft were aligned (as in the 1970s/1980s when the T1 was aligned to front-line analogue cockpits).”

There’s no gap between the students finishing and going on to the front-line. Indeed, we’re actually overlapping. The high-end sorties the guys are doing here are of equivalent difficulty and procedure to what the guys at the end of the Typhoon OCU are doing today.”

This leads into another important aspect of the T2 – its potential to save the MoD money. With the T1’s limitations meaning students never handled MFDs, HUD and HOTAS let alone operated them in combat scenarios, OCU courses have over the years become lengthier as cockpit complexity has increased. Pilots don’t become combat-ready until four to six months into their frontline posting after the OCU. With the capabilities of the new equipment meaning No XVIII Squadron can now teach the initial elements of OCU training, students leaving Valley should have more advanced skills in operating front-line cockpits than before. Ascent’s and the RAF’s expectation is that OCUs will be able to spend less time on the basics and more on teaching advanced tactics and procedures. In turn, it’s hoped that pilots will become combat-ready on the OCU prior to a frontline posting. By bringing everything forward the theory is that expensive front-line aircraft will in future spend far less time on training tasks, thereby reducing operating costs (the Hawk T2’s hourly operating cost is a tenth of Typhoon’s). The Hawk T2 can provide maintenance and rectification for the T2s (Ascent is not part of this contract). A crucial new part of the T2 from an engineering perspective is on-site diagnostic and rectification capabilities. In contrast to the T1, if problems occur they can be investigated at Valley using the new diagnostic equipment. Rectification work, if it’s required, can also be undertaken on-base rather than parts being removed and shipped back to the manufacturer. This minimises downtime, which directly impacts not only on aircraft availability but also on the cost of operation. As with the previous Hawk, the T2 airframe is largely malleable which, according to Pete Thomson, makes it “easy to repair and maintain”. These support considerations are important factors in training aircraft contracts. “It’s all about sustainability and availability… the RAF and MoD need to make the maintenance and through-life costs as low as possible,” he added. But have the new Hawk’s more complex systems made it more challenging to maintain? Thomson says not. “Overall it’s easier. We do have more complex systems on the aircraft now. However, they are all designed with maintenance requirements in mind. The avionics maintenance has vastly increased, but it’s all been designed to be user-friendly and easy to achieve.” He added that BAE would continue to “introduce product enhancements to make maintenance easier”.

time on training tasks, thereby reducing operating costs (the Hawk T2’s hourly operating cost is a tenth of Typhoon’s). The Hawk T2 can provide maintenance and rectification for the T2s (Ascent is not part of this contract). A crucial new part of the T2 from an engineering perspective is on-site diagnostic and rectification capabilities. In contrast to the T1, if problems occur they can be investigated at Valley using the new diagnostic equipment. Rectification work, if it’s required, can also be undertaken on-base rather than parts being removed and shipped back to the manufacturer. This minimises downtime, which directly impacts not only on aircraft availability but also on the cost of operation. As with the previous Hawk, the T2 airframe is largely malleable which, according to Pete Thomson, makes it “easy to repair and maintain”. These support considerations are important factors in training aircraft contracts. “It’s all about sustainability and availability… the RAF and MoD need to make the maintenance and through-life costs as low as possible,” he added. But have the new Hawk’s more complex systems made it more challenging to maintain? Thomson says not. “Overall it’s easier. We do have more complex systems on the aircraft now. However, they are all designed with maintenance requirements in mind. The avionics maintenance has vastly increased, but it’s all been designed to be user-friendly and easy to achieve.” He added that BAE would continue to “introduce product enhancements to make maintenance easier”.

Future

Even though the T2 is still in its early days of RAF service, attention is already turning to the future. With further capability enhancements for the Typhoon and the arrival of the F-35 scheduled for later this decade set to bring an era of ever more advanced – and demanding – sensors, radar and smart targeting and weapons, there is real focus on how to exploit further the Hawk’s capabilities. “We’re looking now to the F-35 and finding out exactly that means for us,” said Wg Cdr Marsh. “I have no doubt there will be certain skills you’ll need to be an F-35 pilot that you won’t have to be a Typhoon pilot or vice versa, so we may have to change our syllabus.”
One potential impact of the F-35 on the T2 fleet may be the emergence of common training standards between the RAF and the other F-35 customers, two of which – Canada and Australia – are also Hawk 100-series operators. Wg Cdr Marsh said: “We are starting to work together with the other F-35 nations, especially those who’ve got the Hawk, to come up with a common [training] requirement. That’s going in parallel with those guys designing the F-35 syllabus.”

This leads back to that all-important area of the Hawk’s software. If the RAF wants to update the aircraft’s simulation and emulation capabilities to reflect new technologies arriving with the F-35 – or updates to the Typhoon and Tornado – with it being just a data link, then that’s possible. “Because the jet doesn’t have real radar, any obsolescence issues have been removed. If some new, clever techniques come out in the future, all we have to do is update the software,” explained Andy Blythe. In other words, the T2 is future-proofed – because it’s only the software that needs updating, changes can be made without having to resort to costly hardware replacement. Blythe said “there are sketches out there for OC3 and OC4, the next couple of iterations” to the software, though no development contracts have yet been awarded.

This future evolution of the T2 may not just stem from the UK’s requirements. With other countries’ defence budgets under remorseless pressure, it’s hardly beyond plausibility that Hawk operators could look at pooling their future investments in the aircraft to make cost savings. According to Blythe, this is something BAE is trying to encourage its customers to do. The fact that some F-35 customers operate the Hawk would make such partnerships even more natural. Also coming into play is the desire of some countries operating older Hawk 100-series aircraft to update their cockpits. In this regard, it’s interesting that the Royal Australian Air Force signed a contract with BAE last summer for the upgrade of their Mk127s to bring them in line with the RAF’s T2s.

The ways in which the T2 will evolve in light of any such co-operation, the development of the Typhoon and the arrival of the F-35 are all for the future. Right now, Wg Cdr Marsh said the RAF’s view is that the Hawk T2 has already “changed the face of flying training in the UK.”
For further information, please contact:

Hawk and Training Business Development Team
BAE Systems
Warton Aerodrome (W427)
Warton, Preston
Lancashire
PR4 1AX

Telephone: 01772 633333