

FITTING THE BILL

Replacement helicopter choice to fall on joint warfighting attributes

■ Trevor J Thomas/LE BOURGET & OWEGO, NEW YORK

When launching the new Defence White Paper (DWP'09) at Sydney's Garden Island naval base on 2 May 2009, Prime Minister Rudd emphasised the need for Government support to enhance ADF maritime-based anti-submarine warfare capabilities.

This was to be achieved, he said, via an "urgent" quest to procure at least 24 new military-off-the-shelf (MOTS) naval combat helicopters to replace the existing 16 airframe S-70B-2 'Seahawk' fleet, and restore the Royal Australian Navy's (RAN) lost air-to-surface strike capability courtesy of the cancelled Norwegian AGM 119B 'Penguin'-equipped 'Seasprite' helicopter acquisition (project Sea 1411).

Subsequent emergence of the DWP'09-informed Defence Capability Plan (DCP) in July 2009, distilled Prime Minister Rudd's vision into the 'future naval aviation combat system' (phase 8 of project Air 9000), which is now set on providing "an organic combat aviation capability to the Navy's surface combatant fleet, (and) including the acquisition of weapons, synthetic training, infrastructure, logistics and other support systems" for an initial operating capability (IOC) over 2014 to 2016.

The DCP further requires the new aircraft to possess "advanced anti-submarine warfare capabilities, along with an ability to fire air-to-surface missiles". The only two practical (ie: within the RAN's delivery time-frame specification) solutions relevant to Air 9000/8 are: the European NH90 NATO Frigate Helicopter (NFH) – currently being developed by the NH Industries consortium; and the MH-60R (or 'Romeo') maritime helicopter – first developed in



F-104 HANGAR – ADBR PHOTO

Key Points

- **A battle-royal is shaping up between Europe** and the United States (progressively to rollout in Australia in 2010), in regard to the Royal Australian Navy's choice of a future naval aviation combat system to replace its current 'Seahawk' helicopter fleet.
- **In the shadow of the failed 'Seasprite' helicopter** acquisition, the 2009 Defence White Paper classified the new naval helicopter replacement endeavour as 'urgent', while also scaling back expectations of a major investment in 'Seahawk' life extension.
- **On the back of Government economic stimulus** packages and a focus on stemming employment losses, both sides have proposed extraordinary local industry participation packages to accompany their off-the-self naval helicopter capability proposals.
- **The year 2009 closed with interests inside Defence** pushing for a rapid acquisition of the US Navy's MH-60R helicopter to fill the project Air 9000/8 requirement apparently defeated, and the Government deferring via 'first pass' consideration (due February 2010) to running a full competition.

the 1970s for the US Navy by the Sikorsky Aircraft Corporation. Latterly – with Lockheed Martin (Owego, NY) as prime systems integration contractor – this aircraft, as flagship of the United States Navy's present Helicopter Master Plan, has been substantially upgraded for new generation threats and more robust occupational health and safety requirements.

The NFH is derived from the NH90 land based multi-role helicopter, for which 529 units (comprising both the TTH and NFH variants) are on order to over 14 countries – including Australia, which is mid-way through the purchase of 46 MRH-90s for the Navy and Army under phases 2/4/6 of project Air 9000. Some 111 NFHs are now on firm order globally by five nations.

The MH-60R is the latest iteration of the Light Airborne Multi-Purpose System (LAMPS) SH-60B 'Seahawk' helicopter, having benefited from a major structural, avionics and warfighting technology update. As part of the US Navy fleet rationalisation initiative, some 300 MH-60s are to be produced out to at least 2018, with the aircraft to have a 30-year service life.

In turn, the NFH is widely viewed as just emerging from its initial development cycle, and is yet to be proven operationally. The platform is nevertheless at the front end of a host of recent rotary-wing technology innovations (ie: including the widespread use of composites), and is scheduled for delivery to its first operational customers – the Dutch navy (20 units on order) and French navy (27 units on order, to perform both support & combat missions), in 2011.

The US Navy's MH-60R is considered on the other hand as being well through the risk curve in terms of its technology development cycle, with several anti-submarine warfare variants having been tested and proven as part of a new US Navy rotary-wing deployment philosophy (ie: executed in concert with MH-60S 'Sierra' utility versions), during fleet integration exercises in the first half of 2009.

Both Air 9000/8 contenders, therefore, have claims to the MOT'S credentials required by Australian defence procurement officials, with perhaps the MH-60R a little further down the track subject to NFH proponents confirming as reality, previously stated claims that by "the end of 2009" the Dutch Navy would receive its first NFH, while the French Navy was well on track to receive its first helicopter "very early in the new year". In these respects, NH Industries reported

1 December that the NFH had completed a ship 'deck landing trial' campaign aboard the Norwegian Coast Guard vessel, 'Nor-kapp'.

During the three-week trials, the aircraft is further said to have performed "105 deck landings in very demanding weather conditions in central Norwegian Fjords beyond the Arctic Polar Circle." The trials campaign was supported by the Norwegian Armed Forces (14 NFHs ordered), and involved the active participation of Norwegian, French & Italian (46 NFHs ordered) test pilots.

In looking to adjudicate the competing claims as to satisfaction of the DCP project directive on MOTs, both sides might well keep in mind the recommendations of the 2003 Kinnaird Report – taken up in the 2005 (subsequently revised in 2006) Defence Capability Development Manual (DCDM) – which generally directed ADF capability planners to only draw up as options to Government for formal consideration, acquisition proposals for off-the-shelf platforms & systems that are "currently in operation with a major overseas military."

Running through to the 2007 election, Labor had heavily criticised the Howard Government for deviations from established Kinnaird new military capability acquisition principles, whilst an Auditor-General's report (tabled 30 June 2009) roundly criticised the Capability Development Group for regularly ignoring the provisions of its own DCDM.

So with a reputation for being a stickler for the rules, new Defence Minister Faulkner, is thus not considered likely to wantonly deviate too much from the es-

tablished procurement guidance, albeit with a new version of the DCDM expected to be published in 2010, and containing a further tightening of the 'in-service with a foreign military' guidelines.

The 2009 DCP project directive further defers to a MOTs naval combat helicopter solution "in order to minimise technical, schedule, and financial risks," while noting the retention of an off-the-shelf configuration is "considered important for cost effective Australian based deeper level maintenance, engineering and through-life support (TLS)."

HANGAR-ING AROUND THE AWDs & FFHs:

Speaking several times to ADBR in the run-up to Christmas, chief local proponent of the NH90 NFH – Australian Aerospace (AAe) CEO, Dr Jens Goennemann – spoke out against established mantra coming from certain Defence officials that the Air 9000/8 platform must be 'off-the-shelf', as well as the idea that the future naval combat system capability had to be delivered 'urgently'.

Goennemann also sought to quash assertions the NFH might have interface (and workspace) problems when being stowed into the new project Sea 4000 air warfare destroyer (AWD) and 'Anzac'-class frigate (FFH) hangars. Citing the fact that the AWDs (at the time) were still to achieve their critical design review, and the FFHs were just beginning substantial superstructure modifications under project Sea 1448 (the anti-ship missile defence upgrade), he considered there was ample time for structural changes to be made to both vessels, if at all needed.

Irrespective of industry scuttlebutt that Navantia's F-100 hangar had been designed only to accommodate the Spanish Armada's traditional rotary wing anti-submarine warfare platform – a similar generation of Sikorsky 'Seahawk' to the RAN's own S-70-B2s – Dr Goennemann's recourse was to submit the NFH was very similar in size to the MH-60R, citing their own-company statistics of the helicopter coming in at 5.309m (H) to the top of the tail rotor, as against the Romeo's 5.100m operating height. He in turn was less inclined to provide a width measurement for the NFH – which in folded form is understood to be 4.8m (3.8m at the wheel base), compared against the MH-60R which product brochures state is just under 3.4m.

In short, Dr Goennemann's proposition to media was that if the MH-60R would fit through the extant roller-door space (particularly into the FFHs), then so would the NFH. "I have seen it with my own eyes from my own Sydney office windows as I observed RAN shipboard trials off Garden Island," he said.

As the 'fit for, but not essentially with' debate heated up in the last months of 2009, Foreign Affairs, Defence & Trade Legislation Committee Supplementary Budget Estimates (SBE) hearings in Canberra 21 October saw the Head of Defence's Capability Development Group, Vice Admiral Matt Tripovich, declining to make a definitive call on whether the NFH would be able to effectively operate from both (AWD & FFH) hangars.

He said the DMO had called on both project contenders for information outlining full dimen-

sional details of their aircraft, so that respective assessments could be made as to the degree to which mission-equipped helicopters could be accommodated in each ship's hangar (ie: with tail rotor folded), while at the same time allowing support work to occur around the aircraft with minimum crew and logistical inconvenience.

Tripovich further noted the design of the Navy's new (under contract) 'Hobart'-class destroyers originated from the OTS Navantia F-100 series – five of which have since been constructed for the Spanish Armada – which has a long history of operating 'Seahawk' helicopters for anti-submarine warfare purposes. Similarly, the 20-year old 'Meko'/'Anzac' frigate design, had principally been designed to accommodate the extant RAN 'Seahawk' fleet.

He told the Committee, "if you have a force already in being or in contract and another project comes along later in the sequence, it has to deal with what is, if you like, already in existence or already in contract ... if there are design changes that need to be made for either helicopter to (operate on) those two ships, that will need to be assessed and the cost risk and schedule impacts ... will have to be assessed."

ADBR has since been informed that at the end of construction of the first flight of four F-100s, a range of design modifications (including acceptable provision for the NFH) were progressed by the company for the Flight II vessel, the first of which – 'Roger de Lauria' (F-105) – is now under construction at Ferrol.

Although essentially purchased as an OTS design by the



YOUTHFUL WHIPPERSNAPPER CHALLENGES VOICE OF WISDOM: The NH90 NFH (far L) features the same two large sliding doors and rear ramp as the MRH-90 (L) now being acquired by the ADF under phases 2/4/6 of project Air 9000, whereas the MH-60R retains its historical single sliding door. NFH proponents say the dual sliding doors provide much improved access to the 4.8m x 2.0m internal cabin, which has a claimed 60% more floor area than the MH-60R's 3.2m x 1.83m cabin, thus allowing the accommodation of additional personnel and equipment beyond the anti-submarine warfare mission systems' console (R) and dipping sonar (far R).

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RAN, Defence officials admitted at AWD Roadshow briefings the Government had approved a range of modifications to the AF-100 baseline (often referred to by ASC officials as F-104+), that were similarly picked up by the Spanish for their Flight II design. The NFH accommodation issue appears more related, therefore, to the 'Anzac'-class frigates than the AWDs.

Dr Goennemann, in his comments, went on to challenge the assumption of immediate 'urgency' in the RAN having to rapidly advance the S-70-B2 replacement, citing the 2009 DCP's separate provision of over \$100m over the next five years to progress a 'Seahawk' capability assurance program (SCAP 1 & 2), specifically focused on maximising the number of aircraft that could be made available to support RAN operations.

He also postulated that if the ADF opted for the NFH solution, it was possible the DWP'09 vision of 'eight or more aircraft concurrently embarked on ships at sea', could in fact be achieved with a total fleet of less than 24 new helicopters.

Turning to the prospective availability of NFHs for Australia, Dr Goennemann stated – upon assumption the French Government would be agreeable – that in the event it turned out the French Navy might not want to utilise all of its immediate NH90 production slots, some of these airframes might alternatively be made available to Australia. As such, he said his company could have an NFH here "within 12 months off-the-shelf."

Dr Goennemann went on to note that in order to meet Dutch and French Navy naval helicopter delivery requirements, a two-step approach was being implemented by the NH Industries consortium. Step 1 aimed to see first aircraft delivery by end-2009. All NFH mission system functions would be available at this time, allowing for operational training for anti-submarine warfare & anti-surface warfare roles, as well as the execution of several other missions (ie: search & rescue, utility, casevac, medevac and vertical replenish-

ment).

Step 2 would later see the achievement of full operational capability (FOC), including all Step 1 missions, as well as qualified weapon integration. FOC deliveries could prospectively then occur from mid-2011, supported by final software release and certification work based on the completion of operational tests in mid-2009.

Should the existing Air 9000/8 delivery schedule be sustained, French industry was mooted as being potentially able to transfer two NFH production slots to Australia from 2012, with co-operative training with French forces starting prior to Royal Australian Navy NFH deliveries. In such a case, the French DGA could act as the 'exporting authority' for the NH90 NFH Type Certification.

Dr Goennemann added that any contract to supply the NFH to the ADF would generate 500 new jobs at Australian Aerospace's (AAe) Brisbane facility, with the new naval helicopter assembly line running between 2014 and 2020 – after the Army's current MRH-90 line (Air 9000, phases 2/4/6) had closed. Major MRH-90 in-country support infrastructure could also be used to support the NFH, particularly at the software level and in regard to common components such as the engines, APU, main gearbox, rotor blades and avionics.

Any purchase of the twin-engined NFH (on top of the MRH-90s) was viewed as being consistent with the project Air 9000 Helicopter Master Plan, which mapped out requirements for the ADF to progress rotary-wing fleet rationalisation, given 80% commonality between the two types.

Subsequent aircraft modernisation endeavours could also utilise software benches and other through life support infrastructure already in-house at AAe's Brisbane plant, whereas resort to an MH-60R fleet would potentially require a duplication of logistics and training systems.

THE MAKING OF GREAT RELATIONSHIPS: In similarly presenting the case for Australia

to opt for the MH-60R to satisfy the Air 9000/8 requirement, Sikorsky & Lockheed Martin (Team 'Romeo') representatives briefing ADBR in the run-up to Christmas cited substantive benefits accruing to the RAN in continuing their long relationship with the 'Seahawk' family of aircraft, as well as with the US Navy in terms of interoperability spinoffs from the operation of similar fleets.

According to the Team 'Romeo' partners (whose delegation also included a US Navy officer), the MH-60R was "the quickest practical way" to fill the RAN's anti-submarine (ASW) and anti-surface warfare (ASuW) capability gap, with initial aircraft available for delivery in the fourth quarter of 2011.

In this respect, a response had been submitted in February 2009 to a Commonwealth request for 'price & availability' information relating to a Foreign Military Sale (FMS) of 27 MH-60Rs. Publication of the 2009 Defence White Paper, has thus confirmed the Department of Defence is only seeking 24 fully mission-capable aircraft in the immediate future.

In respect to the proving of the MH-60R's suitability for Australian requirements, Team 'Romeo' officials indicated four (of 10 future) US Navy fleet squadrons were currently operating the helicopter, with 48 aircraft having been delivered as of 8 December 2009. Some 28 (of a total 300) aircraft in the fleet rationalisation program were next described as likely to be delivered to the USN over 2009, rising (under contract) to 34 in 2010 within a build plan for 37 aircraft.

Such a profile accordingly left room to support early deliveries to international customers, given Danish Government interest (a decision is due in early-2010) in 12 MH-60Rs, thus possibly becoming the first international 'Romeo' customer. Current Sikorsky manufacturing capacity was represented as being able to sustain between 42 and 48 aircraft per year, with US Navy MH-60R procurement projected to run through to at least 2018, with 24-30 aircraft on balance being delivered to the

US Navy each year.

The Team 'Romeo' pitch to the ADF also includes the offer of a 10-year/A\$1 billion Australian Industry Capability (AIC) plan (not usually submitted as part of an FMS acquisition), and designed to give major corporations already operating in Australia (ie: General Electric, Raytheon and CAE) – along with other small-to-medium sized enterprises (SMEs) – the opportunity to bid for MH-60R maintenance and TLS work.

A draft AIC plan was said to have already been submitted to the Commonwealth outlining the means by which Australian SMEs would be afforded access into global supply chains relating to the MH-60R acquisition, as well as other commercial opportunities Lockheed Martin had in mind, including an initiative to convert passenger aircraft into cargo aircraft in Australia.

Turning to observations (and some criticisms in terms of RAN requirements) of the change in US Navy practice to deploy two helicopters (the 'Romeo' & 'Sierra' variants) to aircraft carriers to satisfy the full naval combat helicopter requirement, the Vice President, International Business Development, of Lockheed Martin Systems Integration, Ronald Christenson, submitted that practically 80% of US Navy small deck operations were now being conducted independent of an aircraft carrier. The accumulated operational experience, therefore, was most relevant to the 'stand-alone ship' mode proposed to dominate future RAN operations.

Christenson added the twin engined MH-60R was now 'proven' in having routinely performed the full spectrum of helicopter missions on deployment, including tactical, logistics and personnel transfer. He further confirmed the MH-60R would easily fit into hangars aboard the FFHs and AWDs, with "free space" available to support operational maintenance activities.

Courtesy of its 'Seahawk' genesis, the MH-60R is already certified to operate from RAN ships with recovery assist secure and traverse (RAST) equipment, a hover in-flight refuelling (HIFR)

system, Link 16-based communications, tie-down schemes and existing ship/helo operations doctrine.

In terms of armaments, the MH-60R comes with four universal weapons stations, and is capable of carrying eight 'Hellfire' missiles and two RAN mission/target compliant Mk 54 torpedoes, as well as having structural and mechanical provisions for M60/M240 7.62mm & GAU-21 .50 calibre machine guns.

ASW & ASuW BRIEF: Given the RAN's S-70B-2 'Seahawk' helicopters have not operated a 'dipping sonar' since the mid-1990s, there appears quite a technology and experience curve for the RAN to master before it would prospectively be able to counter the ballooning regional submarine threat scenario used to underpin much of the DWP'09's national security reasoning.

The NFH has been variously displayed at Australian and international air shows as equipped with the Helicopter Long Range Active Sonar (HELRAS) and Folding Light Acoustic System for Helicopter (FLASH). In terms of main armament, the NFH will carry two 300kg MBDA 'Marte' Mk 2/S anti-ship missiles, which are especially suited for the anti-ship role with their 25km range and 70kg warhead.

AAe says the NFH will sustain four hours endurance in ASW and ASuW missions, while asserting the MH-60R is limited to 2.7 and 3.3 hours respectively. The NFH's cabin is said to allow 'role changes' from combat to support using four personnel in about two hours, and in combat configuration can embark a boarding party

of six to eight personnel.

MH-60R suitability for maritime support is alternatively said by NFH proponents to be limited by its historical cabin size, as self-evident from the US Navy's decision to adopt the new dual-platform deployment concept by tasking the 'Romeo' (for combat) and the 'Sierra' (for support). Team 'Romeo' representatives in response say the aircraft can achieve ASW to Utility change-out in 2-2.5 hours, with up to four hours needed to reinstate the original ASW capability.

AAe says the MH-60R's cabin in combat configuration (with sonar), will only allow one extra seat – compared to four seats with current Navy 'Seahawk' aircraft. In combat configuration, the NFH is alternatively said to be able to hold three crew members and seven passengers.

In maritime support, logistic transport, search & rescue and casevac modes (whichever helicopter is chosen), NFH proponents say the aircraft is likely to be used as a 'truck' for 90% of the time. In such cases, the NFH is claimed to be better equipped having 14 seats or accommodating up to 12 stretchers or a mixed combination.

Even in ASW configuration, AAe states the NFH is still capable of sustaining rescue missions – holding two crew, one stretcher and four rescues on seats – or two crew, four rescues on seats and six rescues on the floor. Such flexibility is not said to be possible with the MH-60R's alleged limited floorspace when configured for the ASW role.

The anti-ship capability of the 'Romeo' is also said by NFH proponents to be limited to the 50kg

short-ranged (8km) 'Hellfire' missile (on one or two launchers, each with four missiles), while the missile's small 'less than 10 kg' warhead would not allow the helicopter to safely engage anything other than minor vessels.

Team 'Romeo' proponents alternatively argue that during its pre-deployment work up cycle, the Helicopter Maritime Strike Squadron (HSM) 71 attached to the 'Stennis' carrier strike group in ASuW exercises was able to achieve remarkable control of an embarked laser-guided 'Hellfire' missile "all the way in to the target. So even though it has a smaller warhead and shorter range than the 'Penguin', it is much more effective in confused and congested water-spaces."

Compared to the larger 'Marte' weapon, the 'Hellfire' is nevertheless considered as much more suited to more likely future littoral threats, such as pirates and small boat swarms. Further, the MH-60R's Link 16 communications capabilities – when combined with network centric/co-operative engagement capabilities proposed for acquisition by the RAN in the Defence White Paper – are viewed as providing for longer-range missiles to be fired off other vessels operating in-theatre, or even off air-based platforms with similar capabilities, as the RAAF's new F/A-18F 'Super Hornet' aircraft if equipped with maritime strike weapon.

For ASW operations, the NFH is equipped with the EuroTorp MU90 Impact torpedo, which is reported to have an operating depth from 3m to 1,000m+, a speed of 50kts+ and a range of 25km+. This weapon was initially to be integrated with the

RAN's FFG & FFH frigates, its 'Seahawk' and 'Super Seasprite' helicopters, as well as the RAAF's AP-3C 'Orion' maritime patrol aircraft.

Due to project delays and changed Government priorities, the MU90 has only been integrated onto the warships. 'Seahawk' and 'Orion' aircraft continue to employ the older Mk 46, although the AP-3Cs have again been proposed in DWP'09 for a torpedo upgrade (either the MU90, or another torpedo – most likely the newer US Navy Mk 54), from around 2012 under phase 4 of Joint Project 2070.

The P-8A 'Poseidon' multi-mission (including ASW) maritime aircraft intended to replace the 'Orion' fleet from 2017 (with IOC scheduled between 2017 and 2019) under phase 2B of project Air 7000, however, will carry only the Mk 54. Ships embarked with MH-60Rs in future, may thus have to carry and maintain two different types of torpedoes, unless the RAN elects long-term to retire the MU90s. While integration of the MU90 onto the 'Romeo' is theoretically possible, progressing such a task would defeat economic savings likely to be achieved by keeping the aircraft consistent with baseline US Navy standards.

PERFORMANCE, NOT PROMISES:

In the argument over respective platform attributes, Team 'Romeo' proponents further point to MH-60R features such as its new Telephonics APS-147 multi-mode X-band radar, with long/short range search Inverse Synthetic Aperture Radar (ISAR) imaging and periscope

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PHOENIX ARISES OUT OF THE ASHES OF PROJECT SEA 1411: In light of the crashed and burned Kaman 'Seasprite' helicopter acquisition (far L), Lockheed Martin officials have indicated the RAN's selection of the MH-60R (L) to replace the extant 'Seahawk' fleet (R) would regenerate rotary-wing maintenance, logistics and through-life support activity by way of a new (or potentially recycled – far R) facility located alongside HMAS 'Albatross', at Nowra (NSW). The joint Sikorsky Helitech/Lockheed Martin facility would create 150 new positions, with the wider acquisition absorbing the bulk of positions (500 people) from the twenty-one Australian companies currently supporting the S-70B-2 fleet.

ADBR & USN PHOTOS

improve situational awareness data. Projects 'essential' to achieving Milestone 2 are JP 2008/4 (military satellites), phase 5A of JP 2008 (Indian Ocean Region UHF SATCOM), JP 2043 (HF modernisation), phase 2 of JP 2069 (High Grade Cryptographic Equipment), phase 2B of JP 2089 (Tactical Information Exchange Domain – Data Links), phase 3 of Sea 1442 (Maritime Tactical Wide Area Network – RCI) and phases 2A & 2B of Sea 1448 ('Anzac' ASMD Upgrade).

The Network Maritime Task Group will deliver an improved capability to autonomously exchange data between major fleet units operating in a localised area, increasing situational awareness and improving tactical warfare capability. This will be achieved by modernising communication systems, including the use of Internet protocols for access to the Maritime Tactical Wide Area Network (MTWAN).

Projects 'essential' to achieving Milestone 3 are phases 4A and 4B

of JP 2048 (Amphibious Ships), phase 2D of JP 2077 (Improved Logistics Information Systems), phase 4 of Sea 1442 (Maritime Communication Modernisation) and phase 3 of Sea 4000 (Air Warfare Destroyer).

The Networked Fleet will deliver an enhanced capability to autonomously and seamlessly exchange data between geographically dispersed major fleet units, increasing situational awareness and improving tactical warfare capability. This will be achieved

through modernised radio and communication management systems in current fleet units for improved ship-to-ship and ship-to/from-shore connectivity.

The introduction of the LHDs, AWDs and advanced communication systems, such as 'Embarked TDL Network Management' and the Co-operative Engagement Capability (CEC), will also substantially increase the Navy's NCW-enabled warfighting capability.

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Project Air 9000/8 – from page 11

detection modes; the integrated AN/AQS-22 Airborne Low Frequency Sonar (ALFS) with expanded littoral & deep-water capability (ie: concurrent dipping sonar & sonobuoy processing capability); the new ALQ-210 electronic support measures (ESM) system for passive detection, location and identification of emitters; and the AAS-44 Forward Looking Infrared (FLIR) system for expanded night vision and 'Hellfire' missile targeting capability.

During deployments/OPEVAL exercises with the USS 'John C Stennis' carrier strike group (in the western Pacific over January to June 2009), the Commander, Helicopter Maritime Strike Wing, US Pacific Fleet, Captain Joseph Bauknecht, told ADBR the MH-60R had "demonstrated 3-7 times greater submarine detection range (ASW) compared to current USN systems ... ten times the number of multi-mode radar tracks (ASuW), while electronic warfare systems were ten times more accurate than what is available on

current US Navy helicopters."

Team 'Romeo' proponents nevertheless conceded the helicopter's AQS-22 dipping sonar "did have some issues ... we did some software tweaks (and) by the time we got out on deployment we found it to be very effective. Frankly, the AQS-22 takes up a significant amount of real estate in the aircraft's cabin, but it is removable – we did that on several occasions – reconfiguring the aircraft to a pure anti-surface warfare (ASuW) or cargo variant."

Lockheed Martin was contracted 9 December to integrate the 'Ship Air Upgrade 07000' digital messaging interface to the MH-60R in order to improve the flow of voice, video, radar and acoustic sensor data the helicopter can send to US Navy ships, or a strike group across the new Ku-band tactical data link. [MH-60R and legacy SH-60B aircraft currently send data across the C-band microwave frequency range.]

Officials indicated the interface will prepare the MH-60R for

future mission capabilities, such as over-the-horizon communications relay and connectivity to the US Defense Department's Global Information Grid (GIG). Ku-band capable MH-60Rs are scheduled for deployment as part of the USS 'Harry S. Truman' (CVN 75) Carrier Strike Group in 2012.

MULTI-ROLE HELICOPTER ATTRIBUTES:

Summing up, AAe says the NFH has been designed from the start to satisfy NATO Staff Requirements (NSR), and can similarly operate with allied forces in a network centric warfare environment via Link 11, and related European enhancements to that system to facilitate Link 16 interfacing.

The helicopter is further said to comply with 'Helicopter Operations from Ships other Than Aircraft Carriers' (HOSTAC) requirements, and can operate from most USN or NATO ships. Interfaces with RAST and ASIST deck securing and traversing systems, are also said to be able to be integrated into the NFH platform.

Proponents say the NH90 NFH fulfils all existing RAN sup-

port and combat missions (ASW, ASuW, VERTREP, SAR, and boarding party delivery), whereas the MH-60R is dedicated to naval combat missions, and thus has limited maritime support mission capabilities. Team 'Romeo' proponents in turn say their helicopter has been well proven in secondary missions such as search & rescue, vertical replenishment, naval fire support, medical evacuation, communications and data relay, and discount the time requirement for role conversions – which they contend in similar time scales also apply to the NFH.

The NFH is said to use multi-box blade technology and its main rotor blades (as well as its tail rotor folding) are fully automatic, whilst emergency floatation gear (EFG) does not interfere with crew emergency exits. The tail rotor is set well clear from sea surface, with no roll and sink after ditching. AAe asserts the MH-60R's single box blade technology has lower impact tolerance, its tail pylon folding is manual, and when the aircraft is on the water, its EFG, if fitted, can interfere with pilot exit doors.

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LONG-LEGGED STRIKE OR LITTORAL THREAT RESPONSE: NFH proponents say the MH-60R's strike horizon is limited by its short-range 'Hellfire' missile (far L), compared to MBDA's 25km range 'Marte' Mk2 (L). MH-60R proponents reply the 'Hellfire' has much improved laser assisted accuracy, with next generation/extended range versions under development. They further point out that state-of-the-art tactical data links, when matched with weapons fired off other NCW platforms in-theatre (see article page 6), negates much of the NFH's standalone strike weapons advantage. The MH-60R further boasts efficiencies from its new H-60 common cockpit (R).

ADBR & US NAVY PHOTOS