The ACE That Ate the Marine Corps

Restore the balance to the MAGTF

by LtCol James W. Hammond III, USMC(Ret)

There is no doubt that aviation is a significant source of Marine Corps combat power. The aviation combat element (ACE) enhances the lethality and maneuverability of the MAGTF. In turn, scalable and ready MAGTFs provide expeditionary capabilities vital to a maritime nation with numerous global interests and responsibilities. When coupled with amphibious shipping, the MAGTF's ability to extend a broad range of influence and control from the sea to shore creates capabilities essential to our overall naval power. The value of amphibious-enabled MAGTFs is growing as American military strategy once again reverts to an expeditionary-dependent force posture. Concurrently the importance of the world's littorals is increasing.

At its heart, the MAGTF's importance within our defense framework rests on its ability to contribute to a range of potential military operations such as engagement and shaping, crisis response, access creation, extended combat, and high-end warfighting and its credible deterrent effects. This versatility is a product of a number of factors, but is particularly due to the dynamic balance within the MAGTF's organization along with the ability to operate from the sea and exploit naval capabilities. However, the extremely high cost of the ACE threatens to undermine this organizational balance.

As the Marine Corps ends 12-plus years of combat and faces an increasingly stark budgetary environment, it is time to assess how to restore institutional balance and ensure future versatility. In part, all Service-level decisionmakers and staffs, not just those in a community or two, must develop a better understanding of the competing institutional requirements, their costs, and the bureaucratic processes necessary to shape and evolve the Marine Corps for the future. HQMC must strengthen its ability to balance priorities across all elements of the Marine Corps and to integrate its requirements within the Department of the Navy (DoN). Failure to alter our aviation acquisition strategy and improve institutional-level decisionmaking competency will continue the unhealthy trend toward an unbalanced MAGTF—a MAGTF dangerously over-optimized for aviation-centric missions and capabilities—thus resulting in a fifth-generation ACE and a second- or third-generation ground combat element.

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The Marine Corps is facing stark budget realities and difficult equipment decisions. *(Photo by LCpl Raquel Barraza.)*

Acquisition Cost of Marine Aviation

The Marine Corps is currently in the

midst of a complete recapitalization of its aircraft fleet. Table 1 shows the aircraft the Marine Corps is procuring and the approved acquisition objectives (AAO), the program acquisition unit cost (PAUC), and the total acquisition cost for each. While there is always controversy about the accuracy of Department of Defense cost estimates, the single approved source for the estimates shown in Table 1 can provide a valid assessment tool, as the calculations were conducted simultaneously using the same methodology. Those estimates enable valid apples-to-apples comparisons with other Marine Corps aircraft and with other systems that will be compared in this analysis. In addition, PAUC provides a more accurate measure of the unit cost than other cost estimates since it includes not only manufacturing procurement costs, but also costs for research, development, testing, and exprimentation; initial spares; necessary military construction; and acquisition-related operations and maintenance. As seen in Table 1, the DoN will spend almost $157 billion to procure more than 1,400 aircraft to outfit Marine squadrons.[1] [2]

The historical average annual total obligation authority for the Marine Corps (often referred to as "green dollars") is about $17 billion and pays for Marines, acquisition of new equipment, operations and maintenance, research and development, and military construction.[3] Total obligation authority does not include the cost of procuring aircraft, as they are bought by "blue dollars" (Navy funding), but it does mean that the cost of procuring these aircraft equals about 9 years of the entire cost to fund the rest of the Marine Corps. Of course these aircraft are being purchased over a much longer period of time, but the numbers give you an idea of scale.

Aircraft vs. Ships

Now let's examine this cost in comparison to another major procurement of importance to the Marine Corps paid for by "blue dollars." Table 2 provides a similar cost estimate for procuring the fiscally constrained goal of 33 amphibious ships (not the 38-ship requirement for the assault echelons of two MEBs) comprised of 11 LHA/LHDs, 11 LPDs, and 11 LSDs.[4] Of note, the fleet currently has 30 amphibious ships and is not projected to reach the goal of 33 until 2025.[5] The costs for 11 LHA/LHDs and 11 LPDs are based on 2 Department of Defense reports (from the same source and issued concurrently with the aircraft reports cited above): one for the LHA 6-class and one for the LPD 17-class.[6] The cost of the LSDs uses an estimate for a projected LX(R)-class ship based on 85 percent of the cost of an LPD 17-class ship.

	AAO	PAUC (in millions)	Total (in billions)
F–35B	340	$161.05	$54.76
F–35C	80	$161.05	$12.88
KC–130J	79	$101.24	$8.00
CH–53K	200	$133.13	$26.63
MV–22B	360	$116.553	$41.96
UH–1Y	160	$36.39	$5.82
AH–1Z	189	$36.39	$6.88
Total	1408		$156.92

Table 1. Acquisition costs for Marine aviation.

	Number	PAUC (in millions)	Total (in billions)
LHA/LHD	11	$3,801.07	$41.81
LPD	11	$1,710.83	$18.82
LSD	11	$1,454.20	$16.00
Total	33		$76.63

Table 2. Acquisition costs for 33 amphibious ships.

As the two tables highlight, the Navy spends about *two times* as much to acquire Marine aircraft as it does to acquire amphibious ships. But even this fact does not fully tell the procurement story. Aircraft are currently built for about a 20-year lifecycle, while ships are planned to last 40 years. Therefore, when amortized, the annual cost to buy Marine aviation is roughly *four times* the cost required to buy the full and currently unrealized *fiscally constrained goal* for amphibious ships. It would be foolish to believe the cost of one does not affect the cost of the other.

Analysis of manpower and sustainment costs does not fundamentally skew this comparison. The manning for the Marine Corps' current 59 active tactical manned aviation squadrons (7 VMA, 13 VMFA, 4 VMAQ, 3 VMGR, 16 VMM/HMM, 8 HMH, and 8 HMLA) is about 17,500 personnel.[7] In comparison, the current 30 amphibious ships have a combined ships' complement of about 19,700.[8] While the ships have more personnel overall, it is not a substantial difference.[9]

With regard to sustainment costs, the fiscal year 2013 DoN budget for operations and maintenance is $9.87 billion for aircraft and $13.66 billion for ships.[10] Marine Corps aviation makes up about 46 percent of naval tactical aircraft in terms of primary mission aircraft inventory (in 36 percent of naval tactical squadrons).[11] In comparison, amphibious ships comprise 10.5 percent of the Navy's battle force.[12] Based on a coarse correlation, the annual cost to operate and maintain Marine aviation (approximately $4.6 billion) is roughly *three times* the cost to sustain amphibious shipping (approximately $1.4 billion).[13]

Competition for blue dollar resources also affects funding for naval surface fire support, mine countermeasure ships and equipment, surface connectors, defensive countermeasures installed

on amphibious ships, and amphibious training exercises. For instance, the number of naval guns 5-inches and larger has decreased by 65 percent since the end of the Cold War, from 307 to 106.[14] [15] It is natural for naval surface fire support to be seen as competing with close air support capabilities and, therefore, aviation funding, particularly among those most closely engaged in the blue dollar budgeting process.

Similarly, in the area of connectors between amphibious ships and the shore, vertical lift aircraft and surface connectors are in direct competition. For instance, take the case of the LCAC replacement, another blue dollar ticket item. As noted above, the cost for 360 MV–22Bs and 200 CH–53Ks is $68.59 billion. In comparison, the cost for 73 ship-to-shore connector craft (the LCAC replacement) is estimated to be about $4.07 billion, approximately 6 percent of the cost of the airlift ship-to-shore connector investment.[16] In some respects, funding for the AAV replacement, as a key ship-to-shore connector, should also be considered and balanced with the cost of vertical lift connectors. While one is normally binned under green dollars and the other under blue dollars, in the end they both come out of DoN dollars.

Impact on the MAGTF

Marine aviation also impacts green dollars in terms of opportunity costs that need to be better understood. According to HQMC's *Programs and Concepts 2013*, the Marine Corps has on active duty about 5,500 pilots and naval flight officers, which accounts for approximately 25 percent of active Marine officers. In comparison there are about 4,400 ground combat officers (0302s (infantry), 0802s (artillery), 1802s (tank), 1803s (assault amphibious vehicle) and about half of the 1302s to account for combat engineers), or approximately 20 percent of active Marine officers.[17] One way this cost is reflected is in the ratio of officers to enlisted Marines in units. Ground combat arms battalions have approximately 1 officer per 17 enlisted Marines, while tactical aviation squadrons have about 1 per 6.5.

Aviation pipelines are longer than most other MOS pipelines. *(Photo by Greg Vojtko.)*

Organizational cost can also be seen in the higher average grades/ranks within tactical aircraft squadrons in comparison to ground combat battalions. In addition, the average training pipeline for a pilot after leaving The Basic School is on average 2.5 years, while the longest ground officer training curriculum requires at most 1 year to provide their first unit with a fully trained leader, with the norm being less than 6 months.[18] There is also a disproportionate impact on manpower costs for key Supporting Establishment requirements. For instance, pilots and naval flight officers generally do not serve in recruiting (other than a select few specifically for aviation officer selection) or recruit training billets. Also, most Marines outside of the aviation community have little understanding about the much higher percentage of active duty personnel required to man units in the 4th MAW in comparison to the other elements of the Reserves.

As noted, Marine aviation is a critical component of the MAGTF's balance and versatility. The expenses identified are, to a large degree, the necessary costs of doing business for sustaining the advantages of Marine aviation. However, the question is, how well are these costs and their attendant benefits and negative consequences fully appreciated and balanced with other requirements?

Institutional Dislocation

Other institutional costs are less quantifiable, but I would submit that they are even more substantial since they threaten institutional dislocation. Amphibious theory and practice has evolved from the World War II model of a limited capability to generate tempo and operate without a significant pause near the shoreline. Today amphibious operations emphasize speed and maneuver balanced with surprise and protection to create necessary tempo and the quick and seamless seizure of inland objectives to a much greater depth. Together the proven complementary capabilities of vertical and surface assault create considerable and credible dilemmas for an adversary. These dilemmas force potential enemies to take risks that in turn create gaps that the landing force can exploit. The vertical assault force transported by ACE assets provides speed, depth, and surprise to specific landing points in an objective area. There is significant risk, however, in that the inherent weakness—namely the lack of organic mobility, protection, and significant dependence on air for follow-on movement, fires, and logistical support—of the vertical envelopment forces may be exposed after its initial unexpected insertion. In turn, assault forces transported by surface connectors cannot move ashore with

anywhere near the same speed, nor do they have the reach of air-transported forces. The surface assault force, however, balances the air assault force with its superior combined arms combat power that integrates organic tactical mobility, fire power, and protection.

The ability of surface and air assault forces to complement each other's strengths and weakness and to be mutually supportive is the key to the success of the amphibious operations at the complex intersection of the sea, land, and air domains. Properly coordinated surface and air assault forces optimize friendly time and space advantages and prevent the enemy from gaining momentum and creating necessary mass, mobility, and fire power to defeat our forces outright or in detail. This balance also minimizes our risk due to unexpected enemy innovation that could suddenly reduce the effectiveness of one of these complementary elements, for example through the massive employment of man-portable air defense missiles. For these reasons, we must be especially wary of the evangelizing theorists who, lacking sufficient empirical evidence, market new technology as a panacea that can easily solve all the weaknesses of one element and without risks.

Over-hype about the value of vertical maneuver and airborne fires to justify the high cost of investments in these capabilities threatens the MAGTF's fundamental balance and the Marine Corps' vital capabilities. Arguments in support of an air-centric MAGTF are based on the same fallacies and rationalizations as the unproven theories about mounted vertical maneuver, standoff strike, and victory through air power.[19] Over-optimization of one component of the MAGTF must be paid for some way, and the resulting imbalance threatens to unhinge our overall combat effectiveness. We have already witnessed the building of the *America*-class LHA without a well deck. Other harmful compromises will be seductive, particularly as the overall budget is squeezed, with the rationale that we must protect our long-term commitments and substantial investments in aircraft development to date. As an example, consider the replacement of the CH–46 helicopter. Does the entire force of medium-lift air connectors need to be highly expensive aircraft capable of transporting only light forces in long-range assaults to over 100 nautical miles? At that range can the air- and surface-landed forces realistically provide mutual support to each other during an assault? Could a much less expensive UH–60 modified for the maritime environment (likely in the $30 million range per aircraft) be employed for the majority of the air assault force operations with a limited number of expensive MV–22Bs ($116 million per aircraft) to support deep raids and provide necessary flexibility for lower-end operation?[20] Similarly with regard to the lethal fires, does the greatly improved targeting and survival capabilities of new fixed-wing and helicopter aircraft justify a nearly one-for-one replacement strategy?

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Competency and Structural Imbalance

While a number of factors contribute to the aforementioned trends, the lack of experience within the ground officer community, in particular with the processes of weighing and balancing the range of competing institutional requirements, is a significant cause of imbalance. While effective engagement in the bureaucratic battles within the beltway is not the raison d'être of the Marine Corps, it is also clear that abandonment of this function to nonwarfighters (or those with expertise in only one major element of the MAGTF) creates an unhealthy mismatch in the skills required to achieve and sustain a balanced force design. The Marine aviation community habitually cultivates officers who pay their dues in the aviation hallway of HQMC and in key Navy offices and agencies. Aviation leadership tends to select key personnel for these assignments early on. Their professional experience and acumen is carefully developed *both* in the Operating Forces and in these "institutional" assignments, and they are rewarded so that their broad experience later results in a skilled cadre of savvy decisionmakers. The ground side, in comparison, has fostered for over the past 30 or so years a paramount cultural emphasis on tactical and operational competency. This was likely a needed reaction to negative trends at the time, but the unintended consequences of failing to also promote an additional professional responsibility to attend to the institutional health of the Corps is now creating a looming institutional train wreck.

In addition, the natural differences between the scale of aviation and ground equipment development reinforces a mismatch of skill level. With the costs involved, planning and analysis for aviation concepts and programs tend to be far more advanced than other elements' requirements when they arrive at the same point in the combat development and resourcing processes. Repeatedly holding the pole position at the start of the race has remarkable benefits. Over time, you are bound to win more races, especially when your competition fails to recognize their handicaps. The widening gap in experience and the nature of the problem sets creates situations that affirm a truth that Marine aviators in ready rooms have long realized: The first one to the whiteboard wins the tactical argument.

These cultural differences are reinforced by a structure that fortifies this imbalance. The separate Aviation Department within HQMC functions as a lone, single-focused advocate that distorts overall Marine Corps policy and decisionmaking in favor of the ACE.

More amphibious lift is required, not less. *(Photo by Mass Communication Specialist 2nd Class Rosalie Garcia.)*

The assignment of advocates for the other elements, an attempt to match the Aviation Department's bureaucratic skills, has not significantly improved the situation. These dual-hatted advocates have other responsibilities preventing them from realizing anywhere near the same level of requisite competency.

Recommendations

Marines cannot ignore the exorbitant cost of Marine aviation and the disturbing trend toward over-optimization of air-centric capabilities within the MAGTF, as these are existential threats to the Corps' expeditionary versatility, overall military value to the Nation, and ultimately its future. The following are some recommendations to reduce costs while preserving the lethality and maneuverability that the ACE contributes to combat power. These recommendations also strive to improve the skills and accountability necessary for making more informed decisions that better balance priorities required to develop, sustain, and integrate all MAGTF warfighting capabilities for the future, maximizing limited resources.

Aviation strategy. The Marine Corps should adopt a revised strategy for aviation technology development and acquisition that emphasizes a mix of high- and low-cost technology. Advanced technology aircraft and systems should only be acquired for specific vice general missions and to provide a level of necessary flexibility. As much as possible, proven families of less-expensive systems with large joint buys (like the H–60 series of helicopters) should be leveraged. In addition, improvements in capabilities should be reflected in lower numbers of expensive aircraft where possible. Assessment of required numbers should also include a rigorous cost-benefit analysis of Reserve aviation structure.

Improved competency. The Marine Corps must improve skill levels and accountability of decisionmakers and supporting staff to generate more informed decisions that better balance priorities. The Marine Corps needs to foster a culture across the *entire* Service that not only values superior warfighting expertise, but simultaneously expects that competency be employed to ensure the overall long-term health of the institution. Manpower policy—in terms of training, education, assignments, and promotions—must inculcate a strong sense of obligation among all career officers for both developing their warfighting and leadership aptitudes and for developing the future Marine Corps as an integral task.

Structural changes. Closely coupled with improved competency, the structure of HQMC also should be carefully examined and realigned to more fully integrate the closely interrelated processes for developing future requirements, setting key policies and priorities, programming and budgeting limited resources, and managing evolving acquisition decisions. Modifications must ensure that the steps, decision processes, and responsibility levels of the key players contribute to improved decisions, greater mutual visibility of costs and consequences, and equitable integration of capabilities across the MAGTF. The separate Aviation Department within HQMC, led by a lieutenant general, tends to isolate aviation decisionmaking from the rest of the force development and budgeting processes. As the force draws down and structure cuts must be made, reorganization should consider elimination of this department or the changes necessary to enhance the ability of those HQMC organizations charged with these functional responsibilities to fully balance competing priorities across the entire Marine Corps.

Naval integration competency. Improved strategy, competency, and structure must not only be focused internally, but also externally, and particularly with Navy offices and agencies like the operational Navy. It is a mistake to assume that blue-dollar savings achieved by reducing the cost of the ACE will automatically be invested in programs like amphibious shipping, naval surface fires, mine warfare, and surface connectors. Marine Corps decision processes must effectively compete and integrate within overall naval capabilities and priority development processes. This will take a high degree of understanding and competency about these processes—skills in which Marine aviation has demonstrated proficiency over the past decades. One approach might be to transform the Aviation Department into an agency responsible for expertise in coordinating and integrating all Marine Corps priorities within the Navy's processes to include aircraft, ships, connectors, support, etc.

The bottom line as we enter a new and challenging era is that Marines must carefully examine how they can do a better job of ensuring the overall

long-term health of the organization. Restoring balance to the MAGTF and improving decisionmaking competency with regard to operational priorities and design integration are essential to achieving this vital institutional goal.

Notes

1. The following sources were used for aircraft AAOs:
   - F–35B and F–35C from Division of Public Affairs, Media Branch, "In the Black," Headquarters Marine Corps, 18 May 2011.
   - KC–130J, MV–22B, UH–1Y, and AH–1Z from LtGen Terry G. Robling, "FY2012 Marine Aviation Plan: Supporting Our Most Lethal Asset," Aviation Department, Headquarters Marine Corps, December 2011, pp. 17–16 (KC–130J), pp. 17–12 (MV–22B), and pp. 17–14 (H–1 upgrades).
   - CH–53K from "Defense Acquisitions; CH–53K Helicopter Program Has Addressed Early Difficulties and Adopted Strategies to Address Future Risks," U.S. Government Accountability Office (GAO–11–332), Washington, DC, April 2011.

2. The following sources were used for aircraft program acquisition unit cost estimates:
   - Selected Acquisition Report (SAR), F–35, Defense Acquisition Management Information Retrieval (DAMIR), RCS: DD-A&T [acquisition and technology](Q&A)823–198 as of 31 December 2011, pp. 20 and 21. (SAR does not breakout cost by different F–35 models.)
   - SAR, KC–130J, DAMIR, RCS: DD-A&T(Q&A)823–433 as of 31 December 2011, p. 10.
   - SAR, V–22, DAMIR, RCS: DD-A&T(Q&A)823–212 as of 31 December 2011, p. 17.
   - SAR, H–1 Upgrades (4BW/4BN), DAMIR, RCS: DD-A&T(Q&A)823–101 as of 31 December 2011, p. 15. (SAR does not breakout cost by different H–1 models.)

3. Headquarters Marine Corps, Programs and Resources, "The United States Marine Corps: America's Thin Red Line," brief, Washington, DC, version 11, 2011, slide 8 (data from 1970–2015, excluding overseas contingency operations costs).

4. Congressional Budget Office, "An Analysis of the Navy's Amphibious Warfare Ships for Deploying Marines Overseas," Washington, DC, November 2011, p. 1–2.

5. Letter from Assistant Secretary of the Navy for Research, "Development and Acquisition to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY14," Washington, DC, 22 April 2013.

6. The following sources were used for LHA/LHD and LPD program acquisition unit cost estimates:
   - SAR, LHA 6 *America*-class, DAMIR, RCS: DD-A&T(Q&A)823–333 as of 31 December 2011, p. 10.
   - SAR, LPD 17 *San Antonio*-class, DAMIR, RCS: DD-A&T(Q&A)823–542 as of 31 December 2011, p. 10.

7. Based on Tables of Organization 8830, 8840, 8860, 8880, 8820, 8920, 8940, 8960, and 8970.

8. Seabasing Integration Division, "Amphibious Ship Capabilities Comparison" chart, Combat Development and Integration, Marine Corps Base Quantico, 12 June 2012.

9. These rough estimates also do not reflect other manpower cost factors—flight pay in comparison to sea pay, the significant aviation training pipeline, the greater number of officers in squadrons, and the trend toward smaller crews aboard newer ships.

10. Department of the Navy, "Fiscal Year (FY) 2013 Budget Estimates, Justification of Estimates, Operation and Maintenance," February 2012, p. 28.

11. In 2013, the U.S. Navy had 108 active combat squadrons (primary mission aircraft inventory) (35 VFA (12), 13 VAQ (5), 11 VAW (4), 2 VRC (10), 12 VP (8–12), 3 VQ (8–12), 1 HS (6), 15 HSC(8–14), 11 HSM (8–14), 3 HSL (12–14), and 2 HM (16)) and 8 Reserve combat squadrons (1 VFA (12), 1 VAQ (4), 1 VAW (4), 2 VP (12), 2 HSC (12), 1 HSL (5)). In 2013, the Marine Corps had 59 active combat squadrons (7 VMA (14), 13 VMFA (10–12), 4 VMAQ (5), 3 VMGR (15), 16 VMM/HMM (12), 8 HMH (16), and 8 HMLA (18/9)) and 7 reserve combat squadrons (1 VMFA (12), 2 VMGR (12), 2 VMM/HMM (12), 1 HMH (8), and 1 HMLA (18/9)).

12. The current U.S. Navy battle force consists of 285 ships: 11 aircraft carriers, 84 large surface combatants (CGs and DDGs), 34 small surface combatants (FFGs, MCMs, and LCSs), 55 attack submarines, 4 guided-missile submarines, 14 ballistic missile submarines, 32 combat logistic ships (T-AE, T-AKEs, T-AOEs, and T-AOs), 22 command and fleet support ships (LCCs, ASs, T-ARSs, T-AOGS, T-ATFs, JHSVs, T-AKEs, and AFSB), and 30 amphibious warfare ships.

13. The rough sustainment cost for Marine aviation is $4.58 billion (46.4 percent of $9.87 billion) while the similar estimate for amphibious ships is $1.44 billion (10.5 percent of $13.66 billion). In response to arguments that Marine aircraft tend to be more rotary-wing and less sophisticated than the bulk of Navy aircraft and therefore less costly to sustain, it is also worth noting that this estimate also does not factor in the sophistication and size of nuclear carriers, submarines, and AEGIS destroyers and cruisers in comparison to amphibious ships.

14. On 30 September 1989, the U.S. Navy had 149 ships with 307 naval guns of 5" caliber and larger: 4 BB 61–class (9 x 16" and 12 x 5" each), 1 CGN 9–class (2 x 5"), 9 CG 26–class (1 x 5"), 1 CGN 35–class (1 x 5"), 2 CGN 36–class (2 x 5"), 4 CGN 38–class (2 x 5"), 13 CG 47–class (2 x 5"), 31 DD 963–class (2 x 5"), 23 DDG 2–class (2 x 5"), 10 DDG 37–class (1 x 5"), 4 DDG 993–class (2 x 5"), 46 FF 1052–class (1 x 5"), and 1 FF 1098–class (1 x 5").

15. Today the U.S. Navy has 84 ships with 106 naval guns of 5" caliber: 22 CG 47–class (2 x 5") and 62 DDG 51–class (1 x 5").

16. U.S. Government Accountability Office, "Defense Acquisitions: Assessments of Selected Weapon Programs," Washington, DC, March 2013, p. 115.

17. Headquarters Marine Corps, *U.S. Marine Corps Concepts & Programs 2013: America's Expeditionary Force in Readiness*, Programs and Resources, Washington, DC, 2012, p. 229.

18. *FY2012 Marine Aviation Plan*, p. 11–9.

19. For a good discussion on this issue, see the article by LtCol John Gordon et al., "Air-Mechanization: An Expensive and Fragile Concept," *Military Review*, January-February 2007, pp. 63–73.

20. Estimate based on: SAR, UH–60M Blackhawk (DAMIR, RCS: DD-A&T(Q&A)823–341 as of 31 December 2011, p. 11), lists the PAUC for UH–60M as $20.99 million, and SAR, MH–60S (DAMIR, RCS: DD-A&T(Q&A)823–282 as of 31 December 2011, p. 15), lists the PAUC for the MH–60S as $28.98 million.