

AIM-120 AMRAAMs for Expeditionary Strike Group AV-8Bs

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AIM-120 AMRAAMs for Expeditionary Strike Group AV-8Bs  
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## Report Documentation Page

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The Expeditionary Strike Group (ESG) concept presents a significantly more capable alternative to the Amphibious Ready Group (ARG). An ESG's enhanced capabilities can enable Operational Maneuver From The Sea (OMFTS), which will require assault support and strike aircraft to operate at great distances from the ESG itself and well outside of its Aegis defensive umbrella. If any credible air threat exists in theatre, these mission requirements cannot be fulfilled with organic ESG assets. Given the ESG's expanded mission requirements, AIM-120 Advanced Medium Range air-to-air missiles (AMRAAMs) should be allocated to ESG Harrier detachments to provide the strike group the ability to defend ESG aircraft against enemy air threats.

#### **THE ESG MISSION**

The ESG construct provides a more operationally capable and flexible alternative to the Amphibious Ready Group. The traditional ARG is expanded into an EGS by including two Aegis cruisers, an Aegis destroyer and an attack submarine. 1 These additional ships are intended to provide the ESG with an "organic air defense, undersea warfare, and strike capability required for operating independently in *low-to-medium threat environments*, thereby increasing the fleet's responsiveness and strategic

impact". 2 The ESG is also expected to increase the amphibious task force's overall striking power and its ability to project that power at great ranges. In sum, "the ESG is an initiative to provide the nation and the regional combatant commanders with more capable sea-based power projection." 3

Training exercises designed to test the ESG concept have demonstrated that the current ESG model does in fact possess greater operational capability than a traditional ARG. For example, the ESG that participated in Tandem Thrust '03 showed "significant potential for the group's autonomy and independence and its ability to respond to a variety of crises". 4 Testing of the ESG has shown that it "is transformational because of the ESG's inherent capabilities and missions--the ability to go where recent amphibious groups have been unable to go, stay there, and hold landward targets against opposition." 5 While the ESG will in fact possess a significant increase in striking, air defense and C2 capability, some shortcomings still exist given the ESG's expected operational requirements.

## POTENTIAL AIR THREATS

ESG shortcomings are directly related to the great number of countries currently possessing a credible air threat to ESG aircraft. For example the MiG-23, "is in widespread use in Eastern Europe and the Middle East .... [and] has been used extensively by the former Soviet Union and its Warsaw Pact allies including Poland, Hungary, Bulgaria, East Germany, Rumania, and Czechoslovakia. Other countries including Libya, Syria, Egypt, India, Cuba, Algeria, Iraq, Afghanistan and North Korea have imported FLOGGERS." 6 The MiG-21 is another capable fighter threat whose production total - 8000 - exceeds that of any other modern jet aircraft. 7 The countries that currently operate the MiG-21 include: Afghanistan, Albania (J-7), Algeria, Angola, Azerbaijan, Bangladesh, Bulgaria, Burma, Cambodia, China (J-7), Congo, Croatia, Cuba ,Czech Republic, Egypt, Ethiopia, Finland, Germany, Gunea, Hungary, India, Iran, Iraq, Kazakhstan, Laos, Libya, Madagascar, Mali, Mongolia, Mozambique, Nigeria, North Korea, North Yemen, Pakistan (J-7), Poland, Romania, Slovakia, South Yemen, Sri Lanka, Sudan, Syria, Tanzania, Vietnam, Yugoslavia, Zambia, Zimbebwe. 8 It is reasonable to expect that future ESGs will be required to conduct operations in at least some of the countries listed above.

It is also important to note that operating MiG-23s and MiG-21s represent only a fraction of the air threat that future ESGs might be expected to face.

#### **ESG AIR DEFENSE SHORTFALLS**

The current capability of the AV-8B cannot effectively counter these types of air threats. While it is true that the ESG's Aegis cruisers will possess the ability to defend the task force from air attack, this will not be enough to protect ESG aircraft conducting missions "feet dry" outside of the Aegis defensive umbrella. Currently, Harriers armed with only AIM-9Ms do not even possess sufficient self-defense capability if a credible air threat exists. Fighter cover will be required to protect Harriers on strike missions once the Harriers leave the defensive umbrella provided by the Aegis cruisers. This limits the ESG's ability to conduct OAS and aerial reconnaissance missions.

A capability to protect ESG aircraft from air threats would greatly increase the operational capability of the ESG given the MV-22's ability to provide the ESG a true over-the-horizon ship-to-objective maneuver capability. The MV-22 will therefore be an important enabler of OMFTS.

The MV-22's exceptional range will many times require it to operate well outside the Aegis cruiser's defensive umbrella during deep assault support missions. The operational ranges and altitudes required for the MV-22 to perform deep assault support would greatly increase the MV-22's vulnerability to even the most antiquated enemy air threat. A single section of even the most rudimentary enemy fighters could completely decimate an entire assault support package. An organic ability to escort MV-22s outside the Aegis defensive umbrella will maximize the ESG's operational reach and allow it to conduct operations independently within the intended medium-to-low threat environment.

#### **ESG AIR DEFENSE SOLUTION**

AV-8Bs armed with AIM-120s would be able to provide the ESG this organic MV-22 assault support escort capability. ESG Harriers armed with the highly capable long range AIM-120 would be able to conduct air defense missions to protect both assault support and Offensive Air Support (OAS) missions. AIM-120s would allow Harriers to target enemy fighters at the ranges necessary to prevent them from interfering with friendly aircraft missions.

Given the relatively small number of AV-8Bs within an ESG, it is especially important that these aircraft be provided the ability to self-escort during OAS and aerial reconnaissance missions. This would allow for the most efficient use of the very limited number of ESG strike aircraft. With the addition of AIM-120s, Harriers would not require additional fighter sorties because they would be able to defend themselves from air attack during OAS missions. As a result, more sorties would be available for strike missions vice pure-fighter missions.

Currently, the only way for the Navy to provide air defense protection for AV-8Bs and MV-22s is from F-18s or F-14s operating from a separate carrier task force. This dependence on external assets for protection can become a problem when the time required for a carrier task force to enter the operating area is too long to prevent the situation on the ground from escalating. Harriers armed with AIM-120s could conduct OAS and aerial reconnaissance within a low-to-medium air threat environment as soon as the ESG arrives in the operating area. The timeliness of these organic ESG fixed-wing missions might be enough to prevent a dynamic situation from developing into larger scale war within a rapidly escalating environment. The

advantages of ESG rapid response will be negated if excessive time is required for a carrier task force to arrive.

A counter argument to enhancing the air-to-air capability of the Harrier is simply that the air threat throughout the world has been greatly reduced since the fall of the Soviet Union. Consequently, there has been a lessening of enemy air threats throughout the world, so a greater emphasis must be placed on improving a tactical aircraft's air-to-ground capabilities. For example, the dwindling MiG threat has required aircraft such as the F-14 to adapt from a pure fighter/interceptor into a capable bomb-dropping platform to help the F-14 to stay tactically relevant. The air-to-air mission has simply become far less relevant in recent years. This being the case, some would argue that it is not necessary to spend limited defense dollars on missiles to expand the air-to-air capability of a subsonic attack aircraft such as the Harrier.

While it is true that the number and capability of enemy air threats have lessened in recent years a credible air threat still exist in many Third World. "Leading

examples include the F-5, Alpha Jet, Hawk, MiG-23 and MiG-29, the Su-20 and Su-22, and various versions of the Dassault Mirage. Over 3000 of these aircraft are in service in the air forces of more than five dozen Third World countries." 9 The same number of third world countries operate an excess of 3000 older light combat aircraft including the Russian MiG-17, MiG-19, and MiG-21, as well as the Chinese J-5, J-6 and J-7 versions of these aircraft.

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Given that the ESG is expected to operate independently within a medium-to-low threat environment, ESG aircraft can expect to encounter some of the aircraft listed above. This threatens the ESG concept as a whole. While it is true that the addition of Aegis class cruisers provides an exceptional fleet air defense capability for force protection, these assets are not capable of protecting the assault support and strike aircraft necessary to conduct expeditionary operations ashore when a credible air threat exists. As such, it is critical that the ESG possess the capability to independently conduct deep assault support and OAS within medium-to-low threat environments. Unfortunately the ESG capability does not currently have that capability.

## CONCLUSION

The addition of two Aegis cruisers, an Aegis destroyer and attack submarine to the traditional ARG will provide exceptional air defense, C2 and strike capability. These assets, coupled with the MV-22's speed and range will enable ESGs to conduct OMFTS independently within a medium-to-low threat environment. However, this will only be possible if the ESG is provided a means by which to protect ESG aircraft operating "feet-dry" outside of the Aegis defensive umbrella. As such, AV-8Bs armed with AIM-120 AMRAAMs should be used to protect ESG aircraft from enemy air threats during OAS, aerial reconnaissance and assault support missions.

## Notes

1. Mike Mullen., "Global Concept of Operations," *United States Naval Institute Proceedings*, April 2003; Vol. 129, Iss. 4; pg. 66.
2. Mullen, 67.
3. Mullen, 67.
4. Howard Petrea; "Expeditionary Strike Group becomes reality," *United States Naval Institute Proceedings*, October 2003; Vol. 129, Iss. 10; pg. 44.
5. Petrea, 45.
6. *MiG-23 FLOGGER, YF-11*,  
<<http://www.fas.org/nuke/guide/russia/airdef/mig-23.htm>>  
(Updated Saturday, June 17, 2000 3:09:30 PM)
7. *MiG-21 FISHBED J-7 (Jianjiji-7) / F-7, YF-110*,  
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