

Arriba! Flying Harriers for 40 years

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The AV-8B+ remains a very effective weapon system. They can for example use Litening II AT pods to acquire coordinates of sensitive targets and use guided bombs such as the Paveway (GBU-12 and GBU-16) and JDAM (GBU-38).

The Spanish naval aviation has accumulated 40 years of experience with Harrier combat jets, and operates now the modern AV-8B+ Harrier II. There is no better place to see them in action than their floating air base, the 27,000-tonne Juan Carlos I multipurpose ship

The first Harrier AV-8A, known with affection by the pilots as Matador, arrived to the naval base

of Rota, south of Spain, in November 1976. The 11,000-tonne Dédalo was being used by the Spanish as helicopter carrier since 1967 but this time sailed from the United States with six jets aboard. Spain had finally become member of the very exclusive club of navies with aircraft carriers. Today there are only ten worldwide and two of them face serious operational restrictions. The Chakri



An AV-8B+ blasting off the 13-degree ski jump ski jump.



Naruebet, Thailand's first and only aircraft carrier, seems to have spent most of the last years docked. The first-generation Harriers received from Spain flew only a couple years before being stored at U-Tapao. Even the Royal Navy is limited to helicopter operations. The Ark Royal was decommissioned in 2011 and the Queen Elizabeth, the first of a class of two 70,600-tonne aircraft carriers, is expected to start the integration of the F-35B only in 2018. The Spanish pilots have many reasons to

be proud. They have always flew their Harriers from the deck of aircraft carriers without. First aboard the *Dédalo*, then the 16,000-tonne *Príncipe de Asturias* and nowadays the 27,000-tonne *Juan Carlos I* (L-61) multipurpose ship - the largest warship ever built in the country.

Last November, NATO conducted its largest exercise in over a decade, the Trident Juncture. It is no surprise that the *Juan Carlos I* took part of this impressive show of force. Whenever the

The Spanish Navy has a total of 12 AV-8B+ and one TAV-8B two-seater for training. Five of the AV-8B+ were actually rebuilt using cells of the 1987 batch of 12 AV-8B. The other were received after 1996.



Crew members completing maintenance on the flight deck

The 5th Squadron flies seven SH-3D and three SH-3W, the later equipped with a Search Water radar and used for airborne early warning (AEW)



Spanish Navy gets a high-visibility commitment, this ship is there and so are the Harrier jets.

Man in the iron throne

The first stop in any visit to an aircraft carrier is the air traffic control. It is here, not in the flight deck, that the most important decisions are made. The small room is full of screens and manned by four men who avidly collect the patches of the visiting aircrafts. There is one of the new Tiger attack helicopter, currently being certified for naval operations, and one of the Portuguese helicopter, a Super Lynx, which dropped me on the deck. A sticker over the screens say it all with a touch of humor: "Do as I say or get out of my air space". Those men coordinate operations on the deck

and aircraft in the air and decide when they can land or take-off. The configuration and deck markings of the decommissioned Príncipe de Asturias were kept as much as possible in the 662-fleet flight deck of the Juan Carlos I. The six landing spots for helicopters are marked with numbers. Large letters distinguish the four spots which can receive heavy helicopters such as the CH-47 Chinook used by the Army. During Trident Juncture, four US Marine Corps MV-22 Ospreys embarked for a couple days - a first in a non-US ship. The deck crew is constantly shuffling aircraft and helicopters around. When operating as an aircraft carrier, the Juan Carlos I typically carries 12 AV-8B+, two SH-3D Sea King for transport and two SH-3W for airborne early warning (AEW) fitted with a Searchwater radar. The Spanish Navy has

While there is more space on the deck, this is still a relatively small aircraft carrier compared to the American, Russian, Brazilian, Indian and French ships currently in service



MDD Matador AV-85 – 008 Escuadrilla Spanish Navy 1976



MDD Matador TAV-85 – 008 Escuadrilla Spanish Navy 1976



MDD EAV-8B Harrier II – 9a Escuadrilla Spanish Navy 1995



Drawings:
Bill Dady

The air traffic control team. It is here, not in the flight deck, that the most important decisions are made



a total of 12 AV-8B+ and one TAV-8B two-seater for training in service as well as seven SH-3D and three SH-3W. Five of the AV-8B+ were actually rebuilt using cells of the 1987 batch of 12 AV-8B. The other were received after 1996. They model is easily recognized for its radar nose profile. The radar is the AN/APG-65 radar, the same which equips the F/A-18 A/B jets of the Air Force. For air-to-air combat, Harriers are armed with AIM-9L Sidewinder short-range missiles and the AIM-120B AMRAAM medium-range missiles which can reach targets beyond the 80 kilometers. The

Spanish Harriers are powered by an upgraded Rolls-Royce Pegasus 408 engine. This time there are six jets embarked, most parked behind the ship's island. One Sea King can be seen next to the 13-degree ski jump. Every time a helicopter or jet takes-off or lands on the deck, an experienced pilot, or Landing Safety Officer (LSO), needs to be in the tower. Lieutenant Andres Medina, one of the 13 Harrier pilots aboard, is the man in the iron throne that day. With 300 out of 620 flight hours logged in the model, he knows what is doing: "today we have eight combat missions, all of them in

Portuguese marines embarked for a segment of the multinational naval exercise in the coast of the Spanish western neighbour





the combat air support (CAS) role". In such a role, "we rely more and more on Paveway (GBU-12 and GBU-16) and JDAM (GBU-38) bombs". The JDAM combines low cost with high accuracy. A 250-kilo bomb with a precision of less than three meters. There are also the 25mm canon and the AGM-65F and AGM-65E Maverick missiles. They can also be fitted with the Rafel Litening II AT targeting pod which has a TV camera, infrared and laser sensors. Normally, "we have two jets taking off for a mission or eventually four", Medina explains. There are things only naval pilots need to remember: "our briefings and planning work differently of a land-based combat unit because our aircraft car-

rier moves all the time", he reminds us. This means that pilots need to know where the Juan Carlos I will be in the beginning of the mission and when they return, and calculate how much fuel they will need.

The Spanish Navy follows closely the doctrine and methods of the US Navy for carrier operations and that is quite visible once we walk on the flight deck. It is a noisy environment where everyone has specific and clearly-defined roles. Their colored jerseys and helmets help to identify them. Safety of operations is the primary responsibility of those wearing white. Brown jerseys identify air wing plane captains. Yellow those who oversee

The amphibious landing dock can receive up to four landing crafts

Since its creation in 1954, the Spanish naval aviation has accumulate more than 500 thousand flight hours



the operations on the deck. Purple look after the fuel, blue handle the planes and green the arresting gear, air wing maintenance and cargo handling. Red jerseys identify the personnel handling ordnance and responsible for emergency rescue and firefighting.

Under the deck

Over the lunch, a sample of Spanish comfort food like lentil soup with beef, I am able to satisfy my curiosity about the ship itself. A couple levels above us there is a massive hangar with workshops and all equipment and spares necessary to conduct complex maintenance at high sea. An aircraft carrier is more than just a landing strip in the middle of the ocean and the Juan Carlos I is more than an aircraft carrier. As a multirole ship, she is also capable of transporting a marine infantry force, supporting operations on land and transport troops and their equipment. In case of natural disasters or turmoil overseas the ship can also conduct non-combat operations, humanitarian assistance and function as a hospital ship. That explains why both Australia and Turkey will soon receive ships based on the Spanish project. The design combines characteristics of both military and civilian ships. It benefits from all the experience gained by the Spanish shipyard during the construction of the *Príncipe de Asturias* and later the *Chakri Naruebet*, as well as the two landing platform dock (LPD) amphibious ships, the *Galicia* and the *Castilla*. Automatization allows a crew size as low as 295 - roughly half of the crew of the old *Príncipe de Asturias* - and frees space for the air wing and marines. A sub officer, Martinez Canavate, explains that the three amphibious ships allow the country to transport and disembark up

to 1100 troops, 500 of them in the Juan Carlos I. The hangar and parking area combined can transport up to 90 vehicles, including the 62-tonnes Leopard 2E tanks. The dock can receive up to four landing crafts. A Portuguese officer, 1st Lt. Rui Filipe, is aboard together with other marines of the smaller Iberian nation. This is a “great opportunity to train with the Spanish and benefit from the capabilities of a ship like this one” he tells. Portugal is still to acquire its first amphibious ship. Just like in a real NATO deployment, the units comprise different nationalities - the Portuguese-led battalion has a Spanish company and vice-versa.

Spanish ham and American helicopters

Being multirole is not always easy. Amphibious operations may require being quite close to the shore, around 12 miles, whereas the winds that the Harriers need to take-off and land may be available elsewhere. Back to the tower I meet Lt. Carlos Arenas, a helicopter pilot trained in Florida at the famous Pensacola naval air station. He has over 800 flight hours and is proud to have a former Matador pilot as father. Lt. Arenas loves his job and his Sea King helicopter: “for any Spanish helicopter pilot, the best ham is Spanish and the aircraft American” he jokes. Since its creation in 1954, the Spanish naval aviation has accumulated more than 500 thousand flight hours. It is widely believed that the Harrier fleet will fly till 2020 or even 2025 and be replaced by the Joint Strike Fighter. However, the Spanish have moved away from just following what the US naval aviation does. This is a small but highly trained aviation corps and with the Juan Carlos I they got the right ship for doing their job the best.

The 27,000-tonne Juan Carlos I is a larger ship than its predecessor, the *Príncipe de Asturias* which displaced only 16,700 tonnes

