

# INFORME COMERCIAL

AVIONES DE TRANSPORTE MILITAR



## La Fuerza Aérea portuguesa con el C-212 en la Operación Prestige



- Dos plataformas CN-235 para la Guardia Costera de Estados Unidos
- Jordania compra dos C-295

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# Two EADS CASA CN-235 for the United States Coast Guard

**T**he United States Coast Guard has assigned a contract as part of the Deepwater programme for the acquisition of two maritime patrol aircraft (MPA) for an amount of 130 million dollars with ICGS, a consortium with equal participation by partners Lockheed Martin and Northrop Grumann.

The objective of the Deepwater programme is the modernization and replacement of the old air and surface fleets of the Coast Guard, that will allow an improvement of the mission capabilities related to national and external security.

The elected platform has been the Spanish EADS CASA CN-235 aircraft. Their delivery

is planned for the beginning of 2006 and they should be ready for Coast Guard use, according to their specifications, by the end of that same year.

According to the United States Coast Guard, "The maritime patrol aircraft based on the medium range CN-235 platform and the long range HC-130 platform will provide the Coast Guard the capability to meet all the system requirements. The final number of CN-235 platforms within the Coast Guard air fleet will be determined based on the optimum combination of aircraft that fulfils the mission requirements."

"It is very satisfying that the United States Coast Guard, after a meticulous evaluation,

has selected the CN-235 platform. This confirms the magnificent characteristics and flexibility of the CN-235 for this type of mission. These two platforms are the first in an acquisition programme for many more aircraft in the coming years", stated the president of EADS CASA, Francisco Fernández Sáinz.

"I want to thank the entire EADS team for their contribution resulting in the selection of our platform and for their effort and dedication during years of intense effort" added Francisco Fernández Sáinz.



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# SUMMARY

COMMERCIAL REPORT

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# Jordan buys two C-295 aircraft

**Last February, the Jordanian Air Force put into effect a contract for two C-295 military transport aircraft to be acquired from the EADS Military Transport Aircraft Division.**

**T**he two C-295 aircraft will be delivered sometime in 2003 and they will provide the air force a larger transport capability. Prior to delivery, it is planned for aircrew training to be provided at the EADS CASA Training Centre in Seville, based mainly on the C-295 MITS (Multimedia Interactive Training System) computer aided training system that provides the necessary aeronautical technical training to aircrew and maintenance technicians.

The Jordanian Air Force will increase its capacity for what is referred to as paratrooper and cargo launchings. The C-295 also has night vision system that extends the aircraft's operational use and an in-flight refuelling system that provides greater autonomy. This aircraft autonomy will allow the Jordanian Air Force to cover the whole area of the Persian Gulf with a full payload, with which they will be able to intervene in humanitarian aid actions anywhere in the entire area.

The acquisition by the Jordanian Air Force confirms the suitability of this aircraft for the demanding environmental and climatic condi-

tions that exist in the area of Middle East: extreme heat conditions on short or long, asphalted or unpaved runways at low elevations (less than 1,000 feet) to very high elevations (including elevations higher than 6,000 feet), as well as temperatures that usually oscillate between 40 and 50 degrees centigrade and with high thermal gradients.

The collaboration between EADS CASA and the Jordanian Air Force dates back for more than two decades. In November 1975 the Air Force incorporated the first of the four C-212 Series 100 aircraft that it acquired for transport. These aircraft have since been retired and the Air Force now flies two CN-235 from 1999. During the 1987 and 1988 a fleet of 16 aircraft C-101 were incorporated for basic training.

Jordan's trust in EADS CASA aircraft is bolstered by the acquisition of the C-295 and they become the third operator of the C-295 after the Spanish Air Force and the Polish Air Force that have acquired nine and eight units respectively. Also, the Brazilian Air Force has decided to acquire twelve C-295, the Swiss

Air Force another two, and the United Arab Emirates Navy four C-295 Maritime Patrol aircraft.

The C-295 offers the greatest versatility available in today's market for medium transport aircraft. It was designed to carry out missions of logistical transport of troops and material as well as tactical type missions with there being a ever growing need for humanitarian aid in cases of natural disasters as well as in cases of support for peacekeeping forces, for provision of food and medical teams to affected areas.

Besides tactical and logistical transport missions, the C-295 can play an important role in aid missions to help the social and economic development of areas that require an extraordinary level of assistance and support, as well as provide surveillance and control of the environment to control and prevent pollution.

The C-295 is the most modern military transport aircraft of the complete family of transport aircraft manufactured by the Transport Aircraft Division, of which 700 are currently flying world-wide. This new contract once again confirms the leadership of EADS CASA in the medium transport aircraft market.





# The Portuguese Air Force with the C-212 in the Prestige Operation

On November 18, at 14:00 hours, Squadron 401 of Air Base number 1 - Sintra, based at the of Manobra Airfield number 1, of Ovar, received a mission order (AIRTASK) to locate and to identify a ship in an emergency situation with the objective of checking its condition, its displacement and for possible spills.



At 16:55 h. the oil ship Prestige was located at the coordinates 42° 29' 8" N 011° 26' 8" W. In other words, the Portuguese Air Force, three hours after ordering the mission, already had an aircraft located in the area, specifically a C-212-300 from Squadron 401, gathering the necessary information to make a later decision.

The situation seemed worrying: the ship had a hole in its hull and was being balanced with the help of three tugs; also, at the same time, they were accompanied by a Spanish frigate and helicopter.

For the first time Portugal faced a serious maritime contamination threat, but were still far from being able to imagine the proportions that this event would reach. In parallel, promptness on the part of the Portuguese Air Force in using its reconnaissance and marine contamination control capabilities, as a component of the Maritime Authority System, were put to tests that until then never had been attempted, both in quantitative terms



Crack in the Prestige hull

(practically daily air activity during three and a half months, 84 completed missions and only seven cancelled or aborted by adverse meteorological conditions and one for operational reasons), as well as qualitatively (detection and determination of position, quantity, volume and displacement of the crude oil spills covering a total surface area of 1,650,000 square kilometres without having to rectify or correct any of these data/calculations).

## Planning

The planning process began at the General Command of the Maritime Authority (DGAM/SCPMH), the entity in charge of evaluating and studying the evolution of the catastrophe, who then transferred necessary details to the Naval Command for preparing the mission application. The Naval Command, in turn, provided the execution application to the Operational Command of ▶▶





## TEAMS AND SENSORS

The aircraft assigned by the Portuguese Air Force for the Prestige Operation have systems, equipment and specific sensors that allow them to execute all aspects of maritime surveillance missions: surveillance and inspection of fishing, detection and control of marine contamination and detection and control of illicit activities.

The following equipment used is especially important for the detection and control of the maritime contamination:

**Forward Looking Airborne Radar (FLAR)** - Forward search radar with a meteorological module, highly effective and able to detect ocean surface targets for a distance of up to 200 nautical miles, shown to be extremely useful in the surveillance of large areas, eliminating unnecessary flights.

**Side Looking Airborne Radar (SLAR)** - lateral sweeping air radar with special characteristics for anti-contamination actions, able to detect pollutant spills and objects in the sea for distances of up to 80 kilometres, night or day, and producing surface images of the swept areas.

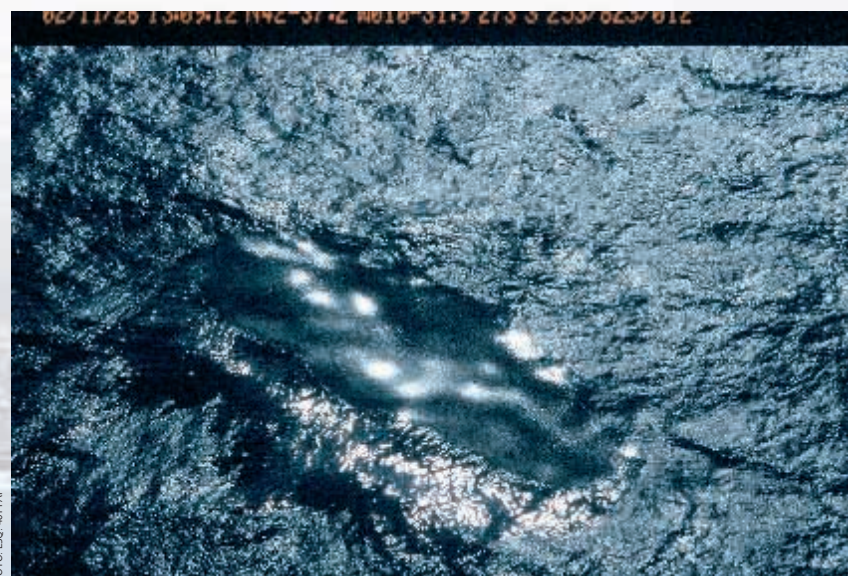
**Infrared/Ultra Violet Scanner (IR/UV)** - This equipment is used to pick up emissions of infrared waves and reflections of ultraviolet waves, producing thermal images of the sea surface. It allows the confirmation of the existence of crude oil or other types of pollutants in the sea and to determine the most concentrated areas for possible anti-contamination intervention actions.

**Microwave Radiometer (MWR)** - Complementary equipment to the IR/UV equipment. It measures the emission of crude oil in the water, and helps to determine the thickness in order to calculate the total volume of the spill.

**PRT-5** - Designation of the thermal radiometer that measures the thermal radiation from the surface of the sea, reporting temperature with an accuracy of up to 0.1°C. It also has digital recording support.



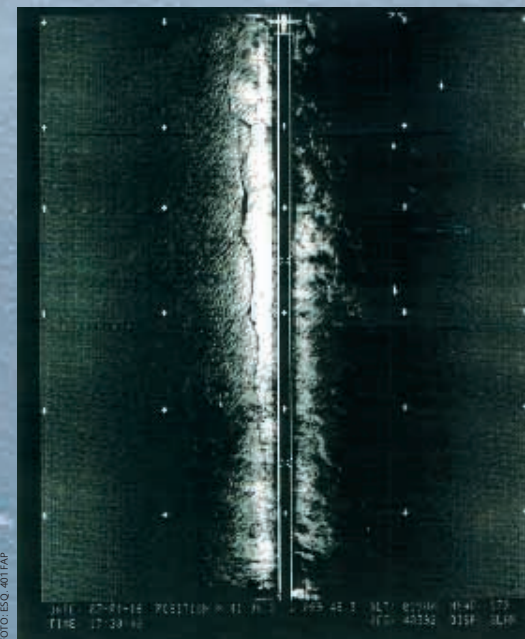
Sinking of ship



Fuel stain



Cleaning up operation



Picture obtained with the SLAR







▶ the Air Force (COFA), in charge of preparing the mission order that Squadron 401 would receive and execute to support the specific planning task.

The information collected during and after the mission on the positions of the crude oil spills was processed by the Portuguese Air Force and the results, included in a detailed report on the development of the mission, were sent to DGAM and the Hydrographical Institute that forecast and planned for the evolution of the spills taking into account the winds and sea currents. Based on this forecast a new search area was determined for the following day, beginning with it a new planning cycle.

## Types of operations

The participation of the Air Force in the Prestige "incident" was part of a combined (with the other branches of the armed forces) and multinational operation of a non-military na-

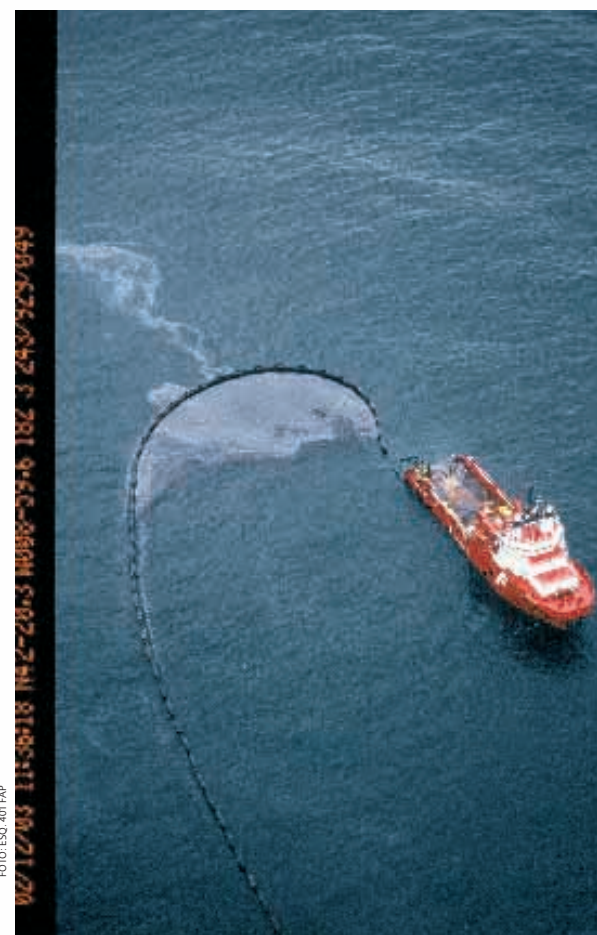
ture and classified under the category of a public interest mission, in this case being environmental protection.

The air actions undertaken not only had the objectives of controlling the contamination by means of reconnaissance tasks to determine the position and extent of the polluting spills, calculating the volume of the crude oil, pursuing and confirming the spills trajectories and probable evolution in the sea, but also to fight against the contamination. In this sense a pursuit of the situation was carried out and naval means were sent to the areas with the major concentration of spills. These two types of action -control and fighting the contamination- have been the overwhelming objective of the majority of the missions developed during the three and a half months of air activity in this task.

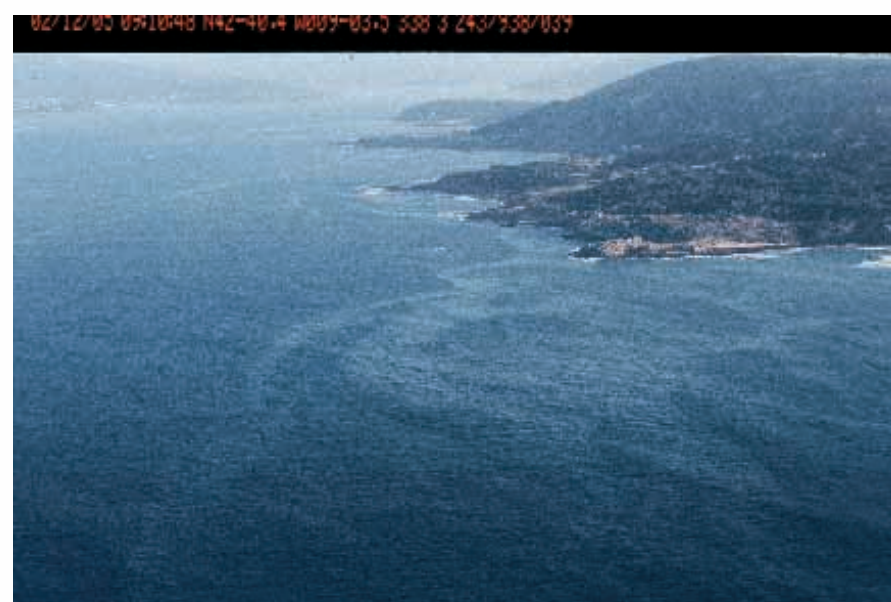
## Assigned means

Currently, Squadron 401 has three C-212 Series 100 aircraft -diverted from their primary missions and re-equipped for this mission- with 5 hours of flight autonomy, and two C-212

Series 300 aircraft, configured according to the requirements of the Portuguese Air Force and with an autonomy of 7 hours and 30 minutes assigned to the air component of the Maritime Surveillance system. These aircraft can fly under visual flight conditions (VMC) or instrument flight conditions (IMC), day or night, under all kinds of weather conditions, to carry out total sur-



Cleaning the sea



Pollution reaches the coast

## The Commander of the Dutch Air Force at EADS CASA

Lieutenant General Dick L. Berlijn, Commander in Chief of the Dutch Royal Air Force visited EADS CASA last January 21. He was accompanied by Lieutenant General Eduardo Gonzalez Gallarza, Chief of Staff of the Spanish Air Force.

He was received by company executives at the EADS CASA factory in Getafe. They briefed him about military transport aircraft, mission systems for maritime patrol and other EADS programmes.



Later he visited the various facilities at the centre, including the flight test area, structural testing area, the Modifications and Development Shop, as well as Airbus and Eurofighter facilities.

## Visit by the Turkish Minister of Defence

The National Defence Minister of Turkey, Vecdi Gönül, visited the EADS CASA and Airbus Spain facilities on April 2, accompanied by Division General Salih Güroglu and Rear Admiral Can Erenoglu, along with other people in his entourage. Representing Spain were Division General Carlos Villar Turrau, General Director of Armament and Material, and executives from EADS CASA and Airbus.



At the Illescas factory he toured the modern facilities of this European Centre of Excellency for the conventional and automated production of composite materials. At the Getafe factory he toured several areas of the centre, such as structural testing and Eurofighter assembly.

EADS CASA has always shared an extremely cordial industrial relationship with Turkey, both with the armed forces as well as with Turkish industry.



# Two A310 VIP aircraft for the Spanish Air Force

**These aircraft have been acquired by the Ministry of Defence and will be operated by the Spanish Air Force to fulfil State Department and Government transport requirements. Their delivery is anticipated for the spring of 2003.**

**M**ilitary Transport Aircraft Division, within the Airbus derivatives business line, is responsible for the development, production, conversion, testing and certification of conversions based on Airbus platforms. It has engineered the entire conversion to military avionics and all of the modifications required to transport military pallets.

On December 21, 2002, one of the two Airbus A310-304 aircraft that are being transformed by the EADS Division of Military Transport Aircraft into VIP versions for the transport of high-level personnel made its maiden flight after undergoing a complete general revision.

In this first 5-hour trial flight, the basic systems of the aircraft were tested (necessary after having undergone the 8C revision) as well as the flight characteristics (due to the large number of antennas installed in the upper part of the aircraft); testing was performed on the installation of two ACT (Auxiliary Centre Tanks), that supplement the aircraft tanks to provide greater autonomy, and of U/VHF 1 and 2 military avionics systems, etc.

These aircraft are equipped with two General Electric GE-CF6 80-C2A2 engines, and they will provide flight autonomy of more than 5,500 nautical miles without refuelling. The dimensions of the aircraft are: length 46.66 m, fuselage diameter 5.64 m, height 15.80 m, wingspan 43.90 m, wing surface 219 m<sup>2</sup>.

The interior space, with a fuselage width of 5 m, is distributed in the following manner: an area for the reserve crew with four seats and a rest area, a communications centre with two stations, two VIP bedrooms and a common bathroom, a meeting room (that can also be used as a dining room), and an area with fifty nine International Business class seats. There is also a medical unit.

The A310 was the Airbus aircraft that first introduced new concepts for the deep rudder and the horizontal stabilizer, manufactured of carbon fibre, and incorporating a fuel tank in the stabilizer to augment the capacity of the aircraft tanks, allowing the in-flight transfer of fuel. The aircraft has become the preferred aircraft of those airlines in fast growing regional markets.

EADS CASA, thanks to its enormous experience in military transport and maritime patrol aircraft (more than 800 sold), currently is active in the development of solutions in three fundamental areas: VIP conversions



of Airbus platforms, transformation of Airbus platforms into tanker aircraft for the in-flight refuelling of other aircraft, and the design, development and production of a "Tanker Kit" that can be installed in all Airbus A310 and A330 to transform them into tanker aircraft.

The first Tanker Kits have already been installed in four Airbus A310 MRT aircraft of the German Air Force, and the Canadian Air Force has ordered two.

## The Spanish Minister of Science and Technology visits San Pablo

**On January 29, Josep Piqué, Minister of Science and Technology, accompanied by the Government's delegate from Andalusia, Juan Ignacio Zoido, visited the facilities of the San Pablo factory near Seville. The president of the company, Francisco Fernández Sáinz, received them.**

**E**The EADS CASA factory in San Pablo, Seville is the site of final assembly of transport aircraft and serves as the delivery centre of the aircraft to their operators. In the near future, San Pablo will also be the site for assembly and delivery of the A400M new heavy military transport aircraft, for which construction of a new plant will take place to house the facilities concerning this aircraft.

Regarding this, the minister received information on the selection process and the char-

acteristics of the three projects finalists (AD-Pi-TR-Heymo, Setec-Eyser-Valode & Pistre and GMP-L35-S&B-Fehcor-Úrculo) that have passed a pre-qualification of 30 teams and a first selection phase of six participant teams. During this year the project will be awarded and the work to build the new plant could begin in 2004.

The minister Josep Piqué, in declarations to the press, showed he was convinced that the aeronautical sector "will be a pillar of the industrial and technological development in Seville and in all Andalusia" and he reiterated that the Ministry of Science and Technology would invest more than 1,000 million Euro during next ten years in the A400M program.

As headquarters of such a notable project of the European aeronautical industry, Seville will, in this way, become one of the select continental enclaves for the assembly of aircraft and the Military Transport Aircraft Divi-



sion will have one of the most modern final assembly centres in the world.

It is projected, subject to the evolution of final decisions, that the assembly of the first aircraft will begin at the end of 2006 with the first flight of the A400M to be carried out in the second half of 2009. As of now, the following orders have been confirmed: Germany 60, Belgium 7, Spain 27, France 50, Luxembourg 1, United Kingdom 25 and Turkey 10. Spain



# Wind tunnel tests of the BOOM



In the first quarter of 2003, two and three-dimensional tests have been carried out in the DNW-HST wind tunnel in Amsterdam of the new retractable probe system, "boom", designed by EADS CASA for in-flight refuelling.

The objective of these tests is to compare the different sections of the "boom" (rectangular and elliptical sections) and the design of the control fins; to prepare a preliminary aerodynamic database for load analysis and control laws; and to check the aerodynamic design to identify areas that need more refinement.

The wind tunnel tests have been carried out, taking into account the preliminary design, on different transverse sections of the tube, the fairing that covers the actuators of the control fin, and the "V" stabilizers with individually mobile fins.

Also tested, have been different angles of the "V" rudder and different sizes of fins, as well as different angles of the control fin, the extension and retraction of the internal tube, and diverse angles of attack at speeds of between Mach 0.3 to 0.85.

By the end of this year, the wind tunnel testing will be completed in detail. In 2004, other tests are also contemplated to study the integration of the "boom" on its platform. The

data obtained will be corrected by means of real in-flight test data.

The EADS CASA Aerodynamics department is currently analysing the results of the tests, checking the theoretical data on the "boom".

A scale model of the "boom" that was tested in the 3D wind tunnel is expected to be exhibited at the Le Bourget Air Show and a videotape will be presented that includes the entire preparation and testing in the tunnel.



2.5 m model installed in tunnel



## IDEX 2003

The sixth edition of the International Defence Exhibition & Conference (IDEX) was convened in Abu Dhabi, United Arab Emirates on March 20-16 and attended by representatives from 825 aeronautical and defence sector companies from 46 different countries. This was a 35% increase in relation to the participation in the previous edition that took place in 2001.

The Armament and Defence Material Manufacturers Association (AFARMADE) set up a Spanish pavilion at the exhibition, with representation from a dozen different Spanish companies, distributed over an approximately 200 square metre area. Within that pavilion, the Military Transport Aircraft (MTA) Division presented its products and activities on several panels.

Scale models of the EADS CASA C-295 military transport aircraft and an Airbus A310 MRTT version were presented at the EADS stand. The MTA Division is responsible for a programme of transforming A310 and A330 platforms into



tanker versions for in-flight refuelling. The United Arab Emirates is one of the countries that have selected the C-295 equipped with the EADS CASA FITS tactical system to perform maritime patrol missions.

## AEROINDIA 2003

Last February 4 - 9, in the city of Bangalore, the AEROINDIA 2003 Aeronautical show was held, where EADS and Airbus have maintained a presence by displaying their products and activities among all the aeronautic companies of the world.

The EADS Military Transport Aircraft Division (MTA) presented scale models of their CN-235 Persuader and C-295 aircraft at their stand at the show that received visits from the French Prime Minister, Jean-Pierre Raffarin, the Indian Minister of Defence, George Fernandes, the commander of the Indian Air Force, Krish Naswani, and other personalities.

MTA participates, with the Persuader, in the marketing campaigns for maritime patrol aircraft for the Indian Coast Guard and for the Indian Border Security Force Transport Company. Contacts have also been established with the industrial companies of India and with their Air Force, to have a presence in all programmes for transport aircraft replacement, incorporation of modern mission systems, maritime patrols, etc.

