= AMX @-@ 30E =

The AMX @-@ 30E ( E stands for España , Spanish for Spain ) is a Spanish main battle tank based on France 's AMX @-@ 30 . Although originally the Spanish government sought to procure the German Leopard 1 , the AMX @-@ 30 was ultimately awarded the contract due to its lower price and the ability to manufacture it in Spain . 280 units were manufactured by Santa Bárbara Sistemas for the Spanish Army , between 1974 and 1983 .

First acquired in 1970 , the tank was to supplement Spain 's fleet of M47 and M48 Patton United States tanks and to reduce Spain 's reliance on American equipment in its army . The first 19 AMX @-@ 30 tanks were acquired from France in 1970 , while another 280 were assembled in Spain . It was Spain 's first mass @-@ produced tank and developed the country 's industry to the point where the government felt it could produce a tank on its own , leading to the development of the Lince tank project in 1985 . It also offered Santa Bárbara Sistemas the experience which led to the production of the Leopard 2E in late 2003 . Although final assembly was carried out by Santa Bárbara Sistemas , the production of the AMX @-@ 30E also included other companies in the country . Total production within Spain amounted to as much as 65 % of the tank .

Spain 's AMX @-@ 30E fleet went through two separate modifications in the late 1980s , a modernization program and a reconstruction program . The former , named the AMX @-@ 30EM2 ( 150 tanks ) , sought to modernize and improve the vehicle 's automotive characteristics , while the latter , or the AMX @-@ 30EM1 ( 149 tanks ) , resulted in a more austere improvement of the tank 's power plant by maintaining the existing engine and replacing the transmission . Both programs extended the vehicle 's lifetime . Spain 's fleet of AMX @-@ 30EM1s was replaced in the late 1990s by the German Leopard 2A4 , and the AMX @-@ 30EM2s were replaced by Centauro wheeled anti @-@ tank vehicles in the early 21st century .

Although 19 AMX @-@ 30Es were deployed to the Spanish Sahara in 1970 , the tank never saw combat . In 1985 Indonesia expressed interest in the AMX @-@ 30E , while in 2004 the Spanish and Colombian governments discussed the possible sale of around 40 AMX @-@ 30EM2s . Both trade deals fell through .

= = Background = =

In 1960 , Spain 's tank fleet was composed mainly of American M47 Patton tanks , with some newer M48 Patton tanks . The M47s had been acquired by the Spanish army in the mid @-@ 1950s , replacing the previous fleet of 1930s @-@ vintage Panzer I , T @-@ 26 and Panzer IV tank designs . During the 1957 @-@ 58 Ifni War , the United States ' ban on the usage of American ordnance supplied earlier as military aid to Spain pushed Spain to look for alternative equipment which could be freely employed in the Spanish Sahara .

In the early 1960s , Spain looked towards its European neighbors for a new tank . The Spanish government first approached Krauss @-@ Maffei , the German manufacturer of the Leopard 1 , and the company applied for an export license from the German Economics Ministry . Spain 's status as a non @-@ NATO country meant that the decision to grant the export license had to be reviewed by the Bundessicherheitsrat ( Federal Security Council ) , or the BSR , which was responsible for the coordination of the national defense policy . Ultimately , the council ruled that Krauss @-@ Maffei could sign an export contract with Spain . The deal was , however , stalled by pressure from the United Kingdom 's Labour Party on the basis that the Leopard 's 105 @-@ millimeter ( 4 @.@ 13 in ) L7 tank gun was British technology . Meanwhile , Spain tested the French AMX @-@ 30 between 2 and 10 June 1964 .

The Leopard 1 and the AMX @-@ 30 originated from a joint tank development program known as the Europanzer . For a tank , the AMX @-@ 30 had a low silhouette ; the height of the tank was 2 @.@ 28 meters ( 7 @.@ 48 ft ) , compared to the Leopard 's 2 @.@ 6 meters ( 8 @.@ 53 ft ) . In terms of lethality , the AMX @-@ 30 's Obus G high @-@ explosive anti @-@ tank ( HEAT ) round was one of the most advanced projectiles at the time . Because HEAT warheads become less efficient during spin stabilization induced by the rifling of a tank @-@ gun barrel , the Obus G was

designed so that the shaped charge warhead was mounted on ball bearings within an outer casing , allowing the round to be spin stabilized through the rifling of the gun without affecting the warhead inside . The Obus G was designed to penetrate up to 400 millimeters ( 15 @.@ 75 in ) of steel armor . On the other hand , the Leopard was armed with the L7A3 tank gun , capable of penetrating the frontal armor of most contemporary tanks . Although the Leopard boasted greater armor than the AMX @-@ 30 ? partially accounting for the weight difference between the two tanks ? the latter was sold at a cheaper price .

In May 1970 , the Spanish government decided to sign a contract with the French company GIAT to begin production of the AMX @-@ 30 . However , it was not the advantages of the French vehicle itself that influenced the decision . Rather , it was the UK 's unwillingness to sell their L7 tank @-@ gun , the low cost of the AMX @-@ 30 , and the French offer to allow Spain to manufacture the tank , that led the Spanish Army to favor the French armored vehicle .

= = Production = =

On 22 June 1970 , the Spanish Ministry of Defense signed an agreement of military cooperation with France , which outlined plans for the future acquisition of around 200 tanks for the Spanish Army . Of these , 180 were to be manufactured under license in Spain and 20 were to be manufactured by France . Ultimately , GIAT was contracted to manufacture 19 tanks . These were delivered to the Spanish Legion 's Bakali company , deployed in the Spanish Sahara . The first six AMX @-@ 30s were delivered by rail to the Spanish border city of Irún , in the Basque Country , and then transferred to Bilbao . Finally , they were shipped by the Spanish Navy , on the transport Almirante Lobo , to El Aaiún in the Spanish Sahara . This unit existed until 1975 , when it was disbanded and its tanks transferred to the Uad @-@ Ras Mechanized Infantry Regiment .

This agreement laid the foundations for the upcoming tank plant at the industrial polygon of Las Canteras , near the town of Alcalá de Guadaíra . Several parts of the tank were subcontracted to other Spanish companies , including Astilleros Españoles ( turret ) , Boetticher , Duro Felguera and E. N. Bazán . The grade of local production varied per batch . The first 20 tanks were to have 18 % of each vehicle manufactured in Spain ; the next 40 would have 40 % of the vehicle manufactured in Spain . The other 120 had 65 % of the tank manufactured in the country . Production began in 1974 , at a rate of five tanks per month , and ended on 25 June 1979 . The first five tanks were delivered to the Uad Ras Mechanized Infantry Regiment on 30 October 1974 . This batch also replaced the M41 Walker Bulldog light tanks and M48 Patton tanks in the Armored Cavalry Regiment Villaviciosa and the Armored Infantry Regiment Alcázar de Toledo , receiving 23 and 44 tanks , respectively .

On 27 March 1979 , prior to the end of production of the first batch , the Spanish Army and Santa Bárbara Sistemas signed a contract for the production and delivery of a second batch of 100 AMX @-@ 30Es . In 1980 , after the 200th AMX @-@ 30E was delivered to the Spanish Army , the tank 's patent was awarded to Spain . This allowed minor modifications to be done to the vehicle without having to consult GIAT . It also meant that the degree of local construction of each vehicle augmented considerably . Production of the second batch lasted between 1979 and 1983 . By the time production ended , the Spanish Army fielded 299 AMX @-@ 30Es ( 280 produced between 1974 and 1983 , and 19 delivered from France in 1970 ) and 4 training vehicles delivered in 1975 . Santa Bárbara Sistemas also manufactured 18 Roland España ( denominated AMX @-@ 30RE ) anti @-@ air vehicles and 10 AMX @-@ 30D armored recovery vehicles . The average cost per tank , in the first batch , was 45 million pesetas ( US $ 642 @,@ 800 ) . Cost per tank increased during the second batch to 62 million pesetas ( 885 @,@ 700 dollars ) .

Although brand new , the AMX @-@ 30E entered service with automotive issues , including problems with the antiquated 5SD @-@ 200D transmission . Consequently , as the first production batch began to end , the Spanish Army and Santa Bárbara Sistemas began to study possible upgrades . The main objectives were to increase the power and the reliability of the power pack , an improvement to the tank 's firepower and accuracy , as well as to increase the vehicle 's ballistic protection and overall survivability . A number of modernization packages were proposed , including a suggestion to mount the AMX @-@ 30E 's turret on a Leopard 1 's chassis . Other options

included swapping the existing power pack for a new American diesel engine and transmission or exchanging the power pack for a new German diesel engine and transmission . More austere versions of these same options were offered , pairing the existing HS @-@ 110 engine with the already mentioned transmissions . Another prototype was produced using the Leopard 's more modern tracks , and another similar prototype mounted a new 12 @.@ 7 @-@ millimeter ( 0 @.@ 5 in ) machine gun for the loader 's position . France 's GIAT also offered to modernize Spain 's AMX @-@ 30Es to AMX @-@ 30B2 standards , a modernization being applied to French AMX @-@ 30s .

= = = Modernization = = =

Ultimately , a mixed solution named Tecnología Santa Bárbara @-@ Bazán ( Santa Bárbara @-@ Bazán Technology ) ( or TSB ) was chosen . The improvement of the tank 's mobility entailed replacing the HS @-@ 110 diesel engine with an MTU 833 Ka @-@ 501 diesel engine , producing 850 metric horsepower ( 625 kW ) , and the transmission with a German ZF LSG @-@ 3000 , compatible with engines of up to 1 @,@ 500 metric horsepower ( 1103 kW ) . The first 30 engines were to have 50 % of the engine manufactured in Spain ; the rest , 73 % were to be produced indigenously . This new engine gave the modernized tank a power ratio of 23 metric horsepower per tonne ( 21 @.@ 13 hp / S / T ) . The new engine was coupled with the AMX @-@ 30B2 's improved torsion @-@ bar suspension , which used larger diameter torsion @-@ bars and new shocks .

To improve the tank 's firepower , the gun mount around the loader 's turret hatch was modified to allow the installation of a 12 @.@ 7 @-@ millimeter ( 0 @.@ 5 in ) machine gun , while the main gun 's firepower was augmented through the introduction of the new CETME437A armor @-@ piercing , fin @-@ stabilized discarding sabot ( APFSDS ) . The gun 's accuracy was improved through the installation of the new Mark 9 modification A / D fire control system , designed by Hughes Aircraft Company . The new system allowed firing during the day and during night operations , and increased the likelihood of a first round impact . The fire control system was also modernized through the exchange of the old M282 gunner 's periscope with a new periscope and a new Nd : YAG laser rangefinder . A new ballistics computer , the NSC @-@ 800 , was issued , as well as a new digital panel for the gunner , designed and manufactured by the Spanish company INISEL . The tank commander also received a control unit that allowed the choice of ammunition for the gun and provided information on the ballistics of the round and the target to be engaged . As a result , the loader received a presentation unit to display information on which round to load into the gun 's breech and to communicate ballistic data received , including angular velocity , wind velocity , gun elevation and vehicle inclination . The fire control system also allowed for the future upgrade to a more sophisticated stabilization system for the tank 's main gun . Survivability improvements included the addition of new steel side @-@ skirts , a new smoke generating system linked to the engine and a new fire suppression system .

One hundred fifty AMX @-@ 30Es received this modernization package and were designated AMX @-@ 30EM2s . The program began in 1989 and ended in 1993 . Ultimately , Spain 's AMX @-@ 30EM2s were replaced by brand @-@ new Centauro anti @-@ tank vehicles , which were partially manufactured in Spain , in the early 21st century .

= = = Reconstruction = = =

The other 149 AMX @-@ 30Es were reconstructed to improve their mobility . The reconstruction consisted of the replacement of the original French transmission with the American Allison CD @-@ 850 @-@ 6A . Furthermore , several parts of the tank , such as the brakes , were renovated in order to bring them up to their original standards . The CD @-@ 850 @-@ 6A was an automatic transmission , with a triple differential providing two forward velocities and one reverse velocity . However , the new transmission resulted in a new problem . The excessive heat produced by the transmission reduced the vehicle 's range . The reconstruction of the 149 AMX @-@ 30Es began in 1988 , and these were designated AMX @-@ 30EM1s . In the early 1990s Spain received a large

number of M60 Patton tanks , replacing its fleet of M47s and M48s , as well as its AMX @-@ 30EM1s .

= = Export = =

In the mid @-@ 1980s Indonesia approached Spain in an attempt to procure armaments for the modernization of its armed forces . Of the possible armaments for sale , Indonesia expressed interest in the procurement of the AMX @-@ 30 . Although this deal fell through , in 2004 the Spanish and Colombian governments agreed on the sale of between 33 and 46 second @-@ hand AMX @-@ 30EM2s , which had recently been replaced in the Spanish Army . However , the deal was canceled after José María Aznar was replaced by José Luis Rodríguez Zapatero as prime minister of Spain ? the new Spanish government declared that Spain didn 't even have enough AMX @-@ 30EM2s in working condition to sell to Colombia .