RENAULT CHAR D1

The Char D1 was conceived as a light infantry support tank to modernise the armoured force of the French Army

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Right: *This NC-27, an export version of the eventual Renault Char D1, is the only remaining example of the tank series known to exist*

Although it bears some similarities to its predecessor, the FT-17, the Renault Char D1 represents the awakening of French tank design

"THE CHAR D1 ENTERED SERVICE WITH THE FRENCH ARMY IN 1932. BY THE TIME PRODUCTION CEASED IN 1935, A TOTAL OF 160 HAD BEEN MANUFACTURED"

In the wake of World War I, the French Army possessed the largest number of armoured vehicles in the world; however, peacetime budget constraints stifled the development and production of new armoured vehicles until the mid-1920s. Although the Renault FT-17 was the most advanced tank of World War I, it became apparent soon enough that a new light infantry support tank was a prerequisite to future French military preparedness during the interwar years.

When the French military issued specifications for a cost-effective and efficient infantry support tank in 1923, Renault responded initially with attempts to upgrade its renowned FT-17 design, which had introduced the 360-degree rotating turret and placement of the engine in the rear of the chassis. The results were less than satisfactory.

By 1928, the company had committed to a major retooling of its earlier NC project. In the spring of 1929, the army ordered ten prototypes of the Renault NC-3, later designated the Char D. The early Char D was upgraded with a 74-horsepower, 6.08-litre, four-cylinder Renault engine, a robust six-speed manual transmission, a 165-litre fuel tank and other improvements. Its main weapon was the 47mm SA34 L30 gun, with secondary Reibel 7.5mm machine guns mounted coaxially and in the bow. As the first Char D was undergoing trials, orders for two advanced prototypes were received. These were designated the D2 and D3, while the earliest model became the D1.

Renault concluded a contract with the French government in late 1930 for 70 vehicles, and production began the following year. In July 1932, a second contract was signed for 30 tanks, and in October 1933, a final run of 50 was authorised. The Char D1 entered service with the French Army in 1932. By the time production ceased in 1935, a total of 160 had been manufactured.

RENAULT CHAR D1

COMMISSIONED: 1930 **ORIGIN:** FRANCE
LENGTH: 4.81 METRES **WIDTH:** 2.16 METRES
HEIGHT: 2.4 METRES **RANGE:** 90 KILOMETRES
WEIGHT: 13.8 TONS **CREW:** 3
ENGINE: RENAULT 6.08-LITRE, 74-HP V-4 GASOLINE
ARMOUR: TURRET 30MM; HULL 30MM; TOP 10MM; UNDERSIDE 10MM
PRIMARY WEAPON: 47MM SA34 L30 GUN
SECONDARY WEAPON: 2 X REIBEL 7.5MM MACHINE GUNS

The high silhouette, large tracks, and limited visibility from the crew are evident in this photo

ENGINES

As the Char D1 infantry support tank evolved from the original Renault NC project, the engine was upgraded to a more powerful 6.08-litre, 74-horsepower, four-cylinder gasoline powerplant capable of a top speed of 18.6 kilometres per hour. An enhanced cooling system and relocated exhaust pipe improved performance. Despite the fact that the earlier 65-horsepower engine had proven inadequate, the production Char D1 remained underpowered throughout its service life. Although its road range was roughly 90 kilometres, cross-country performance was dictated by the type of terrain traversed and weather conditions. In the field, the tank was also prone to mechanical failure.

"THE ENGINE WAS UPGRADED TO A MORE POWERFUL 6.08-LITRE, 74-HORSEPOWER, FOUR-CYLINDER GASOLINE POWERPLANT CAPABLE OF A TOP SPEED OF 18.6 KILOMETRES PER HOUR"

Right: *The chassis carried the lightest armour protection installed on tanks of the interwar years, enabling greater mobility while sacrificing some protection*

Below: *Each Renault Char D1 carried heavy chains for towing and tools to helped extricate the tank from difficult terrain*

The 47mm SA34 L30 main weapon provided firepower that was at least comparable to contemporary tanks that were either in development or production during the interwar years

"THE 47MM GUN WAS CAPABLE OF PENETRATING UP TO 25MM OF ARMOUR WITH EFFECTIVE RANGE UP TO 400 METERS"

The Char D1 carried a pair of Reibel 7.5mm machine guns which were effective against enemy infantry, while the coaxial machine gun might also have been used to assist in targeting the main weapon.

ARMAMENT

The primary armament of the Char D1 was the 47mm SA34 L30 gun, capable of a rate of fire from 15 to 20 rounds per minute and mounted in the rotating turret. The 47mm gun was capable of penetrating up to 25mm of armour with effective range up to 400 meters. The weapon fired armour piercing and high explosive shells. Secondary armament consisted of two Reibel 7.5mm machine guns mounted coaxially in the turret and facing forward in the hull. These provided both offensive and defensive fire against enemy infantry, while the coaxial gun assisted in ranging and targeting the main weapon.

The driver's position in the hull of the Renault Char D1 was somewhat more spacious than earlier tanks due to the relocation of the engine to the rear of the chassis. The tank was operated by a system of tillers along with a manual transmission

"THE TANK COMMANDER WAS STATIONED IN THE TURRET AND SERVED AS THE 47MM GUNNER AND LOADER TOO, FIRING THE 7.5MM MACHINE GUN AS NECESSARY"

***Left:** The rotating turret did not accommodate a hatch; therefore, the commander's field of vision was limited to that afforded from a small cupola*

INTERIOR

The relocation of the engine to the rear of the chassis, introduced in the earlier FT-17, provided more space for the crew compartment. The tank commander was stationed in the turret and served as the 47mm gunner and loader too, firing the 7.5mm machine gun as necessary. The driver was positioned forward and to the left in the hull, controlling the tank with a pair of tillers and a clutch to operate the manual transmission. The driver also fired the hull-mounted 7.5mm machine gun in combat. The radio operator was seated to the right in the hull and operated the ER 52 radio.

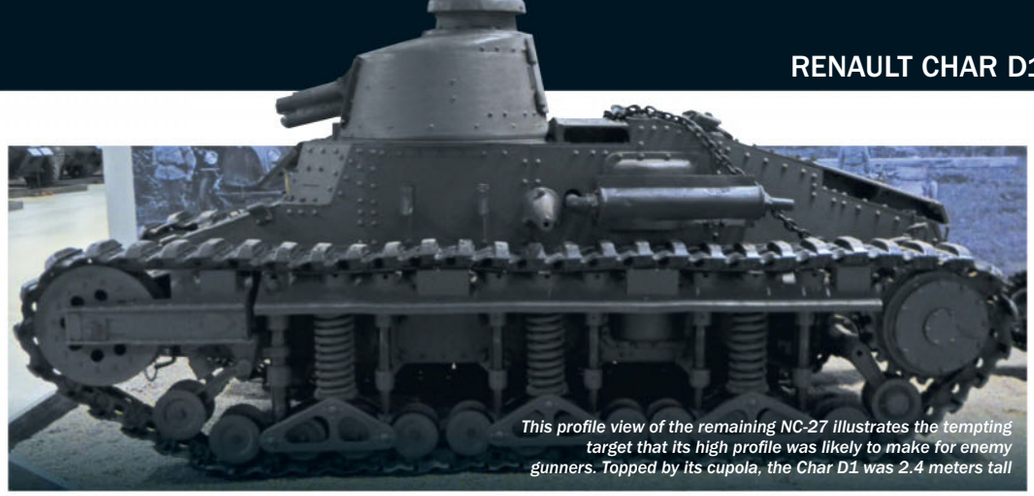
ARSENALEN & WORLD OF TANKS

SWEDEN'S TANK MUSEUM IS HOME TO A VAST COLLECTION OF ARMOURED VEHICLES

Located south-west of Stockholm near the sleepy town of Strängnäs, Arsenalen is host to a collection of over 350 tracked and wheeled military vehicles from all over the world and throughout the last century. The museum's NC-27 light tank – or Stridsvagen fm/28 – pictured here is the only one of its kind in the world, and just one of the many rare vehicles on display.

For those looking to get a more hands-on experience with these unique vehicles, the new Swedish Tech Tree from free online game World of Tanks offers players the chance to fight within 21 light, medium and heavy tanks, as well as destroyers.

For more information visit arsenalen.se/en and worldoftanks.com



This profile view of the remaining NC-27 illustrates the tempting target that its high profile was likely to make for enemy gunners. Topped by its cupola, the Char D1 was 2.4 meters tall

DESIGN

The Renault Char D1 design is similar to that of the FT-17, with a sloping engine deck, high profile characteristic of early French tanks and rotating turret that became standard on armoured fighting vehicles. The ST2 turret was installed in a compromise measure – the commander's field of vision was limited due to the absence of a hatch. Instead, he operated within a three-tiered turret and hull configuration capped by a cupola or observation dome. Armour plating up to 30mm thick offered reasonable protection but rapidly became inadequate. 12 road wheels with three bogies and a block spring suspension drove the caterpillar tracks.

SERVICE HISTORY

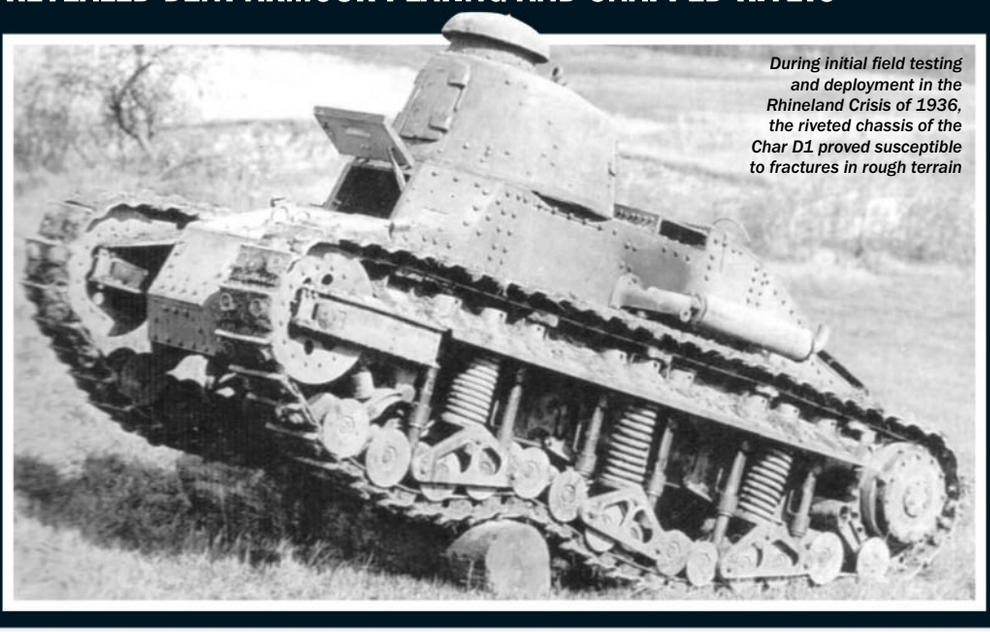
OUTCLASSED VIRTUALLY FROM THE TIME OF ITS DEPLOYMENT, THE CHAR D1 TANK SAW SERVICE IN WWII DURING THE BATTLE OF FRANCE AND THE CAMPAIGN IN NORTH AFRICA

Originally intended for deployment with the independent tank battalions of the French Army, the Char D1 was functionally obsolescent almost immediately. In the field, the tank was plagued with mechanical problems, and by the spring of 1934 a total of 110 had been delivered. However, 17 were completely inoperable while another 62 were undergoing repairs due to faulty brakes, overheating transmissions and plexiglass that cracked when the vehicle traversed rough terrain. The chassis was too pliant, as cross-country exercises revealed bent armour plating and snapped rivets. An extensive maintenance program failed to eliminate issues and the tank's shortcomings were obvious during deployment amid the Rhineland crisis of 1936.

Subsequently, the Char D1 was relegated to service with French colonial forces in North Africa. When the Germans invaded France and the Low Countries on 10 May 1940, all 135 operational Char D1 tanks were assigned to three independent tank battalions in Tunisia. Quickly recalled to meet the Nazi invasion, these forces reached France in early June. The 67th Independent Tank Battalion supported the 6th Senegalese Mechanised Infantry Division in combat with the German 8th Panzer Division on 12 June, destroying several enemy tanks while losing seven of its own. The battalion lost all its armoured vehicles during the withdrawal that followed. When the fighting in France ended, 25 of the 43 Char D1 tanks engaged had been destroyed, while the Germans captured 18 others.

After the fall of France, the Vichy government retained the Char D1 in North Africa, and following Operation Torch these vehicles joined the Allied forces, participating in the Battle of Kasserine Pass and other engagements. The last Char D1 tanks were withdrawn from combat in the spring of 1943. One example of the NC27, export designation of the NC1 variant, survives in the Swedish Tank Museum in Strängnäs, and is the vehicle featured here.

"THE CHASSIS WAS TOO PLIANT, AS CROSS-COUNTRY EXERCISES REVEALED BENT ARMOUR PLATING AND SNAPPED RIVETS"



During initial field testing and deployment in the Rhineland Crisis of 1936, the riveted chassis of the Char D1 proved susceptible to fractures in rough terrain

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