



AUSTRIA (AUSTRO-HUNGARY)



Background: Once the center of power for the large Austro-Hungarian Empire, Austria was reduced to a small republic after its defeat in World War I. Following annexation by Nazi Germany in 1938 and subsequent occupation by the victorious Allies in 1945, Austria's status remained unclear for a decade. A State Treaty signed in 1955 ended the occupation, recognized Austria's independence, and forbade unification with Germany. A constitutional law that same year declared the country's "perpetual neutrality" as a condition for Soviet military withdrawal. Following the Soviet Union's collapse in 1991 and Austria's entry into the European Union in 1995, some Austrians have called into question this neutrality. A prosperous, democratic country, Austria entered the Economic and Monetary Union in 1999.

Geography Austria: Location: Central Europe, north of Italy and Slovenia . Geographic coordinates:

47 20 N, 13 20 E. Area: total: 83,870 sq km. Area - comparative: slightly smaller than Maine. Land boundaries: total: 2,562 km. Border countries: Czech Republic 362 km, Germany 784 km, Hungary 366 km, Italy 430 km, Liechtenstein 35 km, Slovakia 91 km, Slovenia 330 km, Switzerland 164 km. Coastline: 0 km (landlocked). Climate: temperate; continental, cloudy; cold winters with frequent rain and some snow in lowlands and snow in mountains; moderate summers with occasional showers. Terrain: in the west and south mostly mountains (Alps); along the eastern and northern margins mostly flat or gently sloping. Natural resources: oil, coal, lignite, timber, iron ore, copper, zinc, antimony, magnesite, tungsten, graphite, salt, hydropower. Natural hazards: landslides; avalanches; earthquakes. Environment - current issues: some forest degradation caused by air and soil pollution; soil pollution results from the use of agricultural chemicals; air pollution results from emissions by coal- and oil-fired power stations and plants and from trucks transiting. Geography - note: landlocked; strategic location at the crossroads of central Europe with many easily traversable Alpine passes and valleys; major river is the Danube; population is concentrated on eastern lowlands because of steep slopes, poor soils, and low temperatures elsewhere.

Military Notes: One of the first European nations to experiment with armored cars, the first Austro-Hungarian vehicle was an Austro-Daimler designed by an officer in the Austro-Hungarian Army. Besides the main fighting compartment (which did not have over-head cover), the vehicle was fitted with a rotating turret (later left open backed) and water-cooled machine guns. Military vehicle development is basically divided into five parts, (Austro-Hungary) 1900-1918/19; (Austria) 1919-1938; (annexation by Germany) 1938-1945; (occupation by Allies) 1946-1955; (modern Austria) 1956 to present.



Section I Austro-Hungary 1900-1919

1904 Car, Armd, 4x2. Austro-Daimler.

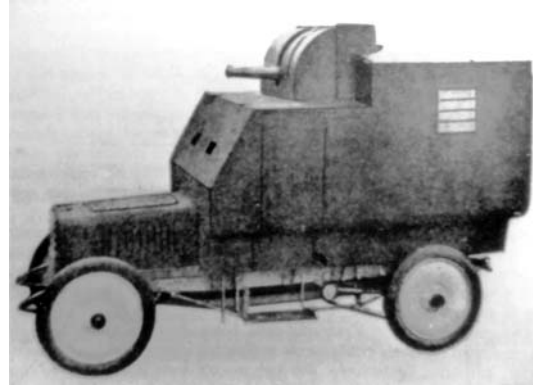


Above: Austro-Daimler as modified with the rear of the turret cut-away for better ventilation and vision. (Photo: Author's collection).

Remarks: Pretty much accepted as the first armored car with a turret (as opposed to anti-aircraft vehicles), the Austro-Daimler armored car was designed and built by Paul Daimler, the son of the Daimler founder Gottlieb Daimler. The original car had a circular turret with protection on all sides and top, and mounting a single machine gun. This was later modified to an open-backed turret with provisions for two machine guns to be mounted at the same time.

Vehicle Data: Weight empty, 6,600 lbs (2996 kg). Length, 181 in (4600 mm). Width, 69 in (1760 mm). Height, 112 in (2840 mm). Drive, 4x4. Armor, .16 in (4 mm). *Armament:* (1) or (2) machine guns. Elevation & traverse, manual. Fire Control, optical. Aux wpns, crew sidearms. *Capacity:* Fuel, gasoline. Crew, 4. *Engine:* (1) Daimler, 4-cylinder, water-cooled, in-line gasoline engine producing 35 hp. Location, front. *Transmission:* Manual. Mfr, Daimler. *Suspension System:* Leaf spring. Wheels Steerable, front pair. No of wheels, 4 (hard rubber). *Performance:* Speed, 28 mph (45 km/h). Range, 155 mi (250 km). *Usage:* Only one test vehicle was completed in 1904 and tested for some time, but no series production was undertaken. *Manufacturer:* Osterreichische Daimler Motoren Gesellschaft, Wiener-Neustadt, Austria.

1906 Carr, Anti-Aircraft, Ehrhardt M.1906.



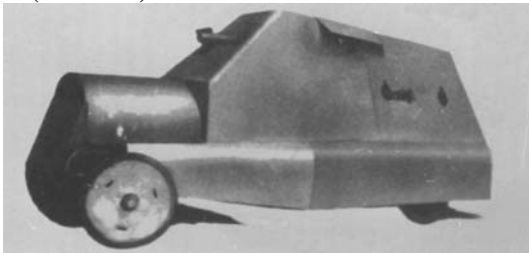
Above: The Panzerkraftwagen Ehrhardt 1906 with Rheinmetall 5cm BaK. (Photo: Author's collection)

Remarks: The Ehrhardt 1906 consisted of a commercial 4x2 light truck chassis mounted with a rotating turret armed with a 50mm cannon. The vehicle was powered by an Ehrhardt 4-cylinder gasoline engine rated at 50/60 hp providing a top road speed of 28-mph (45 km/h) on a good surface. Using chain drive and with only the rear wheels driven, cross-country movement was marginal at best. Still the Ehrhardt was able to prove the possibilities of a self-propelled anti-aircraft, anti-balloon vehicle. While the cannon itself proved acceptable (25,590 feet or 7,800 meters) could be reached with explosive shell, the traverse of the weapon was severely limited within the armored turret. As a matter of fact the next few vehicles developed were to be unarmored vehicles with the cannon fitted to a platform at the rear.

Vehicle Data: Weight loaded, 7,056 lbs (3200 kg). Drive, 4x2 chain drive. Armor, .12 in (3 mm) nickel steel. NBC Protection, individual. *Armament:* (1) 50 mm BaK, Rheinmetall M1906. Elevation, manual +70° to -5°. Traverse, manual 30° Left or Right. Fire Control, optical. Aux wpns, crew sidearms. *Capacity:* Ammo/Qty, 50 mm (100 rds). Crew, 4-5. *Engine:* (1) Ehrhardt 4-cyl liquid-cooled, gasoline engine producing 50 hp (37 kW). Location, front. *Transmission:* Manual with chain drive to rear wheels. *Suspension System:* Leaf spring. Wheels Steerable, front pair. No of wheels, 4 (solid rubber). *Performance:* Speed, 28 mph (45 km/h). Max Grade, 22% (24°). *Usage:* Ehrhardt completed the one test vehicle. *Manufacturer:* Ehrhardt and Rheinmetall, Germany.

1907 Car, Armd, 4x2. Skoda-Daimler M.1907

1915 Car, Armd, 4x2. Panzerauto PA-1 Type A (Junovicz).



Above: The original PA-1 Type A design with rounded armor. (Photo: Author's collection)

Remarks: The official name of the vehicle was Panzer Auto 1 Type A (PA-1), but they were commonly known as the Junovicz, after the Austro-Hungarian army captain that designed it. The base of the three PA-1 Type A vehicles completed in 1915 was the chassis of the Fiat (TV-2) 2-ton truck. In 1917 a further two vehicles were completed, using a simplified body and for one, the chassis of the Bussing 36 PS and different chassis. Armor for the vehicles was of hardened steel plate and ran from 5 to 7mm. With the 7mm surface to the front and 5mm surfaces to the sides. Armament was two Schwarzlose M-7/12, 7.92mm machine guns, one at the front and the other moveable in the crew compartment. The crew consisted of five men. The PA-1s were used in the Balkans and Russia, and were part of a unit sent to the Italian front in 1918. This unit was K.u.K. Panzerautozug No.1, that had a Romfell, two Junovicz (PA-1), one ex-Italian Lancia IZ and one ex-Russian Austin. The unit saw limited action, as the terrain wasn't suitable for basically road bound cars.

Vehicle Data: Weight loaded, 6,600 lbs (2996 kg). Length, 224 in (5690 mm). Width, 75 in (1900 mm). Height, 138 in (3510 mm). Ground Clearance, 6 in (150 mm). Wheel Base, 158 in (4000 mm). Drive, 4x2. Armor, .2 to .3 in (5 to 7 mm). NBC Protection, individual. *Armament:* (2) 7.92mm MMG, Schwarzlose M-7/12. Elevation & traverse, manual. *Capacity:* Fuel, 31.5 gals (120 liters) gasoline. Ammo/Qty, 6,000 rds (7.92mm). Crew, 5. *Engine:* (1) Fiat 4-cyl engine producing 40 hp (29.6 kW). Location, front. Cooling, liquid. *Transmission:* Manual. *Suspension System:* Leaf spring. Wheels Steerable, front pair. No of wheels, 4. *Performance:* Speed/Land, 22 mph (35 km/h). Range, 211 mi (340 km). *Usage:* Three Type As were built and used by Austro-Hungarian forces through 1918. *Manufacturer:* Austro-Hungarian Army shops.

1915 Car, Armd, 4x2. Romfell Model 1915.



Above: The original Romfell Model 1915 with a Mercedes chassis and engine; power was supplied to the rear wheels via chain drive. (Photo: Author's collection)

Remarks: One of the more armored car designs of WWI, the Romfell was designed by Captain Romanic and Lieutenant Fellner and constructed at the Army depot in Budapest, and completed in August of 1915. Despite its better than average armor placement and fully rotating turret which allowed anti-aircraft as well as ground fire, the Romfell was slow, had restricted visibility and was pretty much restricted to movement on improved roads.

Vehicle Data: Weight loaded, 15,400 lbs (6992 kg). Length, 223 in (5670 mm). Width, 71 in (1800 mm). Height, 98 in (2480 mm). Wheel Base, 150 in (3800 mm). Armor, .23 in (6 mm). NBC Protection, individual. *Armament:* (1) 7.92 mm Schwarzlose Mod. 07/12 MMG. Elevation & traverse, manual. Fire Control, optical. Aux w/pns, crew sidearms. *Capacity:* Fuel, gasoline. Ammo/Qty, 7.92 mm (3,000 rds). Crew, 4. *Engine:* Mercedes water-cooled gasoline engine producing 95 hp (70 kW). Location, front. *Transmission:* Manual. *Suspension System:* Leaf spring. Wheels Steerable, front pair. No of wheels, 4. *General Data:* Radio (wireless), Siemens & Halske. *Performance:* Speed/Land, 16 mph (26 km/h). Range, 93 mi (150 km). *Usage:* One Romfell Mod. 1915 was completed and used in Russia and the Balkans by the Austro-Hungarian Army. Four more modified vehicles were built in 1917. *Manufacturer:* Austro-Hungarian Army Depot, Budapest, Hungary.

1917 Car, Armd, 4x2. Romfell Model 1917.

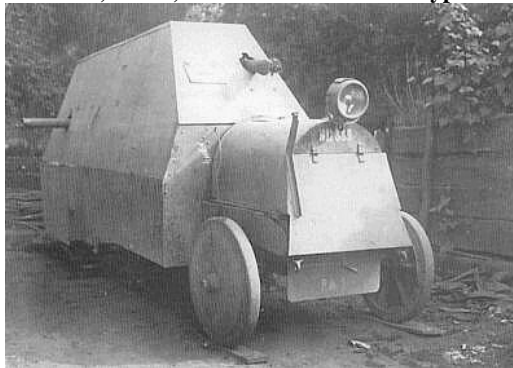


Above: The Romfell Model 1917, the most obvious difference from the 1915 version, is the front axle and changes in radiator armor. (Photo: Author's collection)

Remarks: At least one and probably as many as three Model 1917 Romfell's were completed near the end of WWI. One of the three used a chassis with a 6-cylinder, 90 hp (67 kW) engine and the other two Austro-Fiat truck chassis. The original Romfell was designed by Captain Romanic and Lieutenant Fellner and constructed at the Army depot in Budapest, in August of 1915. The 1917 models had a slightly better speed and range even using an engine with fewer horsepower. This improvement was no doubt mostly due to the drastic reduction in weight of almost four tons.

Vehicle Data: Weight loaded, 7,700 lbs (3496 kg). Length, 223 in (5670 mm). Width, 71 in (1800 mm). Height, 98 in (2480 mm). Ground Clearance, 6 in (150 mm). Wheel Base, 140 in (3550 mm). Armor, .24 in (6 mm). NBC Protection, individual. *Armament:* (1) 7.92 mm Schwarzlose M07/12 MMG. Elevation & traverse, manual. Fire Control, optical. *Capacity:* Fuel, gasoline. Ammo/Qty, 7.92 mm (3,000 rds). Crew, 4. *Engine:* (1) 6-cylinder water-cooled gasoline engine producing 90 hp (67 kW). Location, front. *Transmission:* Manual with 4-fwd and 1-rev gear. *Suspension System:* Leaf spring. Wheels Steerable, front pair. No of wheels, 4 (duals at rear). *Performance:* Speed/Land, 22 mph (35 km/h). Range, 211 mi (340 km). *Usage:* At least three Romfell Mod. 1917 were completed and used as a mobile reserve and on the Italian front by the Austro-Hungarian Army. *Manufacturer:* Austro-Hungarian Army Depots.

1917 Car, Armd, 4x2. Panzerauto PA-1 Type B.



Above: PA-1B as completed in 1917. Photo: Author's collection.

Remarks: The official name of the PA-1B was Panzer Auto 1 Type B, but along with the first three in the series built in 1915, the cars were commonly known as the Junovicz, after the Austro-Hungarian army captain who completed the original design. The base of the two PA-1 Type BA vehicles completed in 1917 were a Bussing 36 horsepower truck chassis and a truck chassis using a Saurer 34 horsepower engine. While simplified with strait angles instead of curved surfaces like the first three cars, the last two vehicles also had hardened steel plate, which ran from .2 to .3 inch (5 to 7mm). With the 7mm surface to the front and 5mm surfaces to the sides. Armament was still two Schwarzlose 7.92-mm machine guns, one at the front and the other moveable within the crew compartment. The crew consisted of five men. The PA-1Bs were used as a reserve in Austria and as part of a unit sent to the Italian front in 1918.

Vehicle Data: Weight loaded (est), 6,000 lbs (2724 kg). Length (est), 224 in (5690 mm). Width (est), 75 in (1900 mm). Height (est), 124 in (3150 mm). Ground Clearance, 6 in (150 mm). Drive, 4x2. Armor, .2 to .3 in (5 to 7 mm). NBC Protection, individual. *Armament:* (2) 7.92mm MMG Schwarzlose M-7/12 Elevation & traverse, manual. Fire Control, optical. *Capacity:* Crew, 5. *Engine:* depending on chassis, either a Bussig 36 hp (27 kW) or Sauer 34 hp (25 kW), four cylinder gasoline engine. Location, front. Cooling, liquid. *Transmission:* Manual. *Suspension System:* Leaf spring. Wheels Steerable, front pair. No of wheels, 4 (hard rubber with spoked wheels and metal plates) *Performance:* Speed/Land (est), 20 mph (32 km/h). Range (est), 200 mi (322 km). *Usage:* Two PA-1 Type B were built and used by Austro-Hungarian forces through 1918. *Manufacturer:* Austro-

Hungarian Army shops.
1917 Car, Armd, 4x2. Lancia 1Z.



Above: Italian Lancia captured by Austrian forces.
(Photo: Author's collection)

Remarks: The Austro-Hungarians pressed any suitable captured vehicle into service, including Italian Lancia 1Zs (see Italy for vehicle details).

1917 Carr, Anti-Aircraft, Ballonabwehr-
geschutzwagen, Erbeuteter

1917 Carr, Anti-Aircraft, Sokel Kraftwagen
Flak, 7.7cm

1918 Car, Armd, 4x2. Berna-Perl.
Remarks: Lancia IZ hull and turret on a new
Austrian chassis.

1918 Car, Armd, 4x2. Praga PS3



Section II Austria 1920-1938

1926 Car, Armd, 4x2. Schul-Strassen Panzern
M.26

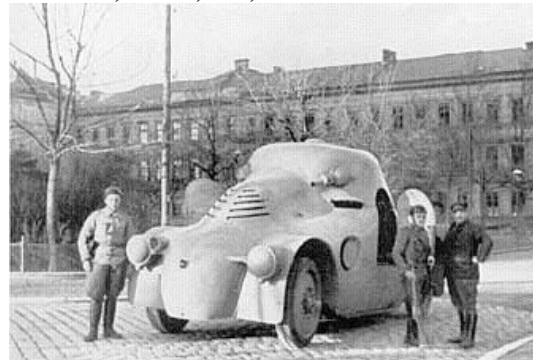
**1928 Car, Armd, 4x2. Ansaldo-Lancia 1ZM
Model 1928.**



Above: Lancia 1ZM during parade in Vienna.
(Photo Author's collection)

Remarks: A few new Lancias were obtained
from Italy circa 1928 (see Italy for vehicle de-
tails).

1932 Car, Armd, 4x4, Skoda OA vz 25 PA-2.



(Photo: Author's collection)

Remarks: A 1924 design, several cars were
transferred from Czechoslovakian stocks in 1932
(see Czechoslovakia for vehicle details).

1935 Car, Armd, 6x6. ADGP

1935 Car, Armd, 8x8. ADGZ .
Welded armor plate, three heavy machine guns
and two light. 20'6"x6'10"x8'2".

1937 Car, Armd, 4x4, ADSK

1937 Car, Armd, 6x6. ADKZ.
15'7"x7'10"x7'11".

Section III Austria 1938-1945 Annexed by Germany

1987 Veh, Recce, Pandur, ARSV 25 6x6
1988 Veh, Recce, Pandur ARSV 30 6x6
1990 Carr, Wpns, Pandur FSV 6x6
2000 Carr, Pers, Armd, 8x8. Pandur APC.
2000 Veh, Util, Pandur AARV 6x6.

Section IV Austria from 1946 to 1955 occupied by Allied Powers.

1950 Car, Armd, 6x6. M8 Armored Car.



Above: M8 Greyhound Armored Car transferred to the Bundesheer. (Photo: Author's collection).

Remarks: The Light Armored Car M8 was among the Post-WWII equipment supplied to the re-constituted Austrian Army (see US for vehicle details).



Section V Austria from 1956

1960 Car, Armd, 4x4, HWK

1982 Car, Armd, 6x6. OAF

1985 Carr, Pers, Armd, 6x6. Pandur APC.

Remarks: Sixty-Eight vehicles were available for service circa 2000.

2004 Carr, Pers, Armd, 6x6. Pandur II.
260 Pandur II ordered by Portugal.

2005 Carr, Pers, Armd, 4x4. Dingo 2 (APV).



Above: Austrian Dingo 2 being delivered to Afghanistan. (Photo: Bundesheer).

Remarks: In order to better support their forces in Afghanistan, Austria ordered 20 Dingo 2s for deployment. The biggest change in the Dingo-2 from the Dingo-1, was a drastic increase in weight. This was brought about by a significant increase in protection from deployed mines and IEDs, which have much larger explosive yields. However, with the new UNIMOG U5000 chassis, performance was maintained, and driving characteristics and transmission performance improved. The Dingo-2 is still air-mobile by the C-130 (2), Transall C-160 (1) and as an exterior load from the CH-47 or CH-53 helicopter series. As part of the standard fittings the Dingo comes equipped with GPS navigation, rear-view camera, Anti-lock braking system, and a radio and internal communication system. *Usage:* As of 2005 the German Army had ordered 55 Dingo-2, Austria 20, and Belgium 220 with an option for 132 more. *Manufacturer:* Krauss-Mafei Wegmann GmbH, Germany and Textron Marine & Land Systems, USA, (see Germany for vehicle details).