

SINK OR SCHWIMM

Piotr Mariusz Radomski compares the 'Grosser' amphibian Type 128 with its rivals and explains how it paved the way for the development of the smaller, more successful Type 166

Water obstacles have always served to hamper advancing troops and it wasn't long before the Wehrmacht recognised that finding a fast and efficient way for reconnaissance units to cross rivers or lakes would prove crucial to the success of their campaigns. That's why, alongside its armoury of mobile bridges, boats, rubber dinghies and other bridging equipment, it saw the need for a specialist amphibious vehicle which could be quickly and relatively easily developed without the time-consuming and complex process of adapting an existing vehicle for swimming.

Examples of such vehicles already existed, of course, in the form of the 1914 Hydromotor and 1917 Hydrocar, both of which originated in the US, as well as the Austrian Hydro-Automobil of 1915, the German Autoschiff made by the Hoppe & Krooss company in 1929 and also Land-Wasser-Auto of Jakob Baulig in 1934 – to name just a few.

HERR TRIPPEL VERSUS HERR PORSCHE

Probably the best known creator of motor vehicles with an ability to swim during the interwar period was self-taught German designer Hans Trippel. His first car the Schwimm-Auto broke cover in 1934, with various prototypes undergoing constant evolution subsequently, with one such example managing a creditable 20km/h during testing in 1936.

The German Chancellor showed an interest and in 1937 Adolf Hitler decided to allocate funds for construction of a plant (Trippel-Werke) in which production could begin. The first amphibious vehicles were made in the same year, allocated the model name SG6, and delivered to the newly formed Wehrmacht. However, in use the vehicles proved hugely disappointing. Not only were Trippel's creations expensive to produce, too heavy for both land and water and very thirsty on fuel, but they were unreliable too and suffered numerous breakdowns. Indeed, most of the 800 vehicles produced by Trippel between 1937-1943 spent the majority of their time in repair shops.

Even though the Adler and Opel engines used in the SG6 (producing 48hp and 55hp respectively) were more than sufficient, and its swimming abilities and 500kg hoisting capability satisfactory, the vehicle quickly lost favour with Hitler who had already formed a friendship with another engineer who had impressed him with his brilliant ideas and design prowess. His name was Ferdinand Porsche.



Right: From this angle there's little to distinguish the beige 'Kleiner' Type 166 and black 'Grosser' Type 128 Schwimmwagens.



Above: Rival Trippel SG6 proved unreliable and thirsty in trials. (US National Archive NARA)
Right: A broken steering wheel called a temporary halt to the testing of prototype 128/5 in 1941.





Similarities between the Type 128 (left) and Type 166 are obvious, but can you spot the differences?

Born in 1875 in Maffersdorf (now part of the Czech Republic), Porsche was associated with Mercedes-Benz, Zundapp and NSU during the early part of his career and was hugely innovative, always looking for clever engineering solutions to every conceivable automotive conundrum, even pioneering the use of electric and hybrid technology. By 1900, while working for the Vienna-based

Lohner company, he had already designed the first 4x4 vehicle. But, as we all know, from the early thirties

Volkswagen. Despite the fact that up until the start of WW2 his Stuttgart factory had only produced around 60 civilian Beetles, it was to form the basis for the first amphibian vehicle produced by Ferdinand Porsche

“They each spent 18 hours swimming on rivers and lakes in central Germany.”

he focussed his many talents on creating an affordable passenger car for the masses – namely the KdF-Wagen, later known as the

– the Grosser Schwimmwagen Type 128 – a direct descendent of the militarized version of the KdF car.



Above: A hinging steering wheel on 30 pre-series cars made it easier to get in and out. Right: There was significantly more space for the crew inside a Type 128 and the addition of a rear seat bench meant it could seat five in relative comfort.





TECHNICAL SPECIFICATION

DIMENSIONS: Type 128 – length 4.2m, width 1.6m, height 1.66m, wheelbase 2.4m. Type 87 – length 4.06m, height 1.7m, width 1.6m, wheelbase 2.4m.

BODY CONSTRUCTION: Body produced by Drauz Karosseriewerke KG, placed on the Type 87 platform.

WEIGHT: Type 128 948kg, Type 166 910kg. Capacity 500kg.

MAXIMUM SPEED: 50mph (80km/h) on land and 6.25mph (10km/h) on water.

ENGINE: Air-cooled four-cylinder boxer engine, capacity of 1131cc. Power 25hp at 3000rpm. Petrol tank capacity 47-litres giving a range of 325 miles (520km) or around an hour in the water.

TRANSMISSION: Four ahead gears, one reverse and cross-country. The rear wheels were driven constantly with the possibility of attaching – via a differential gear – the front wheels also. Overcoming water obstacles, the amphibian was able to swim ahead only. The vehicle didn't have a rudder, steering was via movement of the front wheels.

TYRES: Nearly all 'Big Amphibians' were fitted with 5.25 x 16 tyres. A few photographs exist of them fitted with 690x200 (200x12) balloon tyres.

ITEM DIFFERENTIATING THE TYPE 128 FROM THE TYPE 166: Pole for the measurement of water depth, bilge pump, lights on the port and the starboard, semaphore trafficators, side and back windows in the tarpaulin, seating for five, side handles, hubcaps, dashboard panel, speedometer from the Type 87 KdF, exhaust system under the rear mudguards as opposed to the top of the body, pivoting steering wheel, back canopy for three passengers, boot behind the back canopy, two oars instead of one, twin windscreen wipers instead of one, two handles on the engine flap instead of one, one 47-litre fuel tank instead of two 25-litre tanks.

ORIGINS OF VOLKSWAGEN'S 'BIG AMPHIBIAN'

Realising the Wehrmacht's need to find a light vehicle with drive to all wheels, Porsche constructed a rigid driving axle, a new transmission and low ratio gearboxes at the beginning of 1940 with the intention

of installing these parts in first Kraft durch Freunde 4x4 vehicle, which was to become known as the Type 87. Testing of this vehicle got underway in June 1940.

The idea of building the floating car based on the same construction came about at around the same time. A Heereswaffenamt

(HWA) letter dated 18 June 1940 makes reference to an instruction for Ferdinand Porsche to design a light vehicle which is able to cross natural water obstacles with a speed of at least 10km/h, steered in the water with wheels to enable it to exit water without stopping. An official order by the



The green light on the starboard and a semaphore were standard items on the Type 128.



The fact that the exhaust system was located beneath the rear wheelarch proved to be one the Type 128's weak points. Note the twin oars.



Above: Bonnet mounted spare features a KdF hubcap. Left: Type 128 prototypes were painted black or dark grey.

HWA to build a prototype of such a car was submitted on 1 July the same year. Four days later another two prototypes were ordered, with Porsche receiving a sum of 200,000 RM to pay for the work.

The first prototype was constructed in collaboration with the Drauz company in Heilbronn and swimming tests on the lake Max-Eyth near Stuttgart were conducted on 21 September 1940.

After the completion of factory testing on 1 November 1940, the three prototype Type 128 were delivered to the German Army in Heereswaffenamt WA Pruf 6, where they were put through more intensive field testing. A little known fact is that while being put through its paces it was being compared directly with the Hans Trippel SG6.

In total the vehicles travelled 1400km along motorways, 1270km along other paved

roads, 180km along dirt tracks, 200km off road and 300km roughing it in the mountains. Additionally, they each spent 18 hours swimming on rivers and lakes in central Germany.

Despite the fact that Trippel had seven years to iron out any shortcomings, his creation fell way short of its rival. Indeed, during the tests the SG6 still suffered frequent breakdowns, it was unable to

Below: A pole to measure water depth was standard kit on the bigger Type 128.





The 'Grosser' Schwimmwagen proved too long and heavy to make it any good over rough terrain.

maintain the fixed maximum speed on land or water and it consumed 15% more fuel than its competitor.

Needless to say, once the results were in, the HWA submitted an order for the first series of 100 Type 128s.

In defeat, Trippel subsequently accepted an order to produce torpedoes for Kriegsmarine and immediately post-war moved his manufacturing operation to Bugatti's old factory in occupied Molsheim. However, due to his previous connections with the Sturmabteilung (Storm Detachment, or SA) after the liberation he was imprisoned for three years. Despite

being involved in civilian amphibious projects during the sixties and the development of the iconic gullwing doors for Mercedes, he didn't manage to break of his run of bad luck.

expensive to manufacture, cars produced by Volkswagen with 4x4 drive and closed bodywork were called Geländevolkswagen or Kommandeurswagen and given the classification Type 92 Allrad, Type 92 SS,

Type 82e Allrad and Type 287/87. Open bodied Kubelwagen, in which the similar four-wheel drive system was applied, were given the

"The first prototype was constructed in collaboration with the Drauz company in Heilbronn."

WW2 4X4 VOLKSWAGENS

Having started production of the Type 128 and its smaller Type 166 sibling, Porsche took elements of 4x4 drivetrain to create other off road vehicles for the military. Highly advanced technically and

nomenclature Type 86.

Little documentary evidence exists regarding total production numbers of 4x4 prototype KdF vehicles with open and closed bodywork and estimates fluctuate between a dozen or so to several hundred



1132cc 25bhp engine was taken from VW's KdF. Note the drive for the propeller taken off the bottom pulley and the high position of the air intake so it didn't suck in water.



Photographs of the Type 128 in military service are very scarce. This one appears to have a balloon tyre on its bonnet.



Left: This Type 128 prototype number 19 was produced on 27 May 1941. Below: The dashboard on this 128/19 prototype still has some of its original markings.



Above: Schwimmwagen employed a three-blade propeller which could be lowered down when it entered the water. Right: Type 128 cabin was relatively well equipped.

units, although we tend to lean towards the former figure. A figure of no more than 150 Type 128 'big amphibians' seems realistic.

VERDICT

Documentary evidence from the time suggests that the 'grosser Schwimmwagen' wasn't particularly successful. It was just too heavy and too long, making it unable

to tackle rough terrain, and ultimately too expensive to build. What it did do, however, was pave the way for the more mass-produced Type 166. Stripped of unnecessary equipment, lighter and smaller – it would go

on to become a useful tool in the German Army's WW2 armoury. **REVIEWED**
 Photographs: Mikołaj Urbański from the archive of Jacek Krajewski, US National Archive, archive of the author

