

UNSTOPPABLE

DERNBURG-WAGEN

The first all-wheel-drive car in the world - the Dernburg-Wagen - was built a hundred years ago by Daimler Motoren Gesellschaft in 1907 and featured all wheel steering too for use in Africa.

All wheel drive vehicles a century apart: the latest ML-class Mercedes-Benz SUV stands out in sophisticated contrast to the upright large and somewhat spartan yet utilitarian appeal of the very first all-wheel-drive vehicle for everyday use - the Dernburg-Wagen.



Edition 12 of a special series by
APOLLO TYRES LTD.



APOLLO TYRES LTD.

UNSTOPPABLE

Never wary of progress, never skeptical about success,
Never scared of challenges, never tired of trying,
Every step of the way we travel with our customers
On the "unstoppable" journey to success.



NECESSITY IS THE MOTHER OF ALL invention and many automobile concepts have flowered based on this philosophy and need. Today we take SUVs and MUVs for granted and more often than not the requirement today is hip hop and power coupled to space on one hand while on the other we have the genuine on-off roaders with more off than on-road capability.

Most on-off roaders and also soft-roaders come with all-wheel-drive capability these days but when the automobile was finding its feet as a more efficient replacement for the horse and cart a century ago, the need to induct all-wheel-drive was basically to master difficult terrain and deliver mobility and haulage in the truest sense of the term cross-country.

One such requirement for a cross country vehicle came the way of pioneer German car maker Daimler Motoren Gesellschaft from the office of the Secretary of State of the Colonial Office of German South-West Africa (which today is familiarly known as Namibia). To administer the territory, the then cars and trucks were inadequate so an order was placed with

Daimler to build a vehicle which could in effect go anywhere. A special one-off needed to be built and Paul Daimler - old man Gottlieb Daimler's son and an accomplished engineer himself took upon the task to do up this vehicle.

Paul Daimler used a DMG truck chassis with a 4 metre wheelbase to create the all-wheel-drive vehicle which later came to be known as the Dernburg-Wagen (so named as it was used extensively by Bernhard Dernburg, Secretary of State of the Colonial Office). He gave it a touring car body with two seats up front and four at the back and thanks to the raised body on chassis (to accommodate the drive axles at both ends plus the transfer box) there were proper steps to enable his excellency and staff to get in and out of the car. There was a large awning which even went right over the bonnet and generally the bodywork was designed such as to work in extreme harsh weather and terrain.

A 6.8-litre, four-cylinder engine delivering 35bhp at the then dizzy engine speed of 800rpm was employed and while the 40km/h max speed for this 3.6 tonne vehicle was adequate, it was



indeed its climbing ability which was outstanding at 25 per cent. Credit this to its permanent all-wheel-drive system which packed in a centrally mounted gearbox (with four forward and one reverse speed) from where different prop shafts transferred the drive to the front and rear axles. Bevel gears in the differentials from there on transferred the drive to the wheels.

One of the key aspects of the four wheel drive system was the front axle joints which needed to be kept sand free in the Namibian desert. Paul Daimler devised a cylindrical metal jacket shrouding the joints which were then packed tight with lubricating grease. However this restricted the steering to a maximum steering angle of just 23 degrees and so the decision was taken to adopt steerable wheels at the rear as well and thereby endow this large vehicle with a reasonable turning circle.

Given the sandy and inhospitable terrain it was to operate in, Paul Daimler gave it solid metal wheels shod with pneumatic tyres - with treads on the rears and treadless in front! Tyre size was

930 x 125 and the tyre valves were on the inside of the wheel so that it was not exposed to damage.

Once the vehicle was made, in typical Germanic fashion it was subjected to extensive testing in and around the Berlin-Marienfelde to Stuttgart-Unterturkheim region before it was shipped out in May 1908 to Swakopmund in German South-West Africa. Bernhard Dernburg got it a month later and he used it from then on all over the German colony, raking in over 10,000 miles by early 1910. There was much trouble in the course of this distance covered and it was all down to the tyres - they wore out very quickly thanks to the load being hauled. In contrast the four wheel drive system worked like a dream as did the all wheel steering and those watercooled front drum brakes but servicing the entire system was a mechanic's nightmare. That said, the Dernburg-Wagen was the forerunner of the modern SUV and even though it's coming into this world was a utility decision, its design and overall makeup laid the blueprint for the MUV and the SUV which remain unstoppable to this day.

Adil Jal Darukhanawala