

**ESCAPE ROAD**

# Der Deutsche Donderfogel

*The Auto Union-DKW 1000 Sport was a Teutonic T-Bird*

By Roger Barlow

**Y**es, there was a German "Thunderbird". Though it never bore that name, it looked as if it should. Actually it was the Auto Union-DKW 1000 Sport, a handsome two-seat front-wheel-drive coupe with lots of luggage space. Based on DKW's standard 980 cc three-cylinder, two-stroke engine and 92.5 inch wheel-base sedan chassis of the 1950s, it was introduced in Europe in 1959.

I first drove this very pretty car on a visit to the factory in, I think, 1960, but the next year when a couple of them came to New York for evaluation by the importers I borrowed one for a run out to Waukegan, Wis., where I had a meeting set up with engineers of the Outboard Marine Corporation to discuss two-stroke engines as I was contracted for an article on that subject. And what better way to arrive than driving Germany's best example of such an engine.

This "sporty" DKW had all the advantages and disadvantages of the company's normal cars: a simple and reliable free-revving, roller bearing engine with a bore and stroke of 74 x 76 mm, good performance for its class and excellent handling. Being a two-stroke it also had the characteristic roughish idle and four-stroking on the overrun. However, the latter effect was minimized by use of a free-wheel unit, which also improved fuel consumption slightly. It averaged 30-32 mpg.

These engines all had deflectorless pistons, slightly domed, the combustion chambers were hemispherical, and scavenging was on Professor Schnurrle's reverse loop system. However, the compression ratio of the Sport was 8 to 1 instead of 7.125 to 1. It developed 62 hp at 4500 rpm instead of 50. This increase (nearly 25 percent) must have been due to some change in the port timing and/or dimensions rather than just the raised compression ratio. This supposition is borne out by the torque figures: 68.6 lbs ft at 3500 rpm for the standard unit. Less torque (at higher revs) was the price paid for those 12 extra horses. As one normally tended to wind up this free-revving engine rather than lug it, this loss of low-end torque was hardly noticeable, whereas the increase in power was clearly evident for it translated

into better acceleration through the gears and an impressive jump in top speed from 80 to 90 mph. This despite the fact that at 2094 pounds the 1000 Sport was 60 pounds heavier than the sedan yet had virtually the same frontal area.

Two-stroke engines, for both motorcycles

two-stroke design (eschewing crankcase compression) that utilizes some type of rotary valve for more efficient admission of the air being forced in by a supercharger. The result could well be more power, better economy and less pollution.

No two-stroke automobiles are now in production in the West, although East Germany's Trabant and Wartburg are so powered. But the design isn't necessarily dead. There is serious development under way in France. A similar effort is being made in England and it is said that Ford has embarked on a two-stroke project. And the high-performance two-stroke motorcycle engines made by the Japanese certainly have

revolutionary potential. The two-stroke, delivering power every time a piston moves downward, has promise too rewarding to be ignored.

But back to one of the last and best of the old line, crankcase compression, automotive two-strokes, that Thunderbird look-alike. Let us first clear up the DKW name. It is generally thought to stand for Das Kleine Wunder (The Little Wonder) which was the affectionate term for the tiny two-stroke engines (to power bicycles) built by J.M. Rasmussen, a Dane working in Germany during the '20s. However, his company had already taken its name from their first

effort, a steam powered truck...a Dampf Kraft Wagen (Steam Power Wagon)!

Then, as his first two-cylinder, two-stroke front-wheel-drive car of 1930 was rather small, people developed strong feelings for it, quickly dubbing it the Deutsche Kinder Wagen, German Baby Carriage! The Auto Union name came about in the early '30s when Audi, Horch, DKW and Wanderer banded together for economic survival.

DKW did more than just survive. Its two-stroke cycles were actually more famous than BMW. Its two-stroke front-drive cars, utilizing Gregoire's Tracta CV joints, were steadily improved and enlarged, earning strong market approval. Indeed, DKW may have sold close to 60,000 front-drives before Citroen came into this field in 1934-5.

But low volume production of the special bodied 1000 Sport resulted in a U.S. price of \$4500, deemed too high for this market in 1960, and so this charming and entertaining machine was never imported. As a two-stroke enthusiast and owner of four since 1937, I regret I never bought the sample car I drove to Waukegan. On the way back it averaged almost 80 mph to Pittsburgh, where speed traps were thick on the ground—making discretion the better part of valor—or velocity. ■



Roger Barlow (seated) with the Auto Union-DKW 1000 Sport on his visit to Outboard Marine Corporation for test of two-stroke engines

Roger Barlow photo

and cars, have long been popular in Europe. The reason is their unique mechanical simplicity, ease of owner maintenance and the fact that a single cylinder two-stroke engine has the same power flow as a four-cycle twin; a three-cylinder two-stroke equals the power flow of a conventional six. The two-stroke three also has only seven basic moving parts compared to over 60 in most four-stroke sixes.

Despite having twice the power impulses per revolution, two-stroke engines have never lived up to their promise of delivering twice the power of an equivalent four-stroke unit. That's mainly because the common, ultra-simple, crankcase-compression types, which utilize ports in the cylinder walls that are opened and closed by the pistons for both inlet and exhaust, are stuck with far from ideal port timing and duration of opening. It is a mechanical miracle that the power strokes as well as exhaust, intake and compression can be accomplished in the single up and down movement of the piston of these simple two-strokes.

And today the crankcase compression two-stroke, which is lubricated by means of oil mixed with the fuel, can not meet emission standards.

What is wanted is a more sophisticated