



NEVER MIND THE QUATTRO

By Peter Arcadipane

For today's emasculated Eighties, the Audi Quattro is one of the few shining stars on the 4WD performance horizon. Indeed, with its turbo motor, advanced 4WD chassis, and stunning good looks, it has made everybody rethink their position in this lucrative section of the marketplace. But, like the old saying "there is nothing new under the sun", more often than not it stands true. Yet over ten years ago a prototype 4WD coupe was shown to the British public.

It was a marvel of machinery – a veritable Pandora's Box of Tricks. Yet it faded into obscurity before it had a chance to light any fires

In 1972 an unusual four-seater two door coupe with 600 bhp was first shown at the London Motor Show, in October. Sitting on the IBCAM stand the car, later known as the FFF100, didn't really attract the sort of attention it deserved. Possibly the unexciting matt-white finish failed to sparkle enough to compete with all the lovely bosomy ladies.

In those days the motor shows often were used as a forum to ceremoniously unveil secret new models from the British Motor Industry to an expectant public.

The FFF100, or GKN Special, had been designed and built to test the durability and ultimate performance of the specialist components. The sleek coupe ran goodies like the Ferguson patented four-wheel-drive, and the Maxaret braking systems. The exercise was a public relations masterpiece to show the motoring world that GKN were much more than nuts and bolts.

Initiated by Claude Birch, who was also involved with the Lotus 47D, the project then fell into the hands of three others. Keith Hamilton-Smith from FF Developments was to take charge of the chassis and drivetrain responsibilities. William Towns, well known for his work on the Aston Martin V8 (and later the 'electronic' Lagonda), was given the brief to style the body. The third man of the group was a retired technical director of Rolls Royce, Harry Grylls, who was to act as co-ordinator and general advisor to the project.

By June of 1972 a rolling chassis had been completed. Towns had styled a very slick grand turismo coupe that all but hid the car's production origins. A very definite wedge in profile, the car had a then popular long nose, clean body sides and elegant rear quarters not unlike later Lotus sporties. In fact it has been considered one of Towns better works. The origin of the car had been the Vignale designed Jensen Interceptor which was a good looking automobile, yet lacked front-to-



rear design compatibility. Gone was the huge wraparound window/liftgate that was later adopted by such luminaries as Porsche, Mazda and Ford America.

The bodywork was done by Tony Kirkaldy and the Bidford-based Dimension Four Team. The body structure was moulded in glassfibre pinned and bonded to a steel frame. Styling tricks like flush-glass, bonded to the doorframes, preceded the new Audi 100 by a decade!

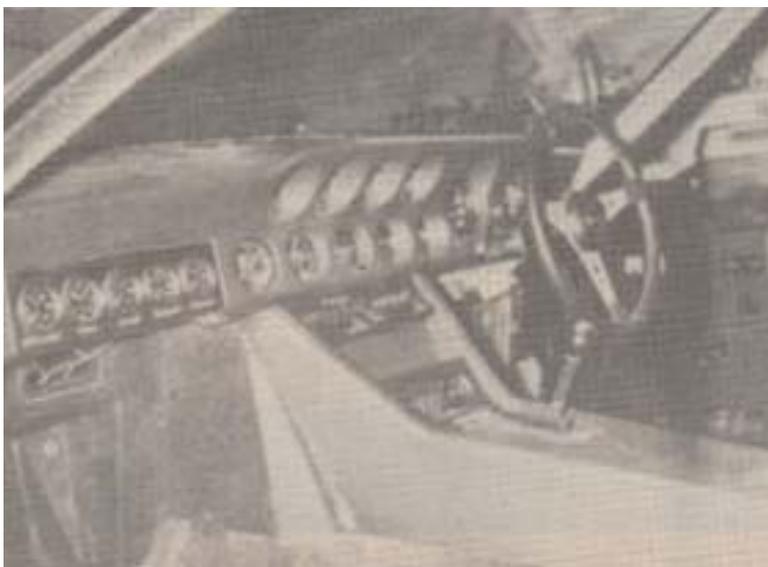
Ventilation, therefore, was strictly a modified Jensen air conditioning set-up. The final nose design hints of later designs like the Chevette and the recent Sierra.

Early testing was done at the industry centre at MIRA. The car was wheeled onto the facility's timing straight in the hope of attacking some existing performance standards.

Blasting away from the timing equipment with virtually no wheelspin, or tyre smoking antics, the white slingshot stopped the timers in 6.5 seconds. In that time the GKN Special had stormed across the tarmac and was doing 100 mph. That's right, it's not a typographical error. (A works Turbo Quattro rally car only manages to pull 10.8 seconds).

Another run confirmed the cars potential. Zero to one hundred miles per hour and back to stop again in an elapsed time of only 11.5 seconds. If this didn't show the dramatic potential of the 4WD and braking systems, nothing ever would.

But these figures gained on dry roads were totally overshadowed by the phenomenal times pulled in the wet. Zero to 100 mph and back again, on greasy tarmac, only took another 0.7 seconds! These unbelievable figures showed the efficiency and consistency of the chassis and drivetrain.



There is no lack of visual information for the driver, and the passenger too.

Traction was what it was all about. Here was the safety and traction road car designers up to then had only dreamed about. The overall performance of the machine wasn't to be sneezed at either, as it proved to be only one second slower than Denny Hulme's McLaren GP car!

To really put the chassis through its paces the team had opted for a full house 600 bhp version of the Chrysler Hemi 426 ci V8 engine. This replaced the standard 440 ci 'Wedge' motor (that wasn't a slowpoke either).

Modified by Keith Black in California, the engine was your basic A990 drag racers donk complete with dry sump lubrication (triple gear, at that). Two giant spreadbore Holley four-barrel carburettors feed the juice through the giant Hemi-ports of the crackle black motor, TRW pistons, solid lifters,



the long duration 'spastic' cam and a 12.0:1 compression ratio. The specially designed exhaust system ran four equal length 2 1/2-inch pipes per side into a big collector dumpcan, then out via two three inch tailpipes.

Following the performance-testing workout at MIRA, the team found they only had a mere three weeks to finish the car in time for Earls Court. After the show the car had to be detuned for everyday use in traffic as various company directors and overseas personnel were granted a drive.

A much higher final drive ratio (3.07:1) was chosen along with a reduced stall speed on the torque converter.

Making the roadcar more tractable was important as non-performance (or motoring) enthusiasts were gaining impressions of the drivetrain characteristics and would not enjoy the hairy nature of the beast.

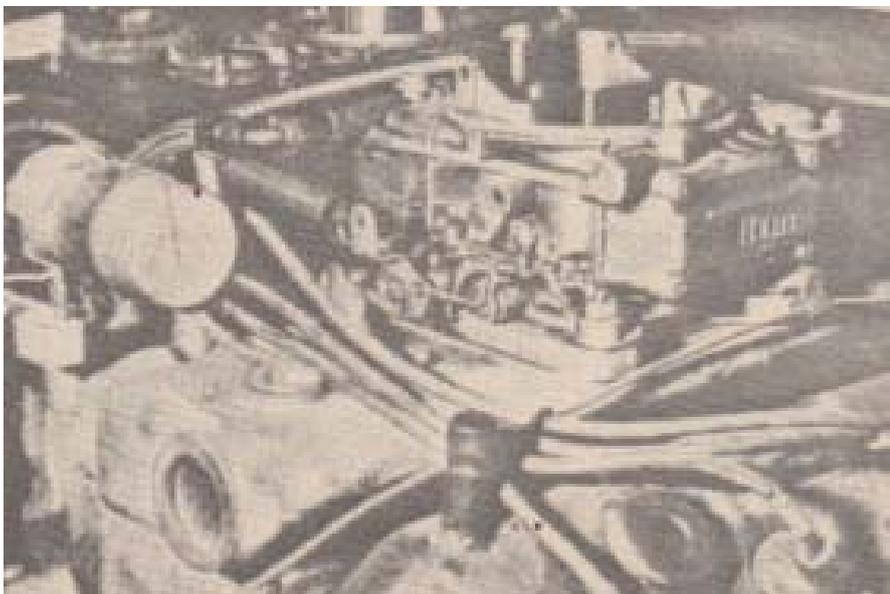
In America it was to act as a vanguard for GKN's march on their boisterous cousins. The FFF100 received considerable publicity, particularly as a few years earlier a 4WD had appeared at Indianapolis Speedway.

Chrysler engineers at the testing facility in Michigan couldn't believe their eyes watching the big white car put through its paces.

The big stunt of the day was to accelerate to 120 mph and back with two wheels on dry tarmac and two fighting slush and snow. Winter in North America can be fairly severe, so the locals found this inspiring.

The basis of the car had been a stiffened Jensen FF chassis, but due to the reduction of the overall unsprung weight, softer springs had to be fitted. The original ride frequency was restored by re-fitting the standard shock absorbers and correcting the ride height by eliminating one of the rear leaf springs.

Ventilated disc brakes off the Mk3 were grafted onto custom made hubs. Eight-inch Kent-Alloy cast wheels were used with the low profile tyres of the day. Often racing rubber was needed for optimum adhesion tests.



*Seven litres of V8 Chrysler
were fed by two big four
barrel Holley Carburetors.*

Because of the G-forces available in the car under acceleration, braking, and particularly cornering, a complex lubrication system had to be devised. A March Formula 1 arrangement in the boot together with a specially fabricated sump and the triple gear Milodon pump was conceived and proved reliable and maintenance free. Top of the gears operate the scavenger pumps, the third works the primary feed.

Cooling needed considerable attention, as the giant American engine needed lots of radiator capacity and cooling air. A NASCAR racer cross flow aluminium radiator with twin thermostatic fans protect the engine, while twin 9-line oil coolers guard the special gearbox.

With nearly 500 ft/lbs of torque at the ready under your right boot, obviously changes had to be made to the driveline. It is this that is probably the most unusual and interesting side of the car.

B&M Automotive, long considered to be the world experts in heavy duty automatic transmission development (through drag racing), built the unit based on the USAC championship version of the torqueflite. American heavy duty auto-boxes are known for a capacity to handle the incredible punishment a high performance V8 (under strain) puts out. For MIRA testing, a high performance 9.5 inch converter was used. This had a 5000 rpm stall speed which allowed the car to launch on full torque. Road use negated this and a larger 10.5 inch (harder to spin) unit was incorporated.

From the three speed gearbox the drive goes through the viscous control centre diff to specially manufactured and heat treated driveshafts. The torque split best proven for the task at hand was 37% at the front, 63% at the rear.



The Formula Ferguson torque biasing transmission now available Range Rovers.

The Dunlop-designed Maxaret anti-lock braking system completed the special four wheel drive motor car. The Maxaret componentry had been instrumental in the amazing wet-weather braking times. Anyone used to driving really powerful front engine American cars in the wet would realise that a sensitive right, and left, foot is a basic prerequisite for survival. The GKN Special proved there was driveline sophistication available that meant you could have your cake and eat it too!

Some time later this writer found himself in England hunting around for an exotic to bring back to Australia.

After searching high and low for something really different we came across a yard that handled strictly high performance equipment.



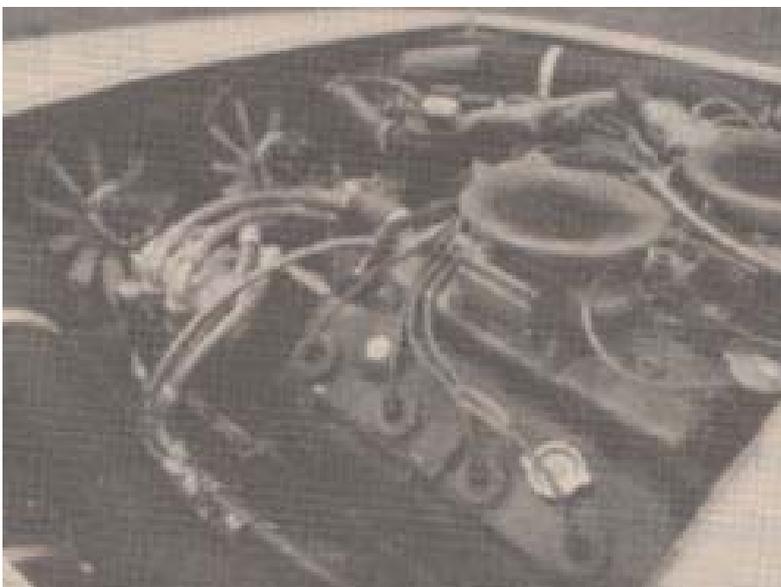
The sumptuous interior, beating Audi Quattro into the luxury 4WD stakes by years.

During a close examination of a beautiful AVO-built Escort, which I finally bought, I caught sight of a car I couldn't place. It turned out to be the FFF 100 that someone was driving. Sweet talking the company's owner. I waffled on about being from Australia etc etc. Finally I talked my way into the seat of the car for a spin around the block.

Not knowing what to expect I wasn't surprised. But if I had known then what I know now, about the projectile, I possibly might have wet myself! A 600 bhp road car with 4WD and trick anti-skid braking meant joyous pleasure and acceleration in bucketfuls ...

The cockpit was obviously still a Jensen, yet the exterior was something totally different. The Ambler hide and traditional wide console, the Australi wheel, the distinctive shape of the crashpad all told me it was something special, but at least was based on Jensen parts. Looking out through the windscreen made the low profile bonnet scoop seem huge. Additional instruments filled the glovebox lid. They kept an eye on oil pressures, temperatures in the motor and gearbox, induction vacuum and engine coolant temperature. The speedo read to 160 mph and the tachometer was redlined at 6000 rpm.

But the thing that really caught my attention was the stick shift for the high performance auto. The markings for the gears read backwards with a lock-out device that meant if you 'downshifted' you couldn't accidentally hit neutral, or something more expensive!



Two of everything, carburetors, fans and, of course, driving axles.

At speed the GKN Special had strong self-centring torque and a tendency to follow the centre peak of the backroads. The suspension was supple yet you never felt too isolated from the roadway. Even in the 'soft' roadtrim guise the car would pull 60 mph in 4 seconds and 100 mph in some 9 seconds. Fast starts meant two-pedal driving. Build up the revs and hold the car with the brake, allowing the convertor to slip and the driveline to load up. Then slip off the brake, with the right Wellington well and truly into it.

No drama. No sideways motoring, no tyre smoke and no wheelspin. Just a dramatic surge of power that threw you back into the bucket seat and snapped your neck with the G-forces. Tight corners taken at speed really made you contemplate what full bore race cars must be all about. Strong neck muscles for high speed turns were a definite requirement.



Considering the car was devised some ten years ago, its driveline sophistication was very good, even by today's standards. Like good modern cars you don't want to get out of machines like this. The brief drive I experienced made me wish the car was for sale, but it wasn't. Far from proving unmanageable, the FFF100 was effortless to drive, certainly not as difficult as a front-drive car on the limit. The steering did dig in a little but it certainly wasn't unacceptable. The overall feeling was one of ultimate adhesion and security.

The car's future was never decided and in fact I haven't been able to find out what became of it. Sadly, if it was shelved away because the research and development budget had dried up, or if it was broken up, it is a major loss to the world of motoring. Particularly today, when four wheel drive vehicles have had a total resurgence for mainstream consumer use.

Looking at future trends and seeing most of the top designers like Giugiaro concentrating on small capacity, turbo-charged 4WD sedans signify the final acceptance that 4WD is here to stay. And that's on the bitumen as well as off.

A car like the 7-litre Hemi powered FFF100 was way ahead of its time, but these days small, high-efficiency powerplants are the go so the likelihood of road-rockets of this magnitude unfortunately won't be seen again



Four wheel drive is an excellent way to put nearly 600 horsepower down on the track instantly. Here the GKN Special lines up at the start of the Prescott hill-climb in England.

From: *4x4 Australia*, 1983
