

Success and failure can be both a treasure and a burden, for success provides the impetus and resource for future development of new projects, and failure the motivation to make changes for the better. The burden so often felt is that success attracts interest usually from other larger concerns that may eventually take over and then stamp you out for perceived self-protection. And this in the end was the story of Matra as a sportscar manufacturer. But we get ahead of ourselves.

MATRA Murena 1980-83

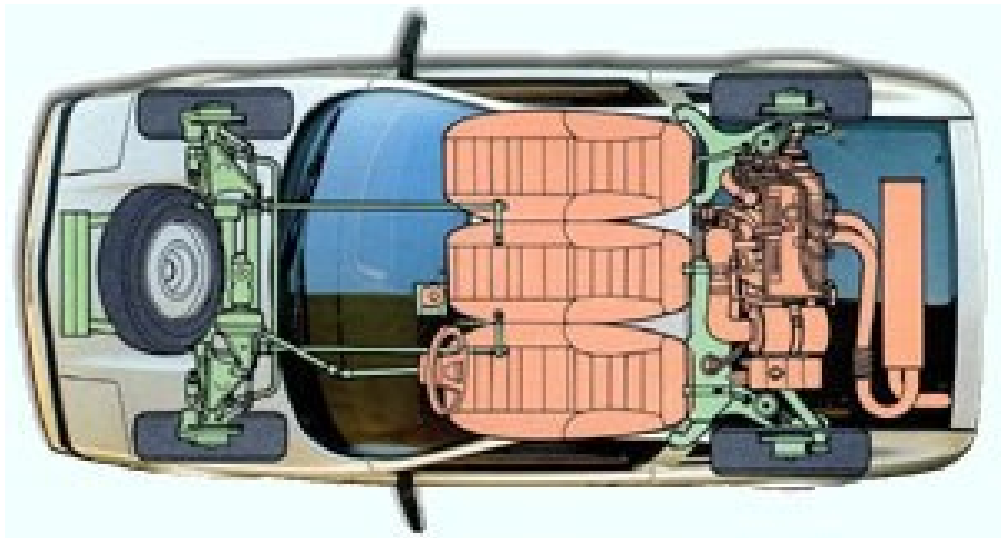


When Matra signed a deal with Chrysler-Simca, it was a marriage of mutual benefit; Simca got kudos from Matra's racing success and Matra got a good chain of sales outlets from Simca's small-car commercial success. The Bagheera which preceded the Murena made good use of the marriage and sold very well for what was in effect a medium volume sportscar aimed primarily at France's home market. In its best year it sold almost half the number of MGB average yearly sales; a car that was one of the best-selling sportscars, ever. That was its success. Its point of failure as we have heard was its chassis' propensity to rust and its inability to keep pace with the performance of the new 'GTI' brigade which were generally using larger more modern ohc engines. However, before the Bagheera production run had finished, Simca's parent company Chrysler had pulled out of Europe and sold its share to Peugeot.

Chrysler tried to break into the European market by using Simca as a gateway into Europe, and then produce its own Chrysler-only model. These were the all-new rear wheel drive Chrysler 160, 180 and 2 Litre, which were all one car with three versions of the newly designed Simca engine that featured a cast iron block and aluminium sohc cylinder head. In many ways it was an attempt at producing a world car – in this case, a European world car with American genes, and was a design carried out with both Simca and Rootes Group production in mind, as a car to be made in both countries and in Spain once established. But it was not a particularly inspiring design and its engine was quite heavy - although it provided what was for the time an ability to rev freely with a solid power output for a middle of the road family car in the style of a Mk3 Cortina.

Rootes were actually developing a compact 2.0 and 2.5 litre V6 for the car too which would have worked well in the rear of the Murena; it was said to be economical and have a good smooth power delivery, but Chrysler suddenly cancelled this as it was about to enter production. In addition, Chrysler's name was not well recognised in the European market, and there being not much else to make people want to buy it over its opposition, sales proved underwhelming. Chrysler bailed out and sold out to Peugeot. Peugeot turned Chrysler-Simca into the born-again Talbot, but Peugeot PSA (Peugeot, Citroën and now Talbot) were also part of the PRV group – Peugeot, Renault, Volvo – who'd come together to make the development of a new range of engines affordable.

As a company Peugeot is known for its solid practical volume models with accompanying sporting derivatives, and not for special edition sports cars even though it has gained a reputation for making interesting road going sports-prototypes and show cars; none of which have ever 'hit the road'. Later, Peugeot also came 1st and 3rd in the 1992 Le Mans with the 3.5 litre V10 engined Peugeot 905 that was built at the Peugeot-Talbot Sport headquarters in Vélizy-Villacoublay, outside of Paris, and entered under the Peugeot-Talbot team banner. They then came 1, 2, 3 in the 1993 Le Mans with the revised 905B – but still no road going sportscars. However, at the time of the Murena, Peugeot was working on the new 205 hatchback that was launched in 1983 – the year Murena production ended – and they had a planned 205 GTi model in the pipeline. There would also seem to be some of that 'not invented here' attitude, as Peugeot's main local rival, Renault, had made good use of the Alpine brand name in both rallying Alpine's rear-engined road cars and at Le Mans with the mid-engined Renault-Alpine sports prototypes whose 2 litre turbo Renault-Gordini motor powered the Renault-Alpine A442 to 2nd at Le Mans in 1977 and a win in 1978 – two years before the Murena entered production. Matra ownership provided Peugeot with the ideal counter punch, especially considering its great motorsports success in F1, 2 and 3, and Le



Mans, but Peugeot somehow failed to seize this opportunity, perhaps because of the PRV tie-up.

This tie-up would seem to be more of an underlying factor than meets the eye, for at the same September 1980 Paris Motorshow that Talbot-Matra displayed both the new Solara and Murena models, Renault launched their new Fuego Coupe. The 1979 absorption into the Peugeot PSA empire had theoretically given Matra access to a wider range of engines, and in particular the relatively compact all-alloy 2-litre ohc Douvrin PRV motor. Matra had already started initial development of the Murena at the time of the takeover, and asked if it could use the 2-litre Douvrin engine. However the request was vetoed by Renault as it was lined up to power their new Fuego. This lighter engine was also relatively early in its production cycle at that stage, with further more powerful derivatives expected in the future – up to 175bhp in R21 Turbo form.

Undeterred, Matra continued development of their new car with the Talbot range of engines brought over from Chrysler-Simca, and although named Talbot-Matra, the design of the Murena was carried out entirely by Matra engineers.

It might seem that Peugeot's control over Matra, through its purchase of Chrysler-Simca, should not have been so strong as they owned a less-than controlling 45% share of Automobiles Matra, with the remaining 55% being taken by Matra's parent company, Mécanique Aviation Traction. However, it was through Peugeot via Talbot that Matra gained access to engines, transmissions and other expensive to produce mass production parts that enabled Matra to make its cars affordable. So when it came to the major decisions Peugeot 'wielded the big stick' and dictated to Automobiles Matra what they

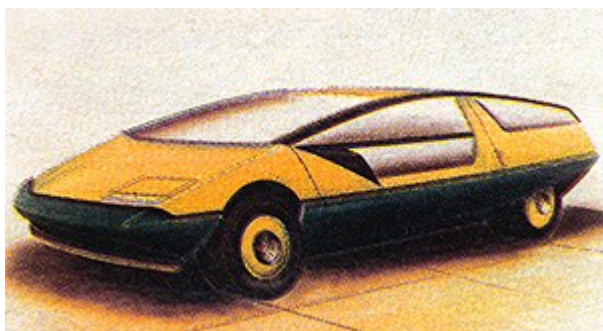
could and could not do, especially with respect to the mechanical parts.

Matra made further proposals once the Murena was in production to counter criticisms of too little power, but most were met by Peugeot with blunt refusal; all except a tuned version of the 2.2 litre Chrysler engine which was initially sold only as an after-market kit through the dealer network. The kit took 25 hours to fit, and so was quite costly, rather limiting its appeal. This kit, or model of Murena that resulted was called Préparation 142cv denoting both the fact that it was a retro-fit option and had 142 bhp.

PROTOTYPES/ DEVELOPMENT

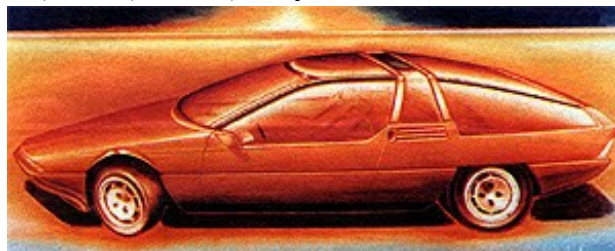
The Greek designer Antonis Volanis, who'd co-completed the Bagheera, became Matra's full-time design-chief with the 1977-84 Rancho; it being his first completely new vehicle by Matra. His next project was the Murena, or models M551 and M552 (1.6 & 2.2 litre). Volanis did a series of proposals, the first being project *super Bagheera* which was not unlike the final Murena. Of course, his design proposals were more to do with concept and outward style; the engineers had their own thoughts and hopes that we shall look at later.

Initial project "super Bagheera" below and Style Drawing, before Project P551 to the right



The next was a style drawing carried out before the first acknowledged development concept for the new model: this development concept, which was given the official number P551, meaning the prototype for the M551, immediately succeeded the style drawing. Whilst the style drawing was much like a modern take of the original Bagheera, almost in a Pininfarina Ferrari show-car idiom of the period, the P551 was a return to the *super Bagheera* idea, but with more stylistic licence.

Project P551 below. Beneath is Mock-P551, note the details; rims, mirrors, windows, door jamb



The mock-up for the final run home, so to speak, looked very much like the final production car. This was called Mock-P551, denoting the next stage from drawing board to full sized model. In fact, there were four mocks, starting with Mock-1 carried out in plaster in order to allow changes and developments to be made inexpensively by eye and feel. It was considered a much more modern and sporty design than the Bagheera and in many ways was still fairly current 20 years later – at least externally. The interior, whilst smart enough is more obviously '80s style.

Model of Liveability



A second full scale model was then made for wind tunnel study and testing in order to improve and optimise details such as rims, mirrors, air intakes, hatches and overall shape.. A third mock-up called the Model of

Liveability was built in order to validate interior elements and layout. Funnily, Mock-3 had some exterior detailing, especially around the front bumper and valance that was unique and not seen again. The final 4th plaster model was made as a master model for taking moulds to form the production tooling.

BODY

Four things were of relative importance when it came to the total design of the Murena body; modern attractive shape,

our partner Mensolit, who supplied the epoxy resin, to help us find a way to use it. The solution consisted in embedding this chopped glass fibre in a rolled paste and depositing it

Elektronische ontsteking
Voor een probleemloze start, onder alle weersomstandigheden, voor een hoger rendement van de motor en minder onderhoud, dank zij een vast en niet te onderbreken voorontstekingsontwikkelaar en ontregelen voorontstekingsontwikkelaar voor minder kosten door het ontbreken van contactpunten.

De versnellingsbak
Handbediende, gesynchroniseerde 5-versnellingsbak, zowel op de Murena 1.6 als op de Murena 2.2. Deze is erg soepel en geruisloos. De goed gekozen overbrengingen zorgen voor optimale prestaties bij gering verbruik. Een verbruik dat bovendien mede drastisch beperkt wordt door de fangeindreactie. Daarbij komt nog, dat het toerental, zelfs bij een hoge snelheid laag blijft, waardoor de mechanische delen minder gauw aan slijtage onderhevig zijn en geluidshinder wordt vermeden.

Motoren
De motoren van de beide Murena-versies onderscheiden zich door hun prestaties, duurzaamheid, simpelheid, pit en zuinigheid.
De Murena 1.6 is uitgerust met een 1592 cm³ motor met een vermogen van 66 ISO kW (92 DIN pk) bij 5600 t/m en een topsnelheid, op een afgesloten circuit, van 182 km/u; 400 en 1000 m met staande start, respectievelijk in 17,7 en 33,3 seconden.
De Murena 2.2 heeft een 2153 cm³ motor met bovengesproken nokken; deze ontwikkelt een vermogen van 84 ISO kW (118 DIN pk) bij 5800 t/m en de topsnelheid was op een afgesloten circuit 200 km/u; 400 en 1000 m met staande start, respectievelijk in 16,2 en 30,4 seconden. Door zijn bijzonder hoge maximum koppel (18,4 mkg bij slechts 3000 t/m) is de motor altijd zeer soepel en accelereert uitstekend, zelfs bij een laag toerental.

Actieve en passieve veiligheid
Op het gebied van veiligheid biedt de Murena bijzonder doordachte en uiterst betrouwbare voorzieningen.

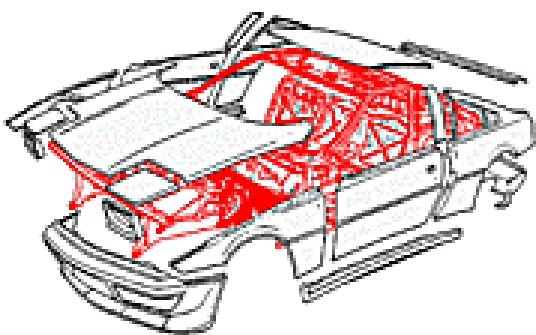
Actieve veiligheid
Onder de actieve veiligheid verstaan wij alles wat bijdraagt tot een optimale controle over uw wagen. Bijvoorbeeld: de centraal geplaatste motor van de Murena - naar voorbeeld van de Formule 1 wagens - in combinatie met een zeer originele wielophanging bestaande uit 4 onafhankelijk opgehangen wielen met in de lengterichting geplaatste torsieveren, boven elkaar liggende dwarsgeplaatste tringeldragarmen, stabilisatorstang en dubbelwerkende, hydraulische telescoopchokdempers vóór, getrokken armen met schuine as, schroefveren, stabilisatorstang en identieke chokdempers achter, maken hem tot één van de veiligste auto's die er momenteel zijn.
Het remsysteem bestaat uit zelfinstellende schijfremmen met zwevende klauw, zowel vóór als achter, veilig en doeltreffend. Het is een gescheiden circuit met rembrekkrachting. Een lastafhankelijke remkrachtverdelers

regelt de druk op de achterwielen. Het geheel wordt gecontroleerd door een verkleinlicht op het dashboard voor het remvloestijfheid. Tenslotte nog een achteruitkijkspiegel met dimstand, afstelbare koplamp-hoogte en een achteruitverwarming.

Passieve veiligheid
Onder passieve veiligheid wordt alles verstaan wat bijdraagt tot het beperken van de gevolgen van onverhoopte aanrijdingen. Vóór- en achtergedeelte van de body zijn zo ontworpen dat zij bij botsingen progressief vervormen. Zij vormen een krukkezone tot aan de passagiersruimte, die, op zich, een zeer degelijke veiligheidskooi vormt. Het éénpakige veiligheidsstuurwiel is gemonteerd op een vervormbare, schokabsorberende stuurkolom. Bovendien zijn bepaalde onderdelen van de carrosserie vervaardigd uit een hard glasvezelmateriaal. Dit is schok-

absorberend en (in tegenstelling tot staal, dat geleidelijk vervormt bij eventuele botsingen) blijft de eventuele schade beperkt tot het geraakte punt.
Ook de bumpers zijn van een soepel kunststof materiaal, zodat kleine schokken, bij aanrijdingen in stadsverkeer, worden geabsorbeerd en vervorming of beschadiging van de carrosserie wordt vermeden.
De voorruit tenslotte, is in zijn sponning geflijmd, wat het geheel van de constructie steviger maakt.

De constructie behoudt zich het recht voor de constructie, uitrusting en prijzen van haar producten zonder voorafgaande kennisgeving te wijzigen.



leading edge aerodynamics, production methods including costs of tooling and manufacture, and ease-cost of assembly. The Murena's body consisted of even fewer panels than the Bagheera, at only 12 compared with 19. No factory data makes it entirely clear whether or not Matra changed tack with the Murena body, but a comment from the then General manager of Matra, Jean-Louis Caussin, would have one think so: "In about the middle of the production, we began to explore the SMC (Sheet moulding compound) moulding techniques. We had an enormous amount of glass fibre cuttings and we asked

at the bottom of a mould to be shaped under hot pressure. Several parts of the Murena use this new procedure." (Today with its bicycles and electric vehicles, SMC is a most common and characteristic Matra manufacturing-technique and procedure, primarily because of its qualities of good finished appearance and lower investment costs for medium series production).

This comment by Caussin suggests that Matra dropped the LP resin-injection manufacturing methods used for the Bagheera which if correctly manufactured, should not have resulted in left-over floor sweepings. Perhaps Matra did not foresee the production volumes eventuating that would have been needed to make LP tooling viable. Reducing the number of panels would help offset the greater labour intensive nature of a more traditional polyester or epoxy-resin and fibre layup. However, correctly or not, some press commented that the body production costs of the Murena were higher than those of the Bagheera; and that this was one reason



for a less competitive sales structure of the newer car. Wrongly, it would seem, they all stated that the extra cost was due to there being more individual panels to assemble, by hand. At least the by hand bit was partly true.

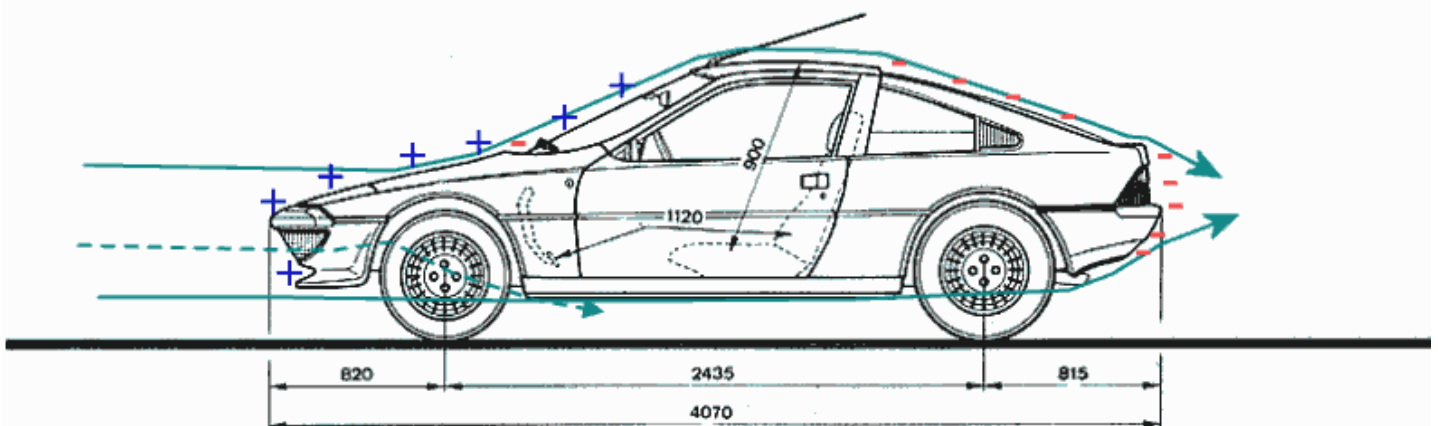
Of the four objectives, the attractive shape requirement has all been explored above when looking at the prototype stages, but this then leads on to aerodynamics, which was carried out as stage 2 in a four-part body development sequence.

Lennart Sorth, a European Matra luminary, provides this modified profile picture showing his understanding of the nature of the airflow over and under the Murena. While it is just illustrative in its nature, it provides a basis for review. As can be seen, the radiator air flows through the radiator cavity and along under the car. There was no undertray, but the floor was essentially flat with a raised tunnel and lateral stiffening ribs spot welded on the *inside*. Underneath it had two longitudinal top-hat sections, one each side, positioned under the outer seats. This divided the underside into 3 longitudinal sections, with the centre one taking up close to half the floorpan width. Cables, radiator water pipes and brake lines are grouped together and

hung underneath along the centreline. There are also some mild swages protruding down, but everything is neat and tidy and kept as linear as possible along the length of the car – in fact, its underside was a lot more streamlined than many a production car at the time, even now...

The sill structures and attendant rocker-panels hang down below the floorpan too, which in effect creates three low profile tunnels under the car. The two outer ones ramp up behind the seats into the rear wheel arches, assisting brake cooling and underbody airflow. The centre tunnel is largely unobstructed, except for the torsion bar adjuster cranks that are visible on the overhead schematic diagram above.

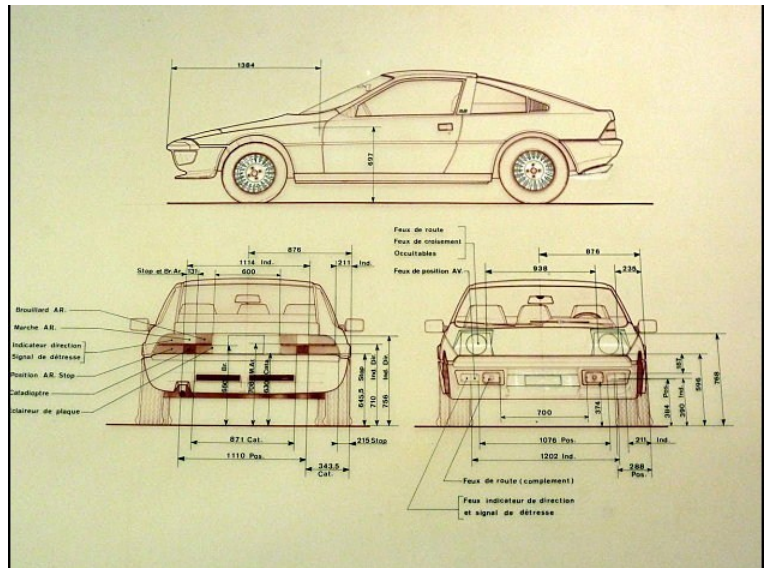
The bottom of the front airdam, in the name of self-preservation and aesthetic balance, is slightly above the main sill line, but virtually in-line with the underside of the floor itself. This is balanced out aesthetically and aerodynamically by the rear valance. With underbody air having to pass under the engine-transmission and exhaust system, it then sweeps up under the valance to the point where it starts departing the car; this is the juncture where the valance shape turns up to become a more obvious part of the rear



bumper. Two aspects of the Murena's valance/ bumper design help departing airflow at this point. The very bottom of the valance is almost vertical, resulting in an inverted Kamm tail effect, and then just above this there are slotted vents across the bumper (see picture above) which provide relief for hot engine-bay air in an area where it doesn't end up competing with the underbody airflow, but rather, complementing it...

These bumper vents, being just above the point of break-away, help smooth out any residual turbulence as some of the underbody airflow will split and go inside the valance, helping drag the hot engine-bay air out through the rear vents and in doing so, infilling the area at the back of the bumper that might normally be producing some drag inducing turbulence (from the departing underbody air wanting to be sucked into the low pressure area behind the car). Venting heated air in this region may induce some negative lift or down-force, too.

Air travelling under the car would already be heated from passing through the radiator, causing it to expand and thus speed up, so reducing undercar air pressure (like air accelerated through the venturi of a carburettor) creating a degree of negative lift as a result. However, the controlling factor here is in minimising the amount of air entering under the car at the front that would otherwise cause an air wedge, lifting the vehicle instead. Hence the need for a decent airdam up front, or better still, one with a splitter beneath it.



Practicalities such as ground clearance become the enemy here... Also, more air passing under the car than can be kept within the venturi will tend to spill out over the sills, producing drag as it 'turbulates' away. Careful sill design, as considered in the Murena, helps keep this air 'tidy'. Funnily enough, if the reverse happens where there is a lot of suction under the car, air passing along the car's sides is sucked down underneath, causing a rise in pressure and turbulence as it rolls under the sill – again, managed by thoughtful sill design.

Looking at the top of the Murena, one would expect to see some lift over the front portion of the bonnet, downforce over the rest of the bonnet and windscreen, and lift at the front of the roof again. It is known that



air travelling over a departing shape such as the rear hatch of a car stays laminar until 15° to 17° from the horizontal or direction of flow. After that it starts to break away, creating lift and drag generating turbulence. Once past 19°, without a suitable aerofoil to keep flow laminar, it's all but over. With the Murena, some lift over the back hatch might be expected but things are helped by the tailgate lip raising the flow angle and providing a sharpish cut-off to help produce a fairly clean breakaway.

On the road, some people who have driven full-out at 190+kph say that the car becomes a bit tippy-toed, indicating lift, possibly more at the rear. When it came to the Préparation 142 and S models – both the same cars

released, the Murena's closest rivals were the Renault Fuego at 0.347, the S1 RX-7 at 0.36 and the slimline Porsche 924 with a 0.34 Cd. It was a period of factory streamliners, where some of the larger manufactures were vying for the best drag figures. Shorter cars have more trouble getting a low Cd because their frontal area to length ratio makes it harder to maintain good laminar airflow. It was not until the Panther Solo was released in 1988 with a 0.30 Cd that the Murena figure was surpassed by another mid-engined sports car.

When LJK Setright enquired at the factory about various engineering parameters he reported "the body work aerodynamically has been designed with the understanding of ground effects and uninterrupted airflow, from a group of aeronautic engineers who recognise that some different rules apply at ground-level." Frontal area of the Murena is 19ft², according to the factory, resulting in a need for only 18bhp at 75mph, which is why the car is very economical." This being the case and assuming mechanical friction has not



effectively – Matra fitted a similar but slightly more aggressive airdam at the front to reduce the amount of air entering beneath the car. It added small shaped sill extensions to help manage the flow along the sides and help retain the air underneath, plus what looks like a wing but is more of a decent size airdam across the top of the tail. The Murena S could manage 130mph+ (210kph), so it appears that Matra felt the aero of the standard car was at its limits for safe stability. No mention has been made of the Murena S' Cd, but the standard shape at 0.324 had the leading Cd for a production car at the time; only to be beaten by the Audi 100 in 1985 which caused a stir with its 0.30 Cd. When

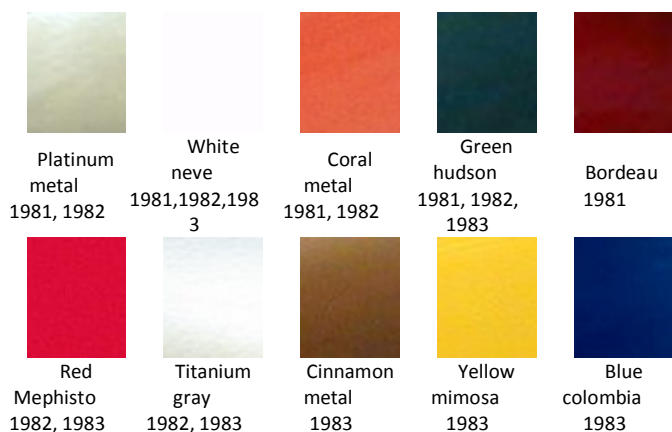
been taken into account, 100mph should require approximately 43bhp, and 200mph



only 342bhp, which is good for a road car.

The very rare 16-valve Murena 4S had an even deeper front airdam that was more vertical and upright, meaning it was also closer to the front tyres and as such had some chance of survival from kerb bangs and bottoming out when being driven hard on uneven roads. The side sills were a little deeper than before, and the large muffler across the rear seemed to be shaped and located to act in conjunction with the vestigial diffuser.

Ten body colours were offered over the 3+ years of production, which if one knows the sequence of presentation, can almost identify what year the car might have been made.



Matra put the PSA parts bin to good use, and yet somehow made the parts look as if they were made for the job. Headlamps were a powerful 110/220 Watt Halogen, with standard 2-speed wipers and 4-jet washers from the Talbot. The Renault 12 provided the indicator/ parking lights mounted under the front bumper while the later Talbot Alpine 1510/ Horizon provided the rear lamp cluster. Door handles came from the Peugeot 505.

The spare wheel is located in the front, using the smaller tyre, along with brake booster etc but with no liner for storage, although there are spaces where odds and ends can be placed. The fuel tank, at 12.3 gals /56 litres, is tucked in behind the rear firewall, near the car's centre of gravity. It is made to fit in the tight space between the firewall and engine/ transmission on the left, and has a moulded shape look about it.

Inside, unlike the 1+2 Bagheera seating arrangement, the Murena had three separate seats. The two passenger seats are narrower than the driver's and all three are quite highly stylised and very comfortable, even for quite large people. However, tall drivers *over 6'* needed to slouch as headroom is a little restricted due to a low roofline. At the time of

the original reports Matra engineers were said to be looking at ways of lowering the floorpan under the driver's seat, but this would have required cutting into the longitudinal top-hat under the floor which does not appear to have happened. The disadvantage caused by lowering the floorpan, even if just below the seat, would have been to dam the airflow under the driver's side, thus reducing the tunnel efficiency. The result would be more drag, more lift, a lower top speed, and less stability. What changes were made between the early and later cars is not clear, but the 'tippy-toe' effect at max speed was also said to be accompanied by a max of only 190+ kph. Early reports suggested the 2.2 Murena could comfortably do 125mph (201kph), so something had happened. It could be that as the ohc engines get older they slow down, but not likely by that much... funnily enough, the pushrod Simca engines seem to go the other way with age - more rattle, more noise, more go!

It may also have been that this situation arose out of a mid-production cycle update when improvements were made to the ventilation system. It is possible that these changes - or even something as simple as changing to larger Tagora torsion bar adjusters that would have blocked more of the underbody airflow, caused this effect...

Back inside, the low raised tunnel separating the driver floor area from the passengers not only provided a mount for the gear lever and handbrake, but also a cavity to house the linkages and related cables in, and acts as a divider to stop passengers' 'effects' from rolling under the driver's feet. A manual choke (normal on Weber style carbs) is operated by a lever mounted on the floor beside the gearstick. The gear lever tends to be a stretch away for the driver, being located ahead of their knee position, but the steering wheel switchgear are mounted and directly ahead of the driver at a good reach, as are the pedals which are well suited for heel and toe work, with firm foot and arm rests to the left.

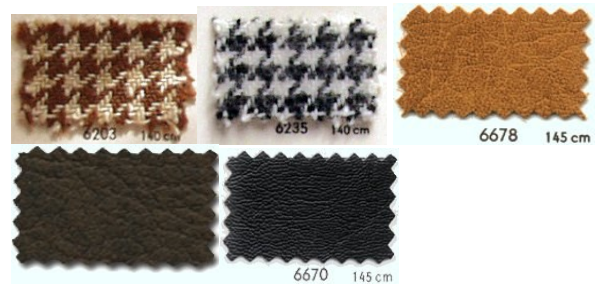
A thoughtful detail can be found in the centre seat back-rest which folds forward to provide a flat 'table' area between the driver and outside passenger. This can be quite useful when travelling two-up. However, when occupied by a centre seat passenger, the driver's rear vision mirror can be obscured by both the passenger and the high back of the seat. With these things to contend with there is not much latitude for

the mounting height of the interior mirror, as the rear glass hatch already comes fully up to the roof line; it has been suggested that the three-seat arrangement is better suited for a couple and their offspring. Other quibbles include the fact that the steeply raked windscreen is affected by reflections off the top of the instrument pod – which has a large hood to stop stray light and reflections from the windscreen affecting visibility of the instruments... can't win!

As mentioned above, up until mid-way through production interior ventilation was mediocre with little ram effect and a noisy fan. What was done to improve this is not revealed. The final little niggle, for some period reporters at least, was its rather 'plasticity' dash – which was common to many a French car of that period and was obviously de rigueur in France at the time.

Seats for the 1.6 came in two options of Houndstooth and three of Leatherette. For the 2.2, there were four Velvet and the two darker Leatherette options available. Early options were phased out as new ones were introduced over the 3+ years of production.

These options extended into the door cavities and liners, with either dark plastic or vinyl and carpeted floors completing the interior. Trying to obtain a balanced view of how the car was received in its day requires some calmness as differing comments sometimes prevailed, which is not uncommon when a manufacturer dares to be different.



Houndstooth Brown /Black-Grey-White Tan leatherette
Brown & Black leatherette = 1.6 interiors
1981,1982,1983 1982.1983 1981.1982
1982.1983 1983

Taking all this into account, it would seem fair to say that although the Murena's interior was quite planted in the 1980's style, it was none-the-less quite well appointed, well finished, and had a distinctly French 'stylised' flavour, especially around the instrument panel. Nowadays, the Murena is a modern classic and such things draw little comment – either one likes, appreciates and wants the car, or not...

Out on the road, noise from the engine is quite acceptable with 67 dBA at 30mph, 72 at 50mph, 76 dBA at 70mph, and 79 dBA at max revs in 2nd being recorded. This, with good interior/ engine bay sound deadening, results in civilised cabin levels of noise.

CHASSIS

Many described the chassis at the time as a heavy and rigid steel spaceframe, and yet at 970kg dry, the 1.6 model was not much heavier than the Bagheera, with the increase largely due to a heavier transaxle and galvanising. For a well-appointed 3-seater its weight is quite respectable considering the



1 Ontzetting
De metalen body wordt van alle aansluitingen ontdaan, zodat deze het vasthouden van de beschermende laag zink kan bemoedigen. Dit gebeurt in twee opvolgende baden, gevuld met een 50% zoutoplossing, bij een temperatuur van 45°C.

2 Eerste spoelbad
Gevuld met heiler water, op kamertemperatuur.

3 Afbijten
In drie opvolgende baden met een 50% chloorzoutoplossing, bij kamertemperatuur.

4 Tweede spoelbad
In twee open volgende baden, gevuld met kristal zout om de zure resten te verwijderen.

5 Fluitbad
Voor het neutraliseren van de dan nog aanwezige zure resten en voor hechting van het zink op het metaal. Dit gebeurt in een bad met een mengsel van ammoniumchloride en zinkchloride, bij een temperatuur van 45°C.

6 Droogoven
Noodzakelijk omdat de corrosiebestendige laag moet zijn voor het zinkbad.

7 Zinkbad
Volledige onderdompeling gedurende acht minuten in een bad met 410 ton vloeibaar zink, bij een temperatuur van 460°C.

6 Jaar anti-corrosie garantie
De Murena is een van de eerste auto's ter wereld, waarbij voor de bescherming een procedure van thermisch verzinken is toegepast. Alle metalen delen van de carrosserie worden acht minuten lang in een bad gedompeld dat 410 ton vloeibaar, tot 460°C verwarmd zink bevat. Een laag van 63 micron hecht zich vast, totaal ongeveer 20 kg zink per carrosserie. Dank zij speciale openingen worden zowel binnen- als buitenkant van alle kokerprofielen verzinkt. Die zinklaag is trouwens niet alleen maar een beschermende film. Het zink penetreert namelijk in het metaal en wijzigt zo de moleculaire samenstelling van het plaatstaal. Dit vernieuwde systeem verhoogt zo ook de hardheid van de metalen body. Op die body worden dan spatborden, kofferdeksel, portieren enz. gemonteerd van een glas/harsvezelmateriaal, dat bijzonder duurzaam is. Deze worden voorzien van twee lagen polyurethaan lak en nog een extra laag bij de metalen kleuren. Deze lak biedt specifieke voordelen: een zeer elastisch materiaal, dat uitstekend beschermt tegen steenslag, en een duurzame glans.

Talbot geeft op al haar modellen een anti-corrosie garantie van 6 jaar. Iedere nieuwe Talbot is uiterst zorgvuldig behandeld om hem te beschermen tegen de steeds groeiende corroderende invloeden van ons milieu.

Met deze garantie bewijst Talbot, indien nodig, dat u met de aankoop van uw Talbot een goede investering heeft gedaan. De 6 jaar anti-corrosie garantie van Talbot houdt in, dat alle delen van carrosserie en onderstel, die van binnenuit door corrosie zouden zijn aangetast, volledig gratis worden hersteld. Om aanspraak te kunnen maken op deze garantie, hoeft de eigenaar zijn wagen alleen maar één keer per jaar bij een Talbot service-punt te laten inspecteren en behandelen. Dat duurt ongeveer een uur. De kosten zijn voor zijn rekening en het onderzoek dient te worden gedaan in het land, waar de wagen voor het eerst geregistreerd werd. Bij verkoop gaat de 6 jaar anti-corrosie garantie van Talbot over op de nieuwe eigenaar. Zij geldt alleen bij gebruik in met name genoemde landen binnen West-Europa.

robust engine and bulky 5-speed transmission inherited from the Citroen CX – Matra got the older transaxle but not the new Douvrin motor!

However, the cars and their chassis were quite solid when one considers that the same 1592cc engined Solara saloon had a base curb weight of 1040 kg / 2293 lb. compared to the 1.6 Murena's 1000kg. The 2.2 with its heavier engine weighed 2310 lb. (1050kg). Distribution was 42/58 and 41/59 respectively, but that does not tell the whole story.

Reporters also described the chassis as essentially a Bagheera one, adapted to suit. However, while it was the same in principle, that is pretty much where it stopped. The Murena chassis is quite a step in the direction of production car pressings, with more intricate and formed shapes that came together in a coherent overall structure.

Its new design would have taken into account the need to get molten zinc inside all the sections, nooks and crannies, to ensure the galvanizing process was a full success. Matra gave a six-year anti-corrosion warranty, which says they were fairly confident in their work. It was claimed by Matra that the Murena chassis was the first

galvanised production car chassis to be made. They were probably right, but at the time Lotus was galvanising the backbone chassis for their relatively low volume Esprit, Éclat and Elite models. All pressed steel parts were galvanised except the rear trailing arms, which in later life corroded from salted roads; at least they are easy enough to replace. Most of the front suspension was forged or cast; meaning only surface rust might form in time.

The galvanizing process for the Murena chassis required a special 22,000 sq.ft (2033m²) space set aside for the process, which included areas for degreasing, rinsing, pickling and finally hot-dip galvanizing. Each entire and complete chassis, all ready for final assembly, was immersed in a tank containing 390 tons of molten zinc at 460°C. The process would deposit over 18kg of zinc onto the chassis in two layers. The first layer, which consumed over 13 of those kilos, formed an intermetallic zinc-iron alloy compound on the surface of the chassis that is harder and more abrasion resistant than the underlying mild steel. The remaining 1/4 forms an impact barrier for the underlying layer; corrosion protection occurs because zinc does not rust and because it assumes

the role of a sacrificial barrier for the steel. A handy side effect of this added protection, and weight, is that it has been found that the galvanizing itself increased the torsional stiffness of the chassis by a measurable amount. This has been put down to three things: radiused or filleted corners, the effect of continuously bonded joints, and a slight increase in material gauge and stiffness, all formed by the galvanising process described above.

After the process was completed the body was riveted and bonded to it, producing a strong and long lasting car indeed. More than most unitary production cars that rely on their body to be part of the structure, the chassis of the Murena is quite rigid and stiff on its own and can be driven fully without the body attached. However, the body when fitted adds a structural benefit too, and as such, is a genuine unitary body/chassis structure.

A rather interesting feature was the vacuum storage chamber for the pop-up headlamps. If you look at the chassis picture behind the bottom corner of the door opening, you will see what looks like a rectangular hatch or cover. Because the 5-speed PSA transaxle is noticeably larger and bulkier than the Simca 4-speeder used in the Bagheera, the rear suspension mounting cross-tube seen in the M530 and Bagheera could not be used – they clashed for space. So a rectangular panel-steel beam was built into the bottom of the rear firewall and used to mount the trailing arms off.

This beam, or tube as it has sometimes



been called, is a closed cell in itself, and is used as a vacuum tank for the popup headlights. It provides a good reservoir for several applications of lights up and down, whether the engine is on or off. If it doesn't, there is a leak in the tank!

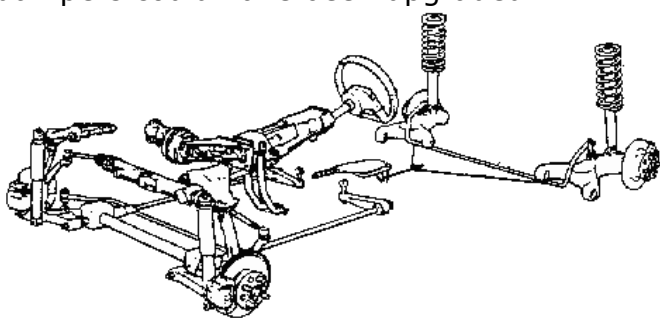
SUSPENSION

The rear trailing arms were taken from the Talbot 1510 range, which in effect was a late model Alpine. The Murena used the arms, which were fairly wide based to help them maintain good alignment under load, along with a coil spring damper arrangement instead of the transverse torsions bars found in the Bagheera. The 1510 used a coil-over arrangement too, but for the Murena, Matra fitted a long strut like unit with a higher-rate coil to account for the greater weight on the suspension than experienced by the fwd 1510. It also resulted in a better packaging arrangement in the engine bay, and fed the vertical bump loads into a better structural zone.

Mounting the rear trailing arms directly to the chassis resulted in Matra also using standard mounting practices and regular Metalastik style bushes. This allowed more flex on the bushes under hard cornering and in longitudinal bump shock, meaning a bit more rear-end steer than experienced in the previous Matra sports cars. Such a set up was normal for most cars using trailing or semi-trailing arm rear suspension, but the attention Matra had given to both the M530 and Bagheera in this regard had been a major reason for all the accolades placed at the wheels of the Murena's two predecessors when it came to roadholding and handling. The Murena was still good, but whereas previously no one had faulted Matra's roadholding manners, now test reporters found they could spin the car out when they were being almost deliberately ham-fisted.

All English language road tests were carried out on the 2.2 model, which some Europeans said was less sweet handling than the 1.6. The 50+ extra kg of the motor was all over the rear axle, giving as reported above, a greater rear weight bias of close to 40/60. The 2.2 engine was also ohc with a higher centre of gravity location, which also affects oversteer response in a negative way. This was in part why Matra fitted slightly larger diameter, lower profile higher performance tyres on the 2.2. But the curious thing was, while the 1.6 has 13x5½" steel wheels all round with 175/70 HR13 and

195/70 HR13 Michelin XVS tyres front and rear, the 2.2 got 14x6" light alloy rims with 185/60 HR14 and 195/60 HR14 Pirelli P6 tyres front and rear, meaning the actual tread width ratio front to rear is decreased when going from the 1.6 to the 2.2! i.e. 175:195 down to 185:195. It would have seemed more in keeping to have upped the rear tyres to a 205/60 HR14 tyre, which in fact owners have sometimes done later on. However, there may have been a good explanation for this as it appears that the same spring/damper units were used on both models. The tail heavier 2.2 might normally have received uprated units, but there are plausible reasons for keeping them the same; firstly, cheaper in production for obvious reasons, and second, the greater weight on the rear springs would effectively reduce the wheel rate, making the rear end 'softer', resulting in it doing less work when cornering, meaning less propensity for oversteer. But as we shall discover later, the dampers could have been upgraded.



While there were these various changes going on at the rear, the front suspension remained much like before, coming from the Alpine/ Solara/ Horizon range which was essentially an outgrowth of the Simca 1100. It is a good double wishbone setup with a long neck up from the hub to a relatively short top pressed steel wishbone; the lower

arm was cast, as was the hub/upright. This was mounted on the large diameter cross-tube from the same car, much as it was in the Bagheera, with longitudinal torsion bars 'sprouting' out from the rear of the lower wishbone pivot axis. A long telescopic damper is fitted out front of the lower wishbone, towards the hub end – which provides easy access for replacement and a fairly good stroke/ motion ratio, while once again, anti-swaybars are fitted all round and located on the car within the wheelbase.

The steering rack, at 3.2 turns lock to lock provides a moderate turning circle of 11.4m (37'5"). Steering equipment including the rack and pinion are also from the Alpine 1510/ Horizon range, with the rack mounted behind the axle line off the suspension mounting crossbeam /tube which originally provided transaxle mounting too. All this coming from a front drive vehicle which in itself was strong but not overbuilt, results in the front end of the Murena being plenty solid for its use as it has much less load to contend with, meaning; less flexure than when fitted in the saloon and the ability to maintain good accurate wheel geometry in hard use.

The brakes are solid discs all around with 9.45" diameter fronts for the 1.6 and 10.39" for the 2.2 reflecting its wider front tyres and greater weight transfer when braking; both models had 9.17" discs at the rear. A servo from the Talbot range was used with front-rear hydraulic circuit split, and a mechanical park brake on the rear discs.

At the time of its release test drivers said that the balance of the car was extremely good, with almost fade free braking, an uncanny ability to be braked hard even in the wet without lockup. Tyre-grip under all

conditions was described by some as astonishing; "you'll take corners in this car much faster than in most other cars ... it is very addictive." However, as said above, some found that as they got used to pushing harder, the rear end became more mobile, which good drivers could use to adjust cornering attitudes with deft use of the throttle and or minor adjustment of the steering wheel, while others, by now more used to understeering fwd cars, over-reacted and became loose and untidy in their progress.

Again, the flat bottom and 13.9" diameter steering wheel from the Bagheera remained, still with no power assistance. However, there were no



complaints about it being too heavy around town or when parking, and on the open road the steering was well praised.

Quoted vehicle dimensions are length 160.2" (4070 mm), width 69" (1752 mm), height 48" (1220mm – same as Bagheera) with a wheelbase of 95.9 in (2435 mm). Track front and rear vary between cars because of their wheel differences; 1.6 has 55.5/59.3" (1410/1506mm), 2.2 has same front but 60.1" (1526mm) rear.

ENGINEs/ TRANS

As we have seen, Matra engineers went into the Murena project with some optimism that they may have had for once a modern, light and potentially tuneable powerplant at their disposal. But, as Renault made sure, this optimism was short lived even though the Douvrin 2 litre engine was already part of the Peugeot PSA range, being fitted to the Citroen CX. So Matra had to 'bite its lip', and make do with the brought over Simca Talbot engine range.

It is not that the Simca and Chrysler lumps were all that bad, but they were quite heavy and robust for their capacity. The ohv 1592cc engine, at almost twice its original capacity, had been stretched to its limit! Its basic architecture consisted of a sturdy 5-main bearing iron block with a solid aluminium head that had individual ports and headers, swirl type combustion chambers, and light-weight valve gear and rockers.

In their day, a factory optioned 1204 or 1294cc Simca 1000 Rallye 2 was pretty much as fast in straight line acceleration as the Australian 4-litre straight-6 Hemi engined Chrysler Charger, and at around 115mph, had a top speed that left the Mini Cooper S wallowing in its wake; such Simcas would pull almost the same speed in third gear as the Cooper S would in top.

In its favour, and in addition to tuneability, were relatively compact overall dimensions, including the 4-speed transaxle, that made it more suited for really small sportscars like the earlier Renault engined Djet and the Simca CG, and even then, it was willing but near the end of its production cycle.

The 2.2 was relatively new, sohc, also of sturdy iron/ aluminium construction, with a potentially tuneable head design. The combustion chambers were of a double 'hemi-head' shape with the top hemisphere being for the exhaust valve, and taking up approximately $\frac{3}{4}$ of the piston-top area. The larger inlet valve was set in a slightly lower

hemisphere that is superimposed on the off-side of the exhaust valve. The splayed valves are operated off the central sohc by light-weight rockers. The potential to rev was there, and although strong in torque, the engines were also noted for their ability to rev easily in standard form.

To turn one into a real sports car powerplant, the engines needed a bit extra work on them, which Matra subsequently did, but at a cost, whereas the old ohv engines already had tuned versions that just needed bolting straight in.

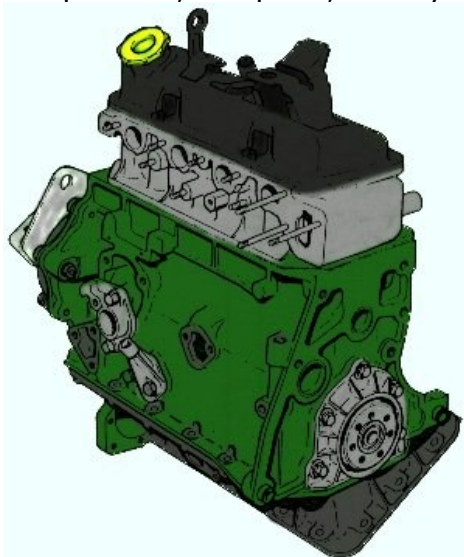
At least Matra got the 5-speed transaxle as this was fitted standard to the 1.6 Talbot 1510 and the 2.2 Tagora engines - the latter being an outgrowth of the unsuccessful Chrysler 2 Litre. However, the load capacity of this transaxle was quite high, and so for the regular Murenas it was a bit bulkier and heavier than was needed or desirable.

The ohv 1592cc engine used in the base 1.6 model Murena produced 92 bhp (68kW) at 5600 rpm and torque 102 lb.ft (136 Nm) at 3200 rpm, with a 9.35:1 compression and two twin-choke Weber 36 DCNVA16 carburettors. The bore/stroke of the original 1294cc Bagheera motor is 76.7x70mm; this went to 76.7x78mm for the 1442 motor, but with the 1592 the stroke was kept at 78mm and the bore was increased to 80.6mm, making it oversquare again. Power went up by only 3bhp, but torque was up 11%. Both the S2 Bagheera and the 1.6 Murena had almost identical kerb weights of around 970 and 1000kg respectively, meaning that with a 5-speed gearbox also, the 1.6 Murena should have gained a little extra pace.

Officially the 1.6's performance was 0:30mph: 3.6 sec, 60mph: 11.3sec, 100mph: 36.2 sec, a standing $\frac{1}{4}$ in 17.6 sec at 125kph/78mph and a top speed of 113mph (182kph), although as low as 10.3 to 60mph and even 9.9 sec to 100kph (equivalent to about 9.5 sec to 60mph) have been reported ...to achieve this the tester probably carried no passenger or extra luggage and gear, as English road tests do... But then surely, when anyone goes out for a blast, they don't load the car with a passenger and extra baggage?

Most notable was the improvement to 100mph, a gain of about 4 seconds over the best S2 Bagheera. Official fuel consumption and mileage was 7.9 litres/100km (35.6 mpg) and 10.5 l/per 100km in town. This old cast iron engine was a surprising unit in many ways, which like the Simca sedans it came from, was simple but clever. Although

pushrod, given enough top end breathing, it would pull 8-8,500rpm+, *all* day long. It had



1.6 engine

an unburstable bottom end, cross-flow alloy cylinder head with light-weight valve gear descending from the Largo-Talbots which were happy to rev but needed an oil and filter change every 5000k. If not, they got rattily, but it did not break. The timing chain to the bottom mounted camshaft had no tensioner, and as the chain wore the cam timing retarded, allowing it to rev even harder. The thing is, it was very tuneable for what it was, and hard to break.

The sohc 2.2 engine from the Tagora was 2156cc with a bore and stroke of 91.7x81.6mm – again solid oversquare dimensions, with a 9.45:1 compression. It produced 118bhp 5800rpm, but much more torque than the 1.6 with 136/133lb.ft (185/181Nm) @ 3000rpm, using either a Weber 32/36 ADC or Solex 32/35 TMIMA carburettor.

Official performance figures for the 2.2 were 0:30mph: 2.7 sec, 60mph: 9.2 sec, 100mph: 30.5 sec - at which point the car would be passing the one kilometre post, a standing ¼ in 16.7 sec at 136kph/85mph and a top speed of 124mph (200kph). Motor got 121mph on the MIRA banking with one of the earlier press cars, which with tyre scrub taken into account they estimated a top speed on a straight road of around 125mph. And they had no complaints about high speed stability in this earlier production car...

Red-line speed in-the-gears for the 2.2 are 32, 55, 80 and 107mph all at 6500rpm and 125mph at 5800rpm. The only complaint was that 2nd gear, at 55mph max is too low; it would have been better at about 62mph, but it was the product of inheriting the Tagora/

CX saloon car 'box. Third gear, however, is useful for passing etc.

Wheels magazine got 0:100kph in 9.3, as did the European publication that got 9.9 seconds for the 1.6, meaning a 0:60mph time of around 8.9sec or less, while another scraped in under 30 seconds to 100mph. Fuel consumption and mileage figures were: 9.3 litres/100km (30.5 mpg) and 12.3 l/per 100km in town.

However, Matra weren't settled with these results and presented Peugeot with some further proposals. All but one were turned down by Peugeot; these shall be covered later. The upgrade Peugeot did accept was called Préparation 142cv. As mentioned



118cv 4 cyl engine. 2156cm³

above, this was released in 1982 as a factory approved tuning kit to be fitted at an approved dealer as Peugeot would not let Matra sell it as a factory car. The kit consisted of the following parts; • intake manifold • 2 Solex C40 ADDHE carburetors • 4 inlet trumpets • accelerator • 1 Throttle cable • 1 airbox • 1 Camshaft • 1 Igniter • 1 Ignition beam • a beam switch • new dipstick tube • hoses, various fasteners and joints • 2 side skirts • 1 Aileron • 1 spoiler. Wheels and tyres remained the same. A 4 branch exhaust was also mentioned, although not in the quoted list. The new intake manifold was designed not only to take twin carburetors, but it was angled up to clear the top of the fuel tank, thus allowing room for trumpets.

Engine dimensions remained unaltered, but compression was quoted half a point higher at 9.5:1 (planed head?), while the quoted power went to 142bhp (138 DIN/ 104 kW) @ 6000rpm, and 138lb.ft (187Nm) at 3800rpm, with a 6250rpm redline.

As a result the performance increased to 130mph maximum with a 0:60mph sprint over a second quicker at 8.1sec, 100kph in 8.4, 0:100mph in 25sec and a standing ¼ of 16.3 sec at 88mph. The best 0:60mph sprint was 7.9sec, and a standing 1/4 mile (402 m) in 15.7sec. Fuel consumption figures were slightly down at 9.9 litres/100km (28.5 mpg) overall, 13.9 l/100kph in town.

Murena prototype Press Kit Préparation 142cv



In 1983, once under Renault ownership, Matra got to sell the car ex-factory as a regular model; in fact it was the last model Murena made. In this guise, it changed name from Murena Préparation 142cv to Murena S. The two were almost identical mechanically, except the S received a new copper core radiator and a lightened flywheel. There were some extra luxury appointments such as thicker carpets and black leatherette around the hatch and engine bay surrounds, plus extra identifying logos etc. The 480 cars built came in 4 colours, being; Red Mephisto (155 made), Blanc Neve (90), Bleu Colombia (130), Gris Titane - Titanium Gray (105).

No English speaking publication tested a Murena S, or Préparation 142cv, but enthusiasts on the blog sites give them a definite thumbs-up as a noticeable step over the standard 2.2.

What wasn't acknowledged often was the fact that in a 'middle-class' market of front engined Sports and GT cars, the Murena appeared as a sort of minor supercar, like the Bagheera had been seen as a mini

Lamborghini Urraco. This tended to make people expect more than they should for their money; on the one hand some wanted minor supercar league performance while others, because of its mundane mechanicals, expected saloon car prices and economy car mileage. And, had Peugeot given Matra a freer reign, most might have got what they wanted for while they made every endeavour to answer the calls for more performance – to (almost) no avail, they pretty much meet the other requirements straight out of the box.

Pricewise in France, the 1.6 model was 60,000 Francs, about £5,500. The estimated imported price for a 1.6 in UK at the time was £7025 – same as the Lotus Sunbeam which was quicker accelerating than the 2.2, but with a similar top speed of 121mph - and about £8,000 for the 2.2. However, this car was one of the fastest English cars of its type at the time, and the Matra price included an import premium, obviously (about £1500 in this case), which made UK comparisons rather unfair. To make an official RHD version the factory said they'd need to sell 1500 units a year for it to be worth converting. Obviously they were sceptical about this possibility as it never happened.



THE PRESS: PERFORMANCE / ROAD TESTS

Gearing provided what testers considered a good balance between performance and economy; the helical spur gear final drive uses a 4.77:1 ratio for the 1.6 and 4.36:1 for the 2.2, giving 19.6 mph/1000 rpm and 20.9mph/ 1000 respectively.



Motor got 28.8 mpg for the 2.2 during their time with the car, which included a test session at Montlhéry circuit, Paris traffic and high speed cruising. A steady 90kph gave 47.2 mpg for the 1.6 and 41.1 mpg for the 2.2; the expected all round test mileage under similar conditions for the 1.6 was given as around 33.5mpg, taking into account the need to work harder to make the same progress. At 100mph the 2.2 got 22 mpg, indicating the car's good aerodynamic properties; at 60mph it achieved 40 mpg with 40 mph giving the best mileage figure.

In their comparison with its considered market contenders the 2.2 achieved the best mileage figures, with an Alfetta GTV 1800, Porsche 924 and 2-litre Lancia Montecarlo following (28.8, 25.4, 25.2, 23.3mpg respectively). In the same order, accelerations to 60mph - despite an extra gear change, were 9.4, 9.5, 9.3, 9.0 seconds, and top speeds were 121mph (on the banking), 118mph, 121.3, 115mph. Prices in UK; £8,000 estimated, £7,710, £9,103, £8,100. Even the RX-7 failed to improve anywhere. It seems that take out the emotion, Matra had done a pretty good job all round. Dynamically, most of the road test drivers indicated that the Murena was still in a class of its own, above the others.

"Gets of the line quickly enough even though it has good traction and little ability to wheelspin" was an initial comment that stands out when making comparisons with the previous Bagheera, which because of its gearing, good traction and less torque, was a

little slower than its competitors on initial take-up. This comment also serves to say that the Murena would post quicker acceleration times up through the gears, having had a good launch. "Steering light and accurate and well damped with no tendency to weave about, though straight-line stability only moderate as momentary inattention can see one drifting off line" was another Motor comment, although at "3.2 turns lock to lock could be made tighter" ..even though it has no power assistance. "Handling very well balanced, with no inherent twitchiness... smooth driving rewards with very fast cornering indeed with imperceptible body roll; another Motor comment. However, it was found that pushing hard on the accelerator too early when travelling fast through a corner resulted in an oversteer slide that if reacted to by sudden 'lift-off', could cause the tail to whip back really quickly which then needed fast responses to avoid a secondary slide the other way - the quickness of the response being seen as a result of the car's low polar-moment of inertia inherent in mid-engined cars. Deftly applying opposite lock or easing the accelerator to restore equilibrium worked well for more experienced drivers, but this response could also indicate that the car may have benefited with firmer rebound damping (possibly as a result of 1.6 model springs and dampers being used in the tail-heavier 2.2), and that the new system of mounting the rear suspension had lost some of the neutral toe-steer more inherent in the Bagheera and M530.



It was also noted that an abrupt entry into a tight corner on a damp surface could cause understeer... which tends to be true of any car without driver aids to help overcome clumsy driving styles. However, it is probably more-true of mid-engined cars with their lightly loaded front tyres not getting enough mechanical purchase before the quick responses from the low-polar mid-engined layout overcome tyre grip. Sufficiently damped steering, with perhaps a well-judged variable rate rack plus not too firm front end bump damping can often help here, as can tyres with the right (soft) compound and tread design; but one can't account for everyone's driving style without driver aids, or without making the car's responses numb to the touch.

CAR magazine's LJK Setright, and musician Antony Hopkins - fellow friend of Nick Mason and a regular track user, found that they did not experience these behaviours when driving fast on the open road or the track. Indeed, Setright rather admonished other test drivers when he joined the press fleet in Morocco, suggesting that on the whole their driving skills were not up to much. Setright commented that he soon took over from his co-driver and cleared off into the blue

beyond, or deserted mountain route, not seeing the others until they later caught up.

Setright thought that if one wanted a chic little second car that was sporting and economical, the 1.6 would do. But if one wanted a sporting car of greater roadworthiness and good top speed, then the 2.2 was needed; "Make no mistake, he reported, the Murena is capable of covering the ground at average speeds bordering on fantasy: if you possess the judgement (not so much the skills) of a very good driver, you can exploit that capability."

Hopkins, whose car was a 2.2 converted by the Dutch firm Mosselman to a low pressure 5psi turbocharger instillation developed by them for the Murena, also quietly commented after the magazine 'road-tester' had managed to spin his car on the MIRA test track "that in his hands the car rarely if ever behaved that way..."

Motor stated that the brakes could not be faulted and though light in operation there was no feeling of being over-servoed. They noted that their long and hard drive - mainly on wet French D-roads, had failed to produce any front end lock-up which tended to be a trait of pre ABS mid-engined cars. They experienced no fade either, even at Montlhéry, and observed that the handbrake

on the rear discs was light and effective in use. The well-known test driver Jerry Sloniger commented "the steering is light and accurate and the four-wheel disc brakes work *right now* without locking the front wheels, even in the wet." Sloniger did manage to get some smell and slightly softer pedal on a hard driven downhill pass where late braking was pushed to the limit – but no true fade. He also commented that the gear shift, usually *not* one of the best attributes of a mid-engined car, was a one of the car's finest controls, and "was a total joy to snap from gear to gear once the gear-oil was warm – not that much shifting was needed with so much torque on hand..."

Setright then observed "that it is possible to induce enough understeer at speed for the flat bottom of the steering to come into play. It is also possible to make it hang its tail out and take the same bend quite differently. It is a car that responds deftly to the driver's dexterity – not so much what he does with his hands, as what he does with his right foot.

"Steering by throttle is not a nervous succession of jabs and twitches suffered in some rear engined cars, and many front drivers, but it is a progressive and predictable operation that can be conducted to correct a trajectory, to coax a drift, to confine a slide, or merely caress one's self-esteem. If cornering fast enough, steering by brakes is also available for most of these purposes with the servo-assisted 4-wheel discs summoning useful differentials of cornering power."

The different tyres of the two models, it was said, also produced different differentials in roadholding performance with the Michelin XVS being the stiffest in construction and compound, consequently making them less happy in the wet. The front Pirelli P6's, it was noted, had shorter sidewalls through their lower aspect ratio, but another 10mm in nominal tread width which made a significant difference to the on-the-road tyre and steering performance, and yet some said the Pirellis also had a more absorbent ride through softer construction. Other Pirelli

pluses included smoother more predictable steering response, smaller slip angles that were made apparent as effectively higher-gear steering, and much firmer straighter braking.

Setright did not let the Murena totally off the hook, though. In his 80k flight across the Moroccan ranges he learnt a lot, he said: no need to take the engine beyond 6000, the braking could be left very late indeed, that in a fast hard bend he could deliberately send the tail swing out by lifting abruptly and yet have plenty of time to fetch it with a smoothly resumed throttle and very little wheel work, and that a high-performance car needs high-performance dampers as he succeeded in making the rears fade on the 2.2... which kind of bears out the comments above regarding valving and having the same spring damper setup as the 1.6. It would seem that for hard use the Murena 2.2 needed better dampers at the rear.



MOTOR, after commenting on a "far-from-generous boot space" and the restricted headroom for tall and long backed drivers, went on to say "The driver's seat is extremely comfortable and generated no aches or pains after four hours at the wheel, and the Murena's ride is absorbent in the French tradition, giving reasonable comfort even over the notoriously bumpy Montlhéry banking." They commented on the flat bottomed steering wheel too, but did not find its shape an issue, and also the well-spaced pedals, plus the fact that although the Murena essentially used regular Talbot salon

switchgear, "the French seemed unable to resist the temptation to 'style' instruments", with the Murena's two main dials being flattened into ovals that were too generously marked to read easily at a glance...

The boot comments were interesting as the boot is wide, deep but not long front to rear, and although many said it lacked space, at 300 litres quoted in the official literature it was likely more a factor of its shape; 300 litres is 10.6 cu.ft. The Bagheera is quoted as having a 9.7 cu.ft boot and was generally praised for being able to carry 4 average sized suitcases plus soft gear. Finally, Motor praised the car's relative isolation from engine noise and heat in the cabin, saying that the differing tyre noises on various road surfaces was generally more obvious.

Summing up, they thought the Murena had a lot in its favour; fast, comfortable, economical, well sorted chassis and good brakes. The Murena was also an obvious step up from its engine supplier

Talbot as the Tagora, which at 1345kg kerb weight for the 2.6 litre V6 producing 163bhp, and Cd of 0.42, could manage a similar top speed of 119 to 121 mph and only a slightly improved sprint to 60mph. The Murena S with only 140bhp from the 2.2 engine could do around 130mph and accelerate notably faster...

PRODUCTION NUMBERS

There was some suggestion that the early demise of the Murena was due to Matra's lack of factory space to expand, and a rather labour intensive method of production and assembly. However, from the start Matra designed the plant to be capable of producing 8,000 plus units a year - remember, they built over 11,200 Bagheeras in their best year, and the Murena construction was essentially just a development of that car albeit with a large galvanising area in the middle; hence the lower 8,000+ provision.

The first year of manufacture was in fact the best year for the Murena with 4400 being

built, so any suggestion of Matra being incapable of meeting demand was false. These first year cars started with the B prefix and were in fact number 1 to 4400. Production of the 1.6 litre model started in November 1980, while the 2.2 did not get going until early 1981 due to the need to overcome oil starvation problems in hard cornering. This they did by early spring 1980, and so the cars released to the press in Morocco were early production 1.6 cars with pre-production 2.2's. The first serial number released for a 2.2 was No.2864. These were 1981 cars, in effect, accepting that most manufacturers release their following year's models in the lead-up to Christmas the year



before.

1982 models, from late 1981 on, started with the C prefix and went from 4401 to 8160. This makes a total of 3760 in numbers, but it is said that only 3720 cars were actually built that year. The next year 1983, starting late 1982, saw a total of 2040 D series cars with numbers 8161 to 10200, and the final "year" from around September 1983 to Christmas the same year were the last 480 E series cars built taking the numbers from 10201 out to 10680.

Of these 5640 were 1.6 and 4560 were standard 2.2 models, although 74 of them were subsequently converted to Préparation 142 cars. The conversion resulted in a registration change that included the nomenclature "mod142" and a small sticker affixed to the inner front right wheel arch (see above) denoting the new status of the vehicle. A further 480 2.2S Murena's were built under Renault, making a total of 5040 2.2 cars altogether. When one accounts for

2863 1.6 cars being sold before the 2.2 got started, it would indicate that there was a big rush to begin with that just slowed from there on, but with the 2.2 being more in demand once available.

It is perhaps interesting to note that while the press cried out for more power the buying public were almost equally happy with the less powerful 1.6 model. Some European reports at the time suggested that the 1.6 had a sweeter revving engine and was better balanced with its slightly lighter motor, and was more economical with some results getting as low as 7.3 litres/100km compared with 8.6 litres /100km for the 2.2's. Mind you, these are still good results for a 124mph car, so perhaps like the MX-5 that came later, the slightly lower published brochure figures of 0:100kph in 9.9 and 182kph/ 113mph top speed compared with 0:100kph in 9.3 and 200kph/ 124mph were of little concern for half its prospective customers. The smaller engined cars sold as much on their sweet chassis and adequate performance plus reasonable practicality at the right price, as the 2.2 might have sold on outright performance. And herein lies, perhaps, the missed opportunity that Matra could see but its parent companies would not acknowledge – for while the 1.6 catered quite well for one section of the market, the 2.2 was not quite enough for the other; that is, for those who wanted a real mid-engined performance car. It shows that the S models sold quickly once released, suggesting that if Matra had been left to do what it knew it had to do – S and 4S versions at least, then the sales may have been better. Indeed, for a car that resolved most of the press criticisms levelled at the Bagheera, its annual production rate never threatened those of the Bagheera, not even remotely, with the overall 3+ year total not even equalling the best year of the Bagheera.

At the beginning of the last year of manufacture, 1983, there had been a pause in production as Peugeot arranged the sale of Matra to Renault. Matra's Rancho range of cheap Range-Rover style vehicles was due for replacement, and Matra had proposed an entirely new concept that had not really been seen before; the P18 to use its factory code name. It was soon to make a big hit as the Renault Espace, but at the time it was said that Peugeot did not see its potential and felt



Race and Rally



it could not afford its development and production. Renault saw the opportunity and jumped. Then, after hesitating briefly, Renault gave Matra the go-ahead to make the final run of production Murena's, the 2.2S with the 142bhp engine. This saw the conclusion of the Murena line, just prior to Christmas 1983; it also ended Matra as a producer of road going sportscars, and indeed any cars at all under its own name. Instead Matra became a maker of specialised models for Renault. They also made a number of interesting sports prototypes over the next 15 plus years, but none were allowed to progress into production, even limited production... The space they had used for the galvanising and manufacture of the Murena was turned into an assembly plant for the new range of specialised models that Matra developed for Renault; the Espace in its various iterations plus the Avantime. When the factory reopened just after Christmas in early '84, it opened as a production facility for the new Espace which Matra had been busy developing alongside the last run of Murena sports cars.