

On TEST

An American model company — the name escapes me — have a slogan which appears in their adverts.

"Quality, the difference between frustration and enjoyment."

I am not a serious 1/10th competitor, but have enjoyed racing Off-Road occasionally. It is because 1/10th appears to provide such pleasure for the majority of its participants that a non-competitor such as myself is probably better placed to comment on the car than a top driver. A top driver will normally assess a car in comparison with his or her current machine, and change the newcomer in light of knowledge or preference.

Rank outsiders such as myself derive — in my experience — greatest pleasure from results obtained by driving to the limit of our ability. If the car fails to match that ability then we easily become frustrated. I regard the PB 'Mustang,' and its direct competitors, as offering high technical competence capable of responding fully to my limited driving skill — and that is how I have judged the car.

Which kit?

The car enjoyed two days in RCMC's studio having its picture taken, during which time I built up the two speed gearbox. Once again, close adherence to the PB instructions produced a first time result. A large tray to catch small parts as they (inevitably!) fall, plus one or two dry runs to practice the knack, is recommended. Although it is too early to give judgement in selecting their starter kit — single or two speed?

The comparison is interesting!

Two speed kit £179.97 + single option (£8.91) = £188.88.
Single speed kit £159.50 + two speed option (£29.52) = £189.02.

I suggest buyers start with a single speed kit and add the two speed option if desired — the penalty is a paltry 14 pence.

RCMC's car got a first run outside the house — it was dark and wet. Tyres designed for mud and grass are not renowned

for grip on wet tarmac, but wheelspin on acceleration was minimal. Using brakes the car could be thrown around in a controllable manner.

There is less steering lock available than on other cars, not a real problem in negotiating corners. However, this lack of lock restricts the angle of oversteer which can be held. Several times the car spun when more lock would have held it in reasonable line. I disregarded this problem as peculiar to the surface chosen, better tyres would enhance grip and reduce the oversteer.

There was no belt slip, the car ran arrow straight 'hands off,' even under acceleration. Inadvertent trips through the puddles (invisible in the dark) showed the body to be protective of the major electrical components. Receivers, speed controllers and servos must be well sealed against wet and dirt. I use household *Cling Film* wrapped several times around the receiver and speed controller, and sealed off with insulating tape. The chosen 'FP-S131SH' Futaba servo is a waterproof design.

A local charity Grand Prix was the first outing for the car. Using it straight out of the box with a standard motor on 17:54, I felt quite nervous taking place on the rostrum. Is this 1/10th racing fun or what? Quickly working my way up among the leaders, my only thought was how to get all that dirt off the car at the end of the race!

The supplied *Dynamite* tyres

proved unequal to the task of providing grip on the shingle/gravel parts of the track, but all right on the grass. For this race a set of 'Hotshot' spikes were used for good effect. I qualified within 10% of FTD on this single run — most satisfactory.

A practice run to test the various suspension settings ended abruptly with a front wishbone broken on a vicious stone in the infield. This was quickly replaced before the (B) final, and the car was geared for more acceleration on this very short track.

Starting from the back of the grid (my choice) the car proved easy to control as I worked my way up through the field to an eventual second place.

The surface is so much more slippery than a 1/12th track that the throttle has to be used more carefully. The car steers as well on the throttle as the steering, further evidence of its innate stability and correctness of design. On the gravel full, four-wheel drifts were no problem under control, nor was a tight line going inside other competitors in the grassy turns. The whole outing proved most enjoyable.

1986 National Champion Pete Stevens had a 'stir of the sticks,' pronouncing the car very stable but with too much understeer, I tend to agree. However, the track was small, and understeer is the sort of stability one needs.

Best performance on this track was obtained with both front and rear wheels dead ahead, no toe in/out. Front and rear suspension was set as soft as possible, spring collars right at the top of the damper bodies.

There remained sufficient ground clearance for all but the very worst bumps, and here most other cars also grounded.

Flushed with this minor success the car was entered for the monthly meeting at the Chesham Off Road Club. This all grass circuit has changed over the years, now sporting some quite sharp turns and unnecessary narrow sections.

Using the two speed gearbox with a 11/17 pinion, the car seemed very slow. Unable to see or hear the change point from the rostrum I was not sure what was going on, but the run produced a top twenty time. I elected to remove the gearbox for two reasons, firstly that I could not tell what was going on and had no wish to give a verdict on limited experience and knowledge and, secondly, I had no idea how to gear it for an 18 turn 'standard' motor which it had been decided I should fit! Gearbox views must wait for another day.

Springs were 'stiffened' for the second run by moving the collars 1/4 in. from the top of the damper body. A lucky start and some good breaks in the traffic gave me an A-final time on this run. The car felt superb, handling bumps with ease and again easy to steer on the throttle. A long sweeping 'S' bend with reverse camber exit could be taken flat out, even if

the car did slide it was a quick flick of opposite lock to catch it before the next sweeping 180° bend. For whatever reason the car was quickest through here than anyone else's in the heat, though not in the final!

In the cold weather the dampers stiffened considerably as the oil thickened. There was no undue effect on handling, but other cars which rode the bumps more evenly had higher damping. A second set of shockers has been ordered and will be set using lighter oil for conditions where lighter damping is a benefit.

The third run was an object lesson in how not to do it, every mistake and collision which could reasonably happen, did!

In the final an excellent start advantage was lost when a front drive shaft shed a pin, reducing the car to two-wheel drive. Subsequent examination showed that the pin had been incorrectly assembled — I forgot the glue! This is the only conclusion I can draw since all the other pins are firmly in place, even a tap with a hammer will not move them. The point does concern me since cyanoacrylate (super) glues are not good in shock loads, but since no-one else has the problem, I put it down to bad preparation at trackside, and poor assembly.

Drive shafts will now be checked after every meeting. Whilst the car was running in 4WD it was fast, stable and easy to drive, getting up to second place for quite a time and holding station with the leading car — a modified 'Mini-Mustang.' Mods to this car included fitting 'Hotshot' front axle blocks and driveshafts to increase steering lock.

This question of lock is vexed. On the narrow Chesham track there was no need for more

steering in the turns, but if the car spun out the turning circle is too large to get around in the track width with speed and guaranteed first time success. So far driving the car is OK — but, in the event of accidents or mistakes more lock is needed. PB have a solution which is available should you find the amount of lock a problem and it is quite inexpensive. None of the users I spoke to at Chesham identified lack of lock as a problem.

Once again, comparison with the *Schumacher* 'CAT' is probably uppermost in the readers' mind.

Let's make it clear that Andy Dobson, Pete Stevens, Jamie Booth, etc., would win if they were driving a double decker bus, such is their depth of skill and experience. I suspect the 'CAT' may develop an advantage over the 'Mustang' in time, but that advantage may only be of use to the top 30 drivers in the country. Andy Dobson will be National 1/10th Champion in '87 or '88 — even with the aforesaid bus!

For the clubman the choice is more difficult, for the 'CAT' we have higher technical spec, selectable 2 or 4WD, smoother damper action, and plenty of steering lock. In the 'Mustang's' favour we can enjoy a lower purchase price (single speed 4WD), easier build, interchangeability of wheels with existing cars, more room for components (speed control etc.), and low cost spares.

For both of them; they are British, well made, sturdy and capable of more than 'out of the box' performance by simple tuning. You choose!

It would be unreasonable to assume that the car will never need a spare part, even though it has been reliable to this point.

PB's parts list details every spare an owner could possibly need. Prices seem to me very reasonable, in particular the replacement damper kits at £6.19 per pair. Although less likely to need replacement as one suspects, £2.78 for the drive belt is sensible pricing, as competitive as £24.28 for a complete new set of bearings (4WD). The wishbone? £1.44 a pair.

There are plenty of suspension adjustments available to 'tune' the car to your needs. Ride height can be raised and lowered with the spring collars, toe in/out adjusted at the front on the track rods. Rear wheel toe in/out can be adjusted to affect the cornering response, and changes to damper oil will affect the handling.

Not all these variations have been tried, those tested show a change in the car's characteristics, even if only slightly. Wheels and tyres are a free choice, providing they are based on the 'Hotshot' range. The supplied *Dynamite* tyres are up to most jobs, no doubt users will try others depending upon the track conditions. The instructions give a good guide to suspension adjustments.

Almost any currently available motor will fit, certainly all the *Yokomo*, *Kyosho* and *Igorashi* based offerings drop straight in. As smaller pinions are used it gets a bit fiddly to tighten the right hand motor screw which tends to be masked by the spur gear. The best method is to find a good mesh and tighten the left hand screw. Remove the spur (plastic) gear, tighten the right hand screw and replace the spur gear.

It is difficult to fit a rubber motor cover as this tends to foul on the hole provided for the motor. Foam covers which will compress may be better, but I wrapped 'cling film' around the motor, taped to the car and around the lead wires.

In reality the motor is fairly well protected, so only in very wet or dirty conditions would I really bother. Regular motor maintenance and cleaning should suffice. Other buggies — notably the 'CAT' — provide better motor protection. Changing gear ratios could not be easier.

All current packs of cells fit without problems. By using a piece of bicycle inner tube 1/2 in. wide as a 'spacer,' the supplied battery clamps provide positive location.

This also allows cell packs to be used in 1/12th cars yet be quickly adapted to the 'Mini-Mustang,' a personal requirement. Supported at only one end the packs can 'droop' at the opposite end on a punishing track. This is not a serious problem, a support of firm rubber between the cells and the chassis tray would resolve the matter.

£7.49 buys a replacement clear Lexan body, no doubt there will be competitive

offerings soon. Mick Langridge of *SRM* is known to be considering an alternative — but these may be more expensive. Body mounting is simple, but it is advisable to ensure that the base of the body rests on the chassis tray for added stability. Do not forget to cut a clearance slot allowing free movement of the servo to bellcrank linkage.

The transmission appears effective, the car is quick to accelerate. As far as I can tell there is no lack of straight line speed, and my gear ratios were if anything, slightly lower than my peers; this may reflect the quality of the *SRM* 'Race Prep' motor and *Laser* matched SCR cells.

If one removes the motor and pushes the car, it freewheels an impressive distance. One must assume the whole drive train is quite efficient, compare that to a 'Hotshot!'

Belt tension should be sufficient to prevent any slip on acceleration, although some slip (heard as a 'clicking' noise) may then be apparent on braking. At all costs avoid slamming the car from reverse to forward, this may cause damage.

Sackcloth and Ashes

The Kit review of the PB Mini Mustang drew some sharp comments from its designer Keith Plested. He was very fair, but there are a number of areas where we must correct the report.

When commenting on the moulding flash in the damper pistons, which PB do not deny, we said that they should be drilled out, inferring equal sized holes. This is incorrect. The holes are designed to be 1.0mm and 1.6mm. If they are drilled out the same size there will be a significant change in the designed damping. PB stress, and so do we, that the car is designed for two unequal sized holes of the dimensions given above.

Further, the article implies that purpose designed damper oils are better than '3 in 1' oil recommended by PB. Whilst this is true, damper oils for motorbikes and cars are acidic in the same way as brake fluid, and will cause damage to the O rings in the dampers. PB recommend '3 in 1' because it is available and reliable. Keith is quite happy for people to use *Tamiya* or *Robbe* shock oil, but do not use automotive type damper oil.

I commented on the use of slot headed screws instead of *Pozidrive* 'cross' heads. Keith points out that slotted screws are dangerous in assembly because the screwdriver can slip out of the hand and cause damage to hands and fingers. This thought had never crossed my mind. *Pozidrive*'s cross pattern prevents slippage, and even should this happen the blunt point will be unlikely to break the skin. I remove



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unreservedly any suggestion that slot headed screws should be used.

The correct screw driver is a No. 1 *POZIDRIVE*, not *Philips*, and *Stanley Tools* do theirs with a blue handle to distinguish the type of point. *Philips* are red handled.

On the matter of including some 2mm nuts and bolts for the spine, *PB* have now done so in respect of the screws at each end of the spine. This is to prevent the spine 'peeling' apart in an accident. Again they state that careful tensioning of self tappers with the correct screwdriver will achieve the desired result, we agree and said so in the review.

On the subject of quality of mouldings, *PB* have been working on this with noticeable improvements. Keith points out that he is using filled plastics to gain the necessary strength, and not the lower strength unfilled types the Japanese use. It is a fact that filled or reinforced plastics are far more difficult to mould but much stronger.

If *PB* had not used such materials the car would not be as strong as it is. As we pointed out in the road test, what you get is all you need. Unlike other kits, breakages are rare, explainable, and there is no need to buy 'tune up' parts to replace any of the standard items. The car is strong 'out of the box'.

My thanks to Keith Plested for pointing out the error of my ways, I hope this redresses the wrongs I have wrought.

Conclusions

There will never be a definitive judgement on any car such as this. Already *SRM Racing* are offering parts to 'tune' your 'Mini-Mustang' and *PB* may continue to develop the car in months to come.

My verdict is well done *PB*. What we have here is a car with up-to-date suspension geometry, good wheel location and well 'sorted' spring/damper settings. These technical points are built into a sturdy car to provide the average user with one of the best solutions to competitive (price and performance) Off-Road racing yet seen in the UK — what you get is all you need.

For the serious competitor, aiming for the top, the car will not disappoint, but there remains question marks over the amount of steering lock, the relatively small number of spur gears available and the six tooth 'step' in the two speed gearbox.

The 'Mini-Mustang' will never give its full potential without the stimulus of competition — that it will get in full measure. We should discuss this again after the National races in 1987.

The car should be positioned in the market as aiming for the average clubman looking for an out-of-the-box car capable of responding well to a driver's ability. Products should not be judged on their position in the market, but by the way they fill it. *PB*'s 'Mini-Mustang' fills the market position well, it is a car which brings enjoyment at a price which will become more competitive as the strengthening Yen pushes up the price of Japanese kits.

Oh, yes, 1/10th is fun! It was made so for me by Paul Pagdin of *PB* and by encouragement from Peter Stevens and George Land — thank you all.

Reviewed by Pete Winton.

