



THE PANTHER CAR CLUB

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LIMA BUYERS GUIDE

EASY AS ABC or ITSA BITSA

In motorcycling jargon, a "bitsa" is a bike made from components of different makes - literally bits a' this and bits a' that. Sometimes these machines even have proper names as in "Triton" - a Triumph engine in a Norton frame. We are not suggesting that the Lima should be called a Vauxland or Leyhall but it is something of a hybrid and it is the aim of this piece to go beyond the "Maxi bumper and Midget doors" type of article and to explore in more detail just what Panthers first production car was made of. Including highlighting any common (and less common) problems.

The history of the car, numbers built and dates of manufacture is a murky area, and it seems that many company records were "lost" during the time the company was in receivership c.1980/81. (However loosely, there were 700 S1 & 350 S2. S1's overlapping the S2 due to dealer stocked cars). Very late Korean Panther Car Co built Limas could be considered as S3. The very first two S1 Limas were handmade in aluminium.

LA DIFFERENCE

There are two types of Lima, named with stunning logic the Series One and Series Two, hereinafter called the S1 and S2.

To an untrained eye, the cars may appear almost identical, but there are many differences - and many similarities.

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The fundamental difference between the two models is the chassis. The S1 is a Vauxhall Viva floorpan with additional sections welded on at the front and rear, for engine support, scuttle and doorposts. Because of the nature of the Viva floor, which rises over the back axle, the Lima seats are in effect where the rear seat of the Vauxhall would be, which gives the characteristic high seating position of this model. Some drivers prefer this, especially those short in stature!

Because of age, and the original build quality being a bit suspect, these chassis can be prone to rust, the nastiest four letter word in the car enthusiast's vocabulary.

Areas to look at are the box sections running fore and aft and at the junction of the front & rear doorposts with the floor sections, plus the doorposts themselves. In extreme cases rust can lead to such severe deterioration of the chassis, that when the doors are opened, the car sags in the middle.

This would be a very extreme case extreme case, but it could happen. However, the good news is that the problem is not terminal - & can be fixed. Reinforcing plates can be welded in at the vital areas.

Including across original Vx panels & overlaps.

Remember that rust is like a disease - the earlier it's discovered, the easier it is to cure.

On the S2 Lima, the chassis is a more substantial device, a purpose built steel tube frame which is more robust and probably stronger (it's certainly heavier). It has some corrosion problems of its own. Rust in the S2 like the S1. IF evident, is usually on or around the long outer chassis rails (lower areas) plus door support uprights where they meet the chassis. – The carpet is glued in place but tap it or press hard maybe with a screwdriver handle, but ask the owner first! Fuel tanks can rust so look out for patch repairs & check the chassis rail behind the rear valance. Watch out for corroded fuel lines (along the inside of the chassis rail on the S1, & tucked under the running board/wing on the S2 after it has moved across from n/side to o/side). Look for evidence of water ingress in the boot area, as the GRP should be bonded onto the chassis in the corners under the rear wings. The lower trailing arms have also known to rust through (VX parts). The design of this chassis means that the floor and seats are lower, although getting in and out is less easy. That's also why the battery can be set lower but still be clear of the passenger's knees.

There is a subtle difference between the engines in S1 and S2's. Some S1's are fitted with higher compression engines than those in Series Twos. To find out which engine is fitted, look at the engine number on the ident plate. If there is an 'L' in the number, it's low comp 7.3 to 1, an 'H' means high comp 8.5 to 1. Neither being more powerful than the other.

On S1 Limas, the alternator is installed in the original Vauxhall position on the lower nearside front of the engine below the exhaust manifold. Due to the narrow confines of the Lima engine room, this means that the alternator is rather inaccessible, and removing it or fitting a fanbelt can be painstaking jobs. In view of this, on S2s the alternator was repositioned in an easy to get at place on the offside of the engine below the fuel pump. Sound's fine. However, the mounting bracket devised by Panthers for this was a crude device. It's an odd affair of plates, square tubes, round tubes, bolts and washers which screws to the engine block and oil filter housing, and is prone to shearing its mounting bolts. Check !

Yet another difference between S1 and S2 is the fuel tank - they are not the same size. The tank on the S1 has a quite useful capacity of around ten gallons, but on the S2 a meagre eight gallons of the precious fluid can be carried.

Why the S2 tank is smaller I don't know, and can only assume that it has something to do with the chassis design. The filler cap position on the S2 was repositioned. (An in-line fuel filter, would be some evidence of a caring owner)

Most of the other differences between the two models are cosmetic. Here endeth the first lesson.

“BENEATH THAT SLINKY BODY THERE BEATS A HEART OF IRON”

Mechanically, the Lima is a Vauxhall Magnum 2.3, which was basically an up-engined Viva.

From the ground up

Wheels and tyres, check for rusting wires (expensive to replace but are available). Tyres should look ‘fresh’ not old & cracked. Wheel bolts must also be checked (remove the bung & look for excessive wear or cracks & flaky chrome).

Lima brakes are Viva/Magnum and all parts should be readily available: pipes, cylinders, pistons, servo, pads, etc. Visually inspect discs & callipers for ‘standing’ rust &/or deterioration. Road test where possible/safe & legal. Inspect both the brake lines & the flexy pipes for corrosion/cracking respectively. Changing front pads is a simple DIY job. Rear linings are more of a hassle, with shoes, springs, cams and compensators. After you've managed to remove the brake drums - they tend to get stuck on the hub....

The handbrake on S2 isn't as effective as on S1, something to do with the linkages. The handbrake on S1 is more useful, despite the levers position by the passenger's right leg. Hand brake rod & cables should look sound & maintained on the back axle.

Shock and Suspense

Springs and suspension are straightforward Vauxhall again. Improved dampers such as Spax adjustables or Konis can be fitted for improvement in ride and handling. Fitting them yourself is not too difficult, though spring clamps are useful for the front end.

At the back, replacement is straightforward, but the "locknut at the top of the damper is in a bracket up inside the wing, and must have been fitted before the body was put on. The shock absorbers should be free from oil & their rubbers mounts solid, as should all suspension rubber & engine mounts.

Rear springs can ‘settle’ over the years, so the car can look lazy at the rear. A 1” spacer under the rear springs will restore a better stance.

A matter of direction

According to Vauxhall, two makes of steering rack mechanism were used on the Magnum, either Cam Gears or Burman. Limas are known to have the latter type. It's easy to tell: the name 'Burman' is embossed on the steering rack casing. Track arm rubber bellows must be sound, rod ends should twist but not loose. Wheel bearings can be checked for play by shaking the front wheels. Check also the steering column couplings & flexy joint. Grease nipples are fitted to front upright swivel joints & prop shaft (look for fresh grease as an indication of regular maintenance).

Keep cool

The radiator is a stock Vauxhall item, but...as the rad in the Lima is set much closer to the engine than in the Magnum, the bottom pipe was repositioned to ease the routing of the lower hose. This can cause the soldered joint on the union to split, allowing the gradual escape of precious coolant. Getting the radiator repaired is simple enough. Coolant should be free from rust/oil/foam. Cap & hoses sound, fanbelt good. Limas do NOT run hot. When a viscous fan coupling goes sloppy it is usually not working. A Kenlowe type electric fan upgrade is ideal.

The Big Bit

A little history:

The Lima engine has a chequered past, originally designed in the mid 60's as V8 diesel (yes, really), developed into a 3.7 litre petrol engine, then 'halved' to make a 1600cc four cylinder and finally an 1800 and the familiar 2300cc unit which arrived around 1972. No 'slant-4' engines are unleaded from new, but if the owner states a conversion has been done, ask for receipts as proof. Look at the cylinder head gasket, is it obviously new? Limas will run quite happily on unleaded with an approved additive (but stick to one brand).

Fitted in Victors, Firenzas, VX4/90s Magnums and the ubiquitous Bedford CF van, the engine was in production in 2300 form for about ten years.

It's a sturdy, reliable lump; not a high revver but with loads of torque and few vices. Oil pressure should be 20/25 psi on tick-over, 45/50 psi running speed with a warm engine. (that's if a gauge is fitted. If not watch for a functioning oil light, ON when IGN only is turned on, OFF when engine is running at idle (tickover)

The engine is eminently tuneable, 140+bhp of tractable power is easily obtained - for a price. In race form, power approaching 200 bhp could be realised. The most well known tuners of the 2.3 were Blydensteins, who were involved in the development of the original engine.

Another way to extra power is turbo-charging, and a small number of Limas were equipped with these piston melting devices. It wasn't the greatest turbo installation ever - when it was good, it was very, very good but when it was bad...If you do consider a turbo, ask for receipts on repairs/maintenance. And have a good look around the engine bay for a tidy/maintained layout.

To return to the standard unit, problems are few but some common ones are:

Higher mileage engines can be a little smokey on overrun, usually oil ring blow by.

Oil leaks - usually at the top of the engine, around the camshaft housing and particularly the cam cover.

This feeble pressing, has to be absolutely flat along the side edges, a good gasket compound used, and the nuts & screws done up only tight enough to seal. Overtightening only results in more oil seepage, and can distort the cover. Apart from this, oil dripping onto the hot exhaust manifold can cause a fire.

It has been known !! Oil contamination on the engine mounts is also a problem causing the mounts to go soft. Look also for a cracked/corroded exhaust manifold. Exhaust manifold bolts can work loose and drop out - check you have all eight. The bolts should be prevented from coming loose by 'C' shaped locking straps.

No problems at the front end of the engine, though the water pump and some hoses are situated behind the big plastic cover. There are several types of water pumps, Limas have a type depending on whether it has a viscous fan or not. They are starting to get a little difficult to find, but can be rebuilt. Should one of these hoses fail, it's quite a job to get the cover off: remove fanbelt, remove fan (left hand thread), remove crankshaft pulley, undo all the nuts and bolts and take off cover.

Oil pump failure is not unknown. When pump failure occurs it is usually on first start from cold - there's a slender shaft, driven from the bottom of the distributor, which shears, leaving the engine running happily with no oil going round it. Switch it off!

Fitting a replacement pump is not too difficult as it's located at the top of the engine, not in the sump as in many other cars; though the distributor will have to be re-timed as it needs to be removed for access to the pump. Two types of oil pump were made for this engine - rotor and vane, but they are interchangeable, or so the book says. Oil pressure should be around 50 p.s.i. at 3000 rpm.

Carburettor - Generally trouble free, the only bother is likely to be with the autochoke mechanism, so ask the owner not to pre start the car, so that you can try from cold, press the accelerator once to engage. Manual choke conversion kits may be available.

Twin carbs (usually Strombergs, but Dellorto's too) are a performance upgrade – And they look nice/perform better (or is it twice the potential hassle!)

Unfortunately, they were only fitted to few Magnums, but were used on the VX4/90 and on some Firenzias, but there's not many of those around any more. Overhaul kits for the carb, jet, springs, gaskets etc are also available from specialists.

The air filter is not a Magnum part, if you ask for one in a car shop they'll give you a round one. What you need is the rectangular one as fitted to the Victor VX2300, AC Delco No. PC118. The air filter trunking is also Victor, but modified, hence the crude pop riveting. Some upgrade to a K & N unit.

Ignition - The distributor is the only part of the system that is particular to the 2300. Everything else in the sparks department is off the shelf, no electronics here. (If it has, it must have been fitted by a previous owner). Remember however, that the ignition system is fitted with a ballast resistor, an aid to easier starting. A resistor of the correct value must be used with an appropriate coil (9V). Some cars may have had their systems changed to dispense with the ballast resistor as it can be a fault problem part. An upgrade to electronic ignition (slaved or total) are available.

Engine bay wiring is known to go brittle, so look for tidy wiring & connectors, although to fix is straight forward.

A box full of neutrals

Not much can be said about the gearbox except that it's bog standard Vauxhall. The ratios are none too wonderful and the gearshift is downright agricultural, but it is strong. Linkages are known to go 'sloppy'. 5 speed boxes were fitted to VX4/90's in the middle 1970's and can be adapted to Limas, but it's more than just a weekend's work. The same basically applies to the earlier overdrive gearboxes. (A close ratio 5 speed has the same top ratio as the standard 4-speed, so O/drive is better, or go to a Ford Type 9 5-speed conversion, although it is NOT a 'bolt-on' swop.

Clutch – again no problem, as it's standard Vauxhall 2300. The clutch cable is a Magnum part. They have been known to break-more often on S2's; it's something to do with the angle the inner cable has to go through at the pedal end, which is where they snap. Fitting a new cable doesn't require great skill, just time & perseverance. So best done as a preventative measure.

On the S1, the pop riveted plate above the pedals can be removed (by drilling out the rivets!), which makes access to the top end much easier.

Back axle and differential are Vauxhall yet again. Magnum 2300's were fitted with the lowest ratio (or should that be highest ratio?) available in the Viva range: 3.45 to 1. The 1800 version was 3.73 to 1. Generally noise free & should not be too oily around the diff.

An exhausting business

Ask any Panther owner how their car is going and they will soon be talking about exhausts. Or so it seems. The Lima exhaust system always appears like an afterthought with its low position and awkward routing. The original S1 system was in mild steel adapted from the Magnum exhaust. This was quite useful as being generally available. Different story on the S2, it being a stainless steel special & a little expensive for various sections of such, so check for bad joints & silencers.

The S2 system has a supporting strap on the right side where the pipe passes below the footwell. This strap is essential - it supports most of the weight of the main system, so make sure you've got one fitted. The small front silencer box on the S2 is heavy and unnecessary, so it can be taken off and replaced with a plain bend. Basically, everyone has their own views on exhausts and where to get the best one - so shop around.

THE BODY BEAUTIFUL

Starting at the front, both bumpers on the S1 are Austin Maxi front bumpers (try finding one). To take off the rear bumper you have to remove the two plastic buttons, and inside each hole is an Alien screw. These bumpers, although pleasing in appearance, tend to vibrate, which can cause premature sidelight bulb failure. The bumpers on the S2 are 50mm stainless steel tube with a plastic bung in each end. There were two types of Lima bodies, the difference is seen along the sides where the four slots (louvres, vents, holes) are. One body type has plain edges around the slots, the other has a flanged lip round the edges. This is not the difference between S1 and S2, apparently it's just that the bodies were made by different moulders. There's no evidence that either body is stronger than the other. The body is 2 separate units, but come off fairly easily so serious repairs to chassis can be effected if required. The GRP body should be free of crazing & stress cracks, if it has been repainted check for flaking &/or micro blisters.

There were also two types of radiator grill: the earlier aluminium "eggbox" style and the later, less common, chrome vertical slat type. All S1's had the eggbox, but not all S2's had the slat type. Confusing ?

The winged 'Panther' nose badge tends to go cloudy after a while, but as we all know, these items are obtainable from your caring, sharing Panther Car Club. The late Blue & Black badge, is rare so take care of it. Headlamp bowl assemblies do corrode mainly around the base, but they are still obtainable. One of the few parts common to Lima & Kallista ! Check for rust on the chrome rim too.

Union Jack side body badges also deteriorate, available from the PCC.

Wiper blades are Sprite/Midget type.

The windscreen is a Panther fabrication. Aluminium framed, flat and covered in hood studs S2's have visors but are still flat. The frame is anodised, so don't use metal polish. Don't assist yourself on entry/exit, by holding the screen frame, it will move. Replacement screens can be found from people who will cut one from flat safety glass, but the rubber seal may have perished.

The doors are sourced from good old Leyland Sprite/Midget but modified including at the hinge area & also include additional side impact protection beams within. The only weak point is that they might rust through at the bottom. They can be reskinned, though it's a tricky job getting the fit correct. If the doors are OK, prevention is better than cure, so remove the interior door trims and spray Waxoyl or similar inside. Make sure that the rubber window seals are in good condition so that water can't get in, in the first place. New interior door trims are easy to get from one of the many MG specialists. These trims were modified with map pockets by Panther. Check for excessive door hinge play.

You may find that the gap between the front edge of the quarter-light and the rear edge of the windscreen is wider at the top than the bottom. This is common, and nothing to worry about. The same applies to where the square edge of the door top meets the front body section; they don't quite match, but that's usual.

Earlier S1 Limas had no vinyl cover on the rear deck. This was introduced to prevent the hood marking the paint.

Should your petrol cap need replacement, new ones are available.

The dashboard in the S1 is a Panther made moulding, with the 7 instrument cluster from the 2300 Magnum in the centre (the time clock being a rare item). The warning light unit is from the same. S2 Limas have a veneered wooden dash with Triumph Dolomite clocks. The walnut dash can be fitted to S1s, but it is quite an involved job. All woodwork should be good, but can be restored/replaced by veneer specialists. S1s had no central armrest, S2's were fitted with two types: a robust plywood armrest that knocks the driver's left elbow, and a flimsy moulded plastic one which doesn't. The origin of this last item is obscure, though the ashtray is a Jaguar item.

The seats were specially made for Limas, that's both the one piece bucket on S1's and the tilt-recliner on S2's. Check the tilt/lock mechanisms.

There are similar design alternative seats to fit the S1. But different designs fitting could be difficult as the floor is high, and of an awkward shape, and the car is quite narrow.

The S2 seat is reportedly a 'narrowed' Triumph Stag seat. Which may be useful to a trimmer if they need to refurb or repair the seat(s).

Hoods are a question of personal choice, but hoods & tonneaus should be sound & check they both fit! Replacements can be made by reputable auto trimmers.

In the absence of a proper Panther manual on the Lima, the best bet is probably the Haynes book on the Vauxhall Magnum or VX2300 Victor which covers all the mechanical side- - engine, box, diff., suspension, steering, brakes etc.

The important thing to remember is that although the Lima is a special car, it's not a **specialist** car when it comes to servicing and repairs - any competent garage should be able to handle it.

THE END

This guide is also a Panther Car Club Ltd publication.

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The words above are intended to help anyone with their potential purchase, although I would recommend first, that the buyer analyses their own thoughts & perceived requirements. Do you want to do a restoration? Maybe a few DIY repairs, or a beautiful one owner/low mileage example. Be a realist on price as you will not get the later for the formers price. A cheap car will require work so buying the 'best' may work out to be the cheaper option in the long term. Having said that, the Lima is a simply constructed car so should be well within the capabilities of a skilled motoring Diyer. The PCC Ltd does help its members where possible with both general & car based issues & has access to some parts &/or information relating to such.

As a last thought, why not ask the seller if they are happy for you to have either a RAC type of inspection done or a Pre MOT test carried out.

Good luck.
Terry Borton.
Panther Car Club