

# ENGINE & FIREWALL SWOP

by *Selwyn Ambler*

You've heard that one doing the rounds in the boating circles -- A yacht is a hole in the water into which the owner pours plenty of money, and if you read "Series Landy" for "Yacht" and "Driveway" for "Water" - , I wonder if this could apply to Series Landies and their owners?

Long reconciled to the fact that I've invested more time and money in my Series 111 Landy Station Wagon ( fondly known as uBejane – isiZulu for a Black Rhino), than I could ever hope to recover should I ever sell it, being an avid camper, the amount of fun that I've had in it and the amount of genuine practical use that I've put it to, more than justified in my mind, an even deeper dig into my already very stressed pocket.

UBejane (so named because like its namesake, it is very heavy, very slow, very strong, very ugly, and consumes a lot of fuel) came with the standard 2.25L petrol engine notorious for its prodigious thirst and lack of cruising speed on our modern freeways. After five years in my ownership, which included 2x trips to the Wild Coast, 1x trip to Millibangalala in Mozambique, a number of trips to Lesotho and many, many trips to various parts of our Berg, a tiny hole developed in a small pewter screw-in type plug in the engine block which caused the coolant to seep out. Obviously this plug had to be replaced. However it is inconveniently tucked away toward the rear of the block under the left hand front fender. Even then the projection of the passenger side footwell makes access very difficult.

Now this is where I lost control of the situation and it happened like this. You see for a while now the tangle of wiring within uBejane's Series 111 dash board had been irritating me and the disparaging comments made by auto-electricians about rewiring a S 111 convinced me that I should swap uBejane's firewall with that of a Series 11.

Now since I had to remove a fender (to do the pewter plug) I reasoned that this was the time to change the firewall as well.

And of course with the old firewall off, the engine would never again be so exposed and accessible would it? So why don't I to do up the engine ..... abetter still with petrol prices escalating why don't I take the opportunity to change the petrol engine entirely and transplant a diesel engine.

And before I could help myself a relatively minor job of replacing a tiny pewter plug in the engine block had escalated into a major front end rebuild with an engine conversion thrown in!!!!

The opportunity to acquire a S11 firewall in excellent condition came up so I took the plunge and bought it. Only then finding out that the S111 windscreen has different mountings, so I was obliged to buy the S11 windscreen too, and like any serious Series Landy owner should, I had these galvanized.

Then I discovered that the firewall vent assemblages on the S11 are different but the S111 assemblages can be used if they are put on upside down. Of course the instruments now have to be relocated to the centre of the dash, but this is not a major task and the subsequent ease of accessibility that the S11 firewall affords makes the effort worth while.

Now the Landy's front end had to be stripped in preparation for the firewall and engine swaps. So off came the grill, radiator and fenders. Provided that the bolts are in reasonable condition, these body parts come off fairly easily, though reaching the bolts that fasten the fenders to the firewall is a pain, and is far easier if the front wheels are remove.

One can then get one's shoulders into the wheel arches, and using a ratchet socket with an extra-long extension the awkwardly sited bolts are easier to reach. Again the condition of these, and how long they have been in place, plays a major part in their removal and a squirt or even squirts of Q10 may be necessary. Unfortunately screws and speed-clips of that size are difficult to obtain, necessitating reusing the old ones. By the way a smaller size with fender washers work very well too.

So ok, now with the fenders and radiator off, one can immediately see just how much still has to be removed in order to achieve a completely freestanding firewall. The steering column has to come off, and also the battery

bracket as this sits astride the steering column. Then the accelerator, clutch and brake assemblies together with the brake booster and clutch hydraulic pipes must be removed. Q10 is very useful stuff.

One has then to make a decision regarding all that electric wiring that is threaded through the firewall. In my case I had decided before I started the job that I was going to rewire the entire Landy, so I just got stuck in with a pair of side-cutters.

The front doors were then removed. The bolts holding the windscreen to the roof were badly rusted and were cut out using an angle grinder. Care must be exercised here with that cutting blade wizzing round so close to the roof's thin aluminium panels. The bolts holding the windscreen to the firewall came off easily, and the windscreen lifted out.

This done, the removal of those final two big bolts that hold the bottom of the firewall to the chassis can be attempted. The nuts unscrewed relatively easily, but getting those long bolts to slide out of their housings was very difficult as the accumulated dirt and rust of thirty odd years had seated them firmly. Liberal overnight dose of Q10, a 4lb hammer and sheer determination eventually got them to move and the firewall was then lifted out.

With all these body parts removed, the bolts holding the engine to the gearbox and the engine mounting bolts are easily removed. If one does not have the correct lifting apparatus, getting the old 2.25L engine off the chassis is virtually impossible. Quite aside from being extremely heavy it is so deep from tappet cover to sump that my son and I were not able to lift it high enough to clear the cross-members at the front of the chassis. A borrowed chain block suspended from a homemade gum-pole gantry did the job.

By the way now is a good time to check out the clutch and brake master cylinders.

So there, uBejane stood, stripped of everything from the front seats forward and chassis exposed, and secretly I was dismayed at the sight. I had never attempted anything of this nature before, and only from the safety of hindsight do I admit I was very apprehensive that the tasks of transplanting a non-standard engine and body reassembly that lay ahead of me would prove beyond my capability. But the advice and assistance readily given by far more experienced Series Landy owners, Louis Powell and the late Eric Whittle, encourage me persevere.

So on to the engine – I'd heard about the 2CT Toyota Turbo engine from Alan Cullen and Louis Powell and its availability and reasonable price encouraged me to take the plunge and I purchased a one. Unfortunately nothing is ever so simple as speaking about it, and the 2CT does require some modification, before even trying to bolt it onto the Landy gearbox.

An adaptor plate between engine and gearbox is of course necessary. The original sump on the 2CT cannot be used as its low point is in the front and thus fouls the cross-member on the Landy. So one needs a redesigned sump with the low point at the rear. This means that the oil pickup must be extended to suite, and if one is not proficient at welding it is a worth-while expense to get this modification welded up properly.

Getting the original sump off the 2CT was surprisingly difficult due to the high quality gas-kit glue used by Toyota. One just has to be patient and by using a couple of broad blade screwdrivers break this very efficient seal.

While the "new" diesel engine is so accessible it is also a good idea to change the timing cam belt, and the thermostat. The 2CT flywheel has to be drilled to suite the Landy clutch pressure plate, and it is well worth while to have the flywheel ground true while not forgetting to ensure that the bronze bush in the centre of the 2CT flywheel is sized to the end of the gear box main shaft from the Landy gear box.

The flywheel is torqued back onto the engine to 85newton meters and with the Landy clutch assembly bolted on, and the engine is ready to install into the gap created by the removal of the old 2.25 petrol engine. A hydraulic engine hoist and two pairs of hands are all but essential for this job. With the

minute adjustments to the height of the engine that the hoist is capable of, the main shaft from the gear- box at last slid into the bush in the flywheel.

With the 2CT engine bolted on to the gear-box bell-housing, and held in place between the chassis members by the hoist, it can be seen that the engine mounting bolt holes on the 2Ct are much further back than the mounting anchor points on the Landy's chassis. Using off-cuts of mild steel plate, of 10mm, 6mm, and 5mm thickness I cut the plates to required size and tack welded engine mounting brackets to cover the relevant bolt holes. As I'm not a skilled welder, I asked a professional welder to finish the job properly. Due to space limitations, fabricating driver side bracket tends to be more difficult than the one on the passenger side.

Right now the engine is in place and its small bulk relevant to the old 2.251 petrol engine presents a problem that is glaringly obvious. The 2CT radiator fan is now so far short of the radiator that it is necessary to fabricate a cowling to ensure that the fan will draw air through the radiator.

Unfortunately as the 2CT fan is not central to the radiator this is not an easy job and using 1.6mm galvanised iron plate it took me three weeks of trial and error and many pop-rivets to fabricate a cowling that at least fits and hopefully will do its job too.

The original 4x core Landy radiator is adequate provided it is in good condition, but again some modification to the plumbing has to be done. The bottom radiator hose needs to be changed from the driver side to the passenger side, and the top hose on the engine has to be redirected to meet the hose from the radiator.

At last the time had arrived to re-mount the firewall, windscreen and doors. It is true that the panels and parts from the S111 fit directly onto the S11 but do not expect them to be an easy bolt-off bolt-on fit. I found that in every single case modification of some degree was necessary. I replaced all the nuts, bolts and washers with new galvanised nuts and bolts, and I was surprised at the amount required. I estimate that I spent some R500.00 on nuts and bolts mainly M8's and M6's.

The steering column and hydraulic lines for the clutch and brakes were reattached and only once the firewall, windscreen, doors, fenders and radiator mounting are assembled, can it be seen just how well (or perhaps badly ) all these reassembled parts fit together again. As the fit of any one of these parts is dependant on the others adjacent to it, the method is to loose mount all of them so that one has a complete Landy. Then begins the process of tightening up all the bolts in turn until a good fit is eventually achieved.

It is not a technically difficult job, and anyone with a decent set of tools can do it, but it is a very time consuming job made so by all those odd modifications. Working in the evenings and weekends with time taken off to do more important things like mow the lawn, clean the pool and watch the Sharks get beaten every Saturday, my Landy stood motionless in my carport for the best part of eighteen months.

Oh I nearly forgot! One of the main reasons for starting this firewall swop was because I wanted to renew all the wiring. Well as I decided to go the extent of a dual battery system, I did not even try to attempt it myself, but I took it off to Dave McMillan (Eric's son) and asked him to sort it all out.