

# Restoration aspirations

Simon Bowes shares the details of one of his upcoming restoration projects.

I HAD an epiphany at the end of 2017. For the past twenty years I have built up a collection of Japanese motorcycles from the '70s, '80s and '90s. I've bought a bike every summer for the past decade or so; some I've ridden and some I've parked up ready for restoration when time allowed. Last autumn, when the time came to find places to overwinter the bikes I'd been riding, it became obvious there wasn't enough space. I took a long, hard look at what had become a burden rather than a pleasure, and right there and then I decided it was time to make a change. Now (in the middle of February), I'm left with one bike. It's a 1976 Kawasaki Z1000 that I restored some ten years ago, and I have lots of space but more importantly I have time to primp and polish just one bike.

Unfortunately, the thought of having nothing to fill the moments of spare time I occasionally get doesn't fill me with joy, so I've had to find a new project. Motorcycles are off the list, so, after a couple of false starts, I did think about restoring my County, but it's worth more than I'd ever thought it would be when I bought it eighteen years ago, and anyway

it still does a hard day's work when needed. I thought about maybe buying a classic car... Amanda has always had a hankering for an early, two-seater Mercedes, but space at home is still at a premium and even a pretty rough 500SL won't come cheap.

Clearly, a different approach was needed; something requiring less investment that might even work for its corn could well be an option. I've done the bike thing and I worked on Mercedes cars back in the seventies when I was an apprentice, which left me to focus on the knowledge I accumulated in those years when I moved from chainsaws and skidders to harvesters and forwarders.

I ran 250 Ösa and FMG machines for a number of years so maybe I should find a 250 to restore - it might come in handy for doing a bit of firewood so it would be a win-win, if I could find one.

I drove into Phil Cooper's yard a few days later to get a measuring wheel ram for my 625 Viking harvesting head and



The last 250 Simon owned, made from two forwarders. Simon sold it about three years ago.

there was a forwarder I recognised. The last time I'd seen it had been about eight years ago, parked on a local firewood merchant/harvesting contractor's premises. It was abandoned and unloved with baggy pipes, bent panels and half the headboard missing, but it was an otherwise complete Ösa 250. All the tyres were inflated and it started and ran without any nasty noises and the crane worked,

a little haphazard, but it went up and down, side to side and in and out - it was missing both the grab and rotator, though.

A cursory walk-around brought all the memories flooding back. I'd used these things to haul thousands of tonnes of timber over the years and I'd learned all their foibles.

I looked carefully at the bogies; fronts were chain drive. They don't usually give trouble, it's the orbital hubs in the rears that were prone to chewing up bearings once the seals were breached and oil went out and mud came in. The rear

The Ösa 250 harvester and 250 forwarder.

bogies on this one were gear driven so no orbital hubs in the wheel centres. It's a bit curious, because under the faded green paint, a lot of beige colour was showing through, which would suggest this was quite an early machine. Could be pre-1986, but that should have meant it had all chain bogies. The rear bogies containing gear trains have their own little party trick. The bogies don't swivel on a stub through the chassis like the chain ones do. They have a large, flat swivel bearing that wears in time, often through neglect, and eventually the loading starts to move from the bearing onto the driveshaft that runs from the diff via the swivel into the bogie. The first sign of trouble is an oil leak and then, in the fullness of time, a loss of drive to the rear wheels which is caused when the driveshaft is carrying the full weight of the loaded bunk and it snaps. It's simple enough to check for play in the bearings - jack the back of the chassis up and watch to see if the tyres drag inwards at the bottom, in toward the centre of the machine. In really bad cases it's possible to look from the back of the machine straight along its centre line and the wheels will be splayed out at the bottom when obviously they should be straight up and down. I've seen machines where the bearings have been rotated so the worn sections of the bearing, at top and bottom, have been moved around a quarter turn so the play is fore and aft. I've stripped the bearings down and replaced all the balls with oversize ones after having the housings machined true. Either of these options meet with variable success and the only answer is to replace them with new or good second-hand ones. Either way it'll be a time-consuming and expensive fix.

Under the crane base is the next point to scrutinise. There are lots of little braces and fillets where the chassis is strengthened to cope with the stresses from the centre joint and the steering ram mounts. I remember one of the forwarders I had needed inspecting regularly as one side steering ram bracket had a large repair which would crack about once a year. We got quite good at pulling the pin and steering the machine to withdraw the eye of the ram before a half-hour welding the new cracks would see it serviceable for another year or so. I'd guess whoever had done the original repair hadn't quite got everything back exactly as it should be and a disproportionate amount of stress was being put through that side of the steering. The other side hadn't been repaired and it never gave any trouble. The machine I was looking at also had signs of a repair, but not as substantial as the one I've just described. It was on the same side though, so maybe there's some underlying fault



The Ösa 250 harvester at work.

The FMG 250 with marine turbo diesel engine.



with the design.

The steering pivot looks to have had some major surgery at some time in the past on this example; the locking rings and spacers aren't easy to source for these now. I had to have the last ones I used made at a local engineering company, although they were cheaper than what I was quoted for good second-hand ones, had they been available. The easiest way to check the steering joint is to hang a grab of timber as far over the back of the machine as possible, then lift it up and down quite vigorously and you'll be able to feel it 'arching its back' if there's play in the bearings. You can also put a big jack under

the joint and attempt to lift the machine up in the middle - any play will be obvious.

The drivetrains on 250 Ösas are usually pretty reliable... unless you have an oil cooler repaired by someone who thinks leaving all the debris in the cooler after they've sawn it apart is acceptable. I found out how much it costs to have the transmission pump and motor refurbished, although it wasn't too painful as their insurers paid.

Crane pumps on these things vary. They're all rotary piston pumps, or swash pumps, as they're more commonly known, and they can be by Cessna, or the more reliable and powerful Vickers, as in the

case of this one. If they don't vibrate and they don't get hot they're usually somewhere near, although they can go from being fine to being f\*\*\*\*\* in a matter of moments. I tend not to lose much sleep over crane pumps, they're pretty easy to change and it's nice to have that smug feeling when you've just fitted a new one.

Ösa 250s generally come with a six-cylinder Perkins as standard. Earlier machines have the 6354 non-turbo, with later Ösa and FMG machines having the turbocharged version fitted which gives them a whole lot more grunt but makes them a bit less tolerant of long-term abuse. I had one that was fitted with the marine version and it really did have more oomph... once we removed the bits of metal in the exhaust that kept blocking the flow of exhaust gas thereby robbing the engine of a good 50% of the available horses.

Under the bonnet of this 250 is a reasonably quiet and not too smokey, normally aspirated 6354. It doesn't blow much oily vapour out of the breather but the oil filler cap has some condensation on the inside; I'm willing to put that down to the fact it's not been run much lately and it has just had a long session of power washing to remove years of accumulated crud. I do know where there's a Perkins Phaser engine that wouldn't be too much of a struggle to get to fit so it might not matter if it has a few issues. I'd at least expect that we might need to swap the head gasket once the engine's been put to work but that's not uncommon with machines that have stood idle for long periods.

The other things I did notice while under the bonnet were matched batteries, which is good; a non-working stop solenoid, which isn't so good; and a missing oil cooler, which is definitely bad. Ösa 250s are prone to warming their hydraulic oil, especially if the weather is hot, the pumps are old and the radiators aren't kept clean. Without an oil cooler the temperature gauge will soon be off the scale just trundling it about, never mind pulling a full load up a long slope.

Into the cab - which has all good glass and a reasonably straight door but no lock - and it all looks a bit miserable. The gauges are dull, all the paintwork's faded or non-existent; there's rust where water's been leaking in and there's no headliner, so all the heater unit and its vents are showing in the roof. The heater fan doesn't work - they never do - but it's a fiddly but

AGE - AND IT'S EFFECT - IS AN ISSUE THAT NONE OF US CAN AVOID, NO MATTER WHO WE ARE. MACHINERY IS THE SAME.



reasonably cheap fix. Starting the engine is straightforward, the oil and charge light both go off smartly but the rev counter doesn't work. Both foot throttles do though, and there's a hand throttle. The drive engages from the stick switch and from the foot pedal. It sets off smoothly in both directions with a little throttle but neither the cross-country steering nor the steering buttons on the hand lever work. The relays behind the control panel are clicking away merrily so that should be pretty easy to fix as it would appear to be getting a signal from the steering amplifier.

The steering amplifier is an alloy box with a multi-point plug in one end. It's about the size of a small biscuit tin and it's what made these machines famous - and

infamous - all at once.

It is this box of electronics that is at the heart of the Ösa system. Before the Ösa system we had machines with shuttle gear boxes that had previously been utilised in diggers and loading shovels. They had torque converters and air brakes, parking brakes you had to remember to put off, and, in the case of my first forwarder, a Lokomo 909, a big lever in a gate on the floor. The driver had to select the direction of travel with the lever every time he wanted to set off. The Ösa system did away with all that. You could click it into drive using one finger on a switch and then press the throttle; once the revs rose past a predetermined limit the drive engaged and the brakes came off, chassis centre lock too, and the steering could be operated with a rocker switch just below the drive direction switch. Once the revs



Left: Bought from Phil Cooper... not a beauty but has plenty of potential.

Above: Gear bogies on rear.

Above right: Front chain bogies.

dropped again, the drive disengaged and the brakes and chassis lock came back on. Later machines used the grab open and close buttons on the hand lever as steering buttons once the drive engaged. It was a whole new world. It seems quite crude now, but more than thirty years ago it was a huge step forward.

The 250 has a couple of major issues, though. It was built for Nordic harvesting systems where 2 m lengths were the norm. Time was when all the chipwood we cut was 1.9 m, or six foot in old money. It soon became the fashion that 2.5 m lengths for pallet wood and 3 m lengths for pulp, chip and what we now call biofuel was what most end users of roundwood wanted. This left the 250 looking a bit of an oddball as there's no easy way to fit two bays of 2.5 m pallet wood on one without major surgery to the rear chassis. This meant



that on the bulk of jobs, where sizes were usually predominantly 2.5 and 3 m, the Ösa lost out by having its carrying capacity reduced to around 5 tonnes per load, effectively running at just over half its design capacity. Costs per tonne made up of fuel and drivers' wages quickly rise and production takes a nose dive when compared to bigger machines that can carry two bays per load.

A further issue, of course, is one that we can't avoid no matter who we are - and that is age. Machines wear out. Even if all the components that can be replaced or refurbished are kept up to date, the metal the machine is made from becomes fatigued with age. It's a common belief that if you make a welded repair, only to see the problem - usually a crack - reappear next to the repair, then it is evidence the metal is fatigued. I don't know if there is any substantial, scientific evidence for this but it rings true for me. I've welded numerous cracks only to see a new crack form right next to the weld.

This particular 250 might be somewhere around 33 years old but it has spent almost half of that parked up or trundling firewood around in a yard.

It all comes down to price. I've known

Phil Cooper for many years, and I've bought numerous machines from him, so, given our past history, it wasn't too difficult to do a deal.

Unfortunately though, when I sold the last pair of 250 Ösas I had about three years ago I let all the spares I'd accumulated over the years go with them, because I'd never need them, would I?

However, the little ace I have up my oily sleeve is that there's a couple of crates filled with spares, including a set of gear bogie swivel bearings and a pair of rocking-horse rare rear driveshafts. The last time I looked for rear driveshafts the only ones I could find via Jas P Wilsons were in Russia, and I know the parts in the crate came off a harvester which had an easier life, so that sweetens the deal. But, and there's always a but, the steering amplifier is from a harvester so it isn't sure to be any use.

So, there we go. When I next have some spare time there'll be a sorry looking 250 Ösa forwarder waiting for a load of TLC lurking in the corner of a yard somewhere in Yorkshire. In the meantime, I need a grab and rotator, which wouldn't be a problem if some little toerag hadn't stolen the ones off my last 250...