

# RESTORATION OF GANE ENGINE

Firstly the name Gane, this came about as the engine came off a Gane milking machine. In fact it is a Ronaldson and Tippet two (2) horsepower straight petrol engine dated October 1939, engine number 15775.

I attended the Naracoorte swap meet in 1991 and after going around all sites twice I was ready to leave, Walking back to the car I noticed a new stall had been setup. I thought I would have a look as I had not bought very much. On the stall was a fence post drill driven via flexible cable, I thought this would make an interesting display driven by a small engine. The money changed hands and we headed for home with the drill.

A few months went by and I thought that I should restore the fence post drill for the Power of the Past 1992. Some time prior the club had put on a display of engines and machines at the Urrbrae College. Whilst we were there we had a good look around the school grounds (read as scrounged) and lo and behold there was an array of old engines behind one of the class rooms. Some negotiations with the Headmaster by one of our members saw us the new owners of this cache. These were divided up among the members and I ended up with the Gane engine. I decided to match up the Gane engine to the fence post drill and thinking I would do a quick restoration nothing too flash, possibly not even paint it.

I pull the engine out of the shed, problem; one the pistons was stuck in the cylinder.

After the usual soaking with diesel, RP7, oil etc. for a few weeks, hitting with blocks of wood and sledge hammer – no movement. Next a half inch thick steel plate was made to fit over all head studs and large bolt with fine thread, threaded centrally over the piston with another plate on top of the piston – still no movement.

Last chance, hit it with the oxy set, more oil, more pressure on the bolt, more heat, and tap the bolt. Eventually the piston let go, out of the cylinder and cleaned up the piston, was not too bad. The rings were stuck fast and I could not get these out without breaking them. A look in the bore, it was not pretty. I had another similar engine with a good cylinder, so I thought I would use it. A good wire brush down back to bare metal, hone it, re-cut the valves, valve seats and under-coat it. **The bottom end of the second engine wasn't any good so I was going to use the bottom end from the Gane engine, this was cleaned and under-coat applied.** I thought I would assemble the bottom end, cylinder and head prior to final coating. I dropped the cylinder onto the bottom end and the push rods on the bottom, did not line up with the valves in the cylinder. Back to plan one - use the original Gane engine cylinder but the bore was pitted rusty, oxy marks etc. I wire brushed and honed it out, this removed the surface rust and the marks from the oxy but it was still very pitted.

Thinking back this was suppose to be a quick cheap tidy up but I now had an engine completely stripped of all paint and rust (except in the bore) and under-coated. To have it rebored and a new piston was going to be too expensive for what I was trying to achieve.

I then remembered a conversation I had had with a gentleman during the FARMS rally at Goolwa, I cannot remember his name, only that he was from Mount Gambier.

He said he had an engine with a very bad bore, so he used the normal compression rings on the top of the piston and in the bottom where the oil ring would normally go he used an O ring.

Not a complete ring but a continuous length, you can purchase it in this form from Ludowici and maybe from other O ring suppliers.



*Gane engine with attached Post drill*

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He explained that the diameter of the O ring should be the same as the depth of the ring groove. If the width of the groove was more than the depth a thin steel piston ring would need to be installed above or below the O ring. **Cutting the O ring to length it should be cut approximately  $3/8'' - 1/2''$  longer.** When installing the piston the O ring would have to be worked into the piston groove and cylinder with a couple of screwdrivers being careful not to damage it.

DO NOT glue the ends of the O ring as you can buy a special glue to do this. I then measured my piston for rings and went to Antique Motor Spares, John Biddle. He has several tea chests full of piston rings, all sizes, all shapes. After going through most of one tea chest I found 4 compression rings of the desired size. This was two for the top of the piston and one to make a ring, if I remember correctly  $1/16''$  thick. This was to fit into the oil groove with the O ring as the groove was  $3/16''$  wide and  $1/8''$  deep, therefore I required a ring  $1/16''$  wide. Now how do I reduce a  $3/16''$  wide piston ring to  $1/16''$ . I put a block of wood into the lathe and bored a hole up the end of it to the diameter of the Gane engine bore, only bored about  $1/4''$  deep.

I put the piston ring into this recess and started to face it off. It flew out of a few times but did not break. I kept **this process going, removing the ring to measure it at regular intervals.** Eventually I had a  $1/16''$  wide piston ring and I did not even require the fourth spare ring.

The remainder of the job was fairly straight forward assembly and painting. Clean up the fence post drill, paint it, build a trolley and belt system to couple the two together. All complete but no fence post for drilling displays, so make a plate and bracket to hold a fence post. When I went to start the engine for the first time, I was just turning it over gently to make sure everything was working and it started.

In 2005 I entered it into the club display at POP; however my niece was getting married on the Saturday. Early Saturday I drove up to POP set the engine up and started it, leaving it in the care of John Wright. In my **hast to return to the city I forgot to put water into the hopper.** About lunch time it was noted it was "low" on water and someone filled it with water, it had run for about 2 – 2 1/2 hours without water. On Sunday I noticed it was making a strange noise and suspected it had melted the O ring, but it still ran ok all day on Sunday.

When I pulled it down at home the O ring was fine – no sign of damage or wear. I had a new length of O ring so I installed it and re-assembled it. The noise turned out to be a screw had come loose in the end of the magneto and was rubbing on the coupling.

To date the engine has run for approximately 200 hours if not more. It usually starts first time and runs smoothly all day.

Something that has always intrigued me with this engine is the magneto is mounted up the right way as most Ronaldson and Tippett engines the magneto is mounted upside down. If anyone can explain why this is so I would appreciate a reply.

Perhaps as an article in Tappet Chatter.

Trusting this has not been too boring.

Ray Mossop



*Demonstrates the machined ring sitting in the recessed wooden block in the lathe.*



*Gane engine showing the vertical mounted magneto*