

Dear Eng. Manuel Pipa,

Thank you for sending me the translation of the letter published by Dipl. Ing. Jürgen Bolle regarding the production of Vacminel Trains.

In this letter Dipl. Ing. Jürgen Bolle points out some questions that I will be very pleased to answer, when possible.

First of all, I would like to point out that many facts regarding these trains happened at a time when I was too young to be fully aware of the processes involved, considering that I was born in 1941 and that, as far as I know, my father ended his Vacminel adventure in the early fifties.



Unfortunately, even much later, I seldom had conversations with him concerning this subject.

So, with great regret, I am not in a position to clarify all the questions in a perfect and accurate way.

I will however, and appealing to my very young memory at the time, answer to the best of my knowledge.

The moulds and castings

This is the most difficult issue to explain. It is a typical case of which I have no memory at all of talking with my Father.

I remember that he spent considerable time in a very small workshop at Sintra, a town about 30km from Lisbon and where we lived. This workshop was owned by a very skilled mechanical technician named João da Conceição, and my Father held him in great esteem.

The moulds being a key question, I tried for several months to discover more about this person.

I have a cousin, six years younger than myself, who lives in Sintra and I recalled that the son of Mr. Conceição used to play with him when they were children. My cousin informed me that this “boy” lived no longer in Sintra, but he promised to discover his whereabouts.

And so he did, last March when he managed to give me his address.

He is now the owner of a rather technologically advanced company situated in the middle of the country (Leiria) working for the automobile industry and responsible for all the tests regarding the whole electrical system of some new models of cars (including Ferrari).

Coming back to the main question, here is what I learned from him: His father, who owned the small workshop, was also the chief mechanic of an Air Force Base Workshop situated some kilometres from Sintra. That, at last, explained the access to rather sophisticated tools and machines necessary to make the moulds.



Regarding the foundry I only remember that, in a small house in the backyard, there was a

machine I would say around two meters long surrounded by several levers, with a rather large blowtorch, that made considerable smoke and noise, like a big roar.

As to the raw material that was melted, I recall several heavy ingots, about 40 cm long, that, at the time, I thought were made of lead, due to their weight, which of course was not the case.

Trying to shed some light on this subject, I decided to determine the density of the alloy with which the trains are made. As my sister inherited a bare body of the locomotive, that is the cast alone, as shown in the photo, I was spared the task of disassembling all the parts.

Paying tribute to the very wise genius Arquimedes, here are measures obtained:

Weight: 355g +/-1g, volume: 40cm³ +/-2cm³.

The result is a density very close to 8.9.

Looking through an alloy density table, I only



found two materials that have a density near that number: Iron/nickel alloy and bronze alloy. They are both non-ferromagnetic as the body in study also is.

Unfortunately, I have no knowledge to go further in this matter. Nevertheless, I can point out that my Father commented about an alloy, used sometime by Märklin, very easy to melt and work with, but that would corrode and disintegrate in a few years. Because of that, I am sure that this is not the one used by my Father.

For curiosity's sake, I also measured the density of the bare body of an "aluminium" carriage (as photo).

I obtained the number of 6.9, which is the density of antimony. Is it? Anyway, why two different alloys?

As above, I am not able to go further.

The gear wheels

They were made from cylindrical brass rods, milled as in the photo and then cut and finished in the lathe, and finally assembled.

As for many other items of cylindrical symmetry, my Father used a small lathe, second hand bought in the early forties, (see photo) of which I am now the proud owner and user. Of all the tools he possessed, the lathe was his "Crown Jewel".

With the adaptations he introduced, the lathe can also perform some milling tasks.



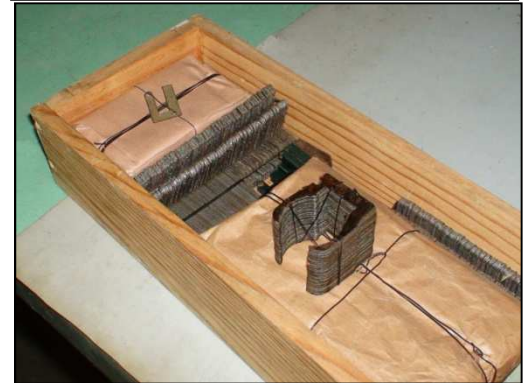
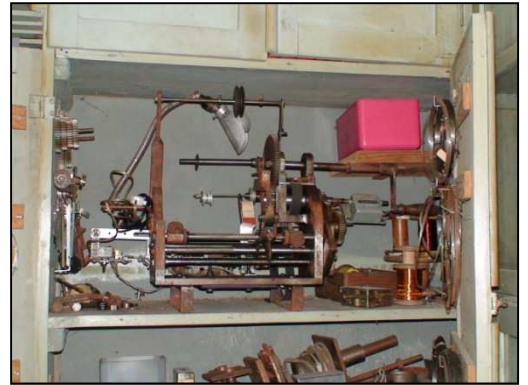


The transformer and other windings

The magnetic circuits were made by stamping magnetic steel sheets with the help of the screw press seen in the photo along with some cutters, field magnet elements

and centre contact skates. The first picture was taken in the eighties, when my Father, also in the photo, decided to sell it to a workshop.

The windings were made with the help of a winding machine, built by my Father and that still exists. It can be seen in the photo



along with the still remaining wires and finished field magnets



Galvanic station

I have no data or memory that can help in this matter.

Painting of the locomotive and other items

For this purpose a small compressor and painting pistols were used. See photos.

Other small parts, like the stripes, were hand painted by him.

Rails

I do not know how my Father provided for the rails. I only remember he stocked them in shiny bundles, about one meter long, and that he made a lot of chemical oxidation tests in order to get a true dark colour. Most of these trials were performed with hot liquids on our kitchen stove and my mother was indeed not very happy with the mess he made during these experiments.

My Father was always very critical and a perfectionist regarding all the matters he took upon himself.

Regarding model trains, his main hates that he tried to avoid in his achievements were:

The sudden start of the locomotives: The introduction of the DC current made him very happy.

The lack of true banked turn (“relevê”) and the short radius of the model railway curves.

The non realistic sound of the trains’ movement along the rails.

In the “lay-out” he began during the sixties, the minimum radius of the curves, except inside the stations, was around 70cm and the banked turn (“relevê”) had a true value equal to the real case.

To get the realistic bass sound of the trains, he installed two layers of cork sheets 3mm and 6mm thick, before erecting the rails and the sleeper’s base.

I remember his passionate discussions during several hours with a friend, about the correct path made by running water descending a heel step that supported the railway. One day they even went to a railway near Lisbon merely to observe the supports of a bridge in order to reproduce, in the correct scale, the cylindrical rollers that allow the bridge to follow the dilating effect.



Some final questions

I believe small items like bolts, nuts, mainly M2, springs, electric bulbs, wires, etc. were bought at the corresponding shops.

I have no knowledge of my Father buying items from Märklin for his Vacminel train.

Why did he stop production?

I think for two reasons, each one more important than the other.

First, the business obviously proved to be far from profitable.

Second, not forgetting that we lived under a dictatorship and being a faithful civil servant, I believe he was afraid that retaliations could be taken when the emerging German power would take notice of his “criminal” replica of a German train. Sadly and as is known, he decided to destroy the locomotive moulds. Fortunately, the tender and some wheels moulds were spared.

Finally, why the choice of these specific models of carriages and locomotive?

As for the two carriage models, I suppose a kind of historical taste. They represented the old and the new of the Portuguese railways at the time.

As for the SK800 locomotive, I have no doubt. My father considered it as the most beautiful steam engine built until then.



I hope this short text will modestly contribute to clear up some aspects of the Vacminel story.

Lisbon, 30th January 2010

Vasco Saraiva

