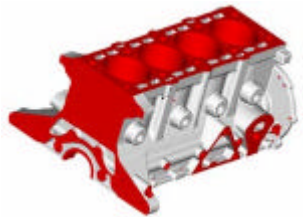


Initial Situation



ABARTH & Co was founded by the Austrian Carlo Abarth (1908–1979). In the 1970s the ABARTH sports vehicles were, among others, the most successful in Europe. Due to the lack of spare parts for these cars this project has been carried out by students of the HTL Steyr since 1999. Building upon the excellent work of our predecessors (3D-construction, model- and toolshaping and two castings) we are going to finish this project in stage 3 this year.

Targets



The target of our project is the reproduction of the ABARTH type 236 crankcase (mechanical surface treatment, 3D-measuring and rebuilding).

To achieve this we have

been supported both by our teachers and by our sponsors who passed their know-how on to us (Bernhard Etzlinger, Mario Schuh and Gregor Schwarz).

Milestones

- 06/01 **Project start of 5BHK-01/02**
- 11/01 Measuring of crankcase 3 (Casting)
- 18.01.02 Presentation at "Tag der offenen Tür"
- ☞ 04/02 Crankcase 3 completely processed
- 26.04.02 Presentation on Project Day
- ☞ 06/02 Crankcase 6 in process
- ☞ 18.06.02 **End of Project – Matura**

3D-Measuring

Kerbl Modellbau enabled us to measure our crankcase on a manually operated 3D measuring machine with a precision of 3/100 mm.



The resulting measuring report comprises all the data of our raw-part, which is necessary to check the tolerance deviation and the quality. With the interpretation of the measuring report we could evaluate the scope for the mechanical surface treatment.

Mechanical Surface Treatment

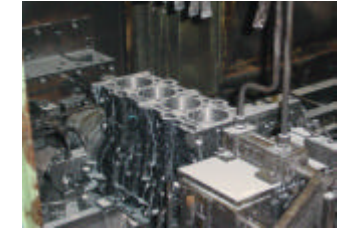
The mechanical surface treatment of the third casting was mainly done in the HTL Steyr. The crankcase was machined on a Deckel FP3 milling machine there. For all processes which went beyond our capabilities (crankshaft bearing, front surface and main-oil-duct) we were supported by GFM Austria.



BMW Motoren helped us with engine related surface and tolerance specifications and honed the cylinder bores for us.

Special Topics

The cost calculation depends on the machine costs, which rose with the mechanical surface treatment. Even the expenses for Public Relations and correspondence are included.



The study of a small-scale serial production is to estimate the production of 30 crankcases in a machining centre. The study consists of the machining task, the machine and tool selection, and different finishing operations.

Rebuilding

The rebuilding of an original engine will be done by FIAT Pichler in Wels. Therefore the crankcase produced by the HTL Steyr has replaced a defective one in an original engine. The rebuilding and the trial runs were done by Fiat Pichler in Wels.



Results / Benefits

- A completely processed crankcase
- Drafting and working plans for the production
- Cost calculation
- Know-how about measuring and processing technologies
- Contacts to the industry

Project Team

Left to right:
Bernhard Etzlinger, Mario Schuh, Gregor Schwarz

Project Managers**Theory**

Dipl.-Ing. Alfred Benedetto

Dipl.-Ing. Dr. Bruno Losbichler (Coordination)

Workshop

FL Gerhard Riepel

FOL Peter Großbauer

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Department of Mechanical Engineering
Automotive Engineering

ABARTH 2000 - Step 3
Project finished part

The project target was to create a copy of the ABARTH engine-block type 236 – 2000 cm³ true to the original.

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