

Lotus Twincam Engine

Modifications for Increased Performance

Rohan Hodges Jan 2023

Contents

Chapter

1. Introduction
2. History, prototypes, and factory production variations
3. 1960's and 70's competition versions and modifications
4. Overview of typical modified engine builds done currently.
5. Twincam myths
6. Camshaft and valve gear selection
7. Building a larger capacity or high RPM bottom end
8. Building a good breathing cylinder head
9. Carbs, exhaust, oil pump and cooler system and other accessory details
10. References sources for further reading

Chapter 1. Introduction

There has not been a lot written in any detail about modifying Lotus Twincam engines since the 1970's and even back then information was scarce, so I decided to try to document my learnings from building and modifying many Lotus Twincams from the early 1980's to now in 2023.

The bible on twin cam engines is "Lotus Twincam Engine" written by Miles Wilkinson in 1988 and it is focused on the standard engines and gives little technical detail around the many modifications done to these engines in the search for more power, but it is a key resource for anyone working on rebuilding these engines.

When I first started modifying the engines there were only two significant reference sources available that dealt in detail with engine modification.

- The Dave Bean catalogue which in the engine section has an extensive write up on modifications. This is still available in hard copy form from Dave Bean Engineering
- Tuning Twincam Fords by David Vizard first published in 1969 and can generally be found used on the internet still

You could also deduce some of what people were doing from the parts catalogues of places like QED though most of the people selling parts for modified engines apart from Dave Bean did not provide much information on their use or the overall design of their modified engines

Not much has been written since in any comprehensive, technical, and engineering way, though there are plenty of references on the Internet if you do a google search and I have attached a reference list at the end of this document. However, there is little reliable technical information in most of these internet articles.

Modified parts availability is continually changing so while I will discuss various parts from various suppliers based on what I have used you always need to check if they are still being made and are still available. The accuracy of many replacement parts is also often variable, so they all need to be carefully checked. I always keep original parts I am removing as it makes checking new parts easier if you have a good comparison with a part that you know fitted

I am sure people will have other approaches and it's not possible to cover every possible modified engine variation that may have been done. This is largely based on what I do and why from what I have learned, and it may differ from other's experiences. Every individual modification item needs to be considered in the context of the overall engine build and the intended engine use and the quality of the specific parts used and the quality of the machining and assembly work. So, no guarantees on whether the advice given here will work as intended on your specific build.

I have included a lot of history in this document as I hope it is of interest and it is a valuable source of information on what has been done in the past and why and its essential to understand exactly what you have and its suitability before you start modifications to a particular engine or building an engine from a set of modified components.