



Datsun camshafts & Valve Timing by Racer Brown

Chapter
Six

VALVE LIFT CURVES - TIMING

MEASUREMENTS: OPENING & CLOSING POINTS & LIFT

But back to more basic stuff. How are valve opening and closing points and valve lift measured? A great deal of confusion exists here and the Datsun service manuals are not too helpful. They do show valve opening and closing points are measured. By correlating their data with a chart of figures used to construct a valve lift curve, we concluded that they measure valve opening and closing points at one-half millimetre (0.020-inch for all practical purposes) valve lift with zero valve lash and with the rocker pad contact patch centred. Any other measurement method not only doesn't make sense but cannot be correlated with Datsun data. So we have adopted the Datsun measurement method intact, but with one exception: We measure valve opening and closing points at a more Americanised 0.025-inch lift figure. Sure, it's arbitrary - just about any method is - but it gives four separate and distinct points of reference: Intake valve opening and closing points, and exhaust valve opening and closing points.

So why not measure these points at operating valve lash? Simple. There is too much room for error because a lot of crankshaft rotation results in only a very small amount of valve lift and the probability of error is too great at these particular points on the cam lobes. So we picked a point where the valve motion is not only quicker and can be measured much more accurately with repeatability - but on that also has much more significance to a functional engine. In other words, effective valve opening and closing points. Translated, this means that the valves are far enough off their seats so that gas flow into and out of the cylinders will have some influential and significant effects upon the engine operating characteristics. I can hear it now, loud and clear. What about the split overlap and the so-called centreline methods of camshaft installation? They are both junk and should be buried and forgotten, but they can't be condemned without reasons and explanations. Both methods may tell you what you're looking for or want to hear, but they can't tell the engine what it must know to function properly. These are discussed in the sidebar titled Definitions.

IMPORTANT QUESTIONS

Before you dash to your local Datsun high-performance parts outlet, hesitate long enough to do some soul-searching related to the following questions.

1. What do I want from my Datsun that it doesn't have now?
2. Can I afford to trade off some fuel economy in return for better performance?
3. Must the idle and low speed characteristics be civilised or doesn't it matter?
4. Are exhaust emissions likely to be a problem?
5. Do I want a stump-puller at low and mid range engine speeds, or do I

need better power further up the RPM Range?

6. Am I willing and able to do the installation myself, and correctly, or is there a reliable local source for such installations?

7. Am I willing to notch the pistons, if required, to obtain the right piston-to-valve clearances for my application?

8. Can I get all the right pieces the first time from one source?



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