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| **Last Modified:** 03-12-2013 | 6.4 F | **Doc ID:** NM1000000004HCU |
| **Model Year:** 2013 | **Model:** RAV4 | **Prod Date Range:** [12/2012 - ] |
| **Title:** 2AR-FE ENGINE MECHANICAL: ENGINE UNIT: VALVE MECHANISM; 2013 MY RAV4 [12/2012 - ] | | |

# VALVE MECHANISM

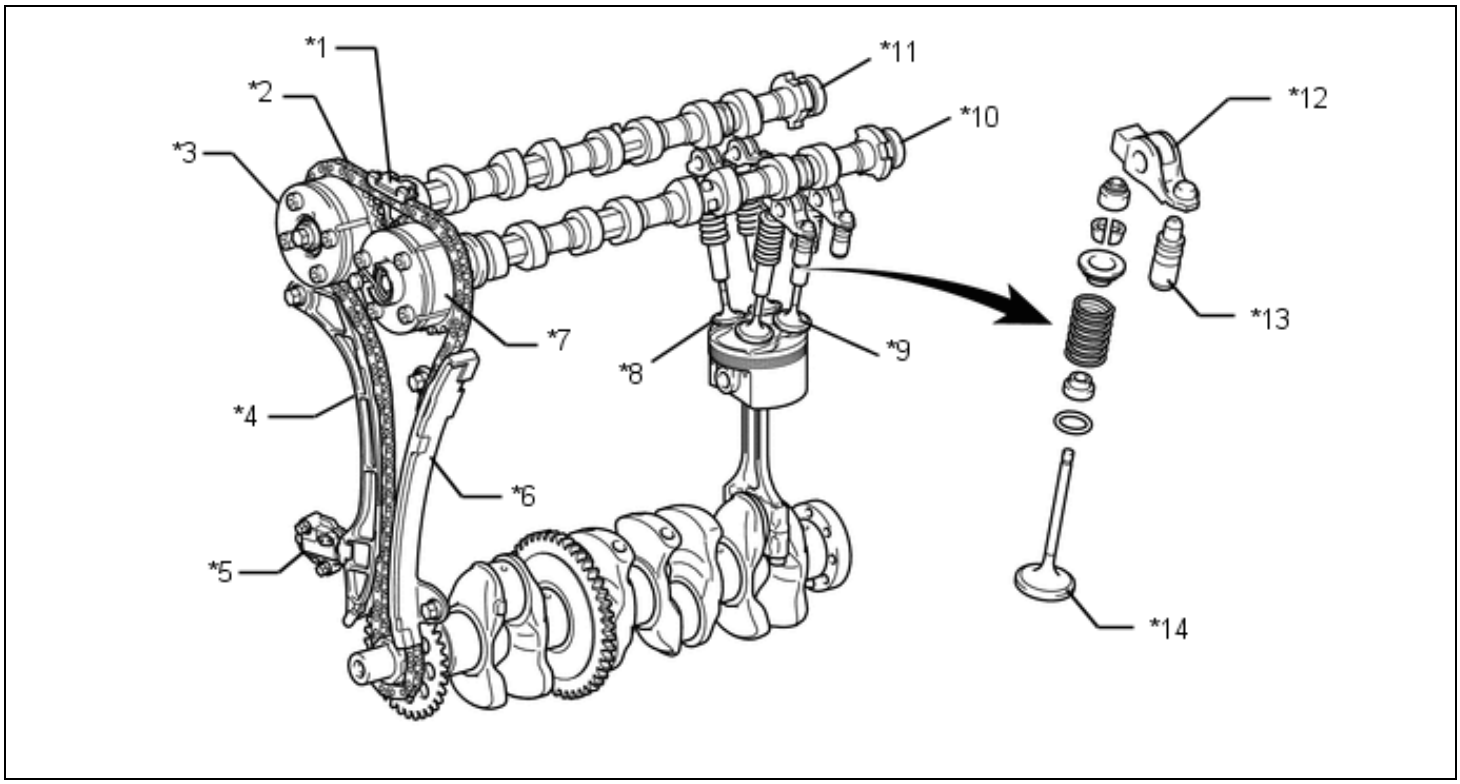
## 1. CONSTRUCTION

(a) The Dual VVT-i system is used to improve fuel economy and engine performance and reduce exhaust emissions.

(b) The intake and exhaust camshafts are driven by a timing chain.

(c) Valve rocker arm sub-assemblies with the built-in needle bearings are used. This reduces the friction that occurs between the cams and the areas (valve rocker arms) that push the valves down, thus improving fuel economy.

(d) The valve lash adjuster assembly, which maintains a constant zero valve clearance through the use of oil pressure and spring force, is used.

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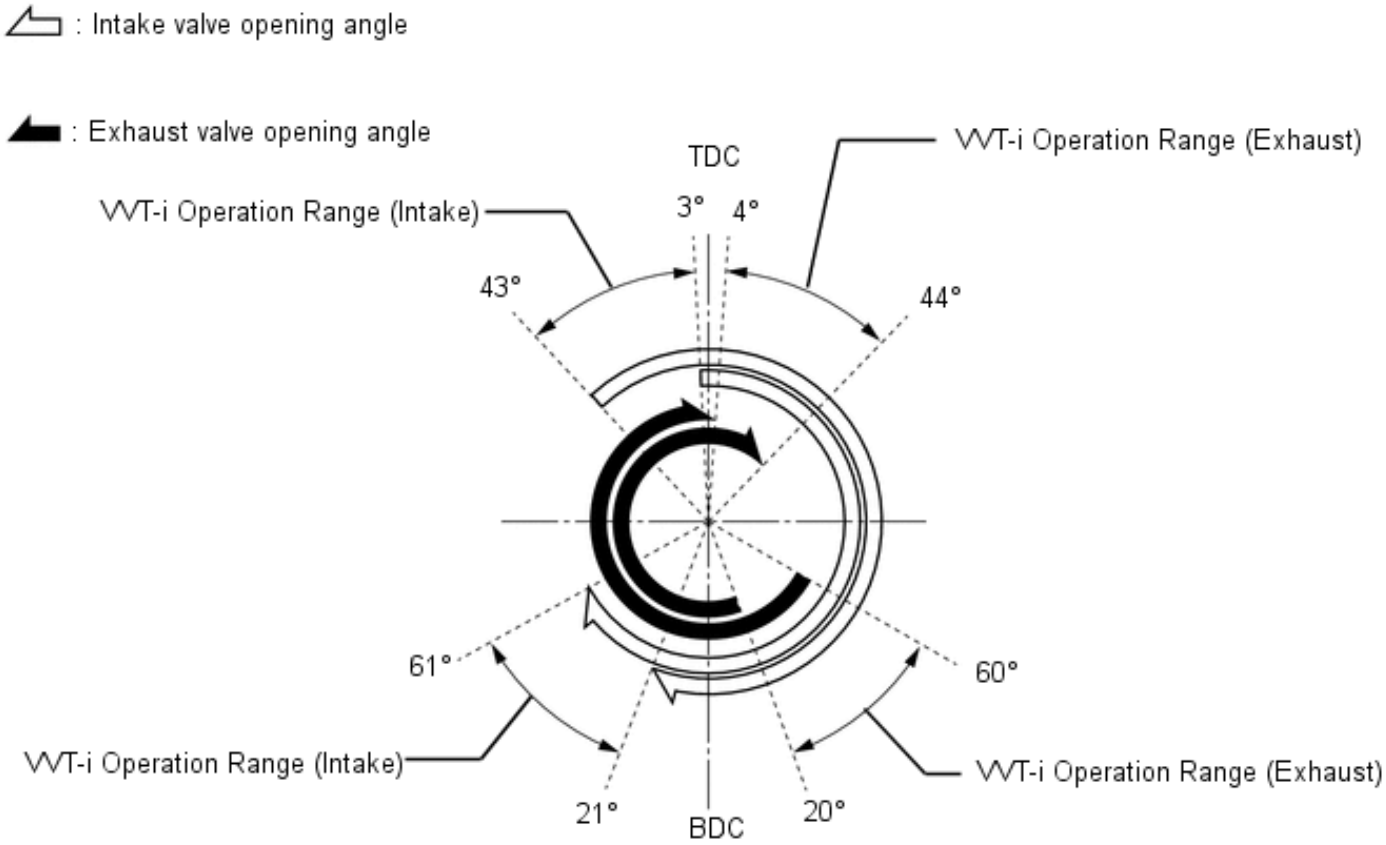
|---|---|---|---|
| *1 | No. 2 Chain Vibration Damper | *2 | Timing Chain |
| *3 | Intake VVT-i Controller | *4 | Chain Tensioner Slipper |
| *5 | Chain Tensioner | *6 | No. 1 Chain Vibration Damper |
| *7 | Exhaust VVT-i Controller | *8 | Intake Valve |
| *9 | Exhaust Valve | *10 | Exhaust Camshaft |
| *11 | Intake Camshaft | *12 | Valve Rocker Arm Sub-assembly |
| *13 | Valve Lash Adjuster Assembly | *14 | Valve |

Valve Timing

Valve Timing