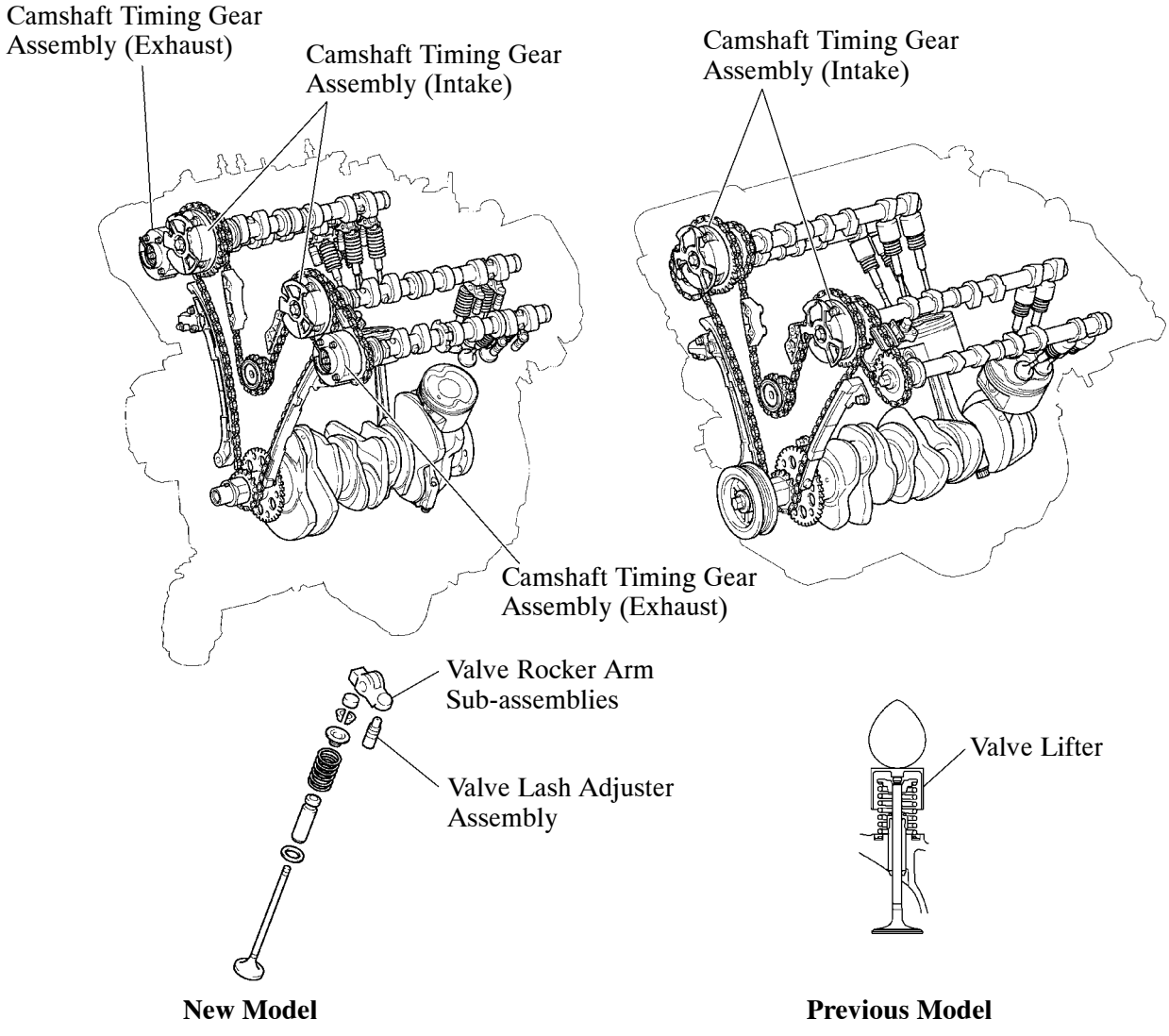
■VALVE MECHANISM

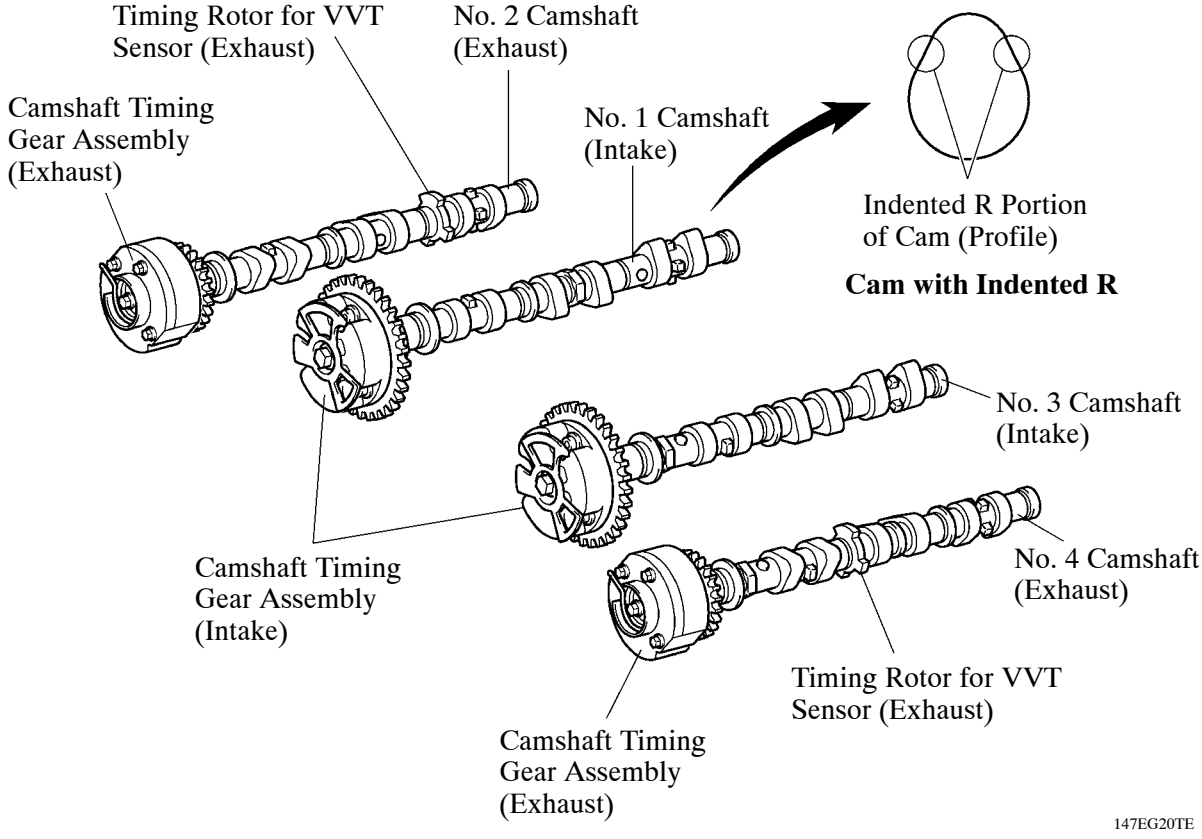
1. General

- A Dual Variable Valve Timing-intelligent (Dual VVT-i) system, in which the VVT-i system has also been added to the exhaust side, is used. As a result, the valve timing has been optimized, achieving lower fuel consumption, higher engine performance and lower exhaust emissions.
- The new models with 1GR-FE engine use valve rocker arm sub-assemblies with built-in needle bearings. This reduces the friction that occurs between the cams and the valve rocker arm sub-assemblies that push the valves down, thus improving fuel economy.
- Valve lash adjuster assemblies, which maintain a constant zero valve clearance through the use of oil pressure and spring force, are used.



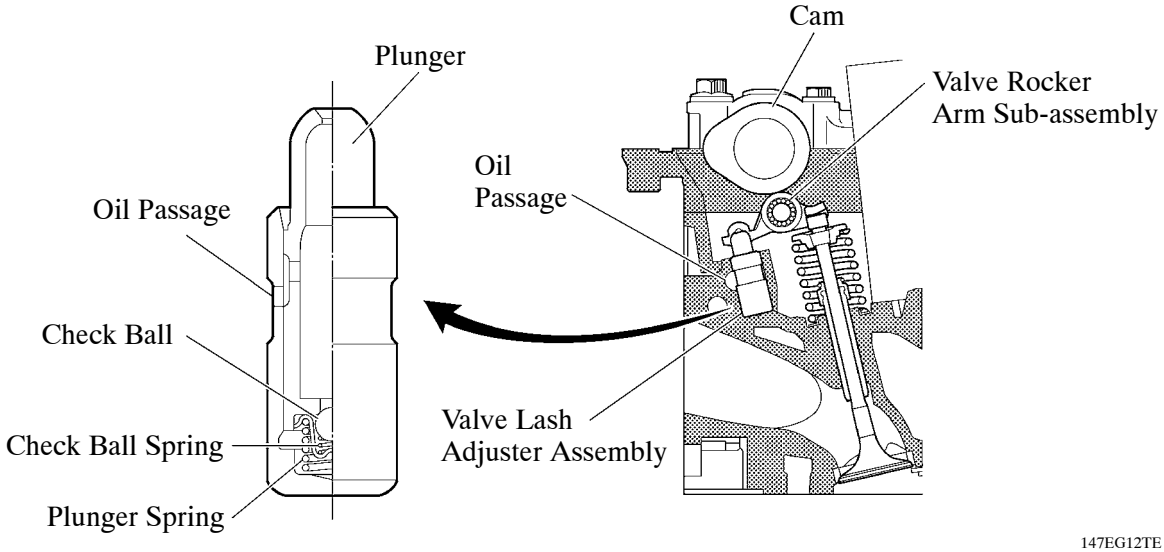
2. Camshaft

- A camshaft timing gear assembly has been added at the front end of the exhaust camshafts to vary the timing of the exhaust valves.
- Oil passages are provided on the intake and exhaust camshafts in order to supply engine oil to the VVT-i system.
- Together with the use of the valve rocker arm sub-assemblies, the cam profile has been modified. This results in increased valve lift when the valve begins to open and as it finishes closing, helping to achieve enhanced output performance.



3. Valve Lash Adjuster Assembly

- The valve lash adjuster assembly, which is located at the fulcrum of the valve rocker arm sub-assembly, consists primarily of a plunger, plunger spring, check ball and check ball spring.
- The engine oil that is supplied by the cylinder head and the built-in spring actuate the valve lash adjuster assembly. The oil pressure and the spring force that act on the plunger push the valve rocker arm sub-assembly against the cam, in order to adjust the valve clearance that is created during the opening and closing of the valve. As a result, engine noise is reduced.



Service Tip

Valve clearance adjustment is not necessary because valve lash adjuster assemblies are used.