



Revision
07/20/12

**TACOMA STAGE-3 CAMSHAFT TIMING SPECIFICATION
(Part #1022053)**

	Intake	Exhaust
Valve Lash	.007 to .009	.010 to .013
Valve Lift	.453	.408

THE FOLLOWING FIGURES, TAKEN @ .050 LIFT AT VALVE, WITH .000 VALVE LASH

Duration @ 50	266°	258°
Lobe Center	108°	108°
Lobe Separation	108°	
Intake Opens 25° BTDC		Exhaust Opens 57° BBDC
Intake Closes 61° ABDC		Exhaust Closes -21° ATDC

NOTE: Always check valve to piston clearance and valve-to-valve clearance with this Camshaft! Failure to install this cam with matched valve train components can cause engine damage.

Please refer to a Toyota service manual for instructions on installing gears on camshafts.

To remove the cam gears from the camshafts. This must be carefully done using a press. Support the camshafts so as to not damage the cam gear mating surface flange. It may also benefit to heat the gear prior to removing it.

To install the cam gears onto the new camshafts. Do Not Press the Gears Onto the camshafts. This will damage the cams. You must heat to expand the gear so that it may be installed with out pressing. If using an oven set to broil, heat from 45 minutes to 1 hour. You may also use a propane torch to heat the gear. If the gear does not fall into place apply more heat. Use a pair of pliers to install the gears while holding the camshaft upright in a vise. Making sure to not clamp the journals of the camshaft. Once the gear is installed and seated fully allow the cams to air cool until you can handle with out gloves.

CAMSHAFT BREAK-IN PROCEDURE

The first few minutes on a camshaft are the most important wear period. In this period, the cam and followers become burnished together. When installing the camshaft, thoroughly coat the lobes with the special assembly lube provided. Cam must be installed per factory service manual procedures.

Set valves at proper lash dimensions, and then readjust valves after break in period is completed.

CHECK valve train for interference.

CHECK valve to piston clearance, you must have .100" min. **CHECK** valve spring retainer to valve guide and seal for clearance.

CHECK valve springs for coil binding; you must have .090" min. of free travel before the springs become solid after the valve in fully open. **98% of all cam failure is excessive valve spring pressure!**

Start engine quickly, excessive cranking of engine is not good for the camshaft. Bring rpm to 1500-1800 for 20-30 minutes (**ABSOLUTELY NO IDLING & NO REVVING OVER 2000 RPM**) during the break in period.

TO CHECK VALVE TO PISTON CLEARANCE WHEN THE ENGINE IS ASSEMBLED:

After installing a new camshaft, lash #1 intake valve to zero then screw intake valve in .060



(Valves not closing completely) turn engine over carefully with spark plugs removed by hand. Do intakes first, if OK then do exhaust. If engine cycles without binding, you are sure that you have minimum clearance (If binding occurs piston clearance is required). All cam specifications are checked at .050" lift. Standard degree-in procedures should be followed for maximum performance.

TORQUE SPECIFICATIONS:

Intake Manifold Bolts:	22	Exhaust Bolts:	36
Camshaft Bearing Caps:	12	Camshaft Timing Gear bolt:	54
Cylinder Head Bolts:	29 +90° +90°	LC Cylinder Head Studs w/Moly Lube	80

FOR TECHNICAL QUESTIONS, PLEASE CALL 928-505-2501