

!!! WARNING !!!

This is an aftermarket part built for racing purposes only.

Koso is not responsible for any damages caused to the parts, vehicle, or to yourself and others.

Engine parts are not under warranty nor is collateral damage or cost of labor, in cases of malfunction.



● Thank you for purchasing KOSO CAMSHAFT KIT . Before installation, please read the instruction carefully. We recommend that you store the instruction sheet in a safe place for future reference.

NOTICE

- To install, follow the steps as described in the manual. Any damages caused by not following directions voids warranty.
- Correct tools must be used for installation.
- Do not modify any parts unless specifically stated in the instruction manual.
- Interior controll maintenance should be performed by a professional only.

EXPLANATION OF SYMBOLS

	Read this information carefully regarding the essential features.
	To smear engine oil before installation.
	To smear molybdenum disulfide oil before installation.
	To smear screw glue before installation.
	To smear grease before installation.
	Represents wear limit and gap.
	Make sure all screws are tightened properly before starting the engine.
	If any information dealt with in the manual remains unclear seek professional assistance.

1 ACCESSORIES

1 Camshaft X1 	2 Bearing X1 	3 Bearing X1 	4 Camshaft X1 	5 Position pin X1
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NOTE 1 1. The camshaft component was already installed on the body when purchased.
2. Please contact the local distributor if the items you open are not the same, with the above-listed one.

2-1 REMOVING THE CAMSHAFT

Please follow the instructions when removing

- 1 Fixing screws
- 2 Timing sprocket (camshaft sprocket)
- 3 Fixing screws
- 4 Fixing plate
- 5 Camshaft

NOTE Please use lubricating oil before installing.

NOTE Please contact the local distributor if the items you open are not the same, with the above-listed one.

NOTE The timing sprocket must be adjusted to the positive position before removing the camshaft (Please refer to step 2-2).

2-2 INSTRUCTIONS FOR ADJUSTING THE TIMING GEAR

1. Please select the appropriate tool according to Figure 1 to rotate the electric disc rotor; adjust it so that Mark A on the TDC is aligned with Mark B on the generator cover.
2. Please confirm that Mark C on the camshaft sprocket is aligned with Mark D on the cylinder head.

- NOTE** After the timing chain tensioner installation is complete, please check whether marks a, b, c and d are aligned; also, rotate the crankshaft while the vehicle is not started to check whether there are interferences.
- NOTE** Please keep the chain tightened when installing the camshaft.
- NOTE** When removing the camshaft, please first adjust the timing gear mark and then remove the camshaft.
- NOTE** Please do not randomly rotate the crankshaft when installing the camshaft in order to avoid damaging the valve or causing valve timing errors.

WARNING! When the timing gear and chain is successfully installed, please check whether the corresponding marks are aligned and perform a test run while the vehicle engine is not on to ensure that the installation was correct.

2-3 ADJUSTING VALVE CLEARANCE

1. Please first loosen fixing nut ①.
2. Please insert feeler ② between the adjustment screw and valve terminal.
3. Please use the valve adjustment tool to rotate the adjustment screw with direction a or b until you get the specified valve clearance.
4. Please properly lock the fixing nut after adjusting the clearance and then insert the feeler again to confirm the clearance value.
5. If the value is not correct, please repeat steps 1-4 until the clearance value is within the standard.

NOTE Valve clearance -> intake valve $0.10 \pm 0.02\text{mm}$
-> exhaust valve $0.17 \pm 0.02\text{mm}$

NOTE Direction a -> valve clearance increases;
Direction b -> valve clearance reduces.

WARNING! The measurement and adjustment of the valve clearance can only be executed when the engine is cold (room temperature).

3 Camshaft features description

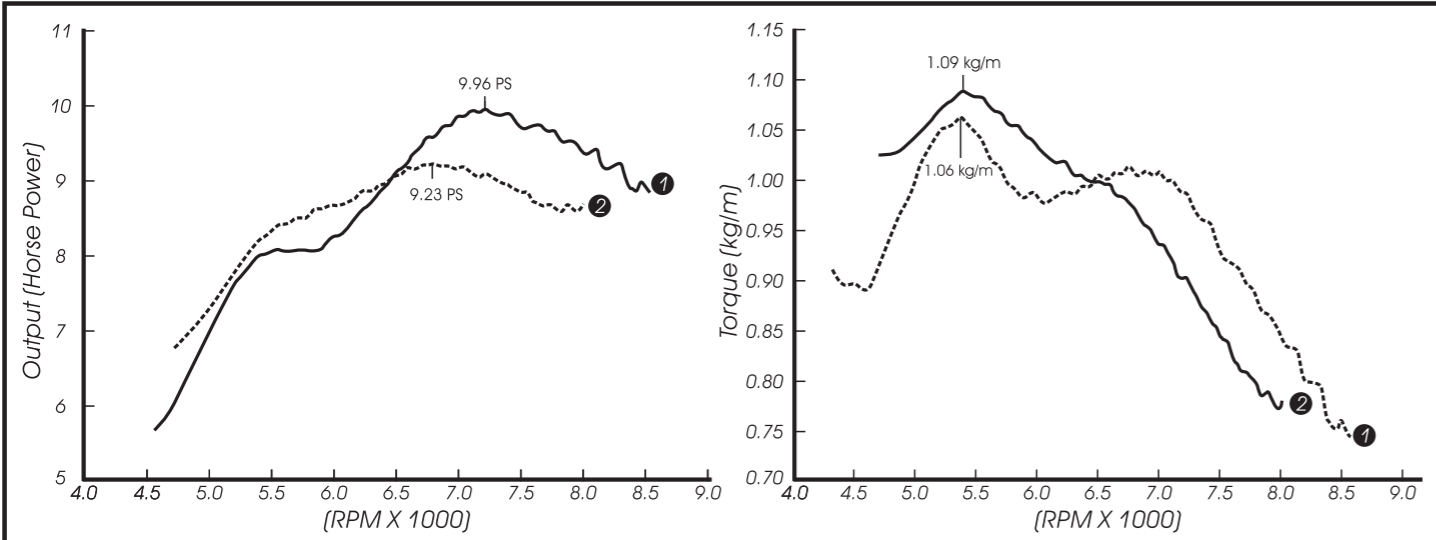
Camshaft features
New camshaft design improves the performance at high speed and makes valves running smooth also decreased valves jumping issue.

DURATION AT1.0mm	VALVE LIFT	EXHAUST OPEN/CLOSE	INTAKE OPEN/CLOSE	LOBE CENTER	RUNNING CLEARANCE
IN-240 / EX-240	IN-6.7mm EX-6.5mm	EXO BBDC -45° / EXC ATDC -15°	INO BTDC 15° / INC ABDC 45°	IN-105 / EX-105	IN-0.16mm EX-0.17mm

Noun commentary
1.TDC 2.BTDC 3.ATDC 4.BDC 5.BBDC 6.ABDC 7.OVER LAP 8.LOBE CENTER
9.DURATION 10.VALVE LIFT

4-1 The test pattern of output curve

4-2 The test pattern of torque curve



- NOTE ①** KOSO MSX camshaft (240 degree)+Third gear test ◦
- NOTE ②** Genuine +KOSO camshaft (240 degree)+Third gear test ◦
- NOTE** Test results vary with testing environment and weather. This test chart is for reference only.