



KZ1000S
KZ1000J Kit Parts

Motorcycle Manual for Engine

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In this parts list, asteris (*) marked parts are
only for racing use.



Dear KZ1000-S1 Owner:

Kawasaki offers the following recommendations to help you obtain optimum performance from your KZ1000-S1 Superbike.

Tires

The Dunlop tires supplied with the KZ1000-S1 as original equipment are suitable for most racing circuits. However, they are not recommended for circuits with high speed banked turns. Check with the track officials and tire specialists for a list of tires approved for use at these circuits.

Rear Wheel

Tighten the rear wheel studs and bolts to the specified torque values before each race. Be sure to use Loctite Stud N' Bearing Mount (K61079-002) or Loctite No. 271 (49075-3612) on the studs.

Torque Values

Description	Part Number	Torque
Stud	AGC241-020	75 N·m (55 ft-lbs)
Bolt	AGC241-510	45 N·m (35 ft-lbs)

Front Fork

Check clearance between the inner and outer fork tubes. If the clearance is excessive, shim the bushings at the ends of the inner fork tubes.

NOTE:

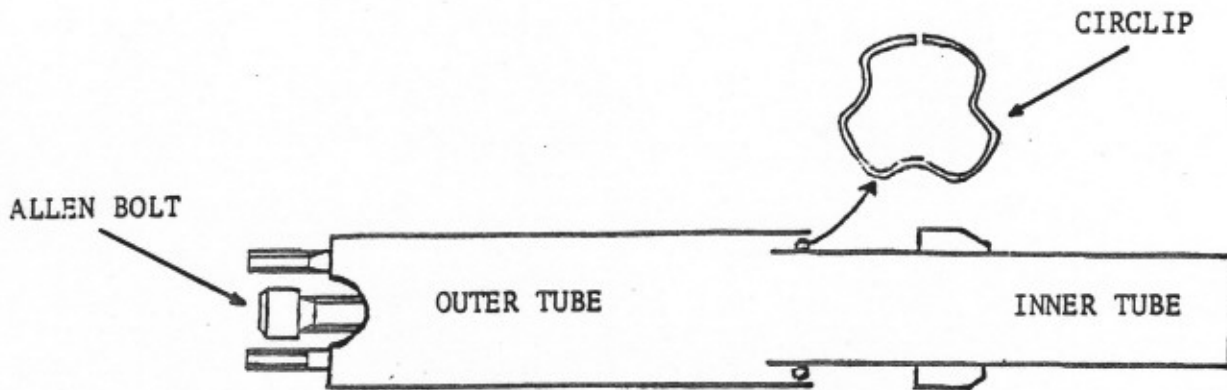
- Shims in thicknesses of 0.06 mm (0.002 in.) and 0.08 mm (0.003 in.) are included with this letter.
- New, replacement bushings are not available from parts stock.

Inspection:

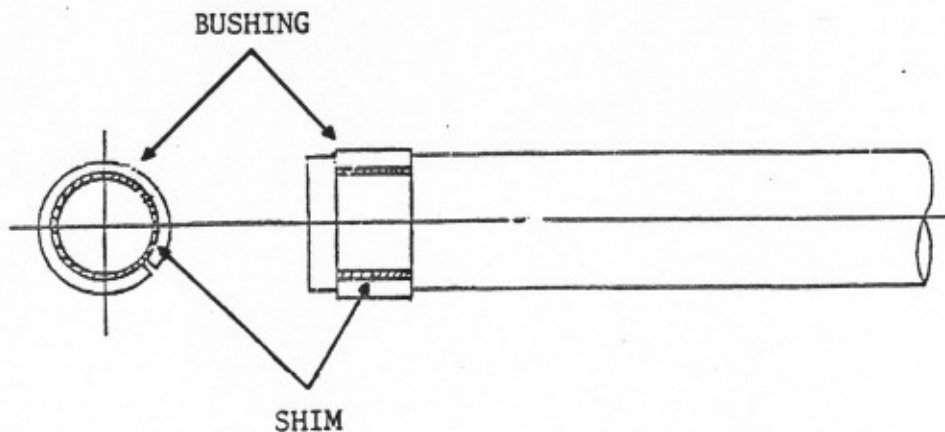
- Apply the front brakes and rock the motorcycle back and forth.
- * If movement of the inner fork tubes within the outer fork tubes is excessive, continue with the Shimming Procedure.

Shimming Procedure:

- Drain the oil from the front forks.
- Remove and disassemble the front forks.
- To withdraw the inner tube from the outer tube, remove the circlip and allen bolt. The bushing and oil seal at the top of the outer tube will come out with the inner tube.



- Remove the bushing from the inner tube.
- Wrap a piece of shim stock around the tube and reinstall the bushing over the shim.
- The length and thickness of the shim must be determined by reassembling the inner and outer fork tube and checking for free movement without binding.
- Once the proper shims are installed on the inner fork tubes, reassemble and install the front forks.



Sincerely,

KAWASAKI MOTORS CORP., U.S.A.

IMPORTANT

To ensure a long life for your KZ1000S engine, make it a rule not to run the engine over 9,800 rpm. However, the speed limiter is equipped in the ignition system to prevent the accidental engine over-rev. The limiter stops the CDI unit operation when the engine speed reaches about 10,500 rpm.

WARNING

THIS VEHICLE IS A COMPETITION MODEL ONLY AND WAS NOT MANUFACTURED FOR, NOR SHOULD IT BE USED ON, PUBLIC STREETS, ROADS, OR HIGHWAYS. THE USE OF THIS VEHICLE SHOULD BE LIMITED TO PARTICIPATION IN SANCTIONED COMPETITION EVENTS UPON A CLOSED COURSE.

DISCLAIMER OF WARRANTY

THIS MOTORCYCLE IS SOLD AS IS, WITH ALL FAULTS, OBVIOUS OR CONCEALED AND THERE ARE NO WARRANTIES EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OF FITNESS.

The purchaser accepts all responsibilities concerning quality, performance, cost of service and/or necessary repairs.

Kawasaki Heavy Industries, Ltd. accepts no liability for any inaccuracies or omissions in this publication, although every possible care has been taken to make it as complete and accurate as possible. All procedures and specifications subject to change without prior notice, and may not apply to every country.

Scope

- This manual provides essential information to service your kit parts or KZ1000S properly.
- The KZ1000S's engine has been developed from the KZ1000J's engine. Refer to the KZ1000, 1100 Service Manual (part number 99924-1026-02) for basic knowledge on the KZ1000J's engine.

Specifications

ENGINE:

Type	4-stroke, DOHC, 4-cylinder
Cooling system	Air cooled
Bore and stroke	69.4 x 66.0 mm
Displacement	998 mL
Compression ratio	11.3
Fuel	Premium gasoline, required octane rating 98
Valve clearance	0.20 – 0.25 mm for both inlet and exhaust
Valve timing:	
Inlet	Open 50° BTDC
	Close 80° ABDC
	Maximum cam lift 105° ATDC
	Duration 310°
Exhaust	Open 83° BBDC
	Close 47° ATDC
	Maximum cam lift 108° BTDC
	Duration 310°
Carburetors	Keihin CR33 x 4
Cylinder numbering method	Left to right, 1-2-3-4
Firing order	1-2-4-3
Lubrication system	Forced lubrication (wet sump)
Engine oil	See "Engine Oil" section in this manual for recommended oil.
Ignition system	Magneto CDI (dual ignition)
Ignition timing	28° BTDC @5,000 – 6,000 rpm
Timing advance	Electronically advanced
Spark plugs	Champion A55G (12 mm dia. 19.0 mm pitch threads)
DRIVE TRAIN:	ND# X32ESZU PROTOTYPE
Primary reduction system:	ND# X31ESZU 1/2 STEP HOTTIER
Type	Gear
Reduction ratio	1.732 (97/56)
Clutch type	Wet multi disc with cam damper (KZ1100 shaft model parts)
Transmission:	
Type	5-speed, constant mesh, return shift
Gear ratios	1st 2.400 (36/15)
	2nd 1.777 (32/18)
	3rd 1.545 (34/22)
	4th 1.380 (29/21)
	5th 1.260 (29/23)
Final drive system:	
Type	Chain drive
Reduction ratio	2.333 (35/15)
Overall drive ratio	5.096 @top gear

Break-in

To obtain good, well-lubricated operating surfaces of the engine parts, break in the engine noting the following:

- Run for 3 hours at moderate speed (vehicle speed of 100 km/h or so, engine revolutionary speed of 3,000 – 8,000 rpm)-**NEVER HARD ACCELERATION.**
- After break-in, let the engine cool completely, and re-tighten the cylinder head nuts and bolts to the specified torques.

Engine Oil

Recommended oil are given in the table below. They do not require any additives.

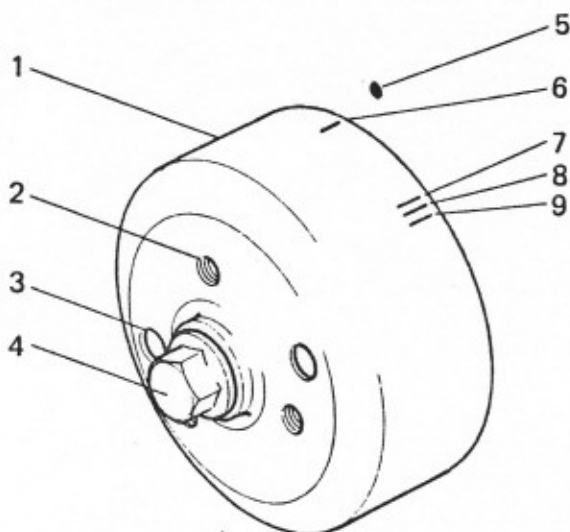
Recommended Engine Oil

Castrol	Formula RS
KVAS	Maximal
Bel-ray	MC-5 40 (single grade)
	MC-5 30 (single grade)

Ignition System

Spark Plugs:	Champion A55G, NGK R2098-11N, or equivalent gapped to 0.6 – 0.7 mm
Ignition Timing:	28° BTDC @5,000 – 6,000 rpm

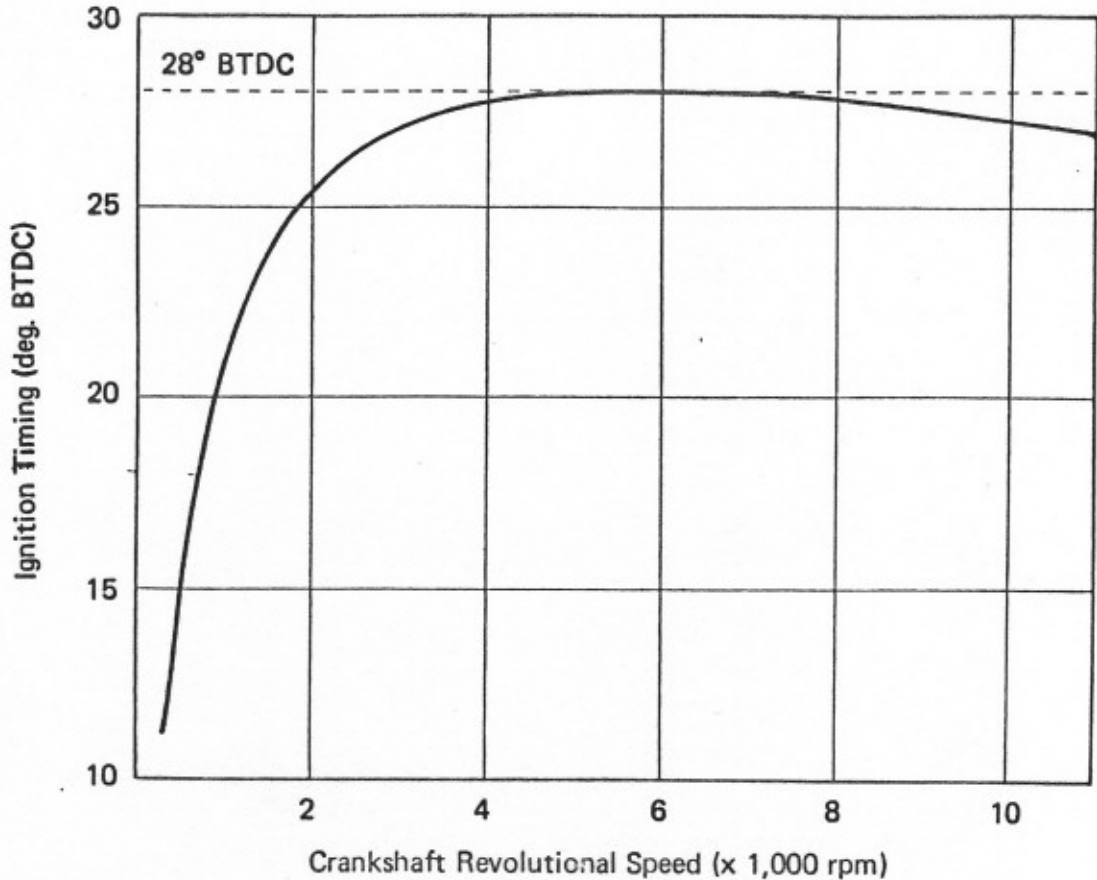
Fig. 1 Timing Marks on CDI Rotor



1. CDI rotor
2. Threaded holes for rotor removal. See "CAUTION" below.
3. Access holes to CDI stator mounting screws.
4. Rotor mounting bolt. Torque to 13.0 kg-m (125 N-m, 94 ft-lb).
5. Timing mark. Punched on the crankcase. Not punched for stock crankcase.
6. TDC mark
7. 26° BTDC mark
8. 28° BTDC mark
9. 30° BTDC mark

CAUTION

- Do not screw in a bolt or rod into the puller installation holes in the CDI rotor beyond 5 mm. This could damage the coils on the stator which is located in the rotor.

Fig. 2 Ignition Timing**"NOTE"**

- To take advantage of the dual ignition system, connect the ignition coil primary leads to the CDI unit in accordance with the wiring diagram in this manual and also connect the spark plug leads to the spark plugs in accordance with the wiring diagram.

Cylinder Head Gasket

To perfectly match the gasket holes with the piston bores in the cylinder block, use gasket guide 57001-1167 as follows:

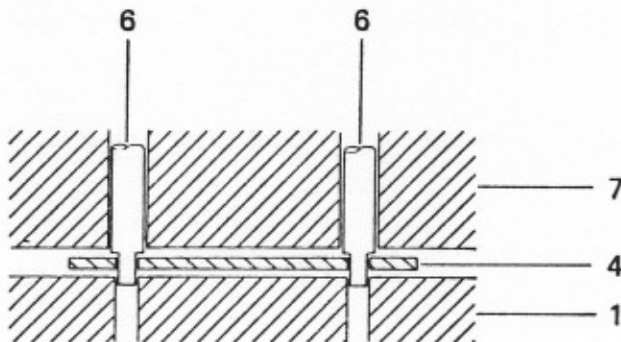
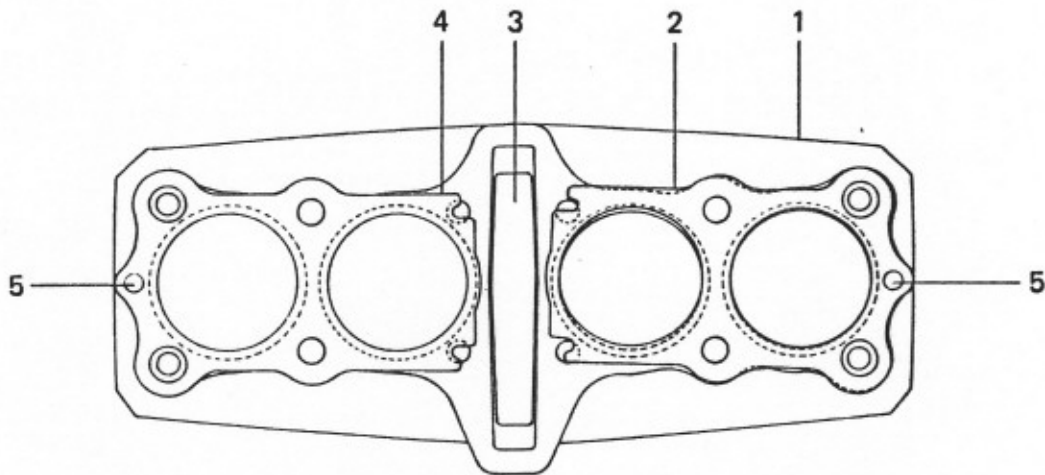
- Place the cylinder head gaskets between the cylinder block and the cylinder head. The holded-over metal side of the gasket is the upper side.
- Insert the rods of the gasket guide through the bolt holes next to the cam chain tunnel to position the gaskets in place. The bolt holes in the cylinder block will guide the rods. Leave the rods in the holes until the cylinder head is tightened down.
- Install the eight through-hole bolts and hand tighten the bolts. Remove the rods, and install the rest cylinder head bolts.
- Tighten the bolts to the specified torque. Tighten first the 10 mm dia. thread bolts, and then the 6 mm dia. thread bolts.

"NOTE"

After installing a new cylinder head gasket, thoroughly warm up the engine, let the engine cool completely, and retighten the cylinder head nuts and bolts to the specified torques.

Tightening Torque for Cylinder Head Bolts

10 mm dia. bolts:	4.0 kg-m (39 N-m, 29 ft-lb)
6 mm dia. bolts:	1.2 kg-m (12 N-m, 104 in-lb)

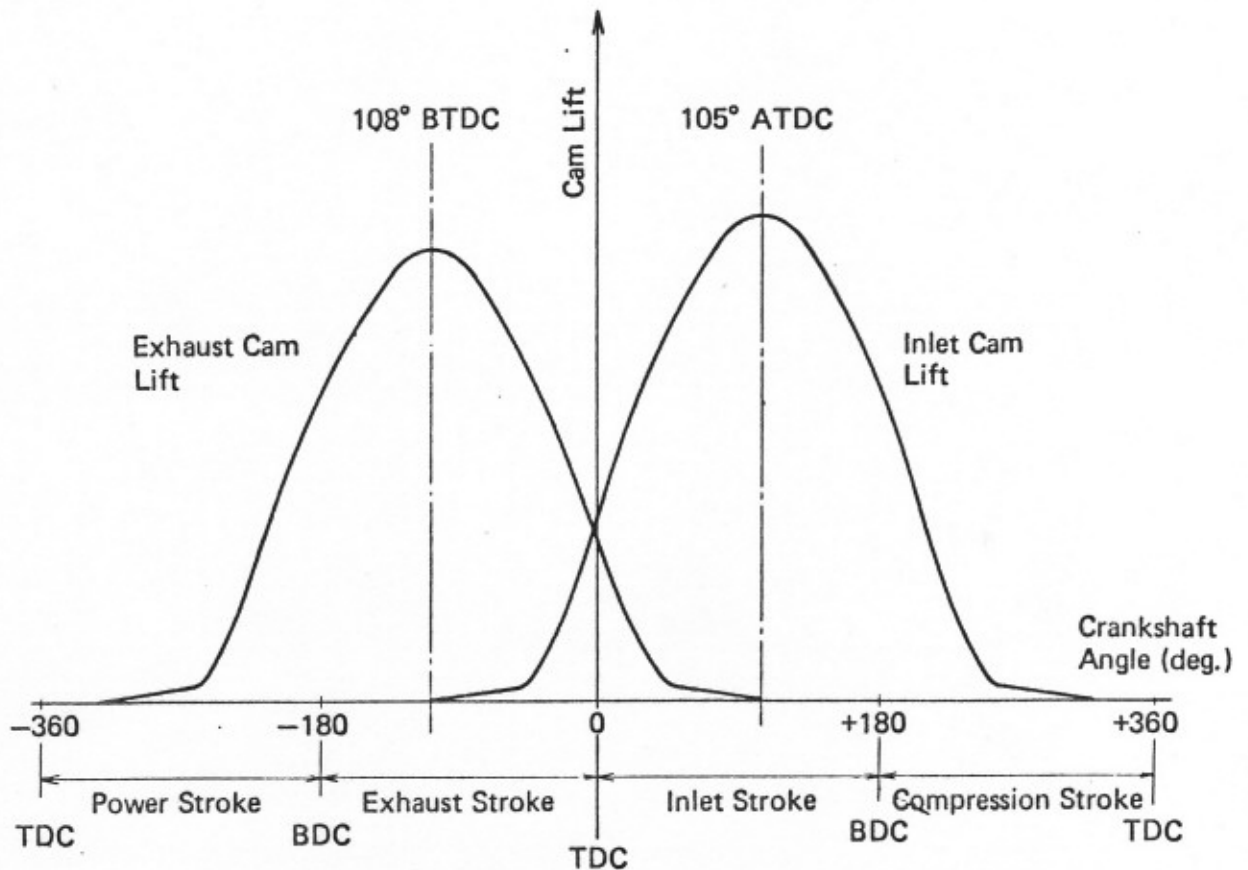
Fig. 3 Cylinder Head Gasket Positioning

1. Cylinder block
2. Gasket, out of place
3. Cam chain tunnel
4. Gasket, in place
5. Knock pins
6. Gasket guide, special tool
7. Cylinder head

Valve Mechanism

Valve Clearance: 0.20 – 0.25 mm (measured when the engine is cold)

Fig. 4 Valve Timing: This graph shows the timing when the cylinder head cover is in place, that is when the cam chain guide depresses the upper cam chain row between the camshafts. If the cylinder head cover is removed, and the upper chain row is straight, the inlet timing retards by the angle of 0.5° (inlet cam turns counterclockwise 0.25°)

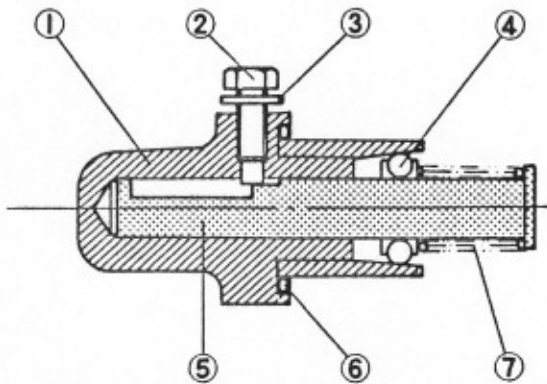


Cam Chain Tensioner:

CAUTION

- This is a non-return type camshaft chain tensioner of which push rod does not return to its original position once it moves out to take up cam chain slack. Learn and observe the following rules.
- Do not turn over the crankshaft while the camshaft chain tensioner is removed. This could damage the valves.
- Before starting any disassembly operation (cylinder head cover removal, camshaft removal, etc.) that slackens the cam chain, remove the tensioner assembly from the engine.
- When removing the chain tensioner, do not take out the mounting bolts only halfway. Retightening the bolts from this position could damage the chain tensioner assembly and the cam chain. Once the bolts are loosened, the tensioner must be removed and reset as follows:
 - Remove and disassemble the tensioner.
 - Compress the spring against the push rod head, and insert a thin wire through the hole in the rod to keep the spring in place.
 - Assemble the tensioner, and lock the push rod in the fully-pushed-in position by tightening the lock bolt. Remove the wire. So far, preparation for installation has been completed.
 - After completion of disassembly and assembly operation, install the push-rod-locked tensioner.
 - Loosen the lock bolt and then tighten it. By loosening the bolt, the spring takes up any chain slack automatically.

Fig. 5 Cam Chain Tensioner: The illustration shows the push-rod-locked tensioner. The push rod is locked with the bolt, and the tensioner is stood by for installation.



1. Tensioner body
2. Lock bolt
3. Washer
4. Ball and retainer
5. Push rod
6. O-ring
7. Spring

Cam Shaft Identification:

Identification marks are punched on the camshaft left end:

"47" for the inlet camshaft.

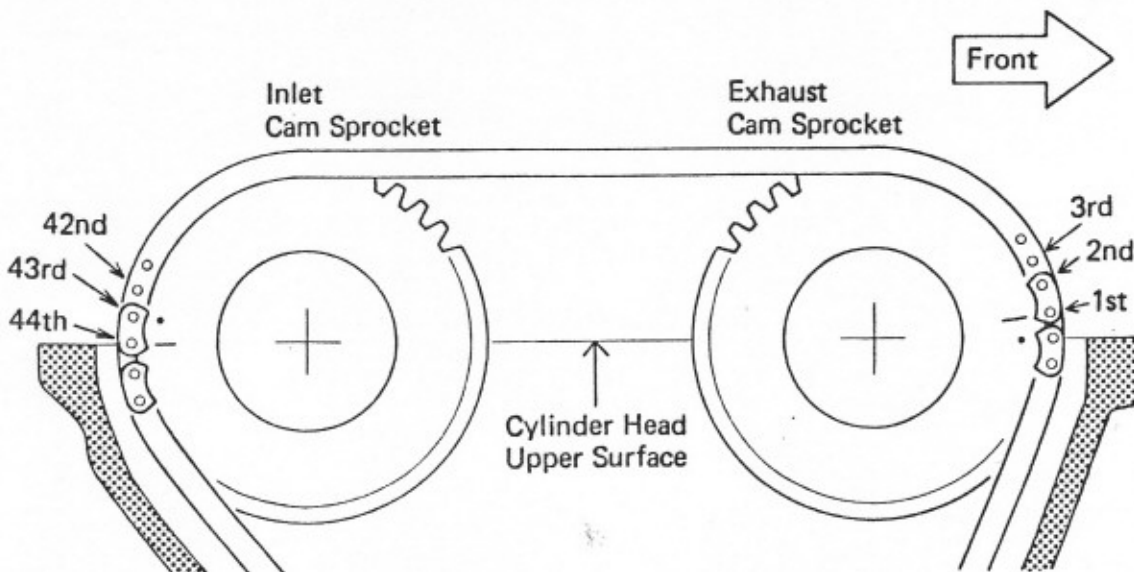
"48" for the exhaust camshaft.

Fig. 6 Cam Chain Timing(viewed from the right side of the engine)

○The #1 and #4 pistons are at TDC.

○The camshaft caps are tightened down.

○The cam chain is taut by pushing the rear cam chain guide through the tensioner hole.



Transmission

Gear Side Play:

Adjust the side play of the gears listed in the table. To check the side play, apply feeler gauges to the specified places. Measured play may vary with feeler gauge applied position. Take the minimum play for adjustment.

Gear Side Play

Drive shaft gears:	
5th	0.1 – 0.3 mm
2nd	0.1 – 0.3 mm (Measure when the drive shaft assembly is put on the upper crankcase half.)
Output shaft gears:	
3rd	0.1 – 0.3 mm
1st	0.1 – 0.3 mm (Measure when the output shaft assembly is put on the upper crankcase half.)

Dog Clutch Clearance:

Adjust the dog clutch clearance of the following gears. Check the clearance after the lower crankcase half is installed and the shift forks are fitted into the gear grooves.

Dog Clutch Clearance

Drive shaft 3rd gear:	Equal clearance on both sides
Output shaft 4th gear:	Equal clearance on both sides

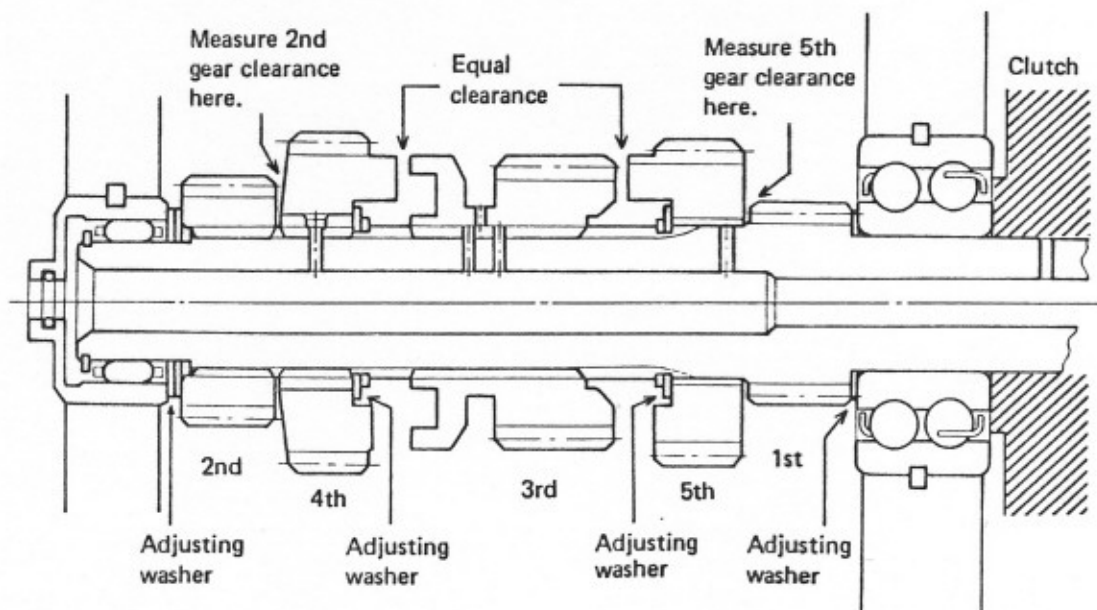
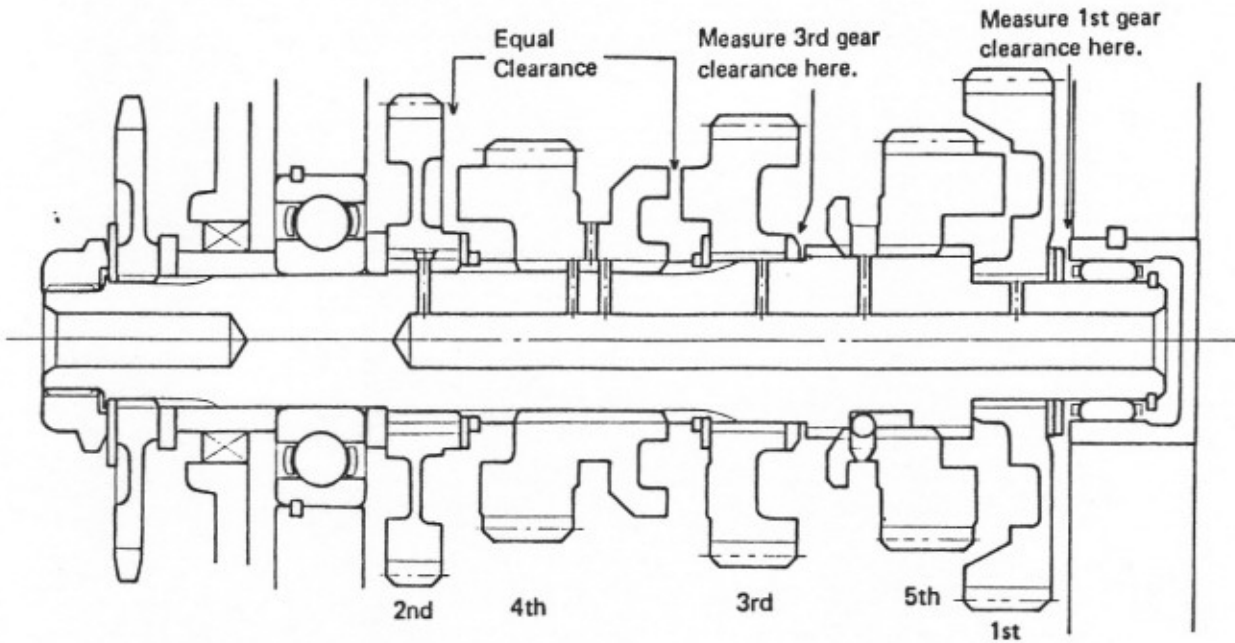
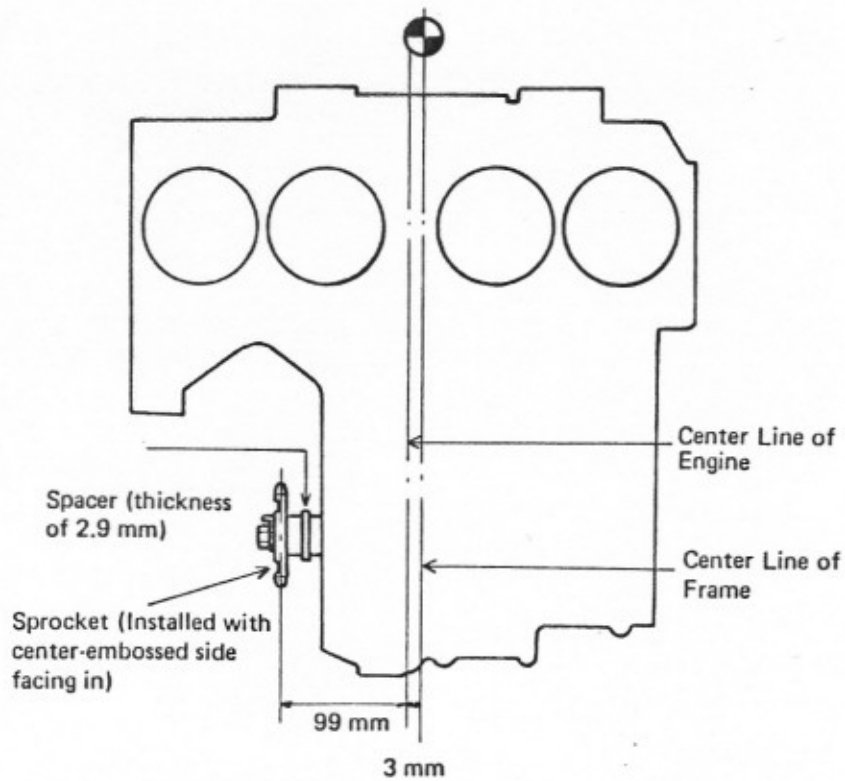
Fig. 7 Drive Shaft Assembly

Fig. 8 Output Shaft Assembly



Center Lines

Fig. 9 Position of Center Lines (viewed from top)



"NOTE"

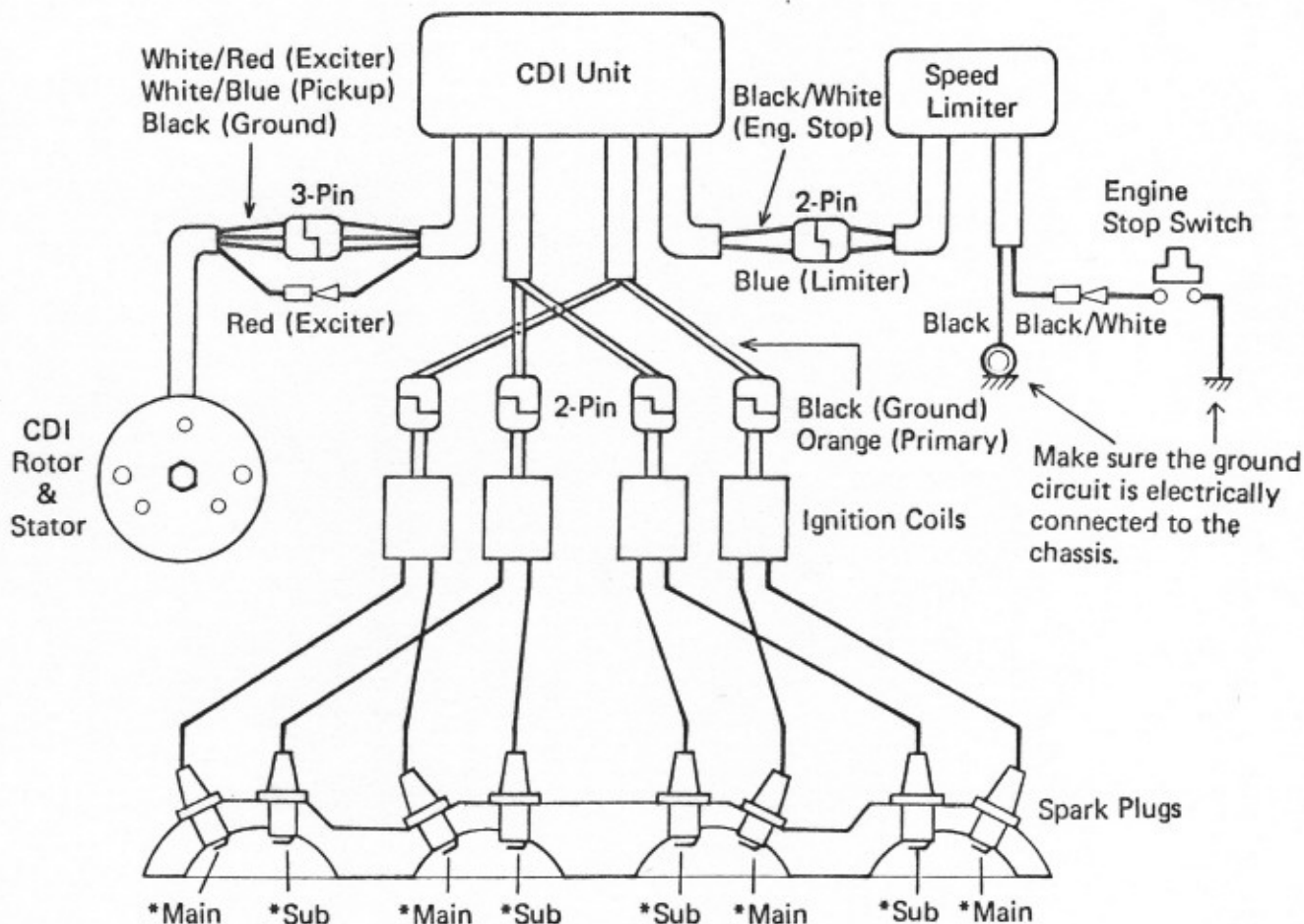
o The center line of the engine sprocket moves 4.5 mm rightwards if the sprocket is installed reversely.

Special Tools

The following special tools are newly provided for the KZ1000S.

Part Number	Tool Name	Quantity
57001-1166	Piston base, 6 mm dia.	1set
57001-1167	Gasket guide	1set
57001-1168	Adapter, rotor puller – use with puller 57001-259	1
57001-1169	Bolts, rotor puller – use with puller 57001-259	1 set

Wiring Diagram



- * The terms "Main" and "Sub" distinguish two spark plugs in a cylinder. The "Main" means the inclined spark plug, and the "Sub" means the upright plug.

CAUTION

- Speed limiter operation can be stopped by cutting the blue lead between the CDI unit and the speed limiter. However, the speed limiter will be damaged, if the black/white lead between the CDI unit and the limiter is cut or opened under the following conditions—
 - (1) while the engine is running, and
 - (2) the blue lead between the CDI unit and the limiter is opened or cut.