YOSHIMURA

RESEARCH&DEVELOPMENT OF AMERICA, INC.

SUZUKI 2000-02 DR-Z400Y/EY
450cc STROKER KIT

[*PART No. 4500D*]

This product is for racing use only, not for use on public roads and highways.

- Be sure to carefully read the instruction manual before starting installation.
- While working, keep these instructions at hand and proceed with the work in accordance with the instructions.
- These instructions should be retained until the product is scrapped.

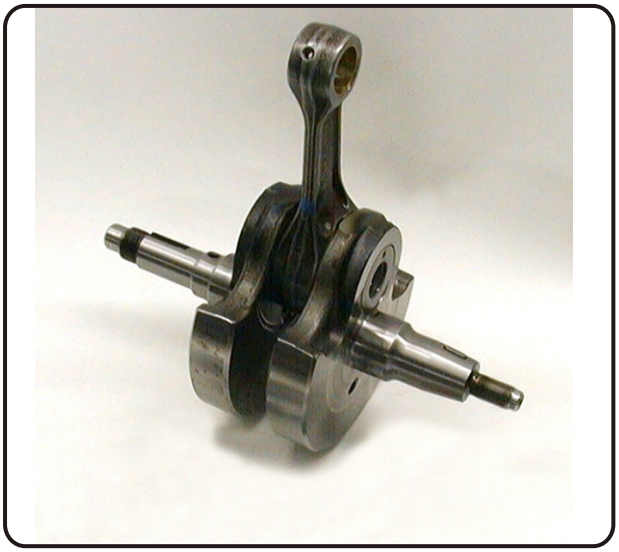
PART LIST:

NO.	*DESCRIPTION*	*QTY*	*PART #*
1	450 Stroker Crank Assembly	1	4500D
**	Instruction Kit	1	INST KIT
**	Yoshimura USA Sticker	2	17020C

● Applicable models

SUZUKI DR-Z400Y/EY (2000-2002)

Do not use this product for other models than listed above.



Important:

⚠WARNING

CAUTION

NOTE

Please read this manual and follow the instructions carefully. To emphasize special information, the symbol ⚠ and the words WARNING, CAUTION,and *NOTE* have special meanings. Pay special attention to the messages highlighted by these signal words.

NOTE: Indicates special information to make maintenance easier or instructions clearer.

⚠WARNING

Indicates potential hazard that could result in death or injury.

CAUTION

Indicates potential hazard that could result in vehicle damage.

Preparation prior to installation:

Read instructions carefully. Lay out all parts and tools in a clean area. Visually inspect parts for possible damage from shipping.

⚠WARNING

Engine and exhaust system can be extremely hot. Let Motorcycle cool down before beginning installation.

GENERAL PRECAUTIONS

⚠ WARNING

- **Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the Motorcycle.**
- **When two or more persons work together, pay attention to the safety of each other. When it is necessary to run the engine indoors, make sure the exhaust gas is forced outdoors.**
- **When working with toxic or flammable materials, make sure the area you work in is well ventilated and that you follow all of the manufacturer's instructions.**
- **Never use gasoline as a cleaning solvent.**
- **To avoid getting burned, do not touch the engine, engine oil, radiator, and exhaust system until they have cooled.**
- **After servicing the fuel, oil, engine coolant, or exhaust systems, check all of the lines, and fittings relating to the system for leaks.**

CAUTION

- **If parts replacement is necessary, replace the parts with SUZUKI Genuine Parts or their equivalent.**
- **When removing parts that are to be reused, keep them arranged in an orderly manner so that they may reinstalled in the proper order.**
- **Be sure to use special tools when instructed.**
- **Make sure that all parts used in reassembly are clean. Lubricate them when specified.**
- **Use the specified lubricants, bonds, or sealants.**
- **When tightening cylinder head and crankcase nuts and bolts, tighten the larger sizes first. Always tighten the nuts and bolts from the inside working out, diagonally and to the specified torque.**
- **Whenever you remove oil seals, gaskets, packing, O-rings, self-locking nuts, locking washers, cotter pins, circlips, and other specified parts, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.**
- **Never reuse a circlip. When installing a new circlip, take care not to expand the end gap larger than required to slip the circlip over the shaft. After installing the circlip, always ensure it is completely seated in its groove and securely fitted.**
- **Use a torque wrench to tighten fasteners to the specified torque. Wipe off grease and oil if a thread is smeared with them.**
- **After reassembling, check parts for tightness and proper operation.**

Crankshaft removal and installation should be done in accordance with the Suzuki DR-Z400Y Service Manual.

⚠ WARNING During installation and reassembly it is critical to check all clearance values described in the following pages (See Page 7 for a complete listing). Failure to do so may result in severe engine damage. If there are any problems encountered during installation and reassembly, contact Yoshimura R&D technical support at (909) 628-4722.

CAUTION

After disassembling, removed parts should be well cleaned and dried. Inspect all parts to ensure they meet the service limits as defined in the Suzuki service manual.

Special Tools:

-Crankcase separating tool, Suzuki Part# 09920-13120
-Crankshaft installer, Suzuki Part# 09910-32812
-Attachment for Crank Installer, Suzuki Part# 09940-52861)

TRIAL FIT:

-Install Yoshimura modified crankshaft assembly into left crankcase half as per the Suzuki Service manual.
-Check clearances between connecting rod big end and left case webbing (Fig. 1). The minimum clearance at any given point should be no less than 0.35mm.
-Repeat this procedure for right crankcase half.
-If clearance is less than 0.35mm please contact Yoshimura technical department for further instructions at (800) 634-9166.

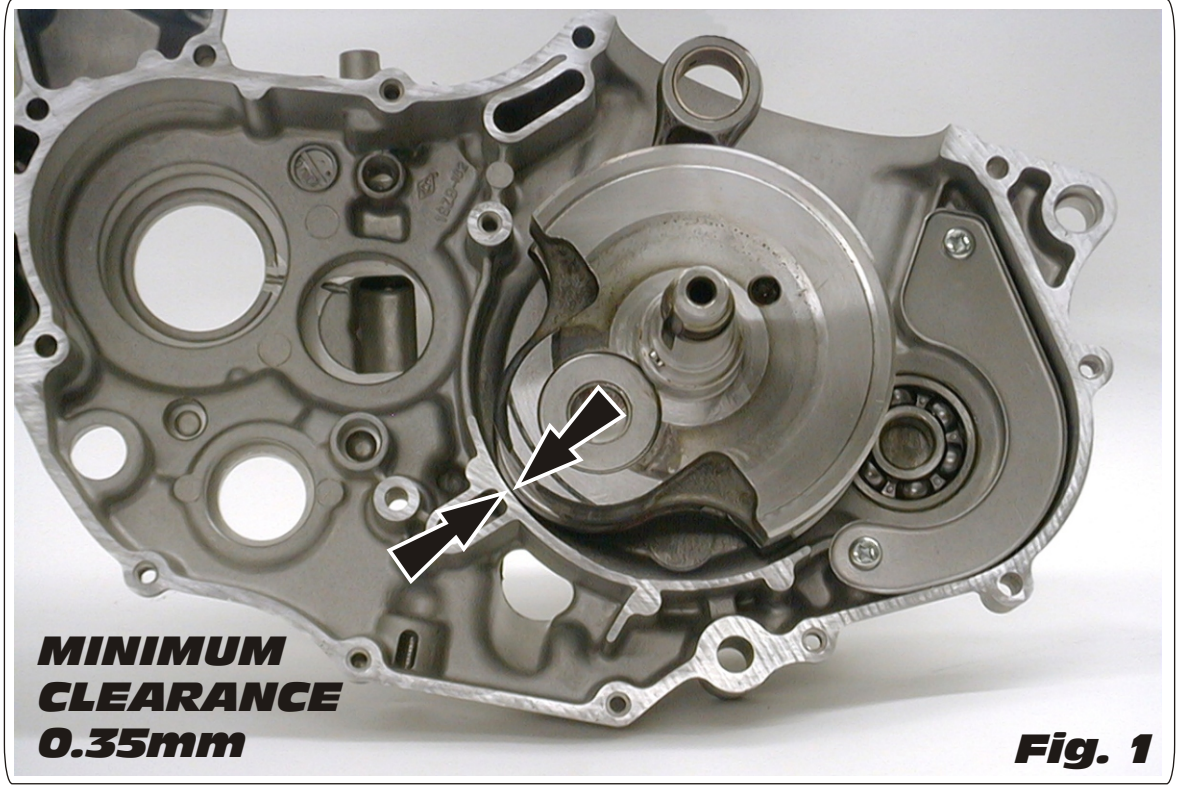
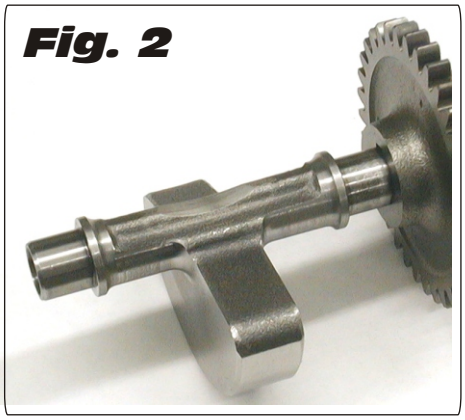


Fig. 1

-To insure proper clearances between the connecting rod big end and counter balancer the counter balancer must be modified as shown (See Page 5 for detailed information). After modification install the balancer (Fig. 2), balancer drive and balancer driven gears and align timing marks in accordance with Suzuki service manual.

Fig. 2



-Rotate crank assembly until the timing marks are both facing away from the cylinder bore as shown in figure 3. Ensure that rod is centered in cylinder bore.

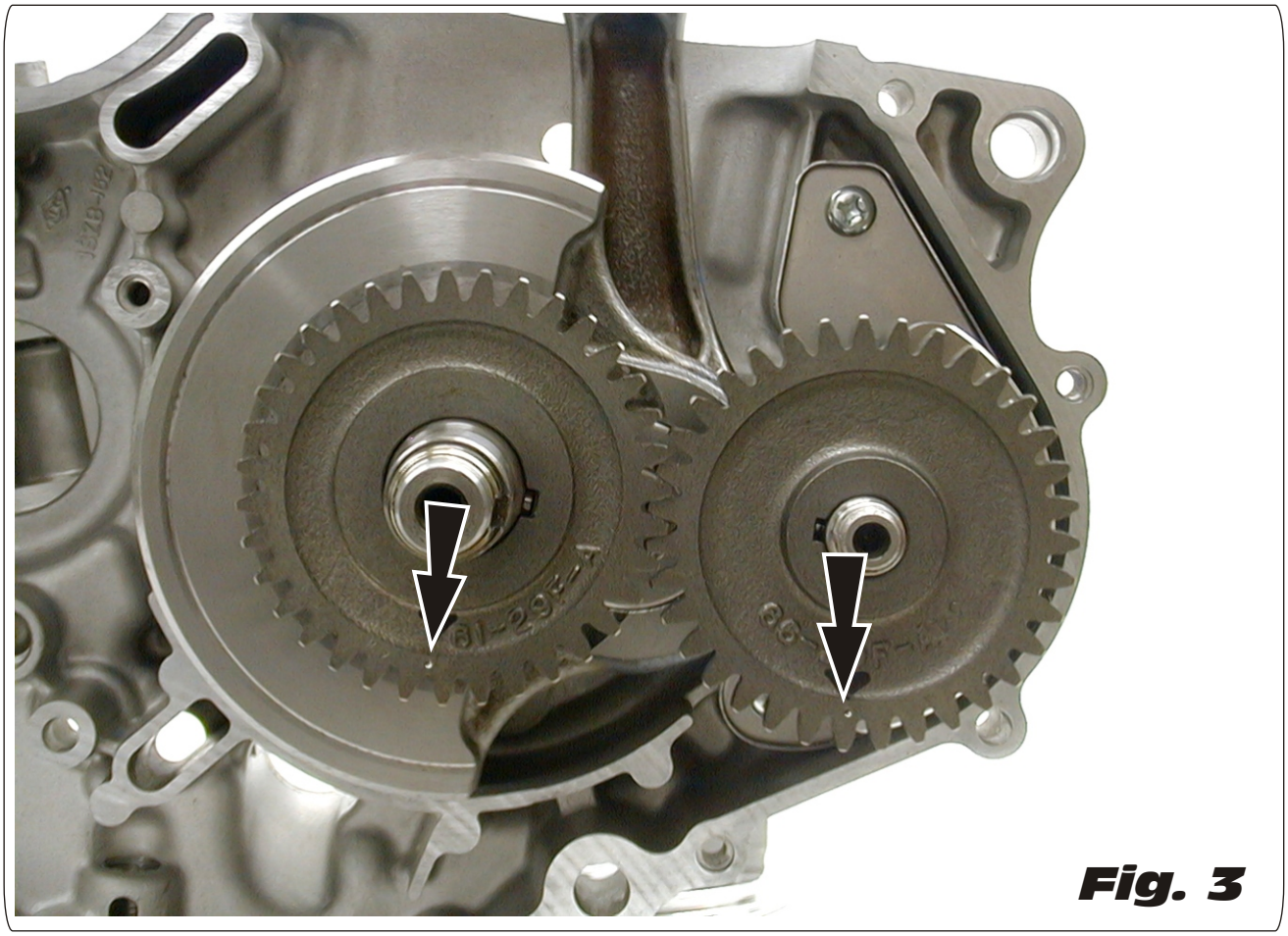


Fig. 3

⚠ WARNING

-Check clearance between modified balancer and big end of the crank rod (Figure 4). Minimum clearance 0.75mm
Maximum clearance 1.75mm

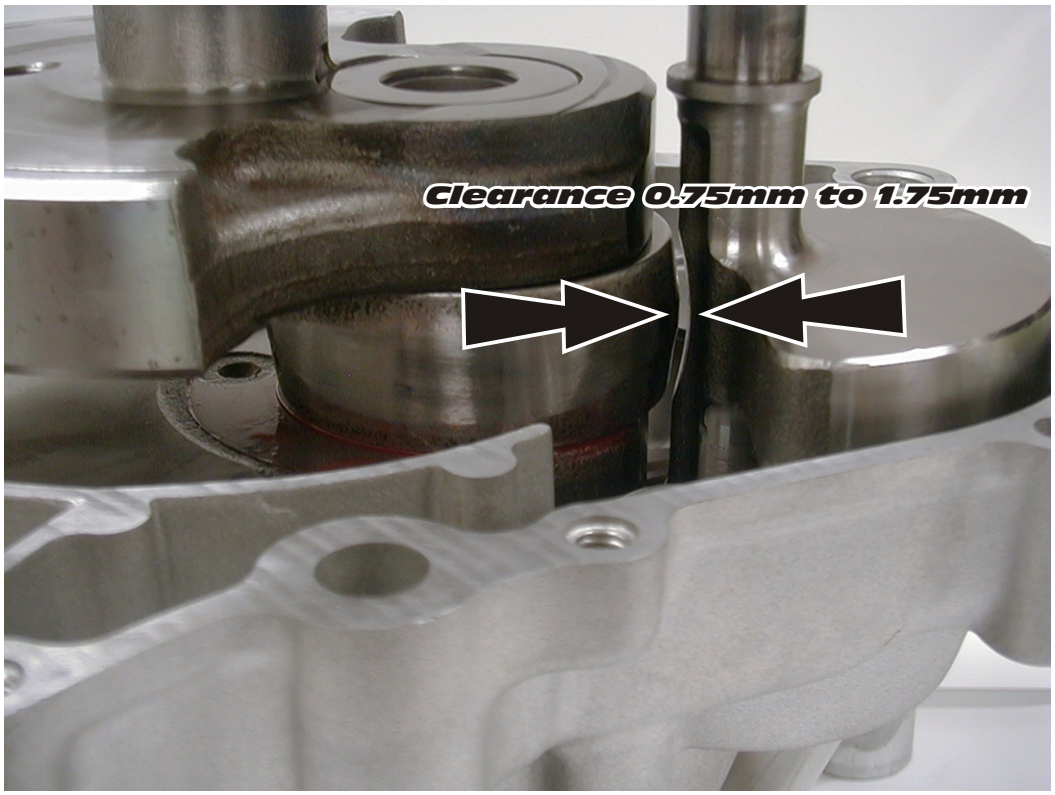


Fig. 4

-Once clearances have been checked, assemble both case halves with crank assembly and counter balancer installed.
-Rotate crank shaft to check for smooth operation and no interference. If there are any interference problems recheck clearances as described previously in these instructions. If problems persist, contact Yoshimura Technical Services at (800) 634-9166 before continuing.
-Now that the critical clearances pertaining to the Yoshimura modified crankshaft and counter balancer have been verified, the crank cases can now be separated and components prepared for final assembly as per Suzuki service manual.

⚠ WARNING

-The following items must be used in place of the standard parts described in the Suzuki service manual:

- -Suzuki cylinder base gasket part number 112141-29F11
- -Yoshimura supplied head gasket
- -Yoshimura supplied piston, rings and wrist pin

NOTE:

The following pages only apply to customers who will be using Yoshimura supplied Big Bore Piston and/or cylinder components.

CAUTION

Crankcase vent tube “MUST” be safety wired in place using minumum wire type 304/316 stainless steel with a .032” diameter. See Fig. 5.

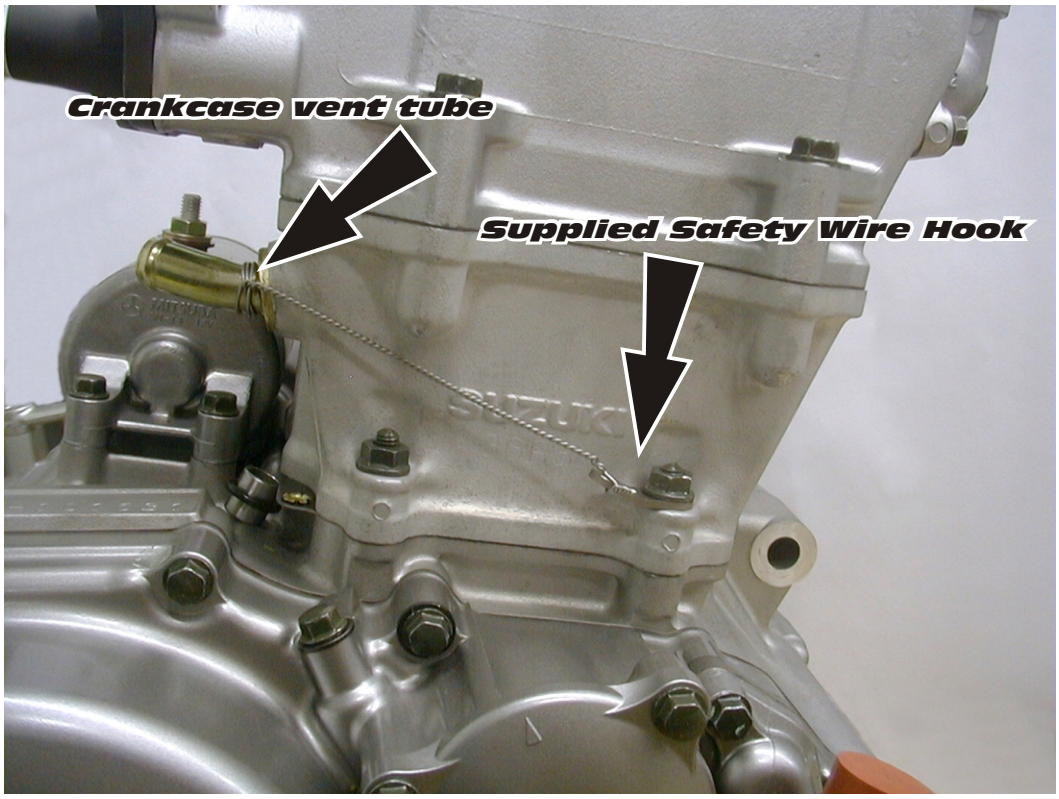


Fig. 5

Install supplied safety wire hook under right front cylinder nut. Torque nut to specification in Suzuki Service Manual. Loop safety wire minumum 3 times around crankcase vent tube and secure to supplied safety wire hook already installed on engine. Ensure there is no slack in safety wire.

CAUTION

-Please note that the Yoshimura piston does not have a punch mark indicating the exhaust side of the piston. The piston should be assembled as shown in figure 6. Piston ring gap should be checked at 9mm below top of cylinder deck. See Specifications and Clearances for detailed assembly information.

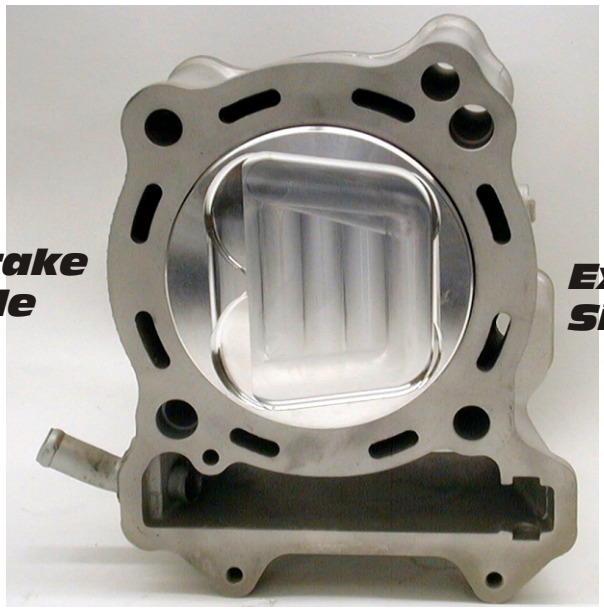


Fig. 6

Break-In

1. Start the engine, check for oil leakage, and idle until the oil temperature rises.
2. For first 1/2 hour of running, the throttle should be kept under 1/4 turn.
3. For next 1/2 hour of running, the throttle should be kept under 1/2 turn.

CAUTION During break-in, avoid heavy loading such as sudden starting and rapid acceleration.

4. After break-in is completed, adjust the tappet clearance and check for any abnormal noise. If abnormal noise is heard, disassemble and check the engine again.

CAUTION When the engine is started after break-in is completed, be sure to warm-up engine until oil temperature is sufficiently raised before use or riding.

Specifications and Clearances:

NO.	*DESCRIPTION*	*MEASUREMENTS*	*ASSEMBLY NOTES*
Fig 1	Connecting rod to crankcase housing clearance	0.35mm +	
Fig 4	Connecting rod to balancer clearance	0.75mm to 1.75mm	
Fig 5	Piston to head squish clearance	1.0mm to 1.15mm	
Fig 5	Piston ring end gap	0.02mm to 0.03mm	