

FLYWHEEL AND CONNECTING RODS

3.29

REMOVAL OVERVIEW

1. Perform all steps under [3.16 TOP END OVERHAUL: DISASSEMBLY](#).
2. Perform all steps under [3.16 TOP END OVERHAUL: DISASSEMBLY](#).

INSPECTION

NOTE

Do not attempt to straighten connecting rods. Straightening rods will damage both the upper bushing and lower bearing.

1. Replace the flywheel/connecting rod assembly if any of the following conditions are noted:
 - a. Connecting rods are bent or twisted.
 - b. Connecting rods do not fall under their own weight or are in a bind.
 - c. Sprocket teeth are worn in an irregular pattern or chipped.
 - d. The crankshaft (roller) bearing inner races are brinelled, burnt, scored, blued or damaged.

NOTE

Bluing on connecting rods is part of the hardening process and is considered a normal condition.

2. Check connecting rod bearing clearance. Orient the assembly as shown in [Figure 3-158](#).
 - a. Holding the shank of each rod just above the bearing bore, pull up and down on the connecting rods.
 - b. Any discernible up and down movement indicates excessive lower bearing clearance. Replace the flywheel/connecting rod assembly.
3. See [Figure 3-159](#). Check connecting rod side play.
 - a. Insert a feeler gauge between the thrust washer and the outboard side of the connecting rod.
 - b. Replace the assembly if rod side play exceeds 0.020 in. (0.51 mm).

NOTE

If the flywheel, connecting rods or right side bearing inner race need to be replaced, then replace the entire flywheel assembly.

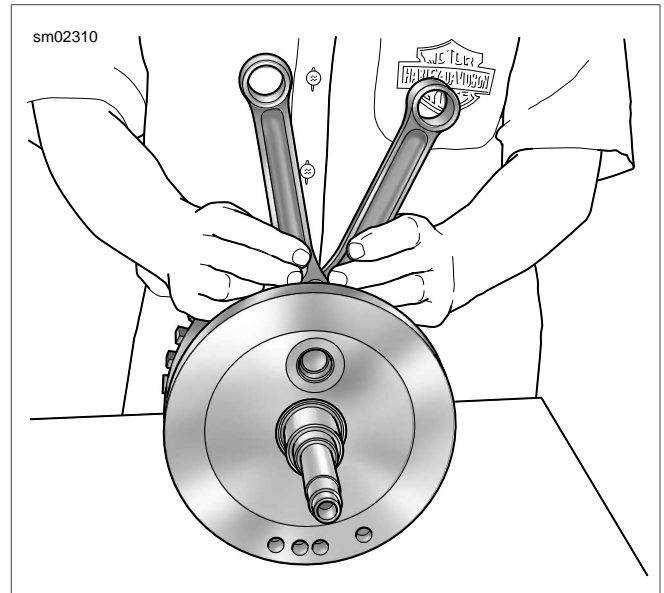


Figure 3-158. Connecting Rod Bearing Clearance

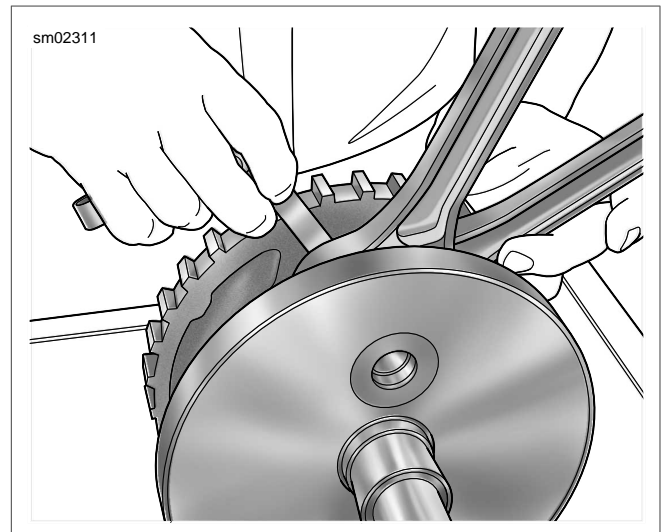


Figure 3-159. Connecting Rod Side Play

INSTALLATION OVERVIEW

1. Perform all steps under [3.19 BOTTOM END OVERHAUL: ASSEMBLY](#).
2. Perform all steps under [3.17 TOP END OVERHAUL: ASSEMBLY](#).

REMOVAL OVERVIEW

NOTE

Always replace all four bearings (crankcase and housing, front and rear) during a complete bottom end overhaul.

1. Perform all steps under [3.16 TOP END OVERHAUL: DISASSEMBLY](#).
2. Perform all steps under [3.18 BOTTOM END OVERHAUL: DISASSEMBLY](#).

CLEANING, INSPECTION, AND REPAIR

PART NUMBER	TOOL NAME
HD-48309	BALANCER SHAFT INSTALLER
HD-48457	BALANCER SHAFT REMOVER
HD-48474	BALANCE SHAFT SUPPORT BEARING REMOVER/INSTALLER
HD-95635-46	ALL-PURPOSE CLAW PULLER
HD-95937-46B	WEDGE ATTACHMENT

General

1. Clean all parts but bearings in a non-volatile cleaning solution or solvent.

 **WARNING**

Compressed air can pierce the skin and flying debris from compressed air could cause serious eye injury. Wear safety glasses when working with compressed air. Never use your hand to check for air leaks or to determine air flow rates. (00061a)

2. Blow parts dry with low pressure compressed air.

Balance Shaft Removal

1. See [Figure 3-160](#). Remove bearing fastener (4) from crankcase (1).
2. See [Figure 3-161](#). Assemble BALANCER SHAFT REMOVER (Part No. HD-48457).
 - a. Sparingly apply graphite lubricant along threads of forcing screw (1) to prolong service life and ensure smooth operation.
 - b. Install support shafts (3) in crankcase.
 - c. If replacing front shaft, install plate (2) over support shafts with side marked "Front" facing up. If replacing rear shaft, install plate over support shafts with side marked "Rear" facing up.
 - d. Install forcing screw in balance shaft (4).
 - e. Install washer, Nice bearing and nut on forcing screw.

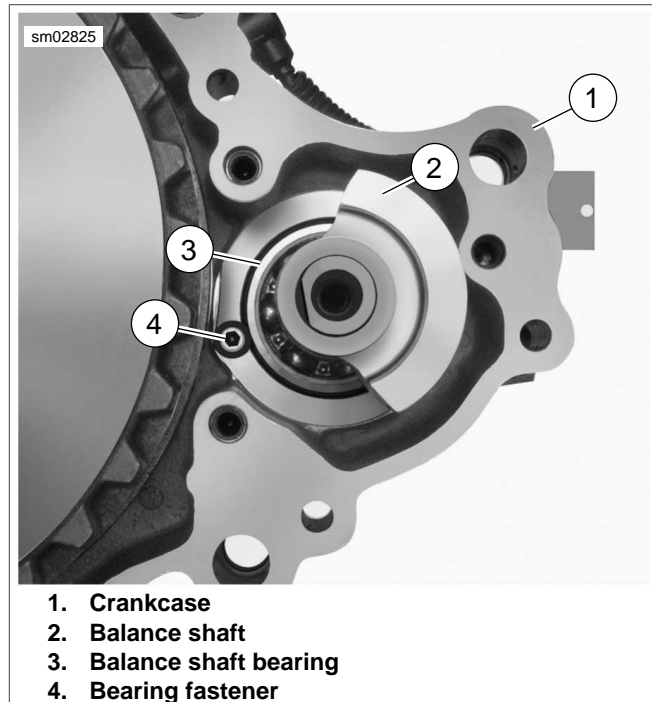


Figure 3-160. Balance Shaft Bearing

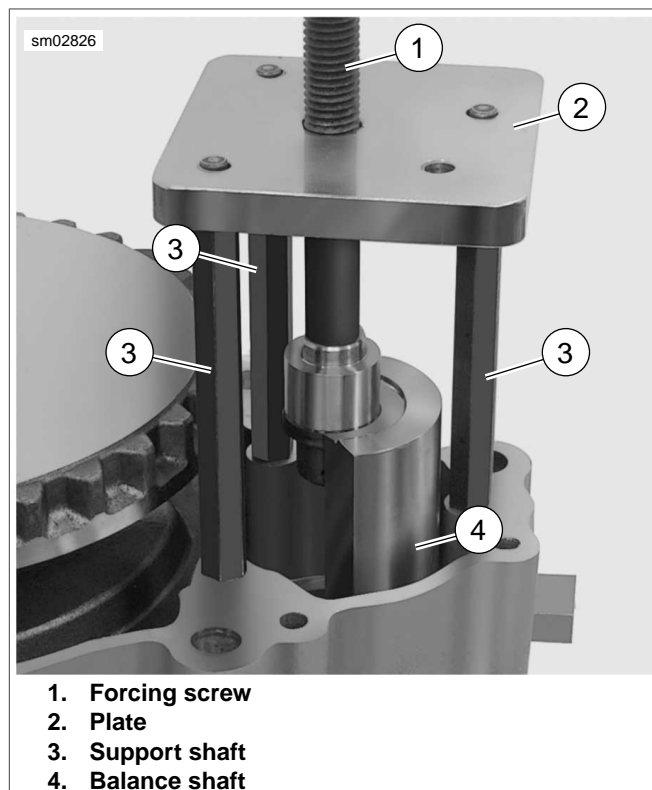


Figure 3-161. Balance Shaft Remover