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Balancing Jaguar Connecting Rods

Some years ago, we “discussed” the proper way to balance Jaguar “XK” six-cylinder connecting rods. Unable to find a definitive answer in any Jaguar repair manual, we asked Jaguar directly.

First, a little background. Many rods, such as those commonly found in American V-8s, have a sacrificial boss cast into them that is specifically designed to be ground or drilled when rebuilding and balancing such rods. Jaguar rods have no such feature, so our question to Jaguar was as follows:

“As you know, the connecting rod big end cap has a raised rib that goes between the rod’s bolts and blends into the rod bolt nut seating bosses. With a lot of connecting rods, the area of the rod’s big-end cap has a boss cast into it which serves as a metal removal balancing pad when rebuilding and rebalancing a rod.

“The question we have is with the Jaguar 3.8 and 4.2 rod. Should the big end cap ‘rib’ be used to remove metal for rod balancing or is this structural reinforcing ‘rib’ integral to the rod’s strength? If so, should the rod big end be side-ground above the thrust area to reduce weight?”

Mark Heaton, Principal Engineer, AJV8 Base Engine Design, was good enough to provide an answer:

“Under NO circumstances should the rib on the big-end cap be machined to adjust the balance. This rib is structural to the cap and modification to it will result in dynamic deformation of the bearing. This will adversely affect the oil film and may lead to bearing failure. Additionally, the reduction in strength could result in structural failure.

“Your proposal to remove material from the outer diameter of the big end thrust face would be acceptable provided that the thrust face is not jeopardized and structural integrity is not jeopardized due to excessive material removal. Unfortunately, we do not have any specifications to guide you in this and will have to leave it to your engineering judgment.

“In production, the rods were never balanced. Rods were weighed and graded into engine sets such that each engine had rods of near-equal weight.”

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