



# Repair of CFM56 #4R Bearings with Replacement of Components – Bearing Reconditioning

**Overhaul of the CFM56 #4R mainshaft engine bearing with replacement of components (cage, rollers, outer ring)**

Part numbers concerned

Engine	Model	Bearing Position	Bearing Type	Part Number
CFM56	-3/-5/-7	#4	R (Roller)	335-352-301-0
				335-352-302-0
				335-352-303-0
				335-352-304-0
				335-352-305-0 <sup>1</sup>
				335-352-306-0 <sup>1</sup>

<sup>1</sup> Upgrade (retrofit) by using an outer race of the new configuration material.

### General

The CFM56 #4R mainshaft bearing is highly stressed during operation. To increase the reliability of this bearing, major design changes have been made.

The original design included an outer ring made from M50 material. The initial improvement was to add a stress profile requirement for the raceway of the M50 outer ring. To further improve the reliability, the outer ring material was modified with nitrogen hardening and a specific stress profile (see *Figure 1*) for the raceway.

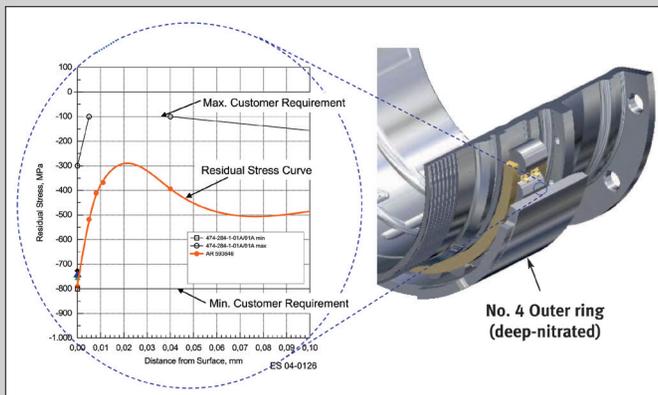


Figure 1. Residual stress profile for the raceway.

### Bearing Repair Procedure

Any re-work of the outer ring raceway (honing, polishing) will change the stress profile and could lead to an out of limits condition, with the possible consequence of a reduced bearing reliability.

To ensure high reliability, FAG always replace the outer ring by a new outer ring manufactured to the original OEM approved process.

**Our customers get more than a repaired bearing, they have a repaired bearing which meets the latest configuration.**

Every care has been taken to ensure the information in this publication is correct but no liability can be accepted for any errors of omissions. We reserve the right to make technical changes.

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Figure 2. The following pictures illustrate the condition of the CFM56 #4R bearing assembly before and after repair.



**Outer ring:**  
Replaced with newly manufactured ring during repair

**Rollers:**  
Replaced with newly manufactured components during repair

**Cage:**  
Replaced with newly manufactured components during repair

**Inner ring:**  
Re-manufactured and re-inspected per SNECMA instructions

### Conclusion

Why take the risk of having such a highly stressed bearing repaired by a non OEM approved repair source, with a non OEM approved repair procedure, when you can get the bearing repaired to the latest bearing configuration, which meets all the OEM requirements.

**FAG Aerospace always replace the outer ring with a newly manufactured part.**

