

# SERVICE INFORMATION LETTER

**Subject:** Rivet P/N 800162WE, JT8D-219 7<sup>TH</sup>-Stage High-Pressure Compressor (HPC)

1. Planning

a. Effectivity

Wencor P/N	NHA P/N	NHA Description	ATA	Engine Application
800162WE	822107 and similar	7 <sup>TH</sup> STAGE HPC Compressor Rotor	72-36-00	JT8D-ALL

b. Reason:

Customer found isolated rivets with missing heads after service.

c. Background

The subject rivets serve to prevent forward axial movement of the 7<sup>th</sup>-stage HPC blade attachment pins, as experienced primarily during engine assembly and disassembly (FIGURE 1).

During January and February, 2013, a customer identified two JT8D-219 engines, overhauled within a short time span in 2011, with one each failed rivets. The rivets had experienced head separations in service. Although the failures did not have an operational effect on the engines, concerns about potential axial movement of the blade attachment pins prompted borescope inspections in the field of more than 60 engines with HPC overhauls performed by the same customer during 2011. The inspections viewed the forward and aft sides of the 7<sup>th</sup>-stage HPC disk in order to identify pin movement and rivet head separations. Three additional engines with one failed rivet head each, and two engines with two failed rivet heads each were identified. In all cases, there had been no axial movement of the corresponding blade attachment pins.

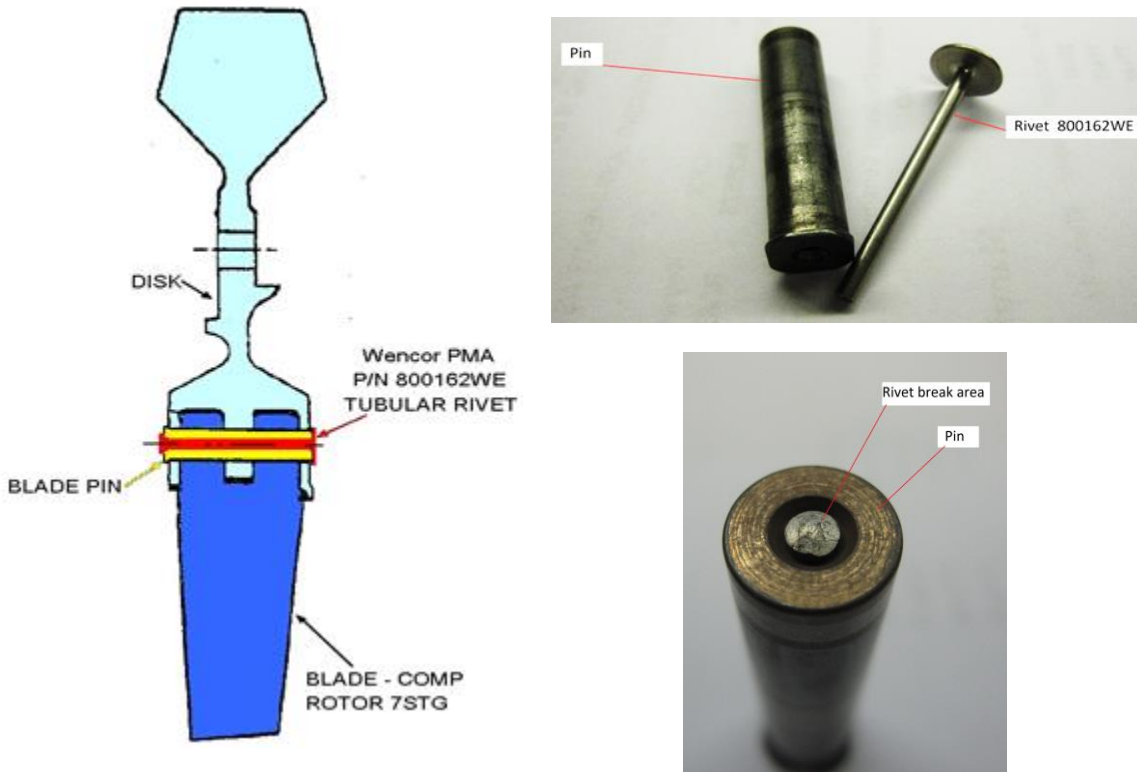


FIGURE 1. Left: 7<sup>th</sup>-Stage HPC blade-disk assembly showing rivet P/N 800162WE (red) within the blade retaining pin (yellow). There are 60 rivet/pin assemblies per disk. Top right: blade retaining pin and Rivet P/N 800162WE. Bottom right: one of the rivets with missing head as found during engine disassembly.

The build dates of the incident engines were between June 11, 2011 and December 9, 2011. The engines had been on wing between 1,108 and 4,455 hours prior to discovery of the failed rivets. More than 250,000 P/N 800162WE rivets have been sold since 2001. The current failures are the first ever reported by any customer, and are limited to a single customer.

A comprehensive investigation indicated that the failed rivets had been compromised by an isolated manufacturing abnormality, likely limited to a few parts from a single manufacturing lot, and that their weakened condition may have been aggravated by certain installation practices at the customer. The compromised rivets failed some time after installation. The incident engines continued to operate normally after the failure of the rivets, although in at least two cases the rivet heads caused minor downstream foreign-object damage (FOD) to the HPC section. In no case had there been any movement of the blade attachment pins following rivet head failure.

Other major customers who have purchased the same rivet part numbers have been contacted but have not reported similar failures. Preventive actions have been introduced to eliminate similar failures in the future.

d. Safety

Analysis and data suggest that the failures represent isolated events, and that they have been fully contained. None of the recorded failures have resulted in significant operational effect or reduced safety of flight.

2. Recommendations

a. Wencor recommends the following actions:

- I. Advise engine overhaul personnel to look for 7<sup>th</sup>-stage HPC rivets with missing heads.
- II. If any such rivets are discovered, save the failed parts, and report the event to Wencor COS administrator Scott Rollins at [srollins@wencor.com](mailto:srollins@wencor.com), or +1-801-491-2447.

b. The above recommendations will be updated if new information becomes available.

3. Compliance

There is no required compliance date associated with this SIL.

4. Material

Wencor rivets that are found broken and require replacement as a result of this Service Information Letter will be covered free of charge under the Wencor material warranty. If there are any questions regarding this Service Information Letter, please contact the applicable Wencor sales representative by calling 801-489-2000 or email: [sales@wencor.com](mailto:sales@wencor.com). For technical questions please contact Jon Bies at [jbies@wencor.com](mailto:jbies@wencor.com).