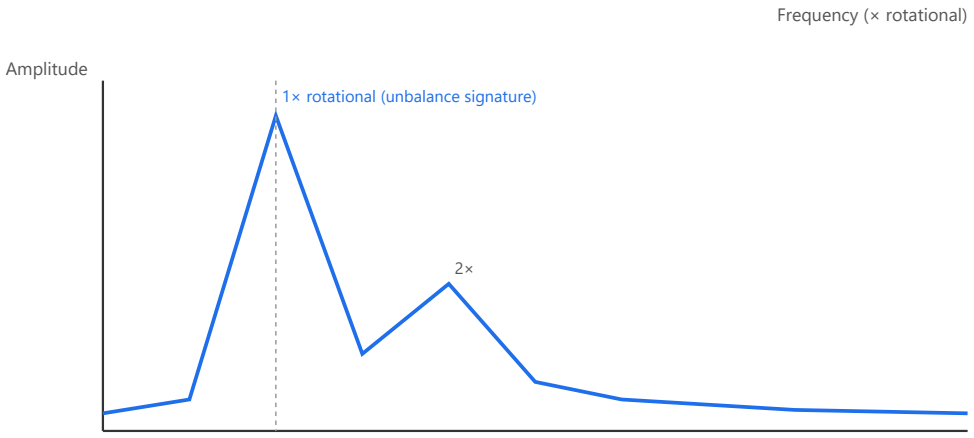
FM501 No Dynamic Balancing After Repair → Post-Repair Vibration

Chapter 5: Maintenance & Repair — Fault model & typical case

DOCUMENT	CHAPTER	RELATED Q&A	PUBLISHER
FM501	**Maintenance & Repair**	**5-02, 6-25**	**Kunshan Best Machinery Equipment Co., Ltd.**

Fault model + typical case. Mechanism, causes, symptoms, diagnosis, corrective actions and prevention are all anchored to the relevant entries of the Fan Engineering Q&A (see front matter for question references).



FM501 No Dynamic Balancing After Repair → Post-Repair Vibration: if the balance is not re-done after weld repair or blade replacement, residual unbalance gives a clear 1× peak and the vibration may exceed the pre-repair level. Always balance afterwards.

Failure Mechanism

If no dynamic balancing is done after weld repair of the impeller, blade replacement or other repairs (5-02 maintenance items, 6-25 balancing methods), the residual unbalance makes the post-repair vibration even higher than before the repair.

Common Causes

- Balancing step omitted
- No balancing equipment

Failure Symptoms

- Vibration still large after repair

Diagnosis & Evaluation

- Dynamic balancing test

Corrective Actions

- Carry out whole-machine dynamic balancing

Preventive Measures

- Make dynamic balancing acceptance mandatory for impeller repairs

Typical Failure Case (Summary)

- A boiler induced-draft fan at a power plant (JLY75S-30 No.24D, airflow 182000 m^3/h) underwent a major overhaul after 5 years of operation; both bearings were replaced and impeller dust was cleaned, but after the trial run the vibration of the bearing near the impeller side was still on the high side. The manufacturer's on-site online dynamic balancing test confirmed a large unbalance in the impeller: the old balance had been destroyed and the missing dynamic balancing during overhaul was the root cause of the post-repair vibration. After dynamic balancing was added, the vibration was brought under control.
- A boiler induced-draft fan had vibration above limit; testing showed an impeller unbalance of 1.2 kg·m (far above the allowable 0.3 kg·m), with one blade deformed about 5 mm and accompanied by fine cracks. Blindly replacing bearings would only cause repeated failures; after cleaning, correction and dynamic balancing the vibration fell to 2.1/1.8 mm/s and the noise dropped from 92 dB to 82 dB.

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