Pump Repair

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Washington, DC 20001, standards@api.org.

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Introduction

This document can be used for pumps and pump systems to guide the user along a path from perception of a problem through the resolution of the problem. Sections are provided that identify the important aspects of each topic encountered during the resolution of a problem. Topics include:

— inspections performed in the field and repair shop;

— shipping the pump to and from a repair shop;

— modifications and re-rates;

— repair techniques;

— rotor balancing;

— reassembly;

— reinstallation and startup;

— documentation.

Annex B is a high-level flowchart of the pump problem resolution process. The nature of the problem will determine which portions of this document are applicable. The Field and Repair Shop Work Scopes should indicate applicable portions of this practice.

The basic assumption of this practice is that the entire pump (pressure casing, rotor assembly, bearings, and seals) is removed for repair, with the possible exception of BB5 pumps.

Users of this recommended practice should be aware that further or differing recommendations may be needed for individual applications. This recommended practice is not intended to inhibit a vendor from offering, or the purchaser from accepting, alternative equipment or engineering solutions for the individual application. This may be particularly appropriate where there is innovative or developing technology. Where an alternative is offered, the vendor should identify any variations from this recommended practice and provide details.

A bullet (•) at the beginning of a paragraph indicates that either a decision is required or further information should be provided by the owner. This information should be stated in the quotation request or in the order.

Pump Repair

1 Scope and General Recommendations and Information

1.1 Scope

This recommended practice (RP) covers the minimum recommendations for the inspection and repair of API 610 pumps types OH1 through OH5 and BB1 through BB5. Refer to Annex A for figures and description of pump types.

This document covers the entire process of field inspection, modifications, inspection, upgrades, repair and/or new component manufacturer, reassembly of the pump casing and rotor in the shop, and the reinstallation and start-up of the pump in the field.

Pumps in hydrofluoric acid service may require inspection and repair methods that are beyond the scope of this RP.

Each phase of inspection will determine a work scope. The work scope will become more definitive as the inspection process progresses.

1.2 General Recommendations

1.2.1 The basis of repair recommendations should be to produce a safe reliable pump while:

— returning dimensions required for spare parts interchangeability to the latest design fits and clearances,

— maintaining interchangeability with other units,

— using existing spare parts,

— eliminating errors in manufacturing future spare parts that could be caused by undocumented dimensional changes,

— maintaining its torque transmission capabilities.

NOTE The latest design fits and clearances can be different than originally designed by the original equipment manufacturer (OEM), because rerates and/or upgrades could have been incorporated into the machine design.

1.2.2 Use of previously manufactured components and their acceptance criteria should be mutually agreed upon by all parties involved and documented in the work scope.

1.2.3 The repair shop should assume order responsibility.

1.3 Alternative Procedures

The repair shop or vendor may offer alternative procedures and designs. Any exception to this RP should be clearly stated in the proposal.

1.4 Conflicting Requirements

In case of conflict between this RP and the inquiry, the inquiry should govern. At the time of the order, the order governs.