Non-OEM Pump ReBuild Shops Part III - Assessment Criteria

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Use this assessment tool to evaluate any pump repair shop with which your operations are currently working, or any that you are considering for future work.

This article is the third in a series based on a presentation delivered at the 2007 NPRA Reliability & Maintenance Conference in Houston, TX. Here, as with the previous installments (which ran in the July 2007 and September 2007 issues of Maintenance Technology), the authors discuss how to distinguish competent pump repair operations.

Part II of this series, published in September 2007, concluded by promising specific assessment criteria for those considering entrusting their pumps to a non-OEM pump rebuilder. Referring to competent pump rebuild shops, we coined the term "CPRS."

CPRS assessment tool and matrix

The following information can be used as an assessment tool for any shop that you, as a pump user/owner, are considering for future work—as well as for those with whom you might presently be doing business.

Mergers and consolidations over the past decade or so have had a significant impact on both pump users and pump manufacturers. Given the consolidations in the pump industry and changing landscapes in terms of qualified workers/associates to effect a competent repair, it is strongly suggested that a pump user/owner use this tool and survey all the shops it is working with and/or considering working with, at least once a year. A lot of things can change—people come and go, improvements can be made or lost and financial performance pressures persist. These factors all have

a direct impact on the capability of your outside repair shop.

Although this assessment tool is by no means complete, it can be the basis for assessing one's in-house pump repair shops and those of your OEM, as well as any non-OEM facilities. Routine assessments of repair shops can avoid unwanted surprises and the ensuing aftermath of a poor repair on a critical piece of equipment.

Formats and general information…

There are many formats that will allow pump users/owners to gauge or assess the competence of any repair facility. Indeed, true reliability engineering includes making an assessment of potential bidders for both new and old (or "mature") equipment . One such format starts with a general listing of items, names, and similar logistical and general information. It progresses to specialization reviews and obtaining answers to questions of real interest:

* In what types of equipment repairs does this shop specialize?

* With which OEMs' pumps and models does the shop have experience?

* What is this shop's annual revenue stream?

* What is the annual employee turnover rate?

* What type of technical training is available to the staff?

* Does this shop have training records and where are they located?

* What are the shop's plans to continue to keep and attract qualified staff?

* How many shifts does the shop operate?

* How easy is it to switch to 24-hour emergency coverage, if required?

* What is the education and discipline of the engineers? (mechanical, hydraulicor other discipline)

Then, we need to explore the shop's customer base and satisfaction information.

* Who are the top 10 customers of this shop?

* What markets do these customers represent? (e.g. refining, pipeline, power, other)

* How long have these top 10 customers been among the top 10? (ask for explanation of variances)

* How does the shop measure customer satisfaction? Is it transparent or called “highly confidential?”

* Does the shop measure productivity, safety and quality, and are the charts visible?

* What is the shop’s rework/scrap rate in terms of percentage of total sales?

* Does the shop document non-conformance reports (NCRs)? What does it do with these NCRs?

* Does this shop have a process for continuous improvement to reduce rework?

Just as a shop’s inability or unwillingness to proved the data listed above would raise eyebrows, certain issues in Table III also should give rise to concern:

* What is the square footage of the shop?

* What is the square footage of the office?

* Is the air quality good? Is air circulation sufficient?

* Is the production area adequately lit?

* What safety programs are in place?

* Does the shop have a safety manager on site? (Explain.) Who is responsible for safety?

* What is the OSHA Recordable Injury Incident rate?

* What is the general state of cleanliness in the shop?

* Do tools, equipment, etc., have their own place and is everything stored in its place?

* Are there maintenance records of shop machinery and who performs PM’s?

* What is the condition of the shop’s major machine tools? How old are they?

Scheduling system/visual management systems…

* What electronic production scheduling tools are in place? Are they used?

* Who has schedule responsibility? How often are production meetings? Who attends?

* What is the shop’s on-time delivery performance? How is this measured?

* What happens when a delivery is in jeopardy? What is the process used to notify the customer and to improve schedule?

* What is the repair process flow? Is it visible? Are shop’s employees trained on their respective roles

and responsibilities?

* Are there any “bottlenecks” or excess work in process at any one machine or workstation?

* Are there computer terminals on the shop floor that feed the scheduling system?

* Is the plant laid out in a continuous flow or does work in process travel back and forth from workstation to workstation?

* What is the level of communication on the shop floor?

* Are shop travelers/routers used and are they signed off at required checkpoints?

Next, the selection sequence should address the shop’s quality assurance and quality control systems. The questions are as follows:

* What are the shop’s quality certifications? (ISO, Mil Spec)

* Is there a vision and mission statement? Is it visible and displayed in the facility?

* Is there a designated quality manager and to whom does that person report?

* What systems/processes are in place to ensure that the requirements are clearly defined and adhered to?

* Are non-conformance reports written and what is the process to ensure no further non-conformances are likely to occur?

* How is quality measured and are there charts/graphs to that effect that are visible in the facility?

* What is the process to communicate special requirements to ensure that they are incorporated into the repair process?

* Does this facility have an effective “Root Cause Failure Analysis” process and how does it work?

Documentation management…

* Does this facility have standardized receipt inspections? As found reports? As built reports? Balance reports? Repair process and flow chart?

* Does this facility have a digital camera and software to include pictures on the repair reports?

* How long does it take to complete an inspection and as-found report? A repair quotation? The final as-built report after the repair process is finished?

* What is the preferred method to communicate/transmit documentation packages? (electronic, paper,

other)

* Are recommended upgrades (hydraulic, mechanical, etc.) well defined and is an ROI (return-on-investment) calculation used to determine payback?

* What is the flow process for engineering reviews and work scope requirements? At what point are these communicated to the customer?

The level of the shop's outside/procured services is of interest and must be explored.

* How does the repair shop manufacture parts? What is the process used to ensure dimensional and metallurgical conformance?

* Where does the shop procure its castings? What process is being followed to procure these castings?

* What other services does the repair shop contract out? (heat treat, metal spray, chrome plating, heat treating, NDE)

* Has the shop surveyed its suppliers to ensure they will provide conformance to the specification?

* Who has the responsibility for final QA/QC of materials and services procured from outside vendors?

* How long has the relationship existed between the outside supplier and the repair shop for each service?

* What has been the historical quality and delivery performance of the outside suppliers? How is this measured and what records are kept?

CPRS assessment scoring matrix

Once an assessment is made, it is important for each surveyed category to be measured. Follow-up is needed to ensure that conformance criteria are met. Any categories found to be unacceptable need to be revisited and changes made to bring them up to acceptable conformance. A scoring matrix like the one shown in Table IV will help.

Needless to say, this scoring matrix can be expanded to include other items of interest. Note that the "comments" segment in it lends itself to cataloging highly detailed information.

Coming in Part IV

Next month, in the fourth and final installment of this series, the authors will present two case studies that illustrate the strengths of superior non-OEM pump repair facilities.

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All photos in this and other articles in this series were taken by professional photographer Stephen J. Carrera.

Link:
http://www.mt-online.com/article/0208_pump_rebuild