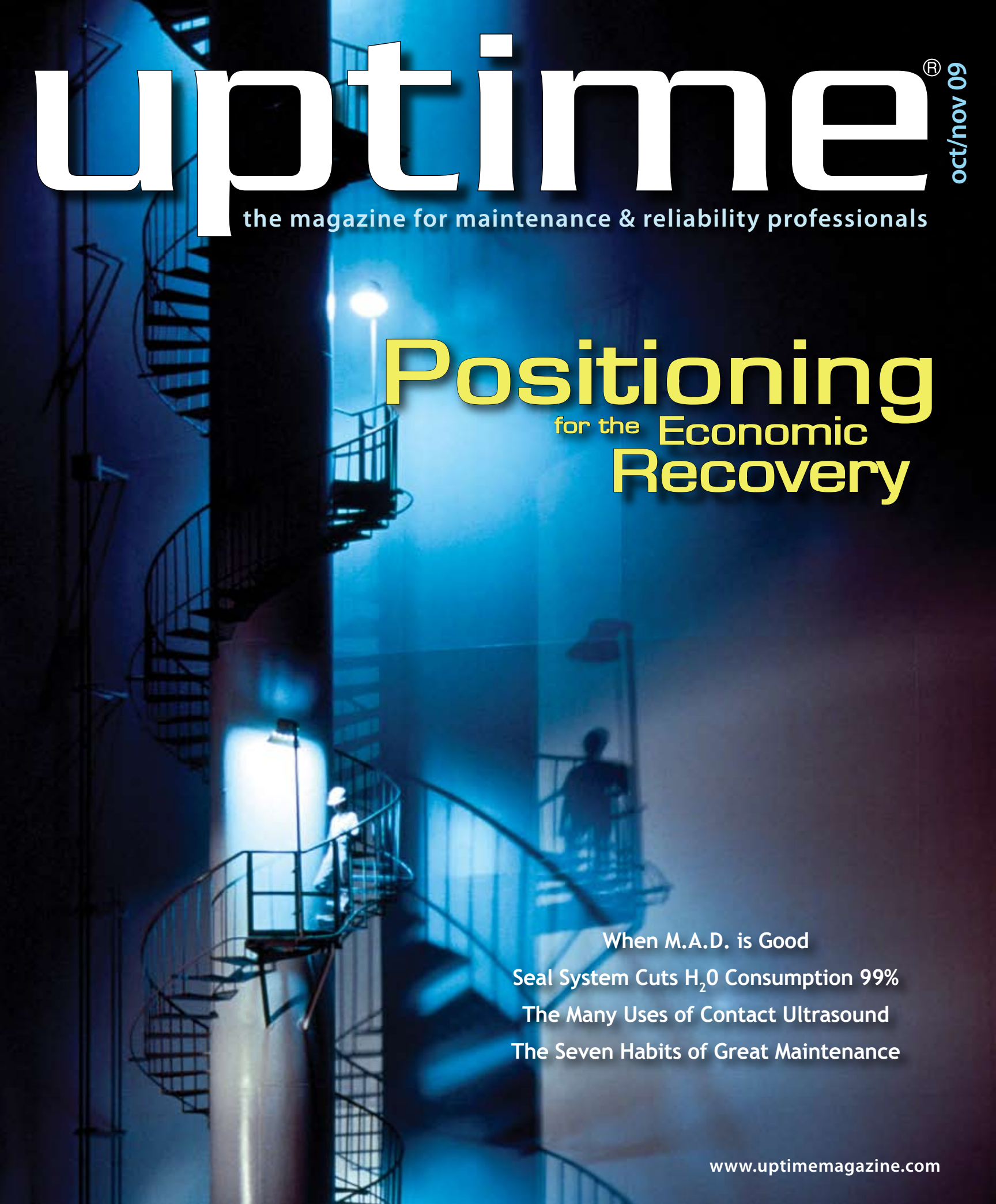


uptime®

oct/nov 09

the magazine for maintenance & reliability professionals

Positioning for the Economic Recovery

When M.A.D. is Good

Seal System Cuts H_2O Consumption 99%

The Many Uses of Contact Ultrasound

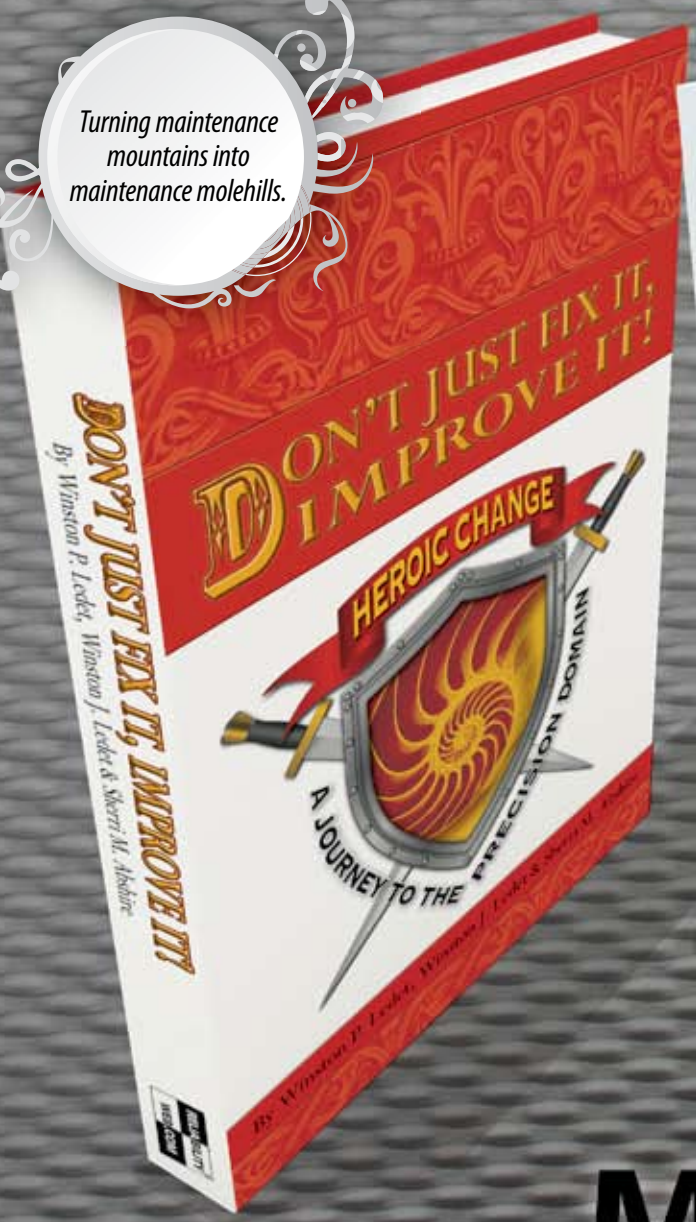
The Seven Habits of Great Maintenance

www.uptimemagazine.com

2 NEW MUST READ BOOKS FOR MAINTENANCE AND RELIABILITY PROFESSIONALS

Available online at books.mro-zone.com

Turning maintenance mountains into maintenance molehills.



Learn the real value of reliability - through an insurance insider's view.

MRO Zone BOOKSTORE

Tap Into Infrared

Successful Programs Can Be Outsourced or Run In-House

by Jeffrey L. Gadd

Infrared thermography is emphatically embraced by those who have realized the benefits. Equally, infrared is dismissed by those who aren't quite sure what it is or whether it has value. "I've been here twenty years and we never needed infrared" are words on the lips of more than one old salt. Well, things change, and this is an exciting time for those of us who are involved in the IR technology. When evaluating this technology for your operation there are two methods to consider, specifically; should you develop an in-house program or outsource the work? Training and experience of the thermographer and the quality of the infrared (IR) camera used on the job are both a critical part of the equation. Figuring out which camera is the best value can be tricky, so proper research on the subject and some due-diligence are required for you to be able to "tap into infrared".

In-House vs. Outsourced

This is simple: unplanned downtime = lost money. For companies with critical operations, 24/7 manufacturing and a proactive mindset, an in-house program makes good business sense. Many companies have successfully implemented in-house programs; for example, 2006 Uptime PdM Program of the Year Infrared winners Johns Manville in Kansas, and 2007 Infrared winners Aerospace Testing Alliance (ATA) at Arnold Air Force Base in Tennessee, to name a couple. These are examples of world class in-house P/PM programs. Many companies must outsource this type of work as it is not economically feasible to have an in-house program. The biggest benefit to outsourcing is that there is no long term commitment and the costs are generally lower –but so are the returns on investment. Not having an on-site IR camera system makes troubleshooting using IR impossible.

Training and Education (In-House)

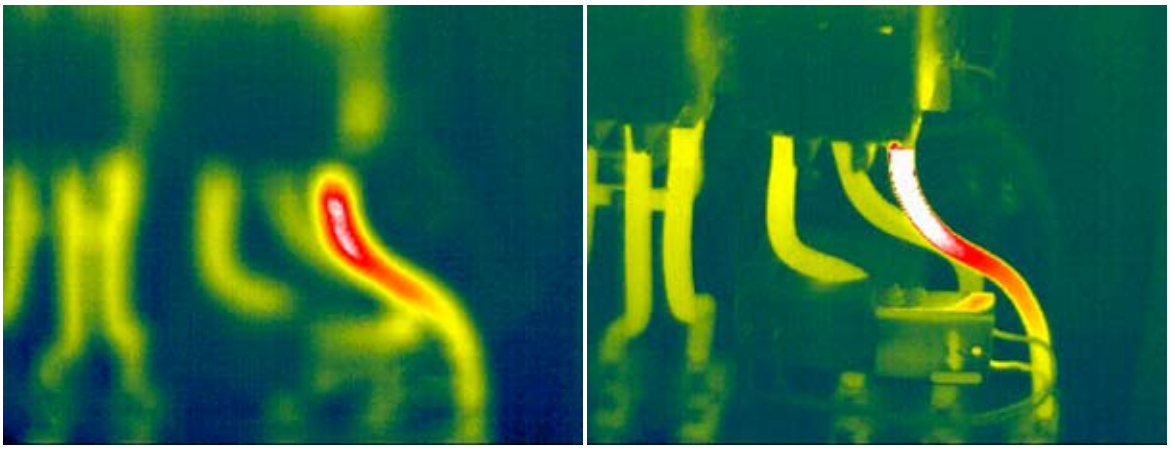
Training is a critical step if you have an in-house program or are planning to start one. In the case of electrical infrared inspections, a person with an electrical background is the ideal person to train on infrared if they have the right personality. Someone that is timid is not a good candidate. While performing electrical inspections, there are a lot of considerations. Safety is the first, but you also need a person who understands the equipment, i.e., switchgear, buss ducts, fuse clips, control transformers, etc., so that they can identify what they are looking at.

Next, never make the thermographer responsible for the repairs when he or she finds problems, even if they are capable of accomplishing, them because it is not efficient. Infrared thermography has not quite progressed into a science, so it is still somewhat of an art form. This leads to wild variances in the number of reportable findings. Training and mentoring by an experienced thermographer is key. There are other personality factors to consider. Some people will over-report even if this creates more work for them. Others will not report all the problems because they don't want to repair them, or they think maybe it will be OK until the next scan or the classic "I'm quitting soon, so I don't really care" attitude.

Training and Experience (Outsourced)

Training and experience of the thermographer are the two factors that should drive the purchase of any service. A technician from a professional infrared service company has most likely [but not certainly] had some sort of formal training and on the job training. However, the more important component is to find someone with a considerable amount of experience. No one wants an untrained thermographer with a low-resolution IR camera learning how to do electrical infrared surveys at their facility. You must qualify the contractor by inquiring as to what type of training they have had, what references they have and what experience they have accumulated.

Many companies that we have dealt with in the past (even ones that have eventually hired us), at first, judge the company solely by the cost of my service –which is not the right way to buy any service, and certainly not infrared services. Recently a company brought me in for what seemed to be an "interview" and plant tour. Both the maintenance manager and plant manager had prepared questions to find out what we could and could not do. It was refreshing



Figures 1a and 1b - The left image shows an IR image that is out of focus. The clear image on the right is correctly focused.

to see people take a genuine interest in evaluating my skills, my company's capabilities and the cost of the services. This is one of few companies in recent years that have taken the time to find out what they are really paying for.

Evaluating samples of past IR projects by the thermographer is important and effective. When someone prepares a sample project, they will naturally use some of their more impressive imagery. If the thermographer shows you images that look like the ones on the left in Figures 1 or the left in Figures 2, it should let you know that you definitely do not want to hire them since you are probably looking at their "best" work.

Infrared Cameras (In-House and Outsourced)

To effectively contract IR services, one needs to evaluate not only the thermographer's capabilities, but also the equipment specified. The specification should be based on performance and not brand-specific. In other words, the specification should not read: "the IR camera used shall be a Brand-X, Model-Y". Instead the spec should be about the technical characteristics of the camera, such as the minimum spatial resolution and the minimum thermal sensitivity.

Other considerations when specifying IR cameras are:

- Proprietary infrared software compatibility and usability
- Lens options (telephoto, wide-angle)
- Built-in visual camera
- Built-in voice recording & data-logging
- Built-in laser pointer
- Extra (and standard!) batteries
- Adaptability to infrared windows (to increase safety and lower PPE requirements)

Once you have narrowed down your selection of cameras to a couple, ask for demonstrations of the units and the software for each. Bear in mind that the newest trend on the lower end cameras is for the manufacturers to sell through distributors instead of reps. Distributors don't have the margins to sell by demonstration, so they will resist. Now, if you want a demo of a $35K camera, I promise a representative will make time for you.

Conclusions

When evaluating what infrared technology can do for your operation, there are many considerations. In-house programs can be very successful, but are highly prone to failure if you select the wrong personnel and if the program is not given full support by management. If you outsource your infrared services, set up an "interview" with the contractors and have lots of questions ready. At the end of the interview, you should know if this contractor will not meet, meet or probably exceed your expectations. When specifying an IR camera purchase, consider hiring a thermographer who knows the IR market to be your consultant. Many cameras have features that are not necessary and overpriced. Do your homework each step of the way and you will see positive results and a positive impact to your company's bottom line.

Jeffrey L. Gadd is the owner of Vision Infrared Services (www.visioninfrared.com) in Cleveland, OH. He is a Level II Infrared Thermographer and has an AAS in Industrial Electricity along with 12 years experience as a electrician and maintenance technician. You can contact Jeff with questions at 440-554-3620 or e-mail to: jeff@visioninfrared.com

Figures 2a and 2b - The left image shows an IR image that is not properly thermally tuned. The much clearer image on the right is correctly thermally tuned.

Like What You've Read?

Get your FREE subscription to

uptime

the magazine for reliability & maintenance professionals

Now!

In each issue, Uptime Magazine delivers high quality articles on Predictive Maintenance, Condition Based Monitoring and other hot topics in Reliability and Maintenance.

You receive articles covering:

Information Technology
Infrared Thermography
Lubrication/Oil Analysis
Maintenance Management
Motor Diagnostics
Alignment/Balancing
Reliability
Ultrasound
Vibration

Plus a feature article on relevant topics to help you increase your knowledge about the industry and take your company's predictive maintenance to a higher level.

Subscribe to Uptime Magazine now! Click anywhere on this page and you will be directed to the uptime website. It will take only a minute or two of your time to receive your FREE subscription.