As this personal perspective notes, looking for the real causes of problems is a more effective approach than simply pointing a finger at others.

On the job, cussing and swearing punctuates conversations, even if it is not the most politically correct thing to do. We all know that “shop talk” is different from the conversation at the church picnic. As a mechanical engineer with more than 50 years experience in troubleshooting and repair, I’ve seen my share of jobs and uttered my share of expletives. But that’s not what I’m talking about here. There is another type of four-letter word that riles even my veteran ears. It is the word “T-H-E-Y.”

You know the context: When a repair job turns out to be tougher than anticipated because of improper work done previously, someone will exclaim, “Look at the job THEY did. What a mess THEY left for us.” Why, for example, do the seals on that pump keep failing? “Because THEY did a crummy job aligning the pipe and a poor job calculating the length of the spool piece.”

A repair mechanic in a situation like this is faced with a decision: Do YOU fix the real problem and align the pipe properly or just change out the seal and reinstall the pump? By choosing the latter option, however—*which is done all too frequently*—YOU become the next THEY. You’ll

be the one talked about by the next mechanic who has to change out another seal and realize that the piping alignment is probably the cause. “Look at what THEY did with this piping,” he’ll say. “You’d think THEY would know better.” Your ears will burn.

You may already be ‘THEY’

There are probably a million ways to join the ranks of THEY. See if any of the following sound familiar:

- “We don’t have the time to make a good repair. THEY want it done quickly.”
- “The contractors did it when the unit was installed. THEY should fix it, not us.”
- “THEY never bought the tools to fix this. We better wait until next time. “
- “There’s a lot of equipment we have that’s this bad, and THEY won’t want to spend the money to fix all of it. THEY will never go for it.”
- “Management doesn’t want to hear about this. THEY just want it fixed now and they don’t care about how often.”
- “We’re not pipefitters, we’re millwrights. THEY should get the right crew to fix this.”

In each of these bulleted statements, blame is placed on the most recent THEY—*and the track record of poor decisions is carried forward*
. Nothing is done to remove the problem. If you’ve ever uttered words similar to the above or allowed such thoughts to guide your actions, you’re an official THEY.

How to remove the legacy of 'THEY'

Here’s where “bite the bullet” comes into play—*an expression that refers to the mindset needed to survive a painful experience* . The hard part of breaking the "THEY" chain requires taking a dose of distasteful medicine that will cure the real machinery problem and avoid repeating the same old mistakes. The following examples reflect real-life THEY situations that were handled successfully:

Machinery corrected with management involvement…

A hospital’s 25-year-old roof-mounted air handlers each consisted of a motor with a V-belt drive to the fan. The design called for the original adjustable sheaves on the motors to be replaced with fixed sheaves after air balancing was completed, which was anticipated to take place after six months of operation.

Though air balancing was accomplished soon after commissioning, the adjustable sheaves were never replaced with fixed sheaves. The original adjustable components were still in place 25 years later. As they wore, many had been replaced with new adjustable sheaves as often as five times over their years of operation. Since a good belt alignment is impossible on multi-belt systems using an adjustable drive sheave, V-belt replacement was also occurring about every three months. The mechanics believed that management would never authorize replacement of any part of the existing design due to budget concerns.

A new hire, not jaundiced by prior thinking, mentioned the problem in a monthly maintenance meeting with managers present. He knew that V-belts should not have to be changed every three months, and had seen fixed-sheave replacement after air balancing was accomplished in a prior job. A senior member of management, impressed by the new man’s explanation, suggested a study be done to calculate savings vs. the expenditure for new fixed-speed sheaves. A program of sheave replacement was begun, and all adjustable sheaves were replaced over nine months. The savings in V-belts was $10,700 in the first year. Over the next five years, the number of motors needing bearing replacement dropped as did the need for drive-side fan bearings. A conservative estimate of real savings during this five-year period was $167,000 in parts and $50,000 in labor. The new employee was promoted several times in those five years and became a supervisor, because management was impressed with his ability to speak out about situations that needed correction.

New alignment equipment reveals a hidden ‘THEY’…

In an effort to improve productivity, a process plant budgeted monies to purchase laser alignment equipment for its shafts and pumps. The new laser system allowed final readings to be captured and entered into the plant CMMS system to document the level of alignment performed. It became quickly apparent that the data showed gross errors in the alignments being done. It was also evident that even if the pre-laser alignments using dial indicators had been uniformly recorded, the misalignments would have shown up as well. After discussions with plant old timers, one comment emerged as typical: “When we used the dial indicators, we forgave the rusted base plates, broken motor feet and piping strain because we figured they would not want us to fix those things with the limited downtime available.” The new laser with recording capacity was unforgiving, and showed that alignment was not within spec. Now the real problems would have to be addressed.

A two-man team was formed using the engineer and an older experienced millwright to make a physical assessment of each pump and motor. Bases with rusted bolts, piping without hangers, broken pump feet, broken motor feet, bolt-bound bases and two-comealong piping situations were documented. Of 176 pumps, only 56 were capable of being precision aligned. The other 120 had defects that needed to be corrected before alignment could take place.

A plan to correct the pumps with the fewest problems was established. Within two months, 70 of the 120 pumps had been mechanically corrected to allow for successful alignment. This left 50 units that required more extensive pre-alignment repairs. Slowly the “THEY” was removed from the picture and new realignment could be performed to a standard that no longer had any THEY to blame. Signs went up in the break room with the following notice on them: “Don’t be a THEY. Fix it right the first time.”

Not on my watch! I didn’t cause the problem…
Among a manufacturer’s conveyors was one particular high-maintenance unit responsible for excessive downtime. The senior mechanics charged with maintaining the troublesome conveyor knew the reason for its problems: It was a lower-class, lighter-duty conveyor chosen by engineers during a recent period of slower sales and budget constraints. Under reduced production volume, the unit had run successfully.

As time passed and sales increased, the cheaper conveyor was unable to keep up with production demands. The mechanics knew why, but felt there was “no sense” trying to reason with the current engineers, who they believed would “just stick up for the last guys.” Good old THEY was still to blame. After several visits to the facility, I felt it was time to take on THEY myself. I asked the plant manager if he had ever taken a close look at this flimsy, belt-chewing unit that was out of step with the rest of the plant and suggested he get something better.

On my next visit to the plant, a brand-new, sturdy, top-of-the-line conveyor had replaced the troublemaker. The mechanics told me, “I guess THEY saw the light and spent the money.” It was the first time that hearing the word didn’t gall me. Too often, people wait for someone else to make changes. But management may not always be aware of equipment history. How can THEY know, if no one points it out?

Become alert to the word
You would cringe at a four-letter word voiced in polite conversation. Develop this same reflex whenever you hear the word THEY spoken in a group. Consider asking, “Who is THEY? Just who are you talking about?” The answer you get might put you not only on the track to solving the problem at hand, but also to eliminating that dirty four-letter word from your work environment. **MT**

Tom Davis is President of Maintenance Troubleshooting, a consulting firm started in 1978. A specialist in field assistance for mechanical repair, he has authored three books and currently teaches a seminar at various U.S. locations called “Understanding and Troubleshooting Mechanical Rotating Equipment.” Email: mechanicalengineer@pobox.com.