

Fasteners Are Not the Cause of All Assembly Problems

By Joe Greenslade

Every company supplying fasteners is going to have customers call from time to time to say, "These fasteners do not work in my assembly!" The first thing that must be done when receiving this kind of call is to gather as much information as possible before trying to decide how to respond. Over the years, I have found the following questions beneficial to ask in determining what the real problem is and if the fastener is the cause of the problem or not.

First the very basic questions must be asked to make sure whether the company being called is the supplier or not. Ask the following immediately:

- What is the part number and/or part description?
- What is the purchase order number?
- When were the parts received and/or what is the packing list number?
- What is the quantity in question?
- Can you describe for me very specifically what you are observing about what is not working? The answer, "The bolts are no good!" is not sufficient. A supplier must know exactly what kind of problem they are trying to resolve. Time should not be wasted looking at dimensions if insufficient strength seems to be the problem.

After the fact has been established that the parts in question are from the supplier being called the next step is to determine what the true, underlying problem is. It is extremely important to discover as quickly as possible whether the real problem is a "fastener" problem or if it is actually an "application" problem.

The fasteners in question need to be reviewed promptly to determine if they

meet all of their requirements. This can be done by pulling and reviewing any certificates or inspection paperwork that may be retained. If parts from the same lot are still in stock they can be pulled for evaluation. As a last resort parts may have to be obtained from the customer for evaluation. Make sure a large enough sampling is taken to determine if it is a "fastener" problem. Frequently a problem only exists in a small percentage of parts, therefore more than one or two parts should be reviewed.

One of the major frustrations of being a fastener supplier is the feeling that end users always assume the fastener is the cause of every assembly problem.

If parts meet all of their requirements according to the appropriate specifications, an investigation of the application must be made. The answers to the following application questions are important in effectively getting to the root of the problem:

- If parts are breaking, when do they break? Do they break at installation, after the products have been assembled and sit for a while, or while the product

is in use in the field?

- Where are the bolts breaking? Are they breaking at the head to shank juncture, or in the threads?
- Do the parts fail in exactly the same way every time?
- How many of the part in question are used in every assembly? Do the parts fail in all of the locations or only in a few locations every time? Do they fail in only one location?
- Is this a new application or one that has been in production for a long time?
- Have you had this problem before? If so, what was determined to be the solution last time?
- If this is an old application and a new problem, what variables in the application have recently changed? Do the parts used now differ in any way from previously used parts? Do they differ in size, grade, drive, finish, or are they from a different vendor?
- Has the material in the application changed in any way? Is it thinner? Is it softer? Is it harder?
- Has the hole size changed? If so, how much?
- Do all operators have the same problem or is it isolated to one or a few operators?
- Have the driving tools changed? Has the torque setting changed? How is torque controlled? Has the air pressure to the drivers changed? Have the bits or sockets changed?
- If parts are galling, have you tried lubricating the fasteners? Have you tried slowing the driver RPM?

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Joe Greenslade is President of Greenslade and Company, Inc. located in Rockford, Illinois. His firm specializes in providing manufacturing tooling and inspection equipment to suppliers of screws, bolts, rivets, and nuts throughout the world.

Joe is an inventor, author, and lecturer. He holds eleven U.S. Patents, has written over 80 technical articles for industrial trade journals, and has spoken frequently at trade association meetings and technical conferences on issues related to industrial quality for

the past ten years.

He is an Associate Member of the Industrial Fastener Institute and a member of the American Society of Mechanical Engineers B1 Thread Specification Committee. In 1992, Joe was recognized for his technical and innovative contributions to the fastener industry when, at age 44, he became the youngest person to be inducted into the National Industrial Fastener Show "Hall of Fame."

Assembly Problems

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- If parts are loosening, how are they being tightened initially? Do you have a tightening specification? Where did it come from? Do you follow it?

The answers to these questions frequently uncover the fact that the fastener is not the cause of the problem. Many times the parts in question have not been properly installed or something other than the fastener has changed in other assembly components. These other changes may be at the root of the problem.

Sometimes answers for solving the problem cannot be obtained over the phone. In these cases, a plant visit by a supplier representative is required for first hand observation. Sometimes the customer is too close to the situation to be objective. A supplier representative will often see something that is immediately obvious to him that the customer has inadvertently overlooked.

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One of the major frustrations of being a fastener supplier is the feeling that end users always assume the fastener is the cause of every assembly problem. When thoroughly investigated, well over half of all fastener complaints are found to be assembly problems and not fastener problems.

Fastener suppliers need to ask many probing, logical questions when dealing with a complaint to make sure the correct answer is eventually found. Sometimes the fasteners are non-conforming in some way and they must be replaced, but in a majority of the cases the fasteners are fine and other factors under the control of the assembler must be addressed to correct the real problem. Do not stop asking questions until it can be clearly established that the situation in question is definitely a "fastener" problem or an "assembly" problem. □

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