Warranties Are Everyone’s Problem

Warranty! The word shouted from the other end of the telephone can cause some people to wake up screaming in the night. It seems that warranty problems grow exponentially - once one comes in they seem to multiply just in time to ruin a good month’s sales results.

Whose fault is it?
Usually it’s yours if it’s your customer complaining, or it’s theirs if it’s their customer complaining. Seriously, though, the industry statistics indicate that in the production engine remanufacturer customer base 46% of problems are caused by the installer; 68% of the machine shop problems are customer related.

Why the difference?
It is very likely that the more complex engines and heads are being built by the specialty machine shop rather than by the PER. If so, it stands to reason that more of the problems will be installer related when more complex engines are being repaired. It is also true that the problems that occur with these engines will be more expensive to diagnose and more expensive to repair.

The assumption that the installer is always at fault can get you into trouble, as can the assumption that the failed components are always the problem. An example I like to give is the new tires that were installed two years ago and have now worn at the edges after only 15,000 miles. The fact that no air was put in them during the time frame is never mentioned. The tires must be faulty because they are worn out.

This kind of attitude is not uncommon when related to warranties. We recently had an instance where a customer had a problem with a Waukesha natural gas engine where the exhaust valve faces wore out after only 1,000 hours of use. All six valves had the same problem, so he assumed that there must be a material defect.

Why?
Because all of them were bad. He sent them to an independent lab for analysis. The irony of this situation is that he then had to call our company to find out what specs the valves were made to in the first place; the lab he used had no experience with valve materials and their heat treated properties.

After three weeks and $500 the customer is no better off because no material defect was found; he is sending them to us to find out what kind of engine operational defect could cause these types of problems.
Of course after this time frame the engine has been rebuilt and put back into service. The other parts that may have indicated the cause of the problem have been disposed of.

Equally ironic is that if he had sent them to us (or most any reputable supplier) and asked for a material analysis it would have been done at no charge. Incidentally, the most common cause of natural gas cylinder head problems are incompatible or wrong materials installed, or too rich a fuel mixture.

So how do you effectively handle warranty type customer complaints?

Here are some "Do's and Don'ts" of this black art.

- Do make sure that you have someone in-house qualified to answer the phone and ask the right questions. The customer has a problem and it will escalate if he feels he is talking to someone whose job it is to stonewall him. This "warranty administrator" should be capable of asking most of the questions related to that particular installation, and also have information at his fingertips to confirm that the customer actually bought that engine from you.
- Do check that the conditions for warranty coverage were adhered to. If your warranty states that the radiator must be rodded and cleaned, ask for the paperwork verifying that this was done. If it is a diesel and you sold it without the pump and injectors, ask for the receipt from the fuel shop.
- Do check the warranty history of that customer. This may affect the way you handle that claim internally.
- Don't promise to pay on his say so. If you do you will be paying because he will tell the owner of the vehicle what you said and expect you to stand by it. Even a comment like "it appears we may have a problem with that engine" can be misinterpreted at the installer level.
- Do what you say you are going to do. If you are going to help him out to whatever extent, do send him a fax or note outlining what you have both agreed to and what you haven't. That way there is no misunderstanding a month later when his portion of the warranty is due. If you find out that the problem is in-house related, admit it and negotiate in good faith.
- Do keep a log of problems by engine. An escalating number of problems can indicate potential problems in machining or assembly.

Now the problem is on your dock and ready to be disassembled and/or
examined. In our case, we sell cylinder head parts and rarely see block components returned with any warranty claim. In the two recent instances that we did get pistons returned, they ended up being the evidence needed to identify the problems. In both cases the parts were returned because of valve fracture at the underhead radius.

Both engines were diesels, one a Cummins L10 and the other a 504BDT Case tractor. The pistons had deep impact valve reliefs pounded into the piston crown right below the fractured valves. It was obvious that the seats had been replaced in the head and the valve protrusion was incorrect. In both cases the seats had been installed but not machined at all. In both cases the seats were not returned with the other parts and had to be requested afterwards.

Who wants to know?
The next question is to ask yourself whether you or your customer really want to know what went wrong? This may sound strange, but it is a very important question to ask yourself. In a lot of cases you may make the decision to pay the customer because he is adamant it is your fault and you can’t afford to lose his business.

If this decision is made, then bite the bullet and don’t waste anyone’s time. There are many times that this obviously is the case because trying to get parts or information is met with indifference or the “just pay me” option. If we assume that the customer really wants to know what caused the problem then there are some very definite things to do to help the process along.

First, don’t clean the parts. The way a part looks when covered with combustion residue can often offer important clues as to what happened. Most suppliers view with suspicion the squeaky clean broken valve coming back under warranty.

Don’t throw all the parts in a big box and send them back. The parts that ran together offer vital clues as to the likely cause of a problem. Stripping the head and throwing everything together removes vital evidence and makes it difficult to establish operational patterns. Do look at the parts very carefully before you send them.

Sending them in
Don’t just “send them in.” You can help everybody by following a few guidelines before the parts hit UPS. Do check that the part numbers used were correct for that application. Many products have remained the same dimensionally for many years, but the materials have been upgraded to handle unleaded fuel, turbocharging, emission controls, etc.
Do check the accuracy of your machine work and surface finishes. As has been reported many times in this magazine, certain gasket types require different finishes. Did you inform your customer what gasket the head finish is designed to handle when you sold the head? With head gasket sets for some multivalve V6 engines costing $300 to $400 or more, this may be the time to start thinking about doing this.

Don’t split the parts up in the hope that somebody will at least pay you something. This is very common; the valves go one place, the guides another and the seats to yet another. Although all of the parts may be worn, by splitting up the parts you have probably killed your chance of an accurate analysis. You will get plenty of "may have," "could have" and "possibly" type answers because not enough evidence is supplied to any one vendor to get a definitive answer.

A customer called to say that one of our performance valves had broken on Saturday night and he wanted to know what to do. I asked him to send the valve’s springs, keepers and retainers to me overnight. I received only the two parts of the broken valve stem. When I called, he said that the valve had broken at the groove and was obviously faulty. It would serve no purpose to send the other parts.

I told him the cause was keeper fretting, but could help no further without the other parts. The following Monday he called again and his language was much worse this time. He had been in the lead on the last lap of the feature race when another valve let go at the groove. This time he did send all the parts. By noon on Tuesday I was able to tell him that keepers did not go well with the trick retainers he was using. By not sending in all of the parts requested, he lost another engine and the race.

Do supply all of the information to the vendor including the finishes, tolerances, runout specs, etc., with the parts. This is especially important if you intend to fix the problem while the parts are being looked at. A call back asking for guide-to-seat runout will be most embarrassing when the head is back out on the street already. If you are really confused, ask if you can send the head. Most parts vendors will always be pleased to look at the whole thing. Remember that your work will be analyzed, as well as the parts, if you do this.

**What your vendor should do**

Your parts vendor should be able to call you with a preliminary analysis within 48 hours of receipt of the parts. He should be able to pinpoint certain characteristics and/or ask for more information to help with the analysis. He should be aware of the operational tolerances required for each of the parts or know where to get them.
He should also be able to offer material analysis reports, although be aware that these often take 30 to 60 days depending on the work load in the laboratory. He should provide a detailed report on how the parts operated in the engine and what specific signs led to the final conclusion. He should advise whether the parts met specifications or not, and whether this will have affected the parts in operation.

Overheating of newly rebuilt engines and heads is quite common today. The reason is that the new low hood body styles have low radiator header tanks. Most of these designs often do not allow the engine to self-bleed air locks in the head or the heater core. Most 2.2L Chrysler installations require a plug to be removed from the thermostat housing to get the air out of the system. The V6 Accura engines are the same.

Very often an engine overheated in this way does not register hot on the temperature gauge. There will be no water in the head to transfer the heat to the gauge sender unit, and the gauge will stay cool. Your parts supplier should be able to tell you whether this kind of problem with this engine is common or rare.

Things go in cycles until everybody learns about the problem. About four years ago the valve with the highest return rate was the 6.9L/7.3L Navistar. The reason was that many shops were only just starting to build this head and did not realize that the exhaust seat was an odd angle. They just looked at it and cut it 30��. The valve is 37�� and will burn out when run against a 30�� seat due to insufficient heat transfer.

About two years ago it was the Geo Metro exhaust valve burning out. Not only were the OEM rocker clearance specs listed wrong for the mechanical version, but the hydraulic lifters in the later version were prone to varnish up, holding the valve open after rebuild. Both of these situations caused the burn out.

Today's most problematic engine is the DOHC Mitsubishi engines used in the Eagle Talons. They come in various displacements and after a rebuild they break an intake valve, normally about a week after the car is back on the road. This problem is due to the installer not being aware of a rather unique timing belt tensioner used on these engines.

The tensioner pulley pivots on the right hand end of a bracket in the timing cover. The left hand end of this bracket sits on an hydraulic piston whose job is to maintain belt tension under shock loads without breaking the belt. Not only do you have to time the oil pump, balance shafts and the cams at the same time, but you must also ensure that the cylinder has oil in it and has been retracted and secured with a
locking pin.

Then the belt must be tensioned with a special wrench on the tensioner pulley to a specific poundage. The pin is then pulled from the cylinder and after 20 minutes the piston extension must be remeasured to ensure correct tension. A lot of installers do not know this cylinder is there and tension the belt as if it were a conventional engine. This means that the hydraulic unit is at full extension and made inoperative.

When shifting at high rpm, these motors scream, the belt flexes and advances the intake cam enough for one or more valves to hit the piston. The reason it takes a week to happen is that after the owner gets the car back, he normally takes it easy for a while to get his confidence in the vehicle back. When he finally winds it up the problems happen. Incidentally, Goodyear has a book out on many of these timing systems.

Maybe if you use their belts, or an equivalent, it can be cheaper. I have found this book to be very informative on the many systems in use today. Finally, check with your supplier for diagnostic charts and other publications that may be of assistance.

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