



In This Issue

- Volume 22, Issue No 2
- Obituary for Steve Burton
- New email addresses
- Rendering a cylinder unserviceable
- Inspection deficiencies
- Why calibrate torque wrenches
- New kids on the block?
- IDEST Test Centre Update

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Volume 22, Issue No 2

Once again, the topics in this issue are aspects that have changed recently, as a result of our morphing and reshaping, or brought to our attention through the inspections conducted.

Our acquisition of our original domain name has brought lots of changes, and will bring more in the near future.

Some old queries have raised their head again with mis-match of WP and TP stampings. Beaver have confirmed what to do.

Inspections have raised some interesting points, which are discussed in detail for your guidance.

No ISO 17025 - No Certification

Obituary for Steve Burton

It was a great shock when I heard that Stephen Burton had passed away, last Thursday, after contracting COVID.

Stephen was a brilliant engineer, that I met and had the pleasure of becoming friends with when I went out to Thailand to assess two new test centres. Steve welcomed me and we spent a couple of days getting to know each other before we all, Steve, my friend Eddie, who was out on a course, and I flew down to Phuket to see the second test centre.

Stephen was a very knowledgeable person and I used to email and discuss things at length with him, if I needed to know anything on the American DOT system.

We would discuss, argue but always finish the conversation amicably, as engineers do.

I found that anyone taught at Scuba Engineer, was soon to be seen as competent in the testing of diving and breathing gas cylinders.

Rest in Peace, Steve.

New email addresses

IDEST recently acquired the domain idest.co.uk. We are now able to provide you with more logical email addresses for the IDEST Team members.

The format is simple. It is the full name of the person separated with a DOT and followed by @idest.co.uk.

The addresses, in the left-hand column, have been changed to the new format. e.g. To contact Dave Crockford, the address is dave.crockford@idest.co.uk

Lizzi, at admin, can now be contacted using admin@idest.co.uk

Rendering a cylinder unserviceable

In this article I would like to touch on some areas of concern when you are faced with failing a diving cylinder due to the usual failure areas of physical damage, wear, or corrosion:

1. Returns Policy
 - Customer waiving their rights to a return of their personal equipment
 - Difficult or belligerent customers demanding a re-test or return of their equipment
2. Failure disposal
 - Metal Recyclers policy on acceptance
 - Rendering a cylinder unusable should a customer insist on its return
 - Creative ways of getting rid of cylinders

It is becoming increasingly difficult to find a means of safely disposing failed diving cylinders as the larger metal recyclers are tightening up their acceptance policy countrywide. Remember your local recycling centre may be subject to a major company acceptance policy if they do not prepare waste for up-chain sale.

Have a robust "Booking in Policy"

When you accept a diving cylinder for visual/hydraulic inspection and test it is vitally important to protect yourself and your company by asking your customer to sign an **IDEST D079 Booking in Form** or a company booking in form with the same or similar wording as highlighted below. You have all been circulated with the latest D079 at the beginning of March but the paragraph of relevance to this article has been posted below.

I, _____ **CUSTOMER'S FULL NAME** _____ accept that the above cylinder and valve will be tested and/or inspected in accordance with the manufacturers requirements, BS EN ISO 18119:2018 +A1:2021 (Steel and Aluminium) or BS EN ISO 11623: 2015 (Composites) as applicable and IDEST CP11:2022. In the event of either the cylinder or the valve failing to meet the appropriate standard, it will be destroyed and not returned to me. Cylinders and / or valves will not be returned separately. I also accept that goods not collected within 3 months will be sold to defray costs.

A cylinder or valve failure is neither pleasant nor cheap and represents quite a financial imposition for some divers. In the main, divers are an accepting group of individuals and would accept your word, often softened with backup photos of the damage. Disposal of the cylinder, for them, is a fully accepted, but not understood, pathway. Thankfully the vast majority fall into this category and will discuss purchase of replacements with you.

If the customer does not sign the destruction notice through poor booking in policy or refusal, they have consumer rights which could see you in court defending your actions.

Refusal to sign is easily dealt with, by showing the customer the door and not accepting the cylinder for PIAT. Not correctly booking in and gaining their signature, you have broken the correct handling

chain. Any lawyer would pull you apart in court, if you damage or deface the cylinder ready for scrapping, should your action be contested.

It only takes one customer Mr "I know my rights" to cause endless hours of distraction and unnecessary cost to unpick what both you and IDEST consider a robust method of determination of suitability of use following a PIAT to BS EN 18119. Please always get that signature, and if a little education to the other staff or customer is needed then take time to explain why you will not let a failed cylinder leave your premises!

How do you deal with the demand for a re-test? It will be obvious to the customer that you are not likely to reverse your decision so a re-test at another inspection and test premises is their only option.

You cannot release the cylinder without ensuring you have filed a good paper trail and plenty of photographic documentation surrounding the circumstances of failure.

Option 1. - Immediately email this information to IDEST and we will raise it as a customer complaint, but we will also circulate the information to local IDEST test centres, so they are forewarned of the circumstances of a failed cylinder being attempted to be re-tested.

Option 2. - Suggest to the customer that the cylinder is independently reviewed by an IDEST Inspector. Warn the customer that there is an inspection cost and possible also shipping costs if you are remote to inspectors, but the customer will receive a fully independent view of the issue.

Failure Disposal

It is becoming increasingly difficult for centres to dispose of the failed cylinders due to varying policies of major recycling companies. Their responses vary so I have outlined a few of them which gives you a flavour of what they are saying.

Across the board their view was the machinery used to recycle the cylinders fall into two categories, both requiring operators. Shears and shredders or crushers are the preferred method of recycling to manageable material. In the eyes of these recycling companies the risk of a fully charged cylinder entering the system and causing catastrophic damage to man or machine is extremely high so I sought a few company views:

British Metal Recycling Association (BMRA) were happy to forward me a statement, but they felt it was for each individual recycler to have a policy in place. I intend to follow up to receive the statement from BMRA but for now, here are some of the answers I have received.

MAXILEAD – We do not accept pressure vessels, even when they have the valves removed or cut in half due to the possibility of an operator not recognising the issue of pressure vessels going through our machinery.

European Metal Recyclers (EMR) – The cylinder, whatever material, must be cut longitudinally in half from neck to base before we accept them. Any composite wrapping must be removed.

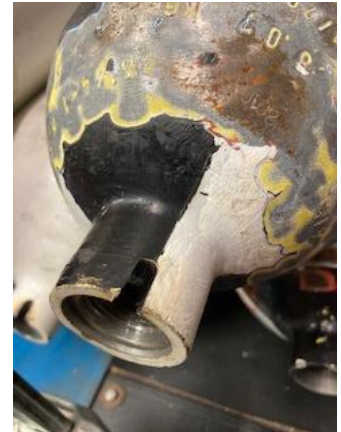
SWM Waste Recycling – Our policy is that we do not take them, but a few local centres may accept them if cut in half across the width of the cylinder and where there is full understanding and customer relations in place.

Simms – Local decision would be made but generally we will not accept cylinders.

Local Council Tips – Generally they do not accept the cylinders. I could go on, but the general view of the major recyclers gives a varied picture. Some of the feeder companies you use would have formulated decisions locally and that would be based on your agreement with the local owner/manager and assurance to present failed cylinders as agreed. If you have a local company that accepts the scrap material, then keep that relationship positive.

If a customer insists on the return of a failed cylinder, there are ways of rendering it unusable. A popular method is to take an angle grinder to the neck and cut a slot down through the neck threads, *see photo*.

It is also worth remembering that using a grind wheel to obliterate a manufacturer's markings is equally as effective but never remove the serial number as this remains the cylinder's unique reference. You may even find the customer is doing you a favour by taking the cylinder away once you have rendered it unusable.



Finally, there is a growing army of individuals who look for interesting material to recycle and re-engineer into everyday items such as bells, lamp or sculpture bases and wine racks to name a few I have heard of. If you know of one of these artisans, then your scrap could be their fuel.

Why calibrated torque wrenches

When testing or inspecting cylinders we need to have a means of determining how tight we are fitting the valve into the cylinder. Fortunately, we have a simple way of ensuring that cylinder valves are always fitted to the manufacturers specified torque.

Torque is the twisting force required to seat the valve, too little torque and the valve may move allowing the O ring to fail, too much torque and there is the possibility of overstressing the threads which may cause them to fail. There is a range of values that various manufactures specify. Most of these are in the 80-120 Nm range, but technicians should always consult the manufacturers data sheets for the correct value.

The Nm after the value refers to Newton(N)and Metres(m) or the twisting force of the torque wrench, therefore a value of 80 Nm relates to a force of 80 Newtons applied to a lever that is 1 metre long. But if our torque wrench is only half a metre long, the force you will need to apply would therefore be double.

There are several types of torque wrench on the market most of which are either inaccurate or cannot accurately repeat a reading,

therefore we require you to use a torque wrench that is of good quality and is able to give consistent readings. These torque wrenches normally work by compressing a spring whilst setting the torque against a scale or perhaps a nice liquid crystal display. When new the manufacturers guarantee that the torque wrench is accurate, however each time the wrench is used the spring is compressed and after a while the wrench can give a less accurate reading.

Fortunately, torque wrenches can be adjusted to come back into the tolerance band and can continue to be used. This process is called calibration. A calibration laboratory will compare the readings taken from the torque wrench to those on a calibrated torque cell. These are highly accurate devices whose settings are traceable to national and international standards, to generate precise values to compare with the readings from the torque wrench.

The international standard for torque wrenches allows for a tolerance of plus or minus 4% and repeatability of readings is normally taken at a low level, say 50 Nm, a mid-range say 100 Nm and a reading close to the top of the range. This cycle is repeated at least 3 times. If there is an error that is outside the tolerance, then the calibrator will try to adjust the unit until it is within tolerance.

Because the torque wrench is a critical part of the system, IDEST require all torque wrenches to be Calibrated each year by a UKAS accredited calibration Laboratory. The certificate must show that the unit has been calibrated to the standard ISO 6789:2003, in accordance with their BS EN ISO 17025 accreditation and show the UKAS accreditation logo.

Overseas test centres need to supply similar certificates from ILAC accredited calibration laboratories. IDEST have a concession from UKAS that new torque wrenches bought with a manufacturers certificate can be accepted, however many may have noticed that new torque wrenches may have dates on the certificates that could be anywhere between a couple of months to a couple of years old. We can accept these as valid because they will normally be guaranteed for a year from date of purchase, however in order to preserve an audit trail with these items we would need to see a copy of the invoice as well as the test certificate as proof of the purchase date.

The calibration period will therefore be one year from date of purchase.

So here are the golden rules:

- Your torque wrench is a vital piece of equipment, look after it. When not in use back off the setting to zero
- Always put the torque wrench away in its protective box when not in use
- Only use it to set valves. Use a bar or separate tool to remove valves.
- The adapter that fits the valve should have its square drive socket as close as possible to the centre of the valve to prevent over torquing.
- Always use a UKAS calibration lab and ask specially for certification to their ISO 17025 accreditation.

- Never use a mobile tool van to calibrate your torque wrench. At best they may be ISO 9001 certified which is not acceptable and at worst they may be Jack the lad who just wants your money.
- Before deciding who to use for your calibrations consult document D049 on the IDEST web site to find an accredited test house

I hope that I have shown you how vital an in-calibration torque wrench is for your testing, look after it and it will look after you.

Inspection deficiencies

BS EN ISO 18119 was introduced in 2018 and supersedes the existing Standards, 1968 and 1802, on 1st January 2023.

A pack of documents was recently sent out to all Inspection and Test Centres in preparation for the transition. Centres are expected to gear up to this new Standard, using the suggested paperwork provided.

Inspections will now be conducted in line with 18119, and deficiencies will be noted on the inspector's report.

Deficiencies mean that approval cannot be given until the deficiencies have been addressed and sighted by the inspector. Before leaving the inspector will discuss the shortfalls and agree a date for them to be implemented.

Once they have been completed, approval will then be given. Delays in completing the deficiencies, could result in the centre being unable to conduct inspections and test; so, speed will be of the essence.

New kids on the block?

Are you looking to train new technicians in your centre? In-house training is an option. This involves an experienced technician training the new technician all the necessary stages of inspection and testing.

IDEST can provide you with the necessary 'training log-sheets' for Steel, Aluminium and Composite cylinder training. Contact Admin and request the training log-sheets.

Each skill needs to be demonstrated at least once. The trainee then mimics that skill correctly three times. After each skill is successfully completed the trainer signs the log-sheet to verify the training.

Once completed, the log-sheets need to be retained in the company records in readiness for the inspection.

Until the new technician has been assessed by an IDEST inspector, they must only conduct cylinder inspection and testing under direct supervision of another approved technician.

IDEST Test Centre Update

We have had the following changes to the IDEST Test Centre listing since the last issue of Torque.

New centres

None

Leaving centres

Edinburgh Diving Centre, Edinburgh - 1M - Dougie McEwan retiring

Breathing Air Technical Services, Hull - 6S - John Smith is retiring
