Sustainability and Cargo Nets

During the recent ULD CARE conference in Athens, one of the key items on the agenda was the issue of sustainability. And, during the panel conversation, there was a considerable amount of discussion around cargo nets which certainly deserves some attention.

First of all, there is no question that cargo nets is an ongoing pain point in the air cargo industry. Airlines face continual costs replacing these items that are not inexpensive and they are therefore very frequently used in a damaged condition presenting flight safety risk. Plus, their end-of-life disposal does not come close to meeting any kind of environmental standard.

But let's begin by giving a little history.

In the aftermath of the Fine Air crash in 1997, and the subsequent publication by the FAA of the advisory circular AC 1 20–85 ULD operations, came much increased scrutiny by the regulators. And cargo nets in particular received a great deal of attention causing many headaches for many airlines.

One of the outcomes of this scrutiny by the regulators was that they became aware that all too often cargo nets that appeared to be extremely degraded were still being used. This situation led to EASA commissioning a university in Europe to study the whole question of degradation of textiles used in ULD. Airlines were requested to assist by providing examples of nets of various ages, and ultimately produce a report showing how nets of a different age would fail at different loads.

Unfortunately, the results of the study were somewhat controversial, as there was a great deal of discussion around the test procedure. In particular whether the tests should be carried out with or without the reefing hooks engaged. In the case of the study, the methodology did require that the reefing hooks were engaged, while in the testing requirements for a newly designed net there is no such requirement. There was subsequently a great deal of discussion between the OEMs and the regulators.

The outcome of the study and other concerns about the effects of ultraviolet on the increasingly widely used nonmetallic materials in ULD in general, resulted in the issuing of TSO C90 d which contained significant new requirements for the OEM to justify and specify lifetimes for nonmetallic components of any ULD.

The relevant text is here:

e. Material Performance.

(1) Consider environmental degradation due to aging, ultra-violet (UV)-exposure, weathering, etc. for any materials used in the construction of pallets, nets and containers.

(2) For textile performance see SAE Aerospace Information Report (AIR) 1490B, *Environmental Degradation of Textiles*, dated December 2007, for available data for textile performance when exposed to environmental factors. These data will be taken into account for consideration of the effects of environmental degradation on nets commensurate with the expected storage and service life to satisfy SAE AS 36100 Rev. A, Paragraph 4.11.

NOTE: Environmental degradation data other than that documented in AIR1490B may be used if you substantiate the data and it is approved by the FAA aircraft certification office (ACO) manager responsible for administering your TSO or LODA. A net must meet the minimum performance requirements of this TSO at any time during its service life.

and the marking requirement is here:

(a) Mark the expiration date of a ULD as a limitation.

(b) Mark each component or subassembly, as described in paragraph **4.b.** with its expiration date.

(Note the TSO C90D can be downloaded at https://drs.faa.gov/browse/excelExternalWindow/BA3CB5AEB6D07BEC8625792D0052E535.0001

However there is more to this than meets the eye. Just because the authorities have issued a new TSO does not mean that the previous TSO's suddenly become invalid. In fact, it's exactly the opposite. Once a TSO approval has been issued for a particular product, it is good for life. The product can continue to be manufactured to the earlier standard and may continue to be used in service. It is even possible for minor modifications to the design to be carried out while still retaining the earlier TSO approval.

Which brings us to how matters stand today.

For ULD (including nets) certified under TSO C90 A, B or C, there are no regulatory requirements to state an expiry date. While for items certified under TSO C90D, there is a specific requirement. And it is probably true that the vast majority of cargo nets in use today and indeed being sold today are actually TSO C90c or earlier, and so have no such regulatory requirement.

However there are two other aspects to consider here:

1. The IATA ULD Board has, for many years, discussed this question. And the 2014 edition of the IATA ULD Regulations has required net manufacturers to display a recommended lifetime for the net. Ref ULDR SS 50/2 Par 6 (Materials) and Par 8 (Marking and Labelling).
2. The question of the operator's responsibility to only load safely secured loads into their aircraft. There is, of course, an expectation contained in the waiting balance manual but every single ULD being loaded into the aircraft shall be capable of meeting it's designed load restraint obligations. And clearly any net that has suffered severe degradation does present a potential safety risk.

To conclude this brief journey through the subject of net degradation, it is an inescapable fact that cargo nets are manufactured from materials that do suffer from ultraviolet degradation. And it is therefore common sense that a cargo net cannot have an indefinite life. It is also correct to say that there is a degree of frustration in the industry around the cost of having to write off what might appear to be a perfectly serviceable net.

It is the opinion of ULD CARE that the answer here lies in improving the overall responsibility for the proper care and use of these items of equipment. We are pretty sure that a great number of nets become lost or damaged beyond economic repair long before they reach their use by date. What will be Air Cargo Handling Street if it continues to treat nets as some kind of disposable item that does not require any kind of proper handling? And no amount of debate or complaints about the fairness or unfairness of the regulations will change anything.