



In This Issue...

We look at Certificate of Conformance. Weld Wrap and Joint Width Best Practices are provided. Supplier financial health is profiled. NDT Lessons Learned and updates on ISA team findings regarding welding consumable control and reporting non-conformances are provided.

Update

Connecticut's travel advisory states anyone traveling from a state with a 10% test positivity rate over a seven day rolling average will have to self-quarantine for 14 days.

Connecticut updates the list every Tuesday. Stay informed on whether your state is on the list.

FEEDBACK

Please let us know what you think about this bulletin!

Send questions about any article, content suggestions and comments to Ken Mason at 860.433.4834 or email

EBSIB@gdeb.com

LETTER TO THE SUPPLIERS

Electric Boat has recently made enhancements to the Request for Source Inspection (RFSI) through the implementation of the Virtual Source Inspection (VSI) process. The VSI process was initially implemented on a limited basis and then was expanded to the entire supply base in Q2 2020.

The VSI process institutes electronic submission of source inspection documents which triggers the demand signal for a member of the EB Supplier Quality Inspection team to conduct a review and disposition documentation. Virtual Source Inspections are beneficial to both EB and our suppliers by ensuring increased material availability due to a streamlined source inspection process.

Since the implementation of VSI; the amount of time for on-site source inspection has been reduced which allows for more flexibility in EB source inspector utilization. In some cases the need to conduct an on-site inspection has been eliminated. These advancements of reducing or eliminating the need to be on-site, and source inspector availability have allowed EB to get closer to our objective of performing source inspections within a three week window. Electric Boat can review and approve more efficiently and redirect our inspectors to higher priorities. Since the implementation of the VSI process, Electric Boat Source Inspection Team's performance has increased over 50%.

Electric Boat Supplier Quality (EBSQ) commends the supply base for the rapid transition to the VSI process and thanks you for your continued support. We are all learning together. For any VSI question please contact your Buyer or the Supply Chain Communications team at EBSIB@gdeb.com

We hope you enjoyed the Holidays and stay safe,

Supplier Quality Source Inspection Team

Correction:

In the most recent issue of the SIB, the Electronic Signatures article stated:

Electronic signatures SHOULD: "Contain reference, either within the electronic signature itself or within the body of the document, that the applied

signature is 'digital' or 'electronic'."

As directed in Standard Clause 60-5, 60-58, & 60-19 for suppliers working to an ISO 9001 quality system, the 'Should' in "Electronic signatures SHOULD" is instead a 'Shall.'



BEST PRACTICES

Certificate of Conformance

The Certificate of Conformance (C of C) provides the supplier's evidence of having satisfied all stipulated contractual requirements and terms invoked by the Purchase Order Line Item, including any modifications allowed or imposed by accompanying Vendor Information Requests (VIRs).

The reason standard clause 12-4 requires the supplier's C of C to include a listing of associated VIRs is to document the contractual terms the supplier has satisfied. While standard clause 12-4 specifically states that deleted or Virtual Source Inspection (VSI) VIRs do not require listing (because those VIRs do not modify contract terms), the standard clause does not specifically address disapproved VIRs. This is to clarify that disapproved VIRs do not require listing on the C of C either, as they likewise do not modify the contract.

Should the supplier, for informational purposes, elect to include disapproved VIRs on the C of C, this does not invalidate the C of C, however, this will require the Electric Boat Supplier Quality representative to assure the supplier has not utilized any of the disapproved actions, proposals, or interpretations in performing the work. For that reason, it is preferred that disapproved VIRs **not** be included on the supplier's C of C.

Welding Consumable Control Update

In [Volume 3, Issue 1 of the Supplier Information Bulletin](#), an article on Welding Consumable Control referencing T9074-AR-GIB-010/278 (TP-278) provided best practices and guidance our suppliers should be utilizing.

Despite the challenges Covid-19 has presented in 2020, Electric Boat's In-Depth Supplier Assessment (ISA) teams have been able to visit some suppliers and EB can point to some specific incidents when suppliers have been in violation of TP-278:

- Paragraph 6.6.5 – Bare spooled electrodes and bare rod electrodes not kept in their original sealed containers until used.
- Paragraph 6.6.1.1 – Holding ovens did not have the ability to verify temperature.
- Paragraph 4.1.2.1 – No lock-out lids with regard to disposal of weld wire.
- Level 1 weld wire cabinet not controlled.
- No managing or recording of weld wire. From TP-278 “An identification system shall be established and maintained which includes the specification number and type of grade of the material. Periodic internal audits of the inventories, stocking facilities, and shops shall be performed to assure that materials are correctly identified. A system shall be established that requires visual verification or installation to ensure that the identification of the material corresponds to that specified by the applicable drawing or document.”

Ensure your program are meeting the requirements of TP-278 and contact Jonathan Rasimas, D341 Welding Engineering at jrasimas@gdeb.com with any questions.

Go to EB Landing and take a few minutes to [read or listen to EB President Kevin Graney's podcast with Materials VP T. Blair Decker.](#)

The Submarine Industrial Base Council (SIBC) invites all suppliers to the submarine industry to become members. There is no cost to join.

Go to submarinesuppliers.org to learn more.



IN CASE YOU MISSED IT

Weld Wrap and Joint Width Requirements

Subject: Clarification on the Weld Wrapping/Sealing and Weld Joint Width Requirements of T9074-AD-GIB-010/1688 Rev 1

PROBLEM

Electric Boat has received recent questions from the supply base over the application of the weld wrap and joint width requirements in T9074-AD-GIB-010/1688 Rev 1 (TP-1688).

1. The weld wrap requirement in Section 7.4.7 of TP-1688 states:

Fillet and fillet reinforced partial penetration welds shall be sealed off with weld at the end(s) of members (flatbars, angles, channels and tees) to form a closed loop where surfaces are to be wetted. Members which will not be wetted shall be sealed off when practical. When specified by a weld all-around symbol, the minimum weld reinforcement size shall be maintained (wrap-around) at the end(s) of the attached members. When the member is located per tolerances and the full size fillet weld (wrap-around) at the ends is not obtainable, the maximum size obtainable shall be considered acceptable provided the above seal-off requirement in wetted areas is maintained.

The requirements for full penetration welds are not specifically addressed in TP-1688, which has led to additional questions from the supply base on when full penetration welds are required to be weld wrapped or seal welded.

2. Additionally, there have been cases in the supply base where weld repairs have resulted in excess base material being replaced, exceeding the joint width expectations of TP-1688 Section 13.9.3 and MIL-STD-22D.

TAKE AWAYS

1. While the requirements for full penetration joints are not specifically addressed in TP-1688, the interpretation is that full penetration welds shall be seal welded at a minimum. Weld wrapping with the full fillet size for full penetration welds is considered by Electric Boat to be a best practice and proper workmanship; however, it is not required.

When the applicable drawing specifies an “all-around symbol” on a weld joint leader arrow as shown below, the full fillet size must be maintained in the weld wrap. The welding symbols used on Electric Boat Corporation drawings are in accordance with the American Welding Society (AWS) A2.4.

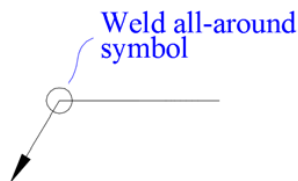


Figure 1: Weld All-Around Symbol—AWS A2.4

Wrapping or sealing to form a closed loop on non-wetted surfaces is done, to eliminate any abrupt or sharp termination of a weld joint and to improve loading distribution into the base materials at the ends of welded members. Additionally, weld wrapping can reduce the “starts and stops” of each weld pass beginning and terminating at the same location.

The final surface non-destructive testing requirements specified by the applicable drawing apply to the weld wrap or seal weld, as it is part of the completed weld metal deposited.

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IN CASE YOU MISSED IT

Weld Wrap and Joint Width Requirements (Continued)

Subject: Clarification on the Weld Wrapping/Sealing and Weld Joint Width Requirements of T9074-AD-GIB-010/1688 Rev 1

TAKE AWAYS

2. Section 13.9.3 of TP-1688 requires a maximum build-up allowance of 2 in. during joint fit-up. While this requirement maintains fit-up requirements, it is also intended to avoid joints exceeding the weld joint width expectations of MIL-STD-22D, the military standard for welded joint design.

— While MIL-STD-22D defines the joint expectations for standard weld joint designs, non-standard weld joints shall use the joint geometry definitions of the applicable drawing.

The weld joint width requirements have a potential to be exceeded when weld repairs are required to the joint. During weld repairs, if excess base material is replaced with weld filler metal, the maximum expected joint volume could be exceeded. While the yield strength remains adequate, this results in a reduced impact toughness and fracture resistance. Weld metal is not necessarily a suitable replacement for base material based on this reduction in toughness.

Care must be taken, especially in weld repairs, to not replace excess base material when multiple repair cycles are required. If multiple repair cycles have been completed on a weld joint, replacing additional base material in excess of the allowance, suppliers are required to verify the requirements of TP-1688 Section 13.9.3 and submit a Vendor Information Request (VIR) to Electric Boat documenting the weld joint condition.

At a minimum, suppliers will brief all applicable personnel on the content of this bulletin.

Reporting Non-Conformances

In April of 2020, EB sent a letter to our suppliers titled “Guidance and Distribution for Letters of Advisement to Electric Boat When Issues Are Identified with Previously Delivered Hardware.”

Our In-Depth Supplier Assessment (ISA) teams have subsequently had non-conformance findings during their assessments.

EB needs to know as soon as possible if there are issues that impact product provided to us.

An often overlooked non-conformance is the correlation that process non-conformances equal product non-conformances in most cases. As an example, if the program a supplier uses to qualify an inspector is found to be non-compliant to the spec requirement, then the inspections performed by the individuals qualified under that program are also non-compliant. This means that product did not have the required inspection performed and is therefore technically non-conforming. If this product has been delivered to EB, then the supplier needs to provide notification to EB via an LOA.

Regardless of how a problem is found or identified, a supplier must consider all customers that it could impact and make the appropriate notifications.

To request the letter from April 2020, contact us at EBSIB@gdeb.com

IN CASE YOU MISSED IT

Updates to Purchase Order Standard Clause 53-31, Revision 11, Electrostatic Discharge (ESD) Packaging and Labeling



RS-471 ESD Symbol

What's happening and why?

Purchase Order Standard Clause 53-31 was recently updated to ensure requirements for packaging and labeling of ESD sensitive items are in accordance with MDD-00311 (Electric Boat Methods and Precautions to Prevent ESD Damage to Electrical and Electronic Equipment).

What should you do?

Impacted suppliers should review Standard Clause 53-31 Revision 11 located at the [Electric Boat website](#).

What you should know:

1. All Purchase Orders that invoke SC 53-31 and issued after 10/20/2020 will invoke SC 53-31 Revision 11 (the latest revision).
2. Purchase Orders issued prior to 10/20/2020 with SC 53-31 invoked, will still invoke the previous revision of SC 53-31.
3. All Purchase Orders updated after 10/20/2020 will invoke SC 53-31 Revision 11.

Purchase Order Standard Clause (SC) 53-31 Notable Updates:

1. An RS-471 symbol shall be applied adjacent to every external receptacle whose pins internally connect to circuits which are ESD sensitive.
2. An RS-471 symbol must be applied on ESD sensitive subassemblies (e.g., electric modules, PC cards/boards) in an area that is visible to personnel when the subassembly is accessed in its installed location.
3. ESD sensitive electronic discrete parts (e.g., integrated circuits, transistors) with the same part number may be bulk packaged. Please refer to Purchase Order SC 53-31 Revision 11 for further details.
4. If the ESD sensitive items are a packaged set, the packaged set may be packaged together in one unit package. Please refer to Purchase Order SC 53-31 Revision 11 for further details.
5. The Electric Boat Part Number (EBPN) must be applied on the outside of the unit package.
6. Paperwork (e.g., invoices, slips, tags) shall not be placed within any unit package that contains ESDS items.

Purchase Order SC 53-31 can be accessed via the Electric Boat website:
http://www.gdeb.com/suppliers/sect_4A/

Questions?

Suppliers requiring assistance in following the requirements of Purchase Order Standard 53-31, Revision 11, should contact Electromagnetic Compatibility Engineering, D428 at (860) 867-2848.

LESSONS LEARNED

NDT PROGRAMS IN THE SUPPLY BASE

Background

In 2018, Electric Boat (EB) and Newport News Shipbuilding (NNS) discovered major quality deficiencies in welding and NDT at some of our major suppliers. Following recovery from these significant events the shipbuilders reviewed NDT and welding programs at other suppliers and found many programs deficient in areas such as certification records, performance of Technical Performance Evaluations (TPE), physical execution of inspections and subcontracted program ownership. Flowing down welding and NDT requirements to the supply base needed improvement and EB and NNS determined that step changes were necessary to address the deficiencies.

To appropriately monitor and support our supply base, EB and NNS formed new divisions within our NDT and Welding departments. These organizations are performing supplier readiness evaluations, review and approve supplier procedures, perform In-Depth Supplier Assessments (ISAs) and serve as a resource for overall NDT and Welding Engineering support.

What We Learned

Many suppliers contract out all or part of their NDT program.

It is important for all suppliers to understand that the responsibility of NDT is levied directly on the prime supplier and cannot be divested solely to the subcontracted NDT provider.

Each supplier must ensure that their NDT program is being run in accordance with all contractually required specifications regardless if they are employed at the company or subcontracted services.

What You Can Do

Many suppliers have asked how they could ensure that their subcontracted NDT is being performed to the contractual requirements. EB and NNS recommend that suppliers perform paperwork audits, site visits, TPEs, and

request EB and NNS visit their subcontracted NDT house. Many attributes of a TPE can be performed by someone with little NDT experience. Continuous management engagement and appropriate oversight of the subcontracted NDT services are also crucial in ensuring strict adherence to the specification requirements.

Should the supplier discover problems or weaknesses within their own or any subcontracted NDT programs, the best course of action is to inform EB and NNS immediately so we can work together to determine the extent of the issue and correct the deficiency.

How We Will Help

With the addition of EB and NNS welding and NDT resources dedicated to the supply base suppliers are encouraged to work with their buyers and establish chains of communication between EB and NNS welding and NDT experts and the welding and NDT experts on the supplier teams to ensure that questions can be asked more easily and guidance provided early in an effort to prevent problems from occurring.

EB and NNS are working to provide audit guides for several specific NDT methods that can be used to assist suppliers in verifying that work is being performed according to the specification requirements.

What if There is a Problem?

Call if There is a Problem.

In the commercial NDT environment, there is no standard for determining potential impact of NDT-related deficiencies on previously delivered products. EB and NNS have determined that this approach to bounding NDT-related issues has carried over to work performed on EB and NNS contracts.

Most suppliers believe that they meet the requirements of the specification by having an NDT program that operates to the minimum requirements.

While this is technically satisfactory, it

provides little to no margin for error. Since performing NDT is a human-based process, there is also the risk, error, and drift in the execution of performing all methods of inspection.

Our Recommendations

EB and NNS recommend improving periodicity and thoroughness of TPEs to the extent that the inspector demonstrates understanding of the process throughout. EB and NNS are incorporating a principles-based approach to operations. This means that the operator who is performing the steps understands the theory and reason for each step. This approach will give the Quality Manager or Level III Examiner a chance to document weak areas, provide training, and upgrades as necessary. This oversight should improve the quality of inspections.

Safety of Our Sailors

Determining the boundaries of affected delivered and non-delivered material is required by EB and NNS since *impacted material could potentially already be in the fleet operating at risk*. When suppliers discover non-conformance on in-house material they should immediately notify EB and NNS so that the team can quickly work together to determine the extent of affected material and adjudicate the issue. EB and NNS have a standardized approach to bounding NDT performance-related issues and are working to package this information to share with the supply base for use as a framework to bound issues at their facility.

Questions regarding this article can be sent to EBSIB@gdeb.com for proper adjudication.

ELECTRIC BOAT INITIATIVES

Supplier Risk Corner

Supplier Financial Health with RapidRatings®

Electric Boat has partnered with RapidRatings® to obtain industry-leading financial evaluation tools to enhance our Supply Chain Risk Management (SCRM) Program and to meet our compliance, risk, and sourcing requirements.

THE TOOLS








FINANCIAL HEALTH RATING and CORE HEALTH SCORE

RapidRatings® offers two metrics to assess supplier financial health: Financial Health Rating (FHR®) and Core Health Score (CHS). The FHR measures short term risk of default, while the CHS measures medium term sustainability. Both scores range from 0-100 and can be used together to assess financial risk. For suppliers enrolled in the FHR Network®, RapidRatings® provides a quadrant analysis that directly compares the FHR® and CHS, helping to prioritize supplier mitigation actions. Participation into the FHR® network allows suppliers to gain insight into their own financial health, while ensuring EB understands financial risk throughout our supply base.

Core Health (FHRv1)	Default Risk (FHRv2)				
	Very High Risk (0-19)	High Risk (20-39)	Medium Risk (40-59)	Low Risk (60-79)	Very Low Risk (80-100)
Very Strong Health (80-100)	Quadrant D These companies have medium or better Core Health, however challenges remain in the short-term given their elevated probability of default over the next 12 months. (2.3%)		Quadrant A Companies in this quadrant demonstrate levels of operational efficiency likely to be sustainable over the medium-term, combined with an acceptable to very low default risk within the next 12 months. (61.0%)		
Strong Health (60-79)					
Medium Health (40-59)	Quadrant C These companies demonstrate poor to very poor Core Health (suggesting the need for efficiency improvements) combined with a high to very high risk of default over the next year. (15.1%)		Quadrant B While risk of default is unlikely in the short-term, the level of Core Health suggests a need for efficiency improvements, and current performance may not be sustainable over the medium-term. (21.6%)		
Poor Health (20-39)					
Very Poor Health (0-19)					

WHAT'S NEXT?

In order to increase the availability of FHR® reports for critical suppliers, the EB Supplier Risk Group (SRG) is spearheading an outreach effort to solicit supplier participation—**Be on the lookout for requests to participate in this important initiative!**

<h4>Follow EB Social Media</h4> <ul style="list-style-type: none">  Facebook: General Dynamics Electric Boat  Twitter: @GD Electric Boat  YouTube: GD Electric Boat  Instagram: gdelectricboat  LinkedIn: General Dynamics Electric Boat  EB Landing: www.EBLanding.com 	<h4>South Yard Assembly Building Update</h4> <p>From EB Communications:</p> <p>There has been significant progress since our ground breaking on September 18, 2019. The contractor has been installing the deep foundations (drilled shafts) since October 2019. The deep foundations consist of over 500 shafts, which are several feet in diameter. These shafts are drilled into the bedrock, which slopes down toward the center of the river. As of early November 2020, about 90% of the shafts have been drilled and most of those have been completed with the installation of reinforced concrete with the shaft.</p> 
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