



**Triumph Aerostructures -  
Vought Aircraft Division**

*A Triumph Group Company*

**SQR-010**

**SUPPLIER HARDNESS/CONDUCTIVITY TESTING  
REQUIREMENTS**

**Revision B  
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**<http://www.voughtaircraft.com/suppliers/>**

## SQR-010 REVISION RECORD

REVISION RECORD REVISION	PAGES AFFECTED	DATE OF REVISION	INCORPORATED BY (SIGNATURE)
<b>A</b>	Those annotated with a horizontal line in the left hand margin	<b>9/30/03</b>	<b>On File</b>
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## SUPPLIER HARDNESS/CONDUCTIVITY TESTING REQUIREMENTS SQR-010

### **Introduction**

This document specifies the requirements for Hardness/Conductivity testing by Triumph Aerostructures - Vought Aircraft Division (Vought) suppliers as identified in the Supplier Quality Assurance Requirements (SQAR) document. Affected Suppliers must have hardness and conductivity testing capability for metallic parts or a detailed procedure for purchasing the service. The requirement must be addressed in the supplier's procedures to the extent necessary to ensure compliance, including control of subcontractors if the service is purchased. The supplier is required to flow all of the SQR-010 requirements down to their sub-tiers.

### **General**

The temper verification is in addition to any hardness and/or conductivity testing required by the applicable engineering drawing or specification. The Supplier is required to record the hardness and/or conductivity test results as defined in Temper Verification (Table 1) for all aluminum and ferrous details in the final heat treated condition. The supplier shall perform these tests, as close as practicable to final inspection and shipment of the parts to validate proper temper condition.

Annealed parts/material or parts with thickness less than 0.012 in. thick, DO NOT required temper verification. Supplier shall annotate on form CD-4020 or CD-4020B, if parts/material is in the annealed condition in block 20. If the supplier is allowed delegated source acceptance the supplier must annotate on suppliers own Certificate of Conformance.

**Table 1**  
**TEMPER VERIFICATION**

**Record actual results on either CD-4020 or CD-4020B as objective evidence. The results shall include the Customer requirements, actual readings and the quantities tested. Document high and low readings and perform rounding when required by the customer specification.**

<b>TYPE OF MATERIAL</b>	<b>TEST(s) REQUIRED</b>
<b>ALUMINUM</b>	<b>HARDNESS/CONDUCTIVITY</b>
<b>NON CLAD</b>	<p>Hardness testing should be performed on completed parts prior to any final finishes being applied.</p> <p>When parts are painted, hardness testing may be performed on a tool tab or a coupon of same heat lot processed with the parts.</p> <p>Conductivity testing should be performed on completed parts prior to any final finishes being applied.</p> <p>Note: Some conductivity meters can read through protective finishes.(i.e. Autosigma 3000, Sigmatest Ec 2.068, Sigmatest Ec 2.069)</p>
<b>CLAD</b>	<p>Conductivity may be performed on a coupon of the same heat lot processed with parts in lieu of conductivity testing actual parts when conductivity is too high.</p> <p>If conductivity is higher than required by Customer specification, remove clad on coupon. If the value obtained is acceptable, conductivity between the two readings (clad &amp; bare) shall be used as a correction factor when inspecting the parts in the lot. Results of bare and clad conductivities shall be reported.</p> <p>Hardness testing is only required when parts are not painted. When parts are painted, a coupon of same heat lot processed with parts shall be submitted and hardness shall be required on the coupon.</p>
<b>6000 SERIES</b>	Only hardness inspection is required on 6000 series. When parts are painted, a coupon of same heat lot processed with parts shall be submitted and hardness shall be required on the coupon. .
<b>FERROUS</b>	<b>HARDNESS</b>
<b>PAINTED PARTS</b>	A coupon of same lot shall be submitted with parts.
<b>NON PAINTED</b>	When testing can not be accomplished on the actual part due to the configuration of the part, a coupon of the same heat lot shall be submitted with parts for testing.

**Table 2**

**TEMPER VALIDATION SAMPLING PLAN (1)**

<b>C=0 95% Reliability Lot size</b>	
up to 10	All
11 to 22	10
23 to 33	11
34 to 80	12
81 to 4371	13
4372 and up	14

**(1) This sampling plan does not override Customers testing requirements**

Sampling plan in accordance with Table 2 is in addition to the sampling plan required by Customers specifications.

**Example:**

Customer requires 100% conductivity, 10% hardness.  
 Expectation: supplier will perform 100% conductivity, 10% hardness and record in manufacturing plan the results. Prior to shipment, the supplier will perform second validation in accordance with SQR-010, Table I and record results on CD-4020 or CD-4020B.

## FLOWCHART 1 TEMPER VALIDATION PROCESS

