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Exhibit B; JSF Quality Requirements

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DOCUMENT OVERVIEW

This exhibit B describes the Fokker Aerostructures (here after referred to as Fokker) Quality requirements and expectations for the F-35 Lightning II program. Also it provides information for Supplier's guide to understanding these requirements. This document forms a part of Fokker's purchase orders, unless otherwise specified herein.

The requirements in the engineering specifications, purchase order and/or documents referenced in Exhibit B, shall take precedence over the requirements in Exhibit B.

Exhibit B is broken into three major sections as described below:

Section 1 - This section identifies general information of this document and its relation to the purchase order.

Section 2 - This section includes minimum quality requirements required for all deliverable products and services procured by Fokker.

Section 3 - This section includes specific quality requirements that may be applicable to the Supplier's deliverable product. Supplier is guided to these requirements using table 2.

Questions regarding this document should be directed to your Fokker Quality Procurement representative or buyer.



SECTION 1 GENERAL

1.1 Scope of Agreement

This Exhibit-B defines Fokker's requirements with respect to quality for the JSF program.

This Exhibit-B forms an integral part of the General Terms Agreement (GTA) or Purchase Order concluded between Supplier and Fokker.

All terms defined in the General Terms Agreement (GTA) or Purchase Order shall be applicable to this Exhibit-B, unless explicitly defined otherwise.

All quality requirements as specified in this document are to be complied with as far as they are applicable within the scope of the Purchase Order. Final authority for the determination of applicability and the interpretation of the contents of this document is the sole right of Fokker.

The requirements in the engineering specifications, purchase order and/or documents referenced in Exhibit B, shall take precedence over the requirements in Exhibit B.

1.2 Right of Access

Fokker, its customers and/or the US Governmental representative have the right to access supplier facilities to perform quality and security audits. The conditions and procedures for such quality audits have to be agreed upon by Fokker, its customers and/or the US Governmental representative and the supplier, on a case by case basis. This to ensure that the required information can be presented without jeopardizing supplier's right to protect competition sensitive or confidential information. The results of those quality audits will be covered by written reports and may lead up to request for corrective action, to which Fokker, its customers and/or the US Governmental representative and supplier both will respond.

1.3 DPAS

This is a rated order certified for the National Defense under the system regulation (DPAS, 15CFR 7000). DPAS rating DO-A1 applies.

1.4 Reference Documents:

Unique documents referenced in this document may be obtained from Fokker representative. Copies of Aerospace Standards (AS documents) may be obtained from the Society of Automotive Engineers at: www.sae.org.

SECTION 2 QUALITY REQUIREMENTS

2.1 Applicable Quality System

Supplier's quality system shall comply with the requirements of Table 1

Note 1: Guidance material for implementation of a quality system may be found in the International Standard ISO 9004:2000.

Quality System Level	Applicable Quality System Document	Supplier Description
Level 1	ISO 9001, AS/EN9100	Manufacturer with Design Authority
Level 2	ISO 9001	Manufacturer (Build-to-Print) Value Added Distributor
Level 3	ISO 9001, AS/EN9120	Pass-thru Distributor
Level 4	ISO 900, ISO 10012-1, ISO 17025, AS9003, Nadcap AC7004, ANSI-Z540-1*	Processor/ Services
Level 5	Per Applicable Statement of Work	Commercial Items
Level 6	ISO 900, AS/EN9100 or Purchase Order requirements	Tooling engineering and manufacturing

Table 1: Quality System Requirements
* if applicable to Processor/Services

The Supplier's approval level must be appropriate for the type of product being delivered to Fokker. Initial and subsequent periodic review of supplier's quality system may be performed at Fokker's discretion. Objective evidence of Supplier's compliance, either by submittal of requested evidence, or evidence of a third party accreditation, may be acceptable for the purpose of re-survey, but will not preclude the use of on-site evaluations or other review methods. Fokker at its discretion may honor qualified second and third party audits, provided that the scope of the audit performed by the second or third party correlates with the type of product/service being provided to Fokker (see Table 1). Fokker reserves the right to perform additional assessments if deemed necessary.

Suppliers shall be certified to ISO 9001 and/or AS/EN9100. Fokker will recognize third-party certifications issued by an accredited Certification / Registration Body. Certifications must clearly contain the name, address, city and state of the business under registration. Suppliers shall forward a copy of their certifications to Fokker.

Calibration suppliers shall be certified to ISO17025 or ANSI Z540-1.

2.2 Changes.

Each change to Suppliers production organization, which is significant to the showing of conformance or the airworthiness of the product, part or appliance, particularly changes to the Quality System will subject the Supplier's Quality System to re-evaluation by Fokker. A change in name, ownership, or Suppliers manufacturing or processing facilities must be regarded as a change of significance. The Supplier shall notify Fokker of any of these aforementioned changes in writing, and forward a copy of the updated registration certificate to Fokker. Any changes to the certification such as a change of the Certification Registration Body, update, withdrawal or disapproval must also be forwarded to Fokker in writing immediately. Fokker will instruct the Supplier on formal notification actions and specific forms to submit, as necessary.



2.3 Data / Configuration management.

2.3a Language

2.3b Unless otherwise authorized by Buyer in writing, all records, reports, specifications, drawings and other documentation shall be in English.

2.3c

2.3d Control and Use of Digital Datasets

The 3D- product design data required for manufacturing the part will be delivered to the subcontractor. The data will be delivered by FTP-server, encrypted with PGP software. The supplier must have the same encryption-software as Fokker.

A Data Exchange Form (DEF) accompanies each sent data package. In case of converted data (IGES, VDA, Step) the data will also be accompanied with a Verification of Data Conversion (VDC) according to Fokker procedures.

Additional Northrop Grumman requirements for applicable NGC parts:

When using released digital datasets Seller shall comply to the Northrop Grumman SQ&TP 0120 SQAR Supplement for the Control and Use of Digital Datasets. Prior to manufacturing and/or inspection Seller shall be approved by Buyer or Northrop Grumman to the SQ&TP 0120 SQAR Supplement for the Control and Use of Digital Datasets.

2.3e Configuration Management

ANSI/EIA-649 shall be used as guideline for suppliers Configuration Management system.

Remark: If Suppliers have access to the LMA JDL/PDM system, Suppliers are allowed to use these systems for applicable LMA process specifications and revisions. Suppliers are also allowed to use the applicable LMA product definitions and models from the LMA PDM system for the on the P.O. defined part number and revision

2.4 Nonconforming Material Control

Nonconforming material must be identified, documented, evaluated, segregated (where practical) and dispositioned to prevent its unintended release or use.

2.4a

2.4b Disposition Authority

Supplier disposition authority of non-conformance's is limited to rework to specification, return to supplier and scrap. These terms are defined as follows:

Rework - Restore material to specification compliance in accordance with required process(s) and addressed by governing process specification(s). Parts subject to subsequent processing not authorized by specification shall be submitted to Fokker's Material Review Board (MRB) for disposition. Specific rework instructions shall be provided with Rework dispositions.

Return To Supplier - Return of subcontractor product found to be discrepant for subsequent rework or replacement.

Scrap - Permanent removal from production and destruction of product found to be unfit for use. Scraped product shall be controlled until destroyed.

All other dispositions of nonconforming material shall be submitted to Fokker's MRB. These non-conformances shall be submitted to Fokker MRB in Fokker specified format and content as per the Fokker NC writing guidelines EC0704 to be obtained from Fokker.

2.4c MRB Dispositions for Supplier Designed Hardware

Suppliers of product that retain product design authority and are ISO9001:2000 or AS9100 certified may use dispositions of use-as-is or repair, as long as the nonconformity does not result in a departure from the form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics or safety requirements of the product. This includes those suppliers that produce products of proprietary design, and products to military and industry standards.

Suppliers do not have MRB authority for Fokker or any of its customer's (i.e. – Northrop Gumman, Lockheed) designed items unless specifically authorized in writing by Fokker.

Fokker reserves the right to perform a survey of a supplier's MRB process based on the supplier's overall performance and/or product complexity.

The supplier MRB shall not perform any disposition on any non-conformance to customer requirements that affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics or safety. These non-conformances shall be submitted to Fokker MRB in Fokker specified format and content as per NC writing guidelines.

2.4d Notification/ Disclosures

Supplier's system shall provide for timely reporting of nonconformities that may affect already delivered product, including any continuing airworthiness actions. Notification to Fokker shall be submitted on company letterhead and include a clear description of the discrepancy, which includes as necessary; parts affected, customer and/or supplier part numbers, manufacturing dates, quantities and date(s) delivered, any information relating to the Root Cause/Corrective action steps initiated to address the defective condition and preventive measures taken to preclude recurrence of the process failure. Modifications of a disclosure (additions or deletions of data) requiring subsequent issuances shall be revision controlled to provide definitive sequencing (i.e. Rev. A, B, etc.)

2.4e Exception to Rejections

In the event Supplier does not accept the responsibility for a discrepant condition, the supplier shall initiate a letter of exception to their buyer. The letter shall make full reference to applicable documents and be specific in defining the area of exception. Failure to reply will be considered as conformation of this determination.

2.4f Marking Requirements for Rejections

The supplier shall mark discrepant material with the Fokker and Customer (if applicable) non-conformance document number for tracking purposes.

2.5 Product Acceptance

Fokker, its customer, and/or their authorized Inspection Agency, or Regulatory Authorities shall have the right to send representatives to the Supplier and/or his sub-contractors to determine contract compliance by either monitoring, witnessing, and/or performing such activities as inspections, test witness or other system, process and/or product evaluations and verifications as necessary to determine product acceptability to contractual requirements. The type, necessity and degree of demonstration of conformance will be at the sole discretion of Fokker taking into consideration such factors as product complexity, the environment where the product is used, and the ability to determine product quality after receipt and past supplier performance.

Without additional charges, the supplier and/or his sub-tier supplier shall make their facility and applicable records available for these activities and provide all reasonable support for the safety and convenience of these representatives during their stay at the supplier's and/or their subcontractor's plants and facilities. Supplier shall also provide Fokker Representative with internet access by the use of direct telephone line; ISDN; DSL; or High Speed via Supplier's network.

Product Acceptance will take place via the following inspection types at Fokker's discretion without any additional cost charges by Supplier.

The applicable inspection type will be dependant on supplier performance as assessed by the Fokker Supplier Account Team and be communicated by Fokker prior to Product acceptance.



Government Source Inspection or Government Source Surveillance is directed by contract as applicable.

Receiving Inspection at Fokker's facility

Deliverable product(s) are subject to Fokker inspection upon receipt at Fokker's facility. Suppliers of non-Fokker designed material shall forward a detailed/outline drawing or a page from a catalog with each item shipped on the purchase order.

Government Source Inspection

Deliverable products can be subject to Government oversight during the performance of this Purchase Order prior to shipment.

Government Surveillance

Government reserves the right to perform surveillance of a supplier's quality and/or manufacturing operation during the performance of this Purchase Order.

Fokker Source Inspection

Deliverable product(s) are subject to Fokker Source Surveillance. Supplier shall notify Fokker, at least forty-eight (48) hours in advance of need, to schedule "in process" or "final" source surveillance.

All shipping documentation and documentation provided to show evidence of conformity to Purchase Order and Exhibit B requirements shall be made available at the time of source surveillance.

Note: Verifications accomplished by Fokker or its customer shall neither be used as evidence of effective control of quality by the supplier nor shall it preclude subsequent rejection by Fokker or its customer.

2.6 Quality Records

2.6a Control

The supplier shall maintain a documented procedure for record creation, change (handwritten or other), completion and control of Quality records in accordance with the applicable Quality System standard (i.e. – ISO 9001:2000, AS/EN9100).

2.6b Retention

The records shall be retained for a period of not less than ten (10) years from completion of purchase order. The supplier must impose this requirement on their sub tiers. Records shall include, but not be limited to:

- Evidence of inspection to assure adherence to applicable drawings or specifications and revisions
- First Article Inspection Report
- Test Reports
- Periodic inspection and control of inspection media
- Records to indicate control of Special Tooling and Special Test Equipment
- Test data records of all qualification and acceptance test performed
- Certification of personnel as required by specification and/or contract
- Raw Material and Process certifications
- Material Review Reports.

Quality records of critical parts (as identified on the drawing) shall be kept throughout the operational life of the product, part or appliance.

Quality records shall be available for evaluation by Fokker for the above mentioned periods of time.

After expiry of the record retention time Supplier shall enquire Fokker whether documents may be destroyed or send to Fokker.



2.7 Shipping Documentation Requirements

2.7a Packing Slips

Supplier shall provide a packing sheet or attachments for each separate shipment with the following minimum requirements:

- Supplier's company name and address.
Note: The manufacturing/ shipping address that has been surveyed and approved by Fokker must be noted on the packing slip or certification.
- Required parts traceability forms associated with Critical and Designated parts.
- Quantity of parts (to include quantity accepted/rejected)

2.7b Certificate of Conformance

Suppliers will provide a Certificate of Conformance (COC) assuring that all work performed in connection with the purchase order conforms to requirements therein and were forwarded in good condition. The COC must be signed by an authorized person at the supplier.

The COC may be a separate document or included on the packing sheet. The supplier's Quality management or designee must sign and/or stamp this document.

CoC must contain the following minimum requirements

- Supplier's company name and address.
- LMA identification number (vendor or processor code) if applicable
- Purchase order number
- line item(s)
- part numbers incl. revision
- specification number (incl. rev.) of applicable processes
- Evidence of and/or Government Source Inspection acceptance when applicable
- Fokker dispositioned non-conformance document number(s); as applicable
- Interchangeable and Replaceable (I&R) designated control numbers
- Issue date

Note 1: Parts and/or assemblies processed to the required process specification revision level by an approved processor, but purchased and/or delivered after the process specification was revised or superseded are acceptable. Age-sensitive material (shelf life items) is precluded from this noted exception.

Note 2: In the case LMA process specifications are applicable the supplier will provide the LMA identification number (vendor or processor code) on CoC. If processor is utilized based on Nadcap approval, a statement to the effect "Source utilized based on current Nadcap accreditation" shall be included.

Note 3: For any shipment under Request for variance (i.e. Customer approved deviation to spec) the objective evidence of approval and the reference to this variance is to be included in the delivery documents including CoC.

2.7c Measurement and test reports.

Measurement and test reports as required per engineering drawing or any other specification shall be provided to Fokker as part of the delivery documents.

This includes First Article Inspection Reports, NDT reports, CMM measurement reports etc.

2.7d Suppliers of Age-Sensitive Materials

Supplier shall provide original manufacturing/cure date, and lot number(s), and the shelf life expiration date (if indefinite or unlimited, so state). The supplier shall physically identify the shelf life expiration date on the deliverable product or the unit packaging according to the applicable standard.

In addition, forward any special storage/handling instructions. Supplier is responsible to determine if acceptance test report submittal is required in accordance with applicable material specification.

Elastomeric material with "No Shelf Life" requirement or "Unlimited Shelf Life" shall be marked as such.



Note: Material must have no more than 25% of its shelf life expired when delivered unless authorized by Fokker in writing.

2.7e Tooling – Suppliers of Special Tooling or Special Test Equipment

In addition to sections “a & b” above, record the relevant tool specific data like tool number, tool symbol, tool serial number (including the multiple number, as applicable), etc. as applicable, and assure Fokker acceptance stamp has been applied (see Section 3.6 for additional tooling-related requirements).

2.7f Rework/Repair/Replacement/Modified Items

Supplier’s Certification of Conformance and/or packing sheet document shall indicate the action taken on the item(s) returned to supplier for rework, replacement, repair or modification, including work performed by supplier at Fokker’s facility.

1. The item(s) have been reworked, repaired, replaced, or modified (as applicable), in accordance with respective nonconformance documents or Purchase Order.
2. The item(s) meet the requirements of the engineering document(s).
3. The original configuration and qualification status of the item(s) remains in effect (as applicable).
4. All applicable nonconformance document numbers or other references to insure traceability.

Note: Discrepant material shall not be shipped to Fokker without prior approval from Fokker’s Material Review Board (MRB). (ref: section 2.5).

2.7g Qualification Certification

When Fokker’s drawing, procurement specification and/or purchase order requires deliverable items to be “Qualified”, suppliers shall certify that materials, parts, assemblies and/or related contract “Data Items” have been approved and all components of a deliverable item have been inspected and/or tested to applicable Acceptance Test Procedures (ATP) and/or specification/control drawings (both Fokker and supplier originated).

In addition, to sections “a” and “b” above, certification shall indicate revision level of engineering drawings, specifications, and applicable design/specification changes as stated in purchase order. Only authorized Fokker written consent shall allow end items to be delivered prior to completion of qualification testing.

2.7h Material/ Process Certifications

Metallic Raw Material Suppliers/Distributors shall include a copy of the original mill and any required secondary independent test laboratory certification(s) with the shipment of deliverable material. In addition, material must meet any other contractual requirements as stated in the Purchase Order. Supplier is not required to use approved sources listed in QCS-001 or NGC ASPL for standard hardware (nuts, bolts, washers, etc.) ordered to military, federal or industry specifications or standards (e.g., MS, AN, NAS, etc.) or metallic raw material (plate, sheet, bar, extrusion, etc.) purchased from a mill.

2.7i Procurement of JSF specific materials and standard hardware

For procurement of JSF specific materials (as defined in JSF specific material specifications) the use of the Lockheed Martin EMAP-system (accessible via JDL) for selection of JSF qualified sources is required. In case distributors are used it must be ensured that the material is originating from an EMAP listed source. Distributors are required to provide original mill source COC and test reports.

2.8 Nondestructive Test (NDT) Procedure / Technique Submittal Requirements

Supplier shall review the purchase order and associated drawings/drawing notes and related documents to determine if NDT procedures and/ or technique submittal is required. Submittal to and approval of NDT general procedures and part-specific techniques by Fokker and its customer is



required prior to performing NDT. After initial approval, any changes to subject documents must be resubmitted to Fokker for approval.

Suppliers using outside sources for NDT shall ensure that the selected NDT sub-tier has approval of Fokker and its customer for the NDT procedure/technique used.

On-site validation of procedures/techniques to verify specification compliance may be performed at the discretion of Fokker.

The detail instruction for NDT general procedures and part-specific technique submittals shall be obtained from Fokker.

2.9 Government QA Requirements

Supplier shall notify their local Defense Contract Management Agency (DCMA) office upon receipt of a contract that requires 'Government Source Inspection' or 'Government Source Surveillance', so that the level and frequency of support can be determined. Supplier shall provide a copy of the purchase order, drawings and other required data to the supporting DCMA office.

If the government representative/agency cannot be identified, notify Fokker immediately.



2.10 Corrective and Preventive Action

2.10a General

The supplier shall respond to all requests for corrective action within 30 days or on or before the requested response due date. The response must be submitted on the supplier's letterhead, unless otherwise directed by Fokker. Supplier shall maintain a documented system for determining root causes of documented defects and obtaining corrective action and preventive action both internally and from its sub tier suppliers. The supplier is accountable for effectiveness of corrective and preventive actions taken.

Fokker requests for corrective and preventive action will be issued to the supplier's representative by means of Supplier Corrective Action Request (SCAR)

2.10b Corrective Action Response Extensions

Fokker may grant the supplier an extension for their corrective action response on a case-by-case basis. Suppliers may formally request a time extension at least forty-eight (48) hours prior to the assigned corrective action response due date. Request must be in writing with adequate justification documenting the status of the investigation, revised corrective action completion dates and a listing of previous actions taken toward implementation of effective preventative action, as applicable.

2.10c Verification of Corrective Action (VCA)

Fokker retains the right to conduct corrective action verification at the supplier and/suppliers sub-tier supplier's facility to assess effectiveness of implemented corrective action.

Fokker may grant the supplier an extension for their VCA response on a case-by-case basis.

Note: Material currently undergoing corrective action investigation processing up to and including verification of corrective action shall not be shipped without the authorization of Fokker.

2.10d Variation Management and Key Characteristics

When Fokker drawing, specification, and/or purchase order, includes "key characteristic" requirements, the supplier shall employ a Process Variability Reduction/Statistical Process Control (VR/SPC) program compliant with AS9103, Variation Management of Key Characteristics. Statistical methods to establish, control and verify process capability and product characteristics on key processes affecting the products directly or indirectly will be used. For this purpose supplier shall identify the applicable Sources of variations. The supplier shall work towards achieving a Cpk of 1.33 or better on the applicable Measurements Plan features. VR/SPC related records shall be retained at supplier's facility and provided to Fokker upon request, for compliance/performance review.

The Supplier shall electronically submit records (Inspection results) in AIMS TDF or other agreed format via email for engineering designated Key Characteristics (KC) upon delivery of hardware. This also applies for any characteristic called out in part specific measurement plans provided as part of the engineering. Contact Fokker for the email address of the appropriate recipient of the data.

2.11 Foreign Object Debris/ Damage (FOD)

Supplier shall maintain good housekeeping and where applicable a Foreign Object Debris/Damage (FOD) prevention program, to preclude introduction of foreign objects into any deliverable item. Supplier shall employ appropriate housekeeping practices to assure timely removal of residue/debris generated during manufacturing operations or tasks. Supplier shall determine if sensitive areas that have a high probability for introduction of foreign objects should have special emphasis controls in place for the manufacturing environment.

2.12 Supplier Sub-tier Control

2.12a General

Supplier is responsible for ensuring the following:

- All items procured from its sub-tier suppliers conform to all requirements of the Fokker purchase order
- All applicable provisions of this document are flowed down to its sub-tier suppliers
- Specifying on their purchase order for special processes the latest process specification revisions.

2.12b Sub-tier supplier Quality System requirements

Sub-tier supplier quality systems shall comply with the applicable quality system level specified in Table 1.

If it is necessary to utilize a sub-tier supplier who does not have a compliant Quality Management system listed above, then the supplier shall incorporate the following sub-tier control management methods into their quality management system:

1. Supplier shall provide all raw material to sub-tier.
2. Supplier shall perform tool prove inspection, first article inspection and 100% inspection (receiving or source) of sub-tier's hardware.
3. Supplier shall be responsible for the special processing of the sub-tier's hardware.
4. Supplier shall not allow their sub-tier to off-load to another sub-tier without their documented approval

2.12c Outsourcing of Critical Items

Seller shall obtain approval from Fokker, in writing, when any KC, Interchangeable-Replaceable features, Fracture Critical features, Durability Critical features, Maintenance Critical features, Safety Critical features, Mission Abort Critical features, or changes affecting form, fit or function are to be subcontracted.

Production and inspection of critical parts requires qualification against 2ZZP00006 Control Of JSF Air Vehicle CriticalParts

2.13 Sampling

Supplier may use sampling plans, provided the sampling plans are in accordance with military or government standards such as ANSI Z1.4, Mil-Std-1916 or ARP9013.

2.14 Material / Process Requirements

Supplier shall maintain a copy of all suppliers procured raw material certifications, which must be readily retrievable and shall include material specification, dimension/ description, alloy and condition. The supplier shall maintain the original mill certification and any secondary independent test laboratory certification(s) if any additional process was done after original mill certification for procured metallic material that shall include physical properties, chemical analysis and lot number(s). In addition, material must meet any other contractual requirements as stated in the Purchase Order.

Supplier shall maintain copies of all subcontracted special processes. Supplier shall also obtain and maintain sub-tier supplier process certifications. No submittal is required unless specifically required per purchase order or other requirement herein. Supplier's material/ special process and sub-tier supplier/ processor certifications and test results shall be made available upon request.

When the supplier shows evidence that Fokker provided consigned material for use by the supplier, a material certification is not required.

All aluminum fabricated parts require 100% Conductivity Inspection after fabrication except Castings. Measurements shall be taken in a manner such that the entire part can be validated as conforming to the specific requirements. Use AMS2658 document to determine the required conductivity range. The AMS2658 document is available from the SAE International (<http://www.sae.org>).



Metallic Raw Material Suppliers/Distributors shall periodically validate selected physical and/or chemical properties documented on mill certification test reports (other than hardness and conductivity) in accordance with internally established requirements for all metallic raw materials. Such validation will be documented and retained for record purposes and will be provided to Fokker upon request.

2.15 Procurement of JSF specific materials and standard hardware

For procurement of JSF specific materials (as defined in JSF specific material specifications) the use of the Lockheed Martin EMAP-system (accessible via JDL) for selection of JSF qualified sources is required. In case distributors are used it must be ensured that the material is originating from an EMAP listed source. Distributors are required to provide original mill source COC and test reports.

When structural metallic or non-metallic materials (JSF-specific and industrial standard) used for Fracture Critical (traceable or non-traceable) parts and Maintenance Critical parts are listed in EMAP only those listed sources may be used.

Remark: For material substitution it is allowed to use 2ZZA05001 (AUTHORIZED MATERIAL SUBSTITUTIONS FOR USE ON F-35 JSF AIRCRAFT

Materials not used for critical parts and not defined in JSF specific material specifications (industrial standards like AMS, NAS, etc.) do not require use of JSF qualified sources (listed in EMAP).

For JSF specific standard hardware the Approved Manufacturer List for Standard Parts 2GNA00001 can be used for source selection. The list is not mandatory for identification and verification of approved sources.



SECTION 3 Commodity Specific requirements

The Requirements in this Section apply as indicated in Table 2.

Supplier Type	Applicable Exhibit B Section				
	3.1	3.2	3.3	3.4	3.5
Raw Materials	-	√	√	-	-
Metal Parts	√	√	√	√	√
Composite Parts	√	√	√	√	√
Non-metallic parts	√	√	√	√	√
Structural Assemblies	√	√	√	√	√
Special Processing	-	-	√	-	-
Tooling	-	-	-	-	√

Table 2: Specific Quality Requirements matrix per supplier type

3.1 First Article Inspection (FAI)

First Article Inspection (FAI) shall be performed per the requirements of AS9102*, "Aerospace First Article Inspection Requirement" prior to product acceptance and shipment. As per AS9102 FAI is to be performed on assemblies sub-assemblies, and detail parts including castings and forgings. The FAI requirements apply to organizations that are responsible for producing the design characteristics of the product. The FAI requirements do not apply to Standard Catalog Hardware or Deliverable Software.

The Supplier shall plan, initiate, and execute the FAI. Supplier shall inform Fokker when the First Article Inspection takes place at source. Supplier shall inform Fokker at least one week upfront of the need for First Article review.

The Supplier shall compile a FAI report including all relevant production/quality records, non-conformance reports, test reports, certificates etc. This FAI report shall be complete and available at First Article review.

The following optional fields in the AS9102 FAI Report Form 1 are considered mandatory: 4, 11, 12, 21, 22, 23 and 24. All Conditionally Required (CR) fields on FAI Report Forms 2 and 3 shall be completed. In addition, any FAI report form generated shall not contain open fields. To ensure each field of the FAI has been reviewed, the supplier shall mark all open or unused fields "N/A".

Where product does not meet the intent of "first production run", as defined within AS9102, First Article Inspection (FAI) FAI may be deferred until product manufactured meets the intent of "first production run", as defined within AS9102. In such instances, 100% of all product characteristics shall be inspected on the entire quantity of product prior to shipment to Fokker. Final decision whether a FAI is to be performed is at Fokker's discretion.

Configuration changes which affect the deliverable item's form, fit or function of major changes in supplier's manufacturing process shall require a new first article inspection to the extent necessitated by the change.

It is the responsibility of the supplier to coordinate and schedule Fokker First Article Inspection review as early during purchase order execution as practical. Production of deliverable items prior to Fokker acceptance of First Article will be at supplier's own risk.

First Article Inspection, or any absence thereof, shall not affect any obligation or liability of Supplier pursuant to the requirements of the Agreement including those specified in Exhibit-B.

A copy of the First Article Inspection Report shall be submitted as part of the shipping documentation.

In addition to Fokker First Article Inspection review the engineering drawing or Fokker's written instruction may require an Engineering First Article Evaluation. When required, supplier shall schedule

and support this requirement similar to first article inspection review. Directions of Engineering First Article Evaluation shall be obtained from Fokker.

Any Special Tooling used in the manufacture and/or as a media of inspection must be presented at this time for tool prove acceptance.

* Suppliers may obtain copies of the AS9102 Forms and the AS9102 Frequently Asked Questions information from <http://www.sae.org/iaqg/publications/faq9102.htm>.

3.2 Part Marking Requirements

Supplier shall mark all deliverable products as required by the purchase order, engineering drawing and manufacturing planning.

Unless otherwise stated in the engineering requirements, the Supplier shall apply the date of manufacture, date code(s) or other control identifier number (see examples below) to all deliverable hardware. Information must be applied adjacent to the hardware's identification markings and must be traceable to supplier's build documentation. Hardware produced in lots, batches, groups, etc., shall have traceable control information applied. When size of hardware, or supplier's automated stamping process, does not permit data application to individual hardware (such as standard parts), the information shall be similarly placed on bags, tags, or labels as applicable.

Examples of traceable information may include, but are not limited to:

- Date of Manufacture
- Serial Number
- Lot Number
- Control Number
- Heat Lot Number
- Final Inspection Date
- Batch Number
- Casting Number
- Work Order Number
- Non-conformance Number

Note: the revision level is not to be marked on the parts.

3.3 Special process Requirements

Process specifications called out in either Engineering drawings, other process specifications or purchase order, require Fokker approval when they are defined as "Special Process".

A special process is an operation performed on an Item where the operation is not readily inspectable subsequent to its conclusion. Special processes have verifiable controls inherent to the process i.e. heat treat, plating, nondestructive testing, etc.

The supplier shall ensure that the processing source for special processes, including those performed in house by the supplier, are approved prior to any processing of hardware and are listed on Northrop Grumman ASPL or Lockheed Martin QCS-001.

The NGC ASPL is available on Northrop Grumman OASIS website
(<https://oasisext.northropgrumman.com/sympreg/aspl/aspl.asp>)

The Lockheed Martin QCS-001 on the Lockheed Martin website
(<http://www.lockheedmartin.com/aeronautics/materialmanagement/quality/SupplierQualityManagementSystemQCS0.html>).

Suppliers shall validate this by reviewing the Approved Special Processors Lists whenever they get a new purchase order from Fokker or whenever they start to process a new lot of hardware.

Work instructions and/or planning for QCS-001 processes shall include, as a minimum, the applicable requirements in paragraph O incl. referenced Addendum of Lockheed Martin Appendix QJ .

For latest revision status see :

<http://www.lockheedmartin.com/aeronautics/materialmanagement/quality/QualityAppendices.html>

Special Processors are required to be accredited by Nadcap. A processor's approval will be determined based on Fokker review of the latest Nadcap audit report for those processors, product



audit and any delta audit as deemed necessary by Fokker. All costs associated with Nadcap accreditation are to be borne by the processor.

Fokker mandates Nadcap approval for the following process categories:

- Nondestructive Testing
- Heat Treating
- Material Testing Laboratories
- Chemical Processes
- Non-conventional Machining & Surface Enhancements
- Welding
- Composites.

When the Processor requires the use of outside sources for salt spray and tensile testing, Nadcap accredited laboratories shall be used. The Nadcap Approved Materials Test Laboratory list can be found on the PRI web site: <http://www.pri.sae.org> under Qualified Manufacturer List (QML) or eAuditnet.

Fokker reserves the right to validate Nadcap compliances to any processes that are unique to Fokker or outside the scope of normal industry practice and/or Nadcap general audit practice. In addition, if the supplier utilizes any external special process sources, this requirement must be flowed down to the processing sources.

Note1: Parts and/or assemblies processed to the required process specification revision level by an approved processor, but purchased and/or delivered after the process specification was revised or superseded are acceptable. Age-sensitive material (shelf life items) is precluded from this noted exception.

Note 2: Approved Special Processors Lists like the Northrop Grumman ASPL and Lockheed Martin QCS-001 are not applicable to standard hardware (nuts, bolts, washer, etc.) that is ordered to military, federal or industry specifications.

Listing in an Approves Special Processors List does not assure or imply that the work performed by the listed processor is acceptable, nor does it compel the listed processor to accept the work. It is the responsibility of the Supplier and/or the processor to review, perform, inspect and certify the processes specification as required by the purchase order. Since many specifications call out multiple alloys, grades, types, classifications and conditions for materials, it is also the supplier and/or the processor's responsibility to assure that the processors are approved prior to any actual processing. Any departure from specification requirement requires the prior written approval of Fokker.

The processors listed on the Approved Special Processors Lists shall also comply with requirements such as submission of test coupon, written approval of the processor's detail procedure, use of specific chemicals and/or concentration, and witnessing of first part processing, when required by the process specification.

3.4 Manufacturing Plan Submittal

Parts designated or described as Fracture Critical Non Traceable, Fracture Critical Traceable, Fatigue Critical, Durability Critical, Maintenance Critical, Safety Critical, or any other F-35 Parts requiring manufacturing plan approval by engineering drawings, specifications or purchase order, require submittal of the manufacturing plan to Fokker at least thirty (30) days prior to start of production. F-35 Durability Critical parts are exempt unless required by the engineering. The manufacturing plan shall contain sequential fabrication, processing, processor name and inspection steps in the order required by the applicable process specification(s) and/or engineering drawing(s).

Upon approval of supplier's manufacturing plan, the supplier shall control all manufacturing, processing, testing and inspections as stated in the approved plan. No deviations, including the selection of supplier's sub-tier suppliers/processes, is permitted without Fokker prior knowledge and written authorization.



Manufacturing of product is not permitted until Supplier has received Fokker approvals. Manufacturing plan can be approved without NDT technique approval in which case manufacturing of parts is allowed up to a point for NDT.

3.5 Tooling Requirements

The Supplier Tooling Manual delineates requirements for suppliers who have purchase orders that require manufacture, rework or use of Special Tooling (ST) and Special Test Equipment (STE). These requirements are applicable to all Fokker ST and STE fabricated and/or used in the manufacture of deliverable end items, unless specifically stated otherwise on the purchase order. Supplier shall flow down requirements identified in these manuals to their sub-tier suppliers that fabricate or design tooling on their behalf. Copies of the Supplier Tooling Manual and of other manuals shall be obtained from Fokker. At a minimum, Special Tooling (supplier manufactured or Fokker furnished) used as a media of inspection must be delineated in Supplier's manufacturing plan at the applicable operation/sequence where the inspection occurs. Inspection media tooling must be controlled as part of Supplier's "Periodic or Calibration" system prior to use in production. Periodic tool inspection detailed requirements are covered in the Supplier Tooling Manual.

Approved:
Eelco Houkes,
Manager Quality procurement