



# PROGRAM DOCUMENT

**PD2101 REV. F**

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AEROSPACE QUALITY ASSURANCE, PRODUCT STANDARDS,  
QUALIFICATION PROCEDURE, FLUID DISTRIBUTION SYSTEMS

## 0. INTRODUCTION

It is essential that products defined by Industry Standards conform with the requirements of these Standards, and that the quality of the products be consistently maintained. To this effect an Industry consensus-based Performance Review Institute (PRI) qualification system has been established. The qualification system is based on:

- The approval of the manufacturer's quality system, and of the fabrication system
- The qualification of the product according to the procedure defined in this standard and in the procurement standard.

## 1. SCOPE

This Program Document (PD) prescribes the qualification procedure for aerospace product standards as adhered to by the SAE G-3 Qualified Products Group (QPG) for Fluid Systems Standards.

## 2. REFERENCES

AS9100 Production,	Quality Systems – Aerospace – Model for Quality Assurance in Design, Development, Installation and Servicing
AS7003	Nadcap Program Requirements
AC7104	Nadcap Requirements for Accreditation of Full Distributors
AC7004	Nadcap Audit Criteria for Inspection and Test Quality System
AC7112	Nadcap Fluid System Components Manufacturers Audit Criteria
AC7123	Nadcap Accreditation Program Requirements for Value Added Hose Assembly Distributors (upon release of the document)
EN3042	Aerospace Series, Quality Assurance, EN Aerospace Products, Qualification Procedure
PRI PD2000	Procedures for an Industry Qualified Product Management Process

PRI operating procedures provide that "This report is published by PRI to advance the state of technical, engineering, and quality sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising there from, is the sole responsibility of the user."

PRI invites your written comments and suggestions.

ISO 17025 General Requirements of the Competence of Calibration and Testing Laboratories

FAA AC00-56 Voluntary Industry Distributor Accreditation Program

### 3. DEFINITIONS

#### 3.1 Nadcap Qualified Manufacturer, Fluid System Standard Components:

##### 3.1.1 Nadcap Qualified Manufacturer

A Nadcap qualified fluid system components manufacturer is one who holds a PRI certificate for being accredited to AC7112 and is in compliance with AS9100. Qualified manufacturers are listed in the PRI Qualified Manufacturer List (QML) located at [www.eauditnet.com](http://www.eauditnet.com).

##### 3.1.2 Nadcap Qualified Value Added Distributor

A Nadcap qualified value added distributor (VAD) is a manufacturer who holds a certificate of accreditation to AC7123, and who is in compliance with AS9100 or AC7104 or AC7004 or is a manufacturer who meets the Nadcap Qualified Manufacturer criteria listed in paragraph 3.1.1 and is accredited to AC7112/4.

#### 3.2 Mandated Body:

A mandated body is one designated by the PRI Qualified Product Management Council (QPMC) in accordance with PRI PD2000. This body is responsible for assessing whether a manufacturer's products comply with the relevant standards. The Mandated Body is known as Qualified Products Group (QPG) and is composed of members from the Original Equipment Manufacturers (OEMs) and Government Agencies. The PRI-QPMC has mandated a Fluid System Standard QPG for Aerospace Couplings, Fittings, Hose, Hose Assemblies, Tubing, and Clamps.

#### 3.3 Product Qualification

##### 3.3.1 Qualified Manufacturers List (QML)

A Qualified Manufacturers List is a document, issued by Nadcap-PRI, which lists manufacturers verified to be in compliance to the following specifications:

\*Original Component Manufacturers (OCM) to be in compliance with AS9100 and accredited to AC7112 and applicable slash sections of AC7112

\*Value Added Distributors to be in compliance with AS9100 or AC7104 or AC7004 and accredited to AC7123 or are manufacturers who meet the Nadcap Qualified Manufacturer criteria listed in paragraph 3.1.1 and are accredited to AC7112/4. Standard parts which require QML shall be sold only by manufacturers and distributors that are listed as Nadcap-PRI approved to the governing specification. An example is shown in Appendix A. Note: This does not apply to Department of Defence procurement.

##### 3.3.2 Qualified Products List (QPL):

A Qualified Products List is a document, issued by PRI, which lists products that have passed the test requirements in the applicable procurement standard that requires product qualification. Currently the QPL is in an electronic format, housed at [www.eauditnet.com](http://www.eauditnet.com) under Online QPL.

#### 3.4 Original Equipment Manufacturer (OEM):

An Original Equipment Manufacturer is a manufacturer of an end item "system" such as airframe or engine.

#### 3.5 Original Component Manufacturer (OCM):

The OCM as the actual producer of the component typically performs fabrication of the component as defined by the specification, and its assembly into the final product (tube, fittings, couplings, hose assemblies, ducts, and clamps). The OCM is responsible for the components meeting the design, performance, quality, and reliability requirements when assembled as tested during qualification. The OCM shall have access to the necessary infrastructure to support assembly, performance, quality, and reliability responsibilities. This infrastructure

includes, but is not limited to: a technical department (with a quality system that has or verifies materials/metallurgical capability, drafting capability, the capability to trouble shoot products and processes), a quality department, assembly facilities (for the components the OCM is qualified to produce) and the ability to conduct/oversee qualification testing. The OCM designation is required on the product.

### 3.6 Subtier Contractor:

Subtier contractors shall manufacture products under the supervision of an OCM. Subtiers are required to have a manufacturing system and a verifiable quality systems in place under direction of the OCM. The OCM shall flow down the manufacturing and qualification requirements of the subtier contractor. Subtier contractors shall meet those requirements as verified by their respective quality systems.

### 3.7 User:

A user is an OEM, a government agency or an organization which purchases and uses the products either by partial or complete assembly.

### 3.8 Second Party Verification Testing:

3.8.1 Second Party Verification Testing may be used to complete qualification test and inspection by OEM-user(s) to verify an OCM's qualification tests.

3.8.2 An alternate to complete requalification may be verified by conducting selected qualification tests, selected from the applicable specification as defined by the QPG.

### 3.9 Third Party Verification Testing:

Third Party Verification Testing is the complete (3.8.1) or partial (3.8.2) qualification testing and inspection by independent ISO 17025 certified laboratories with a specialty for testing fluid systems parts to verify or conduct an OCM's qualification tests.

### 3.10 Standards Development Organization (SDO):

Standards Development Organization (SDO) is an industry, non-profit organization or government agency which develops and prepares systems or component standards. This may include detail design or performance.

### 3.11 Pass-Through Distributor:

This pass-through distributor may not make changes to the product; or manufacture, assemble or alter its components. The pass-through distributor may not alter the documentation provided by the original component manufacturer.

Note: For Commercial Aviation, not DoD procurement – FAA AC 00-56 covers SAE and other accreditation programs for distributors.

### 3.12 Value Added Distributor, Hose Assemblies:

Value Added Distributors (VAD) are designated and monitored by formal agreement by an Original Component Manufacturer (OCM) and accredited to AC7123 with an approved quality system to AS9100 or AC7104 or AC7004 or are manufacturers who meet the Nadcap Qualified Manufacturer criteria listed in paragraph 3.1.1 and are number on the system. The requirements, be approved by requirements, calibration requirements, and training requirements must all be described in controlled, written documents.

or are manufacturers who meet the Nadcap Qualified Manufacturer criteria listed in paragraph 3.1.1 and are number on the system. The requirements, be approved by requirements, calibration requirements, and training requirements must all be described in controlled, written documents.

Note: Distributors that do not have authorization by the OCM shall request qualification as Original Component Manufacturer.

- 3.13 Bulk Hose**  
Hose as fabricated, consisting of outer enforcement to hold pressure and an inner tube to hold system fluid.
- 3.14 Hose Fitting**  
May be straight or angular, designed to connect with and establish a seal with hose inner tube on one side and mating components on the other, and to establish a structural connection with the outer reinforcement to hold axial loads.
- 3.15 Fitting attachment method**  
Fitting attachment method may be separable, using threaded fitting components that clamp and seal the hose by torquing the components together; or may be permanent, using a crimping or swaging process. Most common in commercial aviation are the permanent hose fitting connections.
- 3.16 Hose Assembly, Qualification**  
Hose assemblies are created by installing hose fittings (inserts, sockets) on lengths of hose and that have been cut from bulk hose. The design, assembly method of hose and fitting are verified by showing compliance with material and functional requirements in the AS- procurement specification and AS- part standards or part drawings.
- 3.17 Acronyms:**
- |       |   |
|-------|---|
| DoD   | Department of Defense                         |
| FDSTG | Nadcap Fluid Distribution System Task Group   |
| GIDEP | Government and Industry Data Exchange Program |
| OCM   | Original Component Manufacturer               |
| OEM   | Original Equipment Manufacturer               |
| PD    | Program Document                              |
| PRI   | Performance Research Institute                |
| QML   | Qualified Manufacturers List                  |
| QPG   | Qualified Products Group                      |
| QPL   | Qualified Products List                       |
| QPMC  | Qualified Product Management Council          |
| SDO   | Standard Developing Organization              |
| VAD   | Value Added Distributor                       |

## 4. PROCEDURES

### 4.1 Compliance with PRI PD2000:

The procedures followed by the Qualified Products Group (QPG) shall be in compliance with PRI PD2000.

### 4.2 Request for Qualified Product List and Qualified Manufacturer List:

#### 4.2.1 Requirements for Qualified Product List (QPL):

The OCM seeking product qualification shall send a request for approval to PRI. The OCM shall describe the products to be qualified and identify the type of qualification that will be following, Grandfathering or New Qualification.

For a Grandfathering qualification in which the product is adopted from an existing OEM or Military QPL, the OCM must submit official correspondence or approval letters relating to the qualification, a copy of the existing QPL and the associated qualification test reports and product drawings. The QPG may obtain the OEM verification of qualification if the QPL document is OEM proprietary.

For a New qualification, the OCM must submit a qualification test plan stating when and where the qualification testing is to be performed (See App. B. Qualification Check List). When test plans are submitted, the OCM shall specifically request approval of the qualification test program, and of the place and facilities proposed to conduct this program. The products tested shall be manufactured by the applicant OCM according to the same manufacturing and inspection requirements that will be applied for production.



Table 1 (Cont) Types of QPL and QML *)	
5	Flexible Ducts Qualification testing in largest and selected sizes for all materials and material conditions. Part reliability depends on process controls, not end item inspectable. Periodic control tests required.
6 (QPL, QML)	Hose Assemblies (AC7112/1 for hose, AC7112/2 for fittings and hose fittings, AC7112/4 for assemblies) Qualification testing in all sizes and materials and material conditions. Part reliability depends on process controls, not end item inspectable. Sampling and periodic control tests required.
7 (QPL, QML)	Titanium hydraulic tubing (AC7112/6) Qualification in all sizes and material condition, Part reliability depends on process control and inspection. Periodic control testing at discretion of user.

\*) PRI QML/QPL is to be required for system components where malfunction can impair flight safety or cause unscheduled delays of flight, example flareless fittings.

The request for product approval shall be directed to:  
 Performance Review Institute (PRI)  
 161 Thorn Hill Road  
 Warrendale, PA 15086  
 Attention: PRI-QPL Processing Coordinator

**4.2.2 Requirements for Qualified Manufacturer List (QML):**

The request for approval to AC7112/{applicable section(s)} or AC7123 as applicable shall be forwarded to Nadcap-PRI. It shall be accompanied by:

- a. Evidence of compliance with AS9100 or AC7104 or AC7004, as applicable. This includes subtier contractors for special processes requiring Nadcap accreditation.
- b. A general description of the company (organization, products manufactured, manpower, facilities); complete street address of the plant at which the product is being manufactured and CAGE code if available;
- c. The list of approvals or qualifications that have been granted by OEMs or Government Services for the product or similar products; or status of evaluation for such approvals if under way, and time to completion;
- d. Evidence of flowdown of quality requirements classified as major in specifications or standards when machining, manufacturing, or process operations are subcontracted by the OCM;
- e. Evidence of flowdown of OCM quality requirements to subtiers where deemed necessary by the OCM. The quality system shall include, as a minimum, material traceability and work instructions. If performed at the subtier contractor the OCM shall flowdown requirements for tool certification and calibration. The OCM is responsible for implementation of SPC at the subtier contractor for processes or operations that are controlled by SPC.

Notes:

- (1) Manufacturer approval of OCMs to AS9100 and AC7112, and VADS to AS9100 or AC7104 or AC7004 and AC7123 or 7112/4; and listing in the Nadcap QML is the pre-requisite for listing in PRI-QPL. See Appendix A.
- (2) The process for manufacturer approval is illustrated in Appendix C.
- (3) In the event that the OCM uses subtier contractors for machining of fittings, hose fittings, couplings, formed sheet metal components or other machined components that do not have AS9100, AC7112, AC7112/2 or AC7112/3 accreditation the OCM shall implement compliance with applicable requirements of AS9100, AC7112, AC7112/2 or AC7112/3. This is to include on-site annual audits by the OCM.

**4.3 Requirements of Value Added Distributor Approval:**

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The request for listing in the PRI-QPL shall be forwarded to PRI. Value Added Distributors (VAD) for hose assemblies shall have a Nadcap-PRI certification for AC7123 or shall be a manufacturer who meets the Nadcap Qualified Manufacturer criteria listed in paragraph 3.1.1 and is accredited to AC7112/4. Request for approval to fabricate hose assemblies shall also include a test report on successful completion of proof, leakage, and burst tests for each size and type of hose. The report shall show that distributor test results are the same or similar to OCM test results.

#### **4.4 PRI Preliminary Review of Product Approval Request:**

Upon receipt and review of data required under 4.2.1, 4.2.2 and 4.3, PRI shall forward the request to the Mandated Body, the QPG.

#### **4.5 QPG Review:**

##### **4.5.1 Review of Request for Product Approval and Test Plan:**

The OCM's request for product approval shall be evaluated and replied to by the QPG, through PRI, within thirty working days. The reply shall include a statement in the event that manufacturing and process controls are found to be inadequate. The reply shall also include details regarding second party or third party verification testing, or witnessing of the Original Component Manufacturer's test laboratory by QPG. Second party or partial third party verification testing shall be planned to be concurrent with the manufacturer's test, for simultaneous completion.

##### **4.5.2 Review of Requests for Grandfathering of Military or OEM QPLs:**

For grandfathering of military QPLs or OEM-user QPLs the QPG shall determine adequacy of second or third party accreditation and request additional testing if required. Grandfathering shall be limited to a specific period of time, as decided by the QPG. After this time the QPG shall decide whether commitments regarding QML, drawing and Test report improvements have been sufficient to continue QPL approval. Approval maintenance shall be based on periodic inspections or audits, and on periodic control tests as may be specified.

Note: The process for qualified part approval is illustrated in Appendix B.

#### **4.6 Manufacturer Support of QPG Evaluation:**

##### **4.6.1 Access to Background Material:**

The QPG shall have access to the manufacturing and inspection requirements of the concerned products to evaluate them. It shall also have access to the record of the inspections carried out at the appropriate state of manufacture.

#### **4.7 Test Verification:**

##### **4.7.1 Second Party Testing:**

The QPG reserves the right to request specimens and to perform verification tests or partial qualification tests. Second party verification shall be conducted simultaneous with the OCM's qualification tests, unless they are conducted to investigate a failure or irregularity that occurred during the OCM's tests. The OCM may witness OEM verification tests.

##### **4.7.2 Second Party Witnessing of Tests**

The QPG reserves the right to witness all or any portion of the OCM qualification tests in the OCM own or contracted laboratory. PRI shall provide a witness within three weeks from notification of tests by the OCM. Witnessing may be conducted by a QPG member, a designated QPG representative, or a PRI-Nadcap auditor, per Appendix E.

#### **4.8 Qualification Test Report:**

At the end of the qualification test program, the OCM shall prepare a detailed report. The report shall contain the obtained test results and verification data such as inspection records and the manufacturer's drawing package defining the configuration of the qualified product. This report shall be submitted to the PRI Office for review and approval by the QPG.

Note: The OCM shall submit and identify drawings, bill of materials, operations, and process controls in the fabrication of specimens that were qualification tested. A list of the OCM's control documents showing number, title and revision letter shall be included in the report. Changes in these controls shall be in accordance with 4.15.

#### 4.9 QPG Response:

After submission of the test report, the QPG shall write a disposition within forty-five (45) working days, and forward it to PRI. This disposition shall include a statement as to whether the results are acceptable. Corrective actions may be requested where necessary. This disposition shall be forwarded to the PRI Office for review by QPMC, where requested.

#### 4.10 Notification of PRI-QPG Approval:

The PRI-Office shall advise the OCM of successful completion of the approval process and of the pending Qualified Product Listing.

#### 4.11 QPMC Approval:

When necessary, the QPMC shall review the QPG report and recommendation. In the absence of a request by the QPMC for review of the QPG report, the QPG report shall be final, and PRI shall grant the approval for the products concerned on behalf of the QPMC, unless basic PRI PD2000 criteria have not been complied with. When granted, approval shall be forwarded to the applicant OCM by PRI. It shall contain the following information:

- a. Reference of the SDO standards defining the products;
- b. Name of the OCM and place of manufacture;
- c. Product designation;
- d. Date of the approval.

Notes:

(1) OEM Authority

The OEM-user shall acknowledge whether the organization which granted qualification and the rules which they conformed, are satisfactory, taking into account contractual commitments and/or legal obligations.

(2) Supplier Responsibility

Inclusion of a product on the QPL does not relieve the OCM or their VADs of contractual obligations to deliver products that comply with all specification requirements.

(3) Responsibility for Quality Assurance

Inclusion of a product on the QPL does not constitute a waiver of any requirement for inspection, for process control, or for maintenance of quality control procedures during production. It also does not in any way relieve the OEM-user of the regulatory obligation to ensure that the delivered products comply with the specification requirements.

#### 4.12 QPL and QML Approval

Following successful completion of the PRI-QPL process and/or Nadcap-QML process, an approval letter shall be forwarded to OCM. PRI shall update the QPL/QML within five (5) working days of notification of successful qualification approved by the QPG or Nadcap Task Group.

4.12.1 PRI-QPL listing authorizes the OCM to identify parts with the AS-standard or MS-number as specified within the standard. OCMs suspended or not listed in the applicable QPL shall not use the AS part numbers governed by the QPL, or imply or advertise that their parts are in accordance with, or comply with the procurement

specification for the QPL. Any violations of marking, advertising, or representation may be subject to legal actions.

#### 4.13 Validity Period of Qualification; and Periodic Control

The Product Qualification shall be valid for the period of the Nadcap Manufacturer Accreditation, as determined by the QPG. Within three months before the end of the Nadcap validity period, Nadcap-PRI shall (at the place of manufacture) verify by audit that the manufacturing process has not been modified in a way that might affect the performance of the product. A report shall be prepared by PRI and submitted to the QPG verifying compliance by OCM's with AC7112, applicable AC7112 slash sheets, and AS9100, or with AC7112, AC7112/4, and AS9100 if the OCM is also a VAD, or verifying compliance by other VAD's to AC7123 and AS9100 or AC7104 or AC7004. After examination of the report, the QPG shall decide whether or not the qualification can be renewed for an additional period. The Product Qualification shall be automatically extended until the audit review is complete, to a period not to exceed ninety days. Disagreements and appeals shall be conducted in accordance with PRI PD2000.

Notes, Periodic testing of hose assemblies:

- (1) In order to retain hose assembly qualification, the OCM and value added distributors must provide PRI with an annual report on total products, and on sampling testing for each of the approved assembly locations. The report will also include the quantity of assemblies in each test lot and the quantity that passed or failed from each manufacturing location. Value-Added distributor reports may be separate from the OCM reports, but shall be confirmed by the OCM. The report will list for each specification and size (example AS1339-04) the total quantity of hose assemblies produced. The report will also include the quantity of assemblies in each test lot and the quantity that passed or failed from each manufacturing location. In order to retain hose qualification the OCM must provide PRI with an annual report on manufacturing lot production and on periodic testing for bulk hose production. Each OCM shall submit a report on the total bulk hose produced and on the periodic control testing of the bulk hose. Value-Added distributors are not required to do periodic control testing, they shall conduct sampling tests as required by applicable hose specification. The report will list for each specification and size (example AS1339-04) the total quantity produced, including product sold to OCM or user. The VAD sampling test reports may be separate from the OCM reports, but shall be confirmed by the OCM.
- (2) Tests shall be conducted as required by specification. Periodic control and sampling test samples shall be fabricated by production personnel using standard production processes.
- (3) The QPG shall designate the beginning and end of the annual reporting period, and the manufacturer must submit the report to PRI within thirty (30) calendar days of the end of the reporting period. The QPG will review the reports on a periodic basis to ensure testing conformance. PRI reserves the right to issue Supplier Advisory Notifications, initiate notifications to immediately remove the manufacturer of value added distributors from the applicable QPL if the annual retention of qualification report is not received by PRI within the designated period. PRI will notify manufacturers and/or Value-Added distributor(s) within five (5) working days of direction by the QPG if manufactures and/or Value-Added distributor(s) will be removed from the QPL and the QPL will be updated in the same time frame. The notice will be mailed to the manufacturer and/or Value-Added distributor(s) with a delivery receipt by email. Periodic counts shall be maintained by the OCM.
- (4) The OCM shall assume all responsibility to ensure that all products produced at the VADs location(s) meets all specification requirements.
- (5) Counts for determining when to perform sampling testing must be maintained separately for each OCM and value added distributor location. Periodic counts shall be maintained by the OCM.
- (6) In the event of no production: Unless otherwise specified, sampling and periodic control testing shall be in accordance with the procurement standard. No sampling or periodic testing is required for a specific size if there has been no production for that size in the reporting period. If there has been no production for a period of three years or longer at any location, sampling tests (two items for each sampling test) shall be completed with items from the first production lot when production is resumed for the applicable size at the applicable location.
- (7) Sampling and Periodic Control Tests – Limited Production: Unless otherwise specified, sampling and periodic control testing shall be in accordance with the procurement specification. In the case where there has been limited production, and the specification limit for the applicable Sampling or Periodic Control Tests has not been reached within a three year period since the last Sampling or Periodic test, the required Sampling or Periodic Control Tests shall be performed using the small lot test sample quantities as specified

in the procurement specification within 30 calendar days of the end of the three year period. This requirement applies, separately, to each OCM and Value Added Distributor facility, as applicable.

- (8) The OCM is responsible for performing a quality system audit at value added distributor location, including an audit to determine compliance to applicable specifications, at a minimum frequency of once per year. If a Value Added Distributor is AS9100 approved, OCM annual Quality Audits are not required.
- (9) In addition to the OCM required marking, each Value Added Distributor shall mark their assemblies with a unique identifier. OCM's shall specify and control the unique identifiers, the size and location of the mark, and the method of marking.
- (10) Hose assembly count for sampling tests and length measurement for periodic testing shall be based on total production to hose fabricated to AS-specifications and as used in standard parts as well as non-standard parts.

#### **4.14 In-Service and Fabrication Problem Reporting**

##### **4.14.1 Problem Reporting, General**

Users, OCMs, and distributors of products shall report all sampling and periodic test failures, failures in service, and escapement of non-conforming products in writing to PRI within 48 hours. It is noted that a report due on a Saturday or Sunday may be delivered on the following Monday and one that is due on a holiday may be delivered on the next workday. The QPG shall decide within the initial forty eight (48) hour period of notification by PRI on the next course of action associated with the failure. The OCM shall advise PRI whether the problem occurred in one or more fabrication sites. Failure at any location may indicate problems at all locations. In case the failure or problem report originated at a user, PRI shall also notify the OCM of the problem. The OCM shall be required to respond to the notification in writing within five (5) working days of receipt of PRI Supplier Advisory Notification. While the OCM is evaluating a failure analysis and corrective action, the OCM must submit a written update at least once every two weeks informing PRI of the status of the investigation. In case of repetitive complaints from users to PRI on the performance of a qualified product, the QPG shall request an audit at the place of manufacturer.

##### **4.14.2 PRI Actions**

After consideration of the corrective actions and audit report, PRI shall notify the OCM of the decision taken. PRI reserves the right to issue Supplier Advisory Notifications, or immediately remove the OCM or value added distributors from the applicable QPL when a product failure is reported. PRI also reserves the same rights and actions if it is discovered that an OCM or value added distributor has not reported failures to PRI within the forty eight (48) hours requirements. PRI shall notify OCMs within five (5) working days of direction by the QPG if OCMs will be removed from the QPL and the QPL will be updated in the same time. The notice will be mailed to the OCM with a delivery receipt.

#### **4.15 Manufacturer Process Changes to be Reported to PRI**

The OCM shall:

- a. Inform PRI in writing of any proposed change in the quality system which might affect the granted approval;
- b. Inform PRI in writing of any evolution in the company situation (change of address, merger, take-over, change in operations, place change, strike, plant closure, natural disaster, etc.) which might affect the product. In such an event, the OCM must submit status reports at least every two weeks until all open actions associated with the event have been resolved.
- c. Request approval from PRI in writing for any proposed modification in product design, equipment, tooling, materials, processing, and manufacturing with a notation whether the change is Class 1. All Class 1 changes require a substantiation of the effects of the change on form, fit, function, reliability, weight, structural strength, or the ability of the part to meet any requirements of the standard. Details, including pre- and post-change engineering and manufacturing documents shall be provided to PRI with the change proposal. Class 1 changes require PRI approval prior to implementation. PRI will respond to a request for a Class 1 change within thirty (30) calendar days.
- d. Notification to PRI in writing for any proposed modification in product design, equipment, tooling, materials, processing, and manufacturing with a notation whether the change is Class 2. All Class 2 changes require a substantiation of the effects of the change on form, fit, function, reliability, weight, structural strength, or the

ability of the part to meet any requirements of the standard. Details, including pre- and post-change engineering and manufacturing documents shall be provided to PRI with the change notification. Class 2 notifications of change do not require PRI-QPG approval. In the event of questions or objections the PRI-QPG may respond within 30 calendar days of notification.

- e. PRI must be advised in writing of the intended date of the change and the OCM must submit written updates of the status of the change until the change is fully implemented. PRI approval of proposed changes after qualification does not relieve the OCM of responsibility associated with the product(s). Proposed changes shall be brought to the attention of PRI at least thirty (30) working days prior to the proposed change implementation date.
- f. PRI reserves the right to require Supplier Advisory Notifications, or immediately remove the OCM or VAD from the applicable QPL if it is discovered that a OCM or VAD has not reported changes and has not had the changes approved per 4.15.c above. PRI will notify the OCM within five (5) working days of direction by the QPG if the OCM will be removed from the QPL and the QPL will be updated in the same time frame. The notice shall be mailed to the OCM with a delivery receipt or by email with a read receipt.

#### 4.16 Change Classes

- 4.16.1 A Class 1 change is a change that could potentially affect the form, fit, function, or interchangeability of a PRI QPL item. A supplier shall inform PRI, in writing and supply associated justification and test results to PRI. PRI shall provide within thirty days a written approval to the supplier before the supplier may implement the change. The supplier shall maintain a documented record of the response from PRI.

Examples: Hose Assemblies – Change of wire (material, size, or source) in braided hydraulic hose. Flareless Fittings – Change of manufacturing method for aluminum fitting elbows, tees, crosses (plate vs. forging, new forging manufacturer) forgings.

- 4.16.2 A Class 2 change is any change that does not meet the criteria of a Class 1 or Class 3 change. A Class 2 change must be reported in writing to PRI within 15 calendar days of implementation. The QPL will have 30 days to respond if there is a disagreement with the Class 2 change notification. PRI will not provide a written approval for Class 2 changes. The supplier shall maintain a record of all Class 2 changes submitted to PRI.

- 4.16.3 A Class 3 change is a change made for editorial or administrative changes; or in machining processes except for threads and seal areas. Editorial/administrative changes of this type include, but are not limited to changes for typing, spelling, grammar, format or other similar types of changes. Machining processes and items of this type include but are not limited to cutter materials, cutting fluids or similar. Changes of this type do not need to be reported to PRI and do not need PRI approval prior to implementation.

Examples: Drawing changes from canceled Military specification numbers to replacing MIL-DTL-or Industry Specification numbers. Change in machine-tools from single- to six spindle lathes.

#### 4.17 PRI Confidentiality Requirement

- 4.17.1 All information provided to PRI shall be treated in accordance with the confidentiality requirements of PRI. Operating procedures are in place within PRI to handle and protect all proprietary and company confidential information that is furnished by all manufacturing sources, or potential sources, for a QPL. This includes all second party or other persons acting for PRI.

- 4.17.2 Examples of proprietary data include raw qualification data, travelers, cost and yield information, procedures, PRI audit results, design techniques and guidelines, etc. Examples of non-proprietary information include QMLs and QPLs.

- 4.17.3 All QPL test data released outside PRI shall be stamped/marked/identified "Proprietary" before being released to QPL members. A record shall be kept indicating the material sent, date sent, why it was sent, and to whom it was sent.

- 4.17.4 A QPG members receiving such proprietary information agree that they shall not use such proprietary information, except in connection with PRI or QPG related transactions with the party disclosing such proprietary information. QPG members shall handle this proprietary information in accordance with PRI operating procedures. They shall

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not disclose such proprietary information to anyone else, either within or external to their company, without written authorization, and documentation, of the release by PRI.

**5. APPENDICES**

**5.1 Appendix A – Qualified Manufacturers List**

**5.2 Appendix B – Approval for QPL, Flow**

**5.3 Appendix C – Approval for QML, Flow**

**5.4 Appendix D – Witnessing of Tests**

Prepared by the PRI Qualified Product Group of Committee SAE G-3;  
Aerospace Couplings, Fittings, Hose and Tube Assemblies

APPENDIX A  
Qualified Manufacturers List

1.1 AC7112/2FITTINGS AND OTHER MACHINED COMPONENTS

**Details/History**

**Eaton Aerospace - Burbank**  
Formerly Sierracin/Harrison  
3020 Empire Avenue  
Burbank, CA 91504  
United States  
Phone: 818-842-2131  
Fax: 818-842-6042

**FLU (Fluid Distribution Systems)**

**Expires: 01-31-2007**  
**Issued: 01-31-2006**

- ▶ AC7112 - Nadcap Fluids Systems Manufacturers Audit Criteria
- ▶ AC7112/2 - Nadcap Audit Criteria for Fittings and Other Machined Components
  - ▶ AS4841
  - ▶ AS85421
  - ▶ AS4459
  - ▶ AS4875/1
  - ▶ AS18280

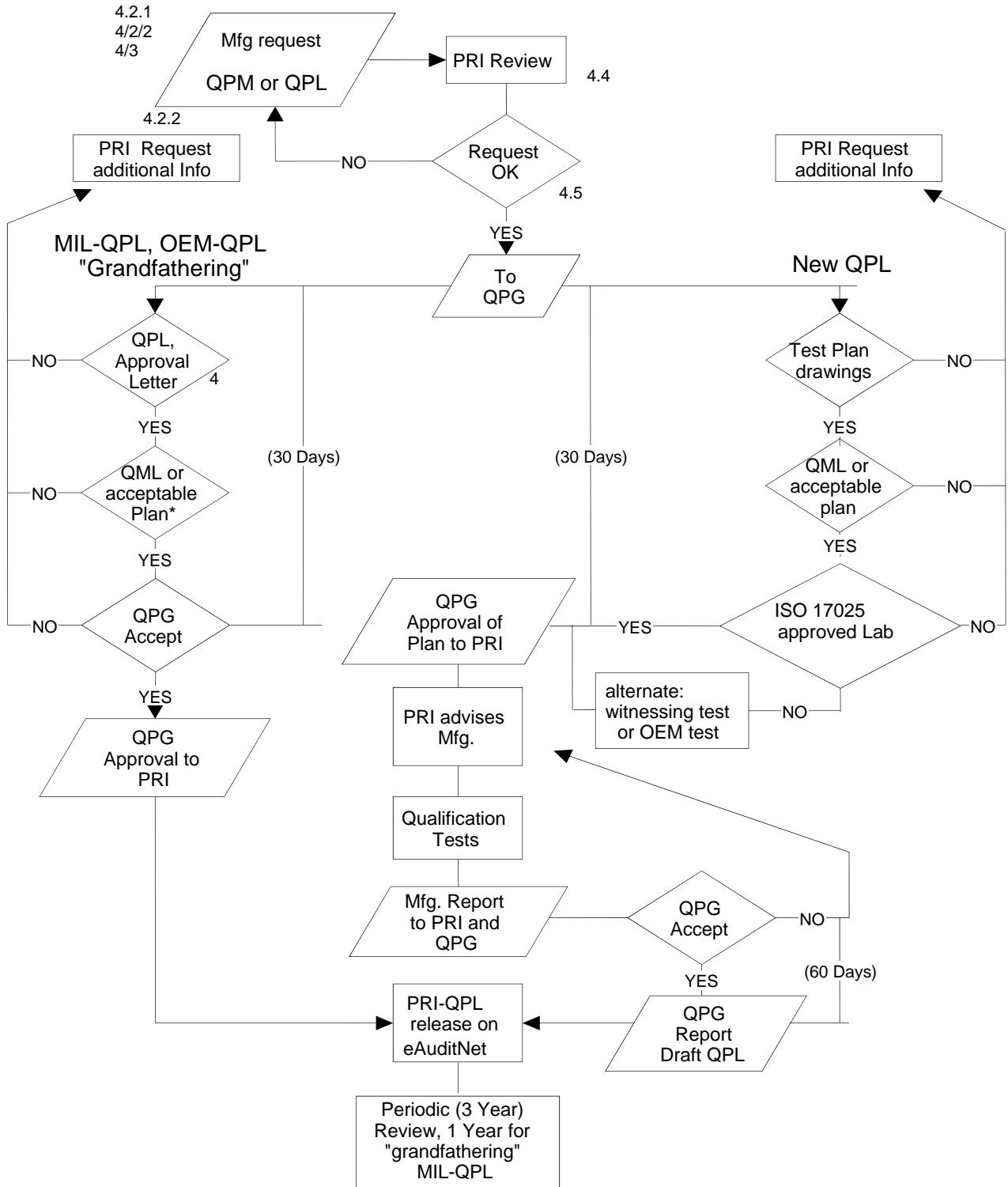
**Expired: 01-31-2006** Supplier has received **merit** for this accreditation  
**Issued: 07-14-2004**

- ▶ AC7112 - Nadcap Fluids Systems Manufacturers Audit Criteria
- ▶ AC7112/2 - Nadcap Audit Criteria for Fittings and Other Machined Components
  - ▶ AS4841
  - ▶ AS85421
  - ▶ AS4459
  - ▶ AS4875/1
  - ▶ AS18280

1.2

APPENDIX B

### PRI - QPL, Approval Process PRI Qualified Parts Group (QPL)



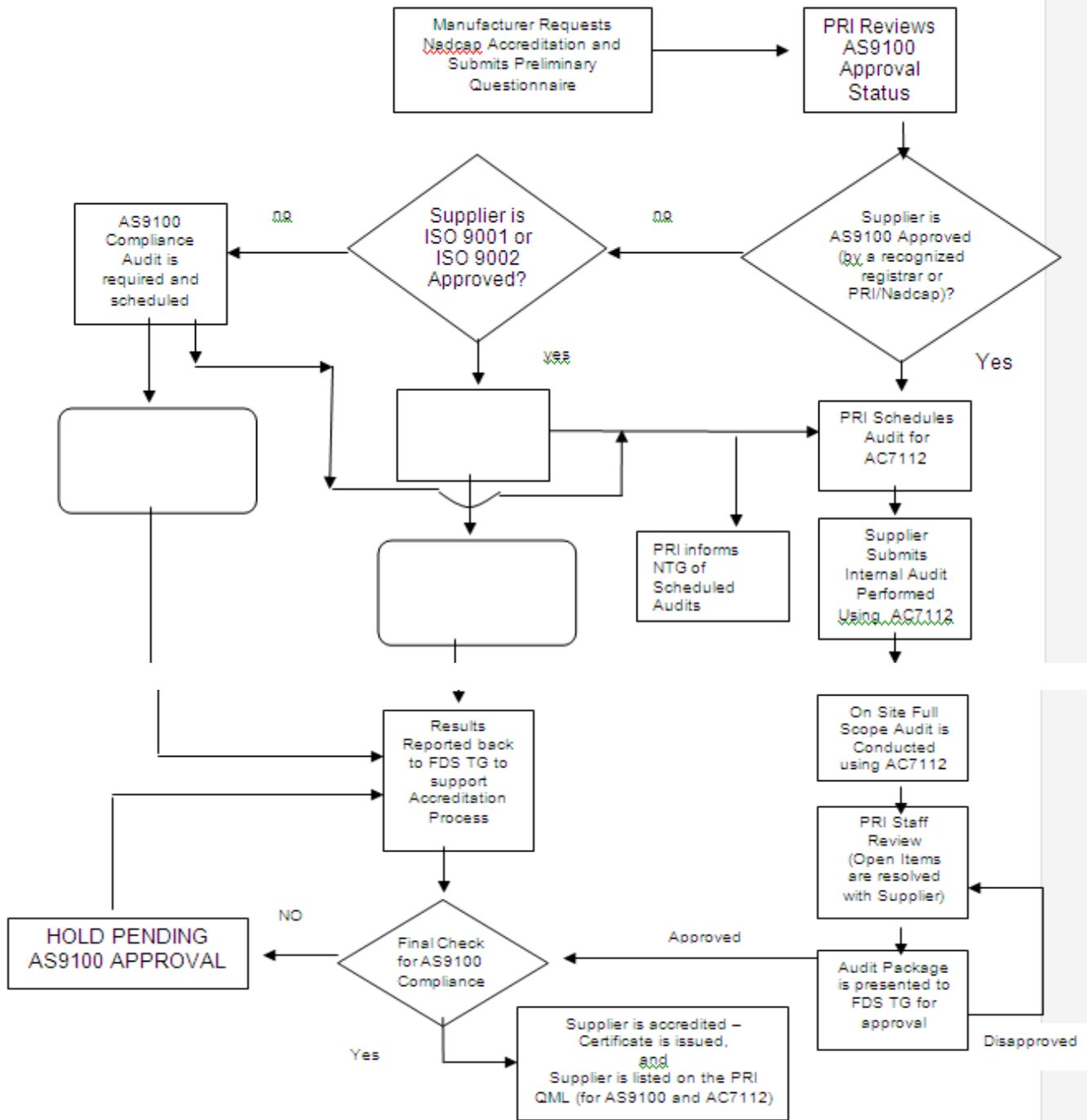
Appendix B (Cont)  
**PD2101 QUALIFICATION CHECKLIST**

<input type="checkbox"/>	Send request for approval to PRI of the industry standards (side by side listing of standard and supplier part numbers, as applicable) to be qualified and identifying the type of qualification sought, Grandfather or New. (4.2.1)
<input type="checkbox"/>	<b>Grandfathering QPL? Submit:</b>
<input type="checkbox"/>	Official correspondence or approval letter(s) relating to qualification (4.2.1)
<input type="checkbox"/>	Copy of existing QPL (4.2.1)
<input type="checkbox"/>	Copy of associated qualification test reports (4.2.1, 4.5.2, 4.8)
<input type="checkbox"/>	Copy of product drawings (4.2.1)
<input type="checkbox"/>	Drawing package defining the configuration of product showing compliance of product drawing & product part number with part standard and procurement specification (4.2.1)
<input type="checkbox"/>	Certificate of compliance to AC7112 or AC7123 and applicable slash sheets within one year of listing approval (4.2.2)
<input type="checkbox"/>	Certificate of compliance to AS9100 or equivalent within one year of listing approval (4.2.2)
<input type="checkbox"/>	<b>New QPL Approval? Submit:</b>
<input type="checkbox"/>	Certificate of compliance to AC7112 or AC7123 and applicable slash sheets (must precede listing approval) (4.2.2)
<input type="checkbox"/>	Certificate of compliance to AS9100 or equivalent (must precede listing approval) (4.2.2)
<input type="checkbox"/>	General description of company (products manufactured, etc.) along with street address of plant where product is manufactured & cage code (4.2.2)
<input type="checkbox"/>	List approvals or qualifications granted by OEMs or Government for product or similar product or status of evaluation for such approvals if underway and time to completion (4.2.2)
<input type="checkbox"/>	Evidence of flowdown of quality requirements when machining, manufacturing or process operations are subcontracted (4.2.2)
<input type="checkbox"/>	Evidence of flowdown of OCM quality requirements to subtiers where deemed necessary by the OCM. (4.2.2)
<input type="checkbox"/>	Qualification test plan stating when & where testing is to be performed (4.2.1, 4.5.2)
	Once Test Plan is approved by QPG, submit:
<input type="checkbox"/>	Drawing package defining the configuration of product showing compliance of product drawing & product part number with part standard and procurement specification (4.2.1)
<input type="checkbox"/>	Coordinate/arrange witnessing, if required (4.2.1, 4.7)
<input type="checkbox"/>	Qualification Test Report (4.2.1, 4.8)
<input type="checkbox"/>	<b>Pass-Through Distributor? Submit:</b>
<input type="checkbox"/>	Request for listing approval to PRI describing products to be qualified and identifying the type of qualification sought (4.3.1)
<input type="checkbox"/>	<b>Value Added Distributor? Submit:</b>
<input type="checkbox"/>	OCM provider is listed on PRI QPL (if not, cannot be listed as a Distributor)
<input type="checkbox"/>	Request for listing approval to PRI describing products to be qualified and identifying the type of qualification sought (4.3.2) with test plan, for witnessing by QPG as required
<input type="checkbox"/>	Certificate of compliance to AC7123 (must precede listing approval) or certificate of compliance to AC7112 and AC7112/4 (4.3.2)
<input type="checkbox"/>	Assembly process procedure identical to OCM (4.3.2)
<input type="checkbox"/>	Verification test report (4.3.2)

\*\*\*The QPG and/or PRI may ask for additional data, if necessary.\*\*\*

APPENDIX C

PRI QML APPROVAL PROCESS (For Initial Audits)  
Nadcap FLUID DISTRIBUTION SYSTEMS TASK GROUP (FDS)



APPENDIX D

Witnessing Procedure for Manufacturer Qualification Testing

PRI PROJECT# \_\_\_\_\_

SAE G-3 PRI-QPL Group  
Qualification-Test Witnessing Report

Applicant's Name and Address: \_\_\_\_\_  
\_\_\_\_\_

Standard Number(s) in Test: \_\_\_\_\_  
\_\_\_\_\_

Title (Abbreviated): \_\_\_\_\_  
\_\_\_\_\_

Procurement Specification Number: \_\_\_\_\_  
\_\_\_\_\_

Title (Abbreviated): \_\_\_\_\_  
\_\_\_\_\_

Specific Tests Witnessed:

<u>Spec./Para.</u>	<u>Test</u>	<u>Samples</u>	<u>Pass/Fail</u>	<u>Date</u>

Witness Name and Address  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature  
\_\_\_\_\_

Date  
\_\_\_\_\_

Authority:  PRI-QPG Member

Assigned by PRI-QPG

Appendix D (Cont)

PRI PROJECT #

**Table 1 – Qualification Test Checklist**

Item	Yes	No	Remarks
Product Drawing			
Technical Specification			
Back-up Specifications			
Test Plan			
Types of Test Being Witnessed			
Quality of Test Specimens			
Data Sheets			
Inspection Records, Test Parts			
Material Certifications			
Test Facilities and Equipment at Manufacturer			
Independent Laboratory Testing			
Laboratory Test Reports			
Conformance of Test Equipment			
Calibration of Test Equipment			
Manufacturing Route Sealing			
Qualification Test Report			