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Aerospace Quality Management System

FORM

Resources, Facility and Tool Commissioning

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FIRST EDITION

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Publication identity and application

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Use and document-control boundary

This companion implements the supplied AF 9100 requirement basis without changing the original standard. Its process allocation, examples, checklists and record design are authored implementation material. Actual mission or product limits, specialist procedures, permissions and genuine observations must be completed before consequential use. Applicable source minima and independent decision conditions cannot be reduced by this companion.

The printed edition date identifies the companion series; it is not evidence that later preparation, review or operational decisions occurred on that date. New support codes in this set are proposed allocations for controlled registration. Established AF-IG-9100-001, AF-FAQ-9100-001 and AF-TR-9100-001 identities are retained; earlier files, the corporate master list and ASTRA codes are not overwritten.

Equivalent combined or digital records are permitted when all required fields, relationships, authority and history remain intact. A completed PDF field or typed name is not evidence of an authenticated approval. Blank records in this delivery contain no invented applicant, signature, event or result.

Interactive fields are blank by default. Save a working copy, use continuation records where necessary and preserve raw supporting evidence outside the PDF through controlled references. Separate issued PDFs are the authoritative interactive copies; the combined reading edition is flattened.

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Select actual scope → complete application criteria → use the applicable procedure and technical book → capture authentic evidence → evaluate every applicable condition → obtain the required independent decision. Document availability does not establish implementation or conformity.

1 Purpose, source identity and completion rules

This additional implementation form organizes the detailed record needs of the identified AF 9100 provisions. It supplements the twelve source form modules without renumbering them or creating a new assessment route.

Complete the applicable fields with authentic information. Record unknown, unavailable and not-yet-demonstrated conditions explicitly. An exclusion needs an approved applicability rationale. Use linked continuation records for multiple items, sources, tests, people or decisions. Keep source attachments under controlled custody; do not rely on this PDF alone where raw evidence is required.

2 Common identity and record control

Record ID and continuation link

Template/code and controlled version

Case/applicant/asset identity

Route, scope and application profile

Object configuration and relevant period

Actual creation/event time and time zone

Author and role

Reviewer and approval responsibility

Current state and original history

Original evidence and source location

Access classification and permitted recipients

Retention basis, duration and preservation hold**Correction: original value, reason, author and approval****Authenticated approval/workflow reference (typed name is not a signature)**

3 Form-specific evidence and decisions

Asset/tool/facility identity

Intended duty and design basis

Personnel and inspection capacity

Installed configuration

Utilities and environmental limits

Material/installation evidence

Hidden-work inspections

Protective functions and interlocks

Test readiness

Actual functional/integrated results

Open items and blockers

Temporary bypass controls

Maintenance and checks

Receiving operational acceptance

4 Detailed continuation record

Use this section for each additional independently testable condition or actual event. A form-level summary cannot remove a required field, earlier failed result or unresolved item.

Parent form and continuation/item ID

Exact object / configuration / performer / event time

Source requirement / approved profile / condition

Numeric criterion with units or observable attribute

Method / validity / uncertainty / essential step

Original evidence and actual result

Conclusion and limitations / rejected or contrary evidence

Required protection / action / responsible owner / actual due event

Reviewer / approval reference / receiving acknowledgement

5 Completeness and receiving review

Check	Required review
Identity and scope	Every record belongs to the actual object, evaluated configuration and relevant period.
Evidence and validity	Required original data, method, actual results and limitations are traceable.
Decision separation	Technical disposition, independent attestation, employer task authority and public permission are not merged.
History and time	Earlier failed states and original notification clocks are preserved; no manufactured observations.
Approval and custody	Actual competent authority and receiving responsibility are established; typed names are not authenticated signatures.

Actual reviewer / conclusion / unresolved items

Authenticated approval instrument or workflow reference

Receiving custodian / access / retention / accepted residual duties

Appendix A — Source requirements and complete field payload

Source: AF 9100:2026, Aerospace Quality Management System, FIRST EDITION, 29 September 2026; supplied 131-page PDF. Source page references below locate the original publication. These excerpts are read with the complete applicable standard; local implementation sequences do not replace it.

7.1 Resource and capacity assurance

SOURCE p. 17 | Normative when applicable

7.1(a) The organization shall determine and provide resources necessary for planned work and credible contingencies. Capacity reviews shall consider competent personnel, equipment availability, maintenance, inspection, independent review, supplier capacity and expected rework. Inspection capacity shall not be assumed unlimited when production volume increases.

7.1(b) Before accepting accelerated schedules or significant volume changes, the organization shall verify that resources and controls remain adequate. Unfunded assurance activities shall be escalated rather than silently removed. Resource plans shall include lifecycle support and retention of necessary technical knowledge.

Required evidence: Capacity reviews; staffing and equipment plans; constraint decisions; lifecycle-support commitments.

7.4 Infrastructure, utilities and facility integrity

SOURCE p. 18 | Normative when applicable

7.4(a) Facilities, utilities, equipment, communication systems and supporting software shall be suitable for intended operations and maintained. Critical infrastructure shall have defined operating limits, inspection or maintenance requirements, condition monitoring and contingency arrangements.

7.4(b) Changes to foundations, equipment layout, utilities, environmental controls or network connections shall undergo impact review. Commissioning shall verify configuration and protective functions before production or service use. Where facility condition can influence measurement or process output, the condition shall be recorded or monitored.

Required evidence: Infrastructure register; maintenance and commissioning records; utility limits; facility change reviews.

8.5.1.1 Equipment, tooling and production software

SOURCE p. 24 | Normative when applicable

8.5.1.1(a) Equipment, tooling, fixtures and software used to create, control, inspect or measure outputs shall be verified or validated before release for use. The assessment shall include the actual application, configuration, interfaces, failure behavior and ability to maintain required characteristics.

8.5.1.1(b) Maintenance, storage, preservation and periodic condition checks shall be defined. Tool repairs, software updates, relocation and changes to compensation parameters shall trigger an impact-based revalidation decision. Access to editable machine programs shall be restricted and changes traceable.

Required evidence: Tool and software qualification; controlled programs; maintenance; storage checks; revalidation records.

17.1 Industrial system boundary and lifecycle integrity

SOURCE p. 35 | Normative when applicable

17.1(a) The organization shall define the industrial asset or service boundary, design basis, operating limits, interfaces and lifecycle responsibilities. Heavy machinery, process equipment, energy infrastructure, lifting systems and supporting civil works shall be included when they affect the assured output.

17.1(b) Applicable engineering codes, statutory inspections and operating authorizations shall be identified in the program register. This standard provides assurance requirements, not a replacement design code for structures, pressure systems, nuclear installations or lifting equipment.

Required evidence: Asset design basis; boundary drawings; applicable-code register; lifecycle responsibility allocation.

17.2 Mechanical integrity and essential services

SOURCE p. 35 | Normative when applicable

17.2(a) Critical equipment shall have design, material, fabrication, inspection, maintenance and degradation-management evidence appropriate to the duty. Pressure, temperature, load, corrosion, fatigue, vibration and protective-function limits shall be identified as relevant.

17.2(b) Essential utilities and protective systems shall be evaluated for dependency and common-cause failure. Bypasses, overrides and temporary repairs shall have authorization, duration, compensating controls and restoration verification. An operational plant shall not be presumed conforming because it has not yet failed.

Required evidence: Integrity-management plan; equipment dossiers; degradation assessments; override and temporary-repair controls.

17.3 Fabrication, installation and construction interfaces

SOURCE p. 35 | Normative when applicable

17.3(a) The organization shall control materials, fabrication procedures, welds or joints, inspection stages, dimensional interfaces and installation sequence. Construction or installation changes shall be assessed against the approved design basis before concealment or energization.

17.3(b) Foundation, alignment, anchorage, lifting, access and utility interfaces shall be verified where relevant. Hidden work shall have inspection evidence before it becomes inaccessible. The final as-built record shall reflect actual installed conditions, not only the original drawings.

Required evidence: Fabrication and installation records; hidden-work inspections; alignment and interface checks; as-built configuration.

17.4 Commissioning and operational readiness

SOURCE p. 36 | Normative when applicable

17.4(a) Commissioning shall follow an approved plan separating completion checks, functional verification, integrated testing and operational acceptance. The plan shall define safe test conditions, competent personnel, isolation, emergency arrangements and acceptance criteria.

17.4(b) Before handover, protective functions, alarms, interlocks, training, maintenance, spare parts and operating instructions shall be verified. Open items shall be classified according to whether they prevent safe or conforming operation. Production pressure shall not reclassify a blocking item as cosmetic.

Required evidence: Commissioning plan; test records; protective-function verification; open-item disposition; handover acceptance.

17.5 Asset inspection and condition-based maintenance

SOURCE p. 36 | Normative when applicable

17.5(a) Inspection and maintenance intervals shall be based on applicable obligations, consequence, degradation mechanisms, duty and evidence. Condition-monitoring models shall be validated for their decision purpose and shall not remove mandatory inspections without authorized justification.

17.5(b) Inspection findings shall be trended and connected to remaining-life or repair decisions made by competent technical authorities. Changes in duty or environment shall trigger reassessment. Absence of an alarm shall not establish integrity when the monitoring system cannot detect the relevant failure mode.

Required evidence: Inspection strategy; condition data; detection capability; remaining-life or repair decisions; interval review.

17.6 Industrial modernization and decommissioning

SOURCE p. 36 | Normative when applicable

17.6(a) Retrofits and modernization shall assess compatibility between legacy and new systems, undocumented conditions, cybersecurity, protection functions and operational procedures. Existing equipment shall not be assumed equivalent to current design records without verification.

17.6(b) Decommissioning shall plan isolation, hazardous inventories, structural stability, data retention, waste handling and prevention of unauthorized reuse. Transfer or sale of used equipment shall accurately state condition, known limitations and missing evidence.

Required evidence: Modernization assessment; verified legacy baseline; decommissioning plan; disposition and transfer records.

S.1 Asset and code basis

SOURCE p. 82 | Normative when applicable

S.1(a) The organization shall identify the asset boundary, duty, design assumptions, applicable codes, inspection requirements and authorization responsibilities. Changes in intended duty shall be evaluated against the retained design and integrity basis.

S.1(b) Where legacy evidence is incomplete, the organization shall establish a competent assessment plan rather than asserting compliance from continued operation. The plan shall address inaccessible or hidden conditions that can affect integrity.

S.2 Commissioning record and punch-list controls

SOURCE p. 82 | Normative when applicable

S.2(a) The commissioning record shall distinguish incomplete construction, failed test criteria, deferred non-critical work and operational restrictions. Each open item shall have an owner, technical consequence, dependent activity and closure evidence.

S.2(b) Items affecting safety, statutory acceptance or a mandatory performance criterion shall not be deferred merely by changing their priority code. Conditional handover shall state exactly what may operate and under which controls.

S.3 Integrity assessment and inspection capability

SOURCE p. 82 | Normative when applicable

S.3(a) Inspection methods shall be suitable for the actual degradation mechanism and access condition. Findings shall be interpreted by competent personnel against the applicable technical basis, with uncertainty and limitations stated.

S.3(b) Condition-based maintenance shall not remove a required inspection unless the applicable approval process permits it and the alternative is justified. Monitoring systems shall be checked for sensor health, data integrity and ability to detect the relevant failure mechanism.

S.4 Filled illustrative commissioning disposition

SOURCE p. 82 | Definition, explanation or informative example; no new universal limit

S.4(a) Example: a support facility completes mechanical installation and routine functional checks, but the emergency isolation test fails. The open item is classified as release-blocking for the affected equipment. Training and ordinary performance results do not compensate for that failure.

S.4(b) Release occurs only after correction, retest, independent verification where required, updated as-built information and authorized closure. The example supplies no pressure, load or protection setpoint; those belong to the approved equipment-specific basis.

Source tables — complete field and decision payloads

Table S-1 — Industrial lifecycle evidence

Source p. 82 | Required structure when applicable

Stage / topic	Required evidence	Gate or hold condition
Design basis	Duty, loads, environment, material basis, codes, protection concept and service life.	Unresolved binding design criteria prevent release.
Procurement	Technical scope, qualified sources, material evidence, inspection and notification requirements.	Unapproved critical source or substitution prevents use.
Fabrication	Qualified procedures/personnel, essential variables, inspections and traceability.	Hidden work not accepted without required evidence.
Installation	Foundation, alignment, anchorage, utilities, access and as-built configuration.	Unverified critical interfaces prevent energization.
Protective functions	Alarms, interlocks, isolation, emergency arrangements and bypass controls.	Failed or unverified protective function blocks affected operation.
Commissioning	Approved sequence, safety review, instrumentation, actual results and anomalies.	Test completion alone does not close failed criteria.
Operational readiness	Training, instructions, maintenance, spares, inspections and responsible operator.	No handover with unresolved blocking capability.
Asset integrity	Degradation mechanisms, inspection methods, intervals, findings and technical dispositions.	Adverse condition triggers restriction or repair assessment.
Modification	Change basis, compatibility, hazard review, requalification and documentation.	Temporary modifications require expiry and restoration control.
Retirement	Isolation, hazardous inventories, structural condition, material/data disposal and records.	Disposition must be verified and obligations assigned.