



AF 9100:2026

Aerospace Quality Management System

FORM

Internal Audit, Management Review and Improvement

AF-FR-9100-028

FIRST EDITION

30 September 2026 | English master text

Publication identity and application

Control	Publication value
Title	Internal Audit, Management Review and Improvement
Document code	AF-FR-9100-028
Edition / language	FIRST EDITION / English master text
Companion edition identity	30 September 2026
Controlling source	AF 9100:2026 — FIRST EDITION — 29 September 2026
Responsible owner function	Responsible record owner
Primary source anchors	9, 10, V, W, X
Delivery status	Prepared implementation companion. Actual approval, adoption, effectivity and operational decisions are recorded separately.

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

Audit/review identity and scope

Applicable requirements and annexes

Competence/independence

Sites/shifts/remote/critical coverage

Selected population and adverse trails

Actual observations and original evidence

Requirement conclusions and findings

Review inputs including culture/digital/climate

Independent challenge and dissent

Decisions/resources/priorities

Action owners/original due dates

Effectiveness criteria and actual results

Recurrence and expanded scope**Programme completion and next due**

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.

9.1 Monitoring strategy and data credibility

SOURCE p. 26 | Normative when applicable

9.1(a) The organization shall define what will be monitored, why it matters, how it is measured, when it is evaluated and who acts on the result. Measures shall connect process performance to product conformity, delivery, reliability, safety, customer experience and evidence integrity.

9.1(b) Data shall retain configuration, exposure, time period and denominator information needed for interpretation. Automated dashboards shall be reconciled to source records. Missing, delayed or selectively excluded data shall be visible. Leading indicators shall be evaluated against outcomes to confirm their usefulness.

Required evidence: Monitoring plan; metric dictionary; source reconciliations; data-quality checks; action records.

9.2 Customer satisfaction and external feedback

SOURCE p. 26 | Normative when applicable

9.2(a) The organization shall monitor customer and relevant user perceptions through suitable methods, including complaints, delivery experience, acceptance issues, service performance and corrective-action requests. Absence of complaints shall not be the sole evidence of satisfaction.

9.2(b) Trends shall be analyzed by meaningful product, site, supplier or configuration groups. Improvement plans shall address identified weaknesses and assess whether the customer or user experience actually improved. Contractual acceptance and user satisfaction shall be distinguished.

Required evidence: Feedback records; segment analysis; improvement plans; effectiveness evaluations.

9.3 Internal audit program

SOURCE p. 26 | Normative when applicable

9.3(a) The organization shall maintain an audit program covering the full applicable system, sites, shifts, remote activities and relevant external interfaces. Frequency and depth shall reflect criticality, changes, performance, prior findings and the maturity of controls. The program shall include process implementation and evidence integrity, not only procedure presence.

9.3(b) Auditors shall be competent and sufficiently independent of the work assessed. Audit criteria and sampling rationale shall be defined. A sampled audit shall not be described as verification of every item. Critical controls and unresolved high-consequence issues shall receive explicit attention.

9.3(c) Findings shall identify the requirement, objective evidence and the nature of the gap. The organization shall correct and address causes, verify effectiveness and escalate overdue or ineffective action. Remote auditing shall be used only where evidence reliability and access are adequate.

9.3(d) The complete applicable internal audit program shall be completed at intervals not exceeding 12 months. C2 and C3 critical-control implementation shall additionally be examined at intervals not exceeding six months, using targeted audits where suitable. These are organizational internal-audit duties, separate from third-party surveillance under Annex AG.

Required evidence: Risk-based audit program; competence and independence; plans; evidence trails; findings; closure verification.

9.4 Management review inputs

SOURCE p. 26 | Normative when applicable

9.4(a) Top management shall review the system at planned intervals and when major changes or incidents require it. Inputs shall include previous actions, context and obligation changes, objectives, process outcomes, product conformity, delivery, customer feedback, supplier performance, audits, nonconformities, risks, opportunities and resource adequacy.

9.4(b) Review shall also consider culture, reporting behavior, emerging technology, cybersecurity, resilience, climate-related relevance, field reliability and lifecycle support. The review shall distinguish recurring patterns from isolated events and examine whether assurance independence is functioning under commercial pressure.

9.4(c) The interval between complete management reviews shall not exceed 12 months. An immediate serious concern shall be escalated when detected rather than deferred until the next scheduled review. More frequent focused reviews shall be used where criticality, rapid change or adverse performance warrants them.

Required evidence: Review agenda and input pack; trend analyses; independent assurance concerns; status of prior actions.

9.5 Management review decisions and follow-through

SOURCE p. 27 | Normative when applicable

9.5(a) Review outputs shall include decisions on priorities, resources, risk treatment, opportunities, process changes, capability gaps and improvement. Each action shall have an accountable owner, due date, expected result and verification method.

9.5(b) Top management shall follow up actions and unresolved risks. Repeated deferral of an issue shall trigger escalation and an explicit decision about continued operations. Minutes stating “reviewed and accepted” without a basis or action on adverse evidence shall not establish effectiveness.

Required evidence: Recorded decisions; action ownership; resource commitments; follow-up and effectiveness evidence.

9.6 Independent assurance and systemic challenge

SOURCE p. 27 | Normative when applicable

9.6(a) For high-consequence programs, the organization shall obtain independent challenge of the assurance strategy and major release decisions at the level specified in Annex B. The review shall examine assumptions, common-cause dependencies, missing evidence and the credibility of residual-risk acceptance.

9.6(b) The independence arrangement may use qualified internal or external personnel. It shall not be weakened by allowing the designer to approve their own contested evidence without the required review. Dissenting technical opinions shall be recorded and resolved through the defined authority structure.

Required evidence: Independent-review plan; challenge records; dissent resolution; release recommendations.

10.1 Response to nonconformity and containment

SOURCE p. 27 | Normative when applicable

10.1(a) When a nonconformity or credible concern is detected, the organization shall protect affected users and outputs, determine the immediate extent and assign a response owner. Initial containment shall cover related stock, work in progress, delivered configurations and digital artifacts as relevant.

10.1(b) Containment effectiveness shall be checked. A correction to the first detected item shall not close the investigation of the wider population. Evidence shall be preserved so that cause analysis remains possible, including raw data, software versions, material samples and process conditions.

Required evidence: Response record; containment scope; trace results; effectiveness checks; preserved evidence.

10.2 Cause analysis and corrective action

SOURCE p. 27 | Normative when applicable

10.2(a) The organization shall determine causes using evidence appropriate to the problem. Analysis shall consider requirement quality, design assumptions, process conditions, human factors, tooling, suppliers, management pressures, software and detection failures. Unsupported labels such as “carelessness” shall not be accepted as completed analysis.

10.2(b) Corrective action shall address both occurrence and escape causes where relevant. Actions shall be assigned, implemented and verified against a pre-defined effectiveness measure. The organization shall assess whether similar conditions exist in other products, sites, suppliers or processes and extend action where necessary.

10.2(c) Where an external provider is responsible, corrective requirements shall be flowed down and their effectiveness verified. Repeated or late ineffective action shall be escalated. Risk assessments, technical data, control plans and training shall be updated when the findings change their basis.

Required evidence: Evidence-based cause analysis; occurrence and escape controls; action plan; systemic extent; effectiveness results.

10.3 Continual improvement and preventive learning

SOURCE p. 27 | Normative when applicable

10.3(a) The organization shall select improvement opportunities using performance evidence, user experience, lessons learned, technology developments and strategic needs. Improvement shall address system effectiveness, not only cost or administrative simplification.

10.3(b) Changes introduced as improvements shall undergo the same appropriate assurance as other changes. Benefits shall be verified against the baseline, while unintended adverse effects shall be monitored. Knowledge from unsuccessful experiments shall be retained without representing an unproven benefit as achieved.

Required evidence: Improvement portfolio; baseline and outcome evaluation; change assurance; retained learning.

10.4 Learning across the lifecycle and network

SOURCE p. 27 | Normative when applicable

10.4(a) The organization shall make relevant lessons available to affected functions and suppliers through controlled channels. Significant lessons shall be considered at new-program initiation, design review, supplier approval and process change.

10.4(b) Lessons shall identify conditions of applicability and evidence, rather than only a slogan or narrative. The organization shall periodically test whether the lessons are being used and whether repeated events indicate ineffective knowledge transfer.

Required evidence: Indexed lessons; applicability reviews; supplier communication; recurrence and uptake assessment.

V.1 Assessment planning and evidence sampling

SOURCE p. 87 | Normative when applicable

V.1(a) The assessor shall establish the object, scope, applicable requirements, sites, functions, products, periods and authorized evidence access. Sampling shall consider criticality, changes, poor performance, process diversity and potential systemic failure. Sample limitations shall be recorded and shall constrain the resulting claim.

V.1(b) Assessment shall combine documented arrangements, interviews, observed work and retained results. The reviewer shall test whether records agree across the lifecycle. A completed questionnaire, certificate or policy statement alone shall not demonstrate implementation.

V.1(c) Organizational evaluation time and coverage shall follow Annex AC. The selected object route shall additionally follow Annex AA, and the actual decision shall follow Annex AD. Confidential evidence shall remain accessible to suitably authorized reviewers; unresolved absence of necessary evidence blocks the dependent conclusion.

Required evidence: Scope and route; approved plan; sample rationale; combined evidence; actual limits and access.

V.2 Findings and requirement-level conclusions

SOURCE p. 87 | Normative when applicable

V.2(a) Each finding shall identify the exact requirement, objective evidence, affected scope and gap. Classification shall follow Annex AD. A technical release hold shall be applied where needed irrespective of an administrative grade. Opportunities for improvement shall not conceal nonconformities.

V.2(b) The conclusion shall state conforming, nonconforming, not applicable with approved rationale or not yet demonstrated for each relevant requirement. Aggregate scores shall not offset missing mandatory evidence. The final decision shall identify unresolved issues and the precise scope that the evidence can support.

Required evidence: Requirement-level findings; classification; technical holds; evaluated applicability; clear conclusion. For Annex N, only N.1-N.3 and their required record tables are normative; the numerical worked examples are informative. For Annex AJ, required record fields and controls are normative, while filled sample values are informative.

V.3 Integrated audit trail and sample expansion

SOURCE p. 95 | Normative when applicable

V.3(a) An assessor may select a delivered serial, service event or task authorization and trace it backward through release, requirements, configuration, process, competent performer, measurement and external source. The

assessor shall then trace relevant changes, field issues or complaints forward through population identification and corrective action.

V.3(b) When records disagree, the assessor shall expand the trail according to the potential extent and consequence. One successfully traced item does not verify the whole population. An apparent completeness score shall not conceal absent actual measurements, unverified qualifications or unresolved configuration changes.

Required evidence: Complete backward/forward trail; consistency checks; expanded samples; evaluated population limitations.

W.1 Required corrective-action sequence

SOURCE p. 96 | Normative when applicable

W.1(a) The organization shall record the detected issue, protect affected outputs, determine the extent, preserve evidence, establish causes, implement actions and verify effectiveness. The response shall address both the occurrence of the defect and the failure of controls to prevent escape.

W.1(b) Closure shall not be based solely on training attendance, a revised procedure or the action owner's statement. The organization shall define evidence showing that causes were addressed and controls remain effective under representative conditions.

W.2 Completed synthetic case — measurement offset

SOURCE p. 96 | Definition, explanation or informative example; no new universal limit

W.2(a) Case NCR-026 concerns a dimensional characteristic measured using an automated fixture. A periodic independent check identifies a 0.012 mm offset after fixture maintenance. The applicable procedure required a reference check after maintenance, but the work-order system did not trigger it. The issue is not closed by recalibrating the fixture.

W.2(b) Containment holds 240 items measured since maintenance; 90 remain on site and 150 are traceable to two customers. The responsible team preserves raw measurements, fixture settings and maintenance records and notifies recipients according to the assessed consequence and applicable obligations. No assumption is made that all 240 items are defective.

W.3 Recurrence and ineffective action

SOURCE p. 97 | Normative when applicable

W.3(a) Recurrence or failure of an effectiveness check shall reopen the analysis and trigger review of related assumptions, resource decisions and management controls. A new due date alone shall not be treated as corrective action.

W.3(b) The organization shall identify whether earlier closures relied on inadequate evidence, narrow population scope or untested human-factor assumptions. Lessons shall be incorporated into new-program and change reviews.

X.1 Scope-led implementation

SOURCE p. 98 | Definition, explanation or informative example; no new universal limit

X.1(a) Begin with actual products, services, processes, people, sites and responsibilities. Select the object routes and technical modules, establish criticality and create a controlled applicability matrix. Reuse effective existing controls when they satisfy the actual AF requirements; do not replace sound practice solely to change terminology.

X.1(b) A mature organization may focus on gaps in digital evidence, technical profiles, competence, object boundaries and independent decisions. A new organization may first need operational capacity, current work instructions, valid measurement and verified personnel. Implementation should reflect actual evidence rather than a uniform template schedule.

X.2 Representative deployment and feedback

SOURCE p. 98 | Definition, explanation or informative example; no new universal limit

X.2(a) Implementation trials should represent the actual operating environments, workforce, supply tiers and critical interfaces. Useful cases include build-to-print manufacture, spacecraft subsystems, maintenance, distribution, mission-vehicle integration, industrial equipment, digital services and personnel authorization.

X.2(b) Trials should test requirement clarity, operational burden, missing hazards, inconsistent decisions, retrieval of evidence and effectiveness of protective controls. A trial is not certification. Unfavorable findings should lead to corrected implementation and, where necessary, a formal interpretation request under Annex Y.

X.3 Transition without loss of control

SOURCE p. 98 | Definition, explanation or informative example; no new universal limit

X.3(a) An organization should identify the adoption date for each contract or internal scope, the responsibilities for transition and the work already in progress. Existing technical acceptance, safety, confidentiality and customer obligations remain active throughout transition.

X.3(b) Changes to forms, terminology and software should preserve traceability to earlier records. An older authorization should not be silently relabeled as a new AF decision. Where additional evaluation is required, the actual scope and date of that evaluation should be recorded.

X.4 Readiness measures without score substitution

SOURCE p. 98 | Definition, explanation or informative example; no new universal limit

X.4(a) Useful measures include verified requirements, closure of critical gaps, retrieval success, current personnel authorization, source flow-down and completed lifecycle decisions. Each measure should define its denominator and evidence. Counting documents or hyperlinks alone does not demonstrate effective implementation.

X.4(b) A readiness dashboard can support planning, but a 95% completion result is not a conformity pass when the missing portion contains a required safety control, failed competence step or unsupported technical claim. The applicable decision rules remain requirement-based.

Source tables — complete field and decision payloads

Table V-1 — Audit and assessment record fields

Source p. 87 | Required structure when applicable

Field	Minimum required content
Identity and scope	Evaluation ID, date, assessor, object route, entity/person, site, configuration, profile and period.
Requirement	Exact clause and lettered paragraph, normative table condition or profile criterion.
Sample	Records, items, people, sites and periods observed; selection method and limitations.
Evidence	Objective observations, actual results, traceable records and confidentiality controls.
Conclusion	Conforming, nonconforming, approved non-applicability or not yet demonstrated.
Finding and action	Requirement–evidence–gap, grade, extent, protection, cause, actions, owner and original deadline.
Closure and decision	Verified implementation and effectiveness; independent reviewer and decision; actual status and date.

Table W-1 — Complete NCR/CAPA record requirements

Source p. 96 | Required structure when applicable

Stage	Required record content
Identification	NCR ID, date, reporter, requirement, item/process, configuration, actual evidence and initial consequence.
Containment	Affected population, immediate controls, stock/delivery status, responsible person, notifications and effectiveness.
Extent	Related lots/serials/sites/suppliers/configurations; trace method; uncertainty and expanded search.
Disposition	Correction, rework, repair, return, concession or scrap; design/customer/authority approvals as applicable.
Cause	Evidence-supported occurrence and escape causes; tested hypotheses; human/system factors; rejected explanations.
Actions	Action tied to each cause, owner, due date, resources, affected documents/tools/suppliers and change approval.
Verification	Implementation evidence, pre-defined effectiveness criterion, sample/exposure, results and adverse side effects.
Systemic learning	Risk updates, similar processes, supplier flow-down, knowledge transfer and recurrence monitoring.
Closure	Independent review where necessary, residual limitations, final authority and reopened conditions.

Table W-2 — Filled corrective-action case

Source p. 96, 97 | Illustrative or explanatory source table

Step	Recorded result
Requirement and evidence	Post-maintenance reference check required by WI-MET-08 rev D; no check record for event M-114; independent comparison shows 0.012 mm offset.
Containment	Hold 90 on-site items; notify two recipients of 150 shipped items; identify exact serial range and related jobs.
Extent assessment	Trace confirms 240 potentially affected items. Independent remeasurement finds 8 outside the actual product limit; remaining results are assessed under the approved decision rule.
Occurrence cause	Fixture datum was reset incorrectly during maintenance; the setup allowed an undetected offset.
Escape cause	Maintenance event classification did not generate the mandatory metrology hold; production release checked only calendar calibration status.
Correction/disposition	Restore and verify fixture datum; disposition 8 nonconforming items through authorized technical review; record customer actions and remeasurement evidence.
Corrective action 1	Interlocked reference verification required after the relevant maintenance event before measurement results can support release.
Corrective action 2	Maintenance classifications and release checks revised; challenge test confirms that a missing check blocks release.
Corrective action 3	Review similar fixtures and maintenance workflows; extend controls to two additional affected process families.
Effectiveness plan	Independently observe the next 10 relevant maintenance events and 100 post-maintenance measurements; verify hold behavior and measurement validity.
Example effectiveness outcome	All 10 events generated the required hold and valid reference check; 100 independent comparisons met the pre-approved method criterion; no bypass observed.
Closure and limitation	Technical and quality reviewers approve closure; continued trend monitoring remains active. The sample does not prove recurrence is impossible.

Table X-1 — Implementation work packages

Source p. 98 | Illustrative or explanatory source table

Phase	Work to complete	Evidence of completion
Scope and gap assessment	Select routes, sites, responsibilities, criticality, modules and profiles; compare actual practice with applicable requirements.	Approved scope and evidence-based gap register.
Governance and capability	Assign responsibilities, independence, resources, competence, data and change controls.	Working authorizations, current instructions and demonstrated capability.
Operational connection	Link requirements, design, sources, processes, people, verification and release.	A traceable actual product or service dossier with functioning hold controls.
Technical profiles	Define and approve product, service, process, personnel and provider criteria and methods.	Technically justified profiles with measurable criteria and no unresolved essential definitions.
Object-specific evaluation	Implement product qualification, service validation, process demonstration and personnel assessment as applicable.	Representative results, corrected failures and explicit limitations.

Phase	Work to complete	Evidence of completion
Internal evaluation	Complete risk-based internal audits and management review; verify corrective effectiveness.	Closed gaps supported by actual implementation evidence.
Independent assessment	Confirm operator competence and scope; evaluate and independently decide the requested route.	A bounded decision, not an assumed approval from preparation or attendance.
Continuing assurance	Monitor performance, changes, practice, suppliers and field effects; complete surveillance and renewal.	Current evidence, valid status, truthful history and sustained learning.