

Quality Improvement Representative (QIR) Program

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1.0 Purpose / Scope

- 1.1 This procedure defines the process for selecting, training, and specifying the duties of Quality Improvement Representatives (QIRs) to reduce defects and improve performance by implementing process-based enhancements using the Collins Customer Oriented Results and Excellence (CORE) problem solving strategy.

2.0 Requirements**2.1 Qualifications for a QIR**

- 2.1.1 Shall be an employee of the manufacturer supplying parts to Collins Aerospace.
- 2.1.2 Shall be a US Citizen or a Naturalized Citizen.
- 2.1.3 Shall report through the Quality Organization.
- 2.1.4 Shall have complete working knowledge of applicable procedures and be trained in the execution of generic quality requirements.
- 2.1.5 Shall have sufficient knowledge of the technical and quality requirements of the Purchase Order (PO), drawing, and referenced specifications to execute the necessary verification of product integrity.
- 2.1.6 Shall have free access to management to address root causes of discrepancies and their associated corrective actions.
- 2.1.7 Shall have free access to any tools necessary to complete inspection responsibilities.
- 2.1.8 Shall have the following minimum qualifications:
 - 2.1.8.1 Certified Collins Aerospace CORE Apprentice (Primary QIR only)
 - Certification shall be completed prior to the Primary QIR entering “Production” status.

2.2 Terms and Numbers of QIRs

- 2.2.1 The number of QIRs approved for a specific Supplier shall be commensurate with workload and contingency factors (e.g., vacations, illness, etc.).
 - 2.2.1.1 A minimum of two QIRs are required.
 - A minimum of one QIR shall function as the Primary QIR.
- 2.2.2 QIR approval is effective as long as the periodic training/reviews are maintained, and the QIR is not relieved for cause.
- 2.2.3 Termination or suspension of QIRs may be made as follows:
 - 2.2.3.1 At the written request of the QIR or the Supplier.
 - 2.2.3.2 In the event that the QIR leaves the employ of the Supplier.
 - 2.2.3.3 As outlined in Section 2.6 or at the discretion of Collins Aerospace for any appropriate reason.
 - 2.2.3.4 By the mutual consent of Collins Aerospace and the Supplier.
- 2.2.4 If an approved QIR is transferred from quality department activities, is leaving the Supplier’s employ, or is absent for more than 30 days, the Supplier shall notify Collins Aerospace Supplier

Quality Assurance (SQA) within two business days of the Supplier's knowledge of the any of these events.

2.3 QIR Training and Supervision

- 2.3.1 A Supplier Quality Representative (SQR) who performs SQA functions shall be responsible for the initial and any subsequent training of QIR candidates.
- 2.3.2 The SQA Group shall maintain supervision of the QIR to assure that the QIR is performing his/her duties in accordance with the Supplier's current policies and procedures.
- 2.3.3 At a minimum, the training shall consist of providing a thorough knowledge of all applicable Collins Aerospace procedural requirements including POs, engineering drawings (configuration management), applicable specifications, product specific quality plans, and program specific quality requirements.
- 2.3.4 The candidate shall complete a competency exam for their respective Supplier Processes and achieve a score of 80 or higher. The final score shall be recorded by SQA.
- 2.3.5 Maintenance training shall be provided when appropriate (i.e., any changes to process or procedure), to keep the QIR up to date with the latest documentation, procedures, and requirement changes as it affects the performance of the QIR function.
- 2.3.6 A QIR Audit should be performed in accordance with MTH-QLT-FRM-1203 after six (6) months of the initiation of the QIR Program. Additional audits should be performed as determined by SQA (not to exceed two years from the previous audit) to monitor performance, identify Secondary QIR candidates for "Production" status, and to identify opportunities to transition from the QIR program to the Delegated Quality Representative (DQR) Program.
 - 2.3.6.1 Due to travel costs and schedule restraints, it is acceptable for an audit to be conducted at Collins, or Virtually.
 - 2.3.6.2 In the case of low volume or no procurement activity at a Supplier, SQA shall audit work that is available.
- 2.3.7 The QIR candidate shall be granted "Probation" status upon completion of the above minimum requirements. "Production" status shall be granted to the Primary QIR Candidate following the successful completion of a minimum five consecutive production lots, and an interview with SQA. "Production" status may be granted to the Secondary QIR Candidate following the successful completion of a QIR audit. "Probation" and "Production" statuses shall be documented by a letter of approval.
 - 2.3.7.1 "Production" status shall not be provided to the Primary QIR Candidate without the CORE Apprentice Certification.
- 2.3.8 The Supplier Quality Manager or designee shall designate a single point of contact to interface with the QIR and address any problems encountered during the performance of their duties.
- 2.3.9 SQA shall store all submissions of MTH-QLT-FRM-1204 in a dedicated folder for the QIR Program for each Supplier.

2.4 Delegation of Authority

- 2.4.1 The Collins Aerospace actors referenced in this document may designate a representative to act on their behalf on individual tasks.

2.5 QIR Performance

- 2.5.1 QIR Performance shall be tracked by SQA as part of the inspection performance audit as documented by MTH-QLT-FRM-1203.

- 2.5.2 Successful QIRs may be recommended to apply for the DQR program after a minimum of one (1) year of “Production” status has been completed.

2.6 QIR Suspension for Cause

- 2.6.1 Each lot received from a QIR in “Production” status that is subsequently rejected shall be investigated and corrective action taken.
- 2.6.2 Two consecutive hardware rejections shall result in the QIR being set back into “Probation” status and require that the next three lots inspected by the QIR be over inspected by Collins Aerospace.
- 2.6.3 “Production” status shall not be renewed until three consecutive lots have successfully passed over-inspection and the QIR has re-tested with a passing score.
- 2.6.4 One additional rejection within six weeks shall result in the QIR being set back into “Probation” status. Training shall be issued at Collins Aerospace discretion.
- 2.6.5 Reinstatement of QIR status shall be contingent on analysis of the discrepancy and review and re-approval of the Supplier’s QIR program by Supplier Quality Assurance.

2.7 QIR Suspension for Inactivity

- 2.7.1 QIRs shall be required to process a minimum of 10 production lots per year. If the minimum cannot be met, the QIR shall be set to “Probation” status.
- 2.7.2 The QIR shall be re-tested prior to reinstatement of “Production” status and receive a passing score.
- 2.7.3 This suspension may be waived in the event of low volume Suppliers at the discretion of Collins Aerospace.

2.8 QIR Responsibilities

- 2.8.1 QIRs in either “Probation” or “Production” status shall perform the following duties:
- 2.8.1.1 Complete MTH-QLT-FRM-1204 with each shipment, send a digital copy to Collins SQA and QA, attach a digital copy to the cert package, and provide a physical copy with each shipment.
- 2.8.2 Primary QIRs shall perform the following duties:
- 2.8.2.1 Investigate any orders that were shipped to Collins with a defect using DAISE process.
- Identify root cause and implement process-based corrective actions.
 - Document and store investigations and corrective actions taken for the duration of the QIR Program.
- 2.8.2.2 Investigate any orders that were identified as non-conforming after processing, but prior to shipment to Collins using DAISE process.
- Identify root cause and implement process-based corrective actions.
 - Document and store investigations and corrective actions taken for the duration of the QIR Program.
 - Notify Collins SQA and QA of defects to allow opportunities for assistance from Collins.

2.9 Product Acceptance Requirements

- 2.9.2 Plating and Special Process Suppliers
- 2.9.1.1 QIRs in “Probation” status shall perform the following duties:
- Perform 100% inspection on all orders shipped.

2.9.1.2 QIRs in “Production” status shall perform the following duties:

- Perform either 100% inspection or the following sample plan on all orders shipped:

| <u>Lot Size</u> | <u>Sample Size</u> |
|-----------------|--------------------|
| 1 to 5 | All |
| 6-13 | 5 |
| 14-150 | 6 |
| 151-500 | 8 |
| 501-10,000 | 13 |
| >10,000 | 20 |

2.9.2 Machining & Manufacturing Suppliers

2.9.2.1 A 100% characteristic check shall be performed for the first part of any production run.

2.9.2.2 An inspection report (in addition to MTH-QLT-FRM-1204) shall be delivered with each shipment, including a ballooned drawing to link the measurements in the inspection report to the drawing.

2.9.2.3 After the first production part is verified, an Acceptable Quality Level (AQL) inspection may be performed for the entire lot. The AQL inspection process shall include at a minimum:

- All Key Characteristics identified on the engineering drawing or purchase order.
- Any characteristics that have been identified as defects via an escape to Collins Aerospace.
- Any characteristics with a dimensional tolerance less than or equal to 0.0005”.
- Any characteristics with surface finish requirements less than or equal to 16 RA.

2.9.2.4 When performing an AQL inspection, the following sample sizes shall be used at a minimum:

| <u>Lot Size</u> | <u>Sample Size</u> |
|-----------------|--------------------|
| 1 to 5 | All |
| 6-13 | 5 |
| 14-150 | 6 |
| 151-500 | 8 |
| 501-10,000 | 13 |
| >10,000 | 20 |

2.9.2.5 All edges and surfaces shall be reviewed for burrs and cosmetic defects on 100% of the lot.

2.9.2.6 The 100% characteristic check shall be performed any time production is interrupted after the first production part. Examples of a break in production are, but are not limited to:

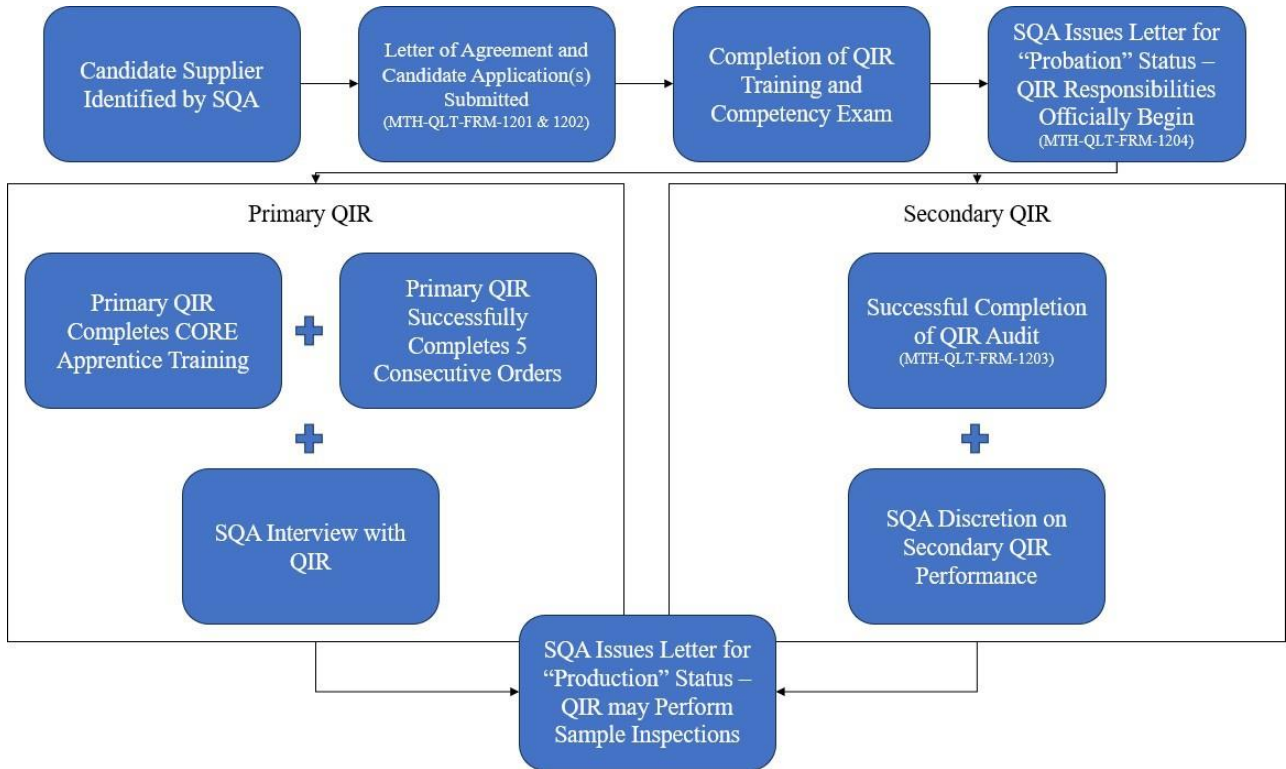
- Switching machines in the middle of producing a single batch of parts.
- Routine/preventative maintenance was performed in the middle of producing a dedicated single batch of parts that includes breaking down the machine set-up.
- Any other action or change associated to breaking down the machine set-up.

2.9.2.7 All inspection sheets submitted by a secondary QIR in “Probation” status, shall be reviewed and signed off by a Primary QIR prior to shipment.

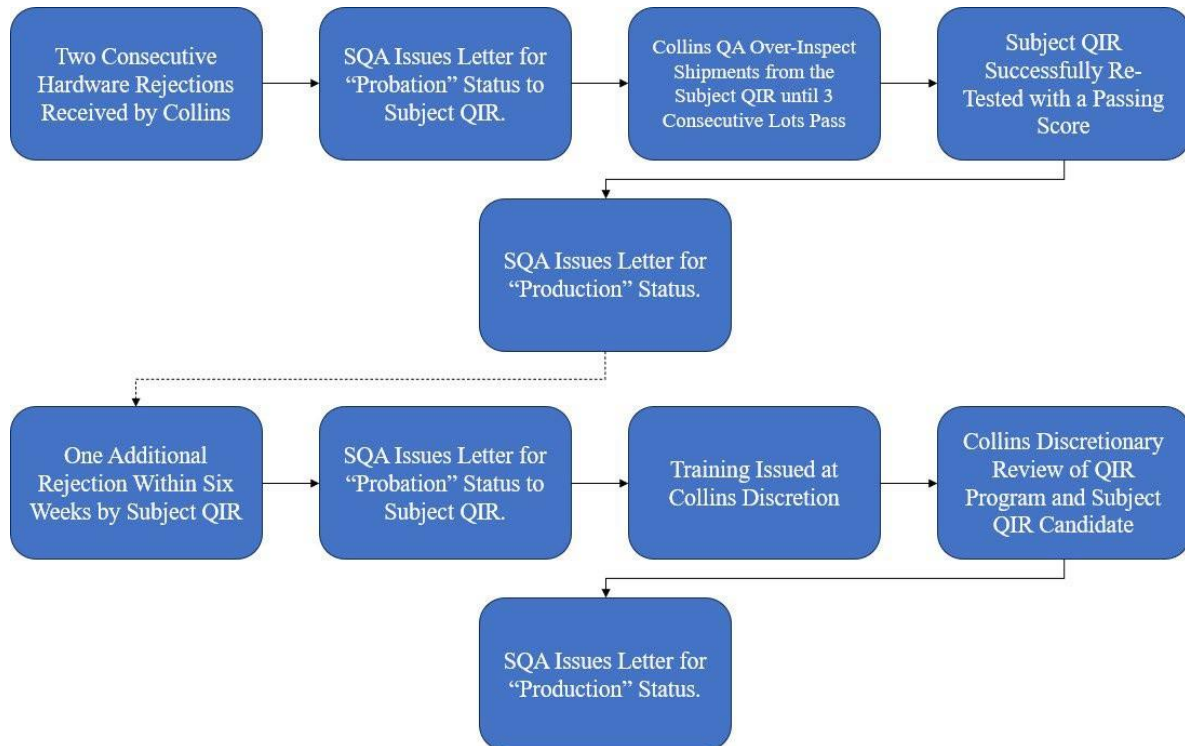
3.0 Procedure to Implement the QIR Program

- 3.1 SQA identifies candidate Suppliers to participate in the QIR program based on Supplier's performance and willingness towards continuous improvement.
- 3.2 SQA provides information to the Supplier about the specifics of the program. If the Supplier wishes to participate, SQA provides the necessary instruction to begin the process.
- 3.3 Supplier completes MTH-QLT-FRM-1201, "Quality Improvement Representative Program - Letter of Agreement"
- 3.4 Supplier completes MTH-QLT-FRM-1202, "Quality Improvement Representative Program - Candidate Application", for each candidate.
- 3.5 SQA reviews and approves the submitted Letter of Agreement and Candidate Applications.
- 3.6 SQA approves, schedules, and provides QIR training and subsequent training when required.
- 3.7 SQA issues competency exam to the candidate. Upon successful completion, SQA issues a letter to the Supplier informing them of the QIR(s) "Probation" status.
- 3.8 Collins Aerospace Quality Assurance (QA) confirms five consecutive production lots meet all requirements.
- 3.9 Primary QIR completes CORE Apprentice Certification Training.
- 3.10 SQA approves QIRs and records signatures and initials of the QIR for use of acceptance by QIRs.
- 3.11 SQA organizes interview with QIR(s) and issues a letter to the Supplier informing them of the QIR(s) "Production" status when all requirements have been met.
- 3.12 QIR performs duties in accordance with Section 2.8.
- 3.13 SQA should conduct a QIR audit after the first six months of implementing the QIR program. Additional audits should be performed as determined by SQA to monitor performance, consider production status of a Secondary QIR, and identify opportunities to transition from the QIR program to the DQR Program.
- 3.14 SQA responds to audit trends or findings based on the current situation.

4.0 Flow Chart for QIR Progression



5.0 Flow Chart for QIR Hardware Rejections



6.0 Definitions / Abbreviations

| | |
|-------|---|
| AWS | American Welding Society |
| QIR | Quality Improvement Representative |
| CORE | Customer Oriented Results and Excellence |
| PO | Purchase Order |
| SQA | Supplier Quality Assurance |
| SQR | Supplier Quality Representative |
| QA | Quality Assurance |
| DQR | Delegated Quality Representative |
| DAISE | Describe, Align, Investigate, Solve, Ensure |
| AQL | Acceptable Quality Level |

7.0 References

- 7.1 MTH-QLT-FRM-1201, “Quality Improvement Representative Program – Letter of Agreement”
- 7.2 MTH-QLT-FRM-1202, “Quality Improvement Representative Program – Candidate Application”
- 7.3 MTH-QLT-FRM-1203, “QIR Audit Form”
- 7.4 MTH-QLT-FRM-1204, “QIR Inspection Form”

Revision Record

| Revision | Date | Section(s) Affected | Description of Change/Change Request Reference/Remarks |
|----------|-----------|--|---|
| 00 | 9/19/2023 | All | New Document |
| 01 | 2/26/2024 | 2.1, 2.2, 2.3, 2.8, 2.9, 3.0, and 6.0. | Updated to modify Product Acceptance Processes to effectively differentiate between Special Process Suppliers and Machining and Manufacturing Suppliers. Formatted sections 2.1, 2.2, 2.3, 2.8, and 3.0 for cosmetic formatting purposes. |

Document Sign Off

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| Prepared By & Date: | |
| Safety Review and Date: | NA |
| Mfg. Engineering Review and Date: | |
| Production Review and Date: | |
| Quality Review and Date: | |