# Landing Systems

| Title: Vendor Guidelines for Corrective Action Submissions | Doc #: LS-SBU-SQM-SPL002 |
|---|---|
| Functional Group: Supplier Quality Management | Revision: 00 |

Compliance to the management system is the responsibility of each Landing Systems employee

## 1. PURPOSE/SCOPE

This document provides guidance to suppliers on submission of a supplier corrective action response to Collins Aerospace Landing Systems.

## 2. RESPONSIBILITIES

**2.1. Supplier:** Responsible to provide information regarding the 1) containment of nonconforming product, 2) define the team that will complete the corrective action, 3) develop the corrective action plan, and 4) provide objective evidence to the defined action plan.

**2.2. Supplier Quality Management:** Review Corrective Action information to drive improvements in quality of submission.

## 3. REFERENCES/FORMS

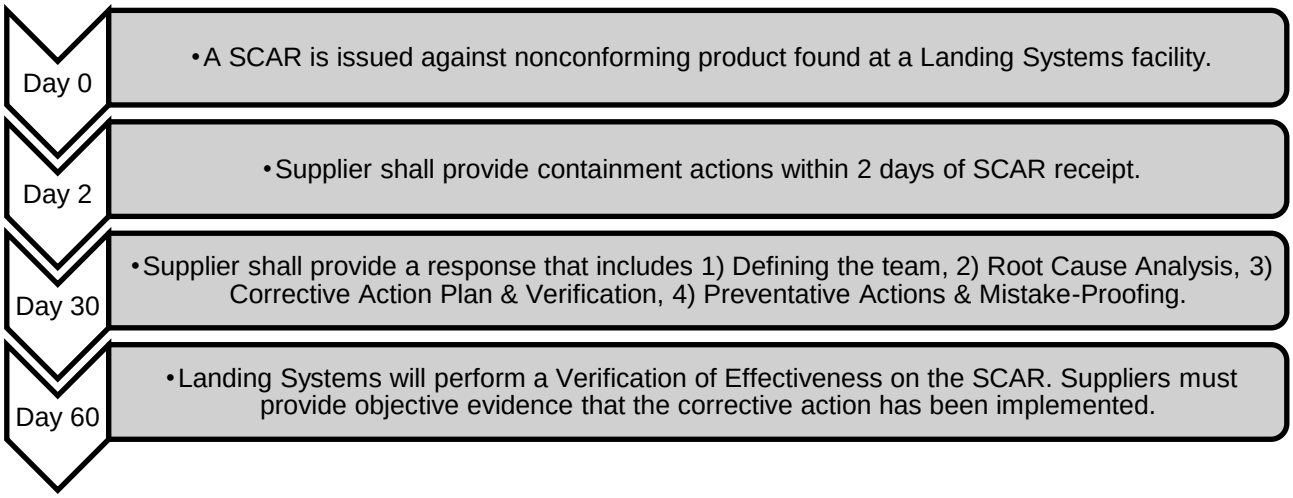
**3.1.** LS-SBU-A001-SQM

## 4. DEFINITIONS/ACRONYMS/ABBREVIATION

**4.1.** SCAR – Supplier Corrective Action Response

**4.2.** SQE – Supplier Quality Engineer

## 5. CORRECTIVE ACTION OVERVIEW



# 5 CORRECTIVE ACTION SUBMISSION PROCESS

**Note:** For Each section below, you must complete all fields otherwise the SCAR workbook will not allow you to close that section.

**Note:** Reach out to your SQE Focal for guidance on any of the sections below.

## 5.1 SECTION 1: REQUEST FOR SCAR

5.1.1 When a SCAR is requested, the supplier shall receive from their Collin's SQE Focal an excel workbook that has Section 1 of the workbook completed Supplier Corrective Action (SCARs) responsiveness.

5.1.1.1 **NOTE**: A SCAR word template may be provided instead by your SQE focal. In this situation, all guidance below is applicable but the formatting is different.

5.1.2 Who the SCAR is issued to, who issued the SCAR, and when the SCAR was issued.

5.1.3 The affected program/customer, the nonconforming part number and name.

5.1.4 Due dates for containment, SCAR action plan, and closure.

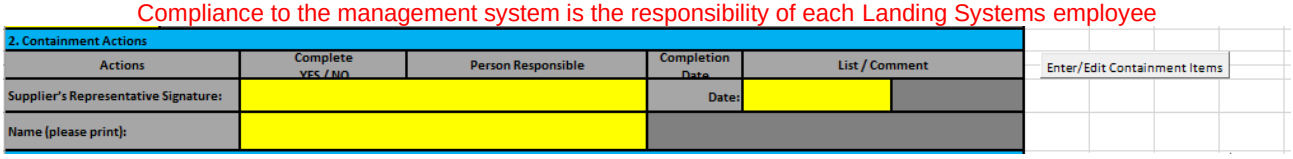
5.1.5 The requirement the nonconforming product was supposed to meet and why it was nonconforming.

| CORRECTIVE ACTION REQUEST INFORMATION | | | | | | | |
|---|---|---|---|---|---|---|---|
| Issue to: | | Issue Date: | | Containment Due Date: | | | |
| CAR Originator: | | Customer: | | Action Plan Due Date: | | | |
| Part No: | | Program: | | Closure Due Date | | | |
| Part Name: | | SCAR Number | | | | | |
| Quantity Rejected: | | | | | | | |
| 1. Define the Problem | | | | | | | |
| Requirement | | | | Definition of Non-Conformance | | | |
| | | | | | | | |

## 5.2 SECTION 2: CONTAINMENT OF NONCONFORMING PRODUCT

5.2.1 Containment actions shall be provided within 2 days of SCAR notification. Suppliers shall also provide objective evidence that containment is complete.

5.2.1.1 To report containment within the workbook, click "Enter/Edit Containment Items."




5.2.2 This will open a list of questions that shall be completed, that includes information on how nonconforming product is controlled, the quantity of nonconforming product at the supplier, and if sub-tier suppliers are involved.

5.2.2.1 **Note:** When recording quantities, replace the # with the desired number.

5.2.2.2 **Note:** All List Comments in the Containment section must be populated, if applicable. If a List Comment is not applicated, write "N/A."

| Actions | Complete | Person Responsible | Completion Date | List Comment |
|---|---|---|---|---|
| List what operation/process was stopped to ensure no further defects escaped your facility | | | | |
| Quarantined non-conforming product | | | | QTY quarantined: # |
| Purged WIP and Stock | | | | QTY accepted # Qty Rejected # |
| List which internal departments/work stations/cells were notified of this non-conformance. | | | | |
| List the method the Non-conformance was communicated internally | | | | |
| Outside Customers have been notified (please reference method in Comments) | | | | |
| List the operation/process that allowed you to restart production/shipping product | | | | |
| If applicable: How was Sub-tier notified? | | | | |
| Sub-tier purged WIP and Stock | | | | QTY accepted # Qty Rejected # |

5.2.3 Click "Return Containment Items" to run the macro and the workbook will auto-populate.

5.2.4 If edits are required, click "Enter/Edit Containment Items" to make changes. Do not attempt to make changes to the main workbook page.

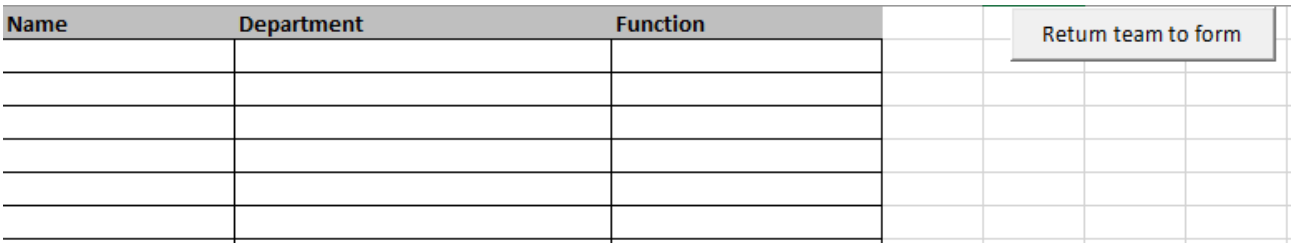
5.2.5 Once containment actions have been determined, please sign and date in the in the yellow fields and return the workbook to your Collins' SQE focal.

| 2. Containment Actions | | | | |
|---|---|---|---|---|
| Actions | Complete YES / NO | Person Responsible | Completio n Date | List / Comment |
| List what operation/process was stopped to ensure no further defects escaped your | Yes | O. Wyman | 1/13/2023 | test |
| Quarantined non-conforming product | Yes | O. Wyman | 1/13/2023 | QTY quarantined: 34 |
| Purged WIP and Stock | No | O. Wyman | 1/13/2023 | QTY accepted 5 Qty Rejected 34 |
| List which internal departments/work stations/cells were notified | No | O. Wyman | 1/13/2023 | test |
| List the method the Non-conformance was communicated internally | No | O. Wyman | 1/13/2023 | test |
| Outside Customers have been notified (please reference method in Comments) | No | O. Wyman | 1/13/2023 | test |
| List the operation/process that allowed you to restart production/shipping product | No | O. Wyman | 1/13/2023 | test |
| If applicable: How was Sub-tier notified? | No | O. Wyman | 1/13/2023 | test |
| Sub-tier purged WIP and Stock | No | O. Wyman | 1/13/2023 | QTY accepted 0 Qty Rejected 0 |
| Supplier's Representative Signature: | | | Date: | |
| Name (please print): | | | | |

## 5.3 SECTION 3: DEFINE THE TEAM

5.3.1 Suppliers shall provide contacts that will be completing the corrective action plan. Click “Enter\Edit Team Members” to populate this section.


5.3.2 All contacts provided shall be personnel who will manage or complete the corrective action plan.




5.3.3 Once the team information has been populated, click “Return Team to Form” and the workbook with auto-populate with the team information.

## 5.4 SECTION 4: ROOT CAUSE ANALYSIS

5.4.1 All yellow fields in this section can be edited from the main workbook page.

5.4.2 The 5 Why Analysis is a brainstorming tool provided in the SCAR form to find out three causes of the nonconformance:

5.4.2.1 The **Direct Cause** is the cause that caused the defect. For example, tool lines on the part could be a direct result of a blunt/damaged toolhead – so the blunt tool will be your direct cause.

5.4.2.2 The **Systemic Cause** is the chronic root cause for the nonconformance. Continuing with the above example, the systemic cause for why there was a blunt tool could be tied to poor maintenance practices.

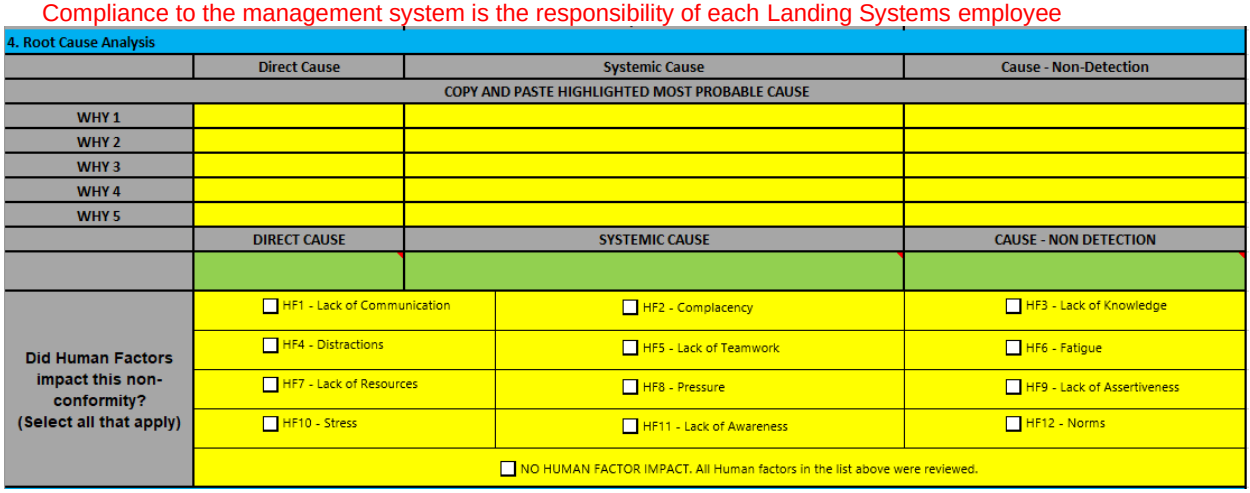
5.4.2.3 The **Cause of Non-Detection** is to root cause why a nonconforming produce made it out of the Quality system and to the customer.

5.4.3 The table below provides an example Root Cause Analysis using the 5 Why for an example nonconformance for a leaking PTFE tube identified in the field.

| | | | |
|---|---|---|---|
| **WHY 1** | Area of tubing was over heated | The failure of overheating occurred on the smaller tube diameter only | The failure was not detected during standard testing |
| **WHY 2** | Over-heating was due to thermal event | Process control systems were installed only for bigger tube diameters | The test sample for lab testing is taken from stand and end of tube lot run |
| **WHY 3** | Thermal event was due to presence of oxygen inside the tubing | The lower risk for thermal event on smaller diameter tubes when process controls were installed | Testing tube ends will be representative of the whole tube lot run |
| **WHY 4** | Oxygen was present in tube ring due to lack of nitrogen or vacuum | The low risk of thermal event on smaller diameter tubes is based upon the history of internal and external failures | This testing method was considered acceptable |
| **WHY 5** | Lack of nitrogen was due to blocked pin and/or delayed nitrogen purge | The current line X for smaller diameter tubes does not include process control system sensors | Existing test methods cannot detect this failure. |
| | **DIRECT CAUSE** | **SYSTEMIC CAUSE** | **CAUSE OF NON-DETECTION** |

5.4.4 Human factors must always be considered when root causing a nonconformance. The environment, mental state, awareness, and training of the operators can directly attribute to the nonconformance.

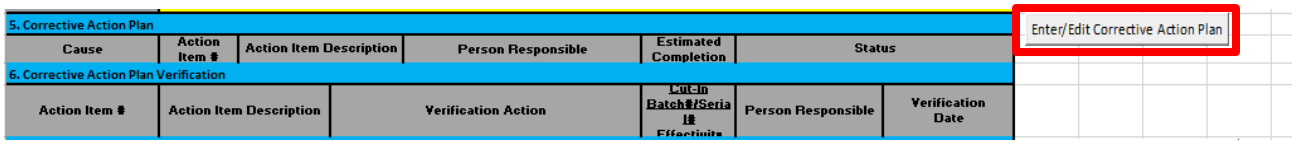
5.4.5 If human factors can be attributed to this nonconformance, select all factors that apply.



| 4. Root Cause Analysis | | | |
|---|---|---|---|
| | Direct Cause | Systemic Cause | Cause - Non-Detection |
| | COPY AND PASTE HIGHLIGHTED MOST PROBABLE CAUSE | | |
| WHY 1 | | | |
| WHY 2 | | | |
| WHY 3 | | | |
| WHY 4 | | | |
| WHY 5 | | | |
| | DIRECT CAUSE | SYSTEMIC CAUSE | CAUSE - NON DETECTION |
| | | | |
| Did Human Factors impact this non-conformity? (Select all that apply) | ☐ HF1 - Lack of Communication | ☐ HF2 - Complacency | ☐ HF3 - Lack of Knowledge |
| | ☐ HF4 - Distractions | ☐ HF5 - Lack of Teamwork | ☐ HF6 - Fatigue |
| | ☐ HF7 - Lack of Resources | ☐ HF8 - Pressure | ☐ HF9 - Lack of Assertiveness |
| | ☐ HF10 - Stress | ☐ HF11 - Lack of Awareness | ☐ HF12 - Norms |
| | ☐ NO HUMAN FACTOR IMPACT. All Human factors in the list above were reviewed. | | |

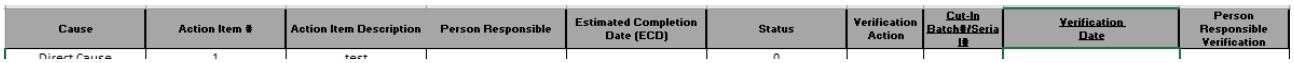
## 5.5 SECTION 5 & 6: CORRECTIVE ACTION PLAN & VERIFICATION

5.5.1 Supplier are expected to provide their Collins' SQE Focal a root cause analysis and corrective action plan within 30 days of SCAR notification.



| 5. Corrective Action Plan | | | | | | Enter/Edit Corrective Action Plan |
|---|---|---|---|---|---|---|
| Cause | Action Item # | Action Item Description | Person Responsible | Estimated Completion | Status | |
| 6. Corrective Action Plan Verification | | | | | | |
| Action Item # | Action Item Description | Verification Action | Cut-In Batch#/Serial# Effectivity | Person Responsible | Verification Date | |

5.5.2 Click "Enter\Edit Corrective Action Plan" to begin defining the corrective action plan.



| Cause | Action Item # | Action Item Description | Person Responsible | Estimated Completion Date (ECD) | Status | Verification Action | Cut-In Batch#/Serial# | Verification Date | Person Responsible Verification |
|---|---|---|---|---|---|---|---|---|---|
| Direct Cause | 1 | test | | | 0 | | | | |

5.5.3 Each action item shall have 1) description, 2) Person Responsible, 3) Estimated Completion Date, 4) Status.

5.5.3.1 Additionally, each action shall be associated with a root cause (Direct, Systemic, Cause of Non-Detection).

5.5.4 Each action item shall also have a verification action that includes: 1) cut-in batch/serial (if applicable), 2) verification date, 3) person responsible for the verification action.

5.5.4.1 **Note**: Supplier are expected to provide action plans that address all three causes. Failure to provide corrective actions against all 3 causes will lead to rejection and require resubmission of the SCAR.

5.5.5 Once the corrective action and verification plan is complete, click "Return Action Plan" and the workbook will auto-populate.

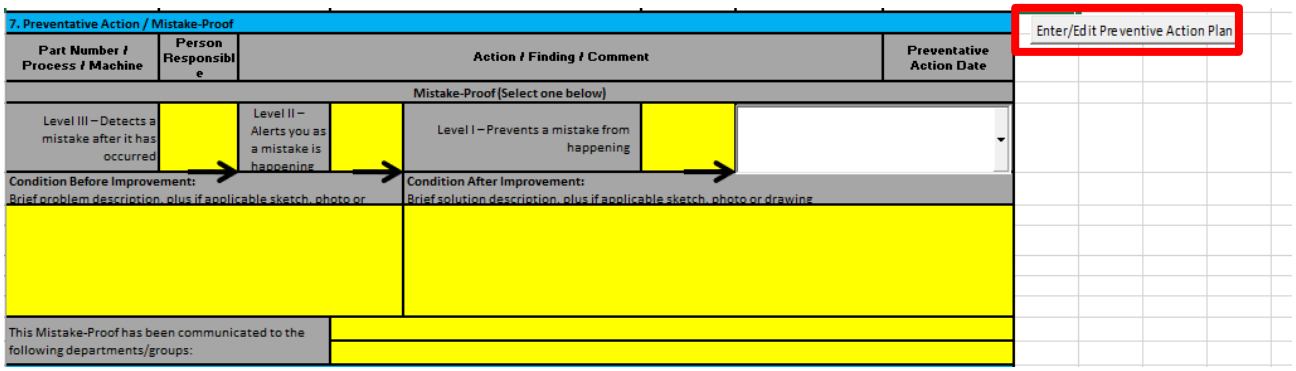
## 5.6 SECTION 7: PREVENTATIVE ACTIONS/MISTAKE-PROOF

5.6.1 For every corrective action plan, a justification for how the corrective action prevents the nonconformance from occurring again must be provided.

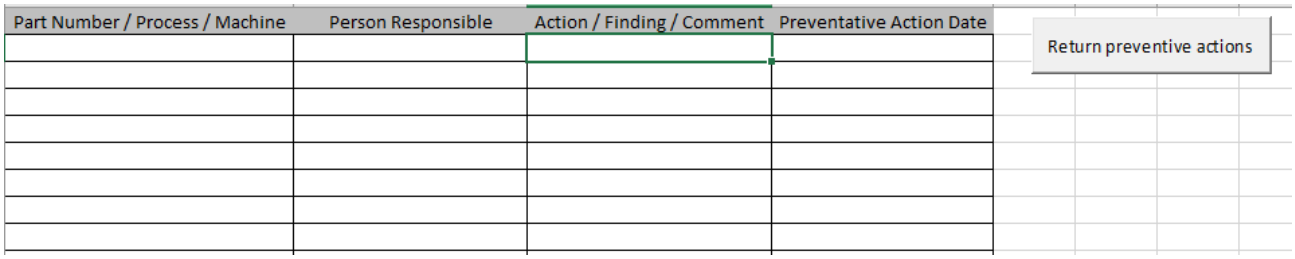
5.6.2 At a minimum, a supplier shall conduct a read-across on all similar part numbers supplied to Collins Aerospace Landing Systems.

5.6.2.1 **Note**: The submitted SCAR may be rejected if evidence of a read-across is not provided.

5.6.3 Click “Enter\Edit Preventative Action Plan”




5.6.4 Complete the table with information that identifies the part/process/machine that the preventative action will address. Make sure to include the action owner and when the preventative action will be complete.




5.6.5 Click “Return preventative actions” to auto-populate the corrective action workbook.

5.6.6 Complete the remaining entries that are captured in yellow. A supplier shall determine the mistake proofing level of the preventative actions and provide evidence of the before/after condition created by the preventative actions.

5.6.7 Every SCAR is expected to have a mistake-proofing level associated with it:

5.6.7.1 **MP1:** Collins Aerospace expects that all suppliers strive for MP1. This is the highest level which indicates that implemented corrective actions will prevent the nonconformance from occurring again.

5.6.7.2 **MP2:** These are for corrective actions that alert an operator to the nonconformance while the mistake is occurring.

5.6.7.3 **MP3:** This is the least preferred corrective action type. Here, nonconformances are detected after the mistake has occurred.

5.6.8 Your Collins' SQE Focal will review your submitted action plan and determine if the proposed root cause analysis, corrective action, and preventative actions are appropriate for the nonconformance.

### 5.7 SECTION 8: CLOSURE

5.7.1 The corrective action plan is expected to be implemented within 60 days of SCAR notification.

5.7.2 If the submitted corrective action plan does not meet requirements, your Collins' SQE Focal will provide rejection comments and further guidance to improve the submission.

| Closure | | | |
|---|---|---|---|
| Assignee Name (Supplier Representative) | Assignee Signature (Supplier Representative) | Comments for Rejection | Date |
| | | | |
| Originator Name | Originator Signature LS SQA Representative) | | |
| | | | |
| SQA Manager Name | SQA Manger Signature | | |
| | | | |

5.7.3 Once the SCAR has been accepted, a completed copy with the following three signatures and dates will be provided to the supplier and Collins for record keeping:

5.7.3.1 Supplier SCAR Owner

5.7.3.2 Collins SQE Focal

5.7.3.3 Collins SQE Manager

| **Revision Description** | | | |
|---|---|---|---|
| Revision | Release Date | Summary and Reasons for Changes | Originator |
| 00 | 31-May-2023 | Initial document creation | O. Wyman |