

Corrective Action Process

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ABSTRACT: This document defines the Corrective Action Process for use within Digital as the vehicle to address improvement issues. It includes information on the identification, issue, and closure criteria for corrective action reports (CARs).

APPLICABILITY: This document is required for the US Area and GIA Manufacturing, Product Management, Design, Sales, Service, CSSE, Marketing, and others involved with corrective action resulting from customer feedback.

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CONTENTS

1 INTRODUCTION 1

2 DEFINITIONS AND RESPONSIBILITIES 1

 2.1 RESPONSIBLE PERSONS, DEFINITIONS, AND RESPONSIBILITIES 1

3 PROCESS 2

 3.1 OVERVIEW: THE APPROACH OF THE CORRECTIVE ACTION PROCESS 2

 3.1.1 Process Flow 3

 3.1.2 Ownership 3

 3.2 WHEN TO ISSUE A CAR 4

 3.2.1 Timing for Issuance of a CAR 5

 3.2.2 Information Required for a CAR 5

 3.2.3 CAR Format 5

 3.3 TIMING REQUIREMENTS FOR ACKNOWLEDGMENT AND RESPONSE 7

 3.4 CLOSURE CORRECTIVE ACTION SUFFICIENCY 7

 3.4.1 Criteria for Closure 8

4 ESCALATION PROCEDURE 9

5 DATA BASE AND INFORMATION REQUIREMENTS 11

 5.1 IDENTIFICATION OF CARS (NUMBERING SCHEME) 13

Appendix A CORRECTIVE ACTION REPORTING 15

Appendix B RELATED DOCUMENTS 17

 B.1 EL-Class Digital Documents 17

FIGURES

 1 Corrective Action Process Flow 3

 2 Problem Solution Process Flow 4

 3 Escalation Process Flow 10

 4 CAR Numbering Scheme 13

TABLES

 1 Matrix of Corrective Action Sufficiency 8

 2 Escalation Procedure 9

1 INTRODUCTION

This document defines the elements of the Corrective Action System for use within Digital's US Area and GIA. It includes information on issuing, identifying, and closure criteria for corrective action reports (CARs). This process is intended to be the vehicle to address continuous improvement within Manufacturing, Product Management, Design, Sales, Service, CSSE, and Marketing.

This document focuses on corrective action resulting from customer feedback. Customer feedback includes, but is not limited to, problems found at any point within the manufacturing process and problems identified in customer assessments and other customer communications.

Customer assessments conducted by any group within Digital Manufacturing are included in the scope of this process.

2 DEFINITIONS AND RESPONSIBILITIES

2.1 RESPONSIBLE PERSONS, DEFINITIONS, AND RESPONSIBILITIES

Responsible persons within the Corrective Action Process are as follows.

- Problem Identifier (the person who discovers/reports problem)
 - a. Meet preferred criteria for sufficiency of information.
 - b. Communicate problem clearly, completely, and in a timely manner.
 - c. Clearly communicate customer need and severity of the problem.
 - d. Work with the Problem Solver to obtain additional information as requested and/or the field replaceable unit (FRU) or system to evaluate, if possible.
- CAR Issuer (the person responsible for generating/monitoring the corrective action process)
 - a. Identify recipient.
 - b. Translate information from the problem identifier into a formal CAR.
 - c. Act as focal person between problem identifier and problem solver, supplying contact names and any additional required information.
 - d. Track CAR progress and escalate, as required.
 - e. Share responsibility for CAR with solver.
 - f. Share closure responsibility with solver.

- Problem Solver (the last person/group that added value to a product or process)
 - a. Acknowledge receipt of CAR and provide status reports in a timely manner.
 - b. Share ownership and closure of CAR with issuer.
 - c. Perform root cause analysis and problem resolution.
 - d. Communicate resolution to issuer in a timely fashion.
 - e. Issue any necessary additional CARs to suppliers to address distribution or other issues, notify original CAR issuer (for information purposes), and monitor and track these CARs as required to achieve sufficient closure of the original CAR.
 - f. CAR responsibility is tied to the top level of the problem product or process.

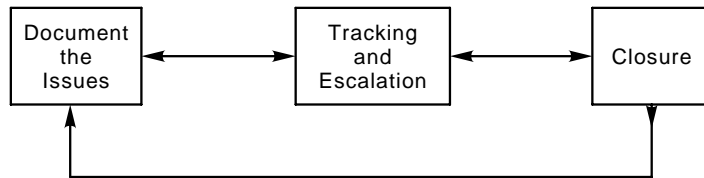
- Management
 - a. Support the process by ensuring ownership, compliance, and available resources within the organization.
 - b. Implement and/or enhance the Corrective Action Process within organization.
 - c. Report Corrective Action Metrics/Results at Corporate Forums.
 - d. Participate in the escalation process.
 - e. Share information on the Corrective Action Process with organization personnel who will be directly involved in the process.

3 PROCESS

Corrective action requires communication between all parties involved at the beginning, during, and at the end of the process.

3.1 OVERVIEW: THE APPROACH OF THE CORRECTIVE ACTION PROCESS

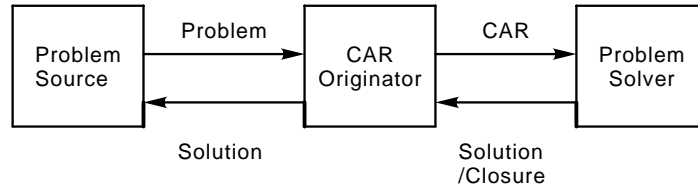
The Corrective Action Process requires documentation of the issues. The CAR must be tracked, escalated for resolution when necessary, and closed in a timely manner.



3.1.1 Process Flow

The process for corrective action starts with the person who identifies the problem, goes to the collector of data, who is often the originator of a corrective action request (CAR), and continues to the Problem Solver. See Figure 1.

Figure 1: Corrective Action Process Flow



There are two types of corrective action.

1. Remedial corrective action, which is defined as immediate, short-term activity to prevent further problems from reaching the customer until a long-term solution is found
2. Systemic corrective action, which is defined as a process or design change that prevents that specific problem from recurring degrading other processes or designs.

Systemic Corrective Action is the goal of the corrective action process. See Figure 2.

3.1.2 Ownership

It is the responsibility of both the issuer and the solver to ensure that all issued Corrective Actions are worked and resolved within an acceptable and reasonable time frame. These parties shall work together and assist each other to resolve all problems; the agreement of both parties is necessary to successfully close any CAR.

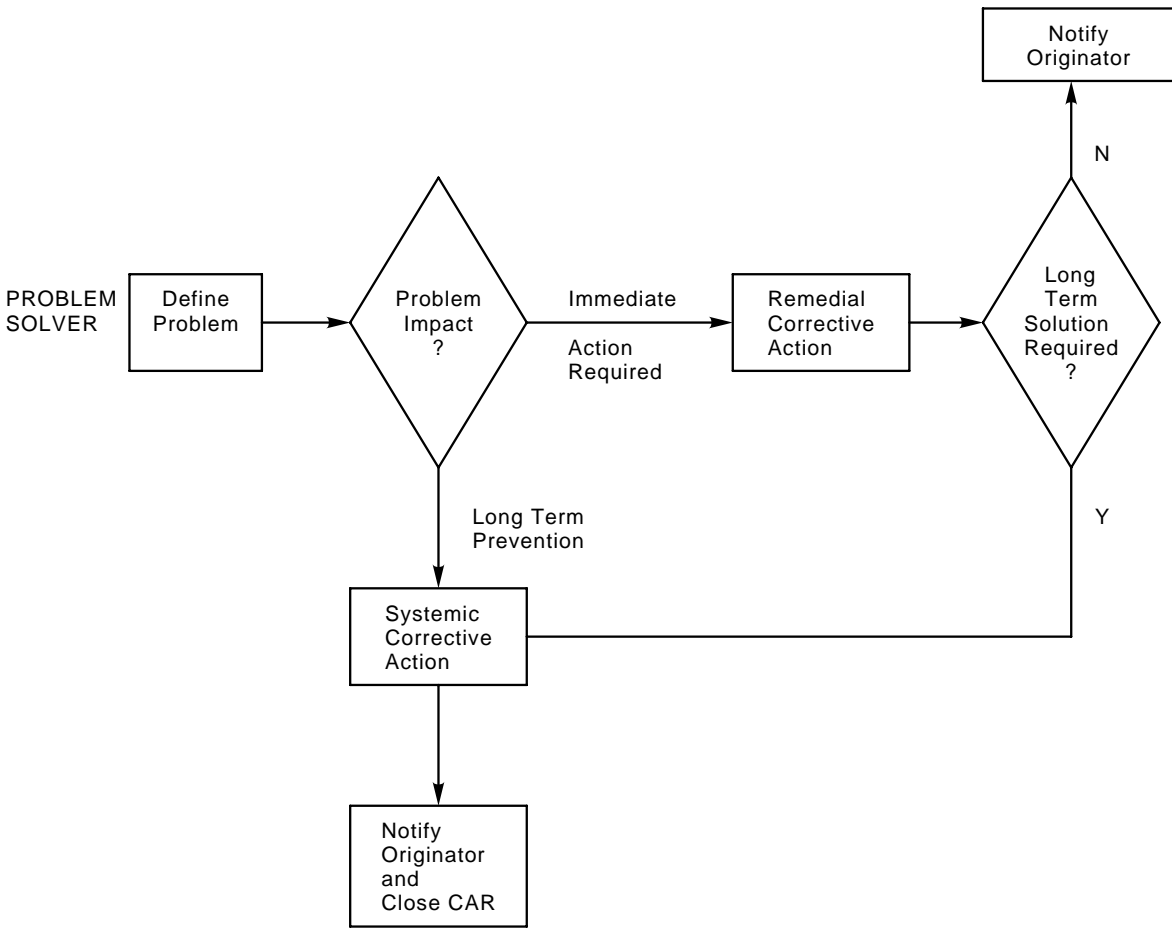
In all cases the problem solver is identified as the organization that last added value to a product or process. If the solver needs to issue additional CARs to its suppliers to solve an open CAR, it is expected that he/she shall do so and notify the issuer of the original CAR as part of a status update. However, the original CAR shall remain open until the solver and original issuer agree that a solution has been found.

If the receiver of a CAR determines after some evaluation that the CAR has been erroneously issued, then the issuer and solver must jointly agree to this determination, and the issuer shall reissue the CAR to the appropriate organization.

In the cases described above, both parties involved with a CAR must meet the specific information, timing, and escalation requirements outlined in headings 3 and 4 of this document.

Heading 2 further describes definitions and responsibilities within the Corrective Action Process, from issuance to closure.

Figure 2: Problem Solution Process Flow



3.2 WHEN TO ISSUE A CAR

A CAR is issued upon discovery of any of the following.

- a. Deviation from Digital specifications
- b. Incompleteness
- c. Documented failures of products, processes, or services
- d. Deviation from expectations established by Marketing
- e. Problems in any of the following: CAS, Sales, Service, Distribution
- f. Software problems
- g. Digital supported third-party product problems

Problems that meet the following criteria are not subject to CARs, but are to be documented and sent to the Product Manager or other appropriate responsible individual(s) for resolution.

- a. Customer misuse
- b. Performance hearsay
- c. Customer wishes (in excess of specification or Marketing expectations)
- d. Issues requiring extensive, company-wide systemic solutions
- e. Third-party service

3.2.1 Timing for Issuance of a CAR

A CAR shall be issued and acknowledged within the following time frames.

- 1. Any Corrective Action Request must be issued within three working days of the discovery of the problem.

A CAR is considered issued when the receiving plant has acknowledged receipt of the CAR.

- 2. The time limit for acknowledgment of receipt of a CAR is one working day. The acknowledgment of receipt may be as simple as an acknowledgment via an electronic mail message.

If receipt is not acknowledged within the time frame, the issuer shall follow up to ensure that it has been received.

3.2.2 Information Required for a CAR

It is recognized that the amount of information available to describe problems for which CARs will be issued will vary. These are the minimum acceptable, acceptable, and preferred levels of information for issuance of a CAR.

Minimum	General information, some symptoms of failure, general failure modes, part numbers, some serial numbers
Acceptable	Some symptoms and failure modes, system and/or configuration information, part numbers, serial numbers
Preferred	Detailed symptoms and failure modes, appropriate part numbers and serial numbers, system and/or network configuration (Sometimes have the FRU or system available for failure analysis.)

The information available to the problem solver has a direct impact on the sufficiency of Corrective Action. A matrix describing this relationship is shown under subhead 3.4.

3.2.3 CAR Format

The following is a recommended format for CARs. The information required in the CAR is marked by an asterisk (*). The other information and format are recommended only.

Corrective Action Request Form

* A. DEC Number: _____ * Date Issued: _____ * CAR Number: _____

* B. Issued by: _____ * Org: _____ * Phone/Node: _____

* C. CPU Type: _____ Serial Number: _____ Ship Date: _____

Installed by: Field Manufacturing Customer

D. Failure Mechanism:

* Problem Category: Hardware Software Sales/Service
(Check One)

Documentation Distribution Ord. Adm. Other

(This category is intended to identify the category of problem to be addressed. It does not relate to the PFI Tree which is outlined in the PFI Terms and Definitions Document.)

* Failed Option/Assembly

* Part Number: _____ * S/N: _____ Rev: _____

* Assessor/Problem Identifier: _____

E. Failure Detail:

Time to Failure: _____

Diagnostic/Software Running at Time of Failure: _____

Test: _____ Revision: _____

* Description of Failure:

* Response by: _____
(Date)

For More Information Call: _____
(Name) (Phone)

3.3 TIMING REQUIREMENTS FOR ACKNOWLEDGMENT AND RESPONSE

An acknowledgment and response to a CAR shall be completed within the following times.

1. Receipt of each CAR must be acknowledged within one working day. This does not need to be a human interaction, it can be a system-to-system acknowledgment.
2. A reply, indicating ownership of the CAR and at least a preliminary status, must be sent to the issuer within three working days of receipt of the CAR.
3. The Corrective Action Request form shall use dates for required replies. These dates must be met or the escalation procedures will be invoked.
4. In lieu of other dates established by the CAR, escalation procedures will be invoked in accordance with the process and flow chart outlined in heading 4 and Figure 3.
5. When the receiver of a CAR requires more information and notifies the issuer of this requirement, then the issuer of the CAR is under the same time constraints as the solver. This means that the issuer must acknowledge receipt within one day and respond to the request within three working days.

3.4 CLOSURE CORRECTIVE ACTION SUFFICIENCY

The goal of corrective action is continuous improvement. Corrective action is effective when there are no repeated failures after systemic corrective action has been implemented.

The test for Corrective Action Sufficiency requires that solutions be implemented. All activity must answer the question, "Have you done everything?"

- At a minimum, the receiver of a CAR must:
 1. Do a paper analysis, to include process yields, in-plant audits, previously issued CARs for a similar/same problem, other customer feedback, engineering problem reports, and so forth. The intent is to review the products, processes, and services in question in comparison with known data.
 2. Request more data from the CAR source and other sources, as required.
- The Acceptable response includes the two steps above, plus:
 3. Attempt to recreate failure with finished goods or other products available.
 4. Review entire process.
 5. If changes are required, document all changes.
- The Preferred response includes all of the above, plus:
 6. Perform a detailed failure analysis of the product, systems, and services involved.
 7. Correct internal processes, products, and services followed by recommendations to all others affected for similar changes to be implemented.
 8. Document changes in procedure, product, or service.

Characteristics of a Good Closure

A good closure to a CAR is one in which the data provided is used in an efficient manner to achieve timely and mutually agreeable resolution of the CAR. Refer to Table 1.

Table 1: Matrix of Corrective Action Sufficiency

Information	Corrective Action
<p>MINIMUM ACCEPTABLE:</p> <p>General Information Some symptoms of failure General failure modes Part number Serial number</p>	<p>Paper analysis of process history; Comparison with known data; Search for additional data from known sources; Some action based on this data if possible; Commitment to continue monitoring for problem.</p>
<p>ACCEPTABLE:</p> <p>Some symptoms and failure modes System and/or configuration information Part numbers Serial numbers</p>	<p>Paper analysis of process history; comparison with known data; Search for additional data from known sources; Attempt to recreate problem with available products/processes; Review total process; Take action based on this information; Document any changes to products or processes; Continue monitoring to ensure action is effective.</p>
<p>PREFERRED:</p> <p>Detailed symptoms and failure modes Appropriate part numbers and serial numbers FRU or system available for analysis System and/or network configuration information</p>	<p>Paper analysis of process history comparison with known data; Search for additional data from known sources; Attempt to recreate problem with available products; Detailed failure analysis of the product, processes and services involved; Review total process; Correction of internal processes, by recommendations to all others affected for similar changes to be implemented. Continue monitoring to assure action is effective.</p>

3.4.1 Criteria for Closure

The following are the criteria for closure of a Corrective Action Request.

1. Meet criteria for Corrective Action Sufficiency, as defined in subhead 3.4.
2. Both issuer and solver must agree to closure.
3. If agreement cannot be reached, then:
 - a. The issuer must notify the solver in writing within three working days that the solution is not acceptable and why it is not.
 - b. If both parties cannot then come to agreement, the solver will implement normal escalation procedures as defined in the heading 4.

Closure with the the customer must also be reached, as follows.

1. All issues derived from field data must be closed with the Field, via the problem identifier.
2. Appropriate channels for communicating with external customers shall be used. These channels will differ by Area, but will typically involve the Sales or Service organizations.

4 ESCALATION PROCEDURE

Priority

It is expected that the response time and escalation requirements outlined in the Table 2 and Figure 3 will be the accepted norm for Corrective Action Requests. The issuing organization can decide to change the time requirements if it feels that the issue is urgent. If that happens, the solver must be notified of that fact with the CAR and must acknowledge both the CAR and the increased priority within the established time frame.

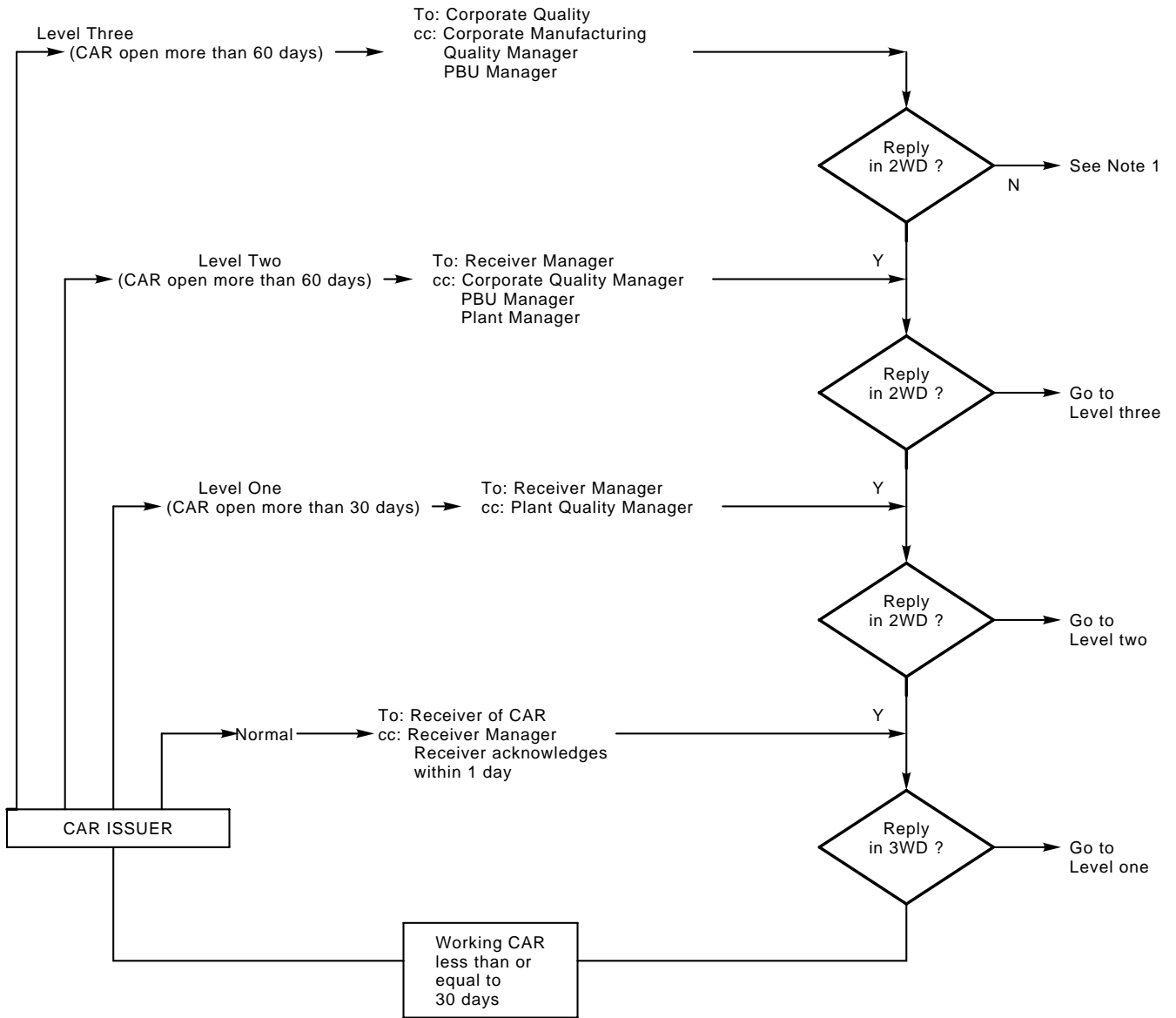
Escalation

The escalation process outlined in Table 2 is intended to be used for those CARs which are not being addressed or for which commitments have not been met. If there is a continuing dialogue between the issuer and receiver (solver) then the expectation is that the escalation process will not be required.

Table 2: Escalation Procedure

Escalation Level	Receiver of CAR	Response Time (days)	Time to Work Issues (days)	Notification Level
Normal	Receiver (solver)	3	30	Receiver's Manager
Level One	Receiver's Manager	2	30	Plant Quality Control/Assurance Manager
Level Two	Plant Quality Manager, PBU Quality Manager	2	30	Corporate Quality Control /Assurance Manager, PBU Manager, Plant Manager
Level Three	Corporate Quality Manager	2	30	Corporate Manufacturing Quality, Manager, PBU Manager

Figure 3: Escalation Process Flow



WD = Working Days

Note 1: Close CAR, discuss alternate strategies with supervisor

5 DATA BASE AND INFORMATION REQUIREMENTS

A good Corrective Action Process requires methods of tracking and escalating Corrective Action Requests. Information should also be collected to provide measurement of the effectiveness of the process. It is recommended that organizations establish data bases, either manual or automated to accomplish these tasks. The following data shall be included in a data base. (Items with an asterisk [*] are recommended.)

1. Source Information:

- a. * Identification CAR Number
- b. * Date Issued
- c. * Date Reply Required
- d. * Problem Product, Process or Service, Category
 - i. Part Number
 - ii. Serial Number
- e. * System
 - i. Part Number
 - ii. Serial Number
 - iii. CPU
 - iv. Ship Date

2. Problem Description:

- a. * Specific Problem and/or Failing Mechanism
- b. * Timing of Problem (Time to Failure)
- c. * Diagnostic Running at Time of Failure
- d. * Preliminary Failure Analysis (Description of Failure)
- e. * Functional Category of Problem
 - i. Hardware
 - ii. Software
 - iii. Sales/Service
 - iv. Documentation
 - v. Distribution
 - vi. Other

3. Receiver Information:

- a. * Identification Code (Assessor/Problem Identifier)
- b. Investigation *
 - i. Failure Analysis
 - ii. Findings
- c. * Action Taken
 - i. Process Change
 - ii. Documentation
 - iii. ECO
 - iv. Other

- d. * Further Action
 - i. Related CARs Issued
 - ii. Receiver
 - iii. Identification Code
 - iv. Date Reply Due
 - 4. Status
 - a. * Open
 - b. * Closed
 - c. * Date Closed
 - 5. Tickler
 - a. * Date Response Due
 - b. * Escalation
 - i. Action Dates
 - ii. Escalation Hierarchy
- * Recommended

5.1 IDENTIFICATION OF CARS (NUMBERING SCHEME)

To facilitate identification, tracking, and reporting of CARs by both the issuing and receiving organizations, it is recommended that all CARs be numbered using the same format.

If a CAR is issued to an inappropriate solver and both parties agree that it was issued incorrectly, that CAR will be voided and a new one issued with a different CAR Number and receiver code.

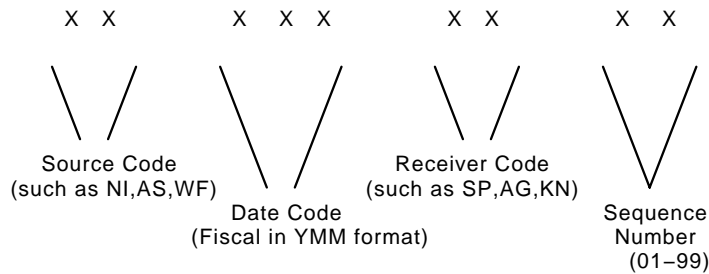
Every organization within Manufacturing shall report corrective action status using this format.

This identification number must include the following.

1. The issuing organization
2. A date code comprised of the last number of the fiscal year and the fiscal month of issue (YMM format)
3. The receiving organization
4. A sequence number

A nine digit number shall be used to meet the above requirements.

Figure 4: CAR Numbering Scheme



An example of a CAR identification number is as follows.

Westfield issued its third CAR in February FY89 to Augusta, so the identifier will be WF908AS03.

APPENDIX A CORRECTIVE ACTION REPORTING

1. CAR Metrics:

Source Plant	Receiving Plant
Month/YTD ¹ Total CARs Issued _____	Month/YTD ¹ Total CARs Received _____
Month/YTD ¹ Total CARs Open _____	Month/YTD ¹ Total CARs Open _____
Open less than 30 Days _____	Open less than 30 Days _____
Open 30 - 60 Days _____	Open 30 - 60 Days _____
Open more than 60 Days _____	Open more than 60 Days _____
Average Time To Close CAR _____	Average Time To Close CAR _____
¹ YTD = Year To Date	

2. Corrective Action Highlights: Issues and Opportunities

APPENDIX B RELATED DOCUMENTS

B.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-MF713-00	<i>Problem Free Installation Process</i>

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