TELEDYNE CONTROLS
A Teledyne Technologies Company

501 Continental Boulevard
El Segundo, CA 90245 USA

SERVICE BULLETIN

CHAPTERS 23/31/34/44/46: ALL SYSTEMS
ALL TELEDYNE CONTROLS AVIONICS EQUIPMENT
ALL PART NUMBERS
PUBLICATION ANNOUNCEMENT OF TELEDYNE PROCESS SPECIFICATIONS

SECTION I: PLANNING INFORMATION

1) Effectivity

Operators of all Teledyne Controls Avionic Equipment, all serial numbers.

2) Reason For Change

The purpose of this Service Bulletin is to document acceptable rework and repair processes commonly used to repair Teledyne Controls avionics equipment. This Service Bulletin is applicable to all Component Maintenance Manuals, Overhaul Manuals, and Manufacturing Maintenance Manuals used in the repair of all Teledyne Controls avionics equipment.

3) Description of Change

Not Applicable.

4) Approval

This Service Bulletin contains no modification information that revises the approved configuration and therefore does not require FAA or other regulatory agency approval.

5) Compliance

Recommended. This Service Bulletin should be referenced at the next suitable planned maintenance period as required.

PROPRIETARY LEGEND

THIS IS CONFIDENTIAL AND PROPRIETARY INFORMATION OF TELEDYNE CONTROLS AND MAY NOT BE USED OR DISCLOSED BY THE RECIPIENT WITHOUT THE PRIOR WRITTEN CONSENT OF TELEDYNE CONTROLS AND THEN ONLY IN ACCORDANCE WITH SPECIFIC WRITTEN INSTRUCTIONS OF TELEDYNE CONTROLS. BY RECEIPT HEREOF, IN ADDITION TO ANY OBLIGATION THE RECIPIENT HAS UNDER ANY CONFIDENTIALITY AGREEMENT WITH TELEDYNE CONTROLS, NEITHER RECIPIENT NOR ITS AGENTS, REPRESENTATIVES OR EMPLOYEES WILL COPY, REPRODUCE OR DISTRIBUTE THE INFORMATION, IN WHOLE OR IN PART, AT ANY TIME, WITHOUT THE PRIOR WRITTEN CONSENT OF TELEDYNE CONTROLS AND THAT IT WILL KEEP CONFIDENTIAL ALL INFORMATION CONTAINED HEREIN.

TELEDYNE CONTROLS
A Teledyne Technologies Company

501 Continental Boulevard
El Segundo, CA 90245 USA

SERVICE BULLETIN

6) Manpower

Estimated Man-hours: 0 hrs

7) Material - Cost and Availability

None.

8) Tooling - Price and Availability

None.

9) Weight and Balance

Not affected.

10) References

A)	CNPP 6006.01	K)	TPS 7700346
B)	OSI 9000.03.004	L)	TPS 7700350
C)	TMS 7500103	M)	TPS 7700353
D)	TPS 7700244	N)	TPS 7700362
E)	TPS 7700248	O)	TPS 7700368
F)	TPS 7700256	P)	TPS 7700383
G)	TPS 7700328	Q)	TPS 7700391
H)	TPS 7700329	R)	TPS 7700398
I)	TPS 7700337	S)	TPS 7700404
J)	TPS 7700339	T)	TPS 7700407

11) Publications Affected

All component Maintenance Manuals, Overhaul Manuals and Manufacturing Maintenance Manuals used in the repair of all Teledyne Controls avionics equipment.

Teledyne Controls Proprietary - Not to be distributed or copied, Title Page Proprietary Legend defines recipient obligations for non-disclosure of information herein.

TELEDYNE CONTROLS
A Teledyne Technologies Company

501 Continental Boulevard
El Segundo, CA 90245 USA

SERVICE BULLETIN

SECTION II: INSTRUCTIONS

1) The following procedures are available as appendices in this Service Bulletin:

A) **Appendix A**: 6006.01 – Control of Nonconforming Product Procedure

B) **Appendix B**: 9000.03.004 – Overhaul Service Instructions

C) **Appendix C**: TMS 7500103 – Bonding Compound, Epoxy Base, Flexible

D) **Appendix D**: TPS 7700244 – Protection of Static Sensitive Devices

E) **Appendix E**: TPS 7700248 – Conformal Coating, Printed Circuit, and Terminal Board Assemblies Using AR Materials Techspray 2103 or PLKOTE-TD

F) **Appendix F**: TPS 7700256 – Principles and Techniques of Spray Coating

G) **Appendix G**: TPS 7700328 – Standard Repair Procedure

H) **Appendix H:** TPS 7700329 – Chassis Spray Painting

I) **Appendix I**: TPS 7700337 – Dehydration Baking

J) **Appendix J**: TPS 7700339 – Bonding Using Loctite 426 or Loctite 411

K) **Appendix K**: TPS 7700346 – EMI Shielding Installation with Self Stick Adhesive

L) **Appendix L**: TPS 7700350 – Bonding of Components using 3M-2216 B/A GRAY

M) **Appendix M**: TPS 7700353 – Use of AIR-VAC PCBRM-12 Fountain Solder Pot

N) **Appendix N**: TPS 7700362 – Cleaning of Printed Circuit Boards Using Unit Design ABC-2000I

O) **Appendix O**: TPS 7700368 – Rework of Production Units to Print

P) **Appendix P**: TPS 7700383 – Standard Rework of Vane Arm Assemblies

Q) **Appendix Q**: TPS 7700391 – Scrap Parts

R) **Appendix R**: TPS 7700398 – Application of DOW 1-2577 Conformal Coat

S) **Appendix S**: TPS 7700404 – Use of Aqueous Technologies Washer

T) **Appendix T**: TPS 7700407 – Conformal Coating, Printed Circuit, and Terminal Board Assemblies Using AR Material Humiseal 1B31-LOC

Teledyne Controls Proprietary - Not to be distributed or copied, Title Page Proprietary Legend defines recipient obligations for non-disclosure of information herein.

SERVICE BULLETIN

2) In addition to the processes and procedures call out in the Service Bulletin, the following IPC Standards are acceptable for use:

IPC-R-700	Suggested Guidelines for Modification, Rework, and Repair of Printed Boards and Assemblies
IPC-7711	Rework of Electronic Assemblies
IPC-7721	Repair and Modification of Printed Boards and Electronic Assemblies

3) The number of acceptable repair techniques and procedures are too numerous to list in this document. Therefore if OEM authorization is needed for a repair, repair procedure or a Material Review Board (MRB) "Use As Is" disposition of a deficiency not affecting the function or airworthiness of the equipment, then contact in writing the Customer Support Department or the Quality and Compliance Department for assistance. Teledyne Controls maintains records of all approved nonstandard repair actions and "Use As Is" dispositions incorporated on its' fielded avionics equipment.

4) Teledyne Controls FAA Certified Repair Station is an extension of Teledyne Controls, the Original Equipment Manufacturer (OEM). Therefore, the processes, procedures, techniques, and MRB actions described for use in this Service Bulletin will be used by the Teledyne Controls FAA Certified Repair Station.

5) Contact Information:

Teledyne Controls
501 Continental Blvd.
El Segundo, CA 90245
Main Telephone: (310) 765-3600
Main FAX: (310) 765-3604

Manager of Customer Support Engineering
Stephen Cunningham: (310) 765-3620

Director of Quality and Compliance
David Murillo: (310) 765-3860

Teledyne Controls Proprietary - Not to be distributed or copied, Title Page Proprietary Legend defines recipient obligations for non-disclosure of information herein.

TELEDYNE CONTROLS
A Teledyne Technologies Company

501 Continental Boulevard
El Segundo, CA 90245 USA

SERVICE BULLETIN

SECTION III: MATERIAL INFORMATION

1) Materials Required

None.

2) Material Removed

None.

Teledyne Controls Proprietary - Not to be distributed or copied, Title Page Proprietary Legend defines recipient obligations for non-disclosure of information herein.

TELEDYNE CONTROLS
A Teledyne Technologies Company

501 Continental Boulevard
El Segundo, CA 90245 USA

SERVICE BULLETIN

Appendix A

Teledyne Controls Proprietary - Not to be distributed or copied, Title Page Proprietary Legend defines recipient obligations for non-disclosure of information herein.

TELEDYNE CONTROLS

CONTROL OF NONCONFORMING PRODUCT PROCEDURE

Approvals

Name	Responsibility/Authority	Signature	Date
Armen Nahapetian	**Engineering Vice President**	A. Nahapetian	3/3/06
David Murillo	**Quality and Compliance Director**		3/10/2006
Joe Allen	**Manufacturing Director**		7/28/5
Kim Rosol	**Procurement Director**		8/1/05

1.0 PURPOSE

To establish the requirements for identifying product that does not meet requirements; segregating or controlling this product to prevent its inadvertent use or shipment, establishing and maintaining a material review and disposition process for nonconforming product, and identifying and correcting conditions which cause nonconformance at Teledyne Controls.

2.0 ACTIVITIES AFFECTED

Quality and Compliance
Manufacturing
Procurement
Configuration Management

3.0 REFERENCE DOCUMENTS

TPS 7700368 Rework of Production Units to Print
Quality Assurance Manual (QAM) Procedures:
- 6006.02 Deviation/Waiver Procedure
- 6007.01 Corrective and Preventive Action Procedure
- 6008.01 Identification, Collection, Indexing, Access, Filing, Storage, Maintenance, and Disposition of Quality Records

Forms:
- TCF1157x Rejection Report
- TCF1158 Deviation/Waiver Request

4.0 DEFINITIONS

Nonconforming Material – Any deliverable product with characteristics that depart from the requirements in the specification or contract.

Minor Nonconformance – A nonconformance to the requirements specified in the contract, specification or drawing which is not a Major Nonconformance.

Major Nonconformance – A nonconformance to the requirements specified in the contract, specification, or drawing which adversely affects:

a) Performance
b) Maintainability
c) Reliability
d) Interchangeability
e) Effective use or operation
f) Weight or appearance (where a factor)
g) Health or safety

Preliminary Material Review Board (PMRB) – Initial review conducted by authorized personnel to determine whether product can be reworked per standard TPS7700368.

Material Review Board (MRB) – A Board consisting of Quality Assurance or Workcell and Design Engineering personnel authorized to review and disposition nonconforming product that was not dispositioned in PMRB.

Rework – Process that returns the product to its original specified condition.

Repair – Processes that reduce, but do not completely return, the nonconformance to specification.

Scrap – Nonconforming product that cannot be used as is, returned, or economically reworked or repaired.

"Use As Is" (UAI) – Product with minor nonconformances that is determined to be satisfactory for its intended purpose with customer concession, as required.

Return to Subcontractor – Nonconforming product that can be returned to the subcontractor for action.

Standard Repair Procedure (SRP) – A technique for repairing a nonconformance, developed by Teledyne Controls and approved by the Customer, as required, where it has been demonstrated that the technique, properly applied, will result in an adequate and cost-effective method for disposition of the nonconformance.

Waiver – A specific written authorization to accept a configuration or other designated item which, during production or after having been submitted for inspection, is found to depart from specified requirements but is considered suitable for the design specification.

Deviation – A specific written authorization, granted prior to the manufacture or processing of an item, to depart from a particular performance or design requirement of a specification for a limited number of units or period of time.

Deviation/Waiver Request Form Log – Database kept by Material Review Board (MRB) to issue unique, sequential numbers to Deviation/Waiver Request Forms for tracking and disposition purposes.

Rejection Report (TCF 1157) – Form utilized to document product nonconformance which require action, as directed by this procedure.

Traveler – A set of instructions directing assembly, inspection, and test operations. These instructions include Operational Process Sheet Instruction List (OPSIL), Manufacturing Instruction and Quality Control Record (MIQCR), and Manufacturing Operation Instruction (MOI).

Corrective Action – Action taken to correct a deficient condition.

Customer Furnished Material (CFM) - Material supplied by a customer for a specific contract.

5.0 PROCEDURE

This procedure documents the system that will identify, segregate (or control if segregation is not practical), and properly dispose of nonconforming product and will assure positive corrective action to preclude or reduce the rate of nonconformance. Flowcharts detailing the process are attached.

5.1 Identification and Segregation of Nonconforming Product

5.1.1 When product is found to be nonconforming, it will be conspicuously tagged and documented on the Traveler/Receiver and segregated to preclude its use in production. If size or configuration allows, the nonconforming product to be submitted for disposition will be segregated from conforming product. Nonconforming product not dispositioned by the Preliminary Material Review Board (PMRB) will be documented on a Rejection Report (TCF1157) and, if size or configuration allow, moved to the Material Review Board (MRB) Bond Room.

5.2 Preliminary Review Process

5.2.1 When product is initially found to be nonconforming, it will be examined by an authorized Preliminary Material Review Board (PMRB) member and, if necessary, Design Engineering personnel to determine if the nonconformance:

a) Can be reworked to TPS7700368
b) Can be reworked if instructions are added to the back of the Traveler
c) Meets none of the TPS7700368 criteria and will be referred to the MRB

5.2.1.1 Nonconformances that can be reworked per TPS7700368 will be documented on the Traveler and returned to Manufacturing. Manufacturing will review the nonconformance documented on the Traveler and perform the rework in accordance with the applicable section of TPS7700368. After rework the item is to be reinspected.

5.2.1.2 If the nonconformance can be easily reworked but the rework method is not defined by TPS7700368, the Workcell Engineer may enter the rework instructions on the Traveler in a location adjacent to the entry of the discrepancy. The item will be reworked and reinspected.

5.2.1.3 Nonconformances that cannot be reworked per TPS7700368 and do not have rework instructions entered on the Traveler will be documented on a Rejection Report and the item forwarded to MRB for disposition.

5.2.2 Preliminary review action does not negate the requirement for identification and documentation. It does recognize that some nonconforming conditions do not warrant referral to MRB and can be handled more economically at the location of initial detection.

5.2.3 Preliminary Material Review Board (PMRB) Membership will consist of the following persons:

a) Inspection Personnel
b) Test Technicians
c) Workcell Engineering
d) Quality Representative (Quality Manager, Inspection Manager, Quality Engineer)
e) Workcell Engineering Manager

5.3 Material Review Board (MRB) Membership

5.3.1 The MRB will be chaired by a representative of the Quality Assurance Organization or the Workcell Engineering organization and will include, as required, personnel representing Design Engineering to determine the appropriate disposition for nonconforming product.

A list of personnel authorized to sign Rejection Reports will be posted on the door of the MRB room. This list will be reviewed every six months and revised, if required.

Dispositions of "Use As Is" and "Repair" require, as a minimum, the participation of representatives of Workcell Engineering/Quality and Design Engineering.

Note: "Use As Is" and "Repair" dispositions may require customer and/or FAA approval. See Section 5.6.

5.3.2 MRB members will be selected on the basis of their technical competence and are approved by the concurrence of both the Director of Quality Assurance and the Manager of Cell Engineering. In addition, the following areas may assist as advisors in the evaluation, review and disposition of nonconforming product, as required:

a) Procurement
b) Program Management
c) Workcell Leaders

5.4 MRB Responsibilities

5.4.1 The MRB will investigate, in a timely manner, all nonconforming product (except product previously disposed of in PMRB) in sufficient depth to determine proper disposition. Recommended dispositions are:

a) Return to Subcontractor
b) Rework
c) Rework per standard rework instructions
d) Rework per other than standard rework instructions
e) Repair per standard repair instructions, with concession, as required
f) Repair per other than standard repair instructions, with concession, as required
g) Use As Is, with concession, as required
h) Scrap

5.4.1.1 Nonconformance Assessment. The MRB will assess each "Use As Is" and "Repair" defect condition listed on the Rejection Report to determine if it is a Major or Minor Nonconformance.

Note: The defect condition could influence if a customer concession is required.

See Section 5.6.

5.4.2 Customer Notification of Delivery of Possible Non Conforming Product.
The MRB will also investigate and determine if product already delivered is possibly affected by the nonconformance. When it is determined that delivered product could be affected, the following data is to be forwarded via a letter to a customer. The Contracts Department will forward this letter.

a) Concise description of the discrepancy
b) Part numbers, serial numbers, and lot numbers affected
c) Delivery quantities
d) Delivery dates
e) Statement of corrective action

5.4.3 Malfunction and Defect Reporting to the FAA

The Director of Quality and Compliance shall report to the local FAA Manufacturing Inspection District Office, within 24 hours after its discovery (except when discovery occurs on a Saturday or Holiday, then it will be reported on the next normal business day) of any serious defect in, or other recurring not airworthy condition (as defined by FAR 21.3) of any unit or component undergoing work by this facility. The report will normally be made as required per FAR 21.3, utilizing FAA Form 8010-4, Malfunction or Defect Report. However, in any case where the filing of a report might prejudice this facility, the matter will be referred to the FAA office for determination as to whether it must be reported. If the defect or malfunction could result in an imminent hazard to flight, the most expeditious method available will be used to inform the FAA.

5.5 Nonconforming Product Documentation

5.5.1 The Quality system will maintain records of nonconforming product, dispositions, assignable cause, corrective actions, and effectiveness of corrective actions. These records will be organized to permit efficient retrieval. Teledyne Controls will assure the documentation of all nonconformances. This documentation will include, as a minimum:

a) Initiator of the document
b) Date of the initiation
c) An identifying number
d) Nonconforming product identification / configuration
e) Where the nonconformance was detected
f) A detailed description of the nonconformance
g) Disposition of the nonconformance
h) Work Authorization (WA) number [or Customer Order (CO) number]
i) Quantity rejected
j) Authorized signatures

5.6 MRB Authority

Unless otherwise indicated in the Contract or Purchase Order, Teledyne Controls has the authority for material review, disposition, and corrective action of nonconforming material. If the authority for dispositioning nonconforming material as "Use As Is" and "Repair" is withheld by the customer, then the submission of nonconforming material to the customer for disposition concurrence will be made in the manner prescribed by the Contract or Purchase Order.

FAA MRB authority: Dispositions of "Use As Is" involving major nonconformances to FAA-approved type design can only be made after the major change has been approved by the FAA as a change to the FAA-approved type design.

5.7 Corrective Action

5.7.1 Letters defining the nonconformance (Letters of Notification) are to be sent to the person/department/company that has ownership for the root cause of the defect. The letters are to be sent except when in the judgment of Workcell Engineering it is not necessary, for example; when Teledyne customers cause rejections or when product is returned and it is out of warranty.

5.7.2 Corrective actions may include any corrective or preventive action taken to eliminate the causes of actual or potential nonconformance. These actions include but are not limited to:

a) Drawing or specification changes
b) Work Instruction changes
c) Process changes
d) Training
e) Corrective Action Requests (CARs)

5.7.2.1 Requests for CARs will be taken within the scope of this procedure, as deemed necessary, per Quality Assurance Manual (QAM) procedure 6007.01, *Corrective and Preventive Action Procedure.*

5.7.3 Corrective action will be implemented for repetitive nonconformances that are dispositioned as "Use As Is."

5.8 Processing of Scrap Material

5.8.1 All material to be scrapped, with the exception of discernible scrap material, will be rejected on a rejection report and forwarded to MRB for dispositioning and processing.

5.8.1.1 If MRB dispositions product as scrap, the material will be conspicuously and permanently marked, or positively controlled, until physically rendered unusable (mutilated) to prevent use in the aerospace industry.

The mutilation of scrap product must be performed per one of the following:

a. Prior to release from the nonconforming materials segregation area, or
b. It is acceptable for scrap material to be mutilated by an outside disposal service provided that the material is positively controlled to prevent inadvertent use prior to pick up by the disposal service.

5.8.1.2 Rejection reports of scrapped material will indicate the method used to mutilate the scrapped material.
Paper travelers pertaining to material, which has been disposition as scrap, will be maintained with the completed Rejection Report as a record in MRB.

5.8.1.3 Discernible Scrap Material
Nonconforming material that is obviously nonrepairable and of low cost may be scrapped without the dispositioning of MRB. This discernible scrap material will be placed in scrap containers to prevent inadvertent use. The disposal of this material will assure that it is destroyed to prevent use in the

aerospace industry. Typically discernible scrap material consists of failed components that were removed during the test and rework process.

5.9 Processing of Material for Rework and Repair

5.9.1 Any repair or rework operation to be performed on nonconforming product must be documented and provide for reinspection of the deficiency. Copies of all documentation must be forwarded to MRB upon completion for permanent records.

5.10 Subcontractor Deviation or Waiver Request Process

5.10.1 If a subcontractor wants to ship product that is known to be nonconforming, the subcontractor will contact their Purchasing representative prior to shipment of product and request a Deviation/Waiver Request Form, TCF1158. Subcontractor/Requestor will complete all applicable sections and return form to Purchasing. Purchasing forwards the Deviation/Waiver Request Form to the Material Review

Board (MRB) for processing and is responsible for coordinating the deviation and waiver process with the Subcontractor/Requestor and the MRB. Upon receipt, MRB processes the request in accordance with Quality Assurance Manual Procedure 6006.02, *Deviation/Waiver Procedure*. After disposition, results of the decision will be distributed to applicable personnel including, at a minimum, the subcontractor and Purchasing. Records of this action will be maintained.

5.11 Customer Furnished Material (CFM)

5.11.1 All Customer Furnished Material (CFM) found to be nonconforming will be processed in accordance with paragraph 5.1 of this procedure ("Identification and Segregation of Nonconforming Product").

5.11.2 Customer Furnished Material nonconforming documentation will be submitted to customer for disposition. The submission to the customer for disposition will be in the manner prescribed by the applicable Contract or Purchase Order.

5.11.3 Customer Furnished Material dispositioned by the customer as "Scrap" will be destroyed in accordance with paragraph 5.8 of this procedure or returned to the customer, as required.

5.12 Inspection, Measuring, and Test Equipment Found Out of Calibration

When inspection, measuring, and test equipment is found to exceed its accuracy by a factor of 4, a Rejection Report will be completed by Metrology personnel and submitted to MRB.

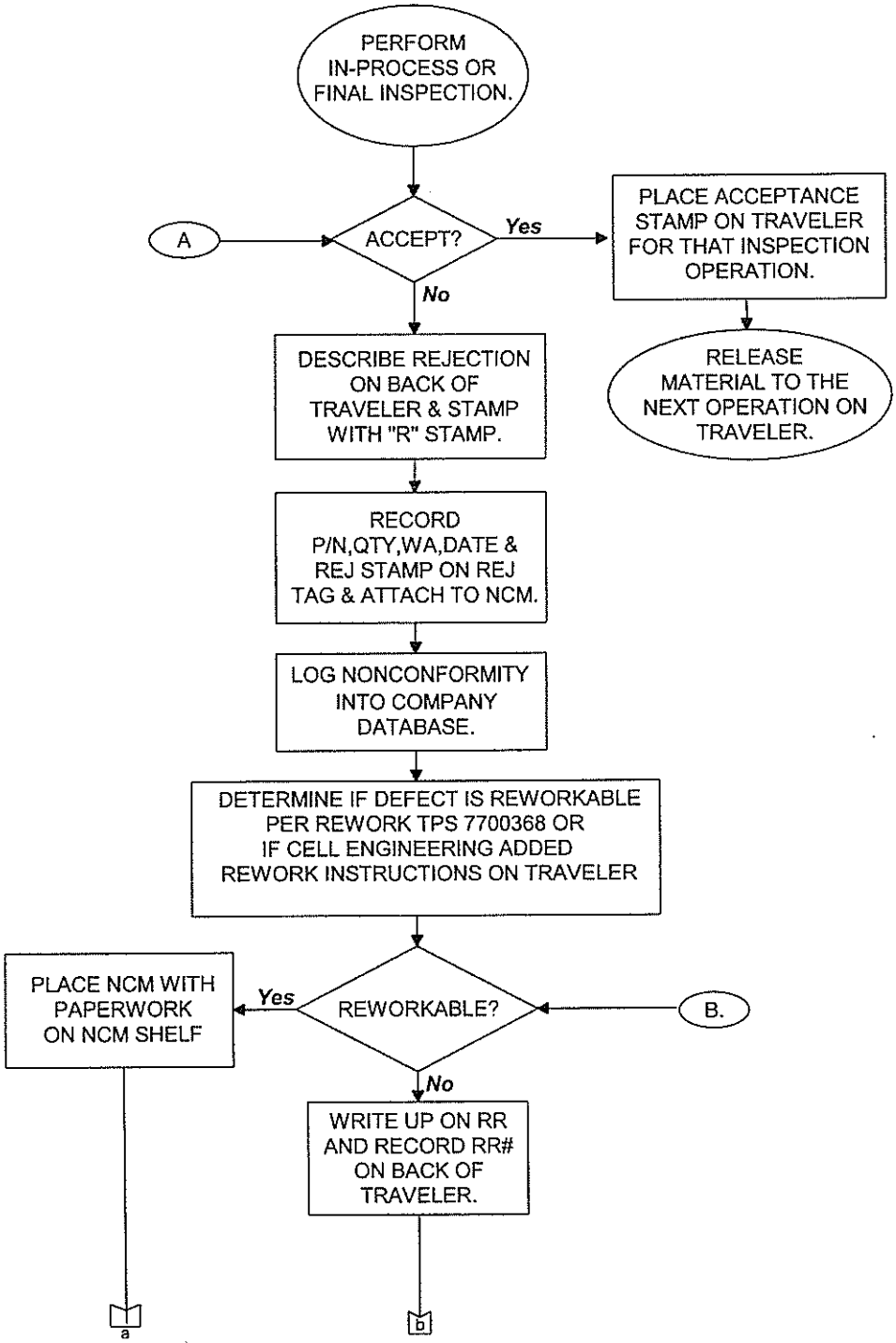
Workcell Engineering will review the report to determine the validity of previous inspections performed with the equipment in question.

Workcell Engineering will document the results of their analysis and any necessary actions on the Rejection Report form in the Comments/Instructions section of the form. If the evaluation results determine suspect nonconforming product, a corrective action plan will be developed to recall products for reinspection.

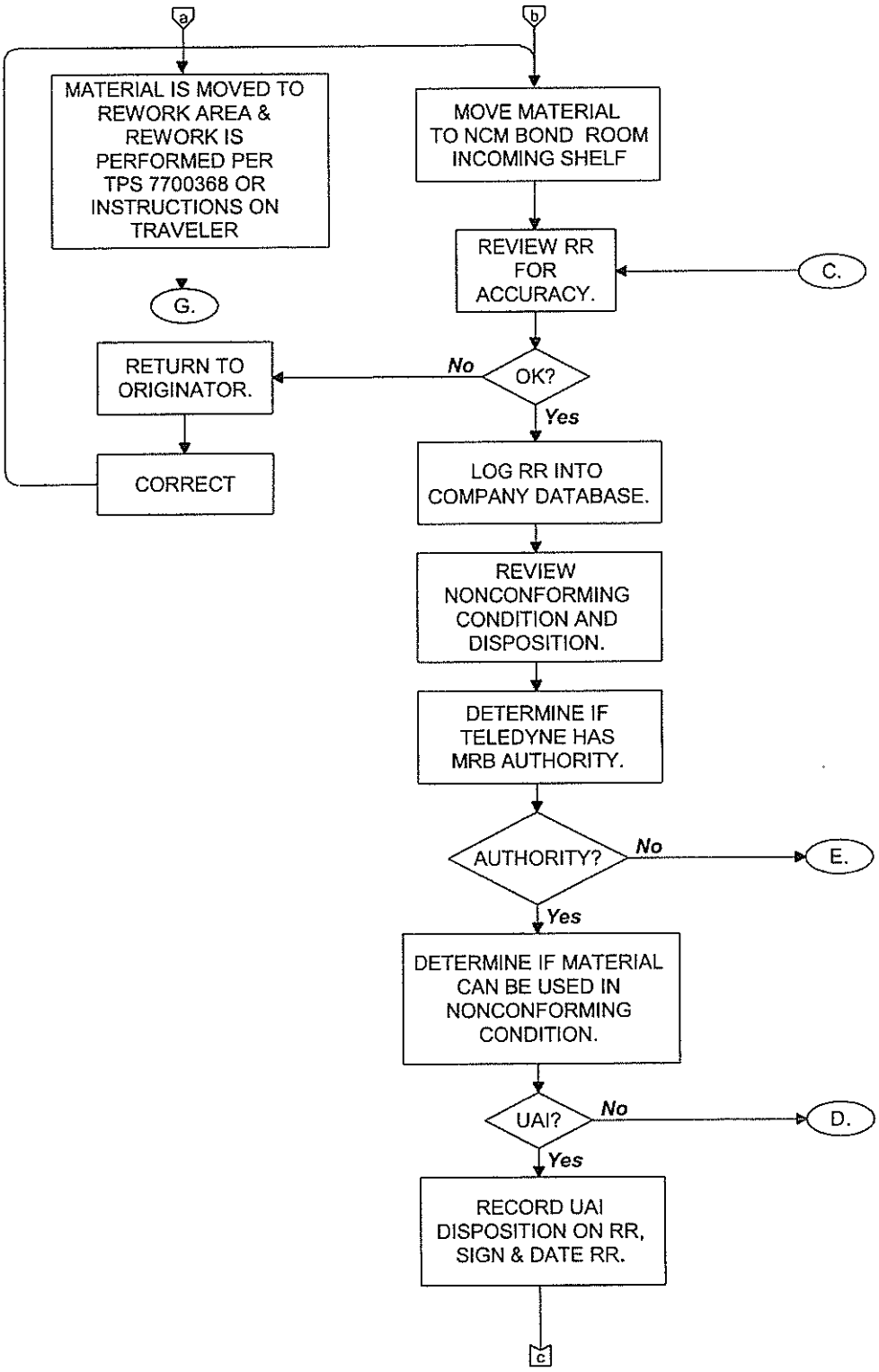
5.13 Record Keeping

5.13.1 All Quality Records pertaining to this procedure will be kept in accordance with Quality Assurance Manual Procedure 6008.01, *Identification, Collection, Indexing, Access, Filing, Storage, Maintenance, and Disposition of Quality Records.*

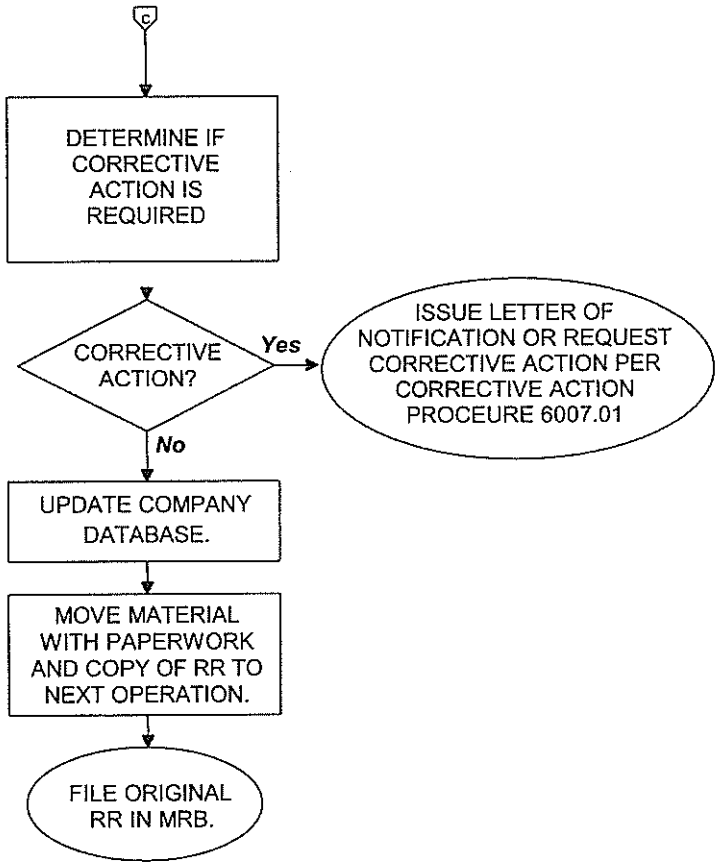
Control of Nonconforming Material (NCM) for In-Process Inspection (page 1 of 3)



Control of Nonconforming Material (NCM) for In-Process Inspection (page 2 of 3)



Control of Nonconforming Material (NCM) for In-Process Inspection (page 3 of 3)



RR = Rejection Report
C/A = Corrective Action
NCM = Nonconforming Material
UAI = Use As Is

Control of Nonconforming Material (NCM) for Receiving Inspection