CARLO GAVAZZI SPACE SpA

HSO / FIRST - DPU

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Project Control		X	Approval Signature	Date
Engineering	X		Approval Signature	Date
Managing Director		X	Approval Signature	Date
CGS Program Manager	X		Approval Signature	Date

	YES	NO		
Higher Level Contractor			Approval Signature	Date
Customer			Approval Signature	Date

Data Management

Signature Date

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1. SCOPE

This Plan establishes policy and provision for Product Assurance activities to be undertaken by Carlo Gavazzi Space during all phases of the HSO/FIRST-DPU program under the contract:

"Progetto e realizzazione di tre Data Processing Units (DPU per gli strumenti scientifici del satellite FIRST dell'ESA."

number I/231/00/0 between ASI and CGS.

2. APPLICABILITY

This Plan, derived from the Standard Company PA Plan, is applicable to CGS during design, development, manufacturing, assembling, integration, verification, handling, packaging, delivery operation of the contractual deliverable items of the First DPU program.

3. DOCUMENTS

3.1 APPLICABLE DOCUMENTS

The following documents are considered applicable to the extent specified herein.

I/231/00/0	Progetto e realizzazione di tre Data Processing Units (DPU per gli strumenti scientifici del satellite FIRST dell'ESA
S9-030	CGS proposal for Data Processing Units
GD-PL-CGS-001	Product Assurance & RAMS Plan (Standard Company PA Plan)
2000-100	Fax about Total Dose Requirement From IFSI-CNR on 04/7/2000

3.2 REFERENCE DOCUMENTS

ESA PSS-01-20	Quality Assurance Requirements for ESA space system
ESA PSS-01-30	Reliability Assurance requirements for ESA space systems
ESA PSS-01-40	System Safety requirements for ESA space systems
ESA PSS-01-50	Maintainability requirements for ESA space systems
ESA PSS-01-60	Component Selection, Procurement and Control for ESA space systems
ESA PSS-01-70	Material, mechanical-part and process selection and quality control for ESA space systems and associated equipment

3.3 LOWER LEVEL DOCUMENTS

The PA organisation of CGS shall issue and maintain lower level documents (procedures, processes, application or purchase specifications, etc.) which shall be made applicable to CGS organization

GD-PL-CGS-002	CADM Plan
GD-PL-CGS-003	MIP&KIP Inspection Plan

GD-PL-CGS-004	S/W Quality Assurance Plan
GD-PL-CGS-005	S/W Configuration Management Plan
GD-PR-CGS-001	Drawing Administration & Identification Procedure
GD-PR-CGS-002	Procedura approvvigionamento materiali e servizi
GD-PR-CGS-006	Preparazione dell'Acceptance Data Package (ADP)
GD-PR-CGS-007	Non Conformance Procedure
GD-PR-CGS-008	Request for deviation/ request for waiver preparation procedure
GD-PR-CGS-009	Procedura per l'imballaggio e la spedizione di schede elettroniche
GD-PR-CGS-011	Procedura per l'uso dell'RTV 566
GD-PR-CGS-013	Standards for Unit Development Folder
GD-PR-CGS-014	Coding Standards
GD-PR-CGS-015	Functional Configuration Audit (FCA) procedure
GD-PR-CGS-016	Physical Configuration Audit (PCA) procedure
GD-PR-CGS-017	S/W Library Control Procedure
GD-PR-CGS-018	Architectural Design Document evaluation check-list
GD-PR-CGS-019	Detailed Design Document evaluation check-list
GD-PR-CGS-020	Code Evaluation Check list
GD-PR-CGS-021	U.D.F. Audit check list
GD-PR-CGS-023	Preparation and processing of software release/ change notices
GD-PR-CGS-024	S/W control boards operations
GD-PR-CGS-025	S/W Testing standards
GD-PR-CGS-026	S/W Library Management Procedure
GD-PR-CGS-028	S/W Back-up procedure
GD-PR-CGS-030	Test readiness review procedure
GD-PR-CGS-033	Procedura per l'uso del CV-1152
GD-PR-CGS-041	Procedura di programmazione delle PROM con il Programming System 2900 della Data I/O
GD-PR-CGS-044	Procedura per l'uso della vernice Chemglaze / Aeroglaze Z306
GD-PR-CGS-047	Procedura per il dimensionamento delle piste in circuiti stampati rigidi
PA 005	Ispezione schede assemblate
PA 049	Incoming Inspection Procedure
PA 061	Saldatura a mano di componenti elettronici
PA 063	The repair and modification procedure of PCB's and solder joints
PA 066	Maneggio, trasporto interno, immagazzinamento imballaggio e spedizione
PA 069	Procedura per il kitting dei componenti Hi-rel
PA 070	Procedura per la lavorazione meccanica di leghe di alluminio
PA 072	Procedura per l'uso dell'Eccobond 55, Eccobond 285, Stycast 2651
PA 078	Procedura per l'immagazzinamento di componenti HI-Rel
PA 082	Crimping procedure

4. CARLO GAVAZZI SPACE AND PA ORGANIZATION

The CGS organization is shown in figure 4.-1. The Product Assurance manager has direct and unimpeded access to the top management, to report on PA activities.

The overall PA organization is shown in figure 4.-2.

The CGS PA manager is responsible for all PA activities.

The PA manager is supported by specialists for the following disciplines:

- Safety Assurance
- Reliability Assurance
- Part, Material and Process and EEE procurement control
- Maintainability Assurance
- Quality Assurance
- SW Quality Assurance.

The major tasks and responsibilities for the special disciplines are described in the relevant chapters of this document.

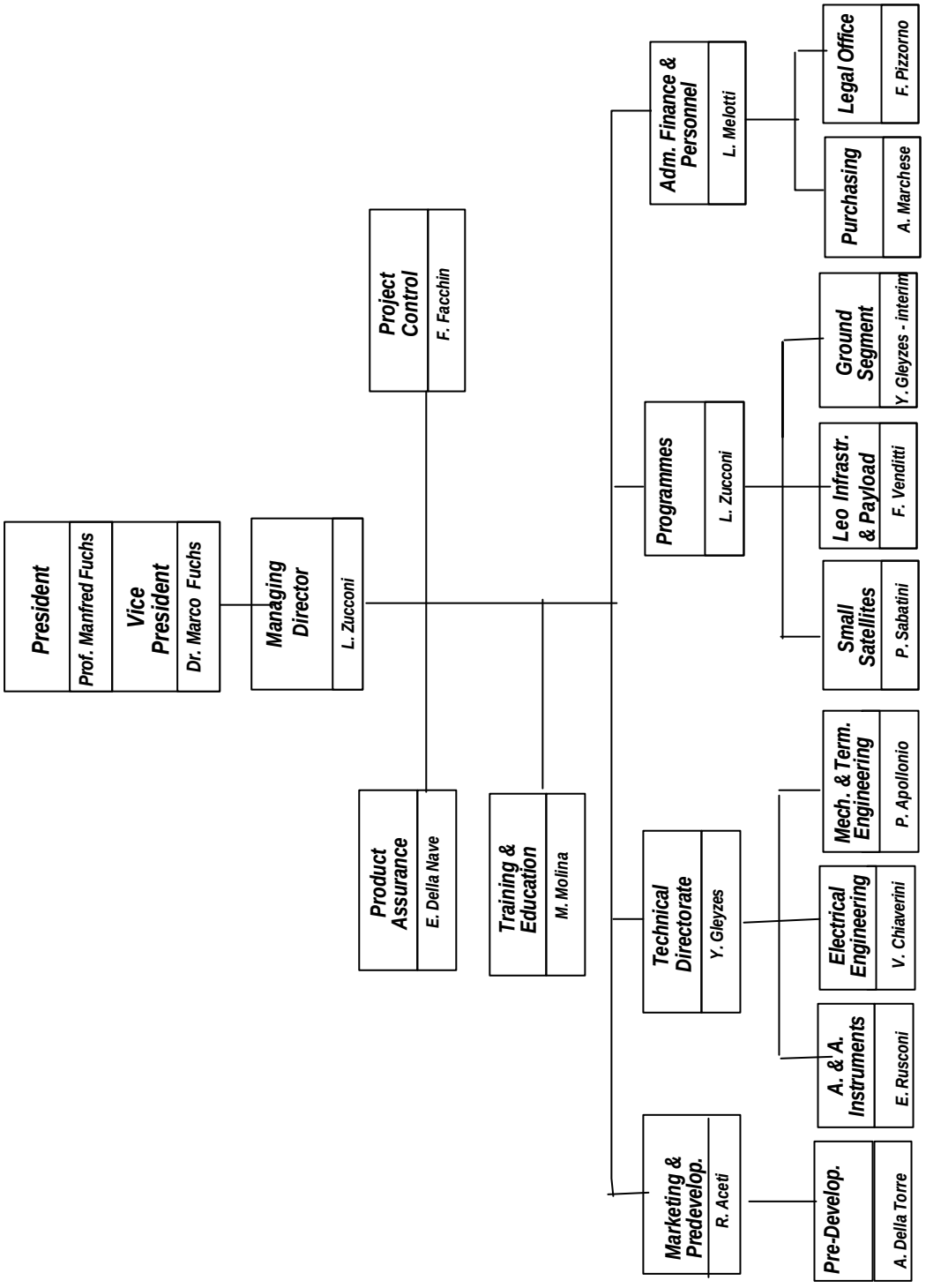

Fig. 4.-1 Company Organization

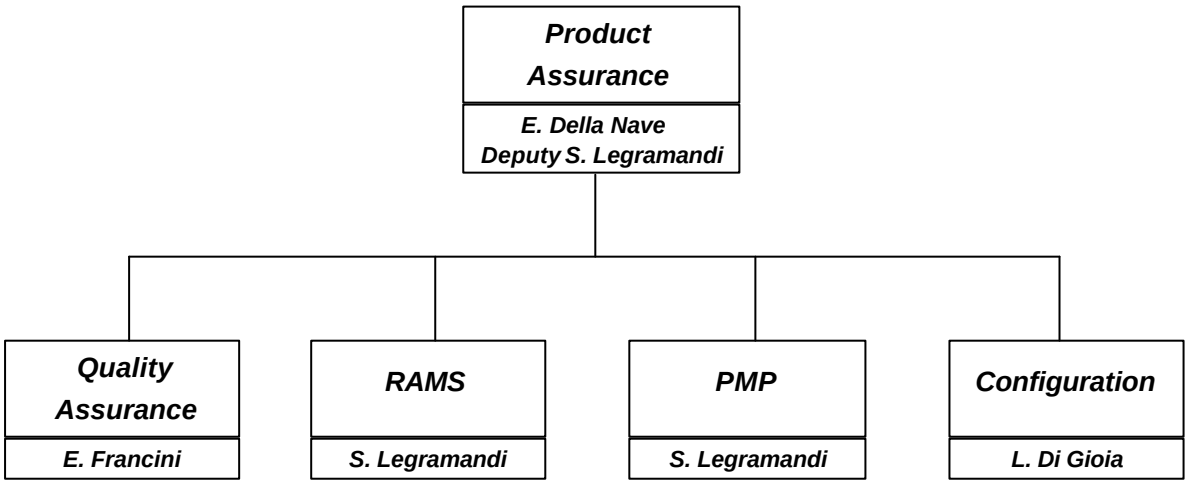

Fig. 4.-2.: PA Organization

4.1 PA ACTIVITIES AND RESPONSIBILITIES

The CGS PA main activities and responsibilities during all phases of the program are the following:

- participation in the proposal phase
- responsibility for establishing and maintaining this plan
- responsibility for coordinating, planning and controlling all PA activities
- reporting to the Customer about these PA activities
- definition of relevant program QA procedures
- checking of technical documentation for compatibility with PA requirements
- to perform audits and key inspections
- to participate in review boards
- to participate in design reviews
- to perform acceptance reviews
- to perform all PA surveillance during integration and tests and other verification activities
- to guarantee maintenance of log-book at all level requested during assembly, integration and verification phases.

4.2 PA SYSTEM PHILOSOPHY

The Product Assurance activities are normally operated within the Company. As a general policy:

- General procedures and standards are sized and tailored according to the best available state-of the-art know-how of the relevant field of application.

- PA organisation creates quality conscious approach in the CGS personnel, by means of a forceful and authoritative management system which provides the reporting and communication links and decision-making system necessary for the prevention or early detection of actual and potential deficiencies, trends or any other conditions which could result in unsatisfactory performance.

- PA organisation relies on suitable facilities and competent PA personnel with a sufficient degree of independence from the Company's design and manufacturing functions to deal objectively with the relevant PA aspects of the program.

- PA organisation establishes a program of project reviews for evaluating the status of the PA program at key points.

- The PA personnel will participate on a continuous basis in all technical development and test activities to ensure that the PA requirements are satisfied throughout all phases of the contract.

- The PA manager will be responsible for certifying that all information included in the contractually required Review Packages presented for review are in accordance with the parts, materials and processes and QA requirements.

The principal tools used by PA to implement the above philosophy are described hereinafter.

4.2.1 DOCUMENTATION REVIEW AND APPROVAL

Within the Company a Configuration Management system operates on the documentation and the drawings released.

The PA shall approve all the released documentation and in particular the following documents:

- Specifications
- Requirements
- Design
- Procurement
- Processes
- Tests

- Drawings
- Procedures (handling, packaging, storage, inspection etc.)
- Test procedures
- Analysis and test report
- Configuration Management plan and procedures
- Operation manuals.

4.2.2 SUPPORT TO REVIEWS AND REVIEW BOARDS

The PA shall participate permanently in the following CGS review boards:

- Material Review Board (MRB) as Chairman
- Configuration Control Board (CCB) as member.

The PA shall participate also in the design reviews.

4.2.3 AUDITS

Main purpose of the PA audits is to verify adequacy, completeness and correctness of the various procedures, specifications, standards and plans of QA used within the Company or sub-contractors for a particular project.

When circumstances are detected which are in conflict with the requirements, immediate action shall be taken with the relevant personnel to rectify the situation.

Such audits inspections are generally foreseen at the following steps during a project run:

- at starting of the program and during the design phase
- at occurrence of problems or difficulties during project activity
- on a random basis in order to verify constant application of QA rules.

Main check points of these audits are to verify:

- if adequate procedures exist for a given requirement or operation
- if procedures are readily available when needed
- if procedures are understood by concerned people and correctly applied.

4.2.4 QUALITY CONTROL ACTIVITIES

Inspection/control activities shall be planned and performed on the significant project tasks such as production, test, certification.

4.2.5 CONFIGURATION CONTROL

PA shall define and implement Configuration Control procedures to guarantee product correct identification.

4.3 PRODUCT ASSURANCE DURING DESIGN AND DEVELOPMENT PHASE

During design and development phase, the PA group shall participate in the following activities:

- analysis of specifications, of drawings and of PA requirements, design optimization/trades off
- definition of inspections and participation in the test plans definition
- design reviews
- software quality activities

4.3.1 RELIABILITY & SAFETY PROGRAMS

The reliability and safety programs include requirements and procedures relevant to reliability and safety analyses, parts derating and stress analyses, failure mode and effects and criticality analyses (FMECA), worst-case performance analyses, qualification status control, and critical item control.

These analyses cover all aspects inherent to the reliability, but their depth and extent depend on:

- customer requirements (contract)
- model type
- operating conditions.

Due to the fact that the contract for the FIRST DPU/ICU does not cover any of the above matters, no activity will be performed on these fields.

Anyway, CGS is ready to provide to the Prime Contractor any input that he needs to accomplish the analyses by himself.

4.3.2 PMP PROGRAM

The Parts, Materials, Processes (PMP) program defines the activities and procedures necessary to fulfil project PMP requirements in order to ensure the Safety, Quality and Reliability requirements of the contract.

CGS shall be responsible for planning and executing an effective selection control and standardization program (prior to, during and after procurement) by which the selection philosophy, procurement provisions and all project requirements are fully reflected and implemented.

Declared Component, Material, Mechanical and Processes Lists will be prepared and submitted to the Prime prior the CDR for approval. RFAs will be issued whenever it does not exist a sufficient application or qualification history for EEE/Mechanical parts or Material and additional evaluation is needed to cover the application.

4.3.2.1 BASIS OF SELECTION

Materials and mechanical parts to be used will preferably be selected from the following document:

ESA PSS-01-701
ESA PSS-01-736
MSFC HDBK 527

and also considering vacuum properties and previous experiences. Basic acceptable criteria for vacuum properties are a TML of 1% and a VCM of 0.1 % as a maximum.

EEE parts will be selected according to the following criteria:

- ESA-SCC qualified part list
- MIL-QML

Quality level shall be:

Discrete Semiconductors	MIL-PRF-19500 JANS ESA SCC level B
Microcircuits	MIL-PRF-38510 class S MIL-PRF-38535 class V and/or T ESA SCC level B
Transformer and inductors	ESA SCC level C or ER-MIL level R
Passive parts	ESA-SCC C ; ER-MIL level R
Relays, Crystal	ESA SCC level C or equivalent
Connectors	ESA SCC level C or equivalent
Cables	ESA SCC level C

EEE parts procurement shall be performed through a CPPA (Tecnologica). General terms and conditions for parts purchase order are defined in document FP-TLG-CO-001 issue 4 dated 07/11/00.

4.3.2.1.1 RADIATION REQUIREMENTS

As a goal for selection, active components shall be radiation resistant up to 10 kRAD (Si) as Total Dose.
For Single Event Effect, the active components shall be latch-up immune, if no valid alternative exist latch-up protection may be implemented. For the Single Event Up-set the memory shall not shown more than 1 bit error/year. EDAC devices may be considered.

When no valid data exist for a candidate component, radiation evaluation program shall be issued.

4.4 QUALITY ASSURANCE

The QA program shall provide for the integration of all the activities described hereinafter for the overall design, development and operational phases and shall describe the effort to be applied in order to meet the requirements defined in the contract.

All QA activities shall be accurately documented in quality records and reports.

The activities named above shall:

- demonstrate recognition of the quality aspects of the contract and organized approach to achieve them
- ensure that quality requirements are implemented and satisfied during all phases of the project including preliminary and engineering design, development, fabrication, processing, assembling, inspection, test, packaging, shipping, storage, maintenance operations
- ensure that quality aspects are fully included in all design and are continuously maintained in the produced articles and during operations
- provide for detection, documentation and analysis of potential deficiencies or conditions which could result into unsatisfactory quality
- provide timely, effective remedial and preventive actions.

4.4.1 QUALITY STANDARD OF PRODUCTS

The following equipment shall be developed under full QA and configuration control:

- all flight models, including spares
- all qualification models

4.4.2 PROCUREMENT

CGS shall establish and implement procurement controls to assure adequacy and quality of all items and services obtained.

Procurement documents shall be reviewed by QA personnel before release for procurement, to ensure that they contain the correct and comprehensive technical description of the items and services to be procured, as well as details of the QA requirements and QA activities at source.

4.4.3 INCOMING INSPECTION

It is the responsibility of the Product Assurance organization to ensure and control that incoming materials and parts are in conformity with their quality requirements.

Incoming inspections shall be finalized to check quality and detect defects and failures on incoming materials and parts, and to keep record of such instances, and to check completeness of documentation, such as test reports, log books and certificates of compliance.

A report shall be issued for incoming material, after which the material shall be kept available to the Project.

Failed and rejected material shall be kept in bonded store until disposal decided by the Material Review Board

4.4.3.1 INCOMING INSPECTION PLAN

Incoming inspection is covered by a specific plan.

Such a plan covers:

- verification of packaging
- formal and administrative accompanying documentation (customs documents, etc.)
- quantity
- visual inspection
- check of technical documentation in terms of inspection, testing results, quality and qualification requirements
- if applicable and required, any testing or special selection, either by sample or 100%
- separate storage, with serialization.

4.4.3.2 VENDOR EVALUATION

A suitable system shall be devised for recording performance and statistical data of purchasers and vendors used in the various projects.

Such data records shall be evaluated and considered when selecting parts and materials sources.

4.4.4 QUALITY ASSURANCE DURING MANUFACTURING AND TEST

A Manufacturing and Inspection plan shall be established at the beginning of the project and maintained up to the start of the manufacturing phase.

This plan shall be the reference for quality inspectors, establish correct definitions and in line inspection points and tests defining methods and procedures to be followed.

The plan shall include a general flow chart and and reference to a set of procedures, instructions and specifications.

The flow chart defines all process phases to be submitted to inspection and test.

To proceed with the product integration, favourable result of the inspection report is mandatory, in terms of product conformity to quality project requirements.

On the manufacturing flow chart the Key Inspection Points (KIP) and Mandatory Inspection Points (MIP) are defined.

The Inspection Points shall be planned to provide for maximum visibility of quality.

During such inspections, the QA representative duties are:

- inspection and control operations according to applicable procedure
- identification and segregation of non conforming items
- interface with the program manager about problems or functional aspects to be clarified.

MIP is a quality inspection point for which the Prime Contractor PA or its representative participate in KIP.
The MIP shall be notified to Prime Contractor by fax at least five working days prior the event.
In absence of a Prime Contractor formal response to the notification, the inspection will start anyway on the announced date.

4.4.4.1 MANUFACTURING CONTROL

All fabrication, process, assembly and integration operation to be performed shall be monitored by QA to ensure that criteria and characteristics specified in the engineering documents are implemented and maintained.

All fabrication inspection operations shall be performed according to clear, appropriate work instruction, drawings and other documents controlled by the configuration management.

These documents shall refer to:

- nomenclature and identification of the item to be fabricated and fabrication equipment to be used
- detail procedures for controlling phases, cleaning, handling, storage, preservation, marking and labelling operations
- detail procedures defining special conditions to be maintained.

All instruments and equipment to be used in manufacturing shall be checked by QA personnel prior to use or periodically, according to section 4.4.5. of this plan.

4.4.4.2 WORK AREA CONTROLS

QA personnel shall verify that all working areas for manufacturing and assembling are adequate to project requirements in terms of cleanliness and safety.

With reference to this, the Program PA Plan shall include, in the section dedicated, the organization facilities, a description of the cleanliness and environmental control of every facility or area in which works, processes, integration and tests will be performed.

The assembling, integration and test activities within CGS for the First DPU/ICU hardware shall be carried out in clean room, controlled to the following environmental parameters:

- Temperature 22 ±3 °C
- Relative Humidity 55 ±10%
- Cleanliness Level 100,000 or better

It will be a QA task to ensure that the requested environmental conditions are continuously met, by recording and checking temperature and humidity when work is performed in the clean area.

4.4.4.3 TRAINING OF PERSONNEL

Personnel working on space products, controlling and performing all processes and manufacturing operations, are trained, opportunely indoctrinated and properly certified by ESA recognized institutions (i.e.Istituto Italiano per la saldatura) to assure the high quality standard required by space products.

4.4.4.4 TEST REVIEWS

- Test-Readiness Review. Purpose of these reviews is to:

- assess the configuration and readiness of the items to be tested and the readiness of the documentation
- establish the design standard and the build standard
- review the status of non conformances and verify that open non conformances have no impact whatever on the validity of the tests
- review and eliminate or reduce/control hazards which may exist for the respective test

- verify that all test equipment is within calibration requirements.

- Post-Test Review. The purpose of the post test reviews is to:

- review test data packages and Acceptance Data Package
- ensure completeness of all test data and appropriateness of test engineer decisions following test errors or failures
- certify by signature that the test data meet the requirements and that the item is acceptable for further tests or processing.

4.4.5 CONTROL OF MEASUREMENT AND TEST INSTRUMENTS

Measurement and test instruments are periodically checked and verified in accordance with applicable procedures and PA requirements.

The PA organization is responsible for check, evaluation, approval, maintenance and control of all standards and equipment required to assess conformity of products to the project requirements.
User manuals and procedures shall be maintained and filed in order to guarantee correct operation of instruments and equipment.

4.4.5.1 MAINTENANCE AND CONTROL

All measurement, test and control instrumentation shall be periodically monitored by QC inspections and, if required, calibrated as follows:

- at regular intervals (generally 1 year)
- in case of malfunction or drift

4.4.6 RECORD OF QUALITY DATA

It is the company policy to keep records of all inspections and tests performed during development, manufacturing, assembling, check out and test of the product.

Such inspections and tests will occur in accordance with the manufacturing and test flow chart and will be recorded on specific form sheets.

The forms constitute the true recording that inspections and tests have been performed either with positive results or generating a non conformance report.

5. NON CONFORMANCE MANAGEMENT

The non conformance management is a task of the PA activity.

This management has the purpose of providing a disciplined approach to the identification, segregation, reporting, review, analysis, corrective actions and prevention of recurrence of confirmed or/and suspected non conformances.

5.1 APPLICABILITY

The non conformance management system shall be applied to:

- all flight/qualification standard hardware and spare parts
- any hardware which contributes to the acquisition of design qualification
- components and materials, subjected to incoming inspection

5.2 NON CONFORMANCE PROCESSING

5.2.1 NON CONFORMANCE DEFINITION

Non conformance is an apparent or proven condition of any item, process, operation, service or document in which one or more characteristics do not perform to the requirements.
It includes failures, anomalies, discrepancies, deficiencies, defects and malfunctions.

5.2.2 NON CONFORMANCE CLASSIFICATION

All non conformance conditions are divided in three main categories:

- minor non conformance
- major non conformance
- critical non conformance.

All non conformance originated by Carlo Gavazzi Space and categorized as “minor” will be reviewed by Customer to confirm the correct classification.

5.2.3 MINOR NON CONFORMANCE

A non conformance is classified as “minor” when is relevant to a workmanship variation, appearance or surface blemishes or any discrepancies having no effect upon the item specified performance, reliability, safety, strength properties, interface requirement, weight and dimensions or configuration.

5.2.4 MAJOR NON CONFORMANCE

A non conformance is classified as “major” when it affects contract requirements, but none of the requirements of system specifications are affected.

Non conformance detected on HI-REL parts, starting from the incoming inspections, are classified as “major”.

5.2.5 CRITICAL NON CONFORMANCE

A non conformance is classified as “critical” when it affects:

- the system or system support specification
- mission reliability
- system safety
- program cost and schedule.

5.3 NON CONFORMANCE DETECTION AND RELATED PROCEDURE

A flow-chart for non conformance processing is shown in figure 5.3.-1.

Each time a non conformance condition is discovered the non conformance detector shall originate immediately a non conformance report (NCR).

This report shall be submitted to the PA manager to call the Local Review Board (LRB) for classification, investigation and initial disposition.

For major and critical non conformance the Material Review Board (MRB) is required to come to a decision and to indicate the corrective actions to be taken.

Carlo Gavazzi Space Product Assurance shall notify to the Customer by fax within 24 hours the non conformance detection, classified as “major” or “critical”, for proper MRB actions.

MRB decision require unanimous agreement of all board members. When the MRB decisions have no impact on program schedules or costs, these become immediately effective, otherwise the MRB will provide best recommendations and alternative solutions for the program manager/higher level management.

When the activity has been stopped, the MRB will decide the restart or not of the activity.

Non conformances classified as “minor” shall be decided upon by PM and PAM.

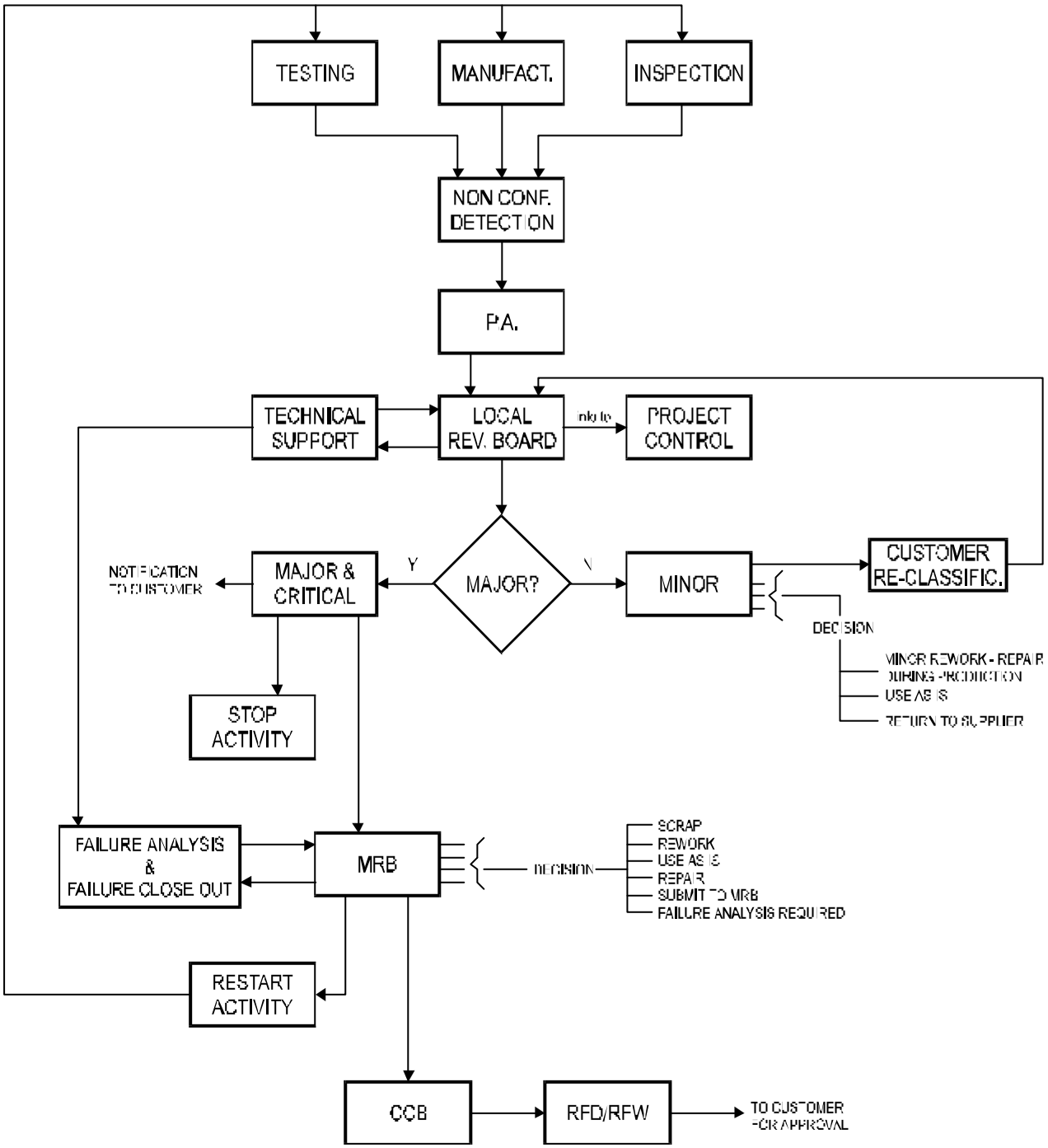

Fig. 5.3.-1 Non Conformance Processing Flow –Chart

5.4 BOARD COMPOSITION

5.4.1 LOCAL REVIEW BOARD (LRB)

The Local review board will be composed of:

- Engineering team involved in the project
- PA manager.

5.4.2 MATERIAL REVIEW BOARD (MRB)

- PA manager, (chairman)
- Program manager
- Involved functional specialists
- Customer representative.

5.4.3 CONFIGURATION CONTROL BOARD (CCB)

The Configuration Control board will be composed of:

- Program manager (chairman)
- System engineering (deputy chairman)
- Project control
- PA manager
- Contract/Administration responsible (on request).

5.5 CORRECTIVE ACTION DEFINITIONS

5.5.1 LOCAL REVIEW BOARD CORRECTIVE ACTIONS

The corrective actions to be taken by the Local Review Board can be the following:

Return to supplier when a non conformance condition is detected during incoming inspection of article/or material. As a consequence of this decision, the following procedure will be applied:

- a “reject” stamp will be applied on the pro-forma invoice / supplier shipping document by the QA inspector

- notify procurement service and obtain a shipping note

- forward a copy of non conformance report to the program manager for information

Return for rework or completion of operation when the item is deemed acceptable only after rework or completion.

Project Baseline technical documents and procedures will be used.

The items reworked, will be resubmitted to normal inspections.

Submit to MRB in the other cases (including need of “repair” and “rework”).

5.5.2 MATERIAL REVIEW BOARD CORRECTIVE ACTIONS

The corrective actions imposed or decided by the MRB can be the following:

Return to supplier when the board deems an acceptable repair is not possible in CGS facility.

Scrap when in the opinion of the board an acceptable repair is not possible in any case.
This material will be stored in the appropriate areas and labeled to avoid future use in this program.

Return to rework or *completion of operations* when an acceptable rework or completion of operations is possible in house. In this case, if necessary, an MRB procedure will be established to perform this rework or completion.

Repair when an acceptable repair is possible in house or in the supplier facility, to make the item complaint with the requirements. Procedures will be established, if necessary, and approved by the MRB to perform this repair. Procedures will include appropriate inspections and tests to verify acceptability of the repair procedure.

Use as is. Non conformances which the MRB judges as allowing for use without repair, may be authorized for "use as is" disposition.

Submit to CCB in case that the configuration aspects are involved and/or a waiver must be applied.

5.5.3 CONFIGURATION CONTROL BOARD ACTION

The actions performed by CCB are described and detailed in the CADM plan document, and are related to requested changes and relevant classification.

The CCB is responsible for analysis, evaluation and approval/disapproval of Configuration changes.

5.6 NON CONFORMANT ITEMS

Non conformant items shall be isolated in a bonded store, waiting for MRB actions and dispositions, and shall be identified by a special tag reporting “Non conformant item / Materiale non conforme”.

5.7 NON CONFORMANCE REPORT

The NC Report shall be on the form shown in figures 5.7.-1 *Conformance Report*. And 5.7.-2 *Continuation Sheet.*

Fig. 5.7.-1 Non Corformance Report

CARLO GAVAZZI SPACE SpA	**PROGRAM** **NON CONFORMANCE REPORT**	1 NCR ref	**NCR:** **Page: of** **Date:**

IDENTIFICATIO

2 **SUPPLIER**	3 **ORDER NO.**	4 **SUBSYSTEM**	5 **MODEL**
6 **ITEM**	7 **ITEM NO.** **REV.**	8 **CLASS.NO./CI NO./CEI NO**	9 **SERIAL NO.**
10 **HIGHER UNIT**	11 **ITEM NO.** **REV.**	12 **CLASS.NO./CI NO./CEI NO**	13 **SERIAL NO.**
14 **NON CONFORMANCE DETECTED DURING:** RECEIVING INSPECT ☐ MANUFACTURING ☐ ASSEMBLY/INTEGRATION ☐ FINAL INSPECT ☐ TEST ☐			15 **RELATED NCR**

NONCONFORMANCE

16 DESCRIPTION OF NON CONFORMANCE

17 **SUSPECTED CAUSE OF NC:** HANDLING ☐ TRANSPORTATION ☐ PART ☐ MATERIAL ☐ PROCESS ☐ DESIGN ☐
OPERATOR ERROR ☐ SW ☐ TEST ☐ TEST EQUIPMENT ☐ TOOLS ☐ OTHERS ..... ☐

18 **INITIATOR, DEPT., DATE SIGNATURE**

DECISION

19 **NON CONFORMANCE CLASSIFICATION** **MINOR** ☐ **MAJOR** ☐ **CRITICAL** ☐	20 **NCR NOTIFICATION FAX** **N°:** **DATE:**
21 **DISPOSITION AND CORRECTIVE ACTION**	22 **DISPOSITION PERFORMED**

23 **REQUEST FOR WAIVER or DEVIATION** **YES** ☐ **NO** ☐ **N°**	24 **ANALYSIS REQUIRED** **YES** ☐ **NO** ☐ **N°**	25 **PREVENTIVE ACTION REQUIRED** **YES** ☐ **NO** ☐ **N°**

26 **REVIEW BOARD APPROVAL**					27 **CLOSE OUT CERTIFICATION**	
NAME						
DEPARTMENT					**CGS PA**	**CUSTOMER PA**
DATE						
SIGNATURE						

Fig. 5.7.-2 Non Conformance Report (continuation sheet)

CARLO GAVAZZI SPACE SpA	**PROGRAM** **NON CONFORMANCE REPORT**	**NCR:** **Page: of** **Date:**

CONTINUATION SHEET

16 DESCRIPTION OF NC	17 SUSPECTED CAUSE OF NC	21 DISPOSITION AND CORRECTIVE ACTIONS	22 DISPOSITION PERFORMED

6. ACCEPTANCE AND DELIVERY

All hardware and software deliverable items will be submitted to the Prime for acceptance. Successful conclusion of the activity will be following by the provision of the consent to ship by the Prime.

Basic document to accomplish the acceptance phase will be the Acceptance Data Package of the items that will be prepared according to ESA PSS-01-20.

7. PROTECTION, PACKING, HANDLING AND STORAGE

It is the responsibility of the PA organization to generate and maintain up to date the relevant procedures for the final phases of the process, covering preservation, packing, marking, labeling, transportation, handling and storage for the final product before release.

7.1 PRESERVATION

The items subjected to deterioration, corrosion or contamination through exposure to air, moisture or other environmental elements shall be protected and stored in such a way to guarantee their integrity by methods which ensure maximum protection consistent with life and usage of the items themselves.

The PA shall check all area to control the correct application of the related procedure.

7.2 PACKING

All products shall be packed according to specifications and procedures relevant to project in order to provide protection from natural or induced destructive mechanical and environmental elements, electrostatic discharge hazard and chemical contamination risks, during storage and transport.

7.3 MARKING AND LABELLING

A suitable procedure, to ensure that appropriate marking and labeling for packaging, storage and transportation of deliverable items shall be prepared in accordance with applicable specification.

The marking and labeling shall include details of the following (if and as applicable):

- nomenclature of item and serial number
- program name
- cleanliness level
- package orientation arrows
- conditions to be established before unpacking
- unpacking instructions (or their location)
- weight
- the words indicating the contents (i.e Electronic Equipment).

7.4 TRANSPORTATION

All relevant and necessary precautions shall be taken during the transportation of items.

Transportation containers shall be provided which incorporate in their design provisions for the attenuation of mechanical and environmental elements to a level which the item can withstand without damage.

7.5 HANDLING

A suitable procedure shall be followed for handling of parts, materials, sub-assemblies and equipment.

7.6 STORAGE

All items subjected to storage shall be suitably protected against damage or misuse.

Control secure storage areas shall be provided for items that are not in operation.

Storage areas shall have adequate places for receipt, inventory and maintenance of stored items and shall be provided with documented operation procedures for the control and implementation of all storage functions.

8. CONFIGURATION MANAGEMENT AND CONTROL

The PA Plan is prepared and dispositioned in such a way as to give a clear description of the program policy and method of implementation and how CGS PA ensures compliance with the PA requirement of the contract.

One of the sections of the overall PA Plan covers the product assurance activity including documented policies and procedure for initiation, identification, preparation, review, approval, release, control and accounting of all documentation.

In order to detail this PA activity, a Configuration & Data Management Plan has been issued in such a way as to plan, integrate and implement a control and management program that has clear interfaces with project control, design-development and production functions.

This plan explains the requirements and procedures relevant to configuration, documentation, data and change control, drawings and specifications.

For Configuration and Data Management activities see document GD-PL-CGS-002. For software configuration aspect see document GD-PL-CGS-005.

9. LIST OF ACRONYMS

CADM	Configuration And Data Management
CCB	Configuration Control Board (also Change Control Board)
CGS	Carlo Gavazzi Space
FM	Flight Model
FMECA	Failure Mode Effect and Criticality Analysis
GSE	Ground Support Equipment
KIP	Key Inspection Point
LRB	Local Review Board
MIP	Mandatory Inspection Point
MRB	Material Review Board
NC	Non Conformance
NCR	Non Conformance Report
PA	Product Assurance
PAM	Product Assurance Manager
PAP	Product Assurance Plan
PM	Program Manager
PMP	Parts Materials and Processes
PPAP	Program Product Assurance Plan
QA	Quality Assurance
QC	Quality Control
QM	Qualification Model
RAMS	Reliability, Availability, Maintainability, Safety
RFD	Request For Deviation
RFW	Request For Waiver
S/W	Software