



# Rolls-Royce

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## **NOTICE TO SUPPLIERS**

**NUMBER**                    **162**

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**To:**                    All suppliers of **finished gas turbine parts** receiving purchase orders through Rolls-Royce Plc. in the UK or Rolls-Royce Deutschland Ltd. & CO KG.  
A separate Notice (NTS 157) has been issued to cover Rolls-Royce Corporation (USA) requirements.

**Subject:**            Final Component Identification Marks – Direct Part Marking.  
(Machine Readable Identification)

### **Purpose**

- To communicate the detailed requirements for implementation and validation of Direct Part Marking.
- Previous notices issued for Direct Part Marking are NTS 103 and NTS145.

### **Applicable Requirements:**

SABRe, Business Requirements, Section 2.7  
JES 131, Identification, Marking Methods & Control (Rolls-Royce designed parts)  
AS 9132, Quality Requirements for 2D Data Matrix Identification (non Rolls-Royce designed parts)  
ATA Spec. 2000, Chapter 9.

### **Applicability / Exceptions:**

The requirements for Direct Part Marking are applicable to all finished parts with the following exceptions:

- Forgings and castings.
- Detail parts that are permanently fixed into higher level assemblies by processes such as welding, brazing, riveting etc.
- A part where space is limited and Direct Part Marking is not technically feasible.
- Standard Parts.
- Fasteners
- Repair & Overhaul parts (currently subject to review for potential / future incorporation).

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Company number: 1003142. Registered in England.



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- Development parts which are subject to unique identification (i.e. via Development specific part numbers) which clearly distinguishes them from “production series part numbers”.

## **Implementation Plans.**

Suppliers are required to implement firm plans based upon Rolls-Royce Requirements and that of our Customers.

The general process for implementation is detailed in the DPM workbook in the attachment. Implementation plans must be submitted through your Operations Buyer. Please use the template in the attached workbook for this.

- The plan is required from all suppliers no later than 31st March 2005.

The workbook shall be used as a working tool and be regularly updated throughout the implementation phase (quarterly) to achieve timely close out.

To minimise disruption, the workbook should be managed by the supplier as a separate work stream for all parts parallel to production.

Please note, that a separate workbook will be required for parts delivered to Rolls-Royce Deutschland and for parts delivered to Rolls-Royce Plc.

## **Design/Make Parts**

**The requirement for Direct Part Marking is equally applicable to parts, where suppliers design and manufacture. The requirements apply to all Line Replaceable Units (LRUs) and all spares items.**

**The attached template was designed for Make to (RR)-Print parts and should be used as guidance for Design/Make parts. An implementation plan is therefore required taking into consideration the Quality and Specification System of the Design/Make supplier.**

## **Changes to Drawing or Frozen Manufacturing Method:**

**Where Direct Part Marking cannot be implemented within the existing drawing requirements, e.g. location or method of marking Drawing Alteration Requests (DARs) shall be raised. Implementation may then only proceed after approval of the changed drawing.**

**For classified parts consideration shall be given to the need for a Manufacturing Change Request (MCR). MCR action is not required unless there is a change of method for the marking process e.g. from dot peen to laser that is not currently allowed for by the component definition.**

## **Validation:**

As part of the implementation of Direct Part Marking the part marking shall be inspected against:

- The criteria for “Geometry” in accordance with JES 131 / AS 9132, which you also find summarised in the workbook. All geometry inspection may be performed by manual inspection methods. Magnification of at least X10 is recommended.



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- The data content shall be checked with a reading device and shall be in line with ISO 15434 (as JES 131) syntax requirements
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Good quality digital photos shall be used to provide evidence. To simplify the validation work, validation may be conducted for a family of parts as defined in the workbook.

Suppliers shall use the workbook also as the proof of quality acceptance. The columns for geometry and content must be filled in with "Yes" when the required level is achieved. The Rolls-Royce Product Technical Controller team will monitor the implementation plans and be responsible for any Rolls-Royce approvals.

When the implementation plan is completed then this must be submitted with a FAIR Front sheet as proof of quality acceptance across the complete range of parts listed. Please ensure that you use the correct MFR (Manufacturer) Code ; this code may be different depending where the design authority lies for a specific project. Consult Rolls-Royce for any details required.

Direct Part Marking is a Rolls-Royce Customer requirement and is therefore mandatory. Failure to comply with this requirement will seriously impact Rolls-Royce's ability to deliver to our customers.

Signatures: John Calder  
Director  
Supplier Quality & Product Technical  
Rolls-Royce Plc.

Jens Höepken  
Head of Supplier Quality  
Rolls-Royce Deutschland

Attachment: Rolls-Royce Direct Part Marking Implementation Workbook

Comment or further clarification can be obtained from:  
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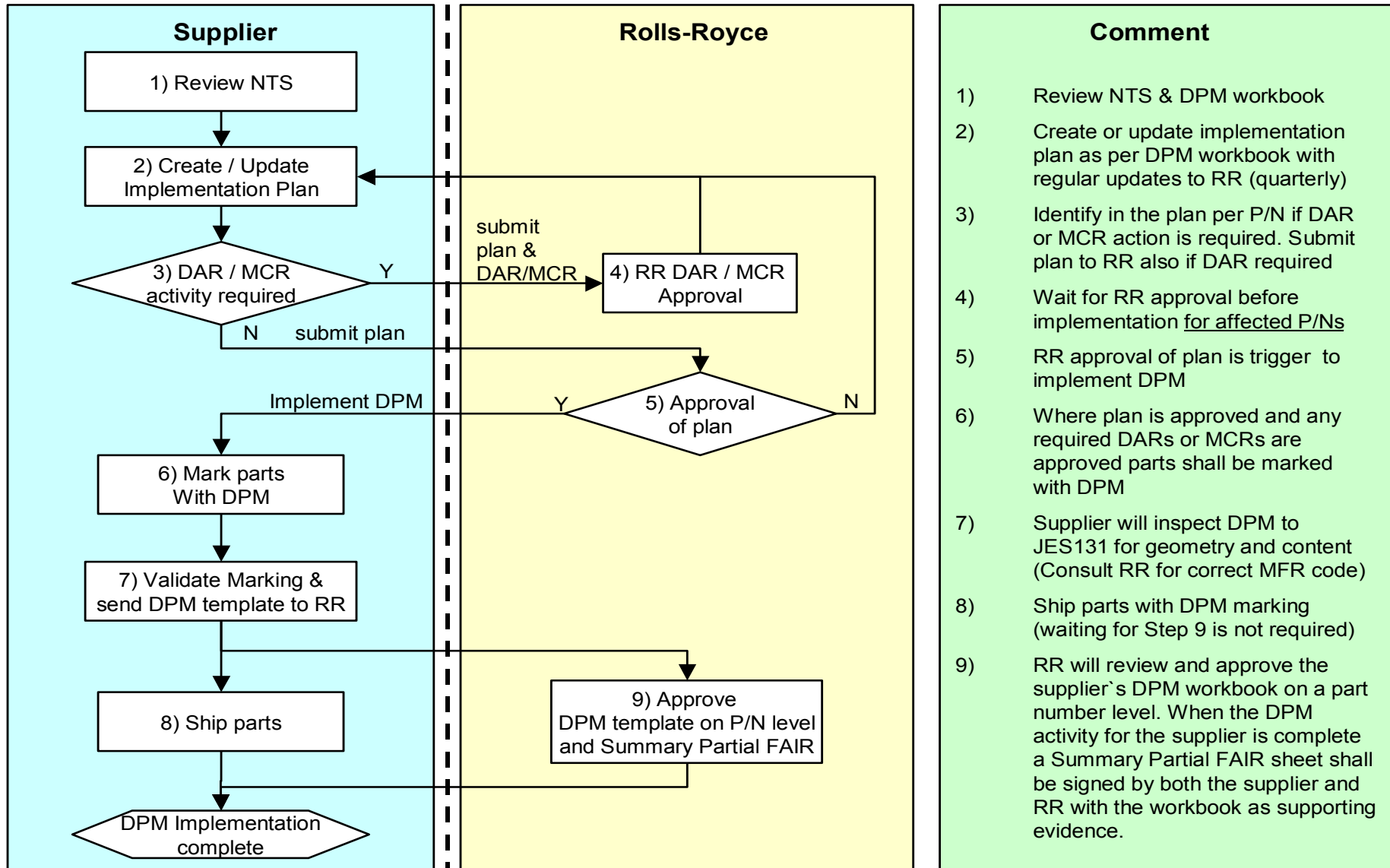


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# **Direct Part Marking Implementation Workbook**

specific to a supplier  
and  
specific to a RR Customer area  
(either RR Deutschland or RR Plc.)

# DPM Implementation Process





## Applicability

Machine Readable Identification will apply to engine items across all Gas Turbine applications.  
Exceptions to this are:

- 1) Castings, forgings and raw material. This product will normally undergo further manufacturing processes and will change part number.
- 2) National Standard parts.
- 3) Fasteners.
- 4) Detailed parts, permanently fixed into assemblies
- 5) Parts that by the nature of their geometry do not allow for machine readable identification.  
It is important to review the drawing alteration route and study the identification abbreviations provided in JES 131.
- 6) Repair & Overhaul parts (currently subject to review for potential / future incorporation).
- 7) Development parts which are subject to unique identification (i.e. via Development specific part numbers), which clearly distinguishes them from “production series part numbers”.

## DPM Part Families

Approval by parts family should be sought to minimise unnecessary validation  
Part families can be formed around the following criteria

- 1) Marking equipment is the same.
- 2) Holding equipment or fixture are the same.
- 3) Marking content is similar. Part number will vary but layout and format should be the same.
- 4) Electrolyte fluid is the same. (ECE only)
- 5) Parameters / settings are the same. Includes power, time, force, set off distance etc.
- 6) Component material is the same or similar.
- 7) Similar Geometry.
- 8) Similar Hardness.



## Quality Acceptance Criteria

The following criteria must be met for quality acceptance for each part family.  
The controlling document is JES 131 or AS9132.

❖ Angle of Distortion.

Angular deviation between row and column must not exceed 7 degrees.

❖ Alignment

The alignment of rows, columns and dots must not exceed 20% of the module / cell size.

❖ Dot Geometry / module fill

The size of dot or module fill must be within the range of 60% to 110% of module size.

❖ Contrast

Surface contrast must be minimised wherever possible. Staining must be reduced or removed. On laser and electro chemi etch marking the foreground and background must not exceed 20% as a grey scale density.

❖ Data Content

Data content can only be checked with a reading device. Data content must be in line with ISO 15434 (as JES 131) syntax requirements.

All geometry inspection may be performed by manual inspection methods. Magnification of at least X10 is recommended.

Compliance to the above is mandatory to satisfy the quality acceptance for machine-readable identification.

# Help and Guidance

on any issues related to Direct Part Marking

e.g. methods, applicability, suppliers of equipment, technical solutions etc.

can be obtained from  
the central Rolls-Royce Direct Part Marking Team:

## **Nat Russhard.**

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