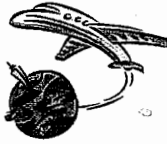




Rolls-Royce

OP-4 Organisation

Compiled by: Sven Pigur
Department: Supplier Quality
Version: January 2006



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Global Organisation
Rolls-Royce Deutschland (RRD)



Oberursel

Component Manufacturing,
Repair & Overhaul



Dahtewitz

Development & Assembly

Rolls-Royce data - strictly private Supplier Quality, S. Pigur, January 2006



Global Organisation

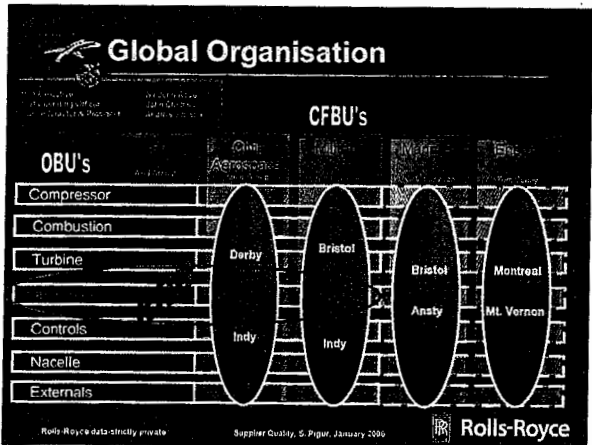
The Rolls-Royce Production Network

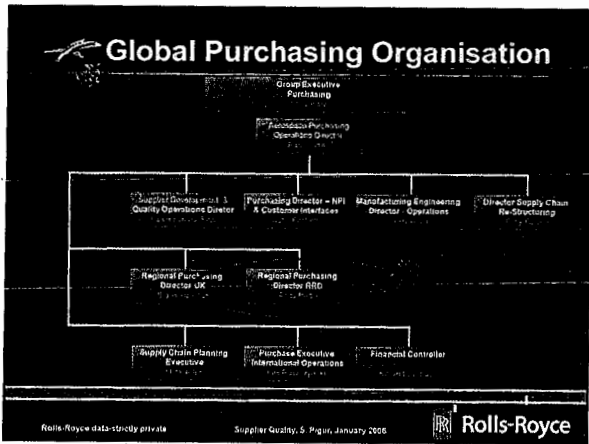
- RRD Dahlewitz
Production
- RRD Oberursel
Manufacturing & Overhaul
- HQ London
- Derby
Production & Assembly
- Bristol
Production & Assembly
- Barnoldswick
Production & Assembly
- Hucknall
Production & Assembly
- Sunderland
Production
- Inchinnan
Production
- RRC Indianapolis
Production

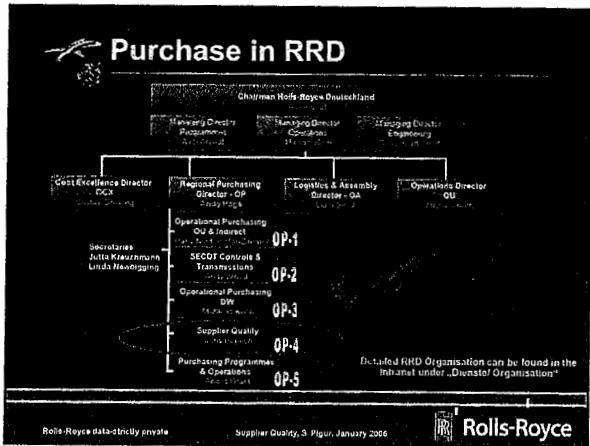


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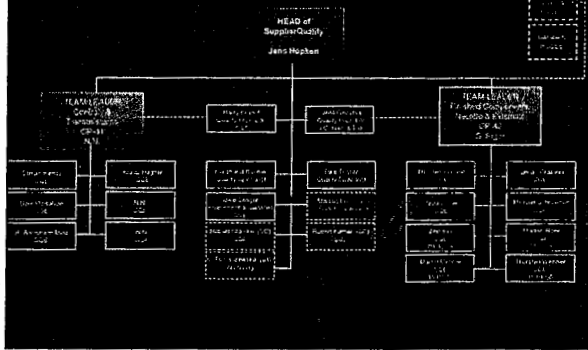








Supplier Quality in Purchase



Supplier Quality - Accountability

Key Accountabilities

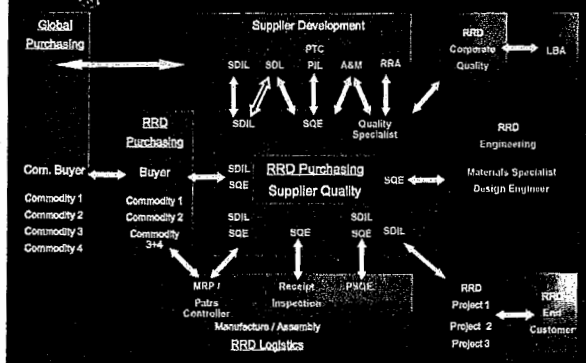
- Lead the Global Procurement Quality Improvement Strategy within RRD ensuring operational best practice
- Coordinate the supplier improvement activities of Quality, Delivery and Responsiveness for RRD
- Perform tactical improvement and problem resolution (level 2 of 3in1 process)
- Work within integrated product teams as required to lead successful product introduction in suppliers at minimum total cost for RRD and ensure that the process capability matches the specification
- Provide an appropriate scope of approval and ongoing continual oversight of basic manufacturing and technical controls for the supply network.
- Ensure that the RRD Quality Management System for Procurement and the supply chain is developed, maintained and improved and aligned with the global strategy
- Ensure that the Quality Management System is adhered to
- Provide analysis of supplier performance on a regular basis

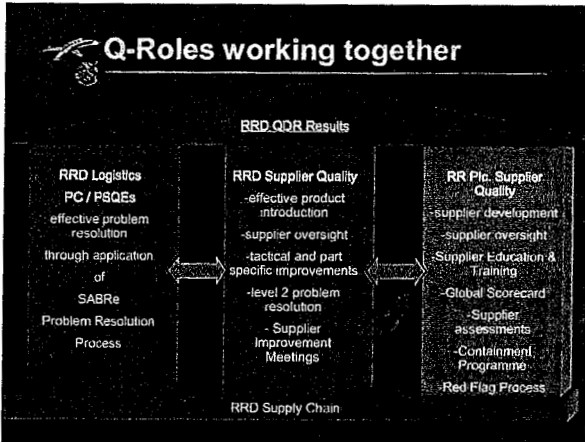
Rolls-Royce data strictly private

Supplier Quality, S. Piger, January 2009



Supplier Quality - Interfaces





SQE Accountabilities

PURPOSE
Apply technical knowledge and proactive quality measures to ensure that the components can be consistently manufactured to comply with engineering, regulatory and safety requirements. Ensure continuous flow down and compliance with RRD requirements.

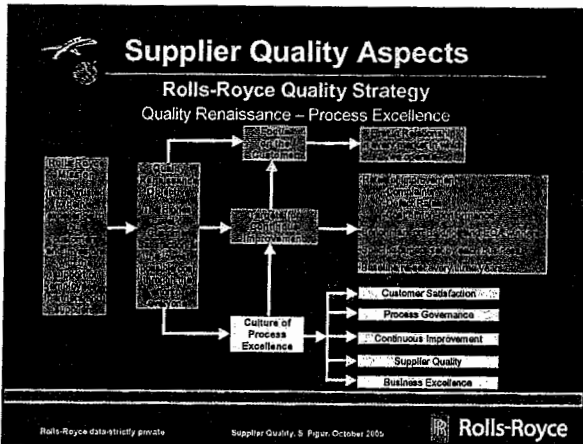
KEY ACCOUNTABILITIES

- Ensure that the technical & quality requirements are communicated, understood and complied with both internally and externally at the supplier
- Contribute to the supplier selection process with knowledge of supplier performance and capability
- Provide an appropriate scope of approval and ongoing continual oversight of basic manufacturing and technical controls for the supply network
- Support of integrated product teams / commodity teams as required to conduct successful product introduction in suppliers at minimum total cost for RRD, ensuring that the process capability matches the specification and the quality of parts and services will meet the RRD requirements.

SQE Accountabilities

KEY ACCOUNTABILITIES continued:

- Technical authorisation of orders to ensure valid supplier approvals, complete flow down of requirements and initial inspection instructions
- Co-ordinating and resolving supplier technical issues in a timely way
- Ensure part control elements of the product introduction process are correctly executed (e.g. First Article Inspection requirements / Manufacturing Sensitive Parts Plan / Manufacturing Critical Parts Plan/ Customer specific requirements)
- Ensure that RRD product and process change processes are operated fully and that RRD technical information is supplemented or amended as necessary to maintain and complete the flow-down of design authority (MCR's, DAR's, Source Change, Approved Data)
- Coordinate the completion of Requirements Documents or Quality Plans
- Perform problem resolution, when transferred / escalated to Purchasing
- Liaise with other functions within RR to ensure that the RRD aspects of Supplier Quality are considered and contribute to supplier improvement efforts



Supplier Quality Aspects

Derived Requirements for Rolls-Royce Supply Chain

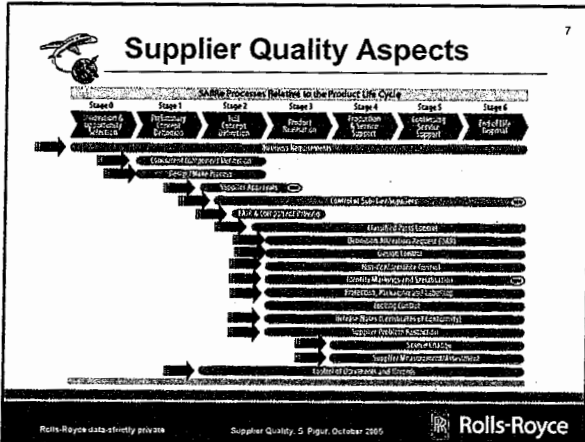
- RR's supplier fully comply with RR9000:SABRe
- SABRe: Supplier Advanced Business Relationship
- SABRe summarizes the Rolls-Royce requirements
- SABRe is stated on every order
- SABRe and most other specifications which are called up on the drawings are „online documents“ and can be obtained from the Supplier Information Space (SIS)
- Link: www.suppliermanager-online.com
- All suppliers to RR are required to regularly review the change notifications in the SIS and to use only documents with the latest issue

Rolls-Royce data-strictly private Supplier Quality, 5. Figur, October 2009 **Rolls-Royce**

Supplier Quality Aspects

contact us | useful links

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Supplier Quality Aspects

8

Business Requirements

- Quality Renaissance
 - Half the rate of customer incidents every 3 years
 - Half the cost of non-conformance from all business processes every 3 years
 - Ten Times reduction in delivered defects every two years
 - Set bench mark lead times and achieve them including appropriate intermediate milestones within 3 years
- Delivery Performance
 - Lead times
 - Delivery adherence



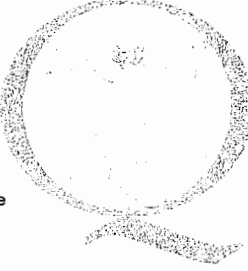
Rolls-Royce data strictly private Supplier Quality, 5. Page, October 2005

Supplier Quality Aspects

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Business Requirements

- Quality
 - Advanced Quality Planning (AQP)
 - Split Batch Control
 - Capable Measurement Processes
 - Sampling (C_{pk} requirements)
 - Source Inspection Requirements
 - Product and Process Audits
 - Consequences of poor performance
 - Vision Standards



Rolls-Royce data strictly private Supplier Quality, 5. Page, October 2005



Supplier Quality Aspects

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Supplier Total Evaluation Process (STEP) **NEW**

- Element 1: Technical Oversight Quality
Technical Oversight Planning and Control
Technical Oversight Design and Development
Balanced Scorecard
- Element 2: Triggered Assessments
- Element 3: RR QMS
- Element 4: Supplier Development Process
- Element 5: Management Information System (MIS)



Supplier Quality Aspects

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Supplier Total Evaluation Process (STEP) **NEW**

STEP Technical Oversight and Scorecard			
Titles		Purpose	Assessor
Technical Oversight Assessment	Quality	On-site assessment of product and systems	Approve and maintain Supplier Development Leader's (or regional equivalent)
	Planning and Control	On-site assessment of product and systems	Supply Chain Capability Managers
	Design & Development	On-site assessment of product and systems	Operating Business Unit Engineers (or regional equivalent)
Balanced Supplier Scorecard (or KPI's if scorecard not available)	Balanced Quality Score	Transactional review of Quality performance	Automatic
	Balanced Delivery Score	Transactional review of Delivery performance	Automatic



Supplier Quality Aspects

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Supplier Total Evaluation Process (STEP) **NEW**

> Score Cards

- Q & D appraisal
 - Q₁ to Q₅
 - D₁ to D₃

Class leading >95%
Standard >65%
Sub-standard >32%
Unsatisfactory ≤32%



> Consequences of poor performance

- Cost of Non-Conformance
- Red Flag Process
- Commissioned Over-check Policy (COP)

V2500 Transfer

Supplier Information Pack



Rolls-Royce

Content

1. Introduction
2. Scope of transfer
3. Commercial/Contracts
3. Quality
4. Physical Logistics
5. Spares
6. Supplier Communication
7. Milestones
8. Summary



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Introduction

- Purpose
 - Info pack to provide details of the transfer of the V2500 supply chain from RR Plc in Derby to RRD in Dahlewitz

- Aim
 - Increase transparency
 - Take away uncertainty
 - Highlight minimal changes to avoid confusion



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Scope of Transfer

- RRD established as Centre of Competence (COC) for two shaft propulsion systems
 - Tay transfer in 2004
 - V2500 transfer in 2006 in line with the overall strategy
- Scope of transfer
 - Engineering responsibility
 - Final build activity
 - Corresponding operational purchasing activity
- RRD to become manufacturing facility for the RR portion of the V2500 engine programme within the IAE consortium
- Not affected by the transfer
 - The module build of the High Pressure Compressor (HPC)
 - Management of the Nacelle
 - Both to remain in RR Derby



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Commercial/Contracts

- **Amendment agreements**
 - Existing agreements with RRplc will remain in force
 - These will be amended with RRD as additional contractual partner with the same rights and obligations but under German law

- **Schedule agreements & delivery schedules**
 - All RR plc. requirements for V2500 parts will remain valid
 - New RRD schedule agreements to be issued reflecting the same parameters (price, validity, incoterms etc)
 - Delivery schedules will reflect all future demands for the components in scope of the transfer and will be published via Exostar on 10.04.2006.
 - The cut-over point is component specific (pending its build package allocation), i.e. can vary from part to part for a single supplier
 - Parts common for Final Build and HPC will need to be delivered to both Derby and Dahlewitz in future. Corresponding split will be visible in the delivery schedules

- **Invoices**
 - Invoices shall be issued as per the instruction stated on the schedule agreement. RRD schedule agreement numbers must be referenced on all invoices related to deliveries to RRD.



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Quality

● **Supplier Advanced Business Relationship (SABRe):**

- The Requirements for suppliers to Rolls-Royce have been harmonised globally and are laid out in SABRe. (ref.: www.suppliermanager-online.com)
- SABRe is generally also applicable to RRD purchase orders.
- As a result of German regulations SABRe does contain a small number of site specific requirements, which are applicable to RRD only. Those are clearly identified in SABRe. (e.g.: SABRe Business Requirements, Supplier Approvals)

● **Supplier Approvals**

- All suppliers delivering to RRD purchase orders need to be approved by RRD.
- RRD approval is generally limited to 3 years subject to technical oversight.
- Authorisations granted by RRplc. are not valid for RRD; Deliveries against RRD purchase orders shall comply with the scope of the RRD approval certificate.
- Technical oversight is coordinated globally to reduce duplication.
- As part of the transfer project RRD is currently reviewing the available data based on RRplc history for issuing supplier approvals.
- Quality questionnaires will be issued to suppliers, who are currently not approved by RRD to assist the approval.



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Quality

● First Article Inspection (FAIRs)

- The transfer of the V2500 build and operational purchasing activity to RRD does not require new or repeated FAIRs from suppliers.
- The rules and regulations at the point in time, when the FAIR was done, shall apply.
- FAIRs and classified parts documentation must be available and in compliance with the relevant standard.
- RRD may request FAIR activity, where FAIR evidence does not exist or where it does not meet the applicable standard.



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Physical Logistics I

- **New address**

- Production parts shall be delivered in accordance with the instruction stated on the Schedule Agreements:

Dahlewitz - V2500

RR Deutschland Ltd & Co KG

Eschenweg 9

D-15827 Blankenfelde-Mahlow

Germany

- Labelling according to SABRe
(use RRD specific references as per RRD schedule agreement)

- **Demand Management**

- (Exostar) schedules for production parts will be changed
from SAP plant 1202 = RRplc in Derby/UK
to SAP plant 3102 = RRD in Dahlewitz/Germany

Please note that for production parts no logistics plants will be used in future!

- (Exostar) schedules for spare parts will remain
in SAP plant 1203 = RRplc in Derby/UK
or SAP plant xxxL = RRplc in Derby/UK (logistic plant)



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Physical Logistics II

- **Delivery Conditions**
 - FCA=Free carrier (or equivalent incoterms):
 - UK and US suppliers on FCA delivery terms continue to use ICS (inbound collection service) or collection manifest (e-manifest).
 - All other FCA suppliers deliver under the same terms and conditions as before but directly to RRD.
 - DDP=Deliveries duty paid (or equivalent incoterms)
 - All suppliers to deliver under the same terms and conditions as before, but directly to RRD.

- **Processes and Systems**
 - RRD is part of the R-R global template for processes and systems.
All known processes and systems shall apply.



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Spare Parts

- **Spare parts**
 - All spare parts will continue to be handled through SAP plant 1203 at RRplc in Derby.
 - Purchase Orders for V2500 “spares only” parts will be raised by RRplc directly.
 - Purchase Orders for V2500 parts common to OEM and Spares will be raised by RRD on behalf of RRplc.
 - Delivery location for all spares is RR plc.



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Supplier Communication

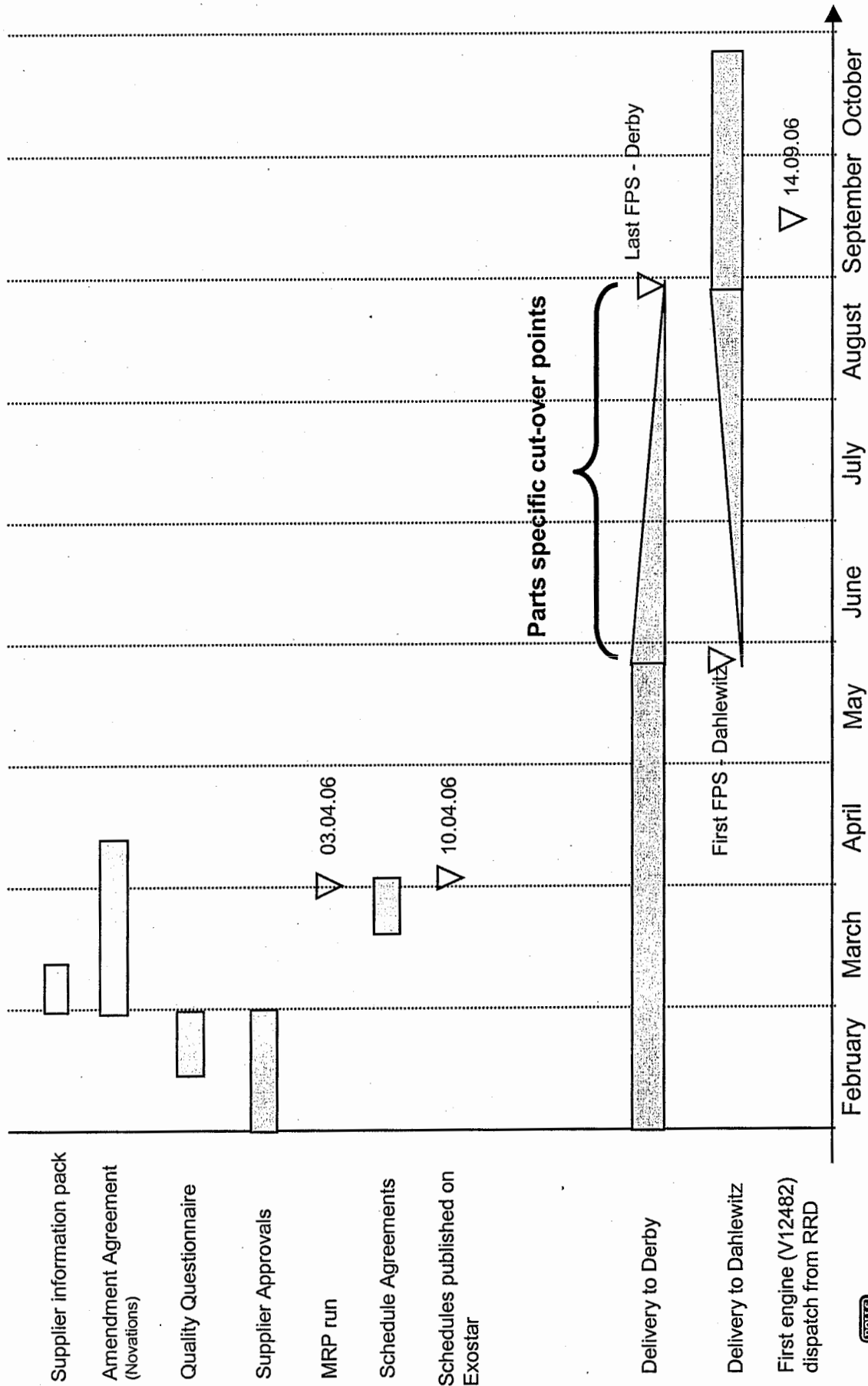
- **Written communication**
 - Article in Rolls-Royce on-line magazine „LINK“ (December Edition)
 - NTS No. 173 to all affected V2500 suppliers sent out in December
 - Supplier Information Pack
 - Follow-up NTS to be issued in conjunction with submission of revised Schedule Agreements planned for 03.04.2006

- **Verbal communication**
 - SORB Meeting held on 10th February 2006



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Milestones



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Summary

- Changes
 - Contact names in Procurement, Quality and Logistics
 - Delivery address – RRD Dahlewitz
 - Novation to Supply Agreements
 - New schedule agreements
 - Exostar demands referencing new schedule agreement and reflecting change of delivery address and new demand line
 - Supplier Approval requirements time limited, but will be read across in most cases
 - Spares handling



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