

**Presentation by Nat Russhard (Rolls-Royce)
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Machine Readable Identification - Impact

- Rolls-Royce produce 1350 Gas Turbine engines / year
- There are c. 20k components per engine
- On the basis of 4 times = 108m times per year
- Throughout the process from manufacture to new build, we read record and / or transcribe component part numbers / serial numbers 4/5 times

QUALITY ESCAPES ARE A CERTAINTY WITH MANUAL METHODS

Machine Readable Identification - Impact

- 108m instances of 2 min/item = 3.6m hrs/yr
- 4% of the Rolls-Royce population transcribe part information
- This analysis neglects;
 - Aftermarket/Repair and Overhaul.
 - In service action.
 - C class parts.
 - Time taken to locate and change duplicate serial numbers .

What does it All Mean?

- Machine readable part identification is an industry standard. All engine / air frame manufacturers will instruct it
- Readability is **NOT** a Quality requirement – Uniformity, dot size, ovality, skew, contrast etc **ARE**.
- Part marking becomes a quality requirement.
- It's a transformation – treat it like it.
- It's mandatory on all parts.

CODED IDENTIFICATION IS HERE TO STAY.

Benefits of Machine Readable Identification.

- Significantly reduces risk of quality failure associated with identification escapes.
- Removes legibility issues.
- An enabler to a paperless system
- Improves speed and accuracy of data transfer.
- No data transcript errors.



Has the ABILITY to.....

- Improve parts traceability.
- Perform serial number duplication checks.
- Reduce the risk of look alike parts fitted into the wrong engine.
- Reduce internal processing procedures.
- Capture accurate 'As Built' data.
- Check 'Should Build' data.
- Generate fully electronic engine log books.

ASSEMBLY CONTROL RECORD										LP COMPRESSOR DISC AND BLADES (WBC100)			
Op	0000	0000	0000	0000	0000	0000	0000	0000	0000	TOOL No.	DESCRIPTION	ALT	FITTER
Record weights of LPC BLADES on following CHART										01	02	03	
Attach copy of blade distribution and radial weights from computer program.										0	0	0	
LP FAN BLADE WEIGHT / DISTRIBUTION CHART (QRT)													
BLADE No.	FINAL POS.	SERIAL NUMBER	RADIAL WGT	AXIAL IJ	AXIAL IJ	BLADE No.	FINAL POS.	SERIAL NUMBER	RADIAL WGT	AXIAL IJ	AXIAL IJ	TOP POS.	
1		R62W 235273	446.5	4.2	4.2	19		R62W 235273	446.5	4.2	4.2	44.11	
2		R62W 235274	442.4	4.2	4.2	20		R62W 235274	442.4	4.2	4.2	44.14	
3		R62W 235275	442.5	4.2	4.2	21		R62W 235275	442.5	4.2	4.2	44.24	
4		R62W 235276	453.8	4.2	4.2	22		R62W 235276	453.8	4.2	4.2	44.24	
5		R62W 235277	443.9	4.2	4.2	23		R62W 235277	443.9	4.2	4.2	44.24	
6		R62W 235278	443.8	4.2	4.2	24		R62W 235278	443.8	4.2	4.2	44.24	
7		R62W 235279	443.8	4.2	4.2	25		R62W 235279	443.8	4.2	4.2	44.24	
8		R62W 235280	443.8	4.2	4.2	26		R62W 235280	443.8	4.2	4.2	44.24	
9		R62W 235281	443.8	4.2	4.2	27		R62W 235281	443.8	4.2	4.2	44.24	
10		R62W 235282	443.8	4.2	4.2	28		R62W 235282	443.8	4.2	4.2	44.24	
11		R62W 235283	443.8	4.2	4.2	29		R62W 235283	443.8	4.2	4.2	44.24	
12		R62W 235284	443.8	4.2	4.2	30		R62W 235284	443.8	4.2	4.2	44.24	
13		R62W 235285	443.8	4.2	4.2	31		R62W 235285	443.8	4.2	4.2	44.24	
14		R62W 235286	443.8	4.2	4.2	32		R62W 235286	443.8	4.2	4.2	44.24	
15		R62W 235287	443.8	4.2	4.2	33		R62W 235287	443.8	4.2	4.2	44.24	
16		R62W 235288	443.8	4.2	4.2	34		R62W 235288	443.8	4.2	4.2	44.24	
17		R62W 235289	443.8	4.2	4.2	35		R62W 235289	443.8	4.2	4.2	44.24	
18		R62W 235290	443.8	4.2	4.2	36		R62W 235290	443.8	4.2	4.2	44.24	
19		R62W 235291	443.8	4.2	4.2	37		R62W 235291	443.8	4.2	4.2	44.24	
20		R62W 235292	443.8	4.2	4.2	38		R62W 235292	443.8	4.2	4.2	44.24	
21		R62W 235293	443.8	4.2	4.2	39		R62W 235293	443.8	4.2	4.2	44.24	
22		R62W 235294	443.8	4.2	4.2	40		R62W 235294	443.8	4.2	4.2	44.24	
23		R62W 235295	443.8	4.2	4.2	41		R62W 235295	443.8	4.2	4.2	44.24	
24		R62W 235296	443.8	4.2	4.2	42		R62W 235296	443.8	4.2	4.2	44.24	
25		R62W 235297	443.8	4.2	4.2	43		R62W 235297	443.8	4.2	4.2	44.24	
26		R62W 235298	443.8	4.2	4.2	44		R62W 235298	443.8	4.2	4.2	44.24	
27		R62W 235299	443.8	4.2	4.2	45		R62W 235299	443.8	4.2	4.2	44.24	
28		R62W 235300	443.8	4.2	4.2	46		R62W 235300	443.8	4.2	4.2	44.24	
29		R62W 235301	443.8	4.2	4.2	47		R62W 235301	443.8	4.2	4.2	44.24	
30		R62W 235302	443.8	4.2	4.2	48		R62W 235302	443.8	4.2	4.2	44.24	
31		R62W 235303	443.8	4.2	4.2	49		R62W 235303	443.8	4.2	4.2	44.24	
32		R62W 235304	443.8	4.2	4.2	50		R62W 235304	443.8	4.2	4.2	44.24	

The Need for Improvement

