51817

ERL MAINTENANCE SUPPORT SDN BHD

(Company No. 498574-T)

E-MAS

Effective Railway Operations; Reliable System Maintenance

ROLLING STOCK DEPARTMENT

IN-HOUSE TECHNICAL INSTRUCTION

ZERO CUT WHEEL RE-PROFILING INSTRUCTION

R00.OMR.M91120.BT.0004.B

Release

	Name	Dept./Position	Date	Signature
Released:	Norazman	RST HoD	28-12-15	
Checked:	Mohamad	RST QEMR	28.12.15	
Author:	Sallehudin	RST Tech. Exec.	23.12.15	

Amendments or additions to this procedure must be indicated with a vertical black line in the adjacent left margin.

Change Record and Configuration Control

Revision	Date	Modification	Name
B	22.12.15	Updated to new RST Technical Instruction template and the document's name has been changed from Zero Cut (Economical) Interim Instruction to Zero Cut Wheel Re-profiling Instruction. All the contents are remain unchanged	Sallehudin
A	28.01.08	New – To supercede the existing procedure (DOCS ref. No. R00.OMR.M12990.BT.0013.A) in order to comply with current company requirement	Md Zainullah

TABLE OF CONTENTS

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1 Purpose

The technical instruction is to provide guideline to the Under Floor Wheel Lathe (UFWL) machine operator for carrying out Zero Cut wheel re-profiling. The operators strictly have to follow this instruction in order to avoid damage to the train wheel disc or to the machine.

This technical instruction will be applied until further clarification on actual process is obtained from Hegenscheid GmbH.

2 Scope, Distribution & Access

This technical instruction is applies to all appointed UFWL machine operators who are responsible to carry out wheel re-profiling. The distribution and access shall be available for all RST personnel and could be viewed and retrieved via EDMS and RST Portal [http://express50/ E-MAS_Portal/RST.html]. The hardcopy of this procedure is available in RST foreman room for reference. The full access for editing this document is only granted to RST MGT.

3 Zero Cut Procedure

The normal procedure for Pre-measurement MUST be carried out before commencing the Zero Cut procedure as follow.

To select Zero Cut Option, below sequence are required:

3.1 UFWL Machine Setup Procedure

3.1.1 On Calculation Menu page

- Select Variant listing
- Select variant no **1** (one)
- Press **INPUT**
- Press **OK**

3.1.2 On Machining Menu page:

- Select Configuration Machining.
- On the Maximum Permitted Cutting Depth, enter **1.0mm** (if lesser, the box will turn red). *Already entered and saved on 16.10.06*
- On the Maximum Permitted Cutting Depth Profile Back, enter **2.0mm** (if lesser, the box will turn red). *Already entered and saved on 16.10.06.*
- In Measuring Configuration page and disable the "cross" in Measuring Cut.
- Press **OK**.
- Enter nominal diameter to your desired value.
  Enter 0.5mm lower than the pre-measurement wheel diameter.
  For example if the Pre-measurement is 781.00mm, please enter 780.50mm.

- Press **INPUT**.
- Press **OK**.

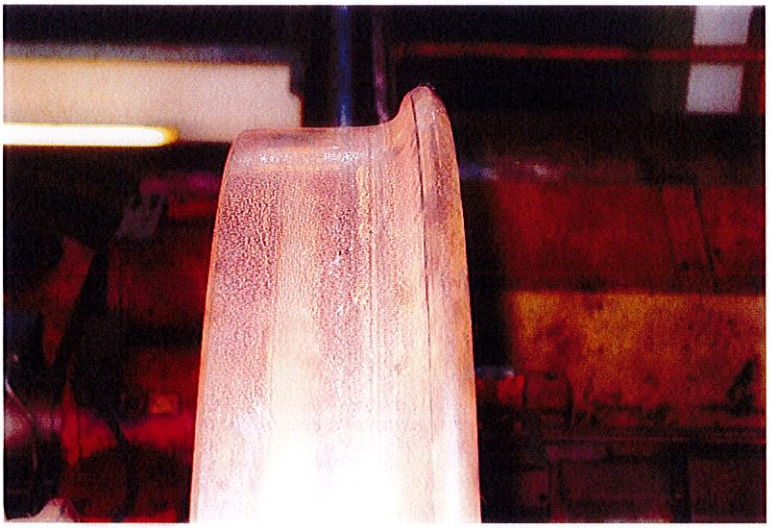
3.1.3 On Calculated Cut Menu page:

- Segmentation of cut page will appear
- Press **OK**

3.1.4 Start the Machining button to start the Zero Cut.

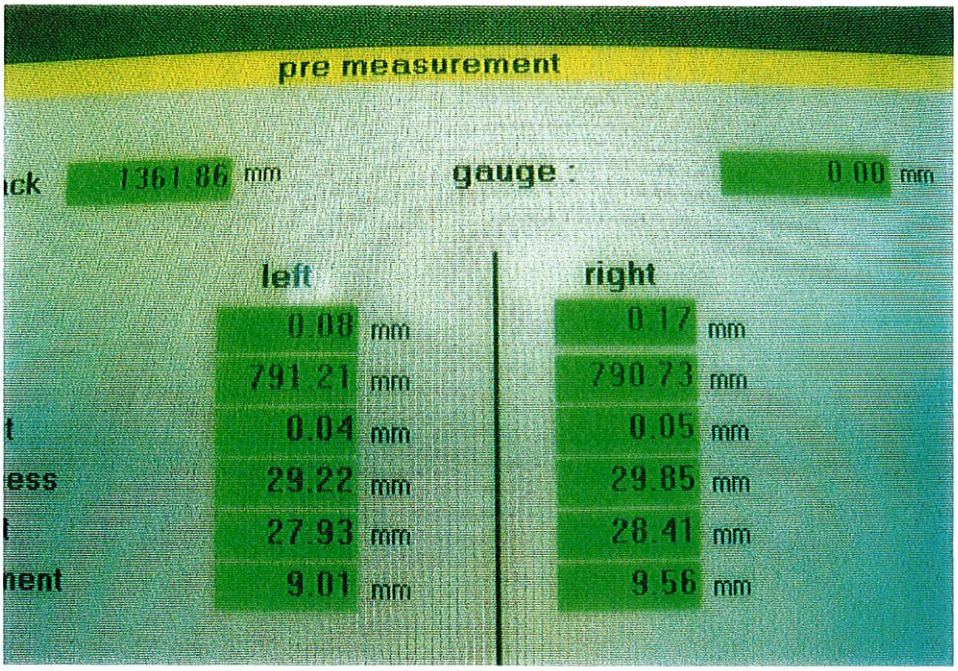
3.2 Zero Cut Process Guide

3.2.1 Wheel before being re-profiled.

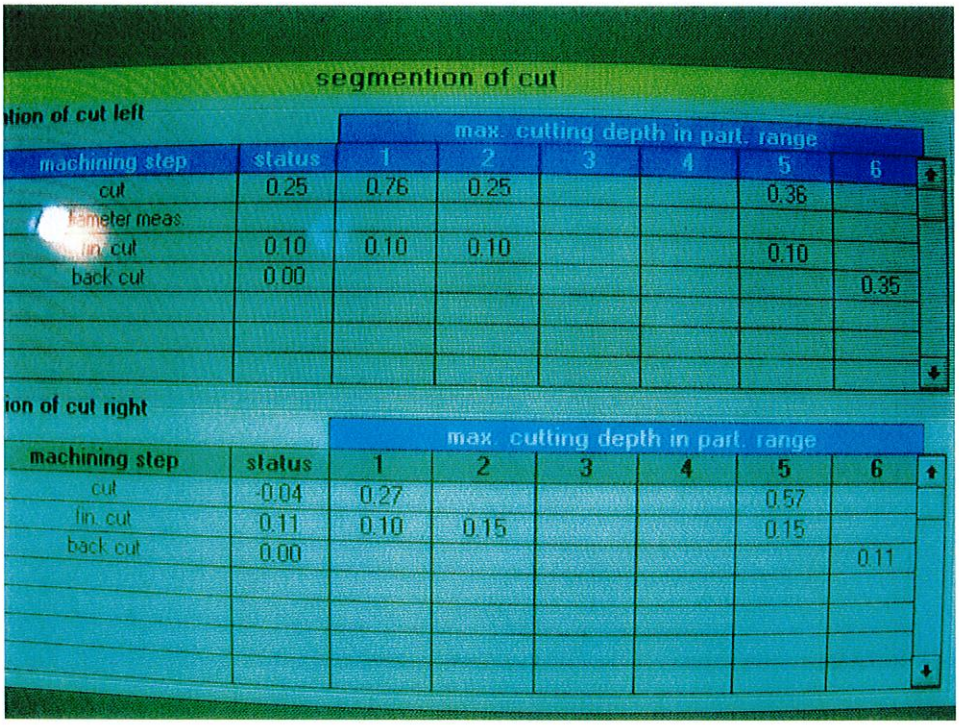


3.2.2 Observe the wear on the flange root and wheel tread towards the flange.

3.2.3 The wheel pre-measurement page.

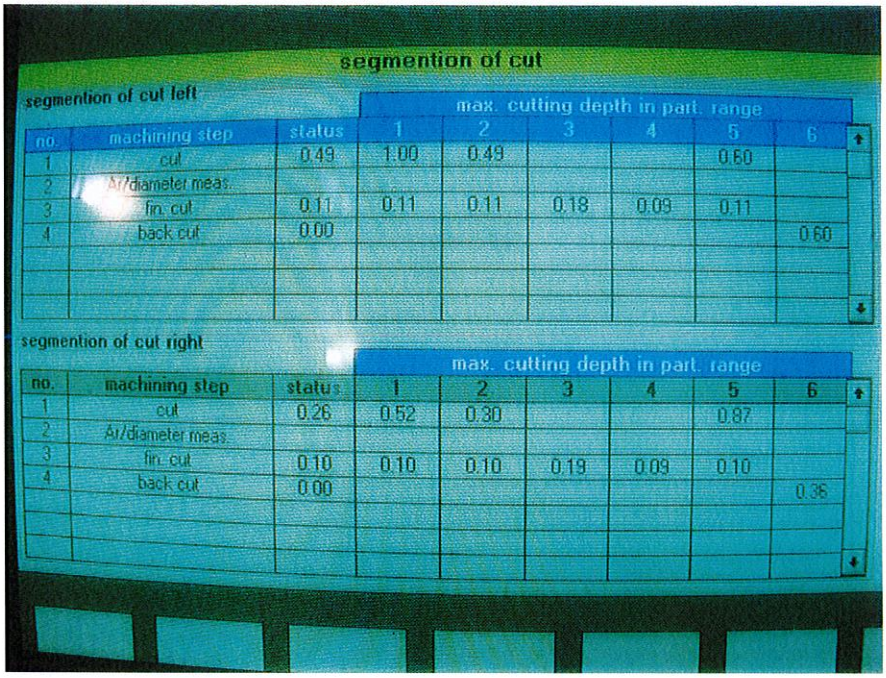


3.2.4 Segmentation of cut page shows the depth and areas to be cut with **0.5mm** reduction of diameter.



3.2.5 Result due to section 3 and 4 of wheel tread are not cut. **NOT O.K,** therefore correction on wheel tread is required.

3.2.6 Segmentation of cut page shows the depth and areas to be cut with **<u>0.8mm</u>** reduction of diameter.



segmention of cut

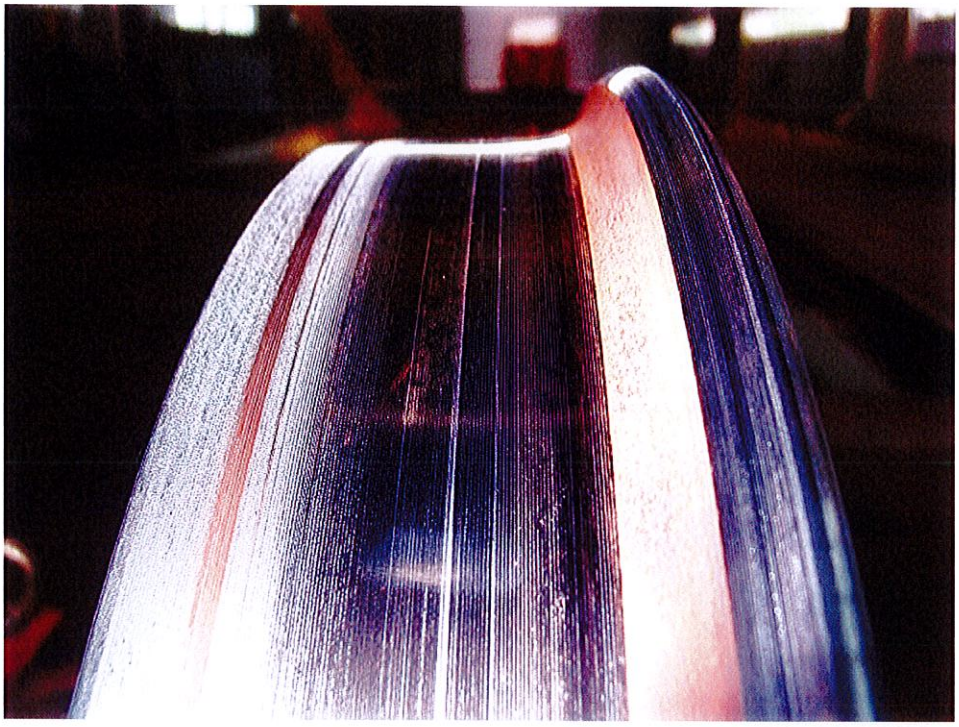
segmention of cut left

no.	machining step	status	max. cutting depth in part. range 1	2	3	4	5	6
1	cut	0.49	1.00	0.49			0.60	
2	Ar/diameter meas.							
3	fin. cut	0.11	0.11	0.11	0.18	0.09	0.11	
4	back cut	0.00						0.60

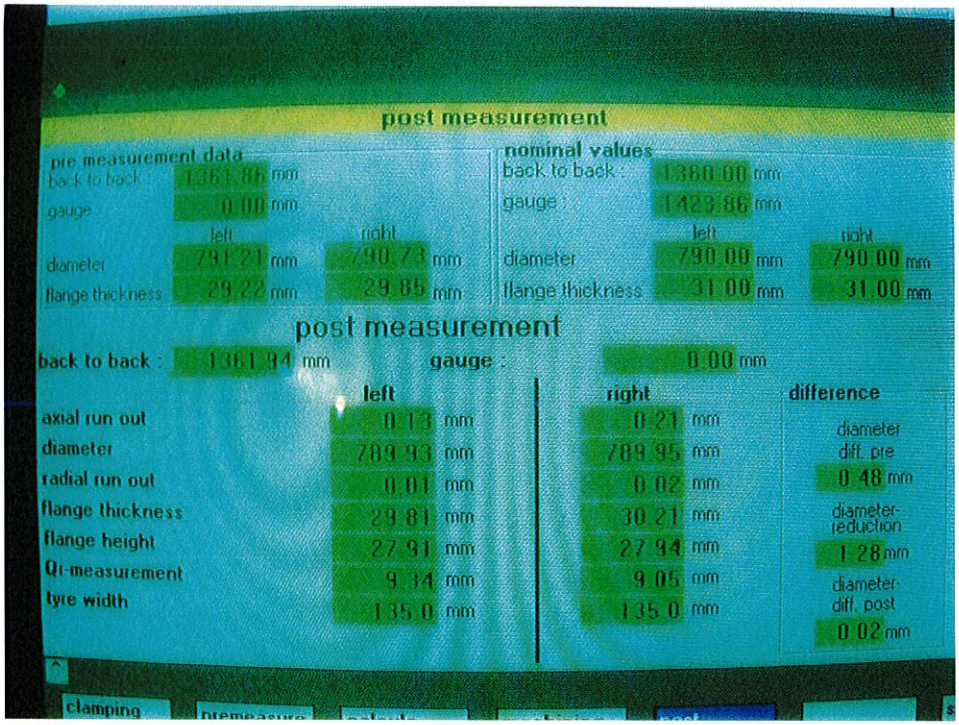
segmention of cut right

no.	machining step	status	max. cutting depth in part. range 1	2	3	4	5	6
1	cut	0.26	0.52	0.30			0.87	
2	Ar/diameter meas.							
3	fin. cut	0.10	0.10	0.10	0.19	0.09	0.10	
4	back cut	0.00						0.36

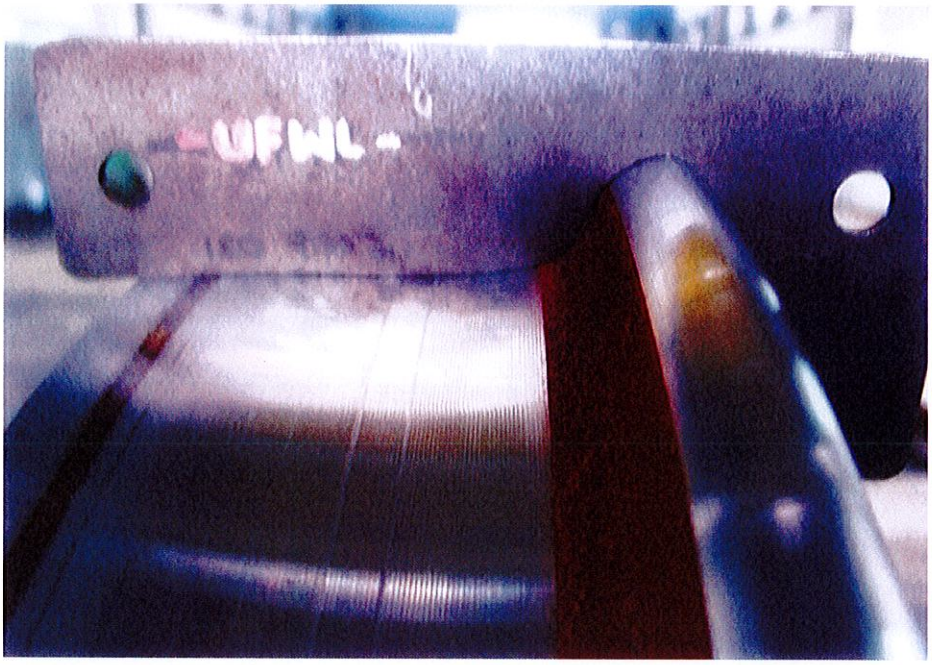
3.2.7 Clean cut on wheel tread with portion of flange root not cut/touch by cutting tool.



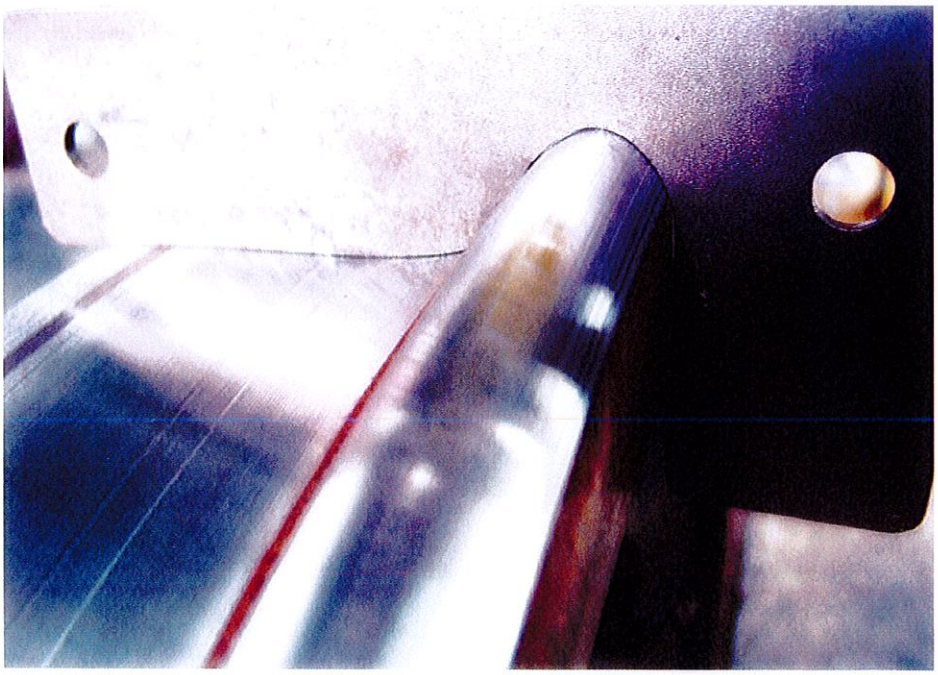
3.2.8 Post measurement page.



3.2.9 Confirm by using wheel profile gauge. No abnormality observed and the profile gauge should match with the wheel profile.



3.2.10 Confirm by using wheel profile gauge. No abnormality observed and the profile gauge should match with the wheel profile.



3.2.11 Print the readout after completion of zero cut. Refer to the Attachment 1.

Attachment

Attachment 1 – Zero Cut Test on 10.11.2006 at E-MAS UFWL

Attachment 2 – Print out no. 101341 – Zero Cut on 13.09.06 at Hegenscheidt, Germany.

Attachment 3 – 1st attempt on Zero Cut at E-MAS UFWL on 16.10.2006

Attachment 4 – Correction on Left wheel diameter on 16.10.2006

Attachment 5 – 2nd attempt on Zero Cut (diameter selected 0.5mm above pre-measurement)

Attachment 6 – 3rd attempt on Zero Cut (diameter selection 0.5mm below pre-measurement)

HEGENSCHEIDT - MFD U2000

KUALA-LUMPUR

identification

machining date.	**11/10/2006 4:39:26 PM**
vehicle identification	
wheelset identification	**1**
machining type	**P-3299**
profile	**Profil DIN5573-E1422-135-1360**
operator name	**200086**
vehicle identification	**TEST**
bogie axle no	**< >**
document no	**0 CUT**

pre-measurement data

wheel to wheel	**1361.86**	**mm**		
gauge	**0.00**	**mm**		
	left		right	
diameter	**791.21**	**mm**	**790.73**	**mm**
axial runout	**0.08**	**mm**	**0.17**	**mm**
radial runout	**0.04**	**mm**	**0.05**	**mm**
flange hight	**27.93**	**mm**	**28.41**	**mm**
flange thickness	**29.22**	**mm**	**29.85**	**mm**
qr-scale	**9.01**	**mm**	**9.56**	**mm**

nominal data

variant	**1**			
wheel to wheel	**1360.00**	**mm**		
gauge	**1423.86**	**mm**		
diameter	**790.00**	**mm**		
	left		right	
flange thickness	**31.00**	**mm**	**31.00**	**mm**

post-measurement data

wheel to wheel	**1361.94**	**mm**		
gauge	**0.00**	**mm**		
	left		right	
diameter	**789.93**	**mm**	**789.95**	**mm**
axial runout	**0.13**	**mm**	**0.21**	**mm**
radial runout	**0.01**	**mm**	**0.02**	**mm**
flange hight	**27.91**	**mm**	**27.94**	**mm**
flange thickness	**29.81**	**mm**	**30.21**	**mm**
qr-scale (Qr)	**9.34**	**mm**	**9.05**	**mm**

HEGENSCHEIDT - MFD

101341

identification

machining date:	**13.09.2006 13:48:44**
operator ID	
reason for machining	**0**
mileage	
machining type	**P1595-140-5-5**
profile type	**Profil DIN5573-E1425-140-1360**
wheel set ID	**12345**
wheel set position	**0**
wheel set direction	**0**
bogie ID	
vehicle ID	
vehicle direction 0=A-B, 1=B-A	**0**
vehicle type	

pre-measurement data

back to back	**1356.83**	mm		
gauge	**0.00**	mm		
diameter difference	**0.08**	mm		
	Links		Rechts	
diameter	**875.18**	mm	**875.10**	mm
axial runout	**0.11**	mm	**0.04**	mm
radial runout	**0.02**	mm	**0.02**	mm
flange height	**27.97**	mm	**28.17**	mm
flange thickness	**32.73**	mm	**32.41**	mm
qr cross measure	**10.66**	mm	**10.50**	mm
tyre width	**137.0**	mm	**137.0**	mm
flange angle	**0.00**	deg	**0.00**	deg
hollow wear	**0.00**	mm	**0.00**	mm

nominal data

variant	**1**			
diameter	**875.18**	mm		
	Links		Rechts	
flange thickness	**32.50**	mm	**32.50**	mm

post-measurement data

back to back	**1356.81**	mm		
gauge	**0.00**	mm		
diameter difference	**0.05**	mm		
	Links		Rechts	
diameter	**875.16**	mm	**875.11**	mm
axial runout	**0.10**	mm	**0.02**	mm
radial runout	**0.03**	mm	**0.02**	mm
flange height	**27.96**	mm	**28.16**	mm
flange thickness	**32.68**	mm	**32.47**	mm
qr cross measure	**10.66**	mm	**10.53**	mm
flange angle	**0.00**	deg	**0.00**	deg
hollow wear	**0.00**	mm	**0.00**	mm

1st attempt on Zero Cut.

Attachment 3

16.10.06.

HEGENSCHEIDT - MFD U2000

KUALA-LUMPUR

identification

machining date	10/16/2006 10:00:12 AM
vehicle identification	
wheelset identification	1
machining type	P-3299
profile	Profil DIN5573-E1422-135-1360
operator name	NRH / JHR
vehicle identification	TEST
bogie axle no	< >
document no	< >

pre-measurement data

wheel to wheel	1360.51	mm		
gauge	0.00	mm		
	left		right	
diameter	784.88	mm	785.06	mm
axial runout	0.02	mm	0.12	mm
radial runout	0.02	mm	0.03	mm
flange hight	27.69	mm	27.91	mm
flange thickness	30.04	mm	30.65	mm
qr-scale	10.29	mm	10.43	mm

nominal data

variant	1			
wheel to wheel	1360.00	mm		
gauge	1422.51	mm		
diameter	784.50	mm		
	left		right	
flange thickness	31.00	mm	31.00	mm

post-measurement data

wheel to wheel	1360.59	mm		
gauge	0.00	mm		
	left		right ✓	
diameter	781.06	mm	784.49	mm
axial runout	0.08	mm	0.14	mm
radial runout	0.01	mm	0.02	mm
flange hight	28.67	mm	27.95	mm
flange thickness	31.48	mm	30.71	mm
qr-scale (Qr)	10.36	mm	10.02	mm

smaller.

Correction on left wheel diameter.

HEGENSCHEIDT - MFD U2000

KUALA-LUMPUR

identification

machining date	10/16/2006 12:21:04 PM
vehicle identification	1
wheelset identification	1
machining type	P-3299
profile	Profil DIN5573-E1422-135-1360
operator name	NRH / JHR
vehicle identification	TEST
bogie axle no	< >
document no	< >

pre-measurement data

wheel to wheel	1360.68	mm		
gauge	0.00	mm		
	left		right	
diameter	781.07	mm	784.44	mm
axial runout	0.07	mm	0.18	mm
radial runout	0.02	mm	0.02	mm
flange hight	28.69	mm	27.94	mm
flange thickness	31.50	mm	30.76	mm
qr-scale	10.40	mm	10.05	mm

nominal data

variant	1			
wheel to wheel	1360.00	mm		
gauge	1422.67	mm		
diameter	781.50	mm		
	left		right	
flange thickness	31.00	mm	31.00	mm

post-measurement data

wheel to wheel	1360.76	mm		
gauge	0.00	mm		
	left		right	
diameter	781.05	mm	781.49	mm
axial runout	0.04	mm	0.13	mm
radial runout	0.02	mm	0.02	mm
flange hight	28.03	mm	27.93	mm
flange thickness	31.35	mm	31.94	mm
qr-scale (Qr)	9.93	mm	10.00	mm

2nd attempt on Turn Out.
(diameter above pre-measurement).

HEGENSCHEIDT - MFD U2000

KUALA-LUMPUR

identification

machining date	10/16/2006 1:43:16 PM
vehicle identification	t
wheelset identification	1
machining type	P-3299
profile	Profil DIN5573-E1422-135-1360
operator name	NRH / JHR
vehicle identification	TEST
bogie axle no	< >
document no	< >

pre-measurement data

wheel to wheel	1360.66	mm		
gauge	0.00	mm		
	left		right	
diameter	781.05	mm	781.28	mm
axial runout	0.05	mm	0.10	mm
radial runout	0.02	mm	0.02	mm
flange hight	28.08	mm	27.94	mm
flange thickness	31.38	mm	31.63	mm
qr-scale	9.96	mm	10.45	mm

nominal data

variant	1			
wheel to wheel	1360.00	mm		
gauge	1422.66	mm		
diameter	781.50	mm		
	left		right	
flange thickness	31.00	mm	31.00	mm

post-measurement data

wheel to wheel	1360.66	mm		
gauge	0.00	mm		
	left		right	
diameter	781.06	mm	781.29	mm
axial runout	0.03	mm	0.13	mm
radial runout	0.03	mm	0.03	mm
flange hight	28.08	mm	27.94	mm
flange thickness	31.39	mm	31.49	mm
qr-scale (Qr)	9.90	mm	10.35	mm

3rd attempt on Zero Cut.
(diameter lower than pre-measurement).

HEGENSCHEIDT - MFD U2000

KUALA-LUMPUR

identification

machining date	10/16/2006 1:43:16 PM
vehicle identification	123-456
wheelset identification	1
machining type	P-3299
profile	Profil DIN5573-E1422-135-1360
operator name	NRH / JHR
vehicle identification	TEST
bogie axle no	< >
document no	< >

pre-measurement data

wheel to wheel	1360.63	mm		
gauge	0.00	mm		
	left		right	
diameter	781.00	mm	781.25	mm
axial runout	0.06	mm	0.13	mm
radial runout	0.03	mm	0.02	mm
flange hight	28.09	mm	27.93	mm
flange thickness	31.32	mm	31.66	mm
qr-scale	9.94	mm	10.61	mm

nominal data

variant	1			
wheel to wheel	1360.00	mm		
gauge	1422.63	mm		
diameter	780.50	mm		
	left		right	
flange thickness	31.00	mm	31.00	mm

post-measurement data

wheel to wheel	1360.64	mm		
gauge	0.00	mm		
	left		right	
diameter	780.48	mm	780.49	mm
axial runout	0.04	mm	0.14	mm
radial runout	0.02	mm	0.02	mm
flange hight	27.90	mm	27.91	mm
flange thickness	31.76	mm	31.98	mm
qr-scale (Qr)	9.73	mm	10.30	mm