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ERL MAINTENANCE SUPPORT SDN BHD

(Company No. 498574-T)

E-MAS

Effective Railway Operations; Reliable System Maintenance

ROLLING STOCK DEPARTMENT

IN-HOUSE TECHNICAL INSTRUCTION

WHEEL RE-PROFILING GUIDELINE

R00.OMR.M91121.BT.0002.B

Release

Released:	Norazman	RST HOD	26.05.16	
Checked:	Mohamad	RST QEMR	25.05.16	
Author:	Sahar	RST Tech. Exec.	25/5/16	
	Name	**Dept./Position**	**Date**	**Signature**

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

Change Record and Configuration Control

B	25-May-16	Updated to new RST Technical Instruction template and updated all the superseded reference documents. The main contents are remain unchanged	Sahar
A	14-Feb-08	New - to supersede the existing procedures, (DOCS ref. no. G00.OMR.M90000.PG.0003.A and G00.OMR.M90000.CZ.0003.A) in order to comply with the current company requirement and overall contains also has been revised.	Md Zainullah
Revision	**Date**	**Modification**	**Name**

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1 Objective

This technical instruction is to identify the activities involve prior, during and after wheel re-profiling. It is also aims to streamline the activities in order to ensure all the tasks are carry out efficiently.

Where applicable or necessary, this technical instruction shall be read together with O&M manual, Maintenance Manual for Power & Trailer Wheeset, R00_RSE_91121_XR_3011_D_MM_trailer wheelset (c.22_055_5iss_engl).

2 Scope

This technical instruction is applicable all RST personnel who are involve directly or indirectly to the wheel re-profiling process.

The distribution and access shall be available for all RST 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 Wheel Re-Profile Process

Wheel re-profiling is carry out by restoring of the whole tread surface of wheel rim including wheel flange by cutting back of the outside nominal diameter measured at the point of tread circle. Target of re-profile is to attain dimensional, form and aspect deviations including surface roughness as per manufacturer's drawing.

3.1 Operational Limit

Wheel is required for re-profiling when the condition or measurement of wheel or wheelset is beyond the operational limit as designed by the manufacturer as shown in Table 1.

Part	Description of Damage	Operational Limit
Wheel	Flat spots	Length ≤ 40 mm Depth ≤ 0.8 mm
	Flaking & chipping	Length ≤ 40 mm x Depth ≤ 1.5 mm Length ≤ 20 mm x Depth ≤ 2.0 mm
	Crosswise crack on wheel tread surface	Unallowable
	Longitudinal crack on wheel tread surface	Unallowable
	Pressure bumps	Length ≤ 30 mm Depth ≤ 2.0 mm
	Partial or full rolling of material into outside headface of wheel rim	Unallowable

	Circularity of both wheelset wheels	See wheel drawing
	Wheel flange thickness, S_d Wheel flange height, S_h Wheel flange steepness, qR	≥ 27.5 mm ≤ 36 mm ≥ 6.5 mm
	Radial runout (of both wheel on axle)	See wheel drawing
Wheelset	Margin of two wheel diameters	See wheelset drawing
	Total wheel flanges thickness, (S_{d1} + S_{d2})	≥ 55 mm
	Wheelset gauge, Z = (S_{d1} + a + S_{d2})	Min. 1415

Table 1: Condition of wheel or wheelset require for re-profiling

Besides of condition or measurement mentioned above, wheel re-profiling also will be carried out when there has a train swaying reported. Refer to Train Swaying Measurement Guideline, R00.OMR.M91120.BT.0001*.

3.1 Wheel Inspection

Wheel condition or measurement inspection is carried out at scheduled and unscheduled inspection basis.

3.1.1 Scheduled Inspection

Wheel condition or measurement inspection is carrying out at every 10,000 Km train mileage. The measurement is recorded in Wheel and Tyre Record Sheet (hardcopy) in RST T1-T5 Scheduled Maintenance Checklist, R00.OMR.M14100.PT.0002.*. The data then updated in \\Express66\rst\RST Maintenance Monitoring & Records\LM Monitoring & Records\Train Wheel Measurement Record\Wheel Measurement Record (softcopy), by the group shift supervisor in-charge.

3.1.2 Unscheduled Inspection

Besides of the scheduled Inspection, the wheels also have to be inspected when there was reported;

i. Train flat wheel
ii. Train caught Emergency Brake (EB)
iii. Train produce abnormal sound from bogie

The readout of Brake Control Unit (BCU), Train Control Unit (TCU), Central Control Unit (CCU) and the event history in Driver Display Unit (DDU) also have to be downloaded and saved in R:\READOUT folder according to the train number.

3.2 Wheel Re-Profile Process

Wheel re-profile shall be carried out in accordance with O&M manual, Maintenance Manual for Power & Trailer Wheeset, R00_RSE_91121_XR_3011_D_MM_trailer wheelset (c.22_055_5iss_engl). Only operators who are certified by RST HOD are allowed to operate the Underfloor Wheel Lathe (UFWL) Machine.

The UFWL machine must to be operated in accordance with O&M manual, Underfloor Wheel Lathe, D00.DWE.M85111.NZ.0001.B. (consist of five files).

3.2.1 Pre-Measurements

The operators have to carry out wheel pre-measurement prior commencing the wheel re-profiling. From pre-measurement data, the operators have to evaluate and then set the cutting value as recommended. Should the operators are in doubt regarding the cutting value setting they have to consult with their respective supervisor or RST HOD.

The operators also have to observe the current instruction provided by RST HOD regarding the cutting value setting before commencing the wheel re-profiling. For example, refer to Zero Cut Wheel Re-profiling Instruction, R00.OMR.M91120.BT.0004*.

3.2.2 Post-Measurements

After completed the re-profiling, the operator has to carry out post-measurement and print the readout. The printed readout then to be submitted to shift supervisor or inspector for updating in \\Express66\rst\RST Maintenance Monitoring & Records\LM Monitoring & Records\Train Wheel Measurement Record\Wheel Measurement Record (softcopy). The hardcopy of the readout then must be kept in Wheel Re-profile Record Folder (folder no. 008).

3.3 Train Leveling

The train also required for carbody-bogie adjustment in order to ensure the train safety and stability. The adjustment must be carried out in accordance with Train Leveling Guideline, R00.OMR.M91125.BT.1001.*.

3.4 Flange Lubrication Alignment

Wheel flange lubrication alignment also has to be checked and re-aligned in accordance with KELSAN Lube Manual Rev E June 2005, R00.SUP.M91126.PG.1001.*.

3.5 Entering New Wheel Diameters

New wheel diameters after re-profiling must be entered into Traction Control Unit (TCU) in car A1 (for axle No. 5) and car B1 (for axle No. 6) via the Driver's Display Unit (DDU) or Central Control Unit (CCU). The steps of entering the new wheel diameters are as outlined below.

3.5.1 Entering new wheel diameter via DDU:

i. Switch ON Master Controller key to occupied driver's cab.

ii. Set the Diag. Mode bypass switch to Maintenance Mode.

iii. Press SERVICE > WHEEL DIAMETER >enter new wheel diameter.

iv. Then the train has to run with speed about 100 kmh.

v. When the train speed is about 100 kmh, the driver has to coast the train for 10 seconds. During coasting, the Traction Control Unit will automatically adjust to the new wheel diameter.

3.5.2 Entering new wheel diameter via CCU

i. CCU in "Master" condition.

ii. Using laptop with Sibas Monitor 32 program.

iii. Go to USER > WHEEL DIAMETER

iv. Change to new wheel diameter.

v. When the train speed is about 100 km/h, the driver has to coast the train for 10 seconds. During coasting, the Traction Control Unit will automatically adjust to the new wheel diameter.

3.5.3 Entering new wheel diameter into ATP software

The new wheel diameter shall be entered into the ATP software by SIG Department. RST Shift Supervisor or Inspector is responsible to inform and update them accordingly by submitting Train Latest Wheel Diameter Notification To Signalling Department form, R00.OMR.M90000.DQ.1002.*.

3.6 Release Train for Service

Besides entering the new wheel diameters in the system, the technician also is responsible to observe any other faults that may appear prior to certifying that the train is fit for service.

The Shift Supervisor or Inspector has to ensure the completeness of the task and the train status before releasing the train to Operation Department.

Appendices

Appendix 1: O&M manual, Maintenance Manual for Power & Trailer Wheeset, R00_RSE_91121_XR_3011_D_MM_trailer wheelset (c.22_055_5iss_engl).

Appendix 2: O&M manual, Underfloor Wheel Lathe, D00.DWE.M85111.NZ.0001.B. (consist of five files).

Appendix 3: Zero Cut Wheel Re-profiling Instruction, R00.OMR.M91120.BT.0004*.

Appendix 4: KELSAN Lube Manual Rev E June 2005, R00.SUP.M91126.PG.1001.*

Appendix 5: Latest Wheel Diameter Notification To Signalling Department form, R00.OMR.M90000.DQ.1002.*