

| | | | | | | | | | | | | | | | | | | | |
|------------------|---------------|------------------|---------------|------------------------|-----|----|-----|--------------------|------------------|---------------|----------------|-----------|----|------------------------------|--|-----------|--|--|--|
| <i>Docky Me.</i> | | | | LOCOMOTIVE <i>P578</i> | | | | DATE <i>5-8-12</i> | | | | | | | | | | | |
| Start Readings | | | | Has Shims | | | | END READING | | | | Has Shims | | | | OLD GAUGE | | | |
| | Flange Height | Flange Thickness | Rim Thickness | Witness Groove | YES | NO | | Flange Height | Flange Thickness | Rim Thickness | Witness Groove | YES | NO | FLANGE THICKNESS MEASUREMENT | | | | | |
| L#1 | <i>0-18</i> | <i>0-0</i> | <i>28</i> | | | | L#1 | | | | | | | 0-on 0-1-17/64" | | | | | |
| L#2 | <i>0-17</i> | <i>0-0</i> | <i>38</i> | | | | L#2 | | | | | | | 1-on 0-1-15/64" | | | | | |
| L#3 | <i>0-22</i> | <i>0-0</i> | <i>42</i> | | | | L#3 | | | | | | | 2-on 0-1-7/32" | | | | | |
| L#4 | <i>0-19</i> | <i>0-0</i> | <i>24</i> | | | | L#4 | | | | | | | 3-on 0-1-5/32" | | | | | |
| L#5 | | | | | | | L#5 | | | | | | | 4-on 0-1-7/64" | | | | | |
| L#6 | | | | | | | L#6 | | | | | | | 5-on 0-1-3/64" | | | | | |
| | | | | | | | | | | | | | | 6-on 0-1-1/32" | | | | | |
| | | | | | | | | | | | | | | 7-on 0-63/64" | | | | | |
| | | | | | | | | | | | | | | 8-on 0-15/16" | | | | | |
| | | | | | | | | | | | | | | FLANGE THICKNESS MEASUREMENT | | | | | |
| R#1 | <i>0-18</i> | <i>0-0</i> | <i>28</i> | | | | R#1 | | | | | | | 0-on 0-1" | | | | | |
| R#2 | <i>0-17</i> | <i>0-0</i> | <i>38</i> | | | | R#2 | | | | | | | 0-on 1-1-1/16" | | | | | |
| R#3 | <i>0-22</i> | <i>0-0</i> | <i>42</i> | | | | R#3 | | | | | | | 0-on 2-1-1/8" | | | | | |
| R#4 | <i>0-18</i> | <i>0-0</i> | <i>24</i> | | | | R#4 | | | | | | | 0-on 3-1-3/16" | | | | | |
| R#5 | | | | | | | R#5 | | | | | | | 0-on 4-1-1/4" | | | | | |
| R#6 | | | | | | | R#6 | | | | | | | 0-on 5-1-5/16" | | | | | |
| | | | | | | | | | | | | | | 0-on 6-1-13/32" | | | | | |
| | | | | | | | | | | | | | | 0-on 7-1-7/16" | | | | | |
| | | | | | | | | | | | | | | 0-on 8-1-31/64" | | | | | |

WEAR LIMITS FOR ROAD & SWITCH LOCOMOTIVES - MINIMUM DAILY REQUIREMENTS

FRA 1 1/2" MMA 1 7/16" Flange Height
 FRA 7/8" MMA 15/16" Flange Thickness
 FRA 1" MMA 1 1/16" Rim Thickness
 FRA 5/16" MMA 1/4" Tread Wear

WEAR LIMITS - ROAD & SWITCH LOCOS - MIN. 92 DAY REQ

WEAR LIMITS - PASSENGER LOCOS - MIN 92 DAY REQ

| FLANGE HEIGHT | FLANGE THICKNESS | RIM THICKNESS | TREAD WEAR | FLANGE HEIGHT | FLANGE THICKNESS | RIM THICKNESS | TREAD WEAR |
|---------------|------------------|---------------|------------|---------------|------------------|---------------|------------|
| FRA 1 1/2" | FRA 7/8" | FRA 1" | FRA 5/16" | FRA 1 1/2" | FRA 7/8" | FRA 1" | FRA 5/16" |
| MMA 1 7/16" | MMA 1 1/32" | MMA 1 1/8" | MMA 1/4" | MMA 1 7/16" | MMA 1" | MMA 1 1/4" | MMA 1/2" |

CONVERSION CHART FOR WHEEL DIAMETER

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 8= 37" | 15= 37 7/8" | 22= 38 1/2" | 29= 39 5/8" | 36= 40 1/2" |
| 9= 37 1/8" | 16= 38" | 23= 38 7/8" | 30= 39 3/4" | 37= 40 5/8" |
| 10= 37 1/4" | 17= 38 1/8" | 24= 39" | 31= 39 7/8" | 38= 40 3/4" |
| 11= 37 3/8" | 18= 38 1/4" | 25= 39 1/8" | 32= 40" | 39= 40 7/8" |
| 12= 37 1/2" | 19= 38 3/8" | 26= 39 1/4" | 33= 40 1/8" | 40= 41" |
| 13= 37 5/8" | 20= 38 1/2" | 27= 39 3/8" | 34= 40 1/4" | 41= 41 1/8" |
| 14= 37 3/4" | 21= 38 5/8" | 28= 39 1/2" | 35= 40 3/8" | 42= 41 1/4" |

LOCOMOTIVE RAIL CLEARANCE

| COUPLER HEIGHT | | PILOT HEIGHT | | HEIGHT OF HORIZONTAL END HANDHOLD OR UNCOUPLING LEVER IF USED AS HORIZONTAL HANDHOLD | | LOCO RAIL CLEARANCE | |
|----------------|----------------------------|--------------|----------------------|--|----|---------------------|------------|
| FRA | MAX 34 1/2" MIN 31 1/2" | FRA | MAX 6" MIN 3" | FRONT | 5" | FRA | MIN 2 1/2" |
| MMA | MAX 34 1/2" MIN 32 1/2" | MMA | MAX 6" MIN 3 1/2" | REAR | 5" | MMA | MIN 3" |

WHEEL DIAMETER MEASUREMENTS ARE TAKEN FROM THE TOP OF THE WITNESS GROOVE 40" DIAMETER WHEELS WITNESS GROOVE = 36"
 42" DIAMETER WHEEL WITNESS GROOVE = 38"

WHEEL MATCHING STANDARDS FOR 6 AXLE LOCOMOTIVES (FRA & MMA STANDARDS ARE THE SAME)

3/4" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITHOUT SHIMS.
 1 1/4" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH SHIMS APPLIED.
 1 1/2" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS ON DIFFERENT TRUCKS.

NOTE: WHEN FIGURING THE DIFFERENCE IN WHEEL DIAMETER, TO DETERMINE IF SHIMS ARE REQUIRED, YOU MUST USE THE AVERAGE WHEEL DIAMETER FIGURES
 REMEMBER THIS RULE

0 TO 5 DIAMETER DIFFERENCE NO SHIMS REQUIRED 6 TO 10 DIAMETER DIFFERENCE ADD APPROPRIATE SHIMS TO BOTH BOXES ON BOTH SIDES OVER 10 IN DIAMETER DIFFERENCE REQUIRES WHEEL CHANGE OR TRUED. NOTE: ON EMD LOCOMOTIVES USE ONLY ONE 1/2" SHIM EMD PART NUMBER 8455981 SHELLED TREAD AND FLAT SPOTS MUST BE TRUED OR CHANGED WHEN FOUND ON PERIODIC OR UNSCHEDULED MAINTENANCE. KCS CONDEMNING LIMITS FOR SHELLED TREAD ON A SERVICE TRACK.
 *ONE SHELLED SPOT 1" OR GREATER IN LENGTH *ONE SHELLED SPOT WITH A DEPTH OF 1/4" OR MORE.

EMPLOYEES SIGNATURE

David Blank

SUPERVISORS SIGNATURE

LOCOMOTIVE

DATE

| Start Readings | | | | Has Shims | | END READING | | | | Has Shims | | OLD GAUGE |
|----------------|------------------|---------------|----------------|-----------|----|---------------|------------------|---------------|----------------|-----------|----|------------------------------|
| Flange Height | Flange Thickness | Rim Thickness | Witness Groove | YES | NO | Flange Height | Flange Thickness | Rim Thickness | Witness Groove | YES | NO | FLANGE THICKNESS MEASUREMENT |
| L#1 | 0-18 | 0-0 | 28 | | | L#1 | | | | | | 0-on 0-1-15/64 |
| L#2 | 0-17 | 0-0 | 36 | | | L#2 | | | | | | 1-on 0-1-15/64 |
| L#3 | 4-22 | 0-0 | 40 | | | L#3 | | | | | | 2-on 0-1-7/32 |
| L#4 | 0-20 | 0-0 | 24 | | | L#4 | | | | | | 3-on 0-1-5/32 |
| L#5 | | | | | | L#5 | | | | | | 4-on 0-1-7/64 |
| L#6 | | | | | | L#6 | | | | | | 5-on 0-1-3/64 |
| | | | | | | | | | | | | 6-on 0-1-1/32 |
| | | | | | | | | | | | | 7-on 0-63/64 |
| | | | | | | | | | | | | 8-on 0-15/64 |
| R#1 | 0-20 | 0-0 | 28 | | | R#1 | | | | | | FLANGE HEIGHT MEASUREMENT |
| R#2 | 0-18 | 0-0 | 36 | | | R#2 | | | | | | 0-on 0-1" |
| R#3 | 2-22 | 0-0 | 40 | | | R#3 | | | | | | 0-on 1-1-1/16" |
| R#4 | 0-19 | 0-0 | 24 | | | R#4 | | | | | | 0-on 2-1-1/8" |
| R#5 | | | | | | R#5 | | | | | | 0-on 3-1-3/16" |
| R#6 | | | | | | R#6 | | | | | | 0-on 4-1-1/4" |
| | | | | | | | | | | | | 0-on 5-1-5/16" |
| | | | | | | | | | | | | 0-on 6-1-3/8" |
| | | | | | | | | | | | | 2-on 6-1-13/32" |
| | | | | | | | | | | | | 4-on 6-1-7/16" |
| | | | | | | | | | | | | 6-on 6-1-31/64" |

WEAR LIMITS FOR ROAD & SWITCH LOCOMOTIVES - MINIMUM DAILY REQUIREMENTS

| | | |
|-----------|-------------|------------------|
| RA 1 1/2" | MMA 1 7/16" | Flange Height |
| RA 7/8" | MMA 15/16" | Flange Thickness |
| RA 1" | MMA 1 1/16" | Rim Thickness |
| RA 5/16" | MMA 1/4" | Tread Wear |

NEW GAUGE

| |
|------------------|
| 0-on 17-1-1/16" |
| 0-on 18-1-1/8" |
| 0-on 19-1-3/16" |
| 0-on 20-1-1/4" |
| 0-on 21-1-5/16" |
| 0-on 22-1-3/8" |
| 2-on 22-1-13/32" |
| 4-on 22-1-7/16" |
| 6-on 22-1-15/32" |
| 8-on 22-1-1/2" |

WEAR LIMITS - ROAD & SWITCH LOCOS - MIN. 92 DAY REQ

WEAR LIMITS - PASSENGER LOCOS - MIN 92 DAY REQ

| LANGE eight | Flange THICKNESS | Rim THICKNESS | Tread WEAR | Flange HEIGHT | Flange THICKNESS | Rim THICKNESS | Tread WEAR |
|-------------|------------------|---------------|------------|---------------|------------------|---------------|------------|
| RA 1 1/2" | FRA 7/8" | FRA 1" | FRA 5/16" | FRA 1 1/2" | FRA 7/8" | FRA 1" | FRA 5/16" |
| MA 1 7/16" | MMA 1 1/32" | MMA 1 1/8" | MMA 1/4" | MMA 1 7/16" | MMA 1" | MMA 1 1/4" | MMA 1/4" |

CONVERSION CHART FOR WHEEL DIAMETER

| | | | | |
|------------|-------------|-------------|-------------|-------------|
| = 37" | 15= 37 7/8" | 22= 38 3/4" | 29= 39 5/8" | 36= 40 1/2" |
| = 37 1/8" | 16= 38" | 23= 38 7/8" | 30= 39 3/4" | 37= 40 5/8" |
| 0= 37 1/4" | 17= 38 1/8" | 24= 39" | 31= 39 7/8" | 38= 40 3/4" |
| 1= 37 3/8" | 18= 38 1/4" | 25= 39 1/8" | 32= 40" | 39= 40 7/8" |
| 2= 37 1/2" | 19= 38 3/8" | 26= 39 1/4" | 33= 40 1/8" | 40= 41" |
| 3= 37 5/8" | 20= 38 1/2" | 27= 39 3/8" | 34= 40 1/4" | 41= 41 1/8" |
| 4= 37 3/4" | 21= 38 5/8" | 28= 39 1/2" | 35= 40 3/8" | 42= 41 1/4" |

NEW GAUGE

| |
|-----------------|
| 0-on 0-1-17/64" |
| 1-on 0-1-15/64" |
| 2-on 0-1-7/32" |
| 3-on 0-1-5/32" |
| 4-on 0-1-7/64" |
| 5-on 0-1-3/64" |
| 6-on 0-1-1/32" |
| 7-on 0-63/64" |
| 8-on 0-15/64" |

LOCOMOTIVE RAIL CLEARANCE

| COUPLER HEIGHT | FRONT | PILOT HEIGHT | FRONT | HEIGHT OF HORIZONTAL END HANDHOLD OR UNCOUPLING LEVER IF USED AS HORIZONTAL HANDHOLD | LOCO RAIL CLEARANCE |
|----------------------------------|-------|-----------------------------|-------|--|------------------------------|
| RA MAX 34 1/2" MIN 31 1/2" | 33 | FRA MAX 6" MIN 3" | 5 1/2 | FRA MIN 30" MMA MIN 30" FRA MAX 50" MMA MAX 50" | FRA MIN 2 1/2" MMA MIN 3" |
| MA MAX 34 1/2" MIN 32 1/2" | 34 | MMA MAX 6" MIN 3 1/2" | 5 | | |

WHEEL DIAMETER MEASUREMENTS ARE TAKEN FROM THE TOP OF THE WITNESS GROOVE 40" DIAMETER WHEELS WITNESS GROOVE = 36" 2" DIAMETER WHEEL WITNESS GROOVE = 38"

WHEEL MATCHING STANDARDS FOR 6 AXLE LOCOMOTIVES (FRA & MMA STANDARDS ARE THE SAME)

- 1/8" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITHOUT SHIMS.
- 1/4" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH SHIMS APPLIED.
- 1/2" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS ON DIFFERENT TRUCKS

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REMEMBER THIS RULE

TO 5 DIAMETER DIFFERENCE NO SHIMS REQUIRED 6 TO 10 DIAMETER DIFFERENCE ADD APPROPRIATE SHIMS TO BOTH BOXES ON BOTH SIDES OVER 10 IN DIAMETER DIFFERENCE REQUIRES WHEEL CHANGE OR TRUED. NOTE: ON END LOCOMOTIVES USE ONLY ONE (1) SHIM END PART NUMBER 645591 SHELLED TREAD AND FLAT SPOTS MUST BE TRUED OR CHANGED WHEN FOUND ON PERIODIC OR UNSCHEDULED MAINTENANCE. KCS CONDEMNING LIMITS FOR SHELLED TREAD ON A SERVICE TRACK. ONE SHELLED SPOT 1" OR GREATER IN LENGTH. ONE SHELLED SPOT WITH A DEPTH OF 1/4" OR MORE.

EMPLOYEES SIGNATURE

Jew Black

SUPERVISORS SIGNATURE

[Empty Signature Box]

