

# Rim & Face Method *FastMath*<sup>TM</sup> Worksheet

DATE: \_\_\_\_\_ MACHINE # \_\_\_\_\_ LOCATION \_\_\_\_\_

## • Step 1 – Record Alignment Readings

The first step is to write down all of the physical measurements and dial readings obtained from your most recent alignment procedure. Refer to the diagram and key on page 9 of the manual for definitions. When recording your SAG measurement, simply write down the positive value obtained in your initial SAG reading. If a SAG reading was not taken, enter a 0 (zero) wherever it is required. Use the following spaces to enter those now. Enter dial readings as whole numbers (i.e. -0.006 as -6):

C = 0    R0 = 0    F0 = 0    SAG =  (write down positive)

<p>H = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p> <p>D = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p> <p>E = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p>	<p>R90 = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p> <p>R180 (+ SAG) = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p> <p>R270 = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p>	<p>F90 = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p> <p>F180 = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p> <p>F270 = <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/></p>
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## • Step 2 – Perform the Calculations

You are now ready to perform the actual mathematical calculations. The equations are broken down into components for easier manipulation using a standard calculator:

**Vertical Plane: VN = Vertical Near Foot Shim Amounts; VF = Vertical Far Foot Shim Amounts:**

$$VN = \left(\frac{R180}{2}\right) + \left(D \cdot \frac{F180}{H}\right) \quad \text{and} \quad VF = \left(\frac{R180}{2}\right) + \left(E \cdot \frac{F180}{H}\right)$$

**Horizontal Plane: HN = Horizontal Near Foot Adjustments; HF = Horizontal Far Foot Adjustments:**

$$HN = \left(\frac{R270-R90}{2}\right) + \left(D \cdot \frac{F270-F90}{H}\right) \quad \text{and} \quad HF = \left(\frac{R270-R90}{2}\right) + \left(E \cdot \frac{F270-F90}{H}\right)$$

Substitute the numbers you entered in Step 1 in the appropriate space within each equation. **Remember**, the vertical plane movement is movement that takes place when looking at the equipment from the side [(+) = add shims, (-) = remove shims] and horizontal plane movement is movement that takes place when looking at the equipment from above with your back to the stationary machine [(+) = right (towards you in the Vertical Plane) and (-) = left (away from you in the Vertical Plane)].

**(See Reverse Side For Sample Problem)**

# FastMath™ Worksheet Sample Problem

## • Step 1 — Record Alignment Readings (Sample Shown)

The first step is to write down all of the physical measurements and dial readings obtained from your most recent alignment procedure. Refer to the diagram and key on page 9 of the manual for definitions. When recording your SAG measurement, simply write down the positive value obtained in your initial SAG reading. If a SAG reading was not taken, enter a 0 (zero) wherever it is required. Use the following spaces to enter those now. Enter dial readings as whole numbers (i.e. -0.006 as -6):

$$C = 0 \quad R0 = 0 \quad F0 = 0 \quad SAG = \boxed{12} \quad (\text{write down positive})$$

$$\begin{array}{l} H = \boxed{12} \\ D = \boxed{10} \\ E = \boxed{48} \end{array} \quad \begin{array}{l} R90 = \boxed{12} \\ R180 = 9 (+ 12) = \boxed{21} \\ R270 = \boxed{-3} \end{array} \quad \begin{array}{l} F90 = \boxed{11} \\ F180 = \boxed{-6} \\ F270 = \boxed{-17} \end{array}$$

## • Step 2 — Perform the Calculations (Sample Shown)

You are now ready to perform the actual mathematical calculations. The equations are broken down into components for easier manipulation using standard calculators:

**Vertical Plane — VN = Vertical Near Foot Shim Amounts; VF = Vertical Far Foot Shim Amounts:**

$$VN = \left(\frac{21}{2}\right) + \left(10 \cdot \left(\frac{-6}{12}\right)\right) = +5.50 / 1000\text{ths (Add)}$$

$$VF = \left(\frac{21}{2}\right) + \left(48 \cdot \left(\frac{-6}{12}\right)\right) = -13.500 / 1000\text{ths (Remove)}$$

**Horizontal Plane — HN = Horizontal Near Foot Adjustments; HF = Horizontal Far Foot Adjustments:**

$$HN = \left(\frac{(-3) - 12}{2}\right) + \left(10 \cdot \left(\frac{(-17) - 11}{12}\right)\right) = -30.833 / 1000\text{ths (Away from you)}$$

$$HF = \left(\frac{(-3) - 12}{2}\right) + \left(48 \cdot \left(\frac{(-17) - 11}{12}\right)\right) = -119.5 / 1000\text{ths (Away from you)}$$