



Equipment Fuel Consumption Worksheet v2006.1

Copyright © 2006 Grantlun Corporation. All rights reserved.

Adapted from the United Nations' white paper on the calculation of machine rates

Discussion

The fuel consumption rate for a piece of equipment depends on the engine size, load factor, the condition of the equipment, operator's habits and skill, environmental conditions, and the basic design of equipment.

The most accurate method (when records are available) for determining hourly fuel cost for a machine, is to divide its total fuel cost by its total hours of employment.

When no fuel or employment records are available, the following formula can be used to estimate liters of fuel used per machine hour,

$$\text{LMPH} = \frac{K \times \text{GHP} \times \text{LF}}{\text{KPL}}$$

where LMPH is the liters used per machine hour, K is the kg of fuel used per brake hp/hour, GHP is the gross engine horsepower at governed engine rpm, LF is the load factor in percent, and KPL is the weight of fuel in kg/liter.

Typical values for K, LF and KPL are given in Table 1. Note that the load factor is the ratio of the average horsepower used to gross horsepower available at the flywheel.

Table 2.0 converts Table 1.0 to English units and provides a rule-of-thumb consumption rate per 100 brake-horsepower at medium load.