Torque and angular acceleration of a flywheel
Material: Cast nodular iron.

$\rho := 7300 \cdot \frac{kg}{m^3}$ $R := 190 \cdot mm$ $h := 15 \cdot mm$ $Mass := \rho \cdot \pi \cdot R^2 \cdot h = 12.419\,kg$

Note: Mass distribution and moment of inertia are not appropriate for a Norton 750 flywheel. $I_m := \frac{1}{2} \cdot Mass \cdot R^2 = 2.242 \times 10^5\,kg \cdot mm^2$

Torque required when spinning the flywheel from 2500 rpm to 7500 rpm in 10 seconds, assuming constant angular acceleration:

$\Delta t := 10 \cdot sec$ $n_1 := 2500 \cdot min^{-1}$ $n_2 := 7500 \cdot min^{-1}$

$\omega_1 := 2 \cdot \pi \cdot n_1 = 261.799 \frac{1}{s}$ $\omega_2 := 2 \cdot \pi \cdot n_2 = 785.398 \frac{1}{s}$

Average angular acceleration: $\alpha := \frac{\omega_2 - \omega_1}{\Delta t} = 52.36 \frac{1}{s^2}$ $T := I_m \cdot \alpha = 11.737\,N \cdot m$

Kinetic rotational energies at beginn and end of acceleration:

$E_{k1} := \frac{1}{2} \cdot I_m \cdot \omega_1^2 = 7.682 \times 10^3\,J$

$E_{k2} := \frac{1}{2} \cdot I_m \cdot \omega_2^2 = 6.914 \times 10^4\,J$

Variation in angular kinetic energy == Work performed by the torque force. :: E2-E1 = W

Assuming torque is constant across the stated rev figures:

$W := T \cdot (\omega_2 - \omega_1) \cdot \Delta t$

Thus, $T := \frac{E_{k2} - E_{k1}}{(\omega_2 - \omega_1) \cdot \Delta t} = 11.737\,N \cdot m$

Flywheel 1: Mass = 12.4 kg Im = 224200 kg*mm^2 T = 11.74 N*m

Flywheel 2: Mass = 9.935 kg (-20%) Im = 179300 kg*mm^2 T = 9.39 N*m (-20%)

Verdict: Measured by the available torque of 65 Nm (Commando 850), albeit not constant across the rev range, an increase of 2.35 Nm (from 53.3 Nm to 55.7 Nm) accounts for 4.4% more torque for acceleration and succombing resistance actions.
Figures used in this example are for demonstration purposes and are not claimed to be correct for the 1973-76 Norton Commando.