Correction to: Analysis and design of hybrid electric regional turboprop aircraft

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There is an error in Equation 21 of the original article. The weight of the battery is a function of the energy stored at the start and will not vary during flight whereas the fuel weight will vary as a function of the energy level. Hence, the correct equation is:

$$W = \frac{\psi}{H_{\text{bat}}} g E_{\text{start}} + \frac{(1-\psi)}{H_{\text{fuel}}} g E + W_{\text{empty}} + W_{\text{payload}} \quad (21)$$

With the corrected version of equation 21, the range equation for hybrid aircraft (provided as Equations 22 and 4 in the original text) then becomes:

$$R_{\text{hybrid}} = \frac{\eta_{\text{prop}}}{\left(c_P \frac{H_{\text{fuel}}}{g} (1-S) + \frac{S}{\eta_{\text{elec}}}\right)} \frac{C_L}{C_D} \frac{H_{\text{fuel}}}{g} \frac{1}{(1-\psi)} \ln \left(\frac{\left((1-\psi) \frac{g}{H_{\text{fuel}}} + \psi \frac{g}{H_{\text{bat}}}\right) E_{\text{start}} + W_{\text{empty}} + W_{\text{payload}}}{\psi \frac{g}{H_{\text{bat}}} E_{\text{start}} + W_{\text{empty}} + W_{\text{payload}}} \right) \quad (22, 4)$$

In case of a full electric aircraft with both the power split and hybridization factor equal to 1, the range equation simplifies to:

$$R_{\text{elec}} = \eta_{\text{prop}} \eta_{\text{elec}} \frac{C_L}{C_D} \frac{H_{\text{bat}}}{g} \frac{W_{\text{bat}}}{W_{\text{bat}} + W_{\text{empty}} + W_{\text{payload}}} \quad (6)$$

The original article can be found online at <https://doi.org/10.1007/s13272-017-0272-1>.

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