```matlab
function F = proj2E100_transient(t, x)
%
% This function provides the right-hand side of the differential equation
% for the MATLAB solver.

F = [0; 0; 0];
% Vector F is initialized.

R1 = evalin('base','R1_circuit');
R2 = evalin('base','R2_circuit');
R3 = evalin('base','R3_circuit');
% These are the resistor values for the circuit. If you want to perform a
% simulation with different R values, set them in the Rx_circuit variables
% that are defined in the main MATLAB script (or workspace) before calling
% this function.

if (t >= 0.0) && (t <= 1.0e-6)
    h = 1.0e6 * t;
else
    h = 1;
end;
% h(t) represents an approximation of the step function, with a rise time
% of 1 microsecond.

F(1) = x(1) - h;
F(2) = -(1/R1)*x(1) + (1/R1+1/R2+1/R3)*x(2) - (1/R3)*x(3);
F(3) = -(1/R3)*x(2) + (1/R3)*x(3);
% This is the right-hand side of the DAE. It is written in terms of R, so
% that you don't need to rewrite the code every time your element values
% change.
```