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/* The first Glue proof for the Traffic Control CPS, for the Car Control Program.*/

\functions {
}

\programVariables {

}


\problem {

(\forall R x1 . \forall R v1 . \forall R a1 . \forall R vsl .\forall R xsl .\forall R B .
\forall R A. \forall R ep.
\forall R xj. \forall R vj. \forall R aj. \forall R sl . \forall R slPos . \forall R MAXBREAK
. \forall R MAXACCEL . \forall R TICK.

(
(x1 - 1< xj & xj <= x1 & (x1 >= 0 -> xj >= 0) & (x1 < 0 -> xj <0) &
v1 -1 < vj & vj <= v1 & (v1 >= 0 -> vj >= 0) & (v1 < 0 -> vj <0) &
a1 - 1 < aj & aj <= a1 & (a1 >= 0 -> aj >= 0) & (a1 < 0 -> aj <0) &
vsl - 1 < sl & sl <= vsl &(vsl >= 0 -> sl >= 0) & (vsl < 0 -> sl <0) &
xsl - 1 < slPos & slPos <= xsl & (xsl>= 0 -> slPos >= 0) & (xsl < 0 -> slPos <0) &
-B + 1 > MAXBREAK & MAXBREAK >= -B & (-B >= 0 -> MAXBREAK >= 0) & (-B < 0 -> MAXBREAK < 0) &
A-1 < MAXACCEL & MAXACCEL <= A & (A >= 0 -> MAXACCEL >= 0) & (A < 0 -> MAXACCEL < 0) &
TICK = ep & ep = 2 & vj >= 0  & v1 >= 0 & xj >= 0 & x1 >= 0 & sl >= 0 & vsl >= 0 & (x1 >= xsl
-> v1 <= vsl) & (xj >= slPos -> vj <= sl))->
(
((MAXBREAK <= (aj -1)) &
aj <= (MAXACCEL - 1) &
(xj >= slPos - 1 -> (aj <= (((sl-vj) / TICK)- 2))) &
(((xj < (slPos + 1)) -> (slPos >= xj+1 + (vj+1)^2  + (((aj + 1) + 1) * ((aj + 1) * TICK^2 +
TICK * (vj+1)))))))->
(
(-B <= a1) &
(a1 <= A &
(x1 >= xsl -> (a1 <= (vsl - v1) / ep)) &
(x1 < xsl -> (xsl >= x1 + v1^2 + (a1 + 1) * (a1  * ep^2 + ep * v1)))
))))}
```