

Box Unloading $\stackrel{\text{def}}{=} \text{one} - \text{of} \llbracket \text{notDamaged} \rrbracket_{\text{occ}_1}^{c_1} \llbracket \text{Damaged} \rrbracket_{\text{occ}_2}^{c_2}$

$c_1 \stackrel{\text{def}}{=} \text{not}(b.\text{damaged})$

$\text{occ}_1 \stackrel{\text{def}}{=} \text{CancelUnloading};$
 CancelStoring

$c_2 \stackrel{\text{def}}{=} b.\text{damaged}$

$\text{occ}_2 \stackrel{\text{def}}{=} \text{BringtoUnloadingArea};$
 UpdateBoxPosition

$\text{notDamaged} \stackrel{\text{def}}{=} \text{UnloadMe}(b, iLoc, stgLoc);$

$\text{StoreMe}(b, stgLoc, strLoc)$

$\text{UnloadMe}(b, iLoc, stgLoc) \stackrel{\text{def}}{=} \llbracket \text{main} \rrbracket \llbracket \text{block}_1 \rrbracket \text{bf}_1 .$

$\text{StoreMe}(b, stgLoc, strLoc) \stackrel{\text{def}}{=} \dots$

$\text{main} \stackrel{\text{def}}{=} \langle \text{PickedUp}(*b, w, cLoc) \rangle;$

$\text{sinv } w \text{ CarryMe}(*w, iLoc, stgLoc);$

$\langle \text{Dropped}(*b, w, cLoc) \rangle$

$\text{block}_1 \stackrel{\text{def}}{=} \text{not}(wa.\text{free}(stgLoc))$

$\text{bf}_1 \stackrel{\text{def}}{=} \text{sinv } wa \text{ StagingUnavail}(*b, *wa, stgLoc);$

$\langle \text{NewUnloadingLoc}(*b, *wa, stgLoc) \rangle$

$\text{Damaged} \stackrel{\text{def}}{=} \text{BringtoDamagedArea};$

$\text{EvaluateDamage};$

$\text{if}(\text{repairable})\{f_1\}\{f_2\}$

$f_1 \stackrel{\text{def}}{=} \text{HandleDamagedBox}$

$f_2 \stackrel{\text{def}}{=} \text{sinv } wa \text{ ReportDamage}(*b, *wa);$

$\text{sinv } wa \text{ ReorderDamagedStock}(*b, *wa)$