

Title (en)

Method for protecting the fresh water system of a vehicle from freezing

Title (de)

Verfahren zum Schutz des Frischwassersystems eines Fahrzeugs vor Frost

Title (fr)

Procédé de protection du système d'eau fraîche d'un véhicule contre le gel

Publication

**EP 2305530 A1 20110406 (DE)**

Application

**EP 09012495 A 20091002**

Priority

EP 09012495 A 20091002

Abstract (en)

The method involves monitoring voltage in an electrical on board supply system of a vehicle. Water lines (9) and a water tank such as toilet, water heater (7) and gray water tank (13), are drained when the voltage falls below a threshold value. A drain outlet (19) of a fresh water tank (1) is opened when the voltage lowers below another threshold value or larger than time interval below the former threshold value. Pressure in a compressed air network (37) of the vehicle is monitored. The toilet is drained by actuation of a toilet flush (5). Independent claims are also included for the following: (1) a computer program comprising instructions to perform a method for protecting a water line and a water tank of a water system of a vehicle i.e. rail vehicle, from frost damage (2) a water system of a vehicle i.e. rail vehicle, comprising a fresh water tank.

Abstract (de)

Es wird ein Verfahren und ein Steuergerät vorgeschlagen, mit deren Hilfe es möglich ist, dass Frostschäden an dem Frischwassersystem von Schienenfahrzeugen wirkungsvoll und automatisch zu verhindern. Gleichzeitig wird die Betriebsbereitschaft der Wasserversorgung des Schienenfahrzeugs, insbesondere von dessen Toilette, verbessert.

IPC 8 full level

**B61D 35/00** (2006.01)

CPC (source: EP)

**B61D 35/00** (2013.01)

Citation (search report)

- [I] CH 201815 A 19381215 - FRIEDMANN ALEX FA [DE]
- [A] FR 907387 A 19460311 - CIE GENERALE DE TRAVAUX D ECLA
- [A] US 4657038 A 19870414 - LYONS KEVIN D [US]

Cited by

CN105774841A; DE102012213975A1; RU199012U1; CN113085932A; CN110481581A; CN112208574A; WO2014056768A1; WO2013083317A1; WO2018228837A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

**EP 2305530 A1 20110406; EP 2305530 B1 20170104**; DK 2305530 T3 20170320; LT 2305530 T 20170327; PL 2305530 T3 20170731; RU 2010139980 A 20120410; RU 2559178 C2 20150810

DOCDB simple family (application)

**EP 09012495 A 20091002**; DK 09012495 T 20091002; LT 09012495 T 20091002; PL 09012495 T 20091002; RU 2010139980 A 20100930