Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – Performance Electronic Park Brake (PEPB)

Infotainment Subsystem Part Specific Specification (SPSS)

Version 1.0

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Version Date: January 8, 2021

FORD CONFIDENTIAL

Revision History

Date	Version	Notes	
January 8, 2021	1.0	Initial Release	

Table of Contents

1 Overview

Performance Electric Park Brake (PEPB) is a feature that controls rear wheel brake application. This feature gives the drivers control to rear brakes for advanced vehicle dynamics control.
The requirements in this documentation are mainly related to how the user can enable/disable the feature and some other operation as further mentioned by the requirements.

2 Architectural Design

2.1 PEPB-REQ-397374/A-Performance EPB Client

PEPB Client is the module that provides the interface to the user to enable or disable the feature. Also, the user can be notified of the feature state.

2.2 PEPB-REQ-397375/A-Performance EPB Server

PEPB server controls the feature behavior. Upon getting user request to enable/disable the feature it can proceed with the user request and notify the client of the feature state.

2.3 Logical Signal Mapping

The CAN signals mentioned throughout this document shall refer to the CAN signal's logical name. The logical names shall be mapped to their actual CAN signal names. Please use the table below to perform the mapping. The InfoCAN database file is the master file for the actual CAN signal names. Note: There may be cases where the actual CAN signal name is used in this documentation.

Logical Name	CAN Signal Name
LPepbSt	PrkBrkPerfMde_D_Stat
LPepbMnuSt	PrkBrkPerfMnuOn_D_Stat
LPepbBtSt	PrkBrkPerfButtn_D_Stat

2.4 PEPB-IIR-REQ-397369/A-PEPB Client Rx

2.4.1 MD-REQ-397371/A-LPepbSt

LPepbSt: This signal provides the feature state to the user.

Parameter	Parameter meaning
0x0	Not Pressed
0x1	Pressed
0x2	Not Used
0x3	Faulty

2.5 PEPB-IIR-REQ-397370/A-PEPB Client Tx

2.5.1 MD-REQ-397372/A-LPepbMnuSt

LPepbMnuSt: This signal provides the client menu state to the server.

Parameter	Parameter meaning
0x0	Off
0x1	On
0x2	Not Used
0x3	Faulty

2.5.2 MD-REQ-397373/A-LPepbBtSt

LPepbBtSt: This signal provides the client's soft button state to the server.

Parameter	Parameter meaning

0x0	Off
0x1	On
0x2	Not Used
0x3	Faulty

3 General Requirements

3.1 PEPB-REQ-398371/A-Feature Request While in Menu

The server makes use of Menu Signal coming consecutively with the feature change request signal to satisfy safety requirements.
The client should send feature change request only when menu signal is On.

4 Functional Definition

4.1 PEPB-FUN-REQ-397378/A-Performance EPB

4.1.1 PEPB-REQ-397379/A-Feature Availability

None of the requirements of this feature will be applicable if the feature has been configured as disabled.

4.1.2 PEPB-REQ-405637/A-Soft Button Failure

Anytime client detects a fault with the soft button value generation, it shall try to transmit the signal LPepbBtSt with the state Faulty (0x3). The client shall generate any associated DTC as defined in Infotainment Diagnostic Specification.

4.1.3 PEPB-REQ-405752/A-Menu Display Failure

If client detects an error in displaying the menu of the feature, it shall transmit the signal LPepbMnuSt with the value Faulty (0x3) . The client shall generate any associated DTC as defined in Infotainment Diagnostic Specification.

4.1.4 PEPB-REQ-406179/A-Missing Signal

If Client misses the signal LPepbSt for 5 consecutive periods, the client shall transmit the LPepbBtSt with the parameter Faulty (0x3). The client shall generate any associated DTC as defined in Infotainment Diagnostic Specification.

4.2 Use Cases

4.2.1 PEPB-UC-REQ-398361/A-Enable Feature

Actors	User
Pre-conditions	PEPB feature is present in the feature and user is able to interface with it.
Scenario Description	User presses PEPB button to request feature On.
Post-conditions	Server changes the status of PEPB and Client updates the feature status in its display.
List of Exception Use Cases	
Interfaces	Client HMI screen.

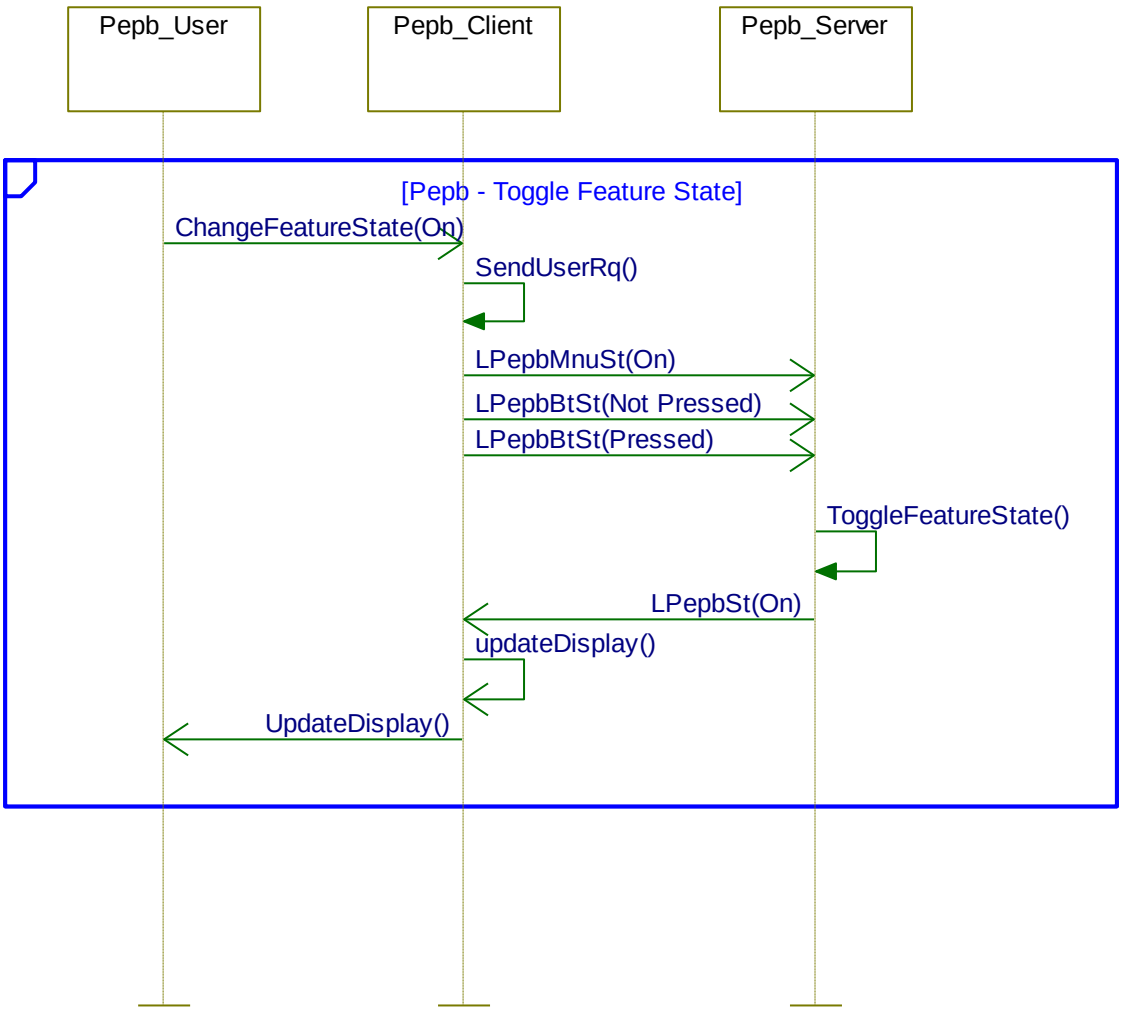
4.2.2 PEPB-UC-REQ-397376/A-Disable Feature

Actors	User
Pre-conditions	PEPB feature is present in the feature and user is able to interface with it.
Scenario Description	User presses PEPB button to request feature off.
Post-conditions	Server changes the status of PEPB and Client updates the feature status in its display.
List of Exception Use Cases	
Interfaces	Client HMI screen.

4.3 White Box Views

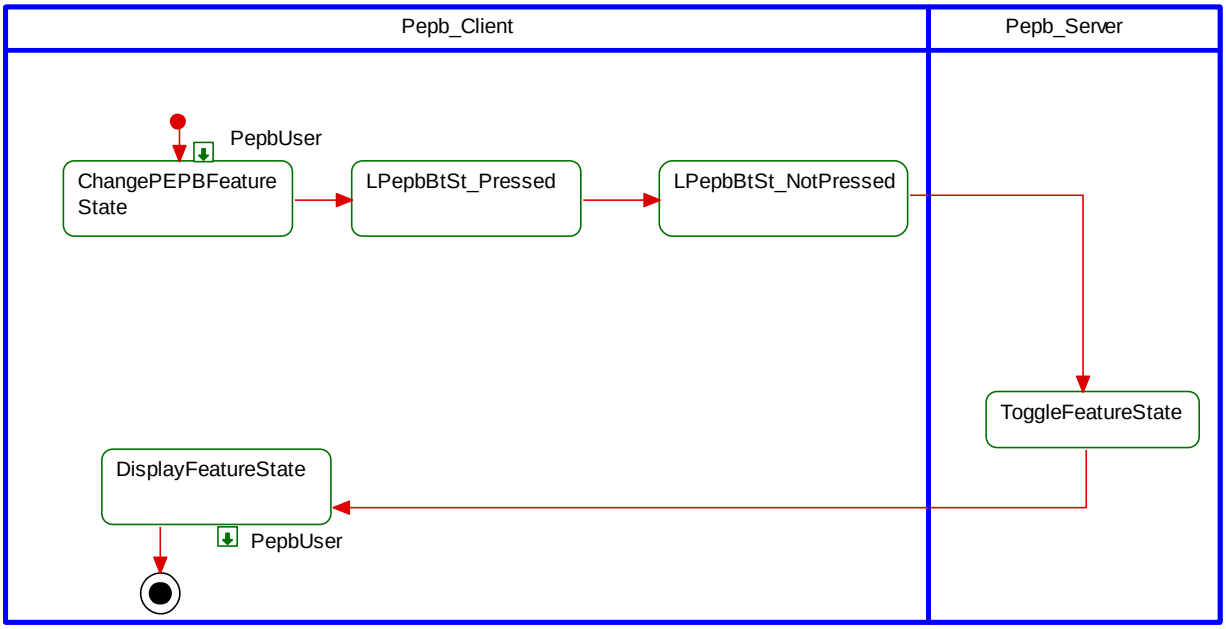
4.3.1 Sequence Diagrams

4.3.1.1 PEPB-SD-REQ-397385/A-Performance EPB Operation



4.3.2 Activity Diagrams

4.3.2.1 PEPB-ACT-REQ-397386/A-Performance EPB Operation



5 Reference Documents

Reference #	Document Title
1	
2	
3	
4	
5	
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