

Hydraulic Brake Actuation - Overview

Overview – Adjustable Pedals

The adjustable pedal feature uses an electrical motor to adjust the brake and accelerator pedal positions forward and rearward to increase driver comfort. This is accomplished through the use of the adjustable pedal switch, the memory set switch (if equipped) or the RKE transmitter (if equipped).

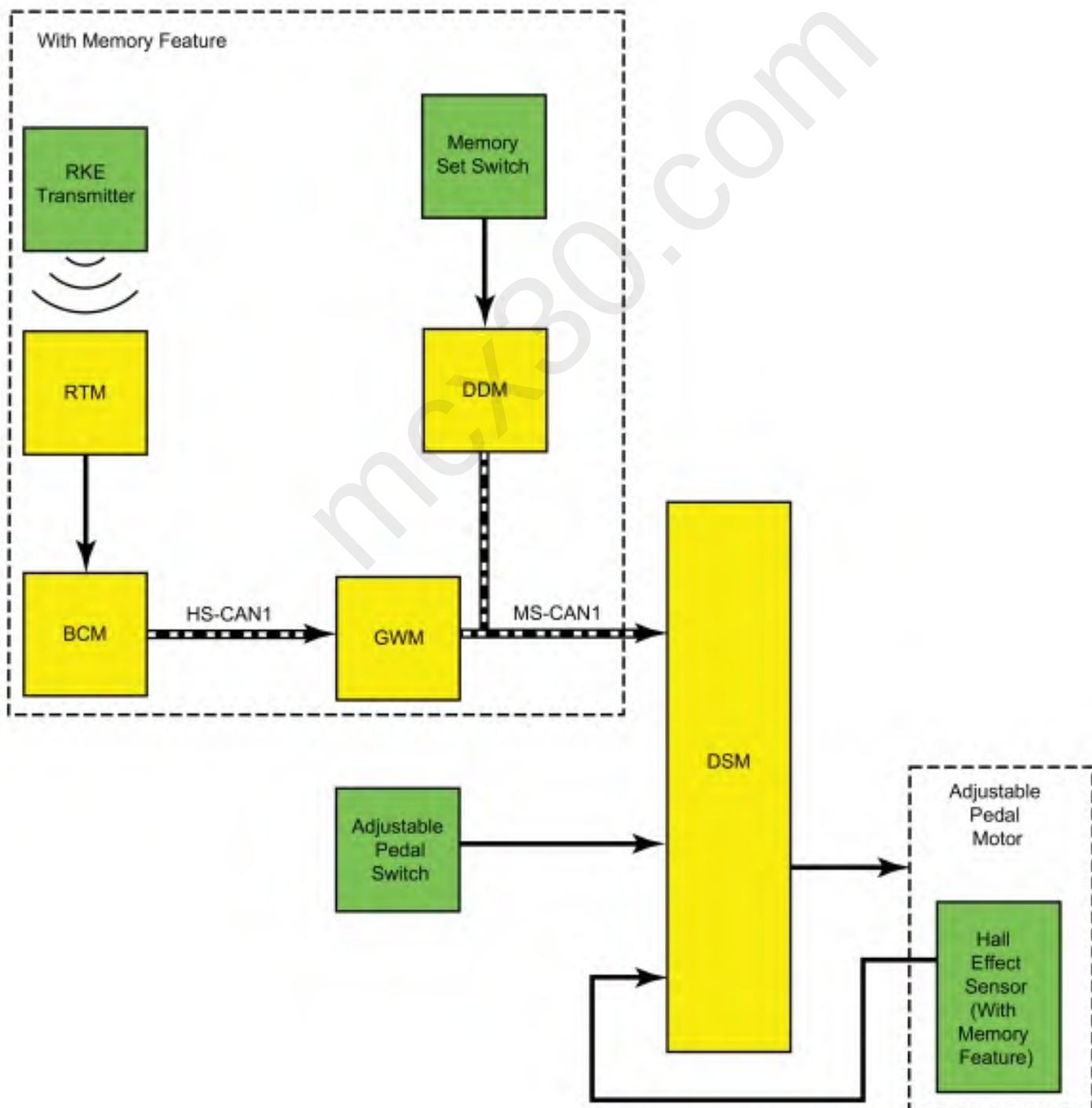
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Hydraulic Brake Actuation - System Operation and Component Description

System Operation

System Diagram – Adjustable Pedals





Network Message Chart – Adjustable Pedals

Module Network Input Messages - DSM

Broadcast Message	Originating Module	Message Purpose
Personality recall	BCM	This message is sent to the GWM and then to the DSM. When the personality recall command is received, the DSM stores or recalls the associated memory seat position (1, 2 or 3). If a RKE transmitter has been programmed to a memory position, this input is used to recall the associated memory position.
Memory set switch status	DDM	When the memory set switch (1, 2 or 3) is activated, the DDM sends this message to the DSM, which then stores or recalls the associated memory position.

Adjustable Pedal System

The adjustable pedal motor directly controls the accelerator pedal through the use of a pinion and worm gear set. The opposite end of the adjustable pedal motor is attached to a cable inside a sleeve, which is connected to another worm gear set located on the brake pedal for the adjustment of the brake pedal. When the motor rotates, the worm gear set on the accelerator pedal and the worm gear set on the brake pedal both rotate simultaneously. The direction of motor rotation determines the direction of pedal movement, forward or rearward.

Adjustable Pedal – without Memory Feature

The pedals can be adjusted using the adjustable pedals control switch with the ignition set to OFF, ON or ACC, regardless of the gear selector position. The adjustable pedal control switch is hard-wired to the adjustable pedal motor. When the adjustable pedals control switch is pressed voltage is sent to the adjustable pedal motor. The motor then drives the pedals either forward or rearward, depending on which direction the switch was pressed, until the switch is released.

Adjustable Pedal – with Memory Feature

Adjustable pedals with memory feature are controlled in 1 of 3 ways:

- Using the adjustable pedal control switch
- Using the memory set switch
- Using the RKE transmitter

The pedals can be adjusted using the adjustable pedal control switch with the ignition set to OFF, ON or ACC, regardless of the gear selector position. When the adjustable pedals control switch is pressed, a signal is sent to the DSM which then sends voltage to the adjustable pedal motor. The motor then drives the pedals either forward or rearward, depending on which direction the switch was pressed, until the switch is released.

The pedals can be adjusted using the memory set switch with the ignition set to OFF, ON or ACC; but the transmission must be in PARK or NEUTRAL. When one of the memory set positions is recalled by pressing the memory set switch, a signal is sent to the DDM which sends a message to the DSM over the MS-CAN1. The DSM responds by sending voltage to the adjustable pedal motor to move the pedals to the programmed memory position.

The pedals can be adjusted using the RKE transmitter with the ignition set to OFF, ON or ACC; but the transmission must be in PARK or NEUTRAL. When a RKE button is pressed, the transmitted signal is received by the RTM. The RTM sends a message to the BCM over a LIN. The BCM transmits the message to the GWM over the HS-CAN1 and the GWM transmits the message to the DSM over the MS-CAN1. The DSM then provides voltage to the adjustable pedal motor to move the pedals to the position programmed into the RKE transmitter.

The adjustable pedal motor on a system with the memory feature contains a Hall-effect switch which allows the DSM to remember the adjustable pedal position. The DSM monitors the Hall-effect switch and stops sending voltage to the motor when the required pedal position is reached. If the DSM receives a pedal position input from the adjustable pedal control switch during a memory position recall, the module stops the memory recall and responds to the new pedal position input.

For information on setting and recalling a memory pedal position, refer to the Owner's Literature.

For information on linking a preset memory position to the RKE transmitter, refer to the Owner's Literature.

Component Description

Adjustable Accelerator Pedal

The adjustable accelerator pedal contains the adjustable pedal motor which allows for forward and rearward movement of the accelerator pedal.

Adjustable Brake Pedal

The adjustable brake pedal bracket contains a worm gear set which allows for forward and rearward movement of the brake pedal. The worm gear set is driven by a cable attached to the adjustable pedal motor.

Adjustable Pedal Control Switch

The adjustable pedal control switch is a 2 position, momentary-contact, rocker style switch.

Adjustable Pedal Motor and Cable

The adjustable pedal motor is a single-speed, reversible electric motor containing a Hall-effect switch for the

memory feature. The motor is serviced with the accelerator pedal assembly. The ends of the cable are keyed and the cable itself is contained in a protective, plastic sleeve. The cable is not available separately for service.

Driver Seat Module (DSM)

The DSM monitors all sensor inputs and all HS-CAN messages relating to the adjustable pedal system and then directly controls the adjustable pedal motor. The DSM monitors the adjustable pedal motor, Hall-effect switch and circuits for concerns. If a concern is detected, the DSM is capable of setting Diagnostic Trouble Codes (DTCs).

For additional information on the DSM and the memory feature,
Refer to: [Front Seats - System Operation and Component Description](#) (501-10A Front Seats, Description and Operation).

Memory Set Switch

The memory set switch is a set of 3 momentary-contact, push-button switches which allow for automatic positioning of the driver seat, exterior mirrors, steering column and adjustable pedals to 3 programmable positions.

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