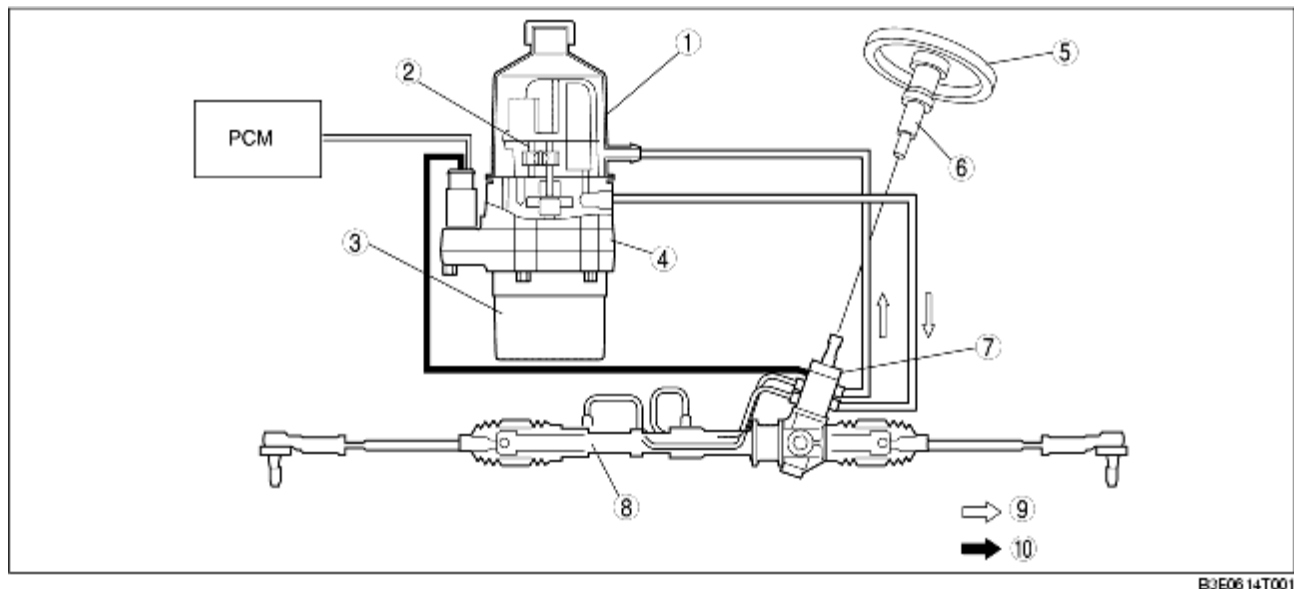


## ELECTRO HYDRAULIC POWER ASSIST STEERING (EHPAS) CONSTRUCTION/OPERATION

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## Construction

- The Electro hydraulic power assist steering (EHPAS) system consists of the following parts:
  - Manual steering mechanism:  
Consists of the steering wheel, steering shaft, steering gear and linkage
  - Assist mechanism:  
Consists of the motor and gear pump that are incorporated into the electric power steering oil pump.
  - Control system:  
Consists of the EHPAS control module incorporated into the electric power steering oil pump, the P/S angle sensor installed on the steering gear and linkage, and the vehicle and engine speed signals input from the PCM.



1	Reserve tank
2	Pump
3	Motor
4	EHPAS control module
5	Steering wheel
6	Steering shaft
7	P/S angle sensor
8	Steering gear and linkage
9	Hydraulic pressure
10	Electric signal

## Operation

## Power Assist Mechanism Operation

- According to the steering action of the driver, the P/S angle sensor detects the steering speed, and then outputs a steering speed signal to the EHPAS control module. The EHPAS control module uses the steering speed signal, vehicle speed signal, and other vehicle conditions, to determine the proper motor speed.
- Based on the motor speed determined by the EHPAS control module, the current from the motor drive circuit to the EHPAS motor is controlled to within the target current amount and the oil pump operates accordingly.
- The hydraulic pressure created by the oil pump is used to assist the shaft to turn axially. Due to this, the steering operation load on the driver is reduced.

## Component Parts/Function

- The EHPAS system consists of the following parts. While each part has a regular function in other systems, only the function during EHPAS control is listed.

Part name	Function
Electric power steering oil pump (with built-in motor, reserve tank, and EHPAS control module)	<ul style="list-style-type: none"> <li>• Calculates the proper assist current based on the signal input from the P/S angle sensor and the vehicle and engine speed signals input from the PCM via CAN lines, controls the motor and performs power assist.</li> <li>• Controls the on-board diagnostic system and fail-safe function when there is a malfunction in the EHPAS system.</li> </ul>
P/S angle sensor	<ul style="list-style-type: none"> <li>• Transmits the steering speed to the EHPAS control module.</li> </ul>
PCM	<ul style="list-style-type: none"> <li>• Outputs the vehicle and engine speed signals to the EHPAS control module via CAN lines.</li> </ul>
Instrument cluster	<ul style="list-style-type: none"> <li>• The EHPAS warning light illuminates to advise the driver when a system malfunction is detected.</li> </ul>