

## TORQUE SENSOR

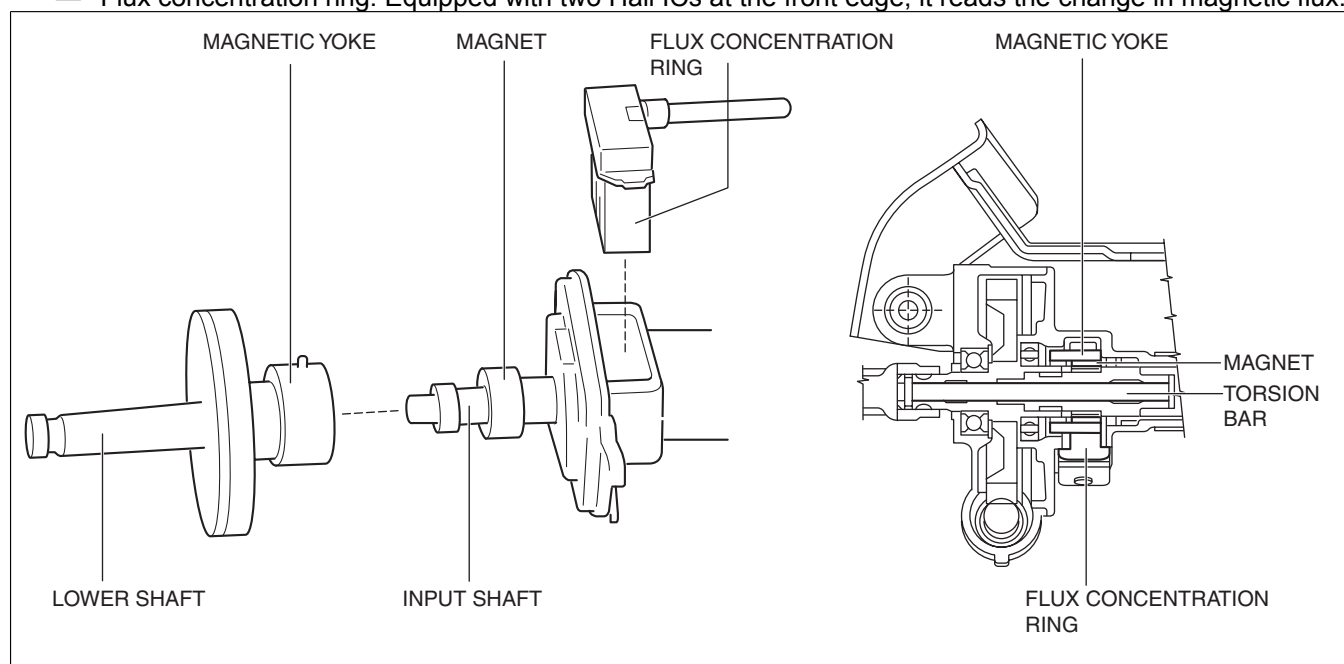
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### Purpose/ Function

- The torque sensor detects the steering torque and the steering direction, and outputs the signal to the Electric Power Steering (EPS) Control Module (CM).

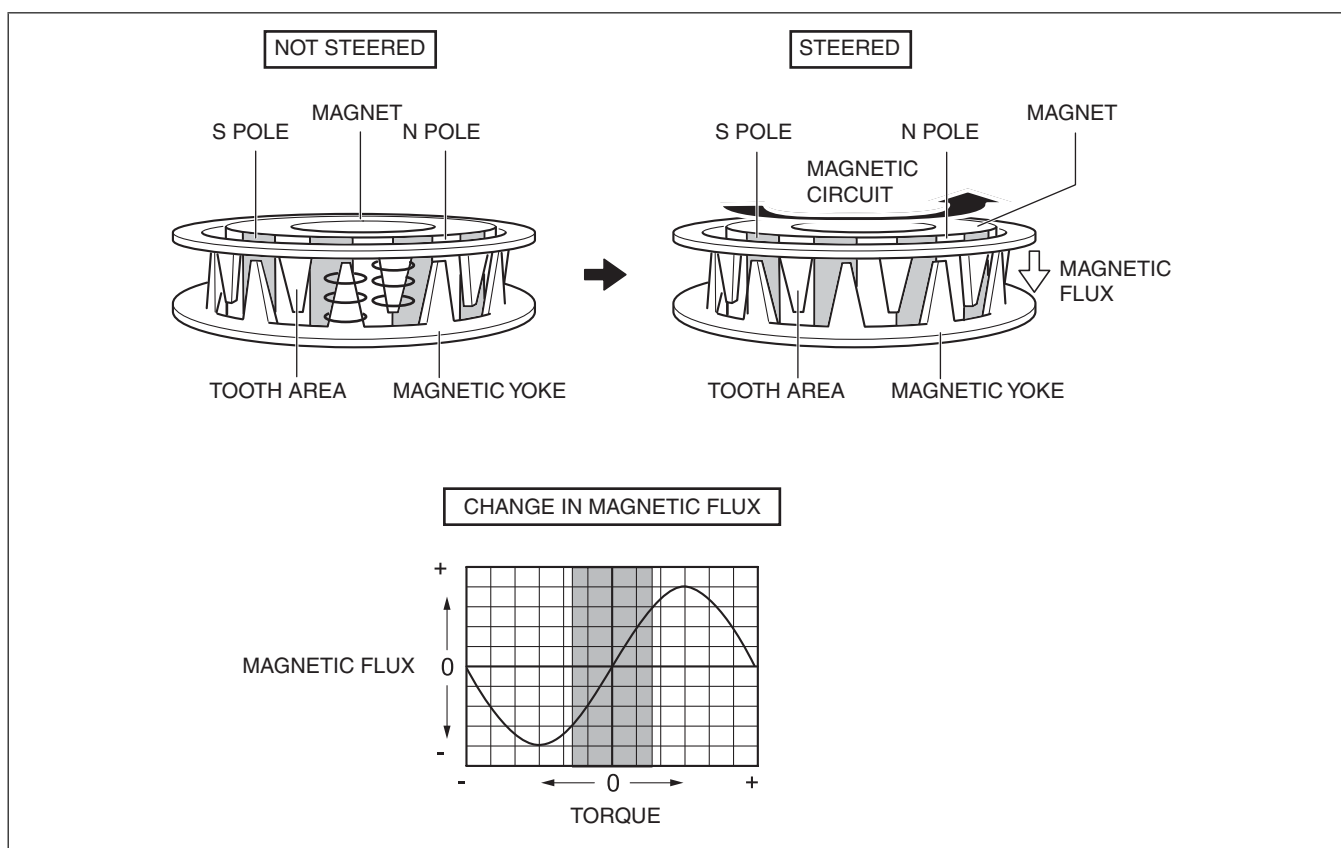
### Construction, Operation

- The Hall IC-type torque sensor is installed to the top of the steering column and consists of the following parts.
  - Magnet: Assembled in a ring shape to the input shaft, it generates magnetic flux.
  - Magnetic yoke: Assembled to the lower shaft, it converts magnetic flux transmitted to the flux concentration ring according to the position of the tooth area and the magnet.
  - Flux concentration ring: Equipped with two Hall ICs at the front edge, it reads the change in magnetic flux.



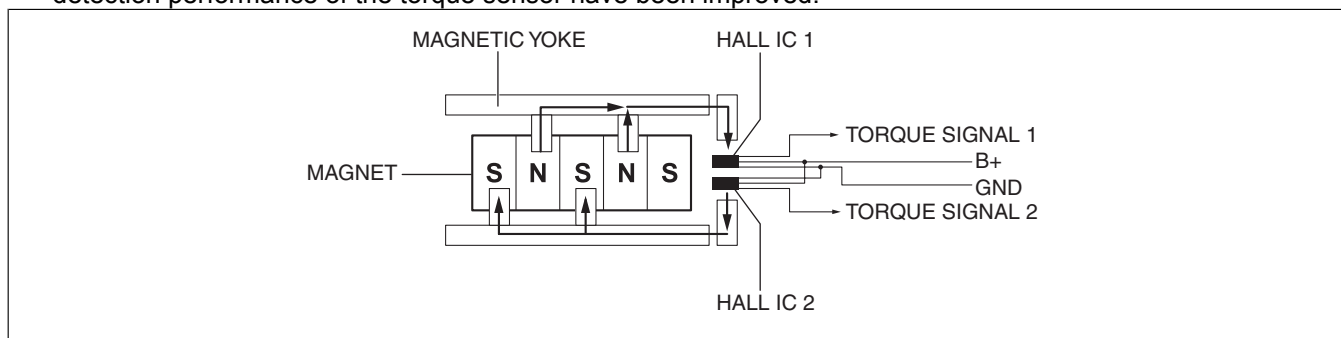
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- When the steering wheel is centered (not steered), magnetic flux is not transmitted to the Hall ICs because the tooth area of the magnetic yoke shunts the magnetic flux of the magnet.
- Magnetic flux is transmitted to the Hall ICs when the steering wheel is operated because the positions of the magnet and the tooth area of the magnetic yoke change as the torsion bar connected to the input shaft and lower shaft twists.



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- The Hall ICs convert the change in magnetic flux to an electric signal and output it to the EPS CM.
- Electrical signals from each of the two Hall ICs in the torque sensor are calculated in the EPS CM and used for each type of control as steering torque signals.
- By the detection of two signals, the reliability of the steering torque calculated by the EPS CM and the malfunction detection performance of the torque sensor have been improved.



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## Fail-safe

DTC No.	Fail-safe function
C200B:02	• Control disabled
C200B:16	• Power steering malfunction indicator light: Illuminates
C200B:1C	• Control is maintained in the backup control • Power steering malfunction indicator light: Illuminates
C200B:62	• Control disabled
C200B:64	• Power steering malfunction indicator light: Illuminates
C200B:85	• Control is maintained in the backup control
C200C:1C	• Power steering malfunction indicator light: Illuminates