



GROUP
CHA

MODEL
All Applicable
Models with
C-MDPS

NUMBER
084 (Rev 4, 11/26/2019)

DATE
November 2018

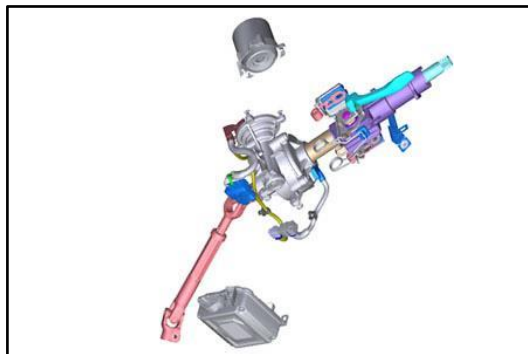
TECHNICAL SERVICE BULLETIN

SUBJECT: PARTIAL REPAIR OF C-MDPS MOTOR, ECU
AND/OR STEERING COLUMN HOUSING

* NOTICE

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides information regarding the partial repair of the Motor Driven Power Steering (MDPS) Motor, Electronic Control Unit (ECU) or Steering Column Housing on some 2010MY~ Kia models listed on page 5 equipped with a Column Motor Driven Power Steering (C-MDPS) unit. Follow the MDPS Flowchart (page 2) along with the MDPS DTC Table (page 3) procedure outlined in this bulletin before replacing the C-MDPS Motor, ECU or Steering Column Housing.



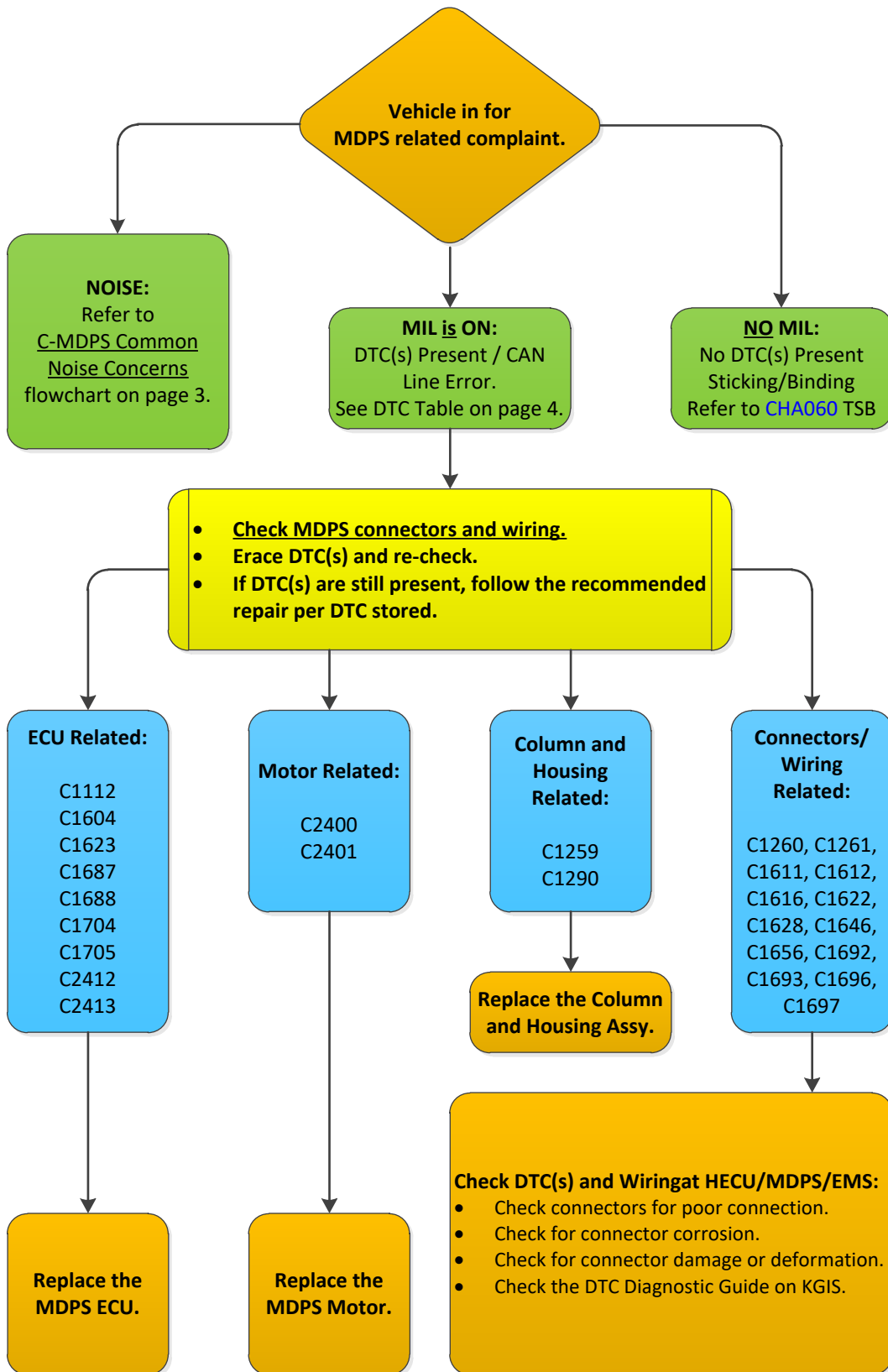
* NOTICE

- This bulletin does **NOT** cover or outline the replacement of the complete C-MDPS steering column assembly.
- MDPS Repair Flowchart and Common Noise Flowchart are meant to be used as a reference guide only. See MDPS DTC table for more details.
- Note that some DTC(s) may be found in systems other than Electric Power Steering (EPS) in KDS. They may be found in the Brake/ABS/ESC system. Check all systems for DTC(s).

File Under: <Chassis>

Circulate To: General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

MDPS Repair Flowchart



SUBJECT:

REPLACEMENT OF C-MDPS MOTOR, ECU AND/OR STEERING COLUMN HOUSING

**C-MDPS
Common Noise Concerns Flowchart**

**C-MDPS
Noise Inspection Steps**

1. Check Steering Wheel
Inspect the condition of the (Driver's Air bag) DAB wiring (ex. DAB, clock spring, multifunction switch-MFS)

Problem Found

Replace defective part

No problem found

2. Check the C-MDPS Mounting Position
Inspect cowl mounting and cross member bolt
Inspect C-MDPS mounting bolts

Problem Found

Retighten bolt

No problem found

3. Check U-Joint Mounting Bolt
Inspect U-joint retaining bolt, check for noise after disassembling/re-assemble.

Problem Found

Retighten U-joint bolt

No problem found

4. Check Tire-Rod End Joint for Free Play

Problem Found

Replace defective part

No problem found

5. Check Steering Gear box Mounting Bolt

Problem Found

Retighten bolt

No problem found

6. Check Steering Gear Box Noise

Problem Found

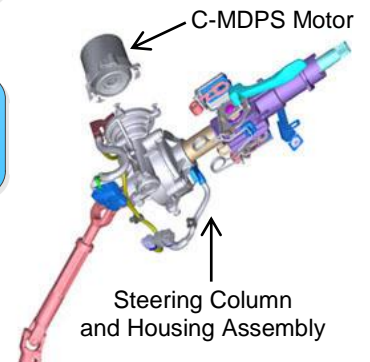
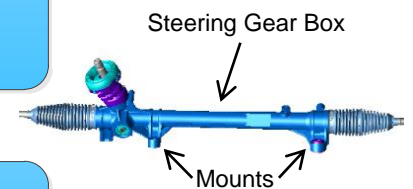
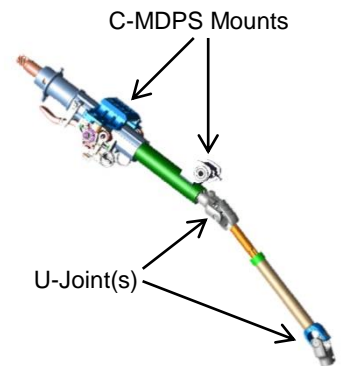
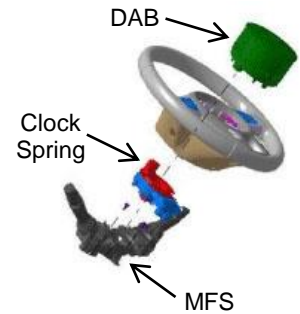
Replace defective part

No problem found

7. Check C-MDPS
Noise present from the column and housing...
Noise present from C-MDPS motor...

Problem Found

Replace defective part:
Steering Column and Housing
or C-MDPS Motor assembly.



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REPLACEMENT OF C-MDPS MOTOR, ECU AND/OR STEERING COLUMN HOUSING

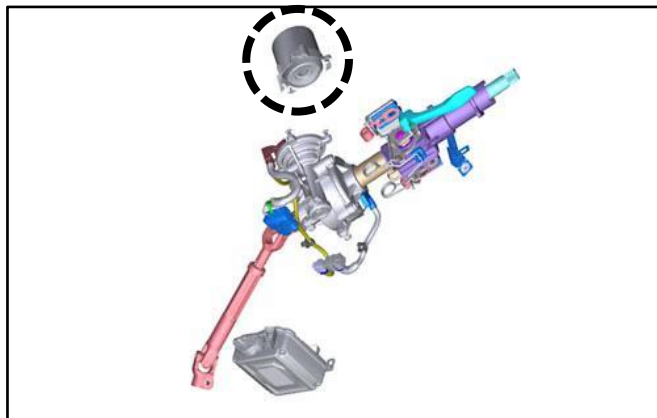
MDPS DTC TABLE			
DTC	Concern	Inspection Procedure	Recommendation
C1102	Battery Voltage Problem	Check battery voltage condition.	Recharge battery voltage.
C1603	MDPS Thermal Protection	Investigate driving conditions if DTC is set. This DTC protects the motor from overheating.	No replacement necessary.
C1611	CAN Time Out EMS	Check GDS condition.	Check EMS Can line.
C1616	CAN BUS OFF	Check wiring and connector condition. Check ECU CAN line.	Check the chassis CAN line.
C1622	Vehicle Speed Signal Error	Check MDPS ground.	Check the EMS
C1696 C1697	SPAS Signal Error	Check SPAS and associated wiring.	Repair as necessary. Erase DTC(s). MDPS Assy is <u>not</u> to be replaced.
C1612 C1646	TCU Signal Error	Check TCU and associated wiring.	
C1628 C1656	Instrument Cluster Signal Error	Check instrument cluster and Associated wiring.	
C1692 C1693	VSM Signal Error	Check VSM and associated wiring.	
C1259	Steering Angle Sensor Signal Error	Reset steering angle sensor calibration and erase DTC(s). Check wiring and connector condition.	
C1260	Steering Angle Sensor Signal Error	Reset steering angle sensor calibration.	If DTC returns, inspect wiring and connector condition.
C1261	Zero-Setting Error		
C1290	Torque Sensor Error	First, erase DTC, then check wiring And connector condition.	If DTC returns, replace column And housing assembly.
C1112	Torque Sensor Voltage Error	Check wiring and connector condition Between torque sensor and ECU.	If DTC returns, replace the MDPS ECU.
C1704	ECU Fail-Safe Relay Fault	First, erase DTC. Then check the wiring and connector at the ECU.	
C1705	ECU Hardware Error		
C1604	ECU Over/Discharge Error		
C2413	ECU Hardware Error		
C2400	Motor Signal Error		
C2401	Motor Circuit Error		
C2412	Motor Voltage Supply Error	First, erase DTC. Then check the wiring and connector between the ECU and motor.	First replace MDPS ECU. If DTC returns, replace the MDPS motor.
C1623	CAN Time Out SAS	<ol style="list-style-type: none"> 1. Check MDPS power connector and fuse. 2. Check MDPS ground line. 3. Check MDPS ECU/VSM CAN line. 4. Check communication status with GDS. 5. Check for DTC C1259. If present, replace the column and housing assembly. 	If DTC returns, replace the MDPS ECU.
C1687	CAN Time Out VSM		
C1688	VSM Signal Error		If DTC returns and MDPS is inoperable, replace MDPS ECU. If DTC returns and MDPS operation is normal, continue investigation into wiring issues.

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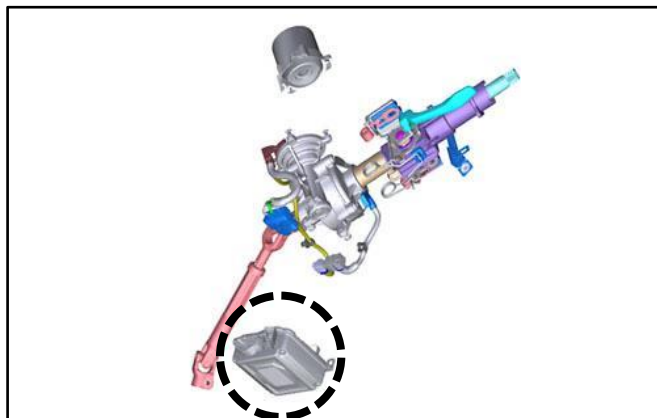
Replacement Procedure for MDPS Motor:

1. Replace the MDPS motor by referring to the “Steering System → Motor Driven Power Steering → MDPS Motor → Repair Procedures” chapter in the applicable Shop Manual on KGIS.



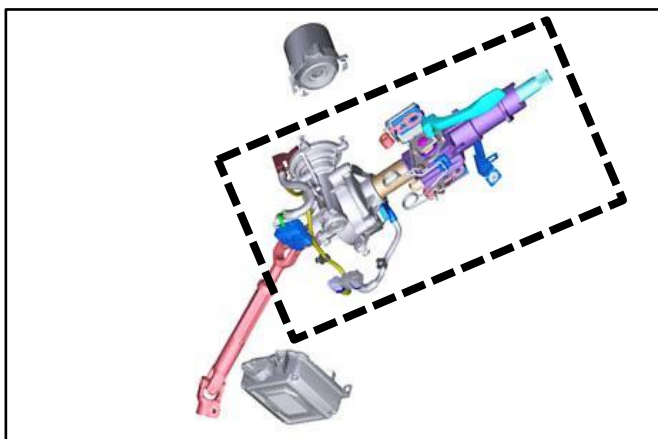
Replacement Procedure for MDPS ECU:

1. Replace the MDPS ECU by referring to the “Steering System → Motor Driven Power Steering → MDPS ECU → Repair Procedures” chapter in the applicable Shop Manual on KGIS.



Replacement Procedure for Steering Column & Housing:

1. Replace the MDPS column and housing by referring to the “Steering System → Motor Driven Power Steering → MDPS Column and Housing → Repair Procedures” chapter in the applicable Shop Manual on KGIS.



★ IMPORTANT

Ensure all steps are closely followed within the Service information as additional KDS-related procedures are required. Ensure the Steering Angle Sensor (SAS) is calibrated and there are no DTCs after replacement of the MDPS Motor and/or ECU. Verify proper operation of the steering system and vehicle.




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REPLACEMENT OF C-MDPS MOTOR, ECU AND/OR STEERING COLUMN HOUSING

AFFECTED VEHICLE RANGE:

Model	MDPS Supplier	Model Year Range
Soul (AM) Optima (QF, TF, TF HEV) Cadenza (VG) Forte (YD, YDm)	Mobis (Old)	All Applicable Models 2010MY~ with C-MDPS
Forte (BD, BDm, YD, YDm) Niro (DE, DE HEV/PHEV/EV) Optima (JF/JFa, JF HEV/PHEV) Soul (PS, PS EV) Sorento (UMa) Cadenza (YG)	Mobis (New)	
Rio (UB, SC) Sportage (SL, QL) Sorento (XMa)	Mando	

REQUIRED PART:

Part Name	Part Number	Figure
C-MDPS Motor	Refer to EPC	
C-MDPS ECU	Refer to EPC	
Steering Column Housing	Refer to EPC	

WARRANTY INFORMATION:

N Code: D61 C Code: ZZ4

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
All Models Listed	W	Refer to EPC	1	C-MDPS Motor Replacement	56330R00 56331R00	Refer to LTS	N/A	0
		Refer to EPC		C-MDPS ECU Replacement	56345R00	Refer to LTS		
		Refer to EPC		Steering Column Housing Replacement	56391R00	Refer to LTS		