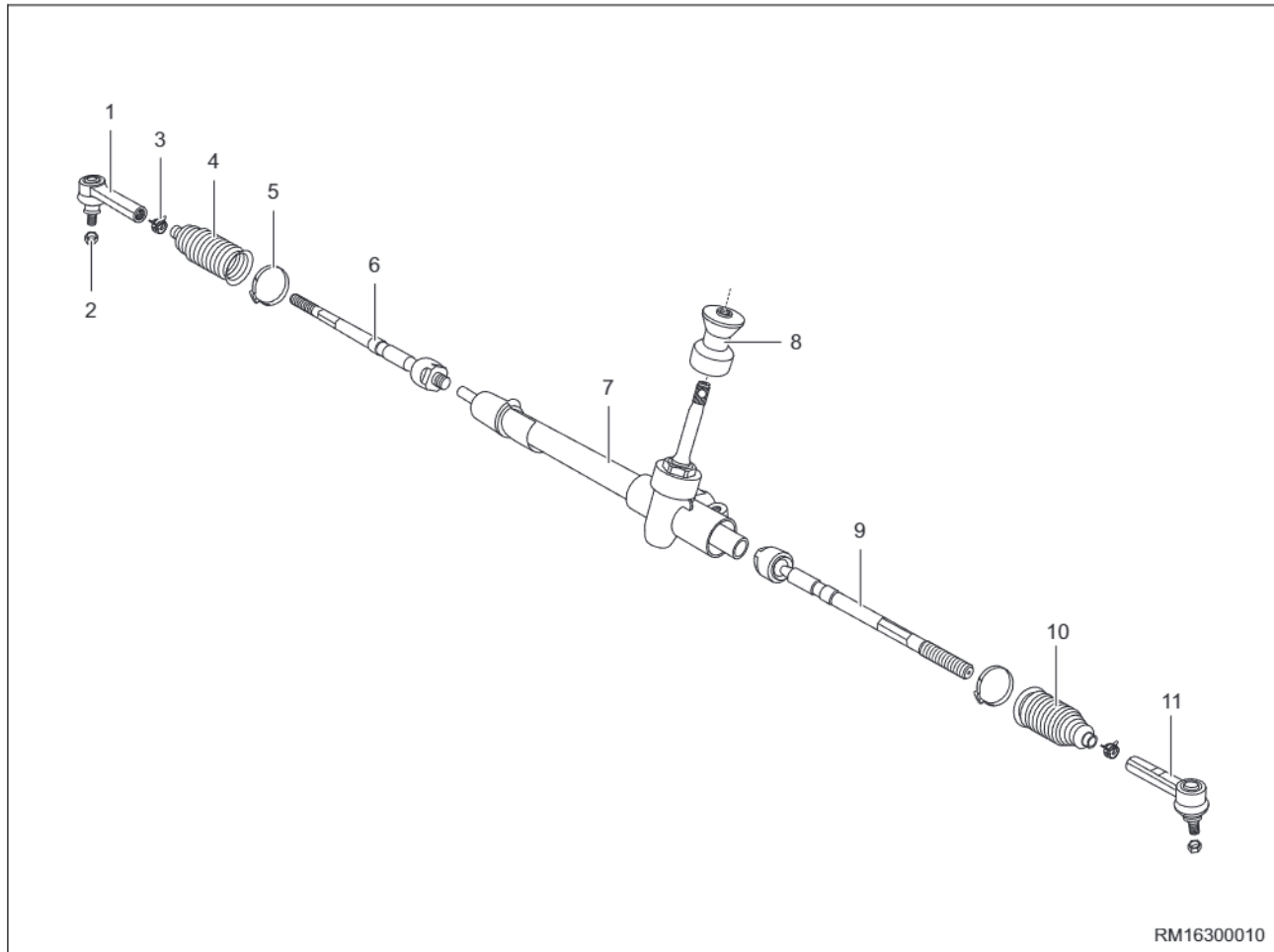


ELECTRONIC POWER STEERING

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GENERAL INFORMATION

Description



1 - Right Steering Tie Rod Ball Pin	2 - Steering Tie Rod Ball Pin Locking Nut
3 - Steering Tie Rod Boot Elastic Clamp	4 - Right Steering Tie Rod Boot
5 - Steering Tie Rod Boot Clamping Ring	6 - Right Steering Tie Rod Assembly
7 - Steering Gear Assembly	8 - Steering Gear Dust Boot
9 - Left Steering Tie Rod Assembly	10 - Left Steering Tie Rod Boot
11 - Left Steering Tie Rod Ball Pin	

Electronic power steering system can reduce the workload when driver operates the steering wheel, thus improving operation convenience and driving safety.

Operation

The circular motion of steering wheel is converted into linear motion of rack by engaging rack and pinion inside steering gear. The rack can push and pull the tie rod by lateral motion, thus changing the direction of front wheel.

EPS controller controls the rotating direction of steering motor and assisting current level based on torque sensor signals to finish the steering assist. When vehicle is not turning, EPS controller does not send command to steering motor controller, and steering motor does not operate.

Electronic power steering can easily provide different assist effects according to vehicle speed with steering motor, thus ensuring the steering convenience when vehicle is turning at low speed, and the stability and reliability when vehicle is turning at high speed.

30

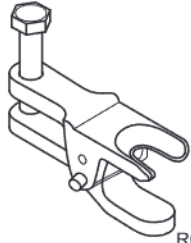
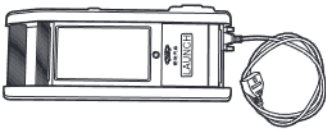
Specifications

Torque Specifications

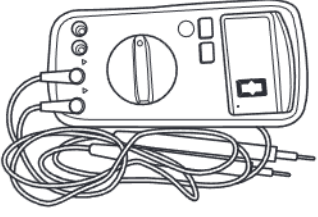
Description	Torque (N·m)
Ball Pin Locking Nut	35 ± 3
Tie Rod Adjustment Nut	50 - 60
Coupling Bolt Between Steering Gear Input Shaft and Steering Column with Intermediate Shaft Assembly	60 ± 5
Locking Nut of Through Bolt Between Rear Mounting Bracket and Rear Mounting Cushion Assembly	80 ± 5
Coupling Bolt Between Front Sub Frame Welding Assembly and Body	120 ± 10
Steering Gear Fixing Bolt	100 ± 10

Tools

Special Tools

Ball Pin Separator	 RCH0000024
X-431 3G Diagnostic Tester	 RCH0000001

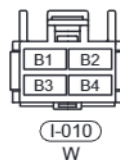
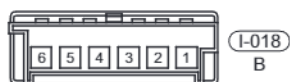
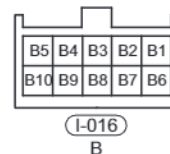
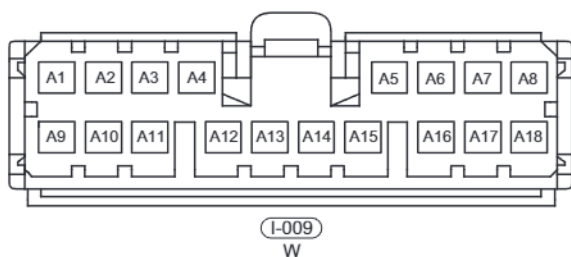
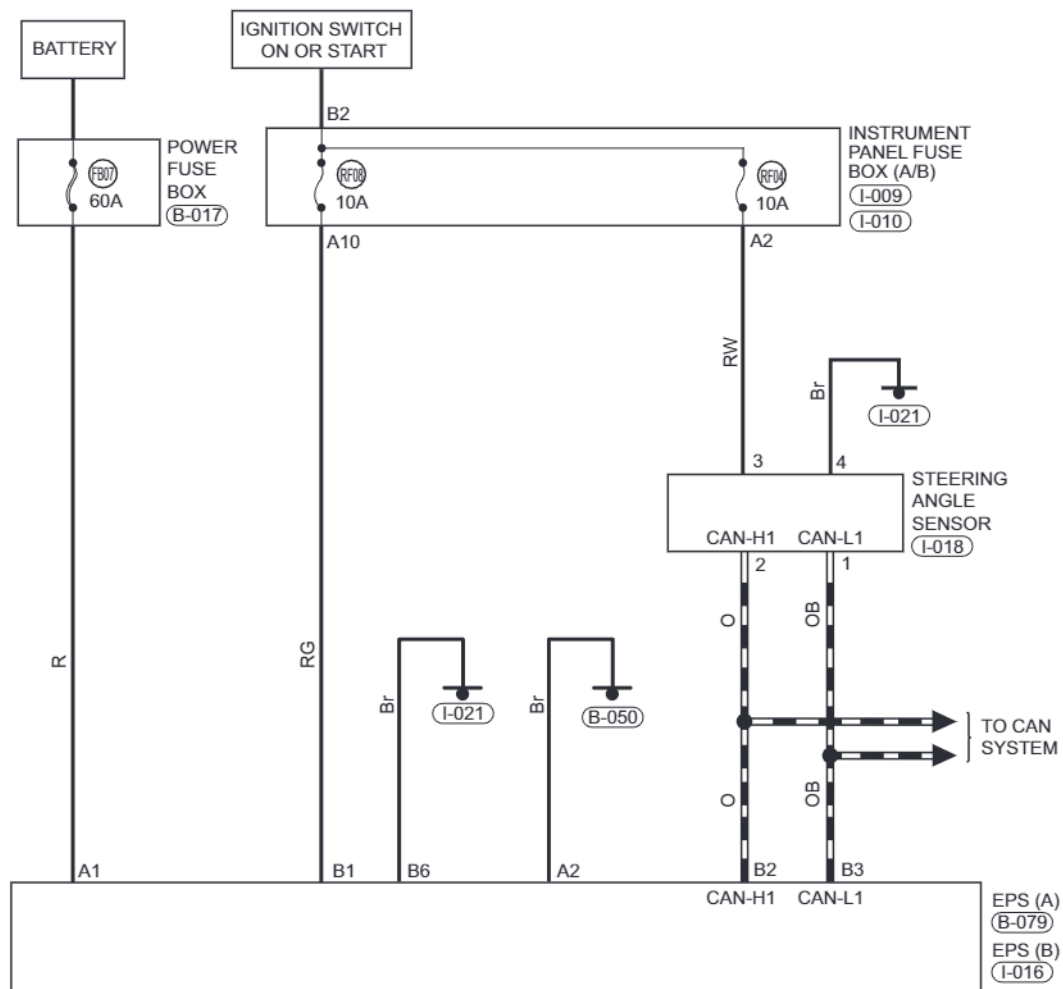
General Tool

Digital Multimeter	 RCH0000002
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Circuit Diagram

Electronic Power Steering

30



EM16300010

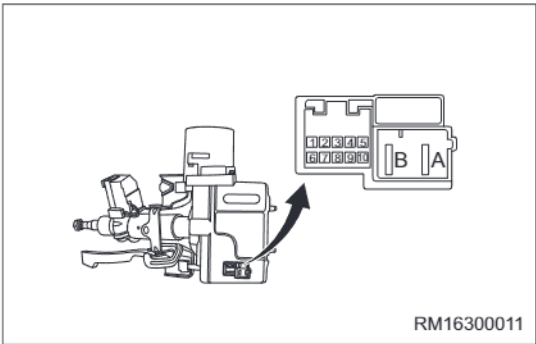
EPS Controller Terminal Definition

Vehicle power supply: controller power supply connector

Terminal No.	Definition
A	Battery +
B	Battery -

Vehicle signal: controller signal connector

Terminal No.	Definition
1	Ignition
2	C-CAN HI
3	C-CAN LO
4	-
5	-
6	GND
7	C-CAN HI
8	C-CAN LO
9	-
10	-



DIAGNOSIS & TESTING

Diagnostic Help

1. Connect X-431 3G Diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
2. Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
3. If DTC cannot be deleted, malfunction is current.
4. Only use a digital multimeter to measure the voltage of electronic system.
5. Refer to any Technical Bulletin that may apply to the malfunction.
6. Visually check related wire harness.
7. Check and clean all electronic power steering controller (EPS controller) ground points related to current DTC.
8. If multiple trouble codes were set, use circuit diagrams and look for any common ground circuit or power supply circuit applied to DTC.

30

Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the following operations:

- Check if connectors are loose.
- Check if wire harnesses are worn, pierced, pinched or partially broken.
- Monitor X-431 3G diagnostic tester (the latest software) data that is related to this circuit.
- Wiggle related wire harnesses and connectors and observe if related circuit signal is interrupted.
- If possible, try to duplicate the conditions under which DTC was set.
- Look for data that has changed or DTC to reset during wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect sensors and mounting areas for damage, foreign matter, etc. that will cause incorrect signals.
- Use data recorder and/or oscilloscope to help diagnose intermittent malfunctions.
- Remove the EPS controller from malfunctioning vehicle and install it to a new vehicle to perform a test. If DTC cannot be cleared, ECM is malfunctioning. If DTC can be cleared, reinstall EPS controller to original vehicle.

Ground Inspection

Ground points are often exposed to moisture, dirt or other corrosive areas. Corrosion (rust) may form additional resistance. This additional resistance will change the way in which a circuit works. A loose or corroded ground can drastically affect the electronically controlled circuit. Perform the following operations when checking the ground points:

1. Remove ground bolt or screw.
2. Check all contact surfaces for tarnish, dirt and rust, etc.
3. Clean as necessary to ensure that contacting is in a good condition.
4. Reinstall ground bolt or screw securely.
5. Check if add-on accessories interfere with ground circuit.
6. If several wires are crimped into one ground terminal, check for proper crimps. Make sure that all wires are clean, securely fastened and good contacted without crimping any excessive insulation coat.

Diagnostic Trouble Code (DTC) Chart

DTC Code	DTC Definition
C1301	Steering Angle Sensor Electrical Error
C1302	Steering Angle Sensor Not Trimmed
C1307	Sensor Supply Voltage Error
C1308	Failsafety Relay Error
C1315	W/LAMP Fault
C1323	ECU Hardware Fault
C1332	Torque Sensor Error
C1351	Motor Position Sensor Error
C1352	Motor Error
C1901	Battery Under Voltage Error
C1902	Battery Over Voltage Error
C1910	IGN Voltage Error
U0155	ICM Update Error
U0418	Vehicle Speed Error
U1000	EMS Signal Error
U1027	CAN Update Error

30

DTC	C1301	Steering Angle Sensor Electrical Error
DTC	C1302	Steering Angle Sensor Not Trimmed
DTC	C1307	Sensor Supply Voltage Error

30

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
C1301	Steering Angle Sensor Electrical Error	Ignition switch ON	- Fuse - Wire harness or connector - Steering angle sensor
C1302	Steering Angle Sensor Not Trimmed		
C1307	Sensor Supply Voltage Error		

CAUTION

- When performing electrical equipment diagnosis and test, always refer to the circuit diagram for related circuit and component information.

DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in EPS.
- Turn ignition switch to LOCK and wait for a few seconds.
- Using X-431 3G diagnostic tester to select Read Code.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent ([See page 30-8](#)).

Diagnosis Procedure

1	Check steering angle sensor fuse
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- a. Check steering angle sensor fuse RF04 ([See page 53-39](#)).

NG	Replace fuse
-----------	---------------------

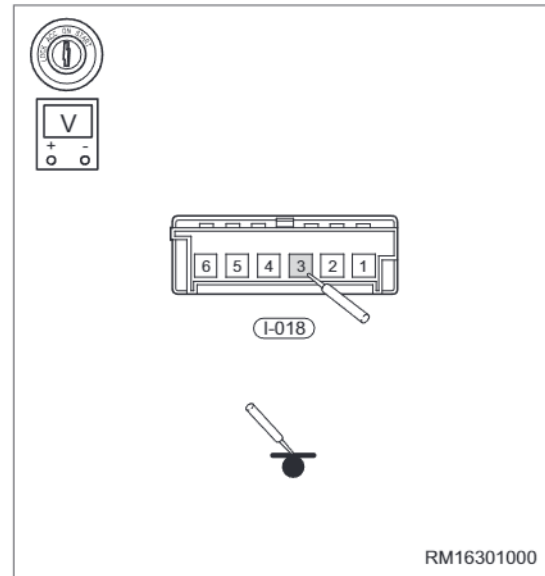
OK

2

Check steering angle sensor power supply circuit and ground circuit

- Turn ignition switch to ON.
- Disconnect steering angle sensor connector I-018.
- Measure input voltage of steering angle sensor.

Multimeter Connection	Condition	Specified Condition
I-018 (3) - Body ground	Ignition switch ON	11 to 14 V

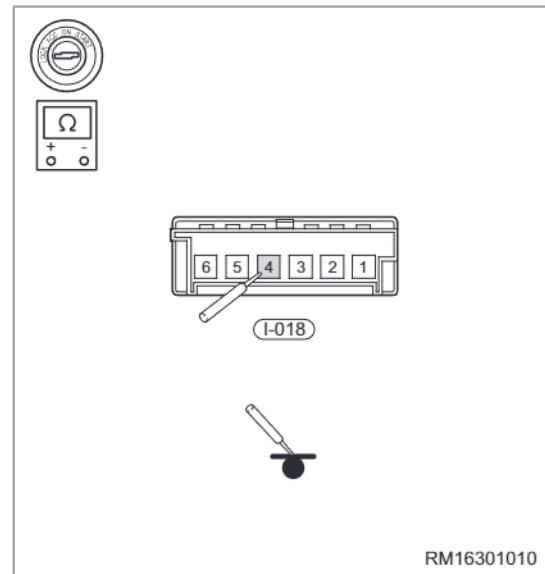


- Check steering angle sensor ground circuit.

Multimeter Connection	Condition	Specified Condition
I-018 (4) - Body ground	Always	Continuity

NG

Replace wire harness or connector



OK

3

Using X-431 3G diagnostic tester to trim steering angle sensor

NG

Replace steering angle sensor

OK

System is operating normally.

Reassemble vehicle and perform a road test to confirm that malfunction reported by customer has been repaired.

DTC	C1308	Failsafety Relay Error
DTC	C1315	W/LAMP Fault
DTC	C1323	ECU Hardware Fault
DTC	C1332	Torque Sensor Error
DTC	C1351	Motor Position Sensor Error
DTC	C1352	Motor Error

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
C1308	Failsafety Relay Error	Ignition switch ON	• Fuse • Wire harness and connector • Instrument cluster • EPS booster
C1315	W/LAMP Fault		
C1323	ECU Hardware Fault		
C1332	Torque Sensor Error		
C1351	Motor Position Sensor Error		
C1352	Motor Error		

CAUTION

- When performing electrical equipment diagnosis and test, always refer to the circuit diagram for related circuit and component information.

DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in EPS.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to select Read Code.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent ([See page 30-8](#)).

Diagnosis Procedure

1 Check EPS booster fuse

- a. Check EPS booster fuses FB07 and RF08 (See page 53-36 and 53-39).

NG

Replace fuse

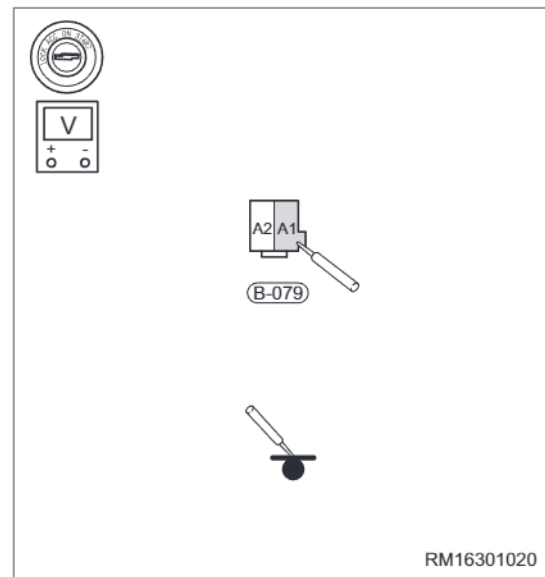
OK

30

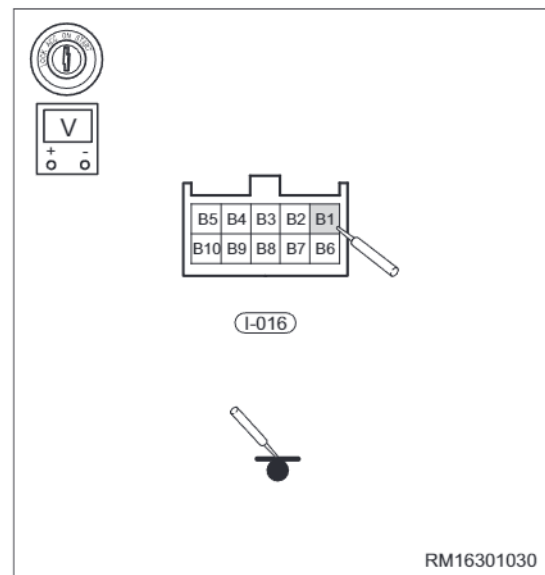
2 Check EPS booster power supply circuit and ground circuit

- a. Turn ignition switch to ON.
b. Disconnect steering angle sensor connector B-079 and I-016.
c. Measure input voltage of EPS booster.

Multimeter Connection	Condition	Specified Condition
B-079 (A1) - Body ground	Always	11 to 14 V

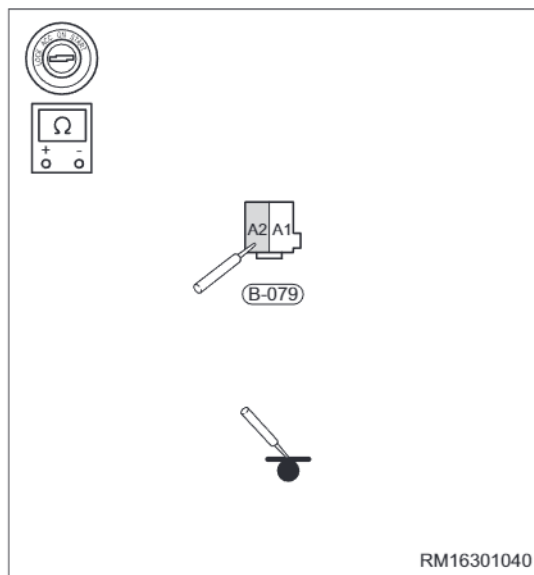


Multimeter Connection	Condition	Specified Condition
I-016 (B1) - Body ground	Ignition switch ON	11 to 14 V



d. Check EPS booster ground circuit.

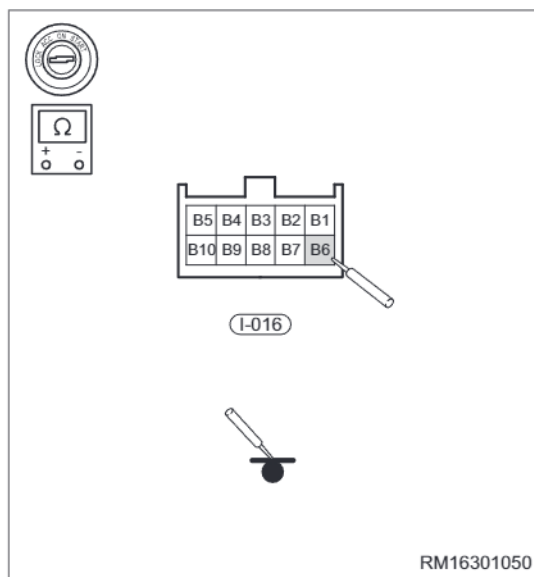
Multimeter Connection	Condition	Specified Condition
B-079 (A2) - Body ground	Always	Continuity



Multimeter Connection	Condition	Specified Condition
I-016 (B6) - Body ground	Always	Continuity

NG

Replace wire harness or connector



OK

3

Check instrument cluster

a. Use X-431 3G diagnostic tester to perform active test and EPS warning light illuminates.

NG

Replace instrument cluster

OK

Replace EPS module.

Reassemble vehicle and perform a road test to confirm that malfunction reported by customer has been repaired.

DTC	C1901	Battery Under Voltage Error
------------	--------------	------------------------------------

DTC	C1902	Battery Over Voltage Error
------------	--------------	-----------------------------------

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
C1901	Battery Under Voltage Error	Ignition switch ON	• Fuse • Wire harness or connector • Battery • Battery terminal • EPS booster assembly
C1902	Battery Over Voltage Error		

CAUTION

- When performing electrical equipment diagnosis and test, always refer to the circuit diagram for related circuit and component information.

DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in EPS.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to select Read Code.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent ([See page 30-8](#)).

Diagnosis Procedure

1	Check battery
----------	----------------------

- a. Check if battery voltage is normal.

NG

Recharge or replace battery

OK

2	Check battery terminals
----------	--------------------------------

- a. Check if battery terminals are loose or corroded.

NG

Tighten or replace battery terminals

OK



3 Check EPS ground point

- Turn ignition switch to LOCK.
- Check EPS ground point B-050.

NG

Repair or replace ground wire harness or ground point

OK**30****4 Check EPS connector**

- Disconnect ECM connector B-079.
- Check connector.

NG

Repair or replace EPS connector

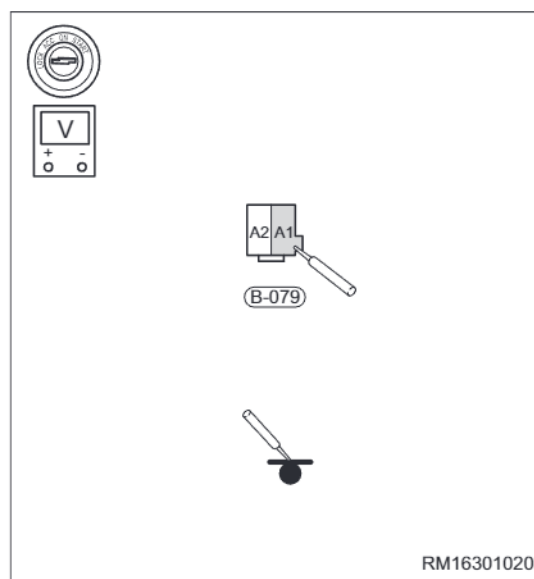
OK**5 Check EPS power supply voltage**

- Measure voltage between EPS power supply connector B-079 terminal A1 and body ground.

Multimeter Connection	Condition	Specified Condition
B-079 (A1) - Body ground	Always	11 to 14 V

OK

Go to step 8

**NG****6 Check EPS power fuse**

- Check EPS power fuse FB07 (60A) outside engine compartment fuse and relay box.

NG

Replace EPS power fuse

OK

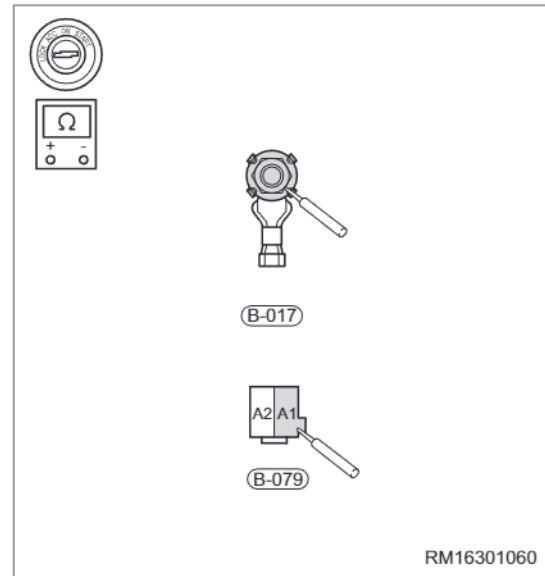
7

Check wire harness and connector (EPS - power fuse box)

- Disconnect power fuse box connector B-017.
- Check wire harness between connector terminals.

Check for Open

Multimeter Connection	Condition	Specified Condition
B-017 - B-079 (A1)	Always	Continuity

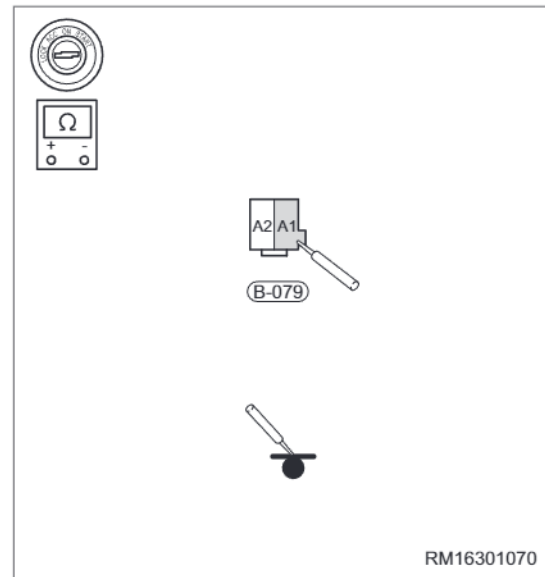


Check for Short

Multimeter Connection	Condition	Specified Condition
B-079 (A1) or B-017 - Body ground	Always	No continuity

NG

Repair or replace wire harness or connector



OK

30

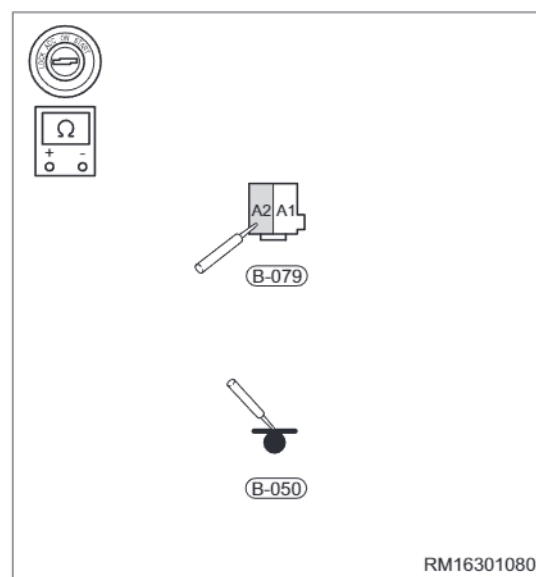
8 Check EPS ground circuit

- a. Check wire harness between terminal A2 of B-079 and ground point B-050.

Multimeter Connection	Condition	Specified Condition
B-079 (A2) - B-050	Always	Continuity

NG

Repair or replace wire harness or connector

**OK****9 Check for DTCs**

- a. Using X-431 3G diagnostic tester, read the EPS DTC.
b. Check if DTC C1901 or C1902 still exists.

NG

Replace EPS booster assembly

OK

System is operating normally.

Reassemble vehicle and perform a road test to confirm that malfunction reported by customer has been repaired.

DTC	C1910	IGN Voltage Error
-----	-------	-------------------

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
C1910	IGN Voltage Error	Ignition switch ON	• Fuse • Wire harness or connector • EPS booster assembly

CAUTION

- When performing electrical equipment diagnosis and test, always refer to the circuit diagram for related circuit and component information.

DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in EPS.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to select Read Code.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent ([See page 30-8](#)).

Diagnosis Procedure

1	Check EPS ground point
----------	-------------------------------

- Turn ignition switch to LOCK.
- Check EPS ground point I-021.

NG

Repair or replace ground wire harness or ground point

OK

2	Check EPS connector
----------	----------------------------

- Disconnect the EPS connector I-016.
- Check connector.

NG

Repair or replace EPS connector

OK

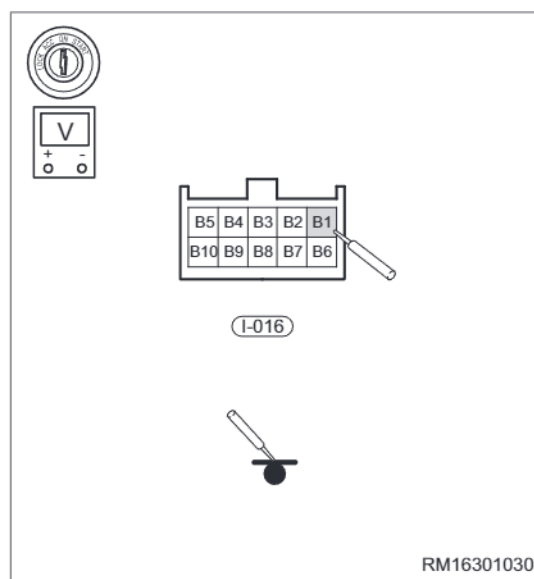
3 Check EPS ignition switch voltage

- a. Measure voltage between terminal B1 of EPS connector I-016 and body ground.

Multimeter Connection	Condition	Specified Condition
I-016 (B1) - Body ground	Ignition switch ON	11 to 14 V

OK

Go to step 6



NG

4 Check EPS fuse

- a. Unplug EPS fuse RF08 (10 A) from instrument panel fuse and relay box.
b. Check resistance of fuse.

Standard resistance: less than 1 Ω

NG

Replace fuse

OK

5 Check wire harness and connector (EPS - instrument panel fuse box)

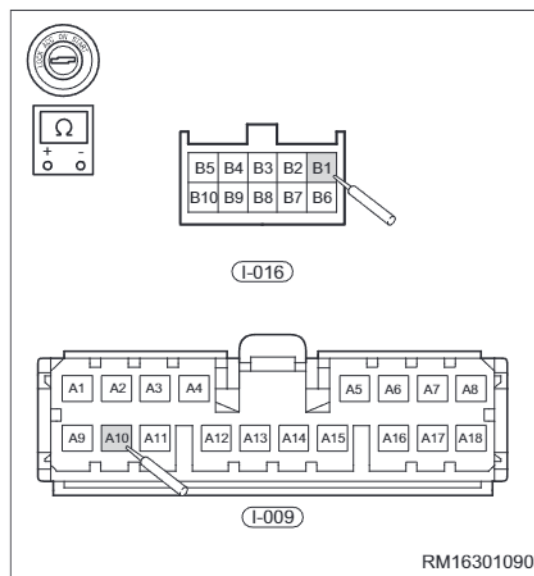
- a. Disconnect instrument panel fuse box connector I-009.
b. Check wire harness between connector terminals.

Check for Open

Multimeter Connection	Condition	Specified Condition
I-009 (A10) - I-016 (B1)	Always	Continuity

Check for Short

Multimeter Connection	Condition	Specified Condition
I-009 (A10) or I-016 (B1) - Body ground	Always	No continuity



RM16301090

Multimeter Connection	Condition	Specified Condition
I-009 (A10) or I-016 (B1) - Battery positive	Always	No continuity

NG

Repair or replace wire harness or connector

OK

30

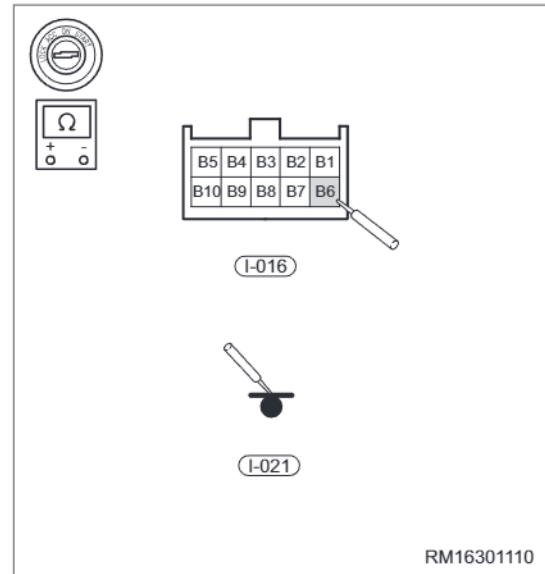
6 Check EPS ground circuit

- Disconnect ground point I-021.
- Check wire harness between terminal B6 of I-016 and ground point I-021.

Multimeter Connection	Condition	Specified Condition
I-016 (B6) - I-021	Always	Continuity

NG

Repair or replace wire harness or connector



OK

7 Check for DTCs

- Using X-431 3G diagnostic tester, read the EPS DTC.
- Check if DTC C1910 still exists.

NG

Replace EPS booster assembly

OK

System is operating normally.

Reassemble vehicle and perform a road test to confirm that malfunction reported by customer has been repaired.

DTC	U0155	ICM Update Error
DTC	U0418	Vehicle Speed Error
DTC	U1000	EMS Signal Error
DTC	U1027	CAN Update Error

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
U0155	ICM Update Error	Ignition switch ON	• CAN communication • Instrument cluster • EMS • EPS booster
U0418	Vehicle Speed Error		
U1000	EMS Signal Error		
U1027	CAN Update Error		

CAUTION

- When performing electrical equipment diagnosis and test, always refer to the circuit diagram for related circuit and component information.

DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in EPS.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to select Read Code.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent ([See page 30-8](#)).

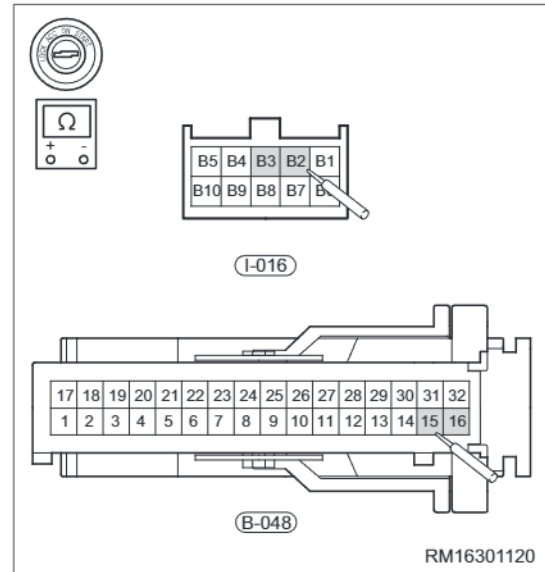
Diagnosis Procedure

1

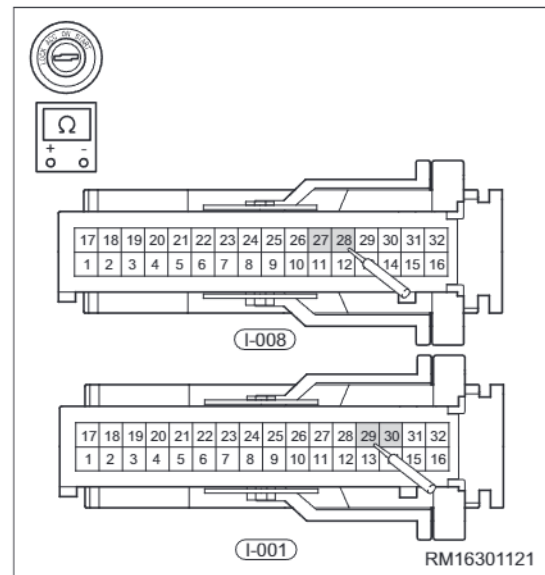
Check CAN communication between EPS booster and instrument cluster

- Turn ignition switch to LOCK.
- Disconnect EPS booster connector I-016, instrument cluster connector I-001 and BCM connectors I-008 and B-048.
- Check for continuity of CAN line between EPS booster and instrument cluster.

Multimeter Connection	Condition	Specified Condition
I-016 (B2) - B-048 (15)	Always	Continuity
I-016 (B3) - B-048 (16)	Always	Continuity



Multimeter Connection	Condition	Specified Condition
I-008 (27) - I-001 (30)	Always	Continuity
I-008 (28) - I-001 (29)	Always	Continuity

NG
Replace wire harness or connector

OK
Replace instrument cluster, then go to step 3

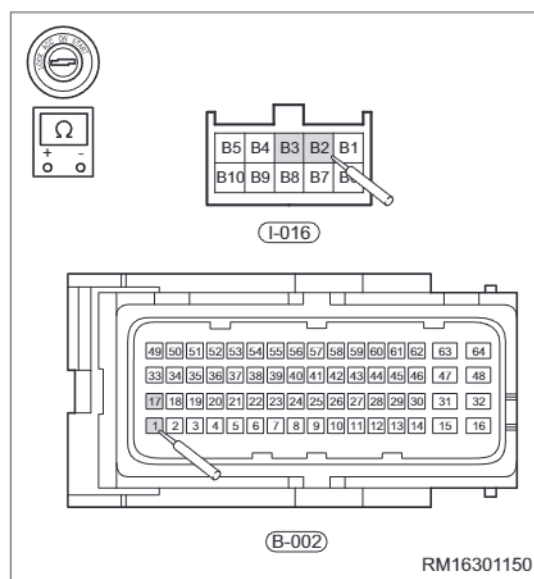
2 Check CAN communication between EPS booster and ECM

- Turn ignition switch to LOCK.
- Disconnect EPS booster connector I-016 and ECM connector B-002.
- Check for continuity of CAN line between EPS booster and ECM.

Multimeter Connection	Condition	Specified Condition
I-016 (B2) - B-002 (1)	Always	Continuity
I-016 (B3) - B-002 (17)	Always	Continuity

NG

Replace wire harness or connector



OK

Replace ECM, then go to step 3

3 Check for DTCs

- Using X-431 3G diagnostic tester, read the EPS DTC.
- Check if DTC U0155, U0418, U1000 or U1027 still exists.

NG

Replace EPS booster assembly

OK

System is operating normally.

Reassemble vehicle and perform a road test to confirm that malfunction reported by customer has been repaired.

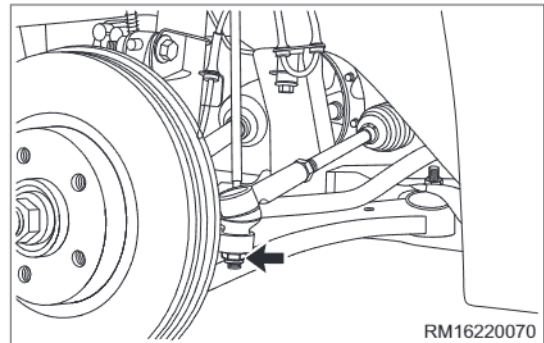
ON-VEHICLE SERVICE

Ball Pin Assembly

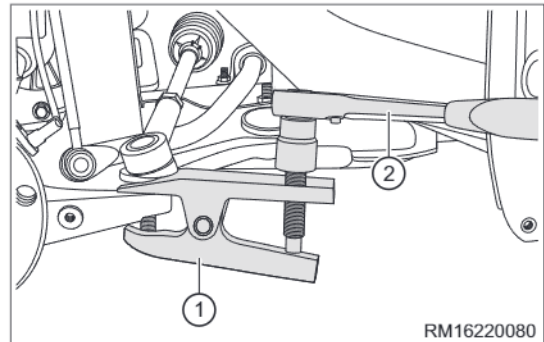
Removal

HINT:

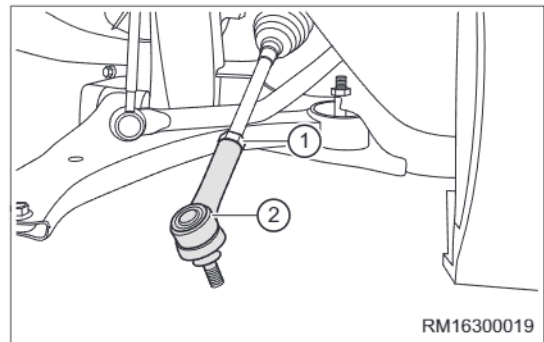
- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
1. Set the steering wheel to straight-ahead position.
 2. Turn off all electrical equipment and the ignition switch.
 3. Disconnect the negative battery cable.
 4. Remove the front left wheel ([See page 24-9](#)).
 5. Remove the ball pin assembly.
 - a. Remove the locking nut (arrow) between left steering tie rod assembly ball pin and front left steering knuckle assembly.
(Tightening torque: $35 \pm 3 \text{ N}\cdot\text{m}$)



- b. Install the ball pin separator (1), and tighten the ball pin separator bolt with a wrench (2) to separate the steering tie rod ball pin from steering knuckle assembly.



- c. Loosen the steering tie rod adjustment nut (1), and turn the ball pin assembly (2) counterclockwise to remove it.
(Tightening torque: $50 - 60 \text{ N}\cdot\text{m}$)



HINT:

When removing the ball pin assembly, record the revolutions during removal, to make the front wheel toe-in closer to the setting value after installation.

Inspection

1. Check tie rod ball pin for looseness and bush rubber for damage. Replace the ball pin assembly if necessary.
2. Check tie rod ball pin dust boot for damage. Replace if it is damaged.

Installation

Installation is in the reverse order of removal.

CAUTION

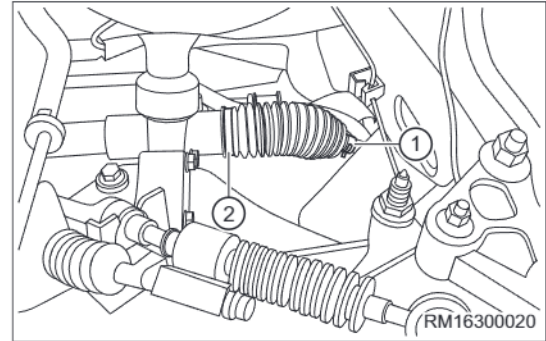
- After installing tie rod ball pin assembly, it is necessary to perform wheel alignment procedure ([See page 23-49](#)).

Steering Tie Rod Assembly

Removal

HINT:

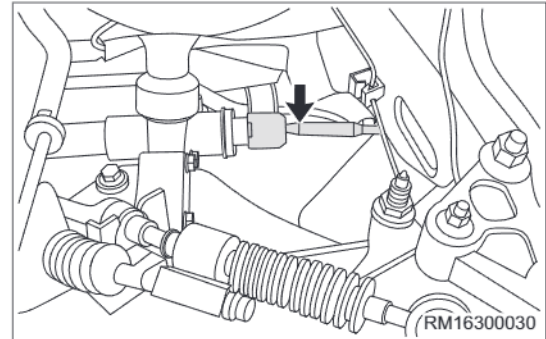
- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
1. Turn off all electrical equipment and the ignition switch.
 2. Remove the battery assembly (See page 16-7).
 3. Remove the air filter assembly (See page 10-12).
 4. Remove the battery tray assembly (See page 16-9).
 5. Remove the front wheel (See page 24-9).
 6. Remove the ball pin assembly (See page 30-25).
 7. Remove the steering tie rod assembly.
 - a. Remove the steering tie rod boot elastic clamp (1).
 - b. Remove the steering tie rod boot clamping ring (2) and remove the steering tie rod boot.



CAUTION

- Operate carefully to prevent damage to the boot.
- It is necessary to replace clamping ring with a new one, when reinstalling steering tie rod boot.

- c. Using a wrench, remove the steering tie rod assembly (arrow).



Inspection

1. Check steering tie rod boot for damage, and if clamp is normal. Replace the steering tie rod boot and clamp if necessary, to prevent water and micro dust from entering and causing parts failure prematurely.
2. Check steering tie rod assembly for deformation or wear and ball for insufficient lubrication. Replace the steering tie rod assembly or add grease if necessary.

Installation

Installation is in the reverse order of removal.

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CAUTION

- It is necessary to apply thread locker to ball.
- It is necessary to fit the steering tie rod ball face and the rack face closely.

Steering Gear Assembly

⚠ WARNING

- Be sure to wear necessary safety equipment to prevent accidents when repairing.
- When removing and installing high temperature components and surrounding components, do not operate until they cool down to normal temperature to avoid being burned.

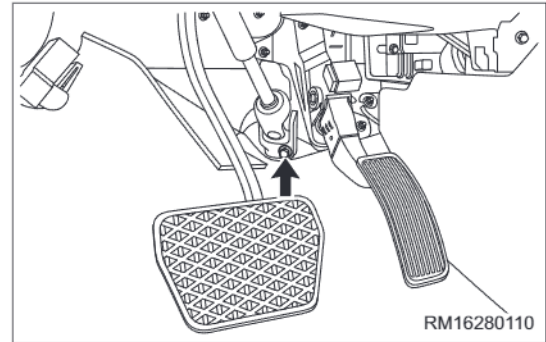
👁 CAUTION

- Steering wheel should not be in the limit position for more than 5 seconds.

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Removal

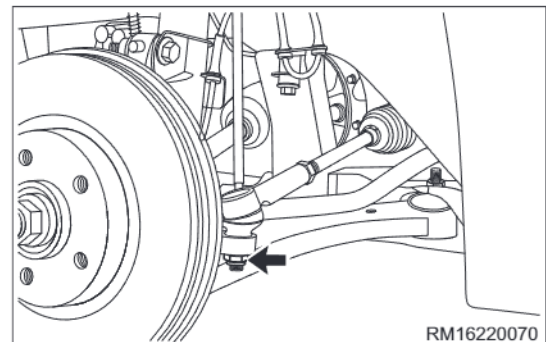
1. Set the steering wheel to straight-ahead position.
2. Turn off all electrical equipment and the ignition switch.
3. Disconnect the negative battery cable.
4. Remove the coupling bolt (arrow) between steering column with intermediate shaft assembly and steering gear input shaft.
(Tightening torque: $60 \pm 5 \text{ N}\cdot\text{m}$)



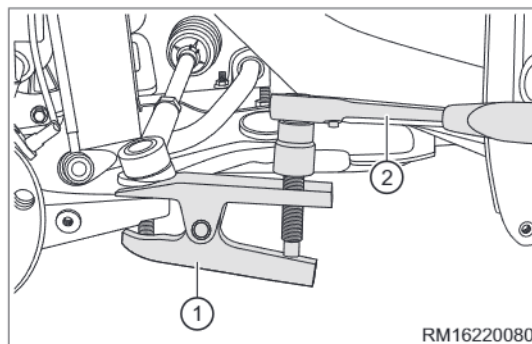
5. Remove the front wheel ([See page 24-9](#)).
6. Separate the ball pin and steering knuckle.

HINT:

- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
- a. Remove the locking nut (arrow) between left steering tie rod assembly ball pin and front left steering knuckle assembly.
(Tightening torque: $35 \pm 3 \text{ N}\cdot\text{m}$)

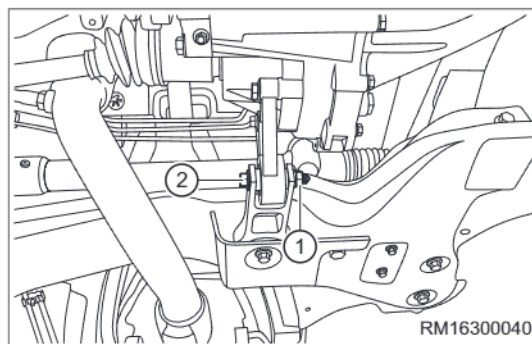


- b. Install the ball pin separator (1), and tighten the ball pin separator bolt with a wrench (2) to separate the steering tie rod ball pin from steering knuckle assembly.

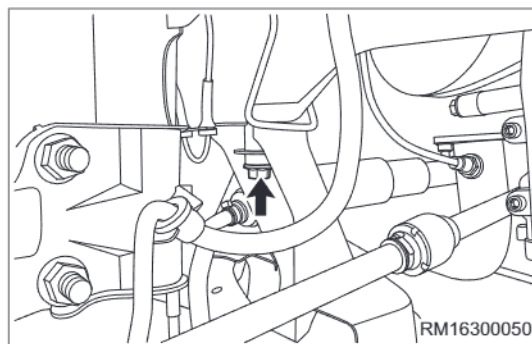


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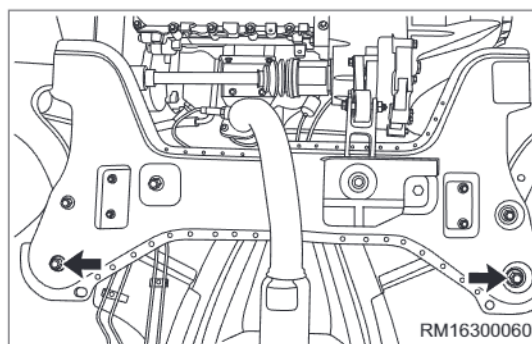
7. Use an engine equalizer to hang the engine.
8. Support the front sub frame welding assembly with a transmission carrier.
9. Remove the steering gear with tie rod assembly.
 - a. Remove the locking nut (1) for through bolt between rear mounting bracket and rear mounting cushion assembly, and then remove the through bolt (2). (Tightening torque: $80 \pm 5 \text{ N}\cdot\text{m}$)



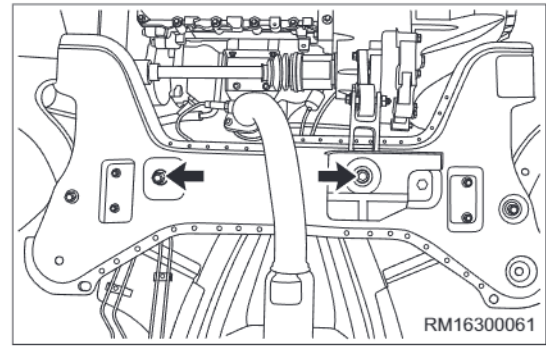
- b. Loosen the coupling bolt (arrow) between front right part of front sub frame welding assembly and body. Use the same procedure to loosen the bolt at left side. (Tightening torque: $120 \pm 10 \text{ N}\cdot\text{m}$)



- c. Loosen the coupling bolt between front sub frame welding assembly and body. (Tightening torque: $120 \pm 10 \text{ N}\cdot\text{m}$)



- d. Remove 2 fixing bolts from steering gear.
(Tightening torque: 100 ± 10 N·m)



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- e. Lower the front sub frame welding assembly (descending distance is about 40 mm), and remove the steering gear with tie rod assembly.

Inspection

1. Check steering gear housing for damage or deformation, and rack and pinion for sticking. Replace the steering gear assembly if necessary.
2. Check if steering tie rod boot and clamp are normal. Replace them if necessary to prevent water and micro dust from entering and causing parts failure prematurely.
3. Check steering tie rod and ball pin assembly for serious wear. Replace the tie rod and ball pin assembly if necessary.

Installation

Installation is in the reverse order of removal.

CAUTION

- After installing steering gear, perform front wheel alignment procedure ([See page 23-49](#)).

