

General

Wheel Alignment Parameters

Items	Four-wheel Alignment Parameter (Unilateral Nominal Value and Tolerance)	Four-wheel Alignment Parameter (Bilateral Sum/Difference)
Front wheel camber	$0 \pm 0.5^{\circ}$	Difference between left and right $\leq 0.5^{\circ}$
Front wheel kingpin caster	$3.6 \pm 0.8^{\circ}$	Difference between left and right $\leq 0.5^{\circ}$
Front wheel toe-in angle	$0 \pm 0.15^{\circ}$	Total front toe-in $\leq 0.15^{\circ}$
Rear wheel toe-in angle	$0^{\circ} \pm 0.25^{\circ}$	-
Rear wheel camber	$0^{\circ} \pm 0.25^{\circ}$	-
Rear shaft thrust angle	$0^{\circ} \pm 0.25^{\circ}$	-

Wheel and Tire Parameters

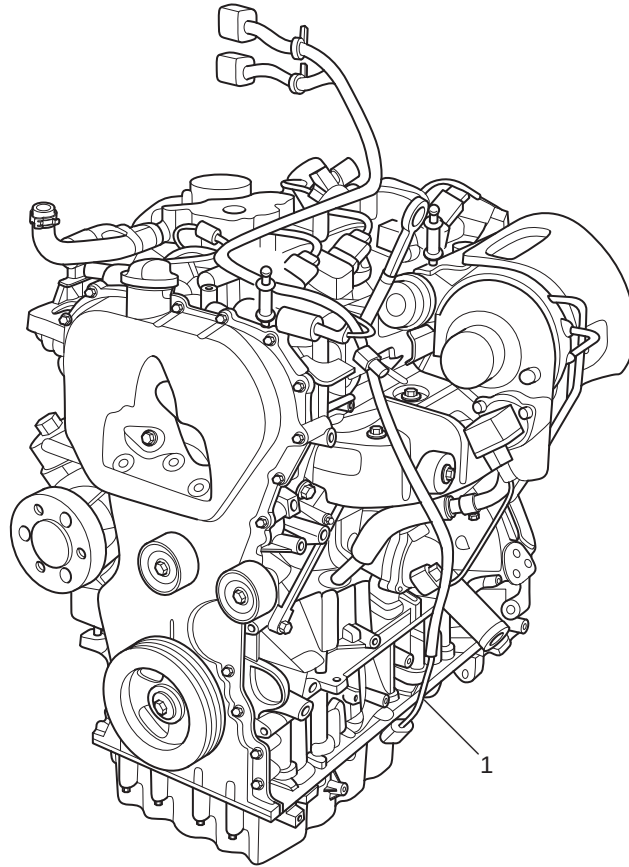
Items		Parameters			
Wheel dimension		7.5Jx18	7.5Jx19	7Jx17	8.5Jx21
Tire dimension		255/60R18	255/55R19	255/65R17	265/45R21
Tire pressure (cold)	Front wheels	220kPa/2.2bar/32psi	220kPa/2.2bar/32psi	220kPa/2.2bar/32psi	230kPa/2.3bar/33psi
	Rear wheels	220kPa/2.2bar/32psi	270kPa/2.7bar/39psi	270kPa/2.7bar/39psi	280kPa/2.8bar/41psi
Small spare tire dimension		245/65R17	245/65R17	245/65R17	245/65R17
Small spare tire pressure (cold)		290kPa/2.9bar/42psi	290kPa/2.9bar/42psi	290kPa/2.9bar/42psi	290kPa/2.9bar/42psi
Full size spare tire dimension		255/60R18	255/55R19	255/65R17	265/45R21
Full size spare tire pressure (cold)		270kPa/2.7bar/39psi	270kPa/2.7bar/39psi	270kPa/2.7bar/39psi	280kPa/2.8bar/41psi

Body Color

White	Blanc white
Gray	Lava gray
Blue	Jewelry blue
Golden	Amber gold
	Champaign gold
Silver	Aurora silver
Red	Zircon red
Green	Olive green
Black	Obsidian black

Layout

Engine Assembly



GS030009

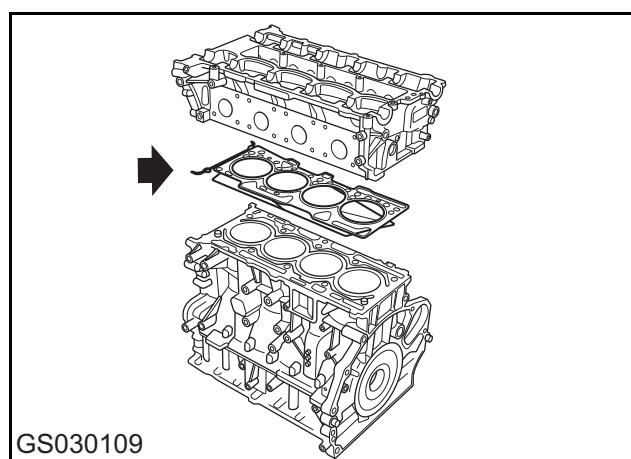
- 1 Engine assembly

Engine Mechanical System

Cylinder Gasket Replacement

Removal:

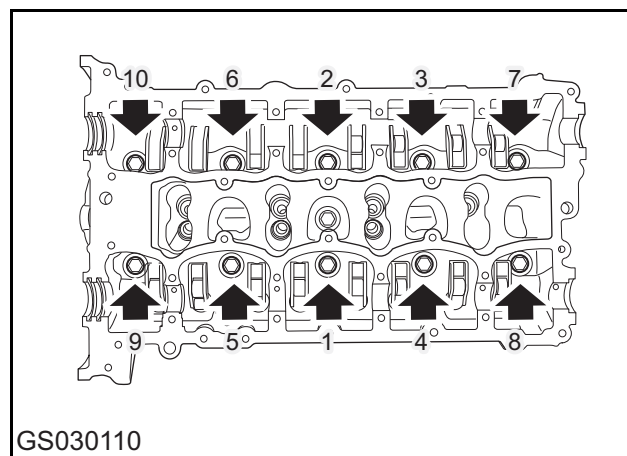
- 1 Drain the engine oil (refer to Replacement of Engine Oil and Oil Filter).
- 2 Drain the coolant.
- 3 Remove the timing chain cover (refer to Replacement of Timing Chain Cover).
- 4 Remove the intake and exhaust phase modulator (refer to Replacement of Phase Modulator (Intake and Exhaust)).
- 5 Remove the intake/exhaust camshaft (refer to Camshaft Replacement).
- 6 Disconnect the connector of the electronic throttle.
- 7 Remove 1 bolt securing the intake manifold bracket to the intake manifold.
- 8 Remove 10 bolts securing the cylinder head to the cylinder block, and remove the cylinder head.
- 9 Remove the cylinder head gasket from the cylinder block and discard it.



Installation:

- 1 Clean the mating surface of the cylinder head and cylinder block, and ensure there is no foreign material.
- 2 Clean the passages of the engine oil and the coolant.
- 3 Clean the cylinder head bolts and wipe them, check the thread for any sign of damage.
- 4 Apply a thin oil film on the threads and the underside of the bolt head.
- 5 Check the surface of the cylinder head for scratch.
- 6 Check the height of cylinder head, if it exceeds the specified value, replace it.

- 7 Install new cylinder gasket to the cylinder block and note the "UP" mark.
- 8 Install the cylinder head to the cylinder block and carefully align it with the locating pins.
- 9 Carefully install the cylinder head bolts, do not apply much force to plug it or drop it into the bolt holes, tighten the bolt by hand.
- 10 Tighten the cylinder head bolts to 45N.m +90° +90° progressively in the sequence as shown and check the torque.



- 11 Secure the intake manifold bracket to the intake manifold, install 1 bolt, tighten to 23-26N.m, and check the torque.
- 12 Connect the electronic throttle connector.
- 13 Install the intake/exhaust camshaft (refer to Camshaft Replacement).
- 14 Install the intake/exhaust phase modulator (refer to Replacement of Phase Modulator (Intake and Exhaust)).
- 15 Install the timing chain cover (refer to Replacement of Timing Chain Cover).
- 16 Refill the coolant.
- 17 Refill the engine oil (refer to Replacement of Engine Oil and Oil Filter).

Check the status of battery electric eye once every three months;

The green electric eye indicates that the battery is normal;

The black electric eye indicates low battery and it must be recharged.

For vehicles with battery cable connected, check the electric eye monthly. Recharge the battery with a black electric eye.

For vehicles warehoused for one year above, if its battery has never been recharged as per the aforesaid requirements, the battery must be replaced and scrapped.

Battery maintenance requirements for agents and dealers

Remove the negative battery cables from inventory vehicles and exhibition vehicles which have been parked for 7 days above.

The battery shall be installed firmly; battery case surface or the juncture between it and positive or negative pole shall be free of acid liquid overflow, cracks, bumps or dirt.

Check the status indicator (electric eye) of the battery.
Battery power indicator:

Green: The battery has enough power to start the vehicle normally.

Black: Low battery. The battery shall be recharged.

White: The battery is scrapped and shall be replaced.

Check the status of battery electric eye once every three months;

The green electric eye indicates that the battery is normal;

The black electric eye indicates low battery and it must be recharged.

Batteries of warehousing vehicles must be recharged every 6 months.

For vehicles with battery cable connected, check the electric eye monthly. Recharge the battery with a black electric eye.

The battery of a vehicle warehoused for one year above (i.e. the battery has never been recharged) must be replaced and scrapped.

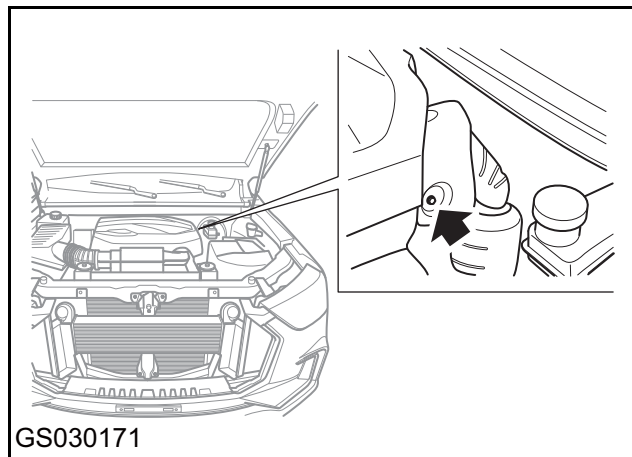
During vehicle sales, check and ensure the battery electric eye displays green. It is prohibited to directly deliver a vehicle powered by another vehicle's battery to the customer.

Engine Intake/Exhaust System

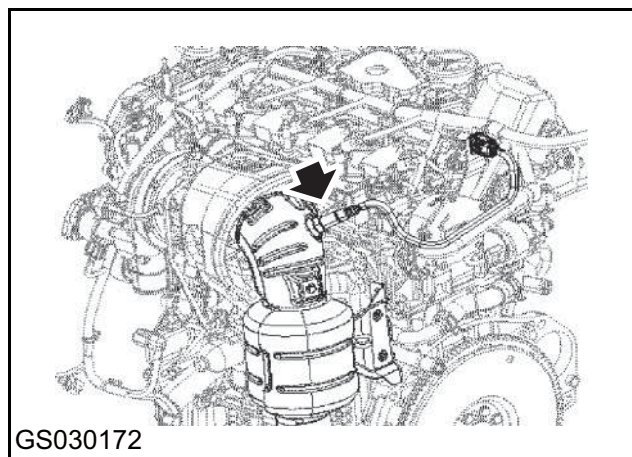
Replacement of Front Catalytic Converter Assembly

Removal

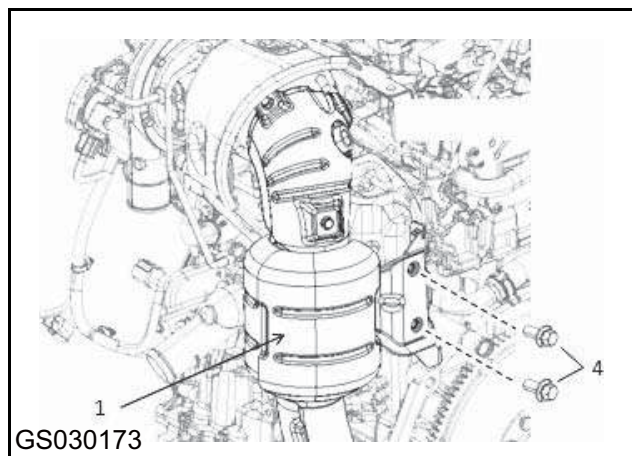
- 1 Remove the turbocharger heat shield (refer to Removal of Turbocharger Heat Shield).



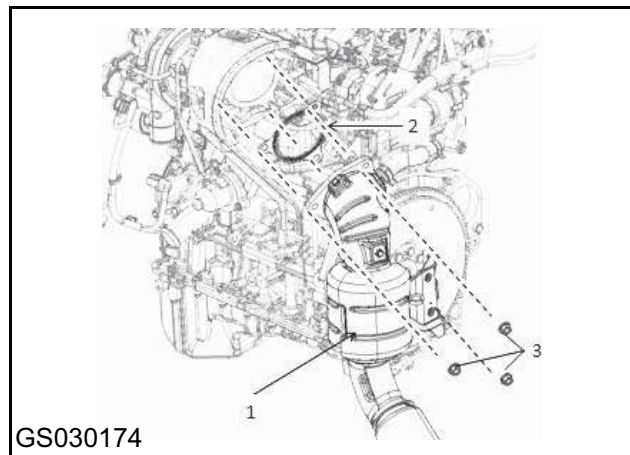
- 2 Remove the front oxygen sensor.



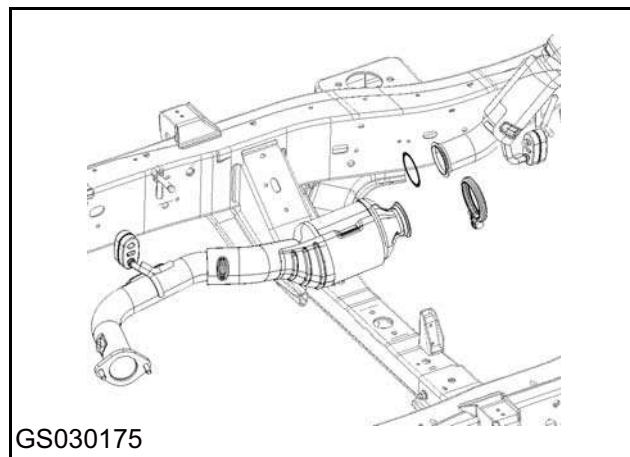
- 3 Unscrew 2 bolts (4) fixing the front catalytic converter assembly (3) to the engine bracket.



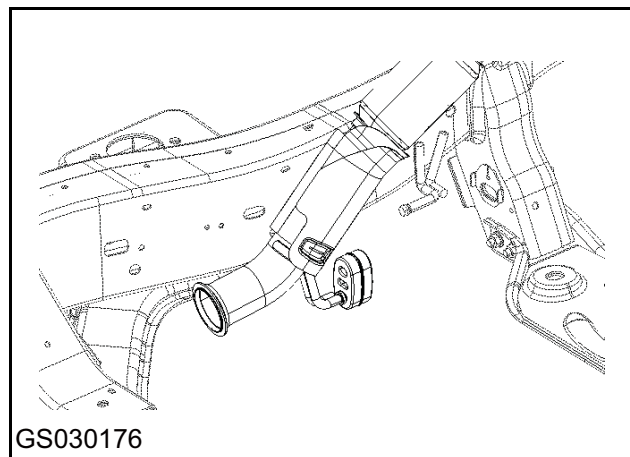
- 4 Unscrew 3 nuts (1) fixing the front catalytic converter assembly (3) to the engine turbocharger, and discard gaskets (2).



- 5 Release the clamps fixing the front catalytic converter assembly and rear catalytic converter assembly, and discard the gasket 1.

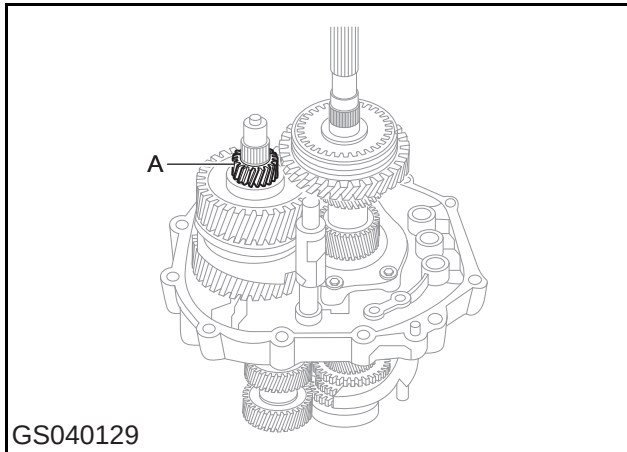


- 6 Take down the catalytic converter assembly from the rubber hook of exhaust pipe.

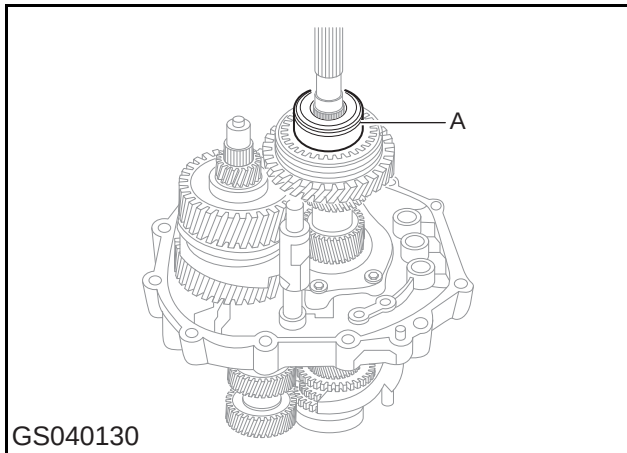


6MT Manual Transmission

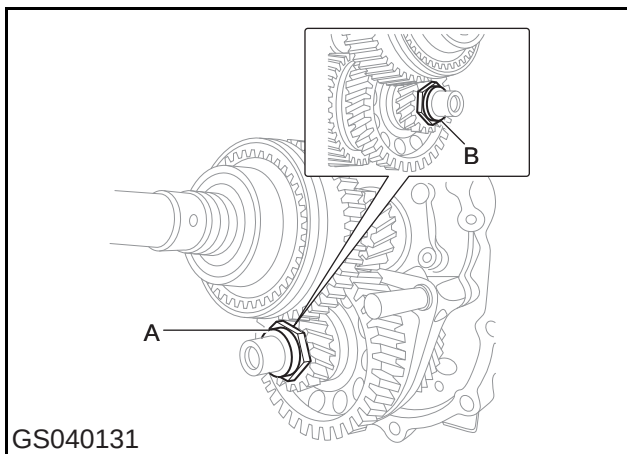
- 63 Install the reverse gear (A) of the intermediate shaft.



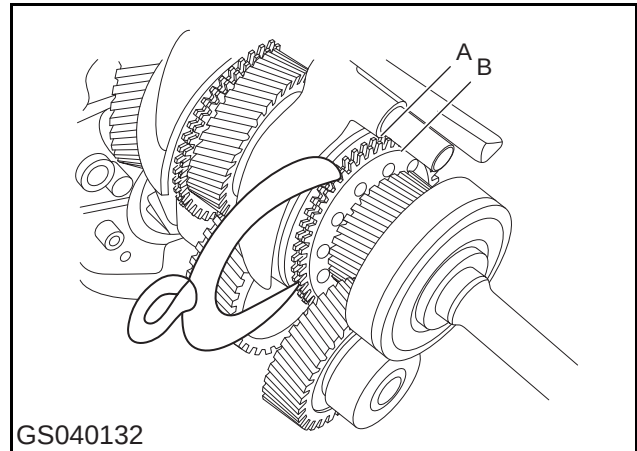
- 64 Place C00089875 on the ball bearing (A), and press the ball bearing (A) with a pressing machine or hammer.



- 65 Install the lock nut (A) of the intermediate shaft, and lock 2 points at (B). [Tightening torque: 16.0 ~ 19.0 kgf.m
156.9 ~ 186.3 N.m]



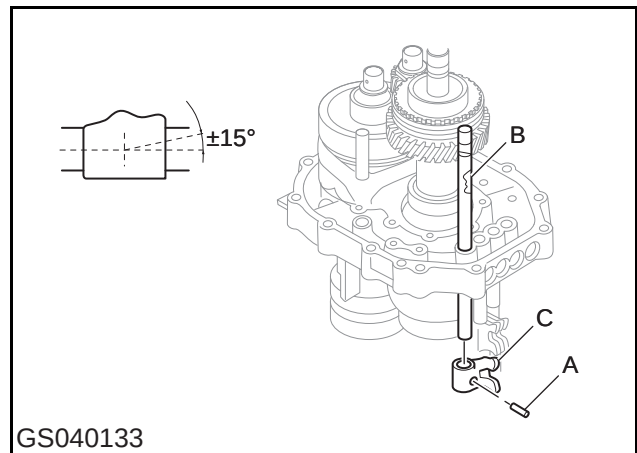
- 66 Remove the synchronizer protective jacket between the 4th gear synchronizer ring (A) of the main shaft and the main drive shaft (B).



- 67 Install the reverse gear rail (B), reverse gear lug (C) and spring pin (A) in sequence.

Caution: Install the spring pin with hammer or chisel

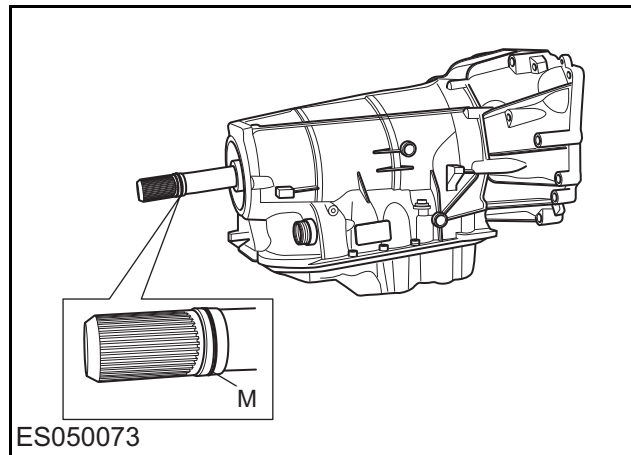
Warning: Location of spring pins (A, B): the axial clearance between the spring pin and the fork rail (C) shall be within $\pm 15^\circ$.



- 68 Install the reverse gear rail (B), reverse gear lug (C) and spring pin (A) in sequence.

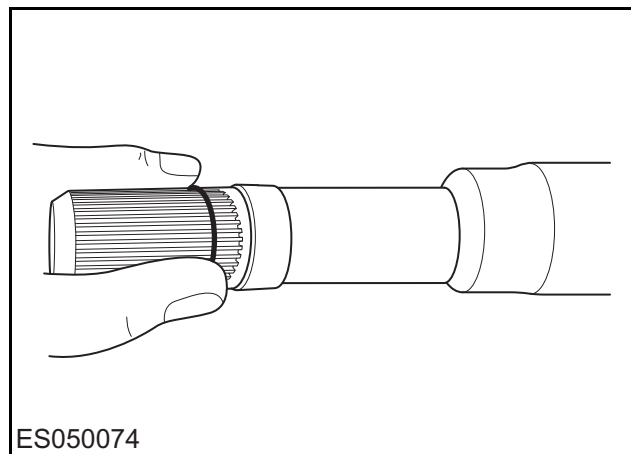
Removal/Installation of AWD Output Shaft O-ring Seal

- 1 Drain transmission fluid, refer to Oil Drain and Oil Pan Removal.
- 2 Remove the transmission, refer to Transmission Removal.
- 3 Pry and remove the O-ring (M) with a screwdriver.

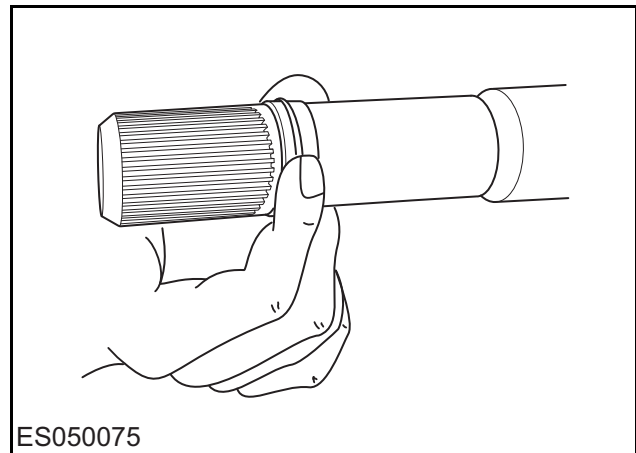


Caution: Discard the ring, and do not reuse it.

- 4 Apply transmission fluid to the new ring.



- 5 Install it on the output shaft.

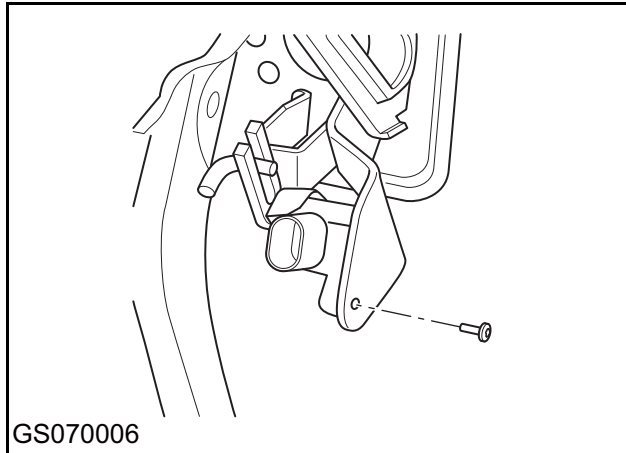


Replacement of Clutch Pedal Position Sensor

3 Tighten the screws to $1.5 \pm 0.5\text{N.m.}$

Removal

- 1 Remove the harness of clutch pedal position sensor.



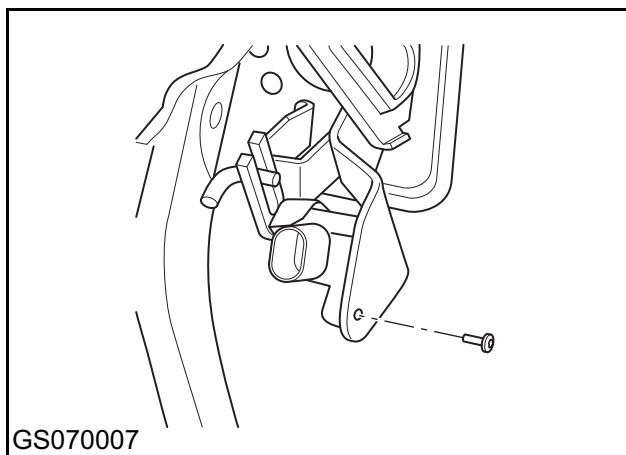
- 2 Remove fastening bolts of clutch pedal position sensor.
- 3 Remove the clutch pedal position sensor.

Caution: After the switch of clutch pedal position sensor or clutch pedal is replaced, it is required to perform initial "learning":

The clutch switch will not work properly until initial "learning" is completed.

Installation

- 1 Put the cylindrical bracket rod on the clutch pedal in the middle of U-shaped structure of the sensor (A in the figure below).



- 2 Align the locating pin on the sensor with the locating hole in the clutch pedal bracket (B in the figure above).

Transfer Case (Part-time)

Repair Guidance

Replacement of Transfer Case Assembly

Removal

- 1 Position the vehicle on a suitable lifting machine.

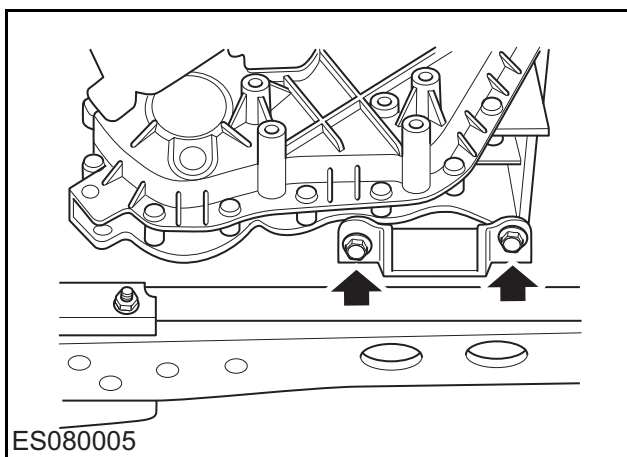
Caution: *The transfer case bracket or jack shall support the transfer case independently, and shall be able to lift up/lower down and move the transfer case horizontally.*

- 2 When moving the transmission shift lever to P or N position, the transfer case will switch to 2H mode and the engine is shut down.
- 3 Disconnect the battery negative after the ignition switch is off for 1min.
- 4 Lift the vehicle.
- 5 Remove all electrical harnesses related to the transfer case.
- 6 Remove the hose from the vent valve of the transfer case.
- 7 Disconnect the front/rear propeller shaft from the flange of the transfer case.
- 8 Disconnect the rear propeller shaft from the rear flange of the transfer case.
- 9 Support the transfer case with the jack.

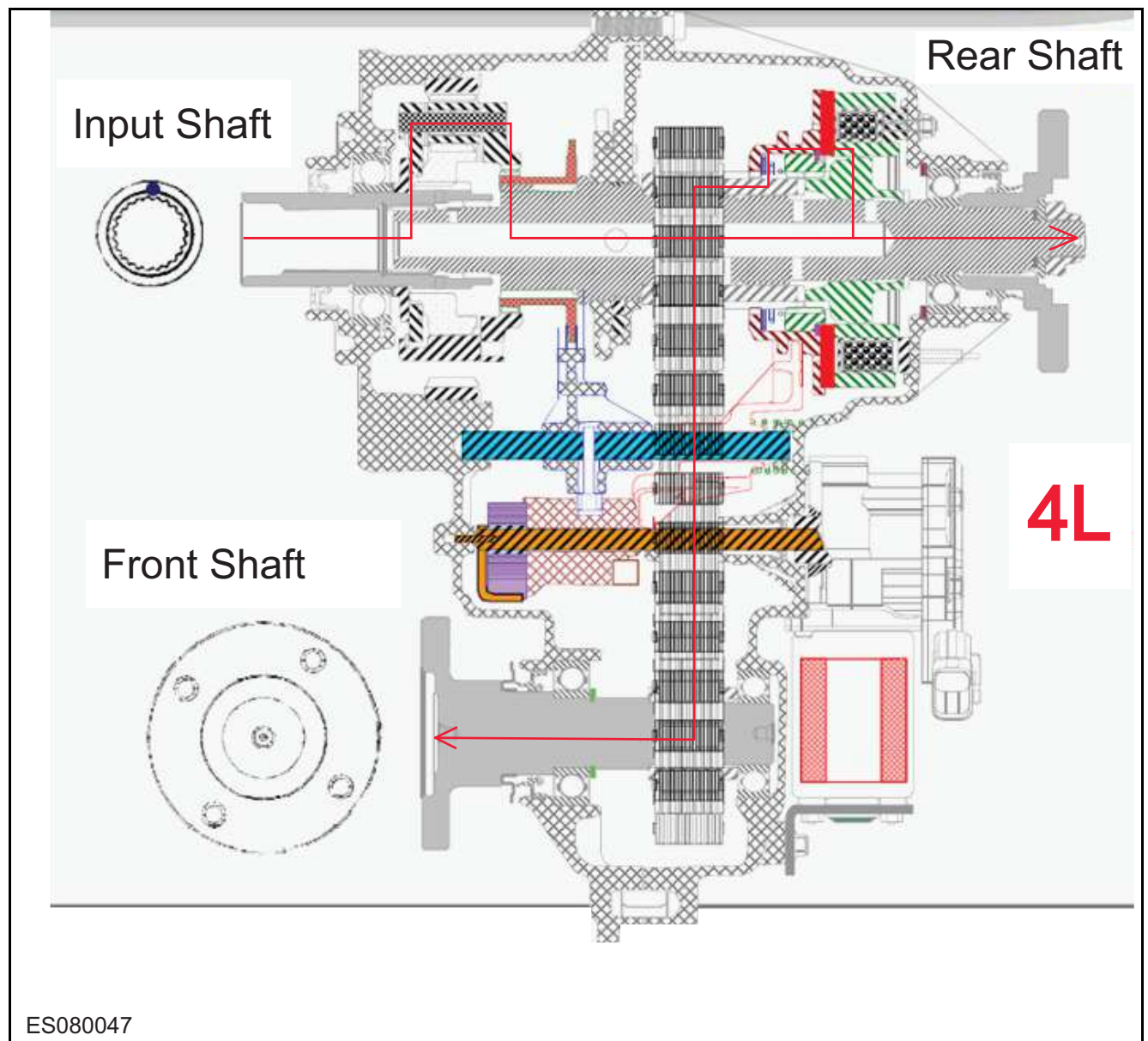
Warning: *Ensure the transfer case is completely under the support of the lifting machine before removing the bolt connecting the transfer case and transmission. Do not hang the transfer case directly on the transmission through the spline shaft, this may cause damage to the parts of the transfer case.*

- 10 Remove the bolts connecting the transfer case and rear mount.

- 11 Remove the bolts connecting the transfer case and the transmission, and remove the transfer case.
- 12 Simply move the transfer case backward until the transfer case input shaft is completely disconnected from the transmission spline.
- 13 Carefully lower the lifting machine of the transfer case and remove the transfer case.



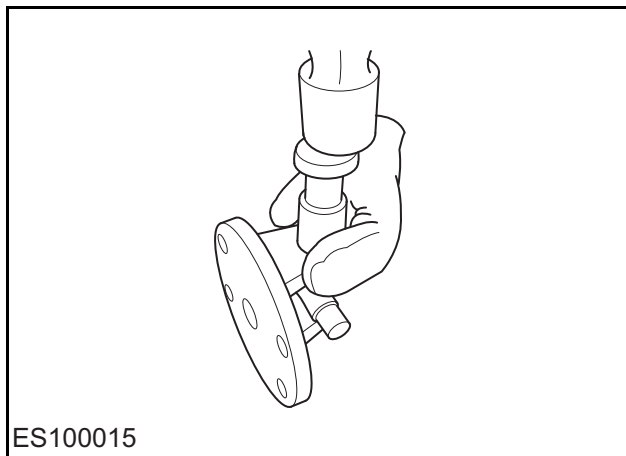
Transfer Case Power Flow



- 3 Knock the bearing bowl from outside of earhole to the depth where the retainer groove is just exposed with a hammer and a punch, and install the circlip with a nipper plier.

Caution:

- 1) After installation, check and confirm the circlip is in the retainer groove and has rebounded in place.
- 2) In case of a great resistance during push-in of bearing bowl, stop pushing immediately, and check the matching between the cross shaft and bearing bowl and the interference between the cross shaft and the universal joint fork.

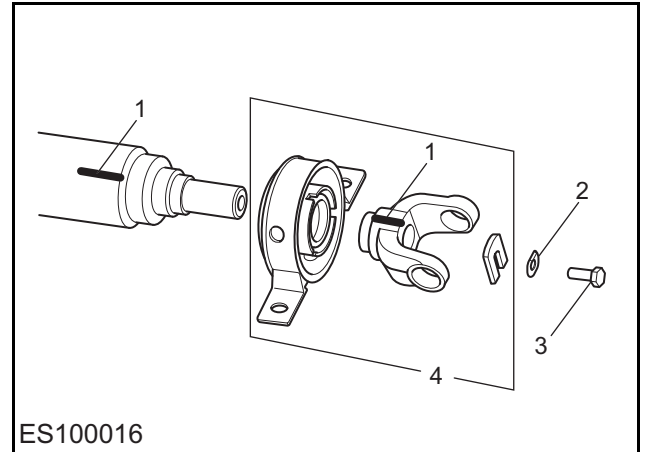


- 4 Overturn the universal joint fork for 180° , and repeat the aforesaid steps to install the bearing bowl and circlip on the other side. The cross shaft must be swung during push-in, so as to prevent the clamping stagnation between the cross shaft and bearing bowl.
- 5 Place the cross shaft journals at the rest two ends near the universal joint fork earhole on the other end. Repeat the aforesaid steps to install the bearing bowls and circlips at two other sides. Pay attention to the marked position on the universal joint fork during installation to ensure the alignment.
- 6 After installation, swing the universal joint towards four directions to check whether it swings flexibly. If the swing torque is excessively great or it is stuck, hammer the outside of the universal joint fork earhole clamping the bearing bowl with a rubber hammer.

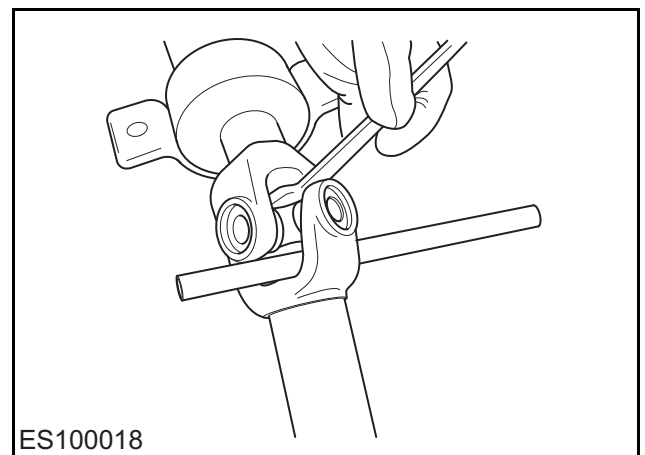
Replacement of Intermediate Support of Propeller Shaft

Removal

Caution: Do not secure the propeller shaft with a bench vice directly, as indentation or local cracks may lead to propeller shaft failure during vehicle usage.



- 1 Mark the mounting positions of the propeller shaft and steering yoke.
- 2 Pry up the locking gasket with a flat-blade screwdriver.
- 3 Lock the propeller shaft with a long thrust rod, and loosen the bolt of intermediate support with a wrench.

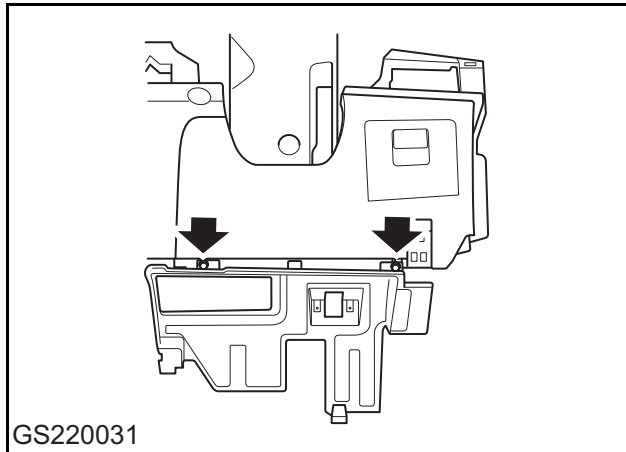


- 4 Remove the U-shape gasket and pull out the steering yoke and intermediate support.

Replacement of Driver Side Footrest Assembly

Removal

- 1 Remove 2 screws connecting the footrest to lower guard plate.



- 2 Remove the driver side footrest assembly.

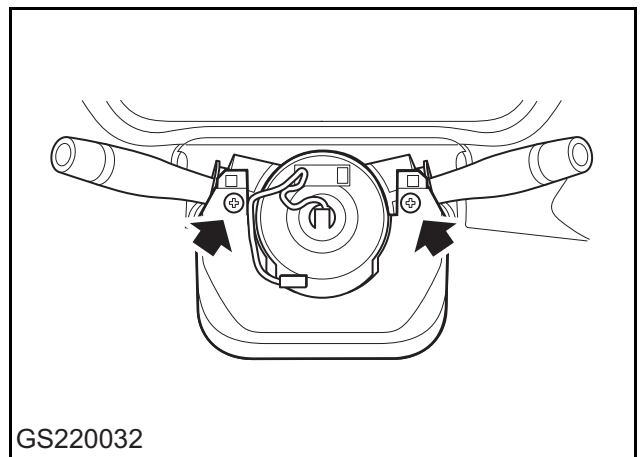
Installation

- 1 Installation is the reverse of removal.

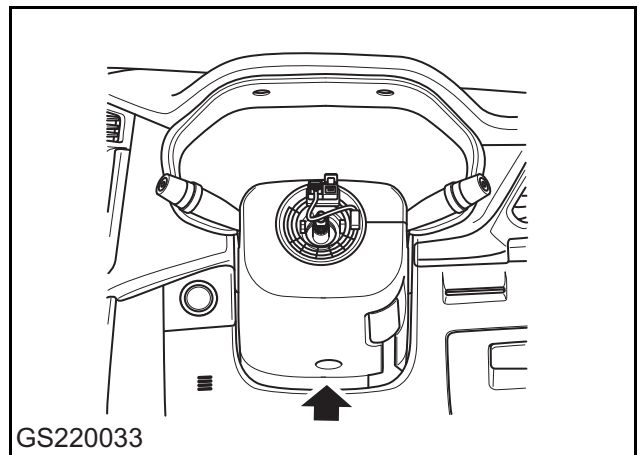
Replacement of Upper and Lower Steering Column Shrouds

Removal

- 1 Place the steering wheel adjusting handle to the bottom.
- 2 Remove the steering wheel assembly (Refer to Replacement of Steering Wheel Assembly).
- 3 Pry off the upper steering column shroud with a flat-blade screwdriver.
- 4 Remove 2 screws connecting the lower steering column shroud to the combination switch base.



- 5 Remove the screws from the bottom of lower steering column shroud.



- 6 Remove the lower steering column shroud.

Installation

- 1 Installation is the reverse of removal.

Repair Guidance

Mount Installation

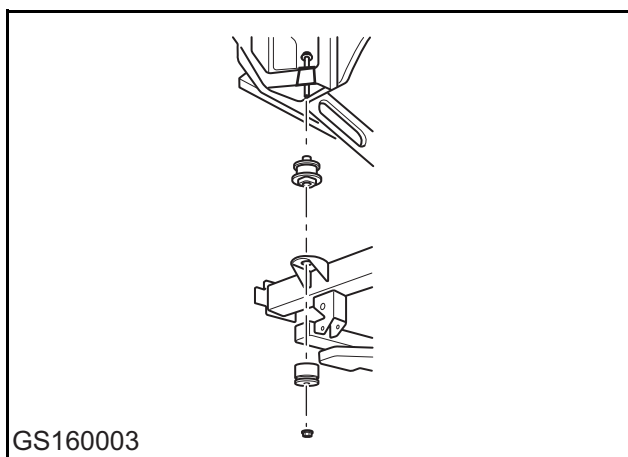
Removal

- 1 Lift the vehicle.
- 2 Remove mounting bolts from 4th row mount.
- 3 Slightly raise the body, and remove the mount.

Installation

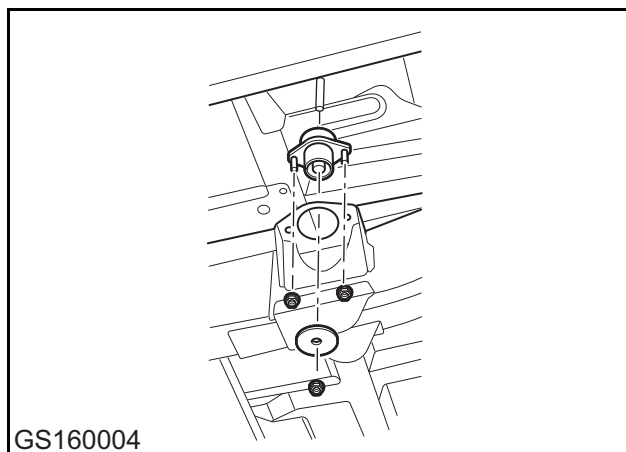
- 1 Align the body with frame mounting holes.
- 2 Pre-tighten and install the 2nd mount on the left of body, then the 3rd mount on the left, and then the remaining mounts.
- 3 Lower down the body, and then tighten the mount bolts/nuts in sequence.
- 4 Lower the vehicle.

1st Mount Installation



- 1 Place the upper rubber cushion of the 1st mount and mount sleeve to the 1st mount bracket.
- 2 Install the lower rubber cushion of the 1st mount to the position as shown in the figure.
- 3 Pass the bolt through the body hole from top to bottom.
- 4 Install the mount nuts, and tighten to $70 \pm 5\text{N.m}$.

2nd/3rd Row Mounts Installation



- 1 Place the upper rubber cushion of the mount to the mount bracket.
- 2 Secure the mount to the mount bracket with nuts, and tighten to $120 \pm 10\text{N.m}$.
- 3 Get the gasket and bolt, pass the bolt through the body hole from top to bottom.
- 4 Install the mount nuts, and tighten to $190 \pm 10\text{N.m}$.

PEPS and Immobilizer System (with key start)

Technical Parameters

PEPS-ECU Parameters

Items	Parameters	Remarks
Normal operating voltage	9V~16V	
Normal operating voltage (start-related functions)	9V~16V	
Static current	<3mA	
Operating temperature	-40 °C ~+85 °C	
Storage temperature	-40 °C ~+85 °C	
Frequency of controller receiving center	433.87MHz	
Modulation mode	ASK	
Receiving sensitivity	<-80dBm	

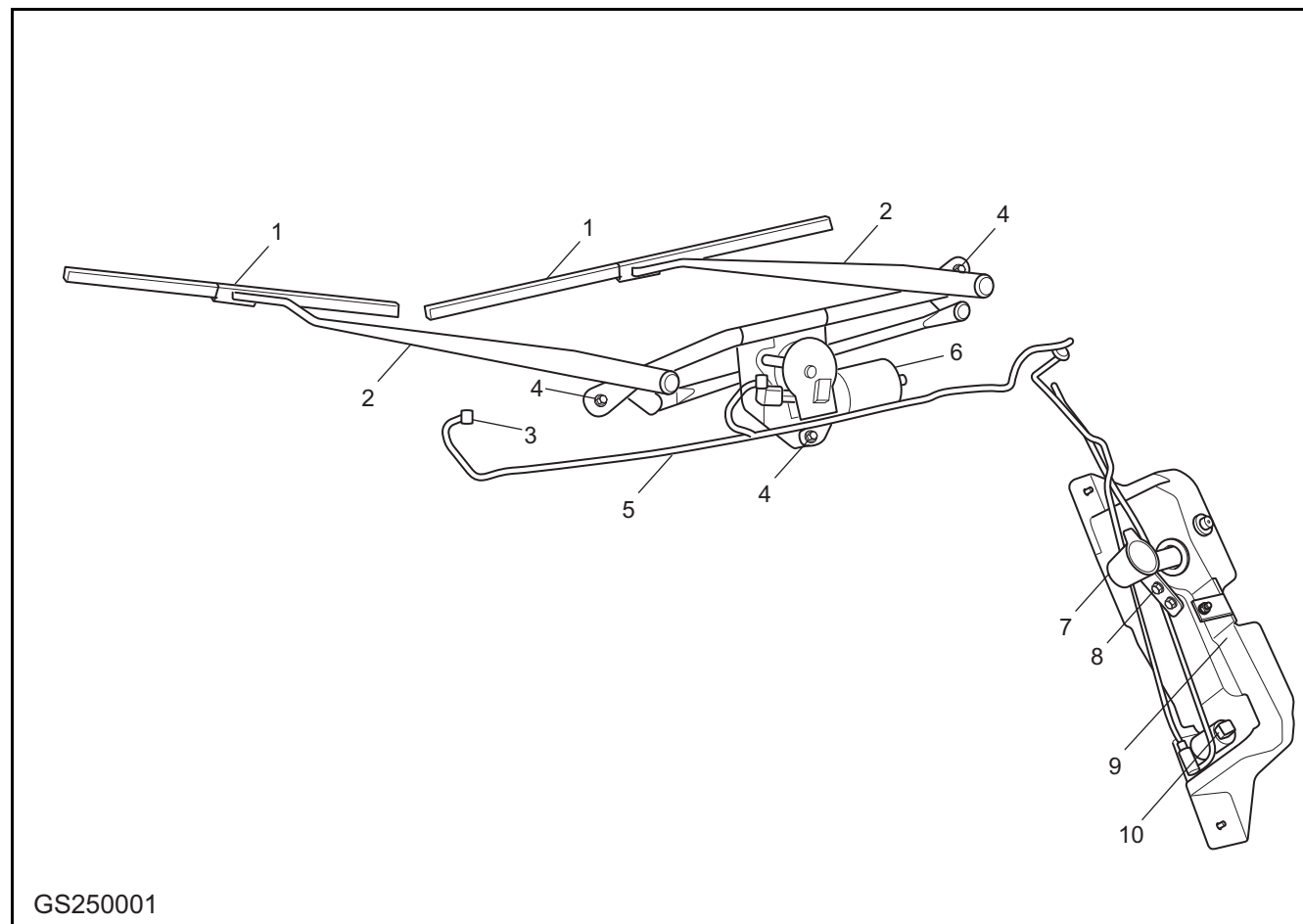
RKE Parameters

Items	Parameters	Remarks
Operating temperature	-20 °C ~+60 °C	
Storage temperature	-40 °C ~+85 °C	
Normal operating voltage range	2.35V~3.5V	
Static current	<6uA	
Frequency of low-frequency receiving center	125kHz	
Frequency of radio frequency transmission center	433.87MHz	
Pressure	11 ± 2N	
Stroke	0.4~0.8mm	
Waterproof/dustproof grade	IP5K7	

Wiper/Washer System

Layout

Front Wiper and Washer Layout



- | | |
|------------------------------------|--|
| 1 Front wiper blade | 6 Wiper motor assembly |
| 2 Wiper arm assembly | 7 Washer reservoir cover assembly |
| 3 Front washer nozzle assembly | 8 Bolt - front washer reservoir cover assembly |
| 4 Bolt - wiper motor assembly | 9 Washer reservoir body assembly |
| 5 Front washer fluid hose assembly | 10 Front windscreen washer pump |