

**AWD****3270-00/3270-01/3271-00/3280-01/3280-17/3281-00/****INDEX****ALL WHEEL DRIVE****GENERAL INFORMATION**

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# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



**AWD****3270-00****GENERAL INFORMATION****1. SPECIFICATIONS**




Category	Item	Specifications	
PTU (power transfer unit)	Gear ratio	2.929	
	Numbers of helical gear	22/39	
	Numbers of hypoid gear	23/38	
	Oil specification	GKN	IDEMITSU LW 80W/90
		M & M	Valvoline 75W-90 or Approved by SAE J2360 75W-90
	Oil volume	GKN	≈ 0.58 ℓ
		M & M	≈ 0.60 ℓ
Operating temperature		-40 to 150°C	
E-coupling	Operation type	Electronic magnetic	
	Torque capacity	800 Nm	
	Whole length	154.95 mm	
	Spline	Input (external): 21T / Output (internal) : 21T	
	Input flange type	Rubber coupling 3-rod	
	Connector type	2-pin	
	Weight	5.985 kg	
	Oil specification	AMSOIL FTH 2-1	
	Oil capacity	100 ± 5 mL	
	E-coupling control unit	Operation mode	4WD AUTO/ LOCK
Mounting location		Floor under front passenger seat	
Communication mode		CAN communication	
Diagnostic mode		CAN diagnosis (KWP2000)	
Weight		0.23 kg	
Size		160X87X37 mm	
4WD LOCK mode switch	Type	Push-lock	

Modification basis	
Application basis	
Affected VIN	

AWD

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## 2. MAJOR CHANGES

PTU		
<div style="background-color: #e67e22; color: white; padding: 2px; font-weight: bold;">Old</div>  <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">GKN</div>	<div style="background-color: #9b59b6; color: white; padding: 2px; font-weight: bold;">New</div>  <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">GKN</div>	 <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">M &amp; M</div>
<ul style="list-style-type: none"> <li>- PTU supplier added</li> <li>- Appearance of PTU mounting bracket changed</li> </ul>		

# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



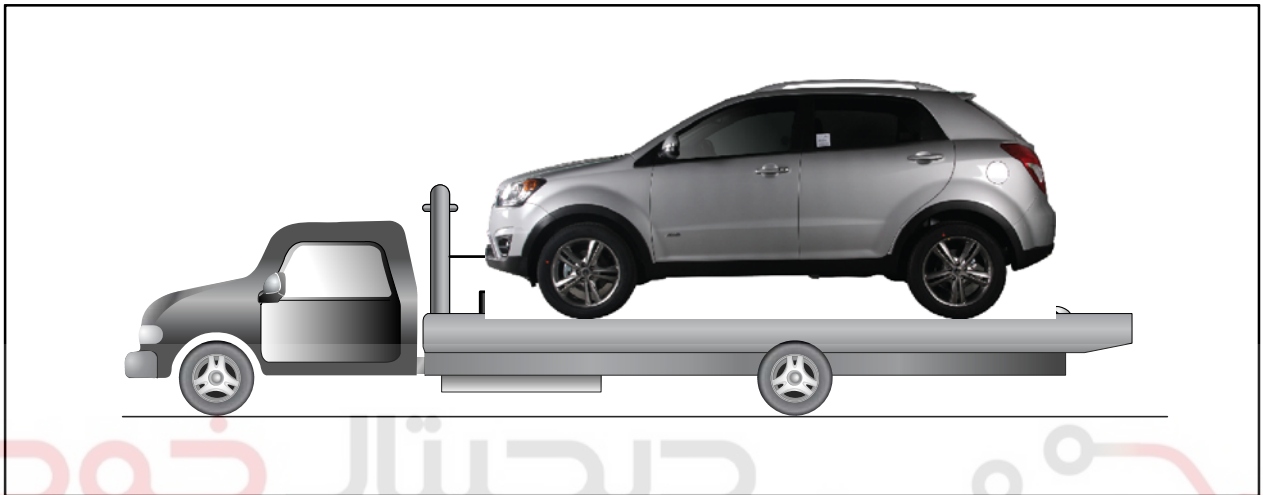
Modification basis	
Application basis	
Affected VIN	

### 3. NOTICES

#### 1) Towing Vehicle

The best way to transport the vehicle is to load it to a truck and transport it, especially if the vehicle is 4WD.

If towing the vehicle with the rear propeller shaft connected in place, the E-coupling's clutch could be damaged.



#### 2) Work On Vehicle Using Lift



When working on the vehicle using a lift, do not run the tires with all the wheels off the ground and the parking brake applied, as this may damage the E-coupling's clutch.

Modification basis	
Application basis	
Affected VIN	

AWD  
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- CHASSIS GENERAL
- DSI 6 SPEED
- AIN 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED MT
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME



## OVERVIEW AND OPERATING PROCESS

### 1. OVERVIEW


The AWD system uses an electronically controlled coupling to distribute driving force between the front and rear wheels, depending on road conditions and driving style for maximizing driving performance. It delivers all driving force to the front wheels only for good fuel economy on the normal road while the 4WD mode is activated automatically when driving in snow and poor driving conditions for improved straight-ahead driving stability and hill-climbing ability. In particular, the initial driving force is applied to enable the vehicle to start smoothly without wheel spin when starting on the hill as well as to maximize the AWD vehicle's advantages. It also has the self-protect feature that prevents the driving system from being damaged in advance by decreasing the driving force to the rear wheels when the component parts such as E-coupling become too hot due to a tire out of specification or malfunctioning AWD system. When driving the vehicle on a rough road such as muddy road or off-road and slippery road with rain or snow, the driver can select "Lock Mode" to deliver a larger driving force to the rear wheels than AWD "Auto Mode" to achieve the vehicle posture stability. The AWD "Lock Mode" is designed to be activated only at a slow speed (below 40 km/h) for safety and smooth driving. In addition, we focused on the safety as well as its own intrinsic performance including to control the driving force from the AWD by means of an organized control between ESP/ABS and AWD, thus helping ensure the vehicle's braking performance. The E-coupling has been introduced after February 2014, which reduced the noise and vibration and improved the fuel economy through a low drag torque.

### 2. COMPONENTS



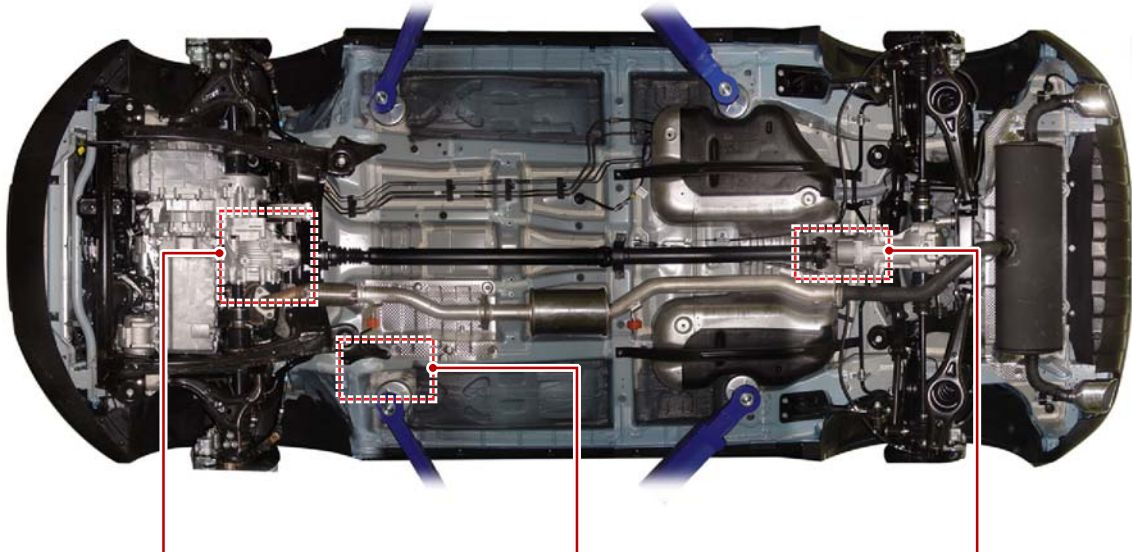
4WD LOCK mode indicator	4WD warning lamp
	
Comes on during 4WD LOCK mode	Comes on in the event of malfunction of 4WD system




**4WD LOCK mode switch**



The 4WD LOCK mode switch is of push-lock type and used to increase or decrease the torque delivered to the rear wheels in AWD mode.

Modification basis	
Application basis	
Affected VIN	



PTU	E-coupling control unit	E-coupling
		
<p>It is a device which changes the direction of the engine power by 90° to deliver it to the E-coupling on the 4WD vehicle.</p>	<p>It is a control unit which monitors the CAN signals (e.g. wheel speed, engine torque, pedal value, ABS/ESP CAN signal) from other units to determine the current value (clutch clamping force) for the electronic magnetic in the E-coupling.</p>	<p>It delivers the power to the rear axle from the PTU and controls the torque distribution between the front wheel and rear wheel.</p>

CHASSIS GENERAL

DSI 6 SPEED

AISIN 6 SPEED

HPT 6AT(6F2)

6-SPEED MT

CLUTCH

PROPELLER

DRIVE SHAFT

SUSPENSION

AWD

BRAKE SYSTEM

ANTI-LOCK

ELECTRONIC

POWER STEERING

ELECTRIC POWER

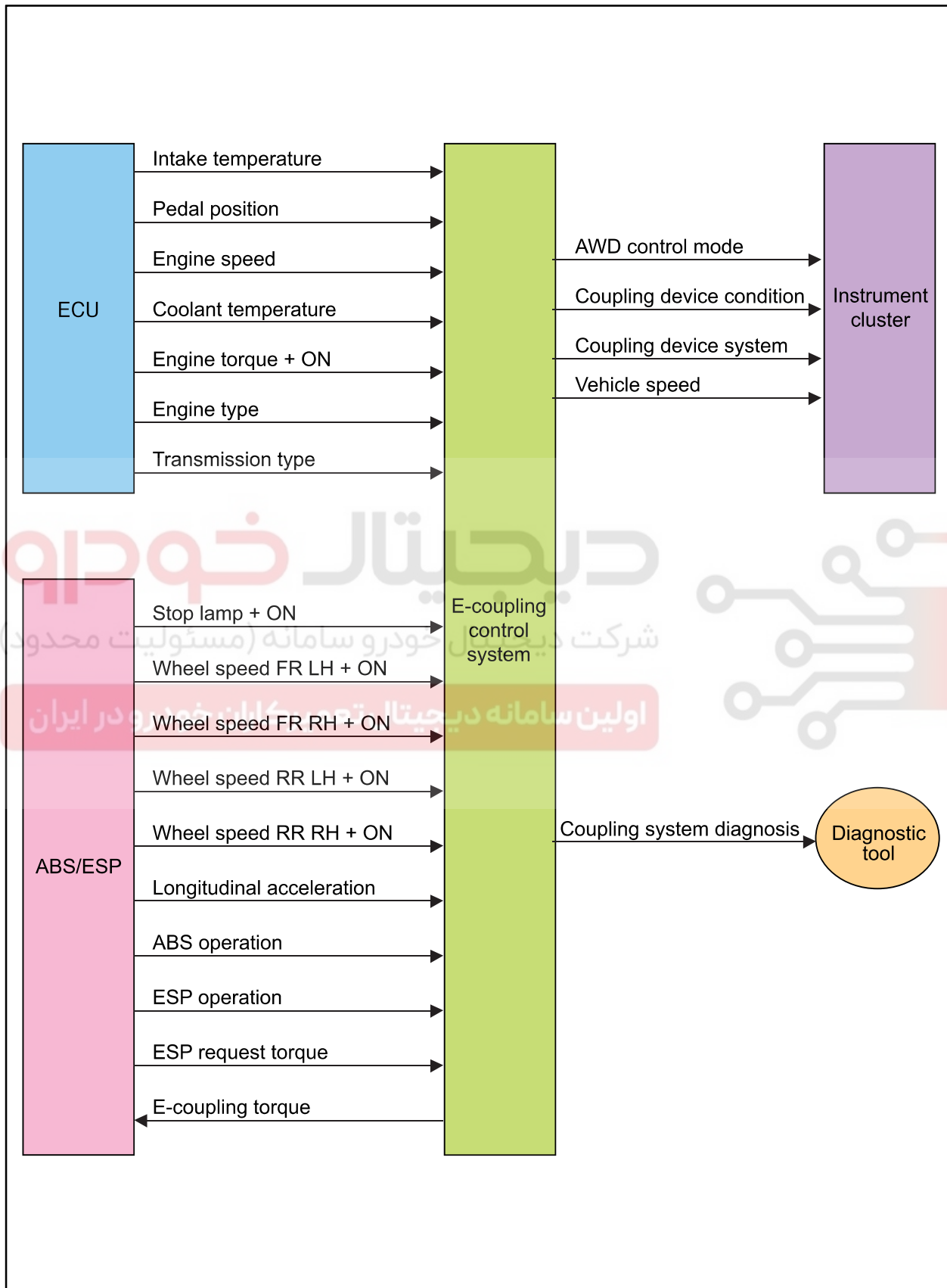
WHEEL & TIRE

SUB FRAME

Modification basis	
Application basis	
Affected VIN	

AWD  
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### 3. INPUT/OUTPUT ELEMENTS



AWD

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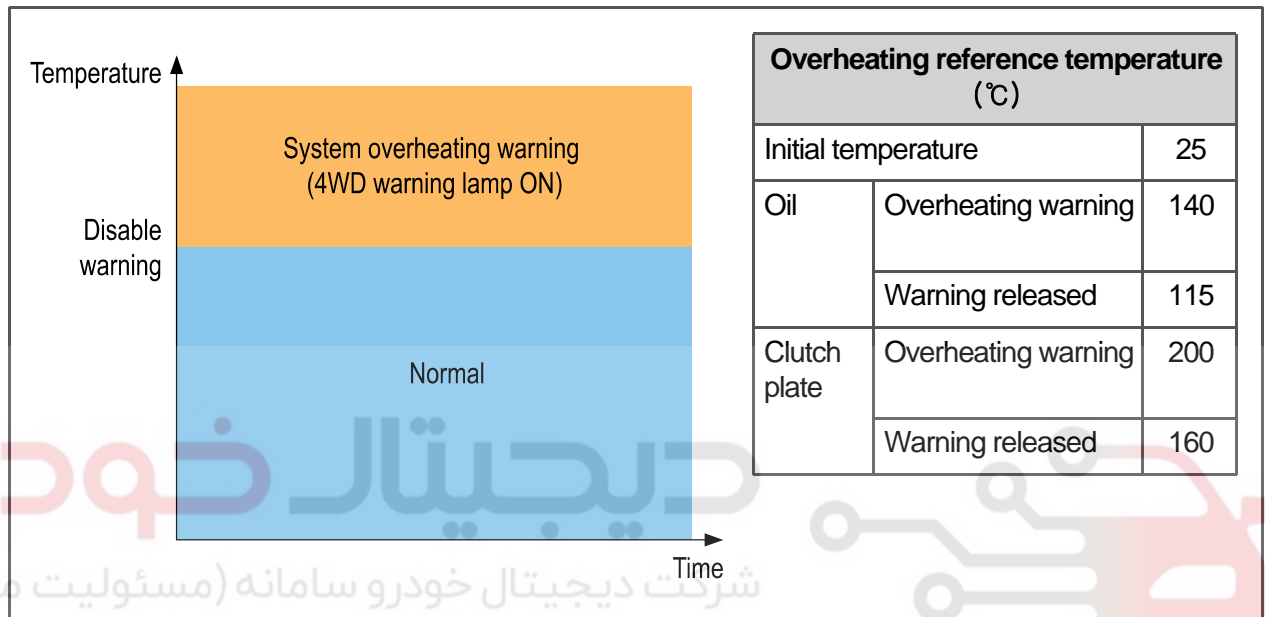
Modification basis	
Application basis	
Affected VIN	



## 4. MAJOR FUNCTIONS

### 1) Overheating Protect For E-coupling

The E-coupling control unit calculates the E-coupling's slip (input/output speed), ambient temperature, magnetic coil resistance and etc. to protect the oil and clutch plate from being overheated. If the E-coupling get too hot, the E-coupling control unit reduces the torque to the rear wheels and sets a diagnostic trouble code (DTC).



If the oil temperature in the E-coupling is above 140°C or the temperature of the clutch plate is above 200°C, the warning lamp comes on which indicates the system has been overheated. If the oil temperature drops below 115°C or the clutch plate temperature drops below 160°C, the warning will be released.

### 2) Parking Brake Logic

If the rear wheels are not rotating correctly while driving with the parking brake applied, the E-coupling control unit calculates the difference between the CAN signals on wheel speed to reduce the torque to the rear wheels.

Modification basis	
Application basis	
Affected VIN	

### 3) Detecting Tire Out Of Specification

When a tire out of specification such as the spare tire is installed, the E-coupling control unit calculates the difference between the CAN signals on wheel speed to detect that the wrong tire has been installed. At this time, it reduces the torque to the rear wheels and sets a diagnostic trouble code (DTC).

### 4) 4WD LOCK mode (4WD LOCK mode switch depressed)



In 4WD LOCK mode, the 4WD LOCK control works in the same way as the AUTO mode, but it increases the driving force to the rear wheels more than in AUTO mode. If the rear wheel speed is over 40 km/h in LOCK mode, the vehicle enters into the 4WD AUTO mode automatically. If the speed is below 40 km/h, the vehicle returns to the 4WD LOCK mode.

### 5) PRNDL Logic

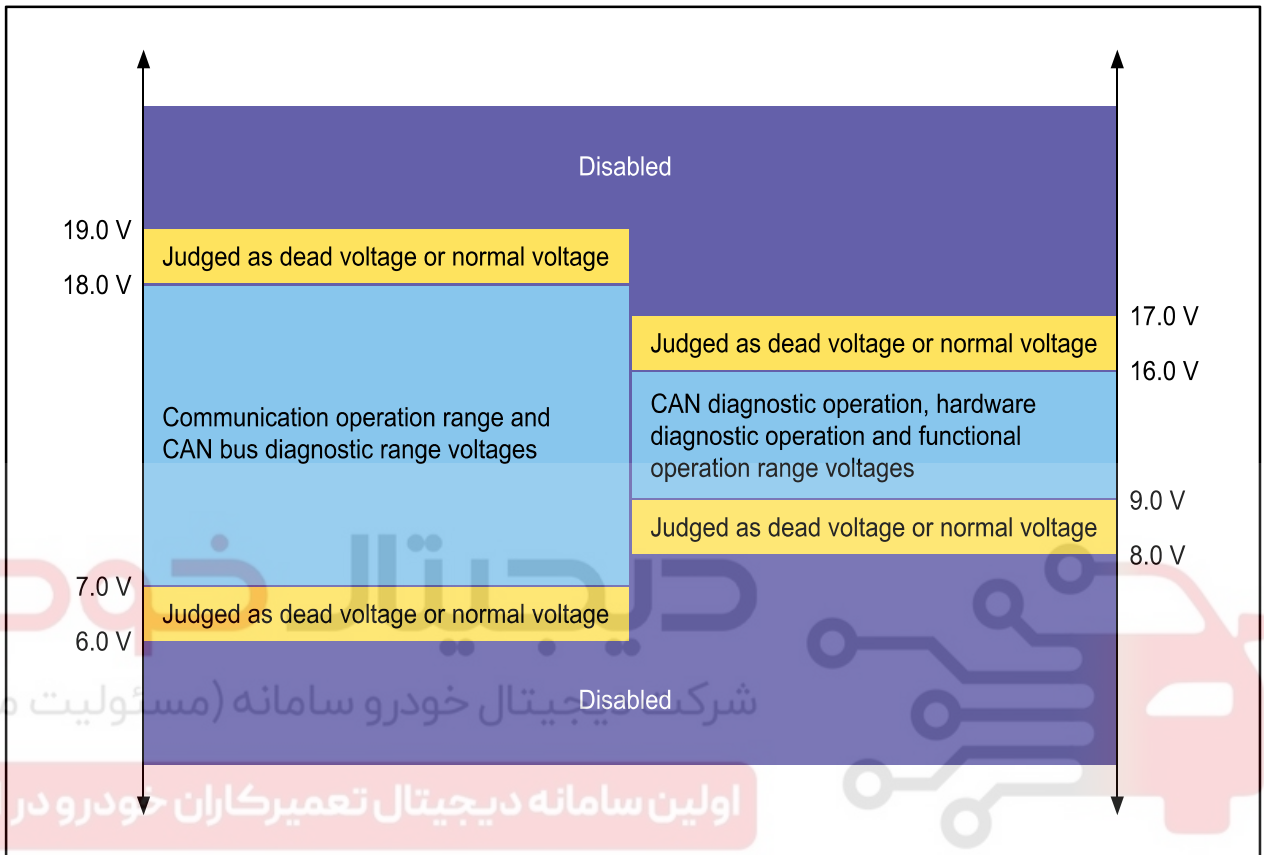


Function for reducing the noise and vibration caused by an operation of the gear shift lever from D to R, D to N, R to D and R to D.

Modification basis	
Application basis	
Affected VIN	

### 6) Operating Voltage Range Detection

The E-coupling control unit detects the supply voltage to determine CAN diagnostic operation, hardware diagnostic operation and functional operation range voltages. It restricts the functions of the 4WD and sets a diagnostic trouble code (DTC) if the supply voltage is too high or too low.

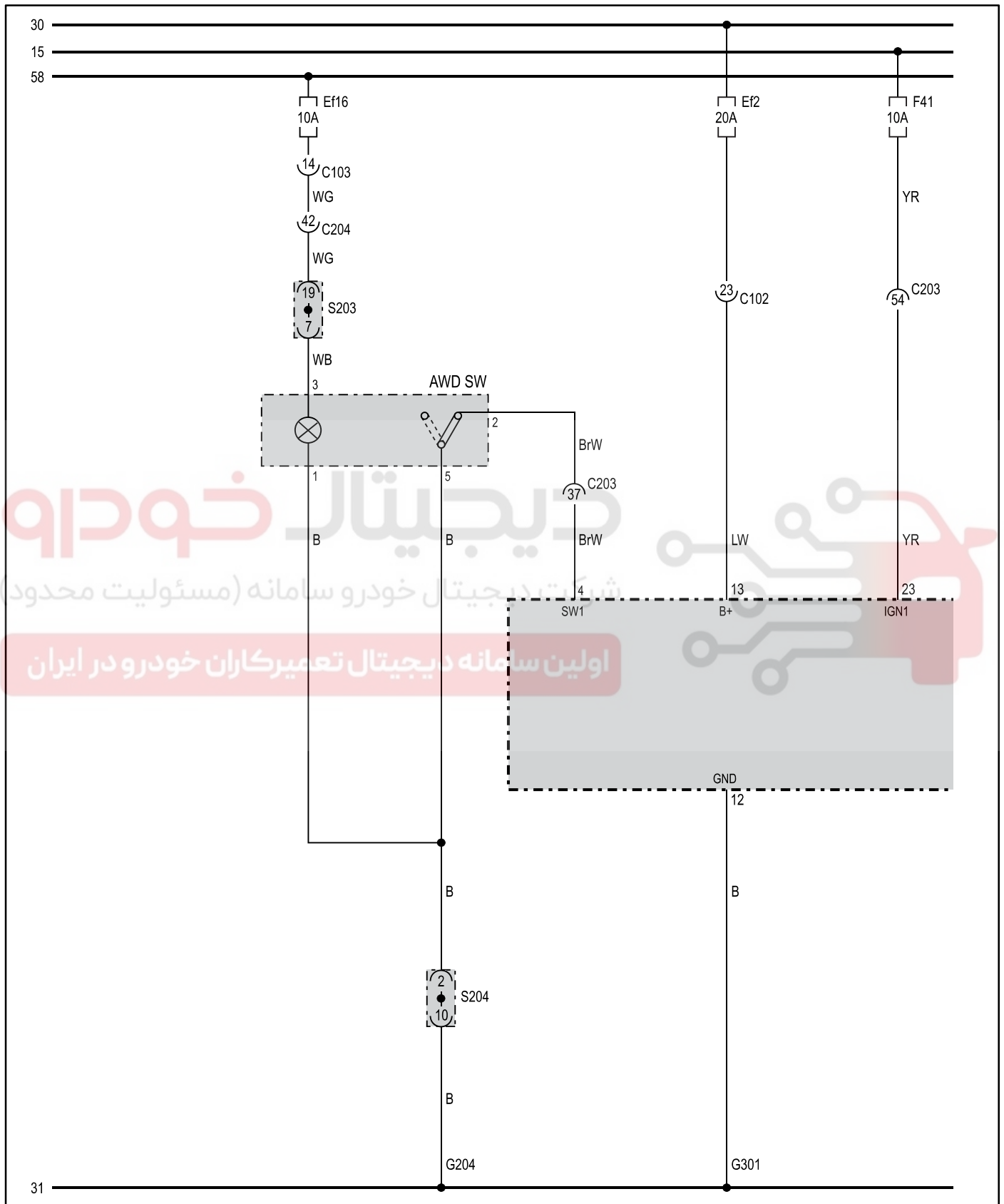


دیرجیتال خودرو (مسئولیت محدود)  
 اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

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- 6-SPEED M/T
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- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME

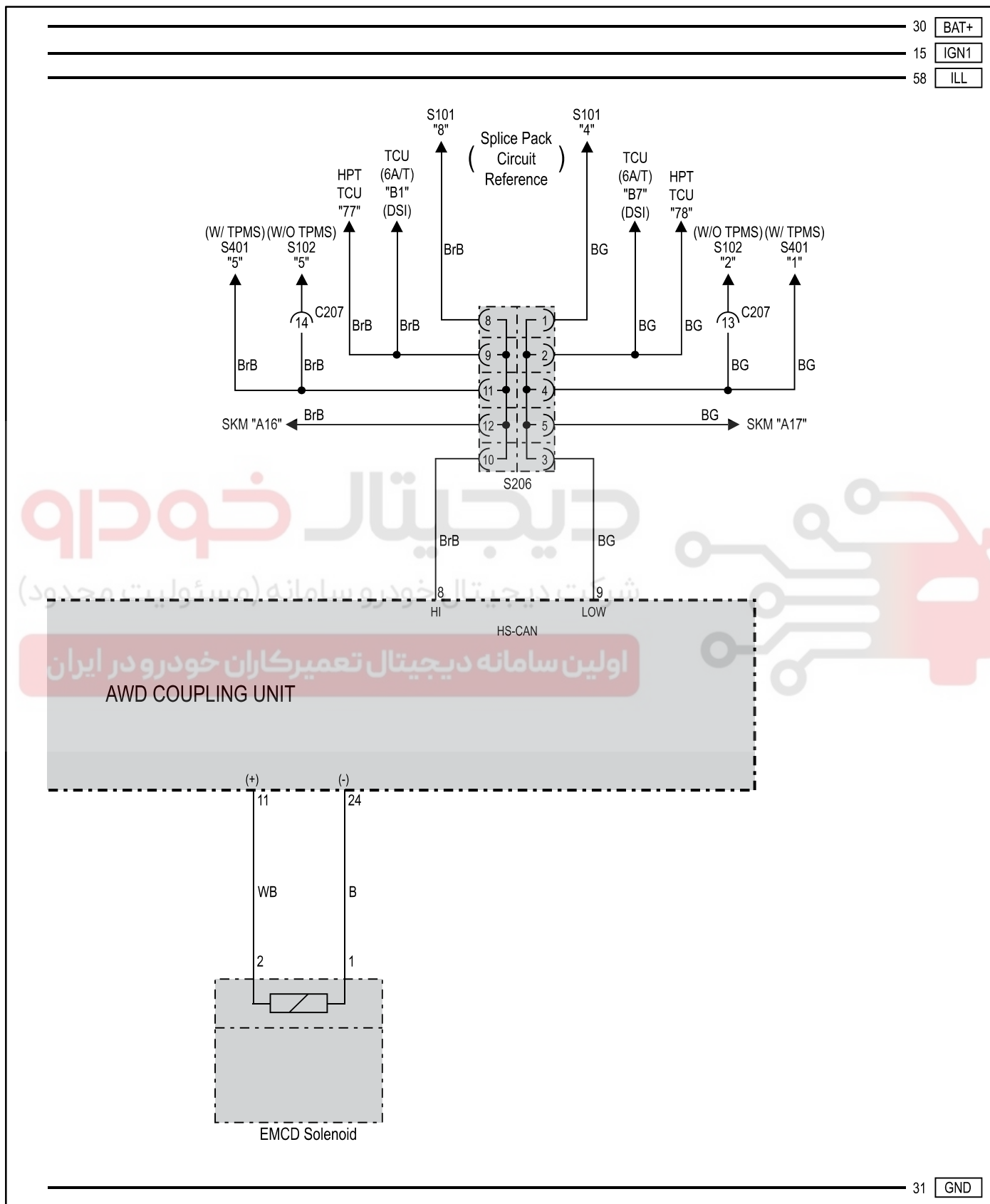
Modification basis	
Application basis	
Affected VIN	

### 5. CIRCUIT DIAGRAM



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Modification basis	
Application basis	
Affected VIN	



31 GND

Modification basis	
Application basis	
Affected VIN	

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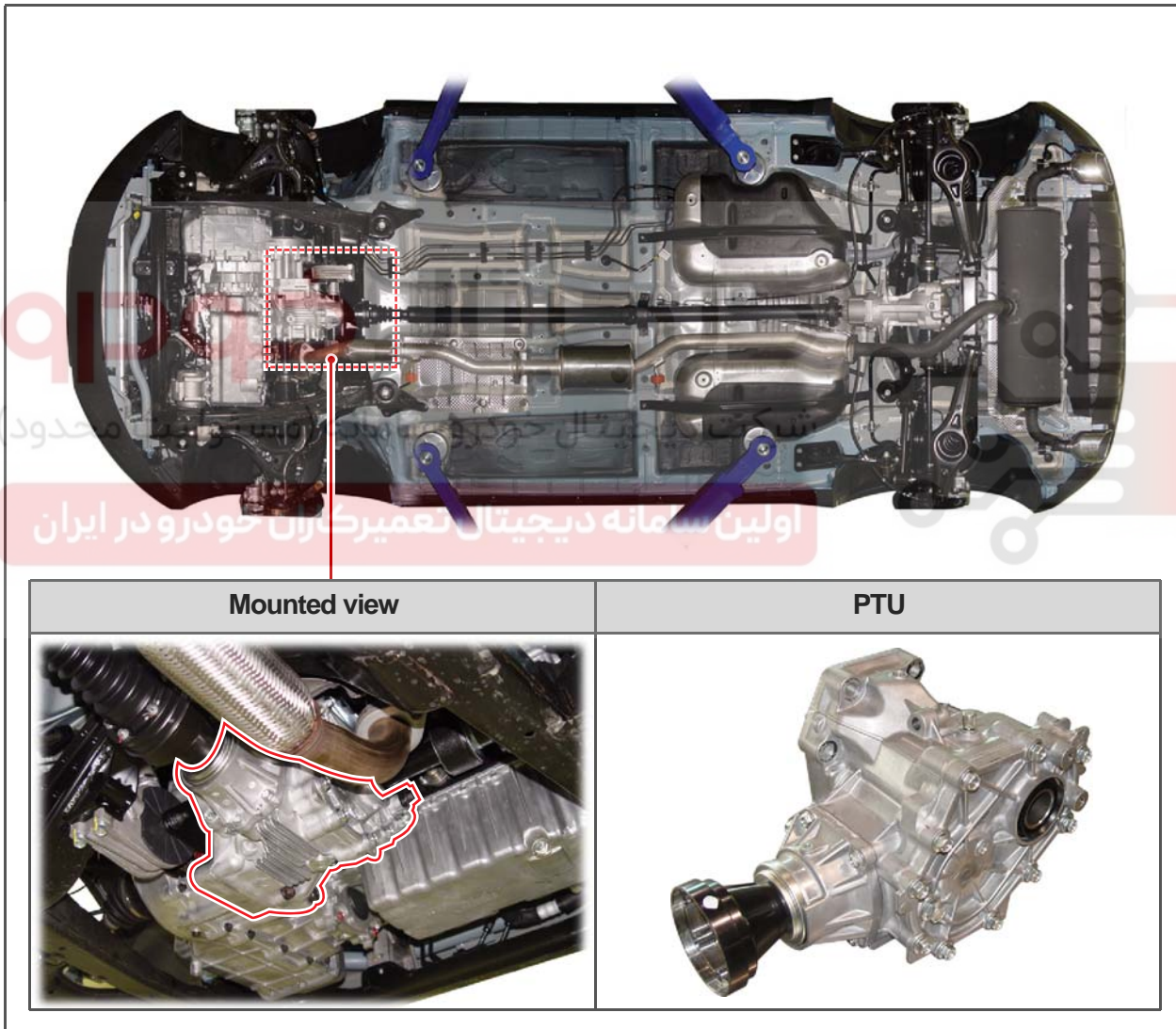
## CONFIGURATION AND FUNCTIONS

### 3270-01 PTU (POWER TRANSFER UNIT)

#### 1) Overview

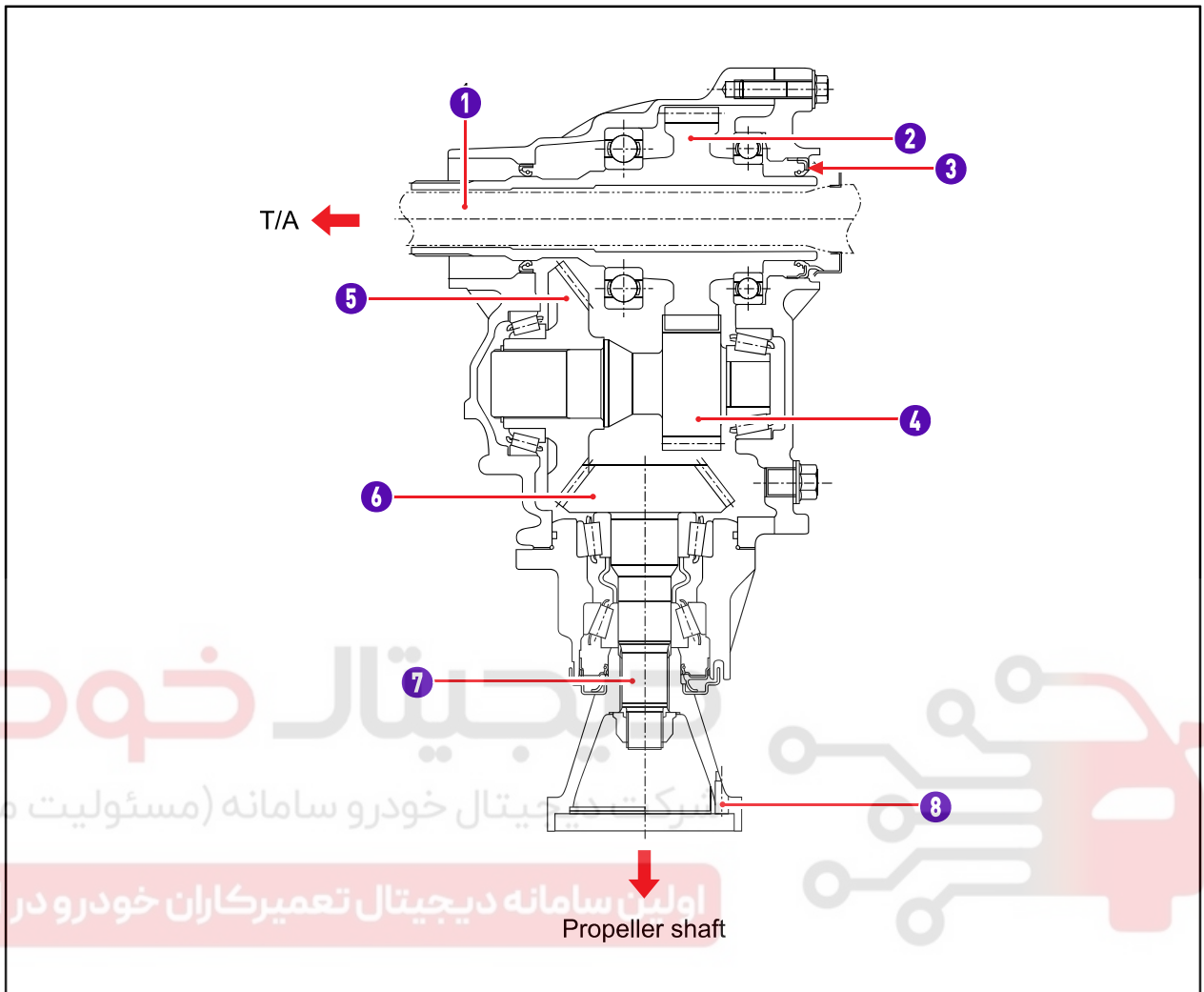
It is a device which changes the direction of the engine power by 90° through the combination of the helical gear and hypoid gear in the PTU, and delivers it to the E-coupling on the 4WD vehicle.

#### 2) Mounting Location



Modification basis	
Application basis	
Affected VIN	

### 3) Sectional View



- 1. Input shaft
- 2. Helical gear
- 3. Dust seal
- 4. Helical gear

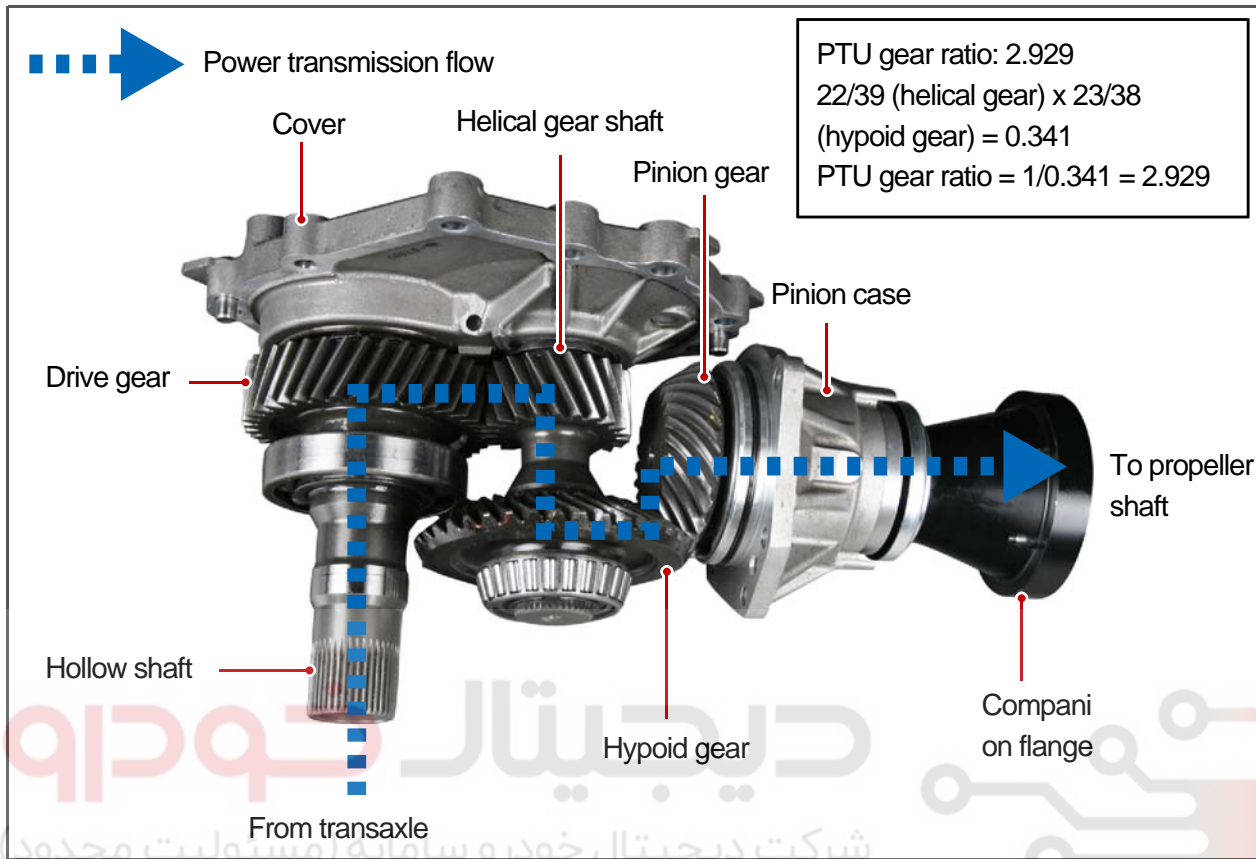
- 5. Hypoid gear
- 6. Hypoid gear
- 7. Output shaft
- 8. Companion flange

Modification basis	
Application basis	
Affected VIN	

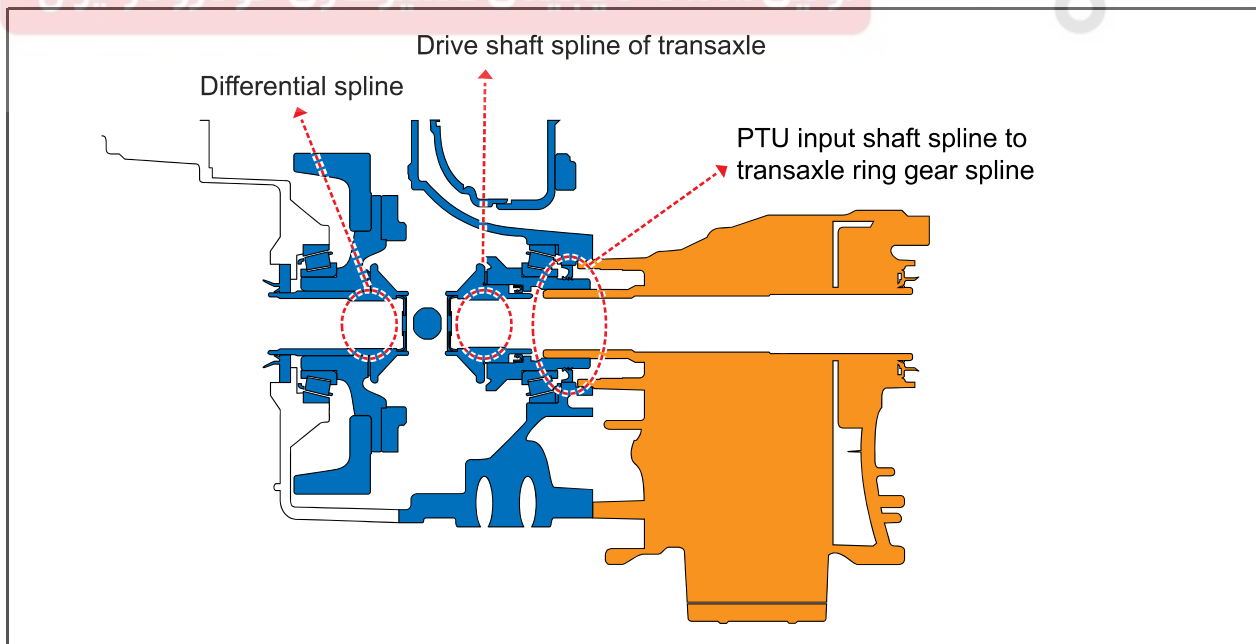
AWD  
KORANDO 2015.01

- CHASSIS GENERAL
- DSI 6 SPEED
- AIN 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED M/T
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- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME

### 4) Power Transmission Flow & Gear Configuration



### 5) Input Shaft Connection



The PTU is connected to the ring gear for the transaxle which drives the PTU constantly so that the propeller shaft always rotates.

Modification basis	
Application basis	
Affected VIN	



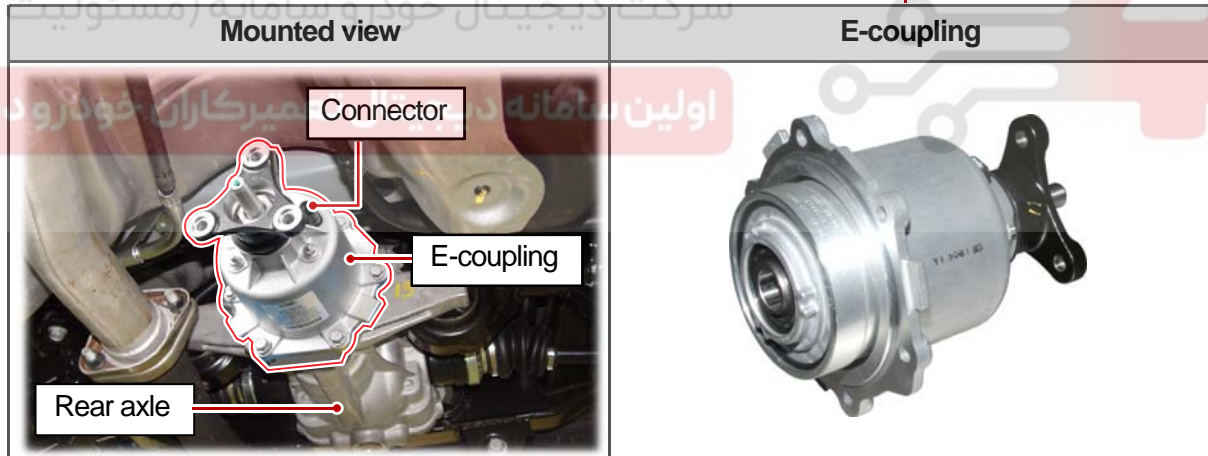
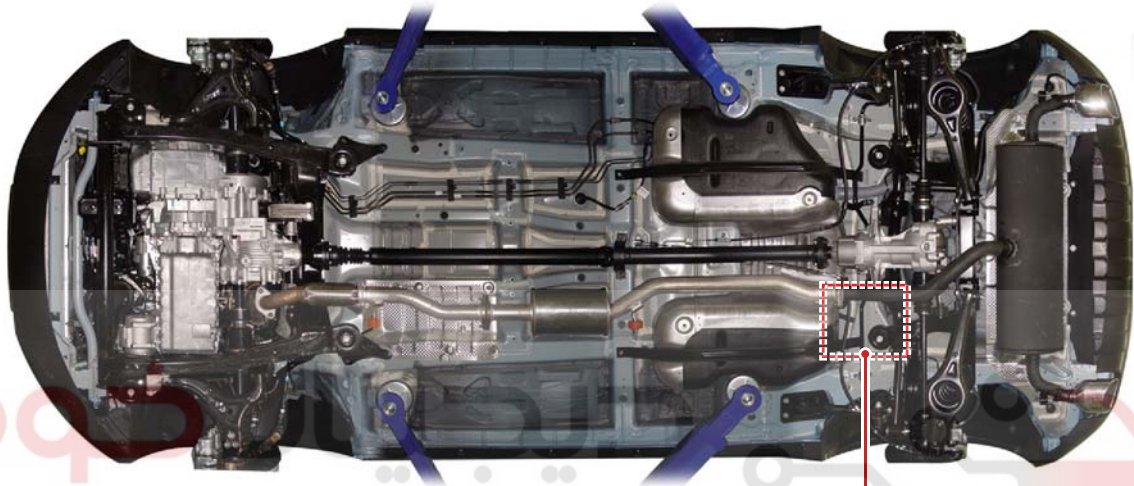
S.G.N.

**3280-01 E-COUPLING**

**1) Overview**

It delivers the power to the rear axle from the PTU and controls the torque distribution between the front wheel and rear wheel.

**2) Mounting Location**



Connector	
To coupling	To wiring

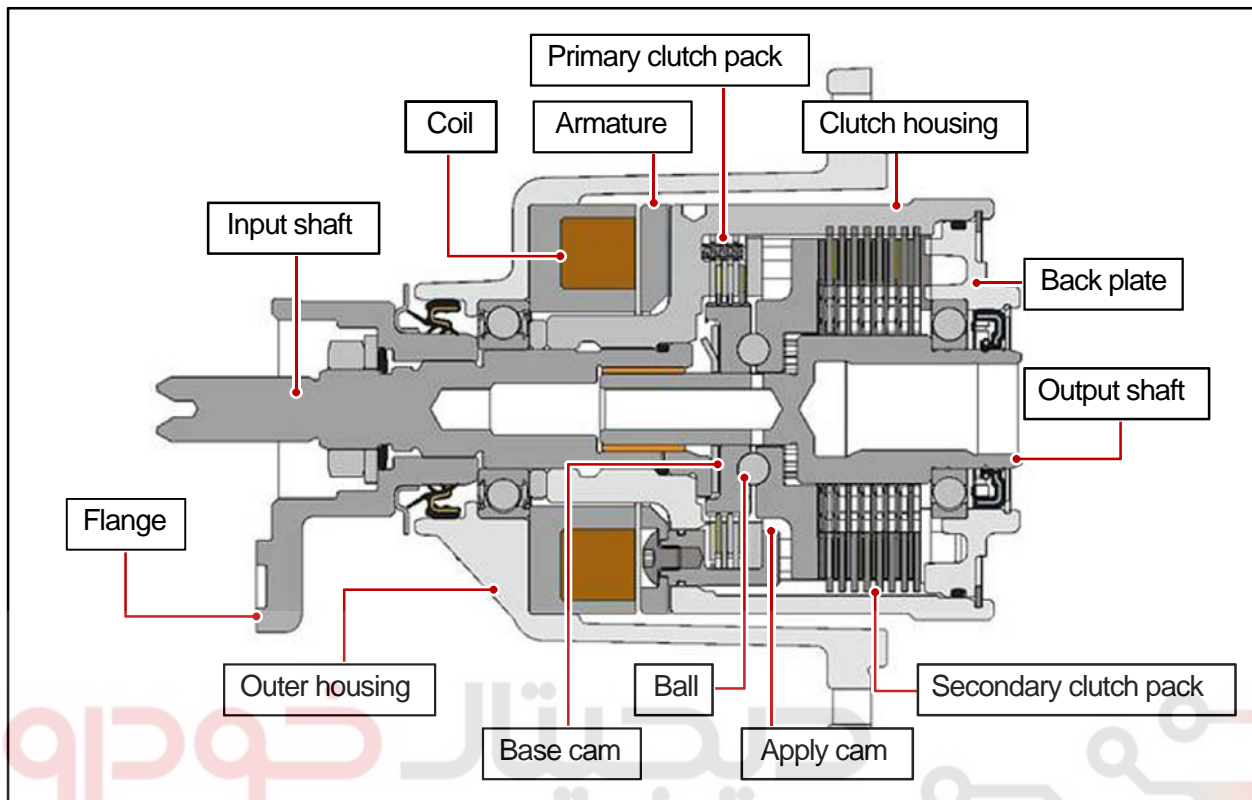
Pin No.	Function
1	Power+
2	Ground-

Modification basis	
Application basis	
Affected VIN	

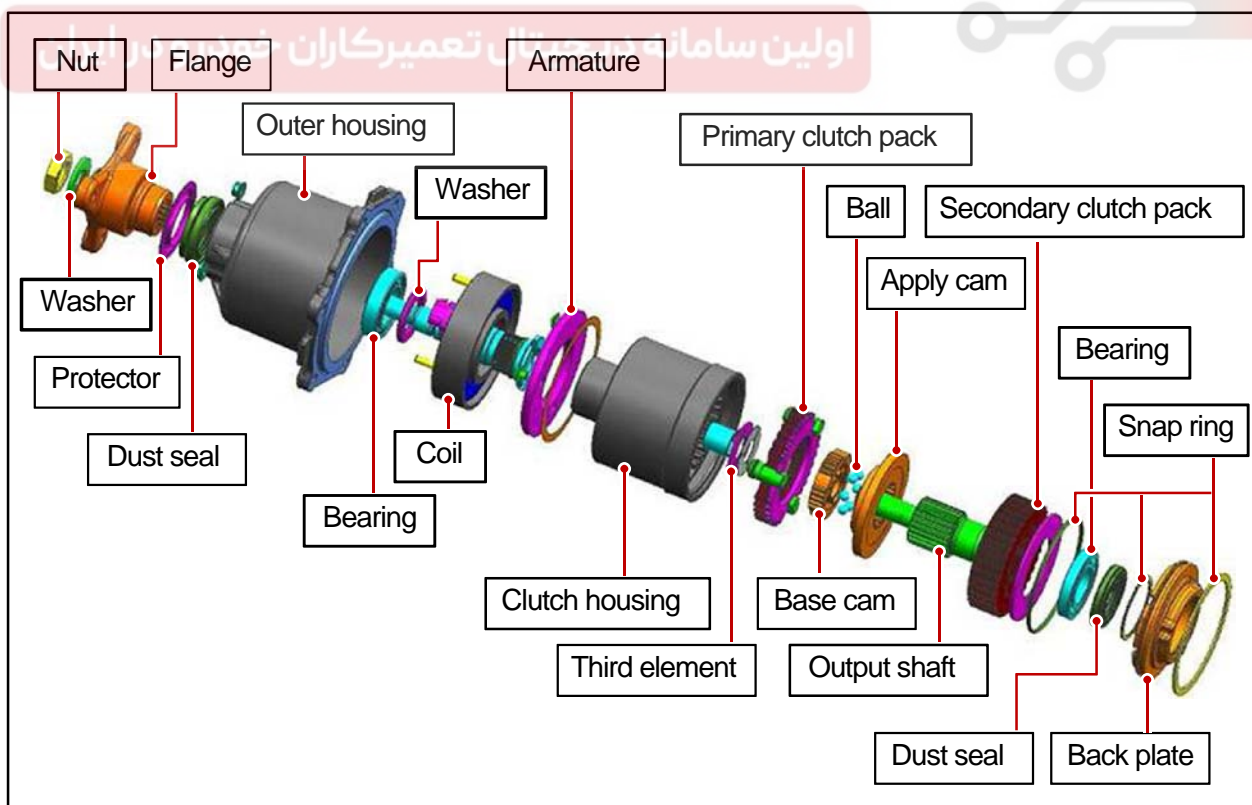
AWD  
KORANDO 2015.01

- CHASSIS GENERAL
- DSI 6 SPEED
- AINIS 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED MT
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME

### 3) Sectional View

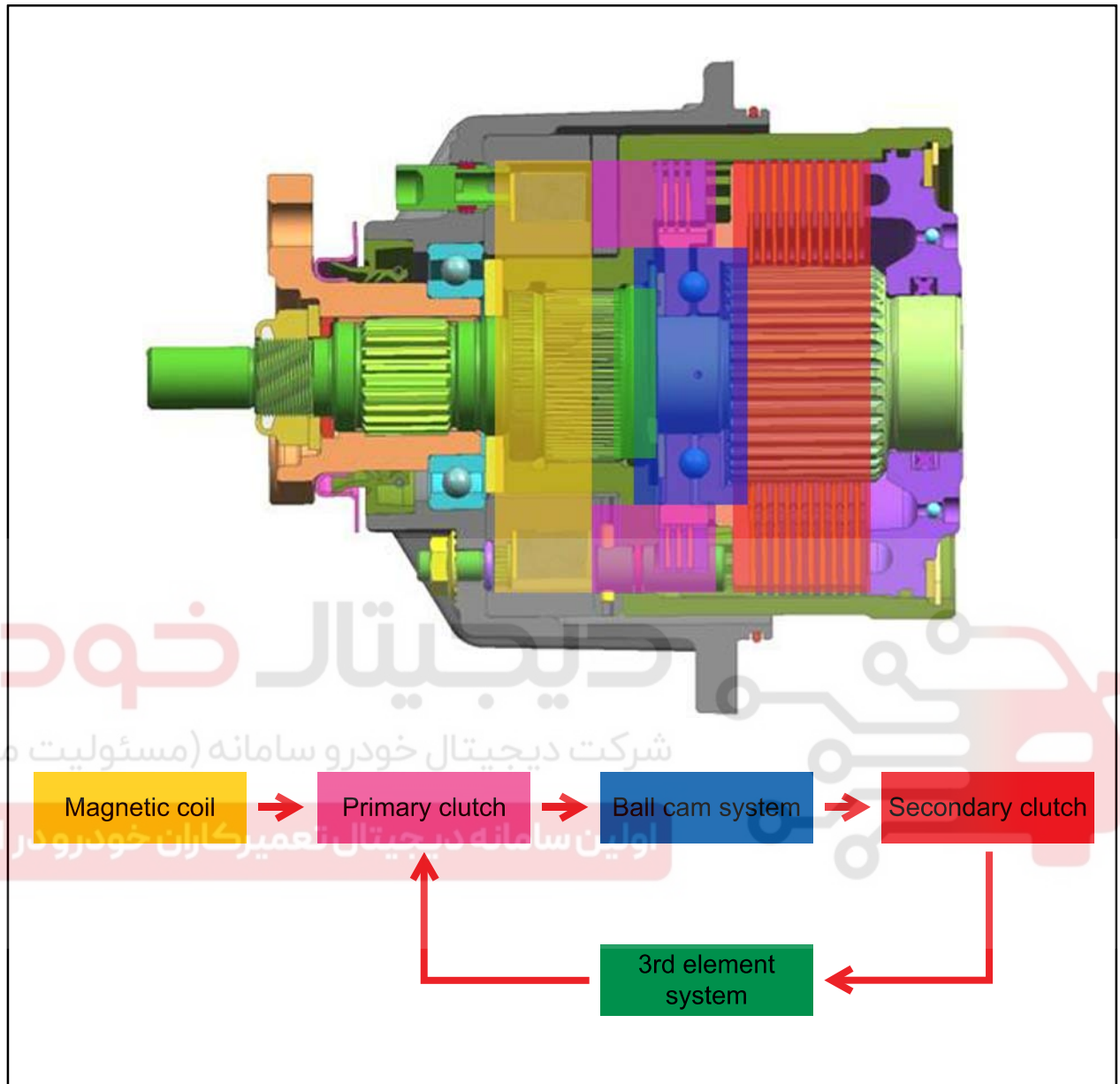


### 4) Internal Gear Configuration



Modification basis	
Application basis	
Affected VIN	

### 5) Operation Process



The driving force is delivered from the PTU to the input shaft via the propeller shaft and yoke flange. An electromagnet is energized according to the control commands from the E-coupling control unit and at the same time, magnetic flux is created in the coil based on the current value. The armature moves by a magnetic induction effect which causes the primary clutch to be engaged. If this happens, when there is a difference between the front axle and rear axle speeds, a speed difference between the base cam and apply cam also occurs. Then, the ball will be sliding and rolling along the grooves on the base cam and apply cam according to this relative speed deviation between the base cam and apply cam, and these cams are pushed back. Therefore, the ball cam system with a cam thrust pushes against the secondary clutch which is engaged between the housing and hub. The driving force is delivered from the housing to hub, driving pinion and rear differential and finally to the rear axle through this process.

Modification basis	
Application basis	
Affected VIN	

- CHASSIS GENERAL
- DSI 6 SPEED
- AIN 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED M/T
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME

S.G.N. **3280-17** E-COUPLING CONTROL UNIT

**1) Overview**

The E-coupling control unit is mounted on the bottom of the floor mat under the front passenger seat. It is a control unit which monitors the CAN signals (e.g. wheel speed, engine torque, pedal value, ABS/ESP CAN signal) from other units to determine the current value (clutch clamping force) for the electronic magnetic in the E-coupling.

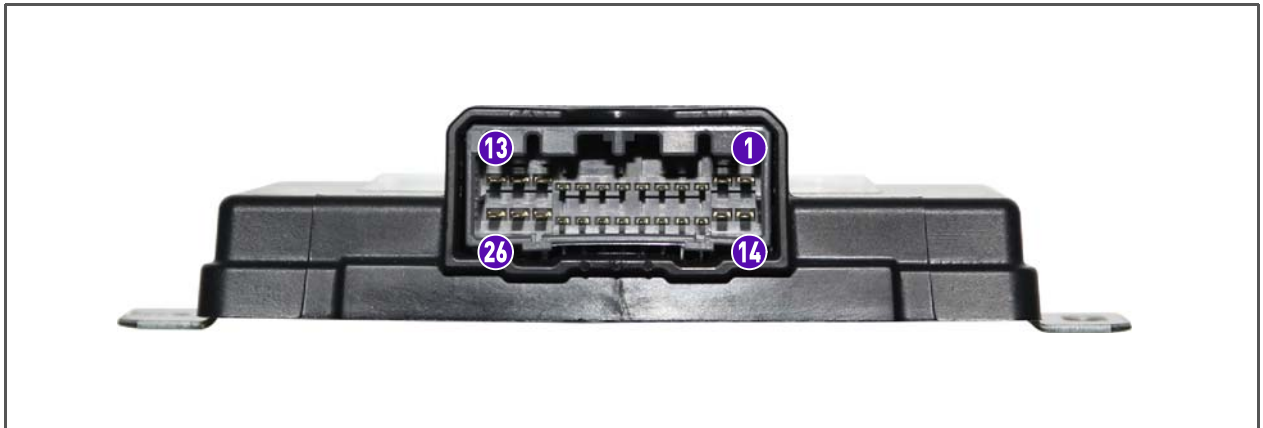
**2) Mounting Location**



AWD  
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Modification basis	
Application basis	
Affected VIN	

### 3) E-coupling Control Unit Connector



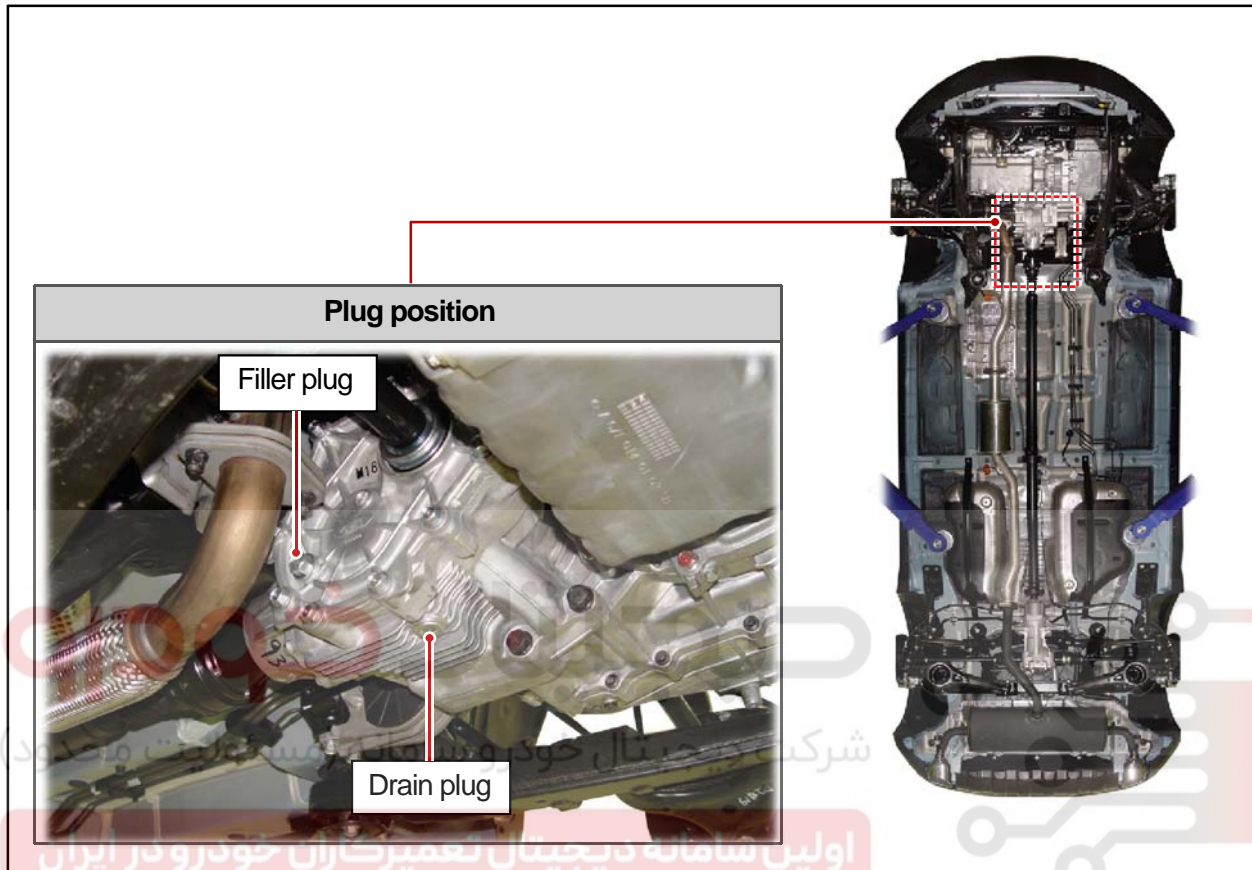
Pin No.	Function	Pin No.	Function
1	-	14	-
2	-	15	-
3	-	16	-
4	4WD LOCK mode switch	17	-
5	-	18	-
6	-	19	-
7	-	20	-
8	CAN HI	21	-
9	CAN LO	22	-
10	-	23	IGN 1+
11	Electromagnetic coil driver	24	Electromagnetic coil return
12	Ground	25	-
13	B+	26	-

Modification basis	
Application basis	
Affected VIN	

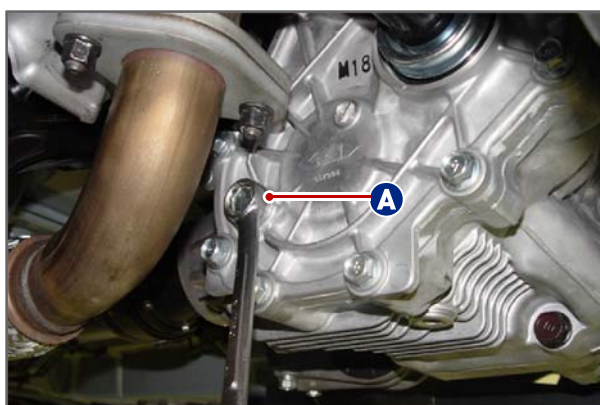
AWD  
KORANDO 2015.01

REMOVAL AND INSTALLATION

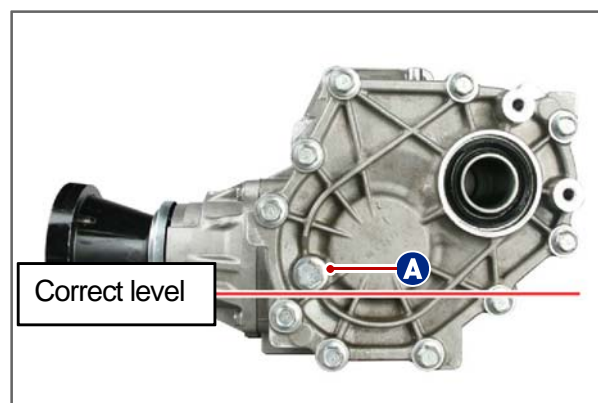
3270-00 CHANGE AND TOP UP PTU FLUID



1) Topping Up Oil



1. Remove the filler plug (A) and top up the oil with same specification up to below the threaded hole of the filler plug.



Modification basis	
Application basis	
Affected VIN	

## 2) Oil Change



1. Place the oil drain under the PTU and remove
2. the drain plug (H10) on the PTU to drain the oil.

When the drainage is completed, tighten the drain plug (A) to the specified torque.

**Tightening torque 24 to 34 Nm**



3. Remove the filler plug (17 mm) on the PTU, top up the oil with same specification and tighten the filler plug to the specified torque.

**NOTE**

Top up the oil up to below the threaded hole of the filler plug.

**Tightening torque 24 to 34 Nm**

**Oil specification**

Oil specification	IDEMITSU LW 80W/90
Oil volume	≈ 0.58 l
Oil change interval	Check and add at every 30,000 km of driving or 1 year, and replace as necessary (however, replace at every 60,000 km of driving under severe conditions)



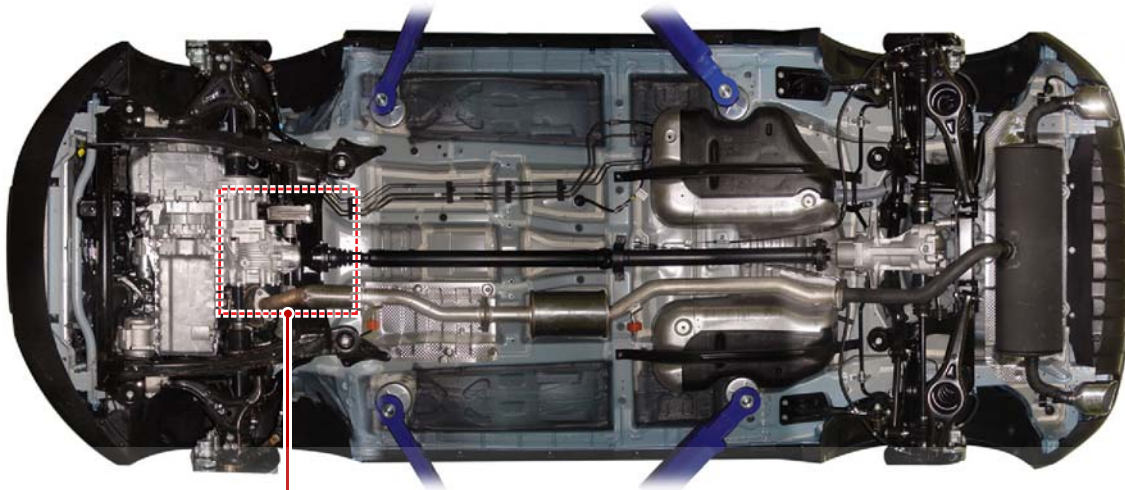
Modification basis	
Application basis	
Affected VIN	

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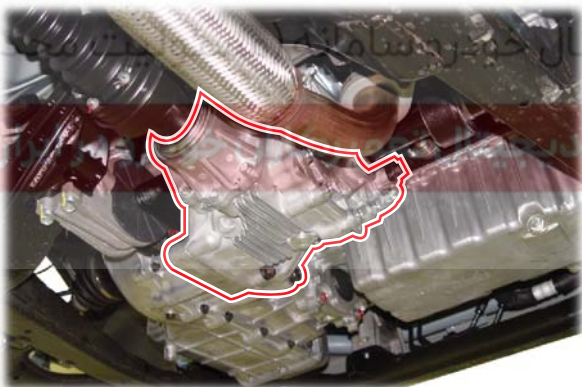
- CHASSIS GENERAL
- DSI 6 SPEED
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- DRIVE SHAFT
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- WHEEL & TIRE
- SUB FRAME

S.G.N. 3270-01 PTU(GKN)

Block diagram (vehicle with A/T)



Mounted view



PTU

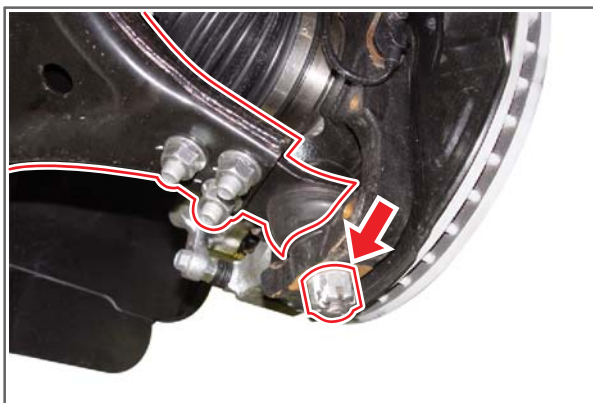
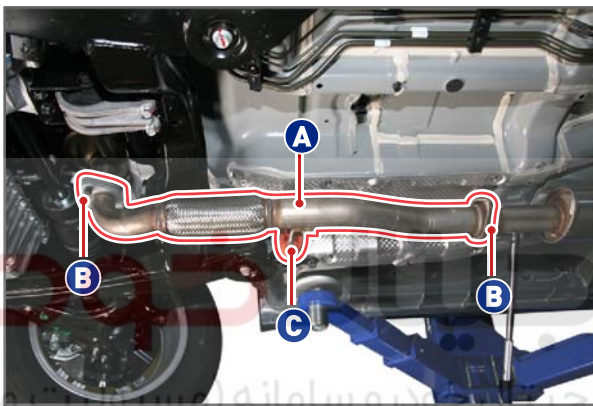
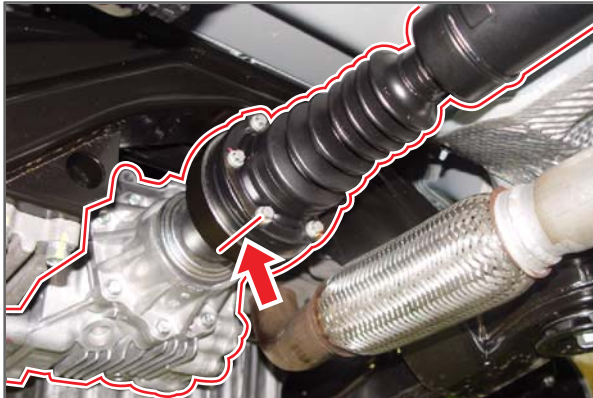


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Modification basis	
Application basis	
Affected VIN	



Preceding work - Remove the front wheel tire.



1. Place the vehicle on the lift and remove the propeller shaft.



**NOTE**

Refer to "PROPELLER SHAFT" under "REMOVAL AND INSTALLATION" in "PROPELLER SHAFT SYSTEM".



**CAUTION**

Do not forget to make an assembly mark on the propeller shaft prior to removing it.

2. Unscrew the 4 mounting nuts (B, 12 mm) to remove the mounting hanger (C) and remove the exhaust pipe No. 1 (A).

3. Unscrew the hub nuts (30 mm). (same for each side)

**Tightening torque 245 to 343 Nm**

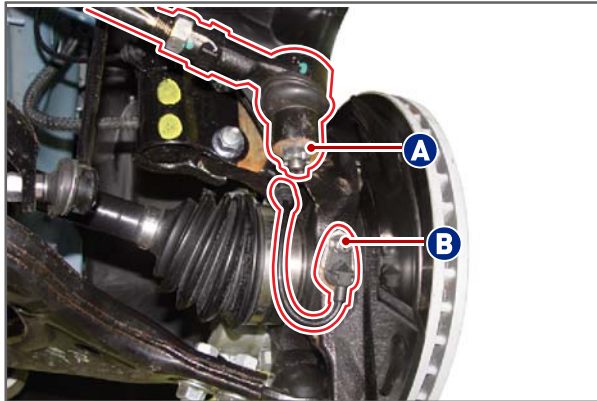
4. Remove the split pin at the ball joint mounting nut for the lower arm and unscrew the mounting nut (24 mm) from the ball joint.

**Tightening torque 117.6 to 156.8 Nm**

Modification basis	
Application basis	
Affected VIN	

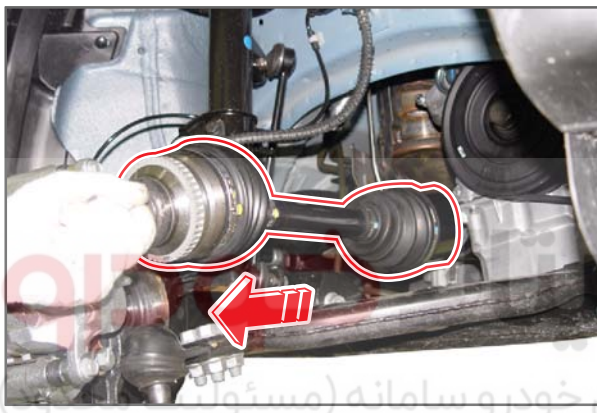
AWD  
KORANDO 2015.01

- CHASSIS GENERAL
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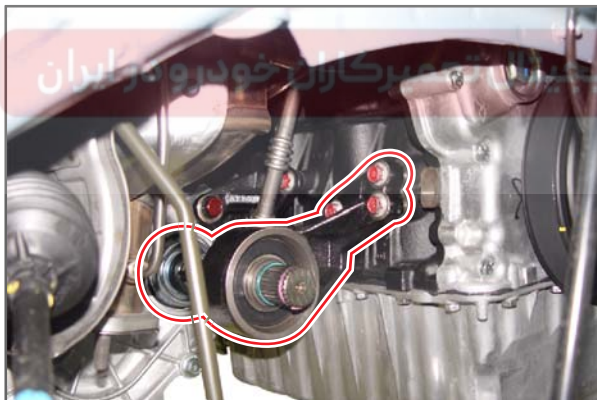


5. Remove the split pin, unscrew the mounting nut (17 mm) on the tie rod end (A), unscrew the mounting bolt (10 mm) and remove the wheel speed sensor (B) from the knuckle. (same for each side)

<b>Tie rod end Tightening torque for mounting nut</b>	<b>44.1 to 53.9 Nm</b>
<b>Wheel speed sensor Tightening torque for mounting bolt</b>	<b>7.8 to 11.7 Nm</b>

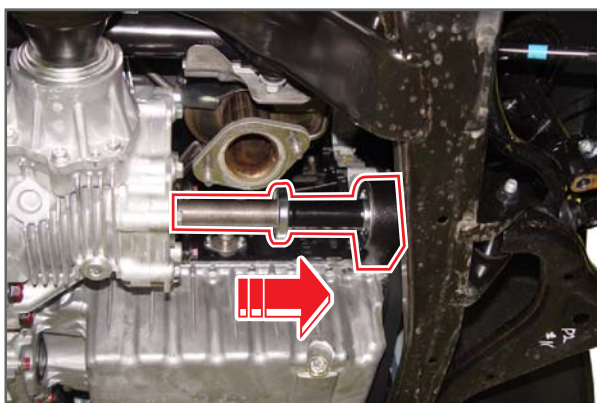


6. Remove the LH and RH drive shafts.



7. Remove the RH drive shaft and unscrew the 3 mounting bolts (12 mm) from the interm shaft.

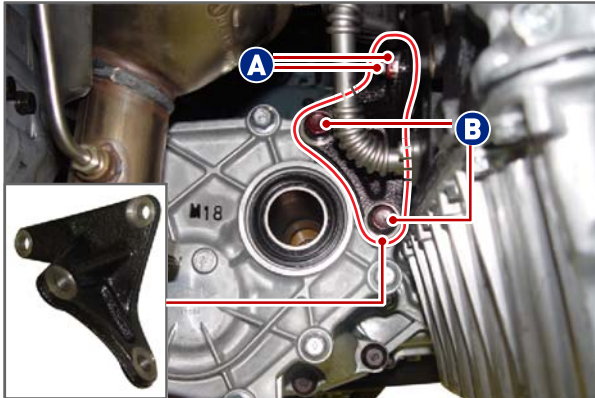
**Tightening torque 24.5 to 34.3 Nm**



8. Remove the interm shaft from the PTU.

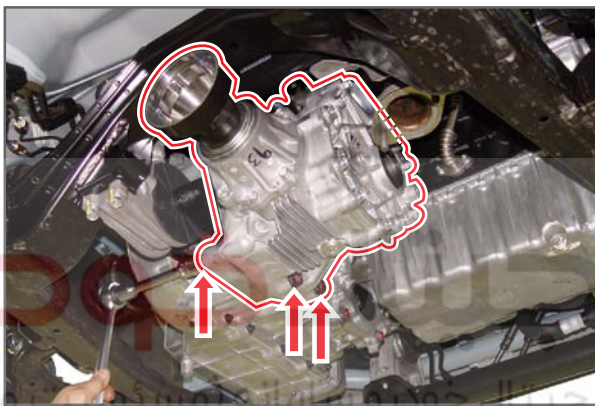


Modification basis	
Application basis	
Affected VIN	



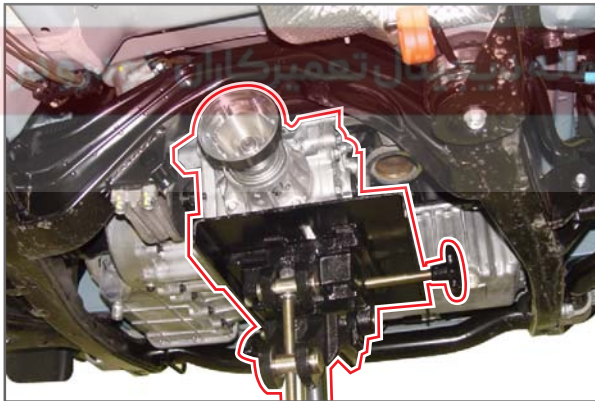
9. Unscrew the mounting bolts (14 mm, 2 off; 12 mm 2 off) and remove the mounting bracket from the PTU.

<b>Mounting bolt (12 mm) Tightening torque (A)</b>	<b>24.5 to 34.3 Nm</b>
<b>Mounting bolt (14 mm) Tightening torque (B)</b>	<b>8.8 to 11.8 Nm</b>



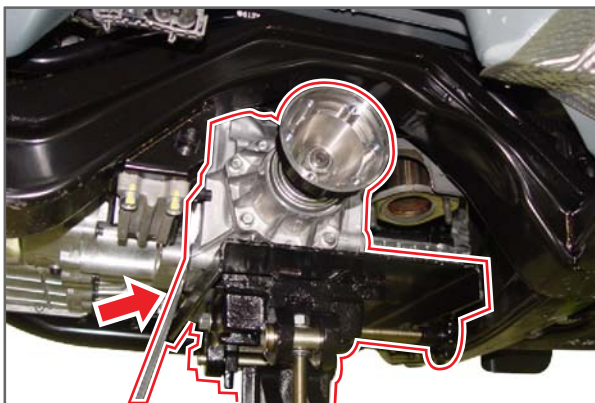
10. Unscrew the 3 mounting bolts (19 mm) on the PTU lower part.

**Tightening torque 80.4 to 100 Nm**



11. Position the jack under the PTU and unscrew the 3 mounting bolts (19 mm) on the PTU upper part.

**Tightening torque 80.4 to 100 Nm**

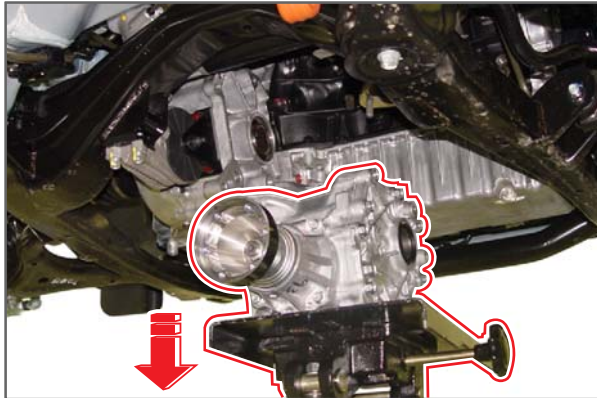


12. Insert the flat-bladed screwdriver between the PTU assembly and transaxle to detach the PTU assembly.

Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

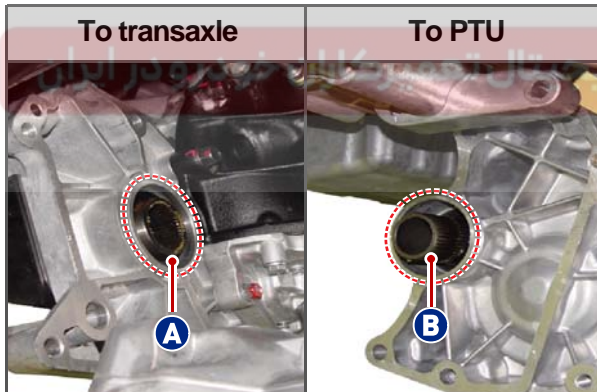
- CHASSIS GENERAL
- DSI 6 SPEED
- AINIS 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED MT
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME



13.Remove the PTU assembly while lowering the jack slowly.



14.Install in the reverse order of removal.



**CAUTION**  
Apply the grease to the spline part of the transaxle (A) and spline part of the PTU input shaft (B) when fitting PTU assembly.



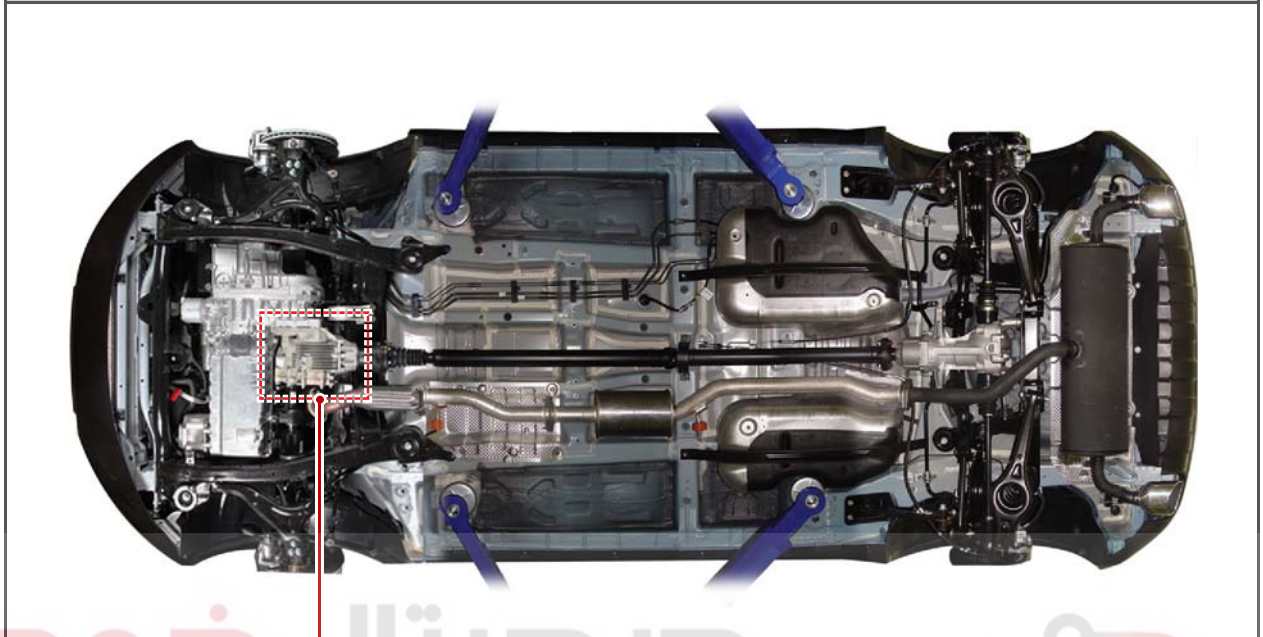
**CAUTION**  
Take care not to damage the oil seal of the PTU while installing the interm shaft.

Modification basis	
Application basis	
Affected VIN	

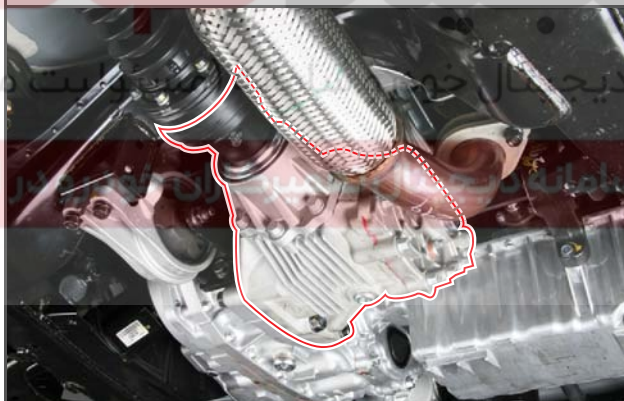
S.G.N.

### 3270-01 PTU(M & M)

Block diagram (vehicle with A/T)



Mounted view



PTU



Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

CHASSIS  
GENERAL

DSI 6  
SPEED

AISIN 6  
SPEED

HPT  
6AT(6F2)

6-SPEED  
MT

CLUTCH

PROPELLER

DRIVE  
SHAFT

SUSPENSION

AWD

BRAKE  
SYSTEM

ANTI-  
LOCK

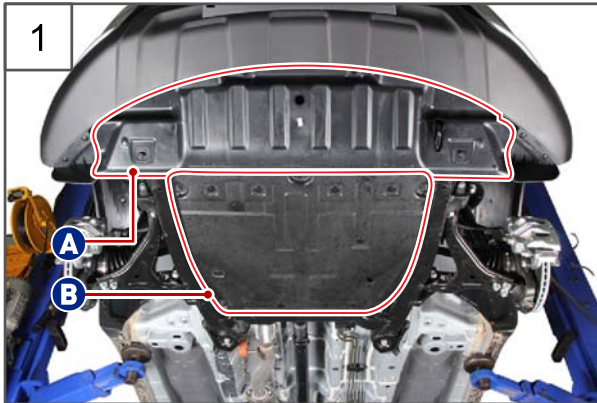
ELECTRONIC

POWER  
STEERING

ELECTRIC  
POWER

WHEEL &  
TIRE

SUB  
FRAME



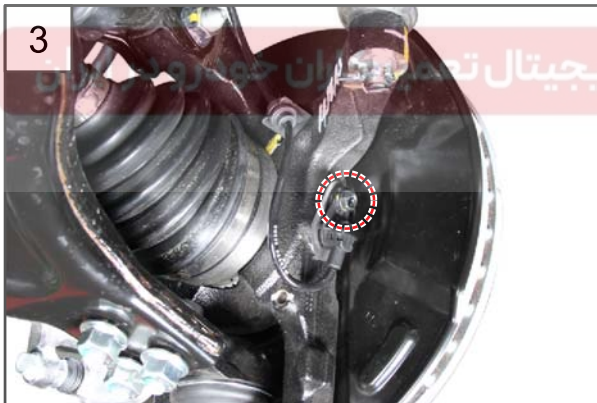
1. Remove the front under cover (A) and rear under cover (B) under the vehicle.



2. Remove the RH front brake caliper assembly.

**NOTE**

Refer to "FRONT BRAKE CALIPER ASSEMBLY" in "REMOVAL AND INSTALLATION" under "BRAKE SYSTEM".



3. Unscrew the RH front wheel speed sensor mounting bolt (10 mm) and separate the wheel speed sensor from the knuckle.



4. Unscrew a RH stabilizer bar link upper mounting nut (17 mm) and remove the link from the front shock absorber.

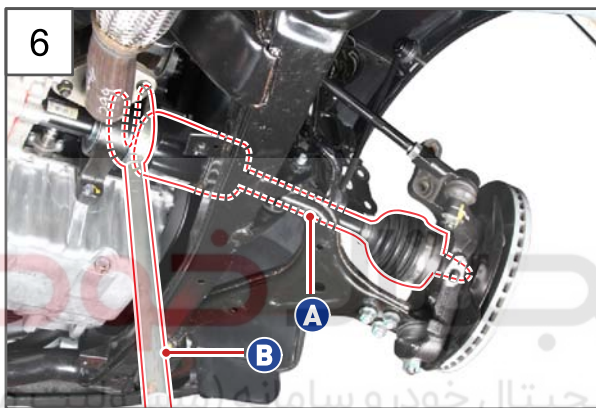
**Tightening torque 44.1 ~ 53.9Nm**

Modification basis	
Application basis	
Affected VIN	



5. Unscrew 2 RH shock absorber lower mounting bolts (17 mm) and nuts (19 mm).

**Tightening torque** 137.2 ~ 156.8Nm



6. Separate the right drive shaft (A) from the intermediate shaft using the special tool (B).

**CAUTION**

Do not pull the drive shaft from the outside with an excessive force. It causes the boot to tear or bearing to damage.



7. Unscrew the 3 intermediate shaft mounting bolts (12 mm).

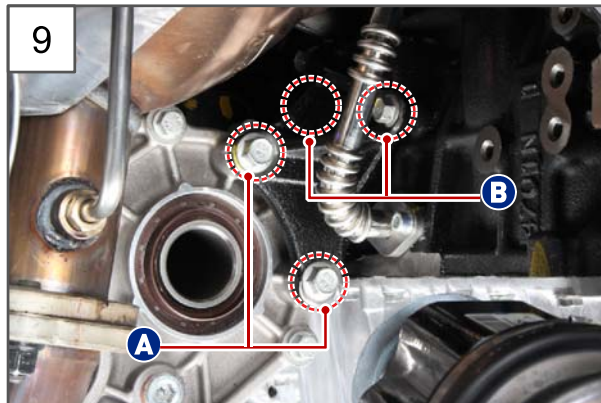
**Tightening torque** 24.5 ~ 29.4Nm



8. Remove the intermediate shaft.

Modification basis	
Application basis	
Affected VIN	

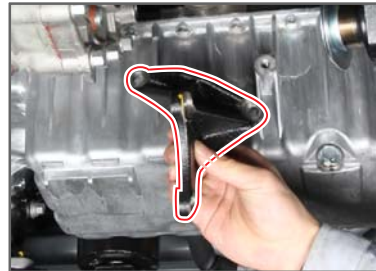
AWD  
KORANDO 2015.01



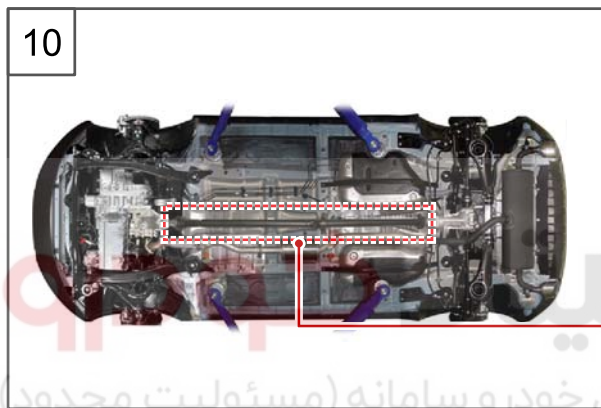
9. Unscrew the PTU bracket mounting bolts (A) (14 mm, 2 off) and (B) (12 mm, 2 off) and remove the PTU bracket.

**Tightening torque (A) 24.5 ~ 34.3Nm**

**Tightening torque (B) 8.8 ~ 11.8Nm**



10. Remove the propeller shaft.



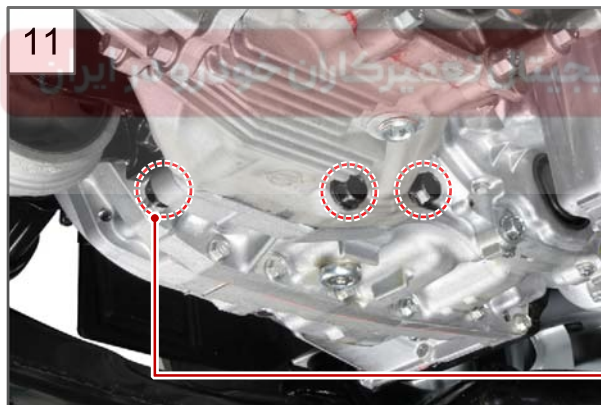
**NOTE**

Refer to "PROPELLER SHAFT" under "REMOVAL AND INSTALLATION" in "PROPELLER SHAFT SYSTEM".

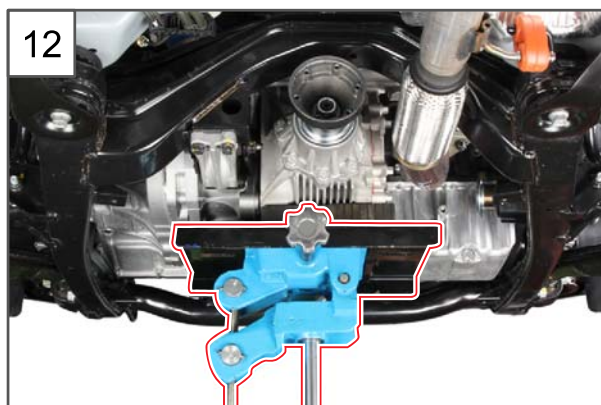


11. Unscrew the 3 PTU lower mounting bolts (19 mm).

**Tightening torque 80.4 ~ 100Nm**

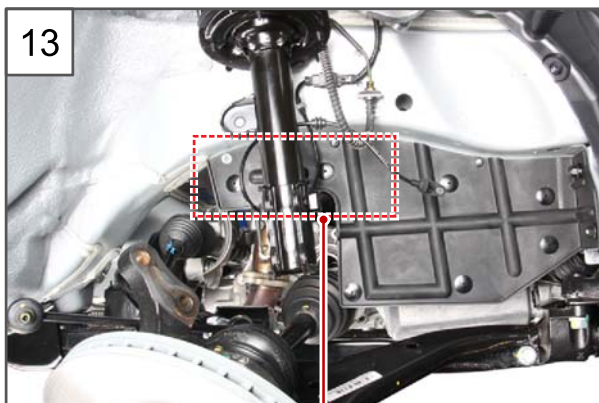


12. Support the jack under PTU securely.



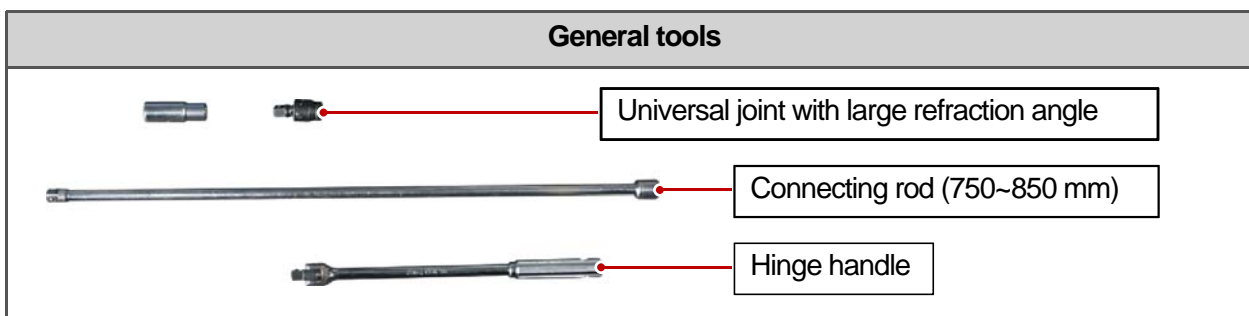
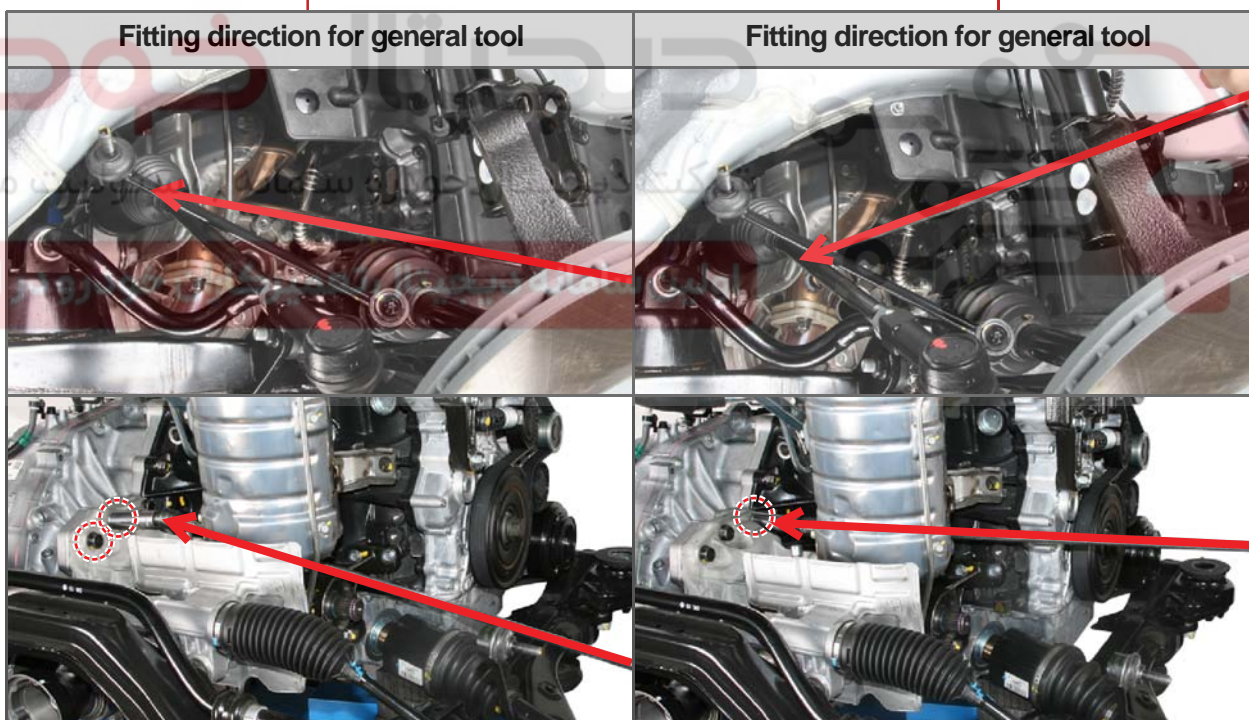
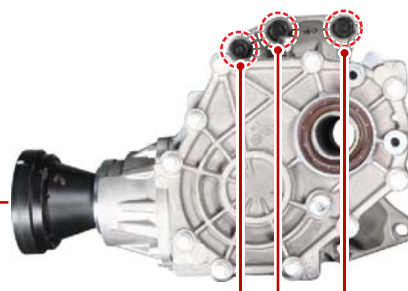
Modification basis	
Application basis	
Affected VIN	





13. Unscrew the 3 PTU upper mounting bolts (19 mm) on the right-hand side as follows:

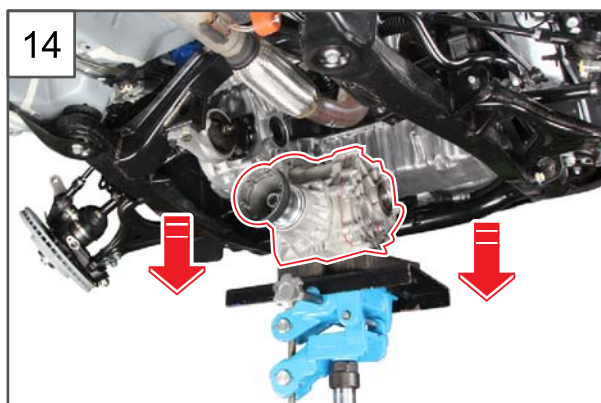
**Tightening torque 80.4 ~ 100Nm**



Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

- CHASSIS GENERAL
- DSI 6 SPEED
- AIN 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED MT
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME



14. Remove the PTU assembly.

**CAUTION**

Pay attention to the interference to CDPF lower part when removing the PTU.



15. Install in the reverse order of removal.



دیجیتال خودرو (مسئولیت محدود)

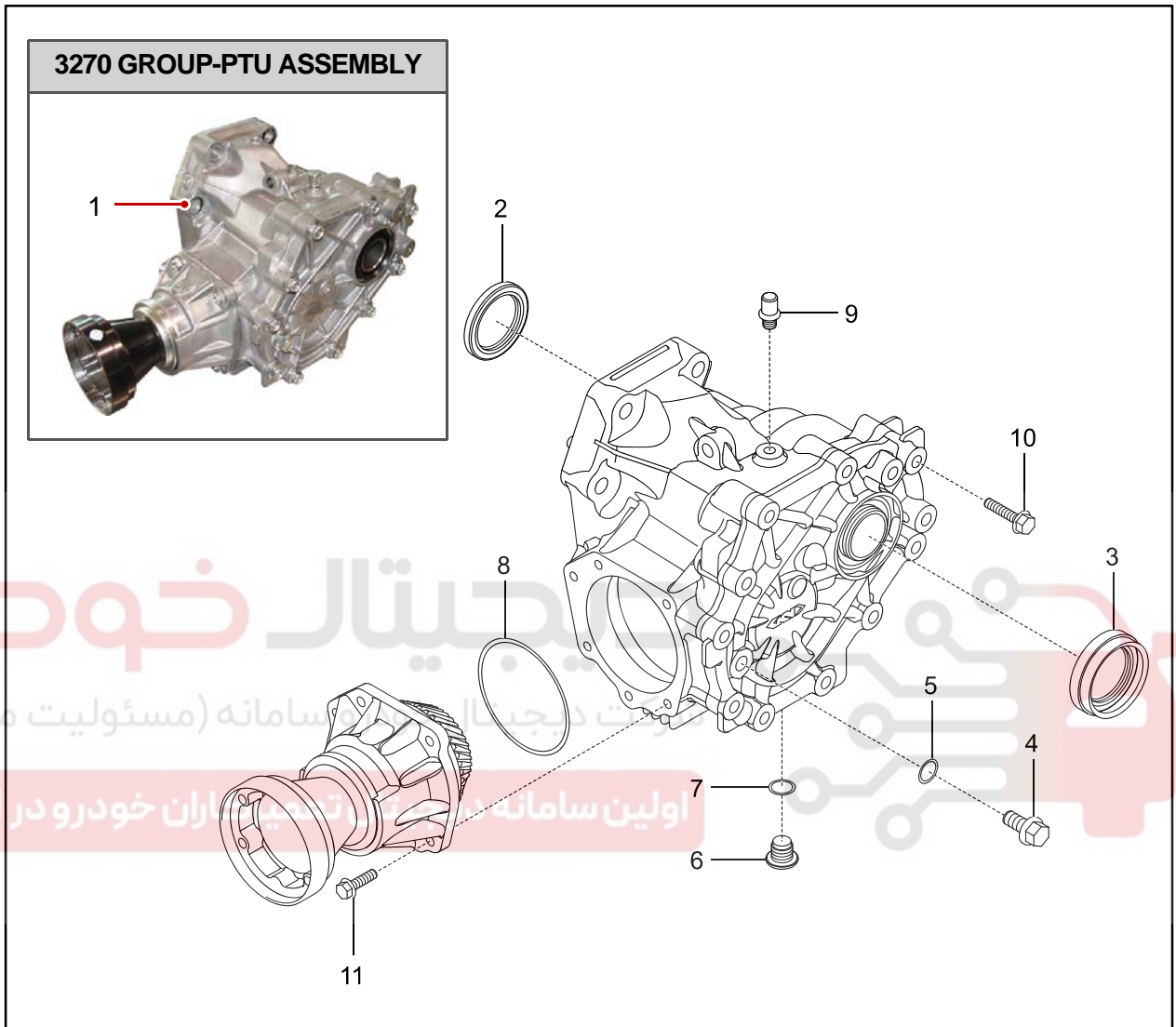
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

Modification basis	
Application basis	
Affected VIN	

S.G.N.

**3271-00** DISMANTLING AND ASSEMBLING OF PTU

**1) Block Diagram**

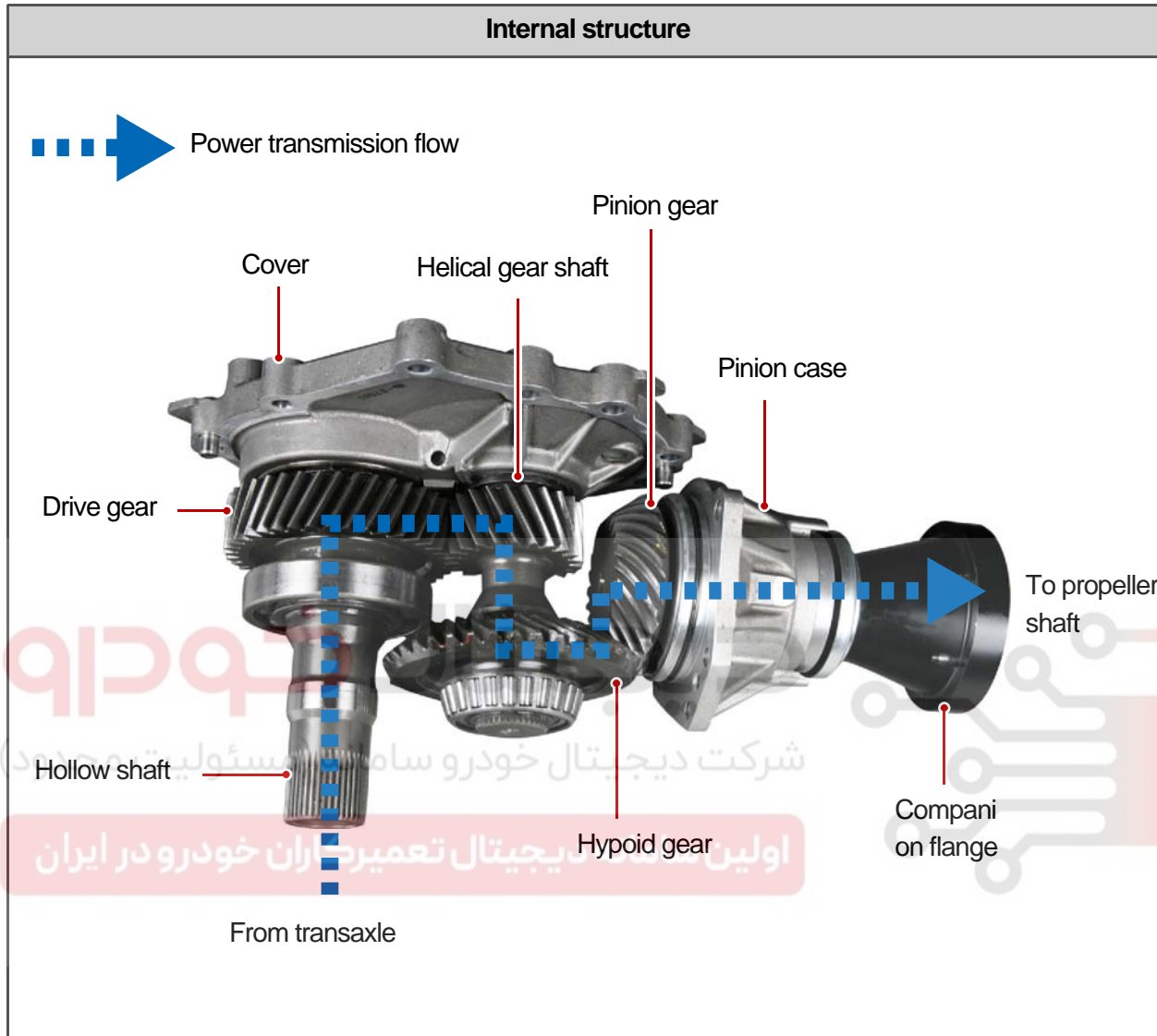


- 1. PTU assembly
- 2. Input oil seal
- 3. Oil seal cover
- 4. Plug
- 5. Gasket
- 6. Magnet plug
- 7. Gasket
- 8. O-ring sleeve seal
- 9. Vent plug
- 10. Bolt
- 11. Bolt

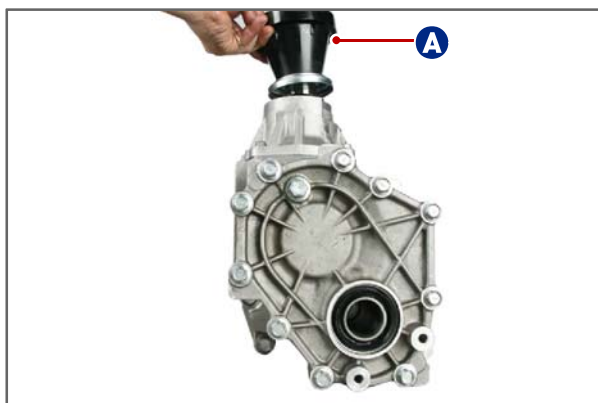
Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

CHASSIS GENERAL  
DSI 6 SPEED  
AISIN 6 SPEED  
HPT 6AT(6F2)  
6-SPEED MT  
CLUTCH  
PROPELLER  
DRIVE SHAFT  
SUSPENSION  
AWD  
BRAKE SYSTEM  
ANTI-LOCK  
ELECTRONIC  
POWER STEERING  
ELECTRIC POWER  
WHEEL & TIRE  
SUB FRAME



## 2) Removal and Installation



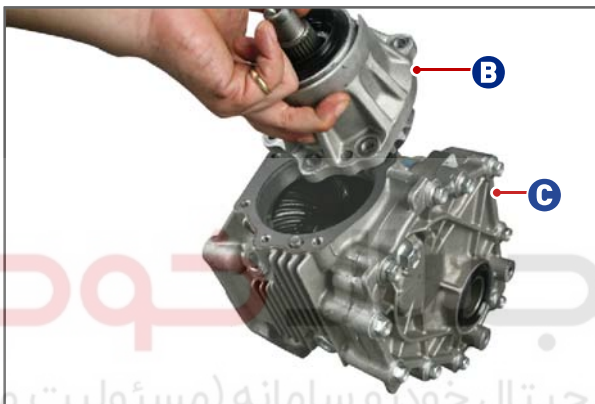
1. Remove the companion flange (A) from the PTU assembly.

Modification basis	
Application basis	
Affected VIN	



2. Unscrew the 6 mounting bolts (12 mm) from the pinion case.

**Tightening torque 17.7 to 24 Nm**

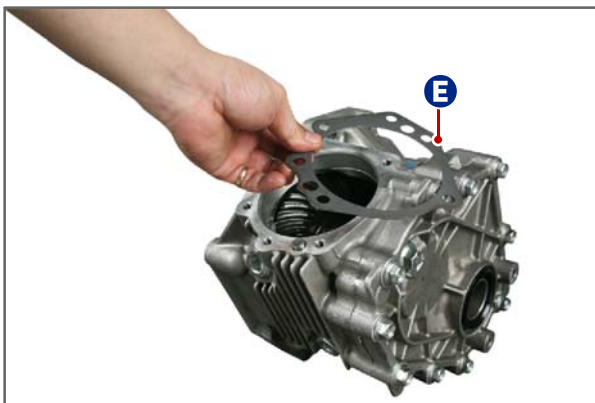


3. Carefully remove the pinion case (B) from the PTU case (C) using the tap.



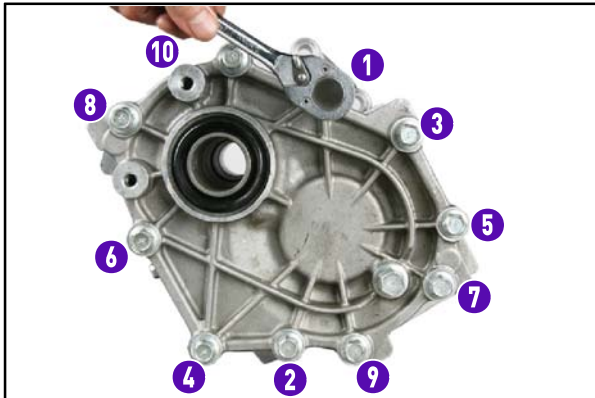
**NOTE**

Replace the O-ring with a new one when fitting and apply the grease on it. Do not scratch or twist the O-ring and make sure it rests in the groove. Assemble the pinion case to the PTU case correctly. Otherwise, the O-ring could be damaged when it is tilted.



4. Remove the gasket (E) from the PTU case.

Modification basis	
Application basis	
Affected VIN	



5. Unscrew the 10 cover mounting bolts (14 mm) from the PTU case.



**NOTE**

Unscrew the mounting bolts diagonally in two or three stages as illustrated and tighten them to specified torque when fitting.

**Tightening torque 49.5 to 59.5 Nm**



6. Remove the housing from the PTU case.

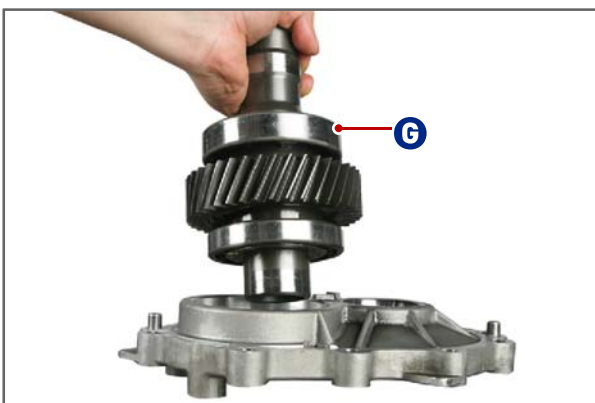


**NOTE**

Clean away any gasket remnants from the contact surface of the housing and case and apply the liquid gasket (LOCTITE 5060) on it when fitting.



7. Remove the hypoid gear assembly (F) from the removed PTU.







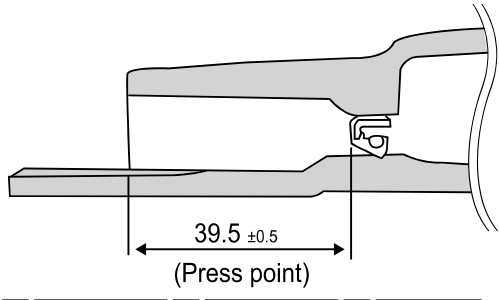
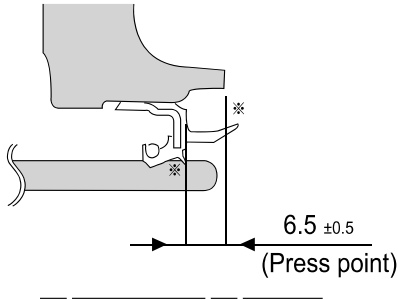
8. Remove the drive gear assembly (G) from the cover.

Modification basis	
Application basis	
Affected VIN	

9. Assemble in the reverse order of disassembly. Replace the filler plug and drain plug washer with new ones and tighten each bolt to the specified torque.

**CAUTION**

Follow the description below when replacing the oil seals on the RH/LH drive shafts.

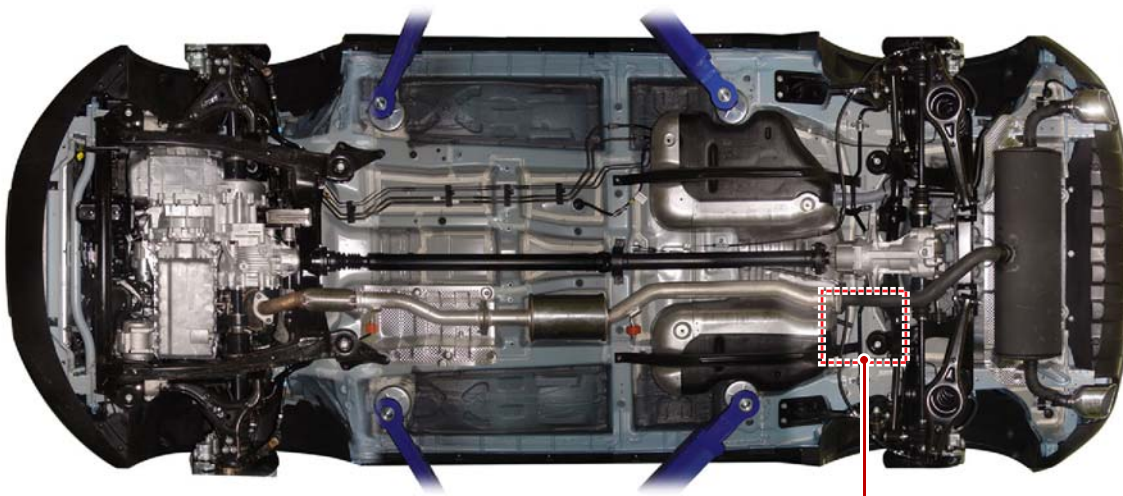
	
<p>Inspect the LH oil seal and replace as necessary. Be sure to use a special tool for disassembling and assembling. Make sure that the input gear and case surface are free from any damage. The assembly position for the LH oil seal is illustrated below. Make sure to apply the grease to the oil seal lip.</p>	<p>Inspect the RH oil seal and replace as necessary. Be sure to use a special tool for disassembling and assembling. Make sure that the input gear and cover surface are free from any damage. The assembly position for the RH oil seal is illustrated below. ※ Make sure to apply the grease to the marked areas.</p>
	
 <p>39.5 ±0.5 (Press point)</p>	 <p>6.5 ±0.5 (Press point)</p>

Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

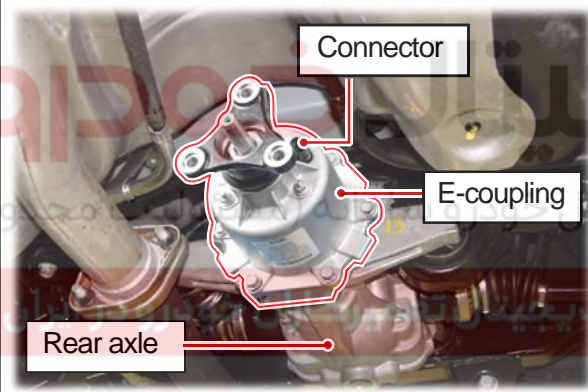
- CHASSIS GENERAL
- DSI 6 SPEED
- AIN 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED MT
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME

S.G.N. 3280-01 E-COUPLING



Mounted view

E-coupling



AWD  
KORANDO 2015.01

Modification basis	
Application basis	
Affected VIN	



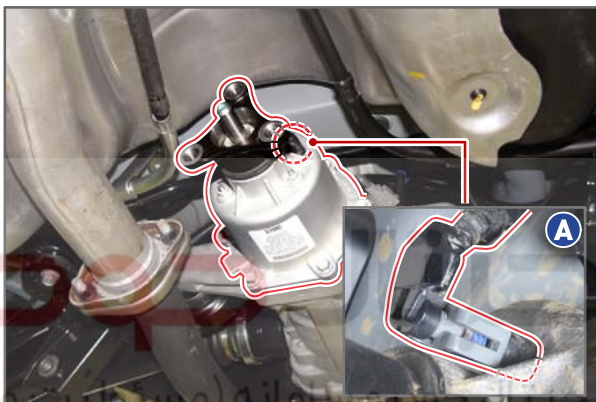


1. Remove the propeller shaft.

**Tightening torque 39.2 to 49.0 Nm**

**NOTE**

Refer to "PROPELLER SHAFT" under "REMOVAL AND INSTALLATION" in "PROPELLER SHAFT SYSTEM".

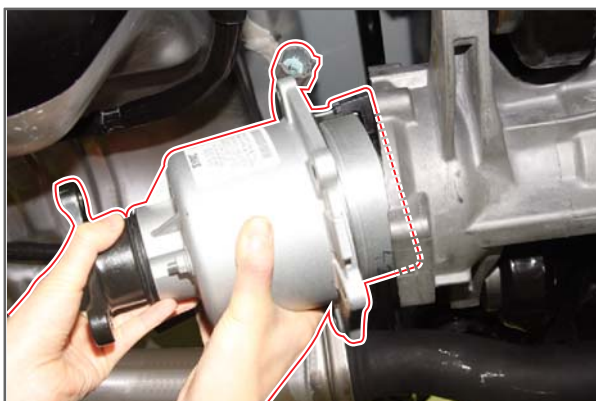


2. Disconnect the connector (A) from the E-coupling.



3. Unscrew the 6 mounting bolts (12 mm) on the E-coupling.

**Tightening torque 20 to 25 Nm**



4. Wrap the end of the flat-bladed screwdriver with a cloth or something and insert it into the mating surface to detach the rear axle and E-coupling.

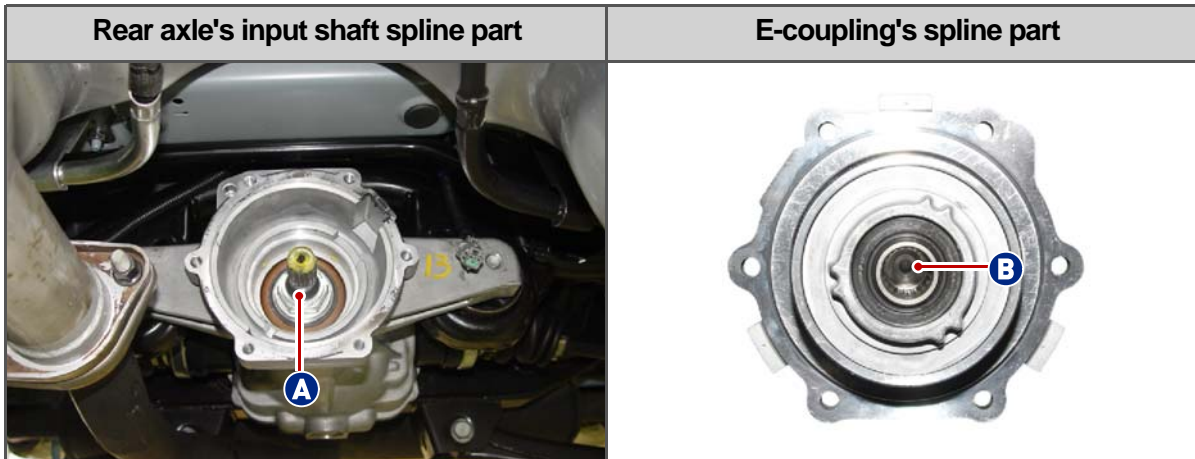
5. Install in the reverse order of removal.

Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

**Cautions for installation**

1. Apply the extreme pressure grease to the rear axle's input shaft spline part (A) and E-coupling's spline groove (B).



**NOTE**

Extreme pressure grease: grease for KLUBER MICROLUBE GNY 202 or transmission (MS 511-55, TMG-2)



2. Apply the sealant (liquid gasket B type: MS 721-40, LT 5702 or the equivalent) to the E-coupling housing in the following order:

- A. Clean the contact surface before applying the sealant.
- B. Make sure that the starting point and ending point of the sealant bead are overlapped by about 10 mm.
- C. Fit the E-coupling to the rear axle housing within about 3 minutes of applying the sealant.



**CAUTION**

Make sure that you do not get the sealant on other parts.

3. The arrow marked on the E-coupling outer housing should be at 12 o'clock when fitting.

Modification basis	
Application basis	
Affected VIN	

S.G.N.

3281-00

**DISMANTLING AND ASSEMBLING OF E-COUPLING**

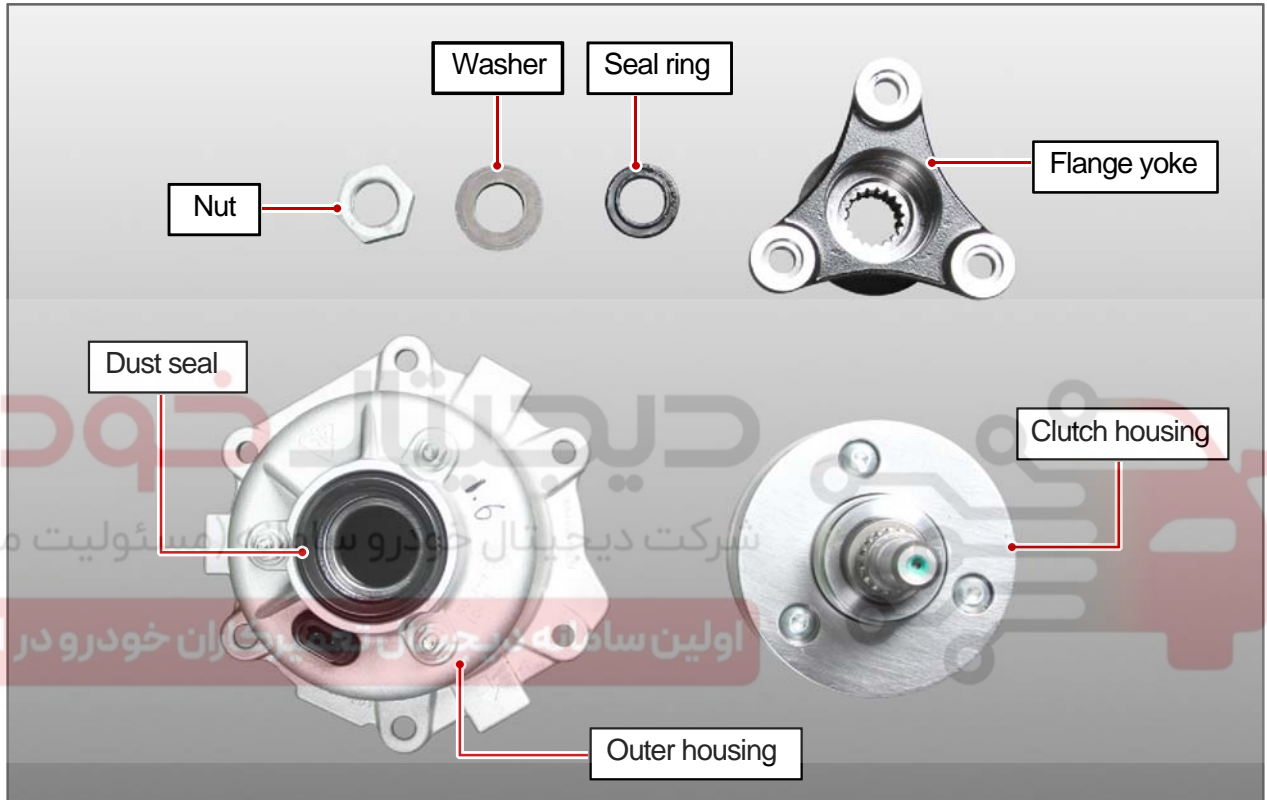
**Preceding work**

- Remove the E-coupling from the vehicle.



**NOTE**

The dismantling and assembling of the E-coupling should be carried out when replacing the dust seal or flange yoke on the coupling housing. Avoid further dismantling and assembling for the E-coupling. Therefore, carry out only the work described below.



1. Wrap the flange yoke of the E-coupling assembly with a cloth, place it in a vice and unscrew a lock nut (30 mm).

**Tightening torque** 129 to 152 Nm

Nut, washer and seal ring



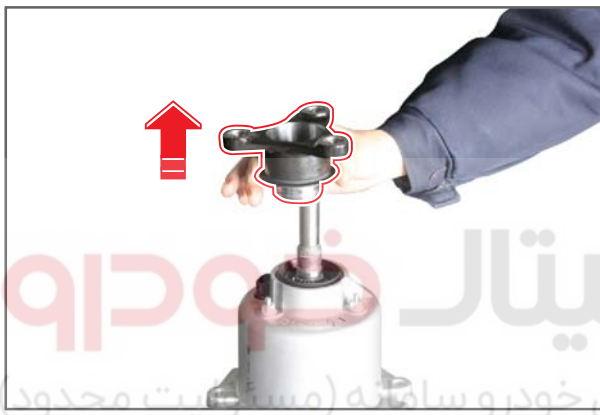
Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

CHASSIS GENERAL  
DSI 6 SPEED  
AISIN 6 SPEED  
HPT 6AT(6F2)  
6-SPEED MT  
CLUTCH  
PROPELLER  
DRIVE SHAFT  
SUSPENSION  
AWD  
BRAKE SYSTEM  
ANTI-LOCK  
ELECTRONIC  
POWER STEERING  
ELECTRIC POWER  
WHEEL & TIRE  
SUB FRAME



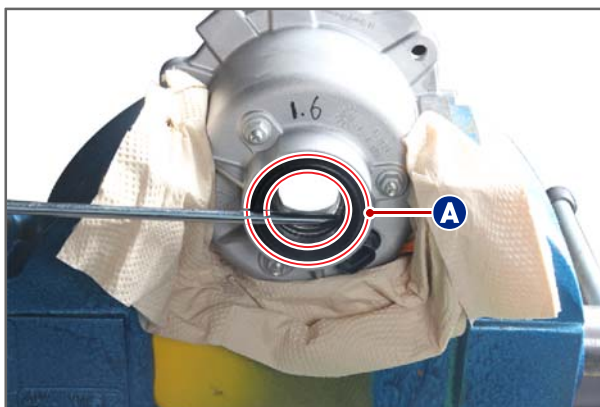
2. Use a puller (special tool) to remove the flange yoke (A) from the E-coupling.



3. Remove the flange yoke from the E-coupling.



4. Remove the outer housing.



5. Remove the dust seal (A) from the outer housing with a screwdriver or etc.

6. Assemble in the reverse order of disassembly.

**CAUTION**

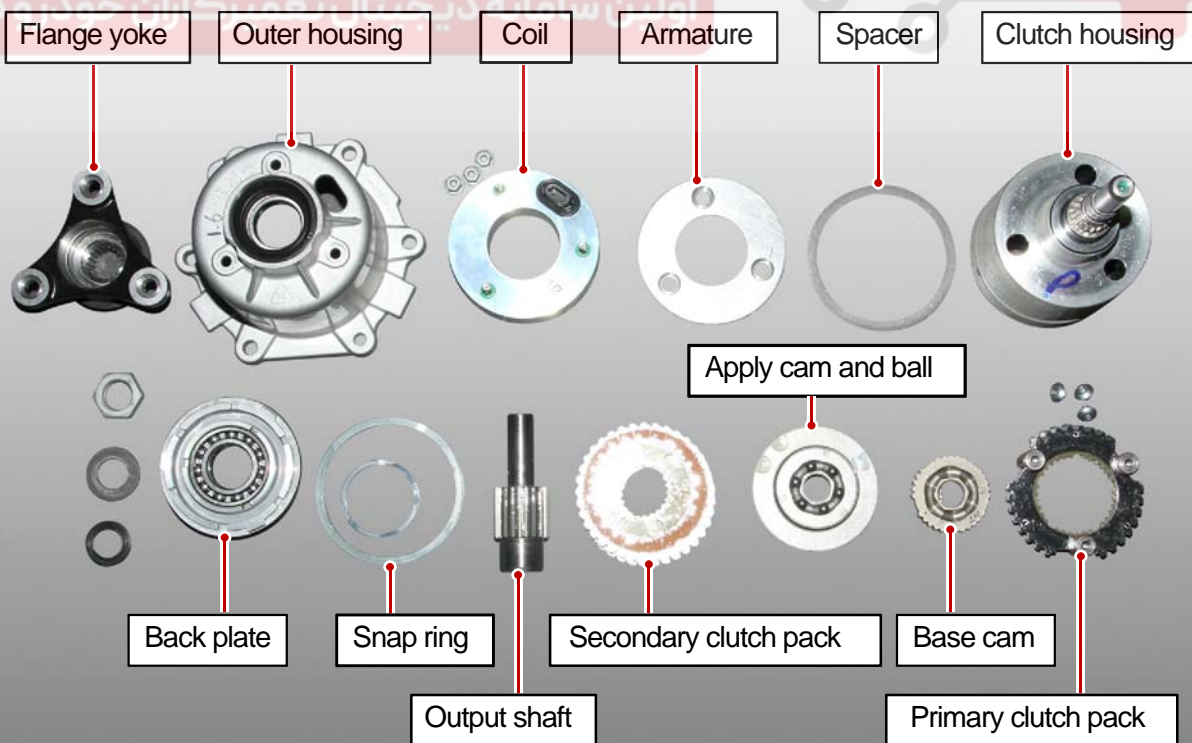
- Replace the dust seal on the outer housing with a new one. Tight the dust seal against the housing when fitting.
- Replace the lock nut on the flange yoke with a new one.

Modification basis	
Application basis	
Affected VIN	

**Note: Internal components in E-coupling**

**NOTE**

This exploded view is only intended to show how the E-coupling is configured, not for explaining how to dismantle it. It is unnecessary to dismantle the E-coupling and replace it as necessary.



Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

- CHASSIS GENERAL
- DSI 6 SPEED
- AININ 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED MT
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME

S.G.N. **3280-17** E-COUPLING CONTROL UNIT

Preceding work - Disconnect the negative battery cable.



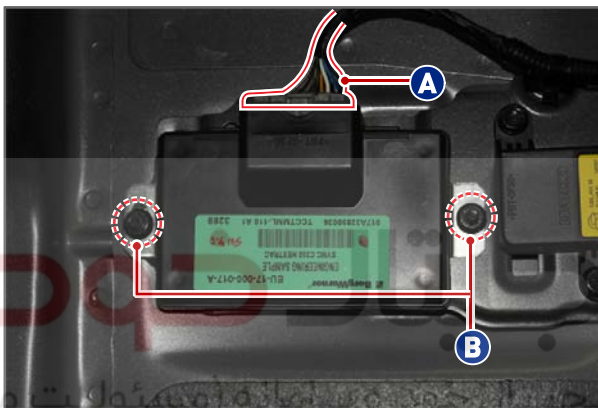
1. Remove the passenger seat.

**NOTE**  
Refer to "FRONT PASSENGER SEAT" under "REMOVAL AND INSTALLATION" in "BODY INTERIOR".

Modification basis	
Application basis	
Affected VIN	



2. Turn over the carpet to provide working space.



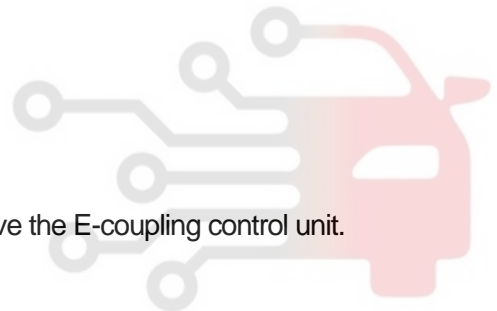
3. Disconnect the E-coupling connector (A) and unscrew the 2 mounting nuts (B, 10 mm).



4. Remove the E-coupling control unit.

5. Install in the reverse order of removal.

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Modification basis	
Application basis	
Affected VIN	

AWD  
KORANDO 2015.01

- CHASSIS GENERAL
- DSI 6 SPEED
- AINIS 6 SPEED
- HPT 6AT(6F2)
- 6-SPEED M/T
- CLUTCH
- PROPELLER
- DRIVE SHAFT
- SUSPENSION
- AWD
- BRAKE SYSTEM
- ANTI-LOCK
- ELECTRONIC
- POWER STEERING
- ELECTRIC POWER
- WHEEL & TIRE
- SUB FRAME

**Memo**

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

