

AXLE**4120-01/4210-01/4220-01****INDEX****AXLE****GENERAL**

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REMOVAL AND INSTALLATION

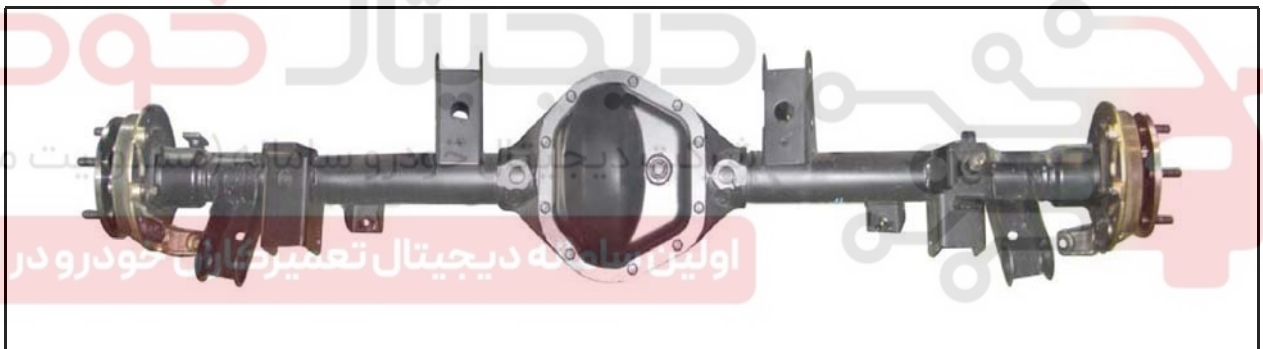
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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



AXLE**4120-01****GENERAL****1. SPECIFICATIONS OF AXLE****1) Front View****2) Rear View****3) Specifications**

Description	Specification		
Axle shaft type	Semi-floating type		
Axle housing type	Build-up type		
Differential	Type	Conventional	
	Gear type	Hypoid	
DSL Eng + A/T, M/T		3.54 / 4.27	
GSL Eng + A/T, M/T		4.89 / 4.55	
Oil	Capacity	Front	1.4 L
		Rear	2.0 L
	Specification		SAE 80W/90, API GL-5

Modification basis	
Application basis	
Allocated VIN	

AXLE

ACTYON 2012.12

4) Specifications of Front and Rear Axle

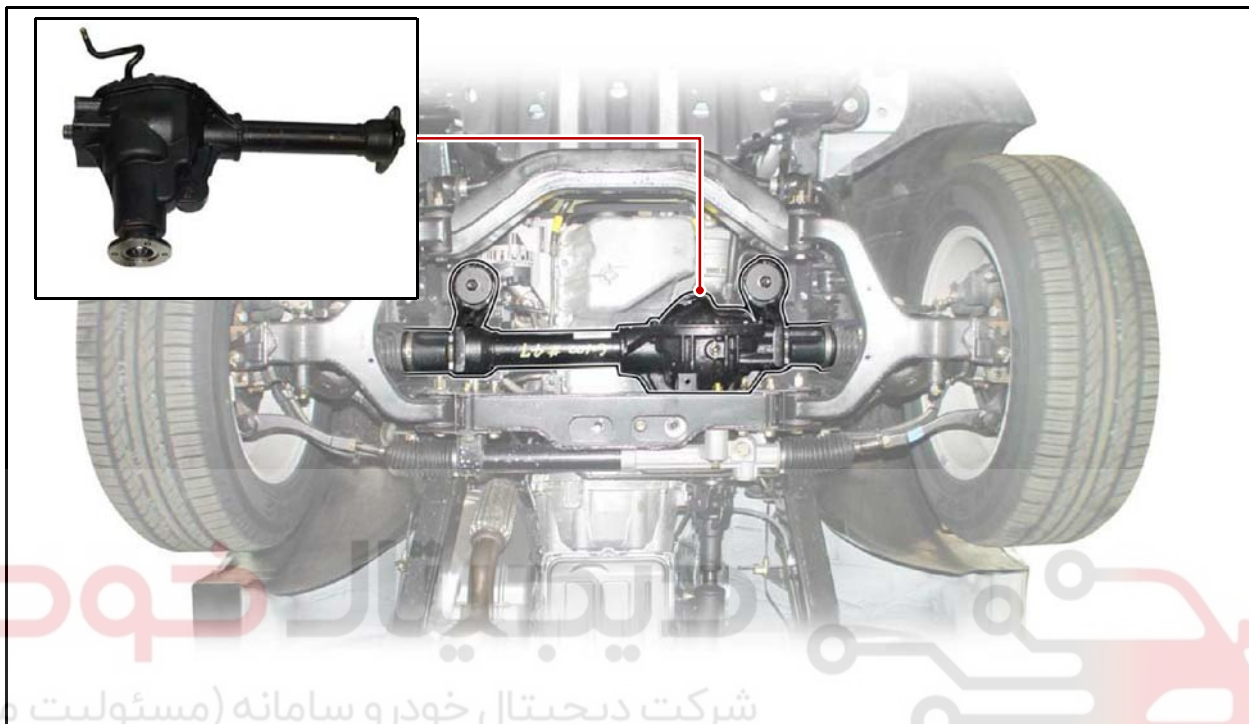
The specification below is for front and rear axles equipped in Actyon, including gear ratio and specific specifications. For details, refer to each section.

Location		Front axle		Rear axle	
Specification		M/T	A/T	M/T	A/T
Gear ratio		4.55R (5MT) 4.27R (6MT)	3.54R (5AT) 4.89R (6AT)	4.55R (5MT) 4.27R (6MT)	3.54R (5AT) 4.89R (6AT)
Gear	Type	Hypoid	→	←	←
	Size	Φ 182.8 mm	←	Φ 218.4 mm	←
	Offset	28.58 mm (DYMOS) 35 mm	←	38.1 mm	-
Housing		Steel	←	Steel casting (steel, aluminum cover)	←
Oil	Specification	SAE 80W/90 API-GL5	←	SAE 80W/90 API-GL5	←
	Capacity	1.4L	1.4L	2.0L	←
Length		448.0 mm	←	469.0 mm	←
Width		681.9 mm	←	1717.7 mm	←
Weight		45 kg	←	90 kg	←

OVERVIEW AND OPERATION PROCESS

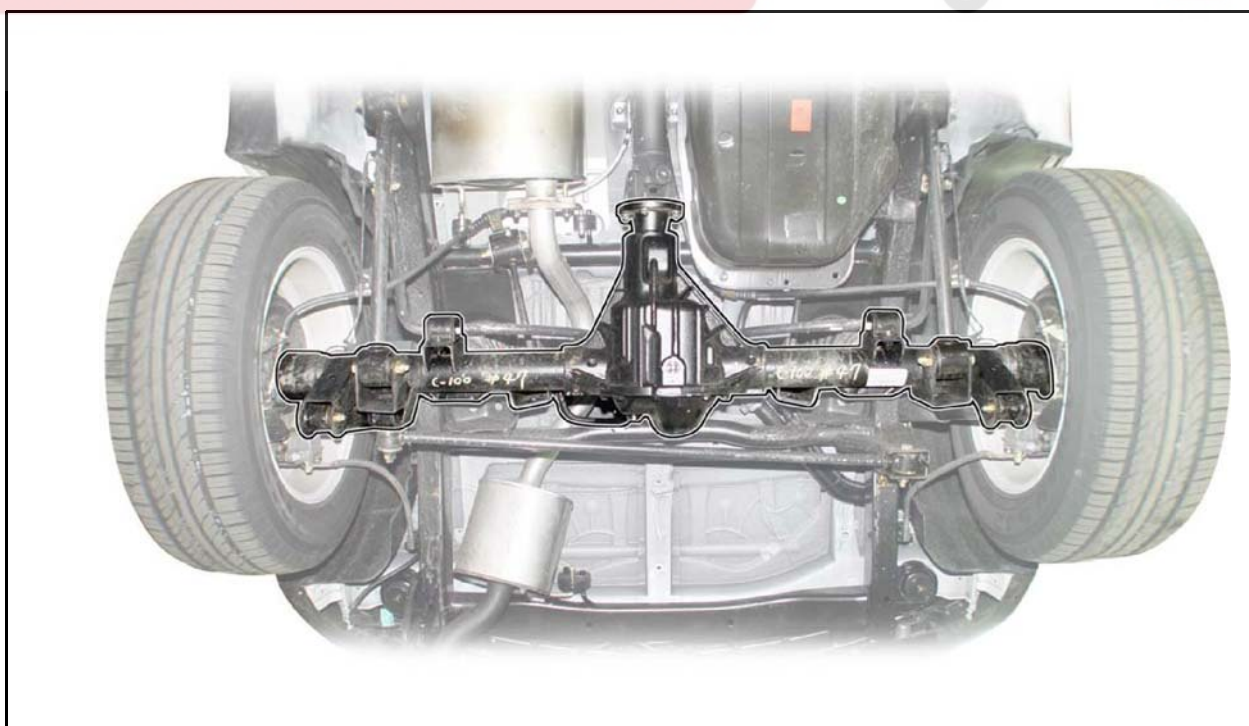
1. OVERVIEW OF AXLE

1) Front Axle



شرکت دیجیتالی خودرو (مسئولیت محدود)

2) Rear Axle



Modification basis	
Application basis	
Allocated VIN	

AXLE

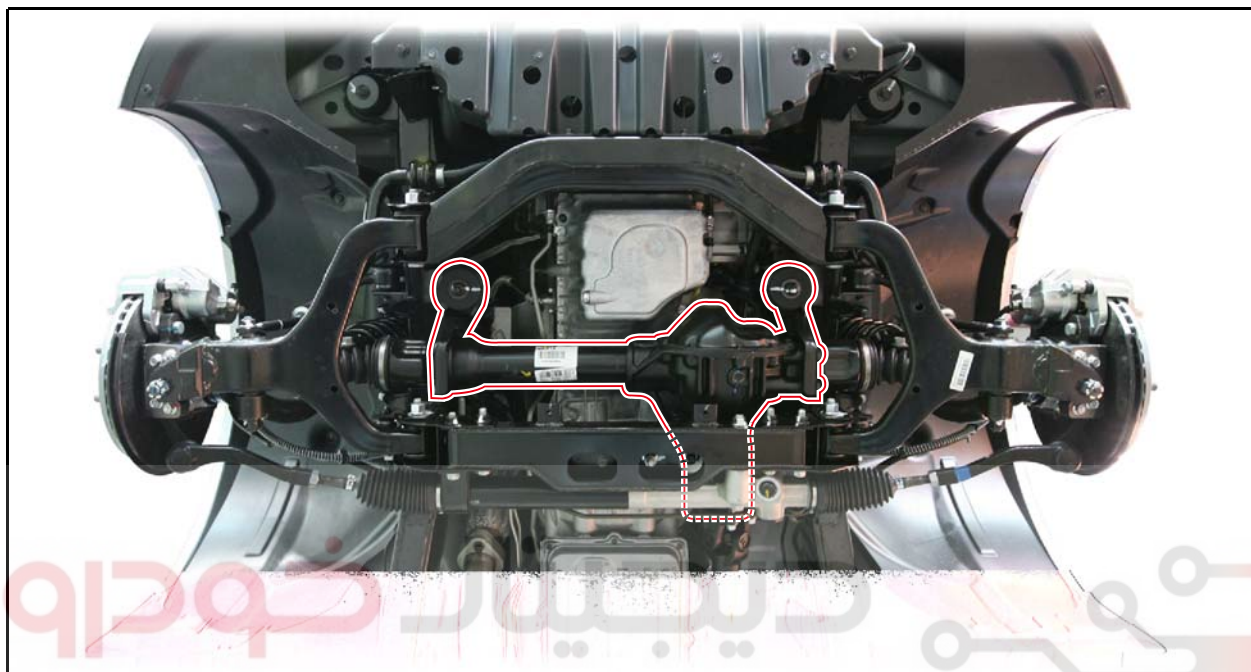
ACTYON 2012.12

CONFIGURATION AND FUNCTION

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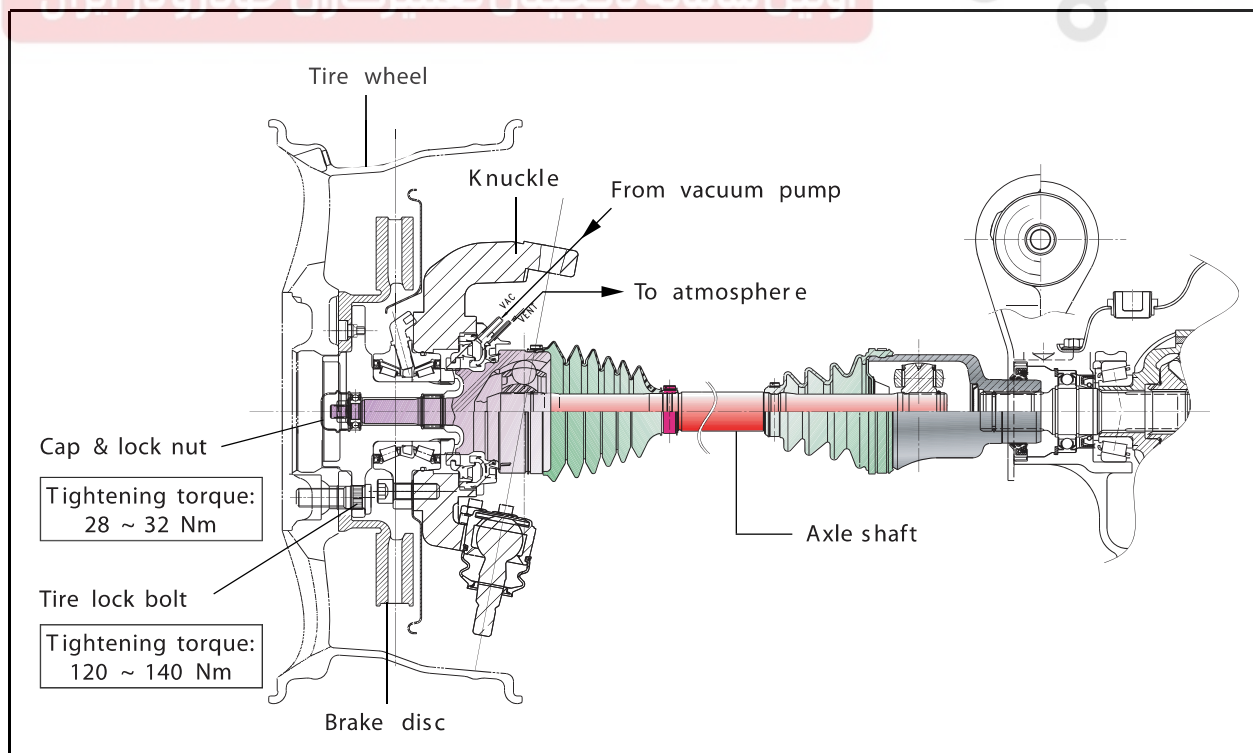
4120-01 FRONT AXLE

1) Location



شرکت دیجیتال خودرو (مسئولیت محدود)

2) Sectional Diagram



AXLE

ACTYON 2012.12

Modification basis	
Application basis	
Affected VIN	021 62 99 92 92

Memo

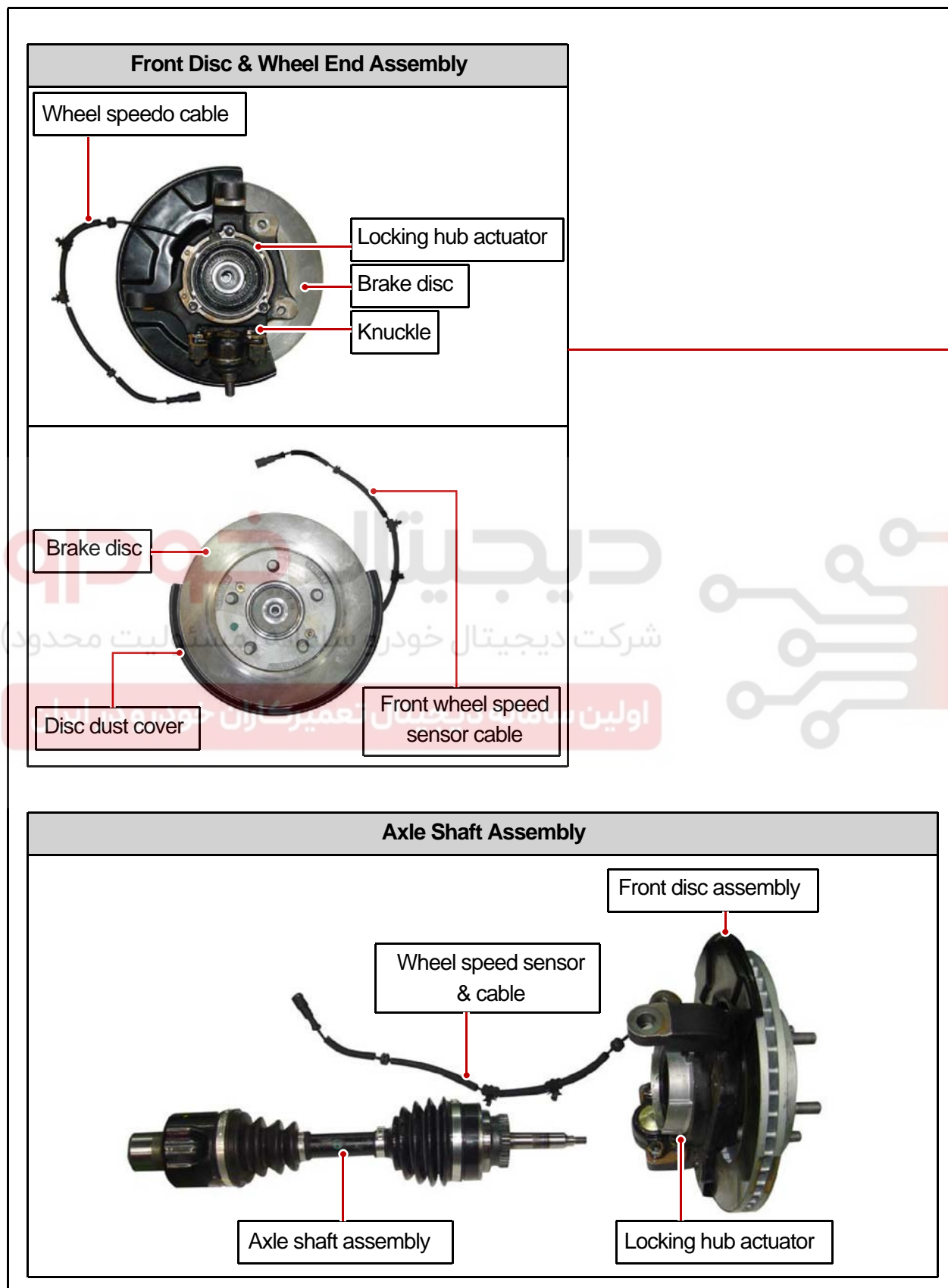
دیجیتال خودرو

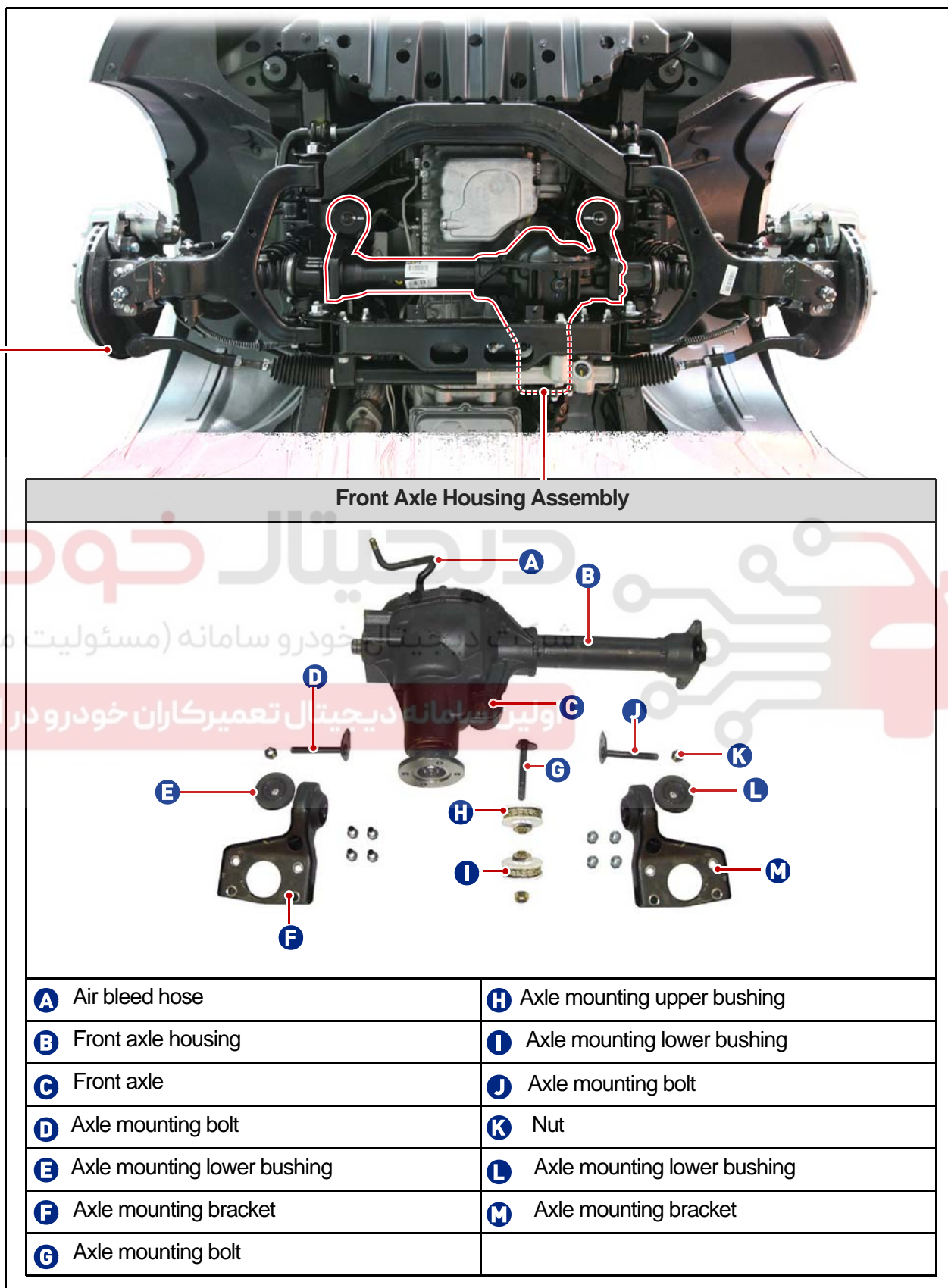
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



3) Front Axle Assembly

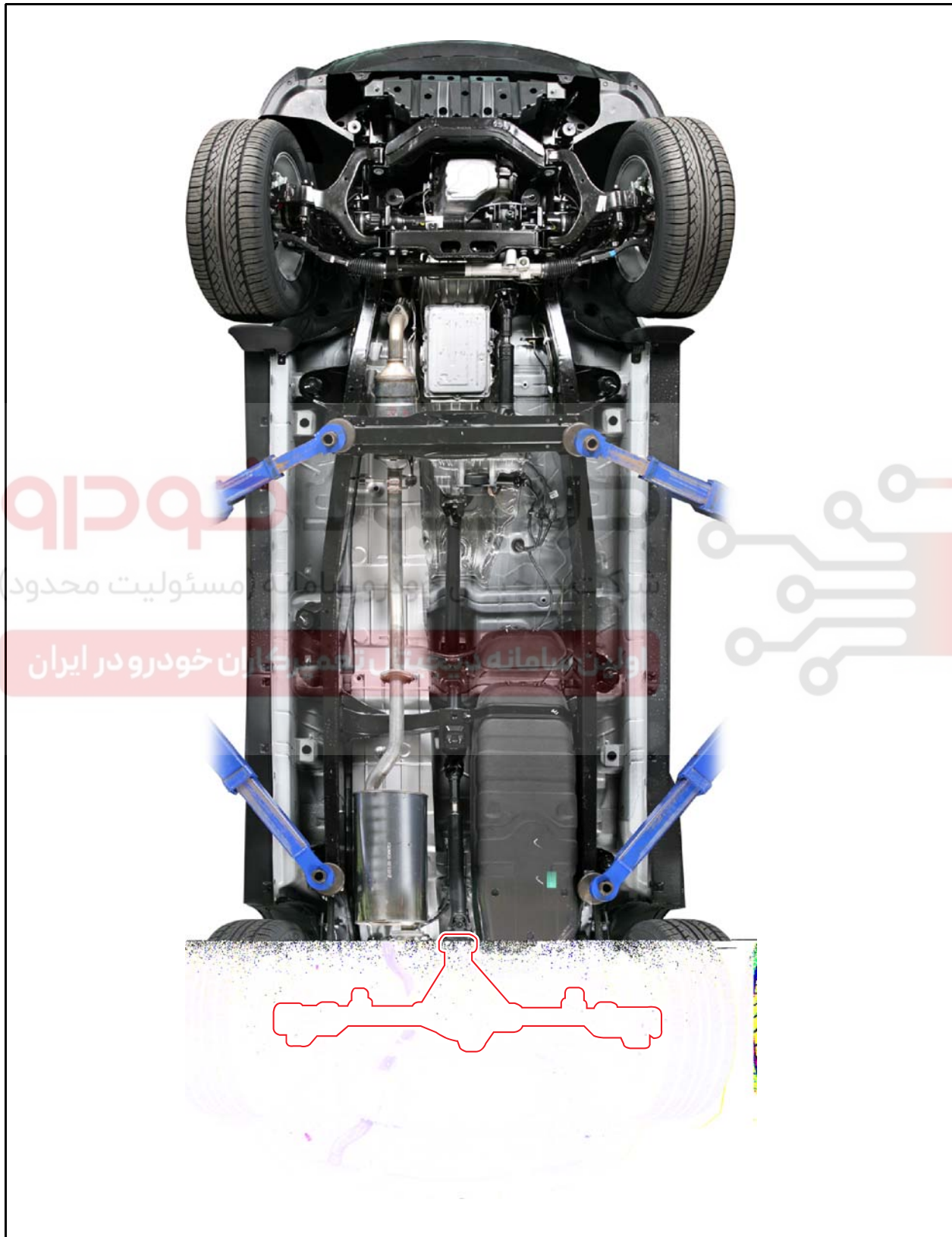




Modification basis	
Application basis	
Allocated VIN	

AXLE

ACTYON 2012.12

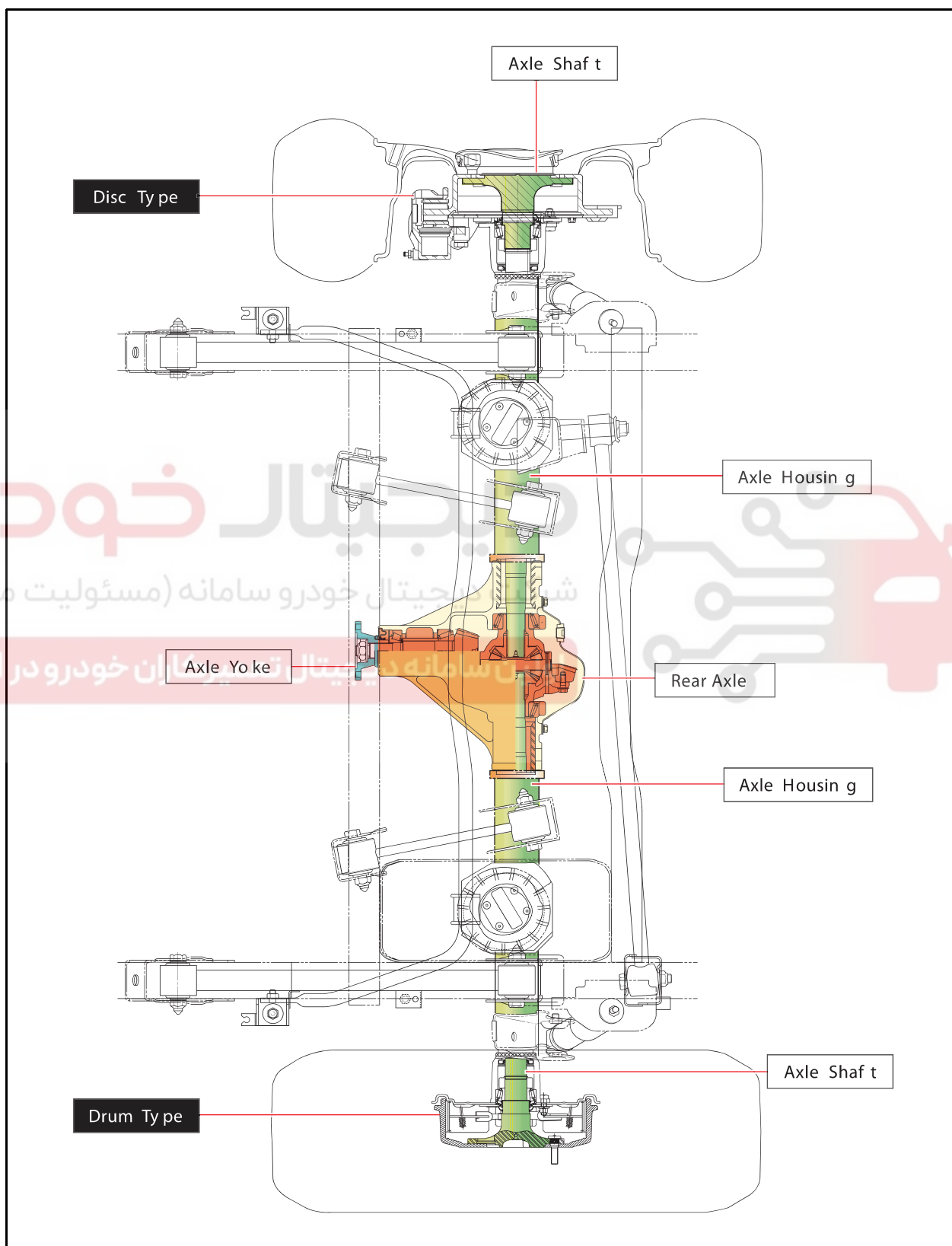
S.G.N.
4210-01 5-LINK TYPE REAR AXLE**1) Location**

AXLE

ACTYON 2012.12

Modification basis	
Application basis	
Affected VIN	021 62 99 92 92

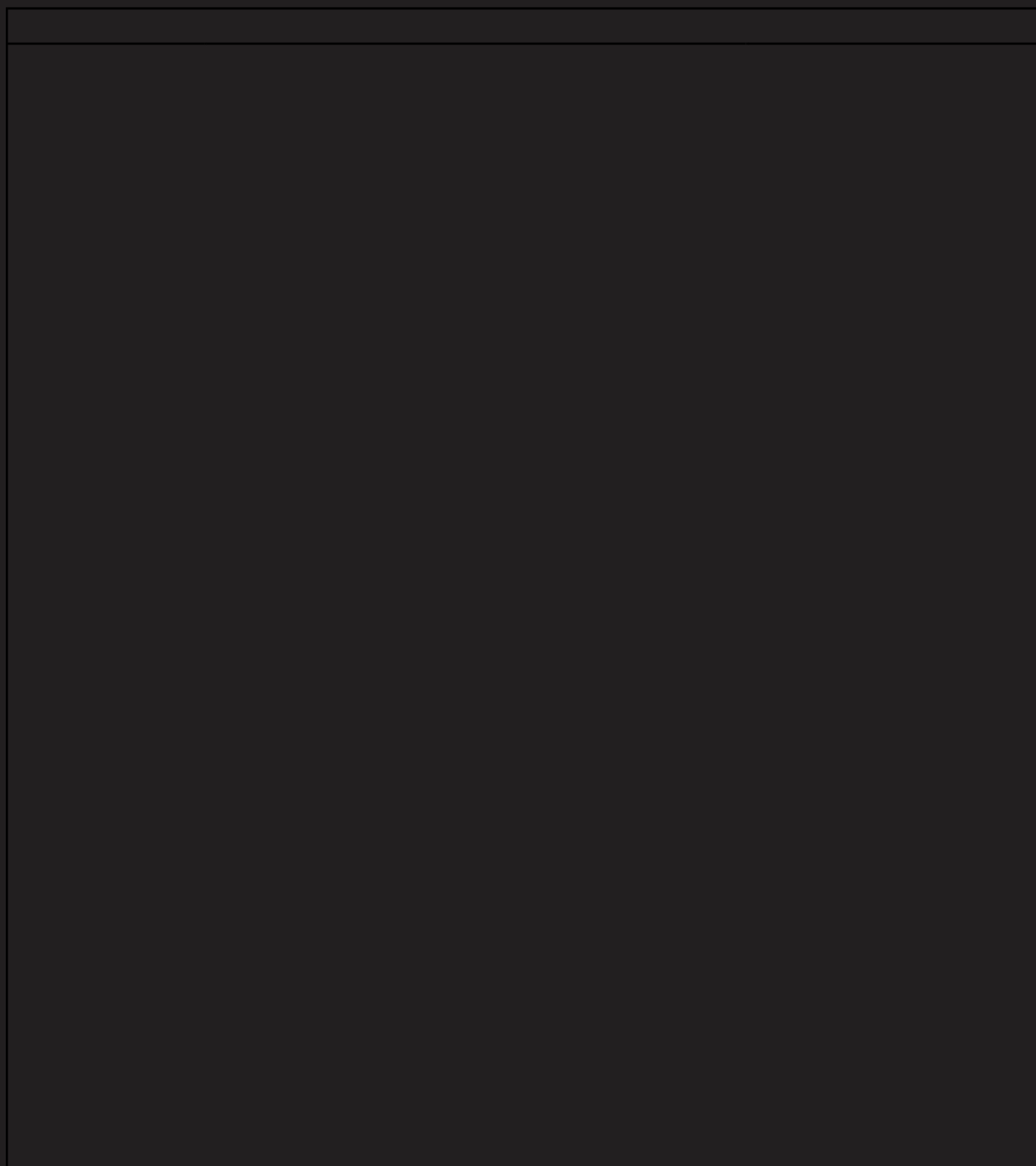
2) Components



Modification basis	
Application basis	
Allocated VIN	

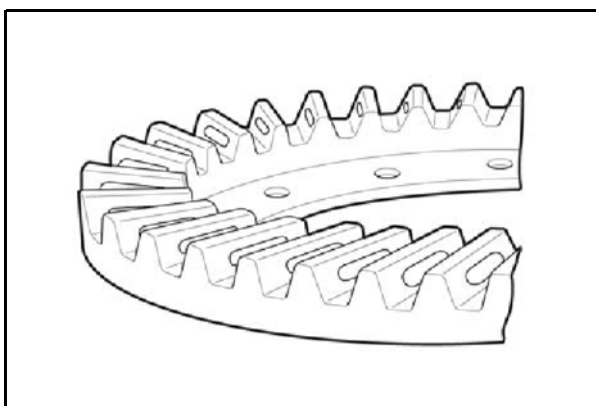
AXLE

ACTYON 2012.12



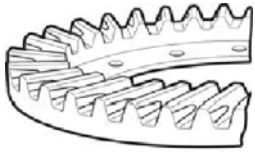

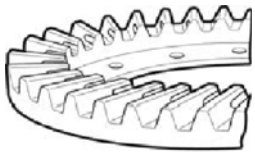

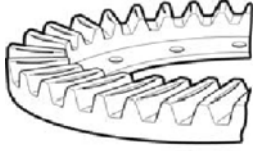

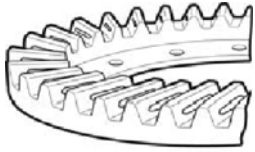
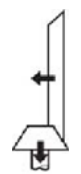
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4120-01 INSPECTION OF RING GEAR TOOTH CONTACT PATTERN



1. Apply gear-marking compound (Prussian blue/red lead) on the ring gear teeth. Rotate the ring gear and check the tooth contact pattern.

2. Abnormal contact

Tooth Contact Pattern	Possible Cause	Remedy
1. Heel contact  A	Excessive backlash • Noise can be occurred	Adjust backlash • Select proper shim to move the drive pinion toward the ring gear (toward toe)  B
2. Toe contact  A	Insufficient backlash • Tooth can be damaged or broken under heavy load	Adjust backlash • Select proper shim to move the drive pinion against the ring gear (toward heel)  B
3. Face contact  A	Excessive backlash • Drive pinion shaft is apart from the ring gear • Noise can be occurred	Adjust backlash • Move the drive pinion toward the ring gear (toward the center of ring gear)  B
4. Flank contact  A	Insufficient backlash • Gear contacts on the low flank • Gear can be damaged or worn • Noise can be occurred	Adjust backlash • Move the ring gear toward the drive pinion (toward the ring gear center line)  B

Modification basis	
Application basis	
Affected VIN	

S.G.N.

4120-01

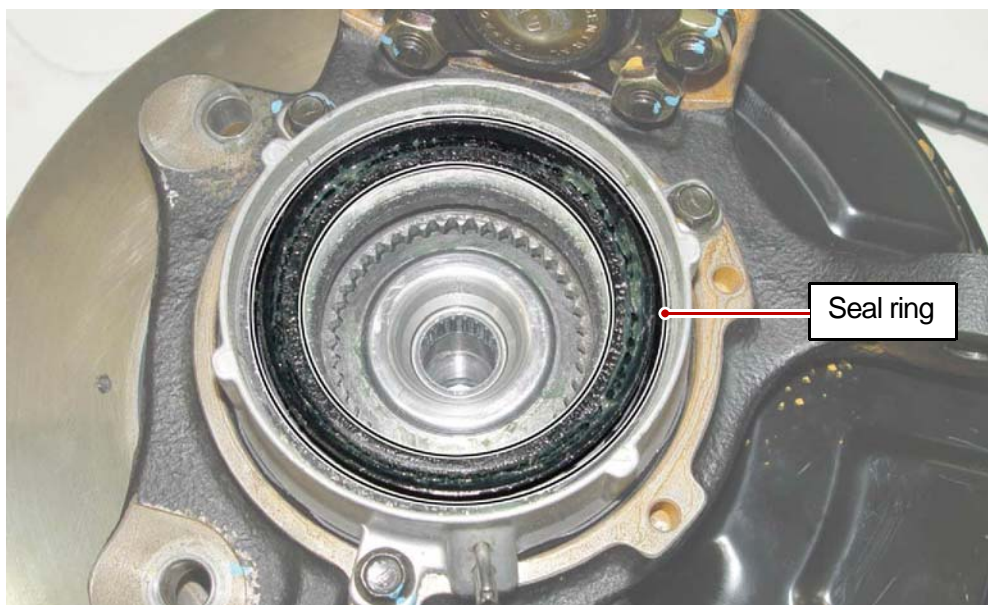
FRONT AXLE ASSEMBLY

Preceding work

1. Perform the following steps before removing and installing the front axle assembly (axle housing/axle shaft).

CAUTION

1. Be careful not to damage the seal ring in the locking hub actuator when installing the front disc and the hub end assembly.



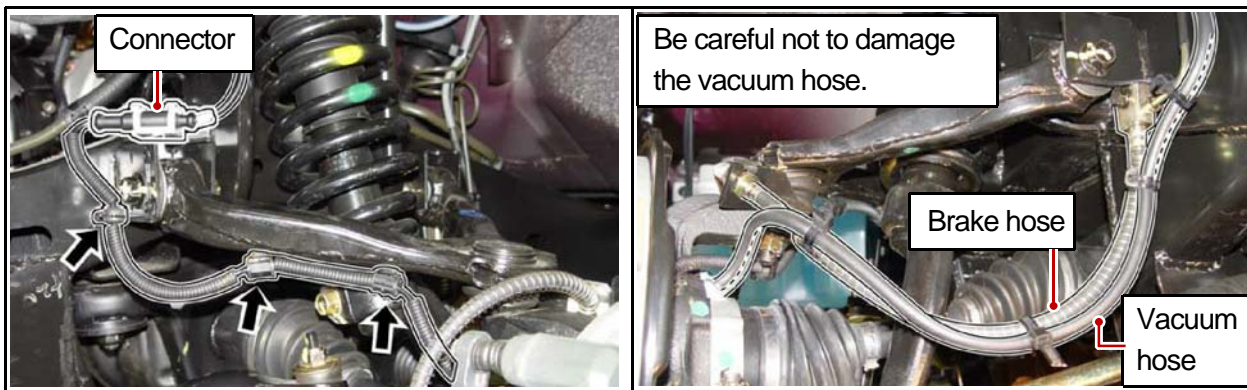
1. Removal of the front tire

Remove the front tire wheel caps. Unscrew five wheel nuts (21 mm) in diagonal direction by 2 to 3 steps and remove tires.

Tightening torque 120 ~ 140 Nm

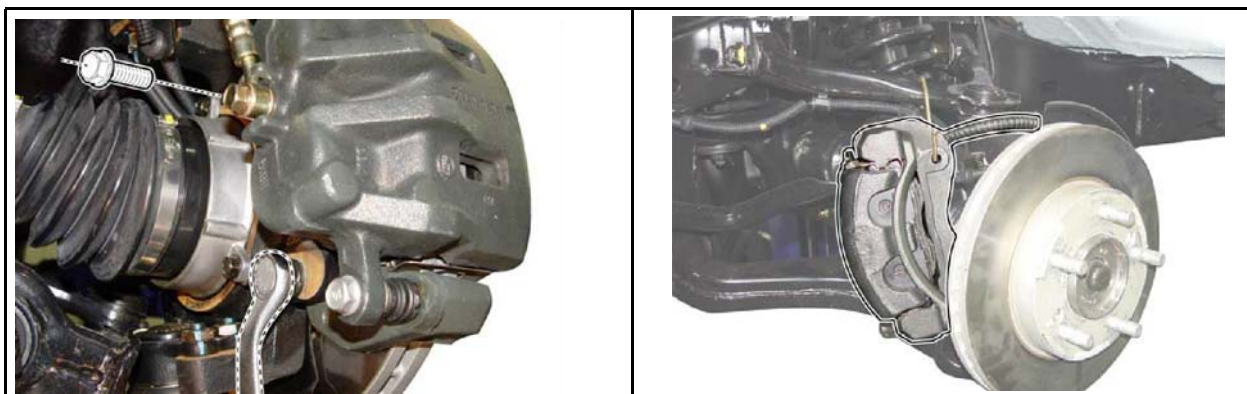


2. Disconnect the wheel speed sensor cable and connector, and disconnect the vacuum hose from the locking hub actuator.



3. Unscrew two mounting bolts (19 mm) and remove the brake disc caliper. Hang the removed caliper to the upper arm using the holder.

Tightening torque 85 ~ 105 Nm

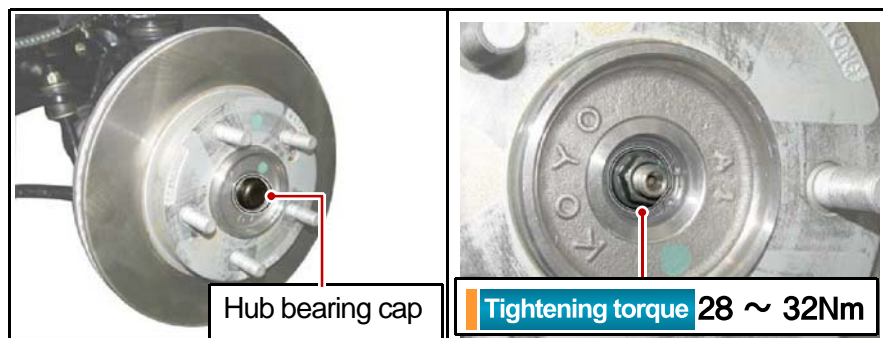


Modification basis	
Application basis	
Affected VIN	

S.G.N.

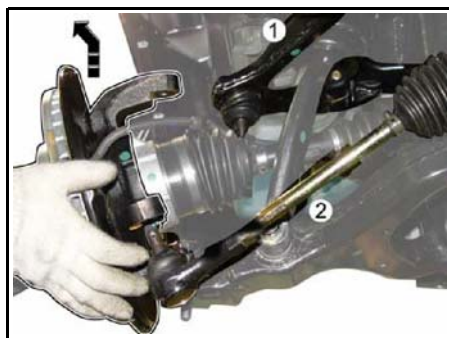
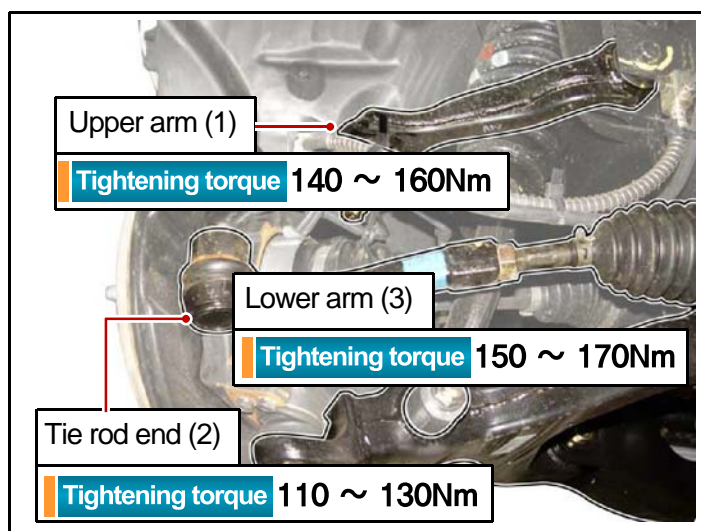
4120-01 AXLE SHAFT

1. Remove the hub bearing cap and unscrew the lock nut (14 mm) on the brake disc.

**CAUTION**

- The hub bearing cap and the lock nut are not reusable. Always replace them with new ones after removal.

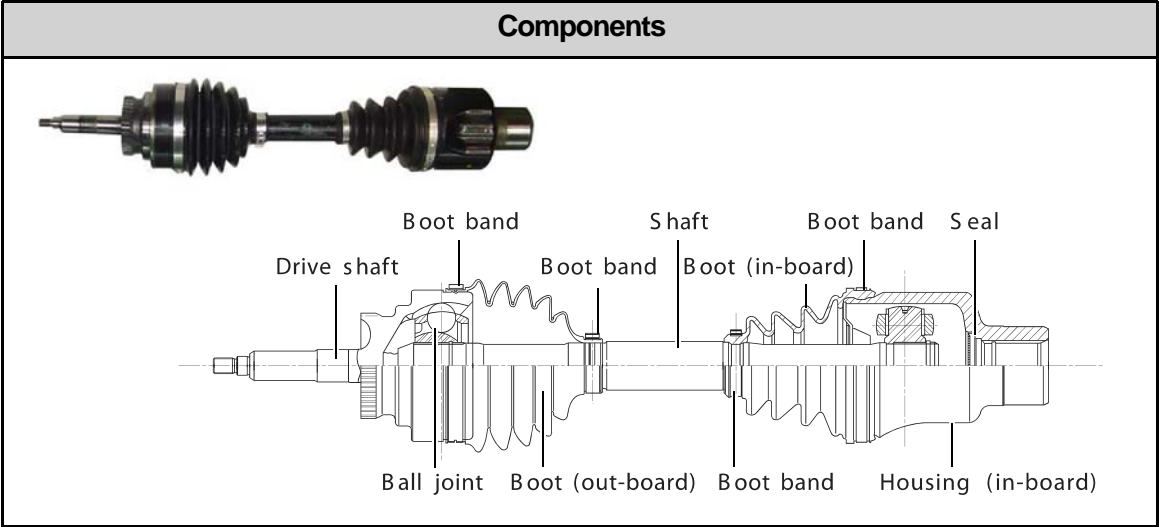
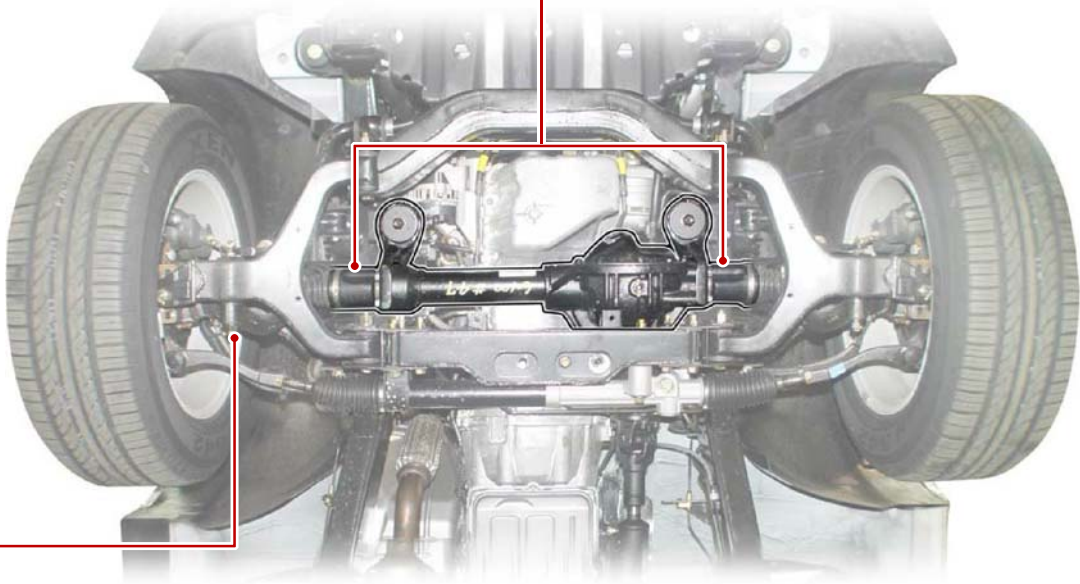
2. Unscrew the upper arm lock nut, the tie rod end lock nut and the lower arm lock nut from knuckle, and then remove the front disc and the wheel end assembly.



- 3 Loosen the upper arm (1) and the tie rod end (2) and remove the assembly by lifting it.

Modification basis	
Application basis	
Affected VIN	

4. Remove the axle shaft from the axle housing using a special tool.



Modification basis	
Application basis	
Affected VIN	

S.G.N.

4120-01 AXLE HOUSING

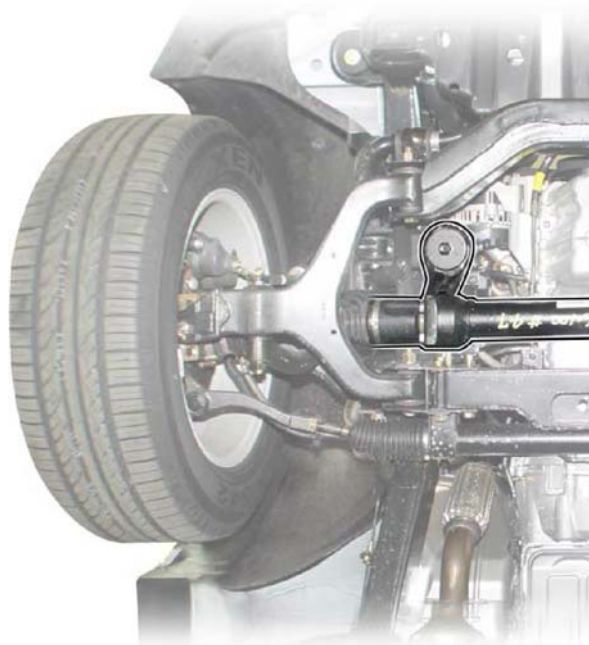
1. Remove the axle shaft from the axle housing. Remove the propeller shaft and secure it to frame.



2. Removal of mounting bolt

Unscrew the mounting nut (22 mm) at right side of the axle housing and remove the axle mounting bolt.

Tightening torque 95 ~ 142 Nm



3. Unscrew the four bolts (17 mm) on the axle housing and remove the axle mounting bracket.

Tightening torque 80 ~ 100 Nm



Modification basis	
Application basis	
Affected VIN	



- Unscrew one mounting nut (22 mm) at left side of the axle housing and four bolts on mounting bracket (17 mm) to remove the mounting bracket.

Tightening torque

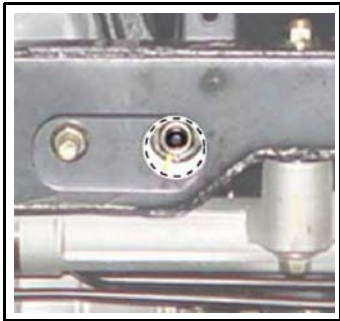
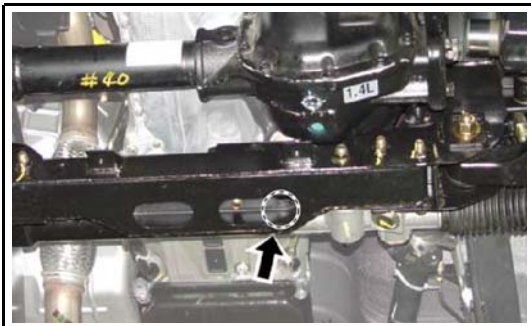
Mounting nut (22 mm) 95 ~ 142 Nm
Bracket bolt (17 mm) 80 ~ 100 Nm

CAUTION

- Remove the power steering hose mounting bracket before removing the left pin bolt. Otherwise, it cannot be removed due to interruption.

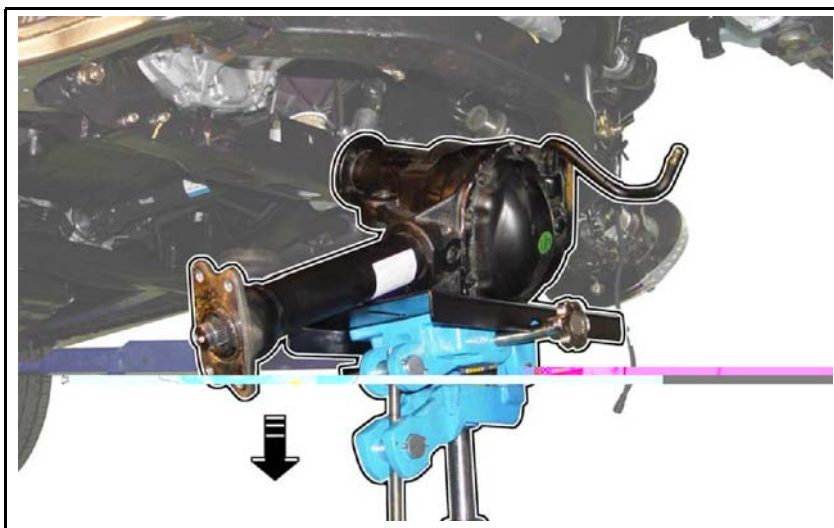
- Place a safety jack under the axle housing and remove one axle mounting bolt (22 mm).

Tightening torque 95 ~ 142 Nm



Modification basis	
Application basis	
Affected VIN	

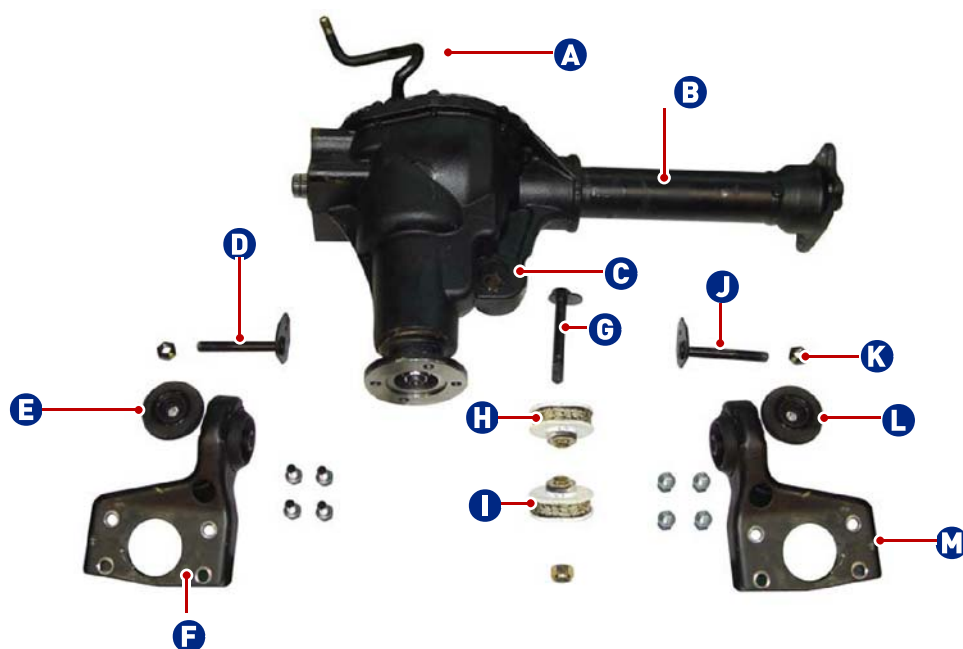
6. Remove the fixing clip on the air bleed hose above the axle housing and carefully lower the safety jack.



Axle Housing Assembly

CAUTION

- Be careful not to damage the left and right seals in axle housing when removing the axle mounting bracket or axle assembly.



A Air bleed hose	H Axle mounting upper bushing
B Front axle housing	I Axle mounting lower bushing
C Front axle	J Axle mounting bolt
D Axle mounting bolt	K Nut
E Axle mounting lower bushing	L Axle mounting lower bushing
F Axle mounting bracket	M Axle mounting bracket
G Axle mounting bolt	

MB 5 AT

DSI 6 AT

MANUAL
TRANSMISSION

MANUAL
TRANSMISSION

TGS
LEVER

CLUTCH

PROPELLER

AXLE

TRANSFER CASE

SUSPENSION

BRAKE
SYSTEM

ESP &
ABS

STEERING

WHEEL
TIRE

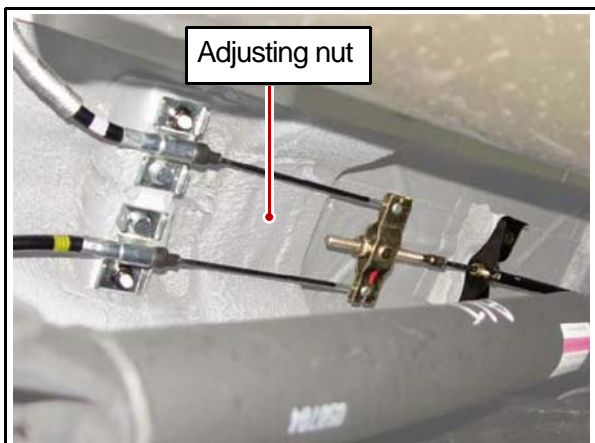
Modification basis	
Application basis	
Affected VIN	

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4220-01 REAR AXLE SHAFT(DISC BRAKE TYPE)**Preceding work** 1. Remove the tire.

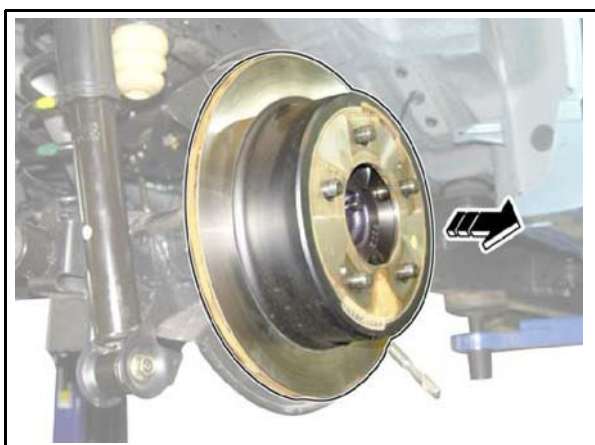
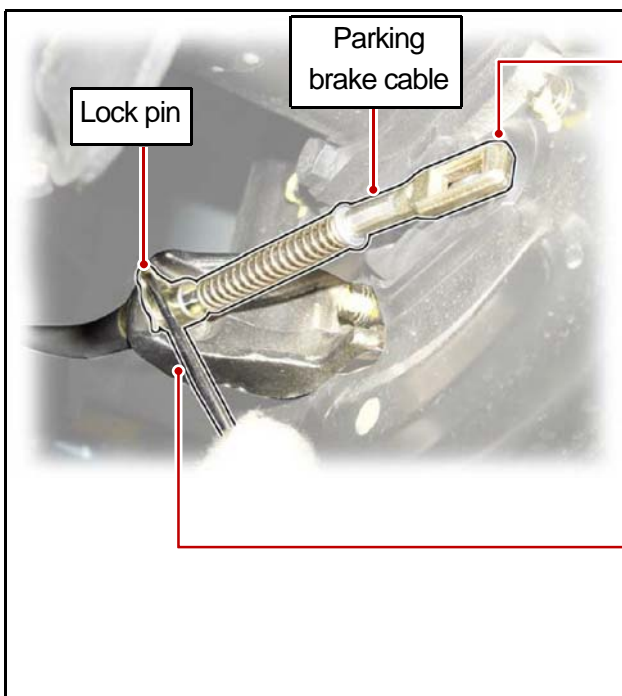
- 1 Unscrew the two mounting bolts (19 mm) and remove the rear brake disc caliper. Secure the removed caliper on the vehicle frame.

Caliper mounting bolt	85 ~ 105 Nm
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3. Unscrew the adjusting nut of the parking brake cable equalizer to loosen the parking brake cable.

4. Remove the lock pin and disconnect the parking brake cable.

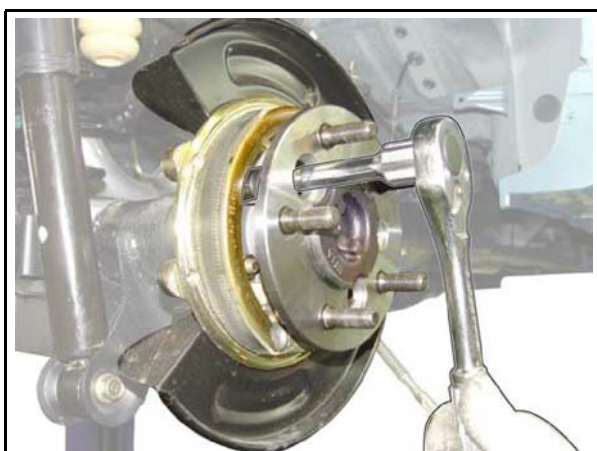


5. Remove the brake disc.

Modification basis	
Application basis	
Affected VIN	



6. Remove the plastic plug from the axle shaft flange.



7. Unscrew the four flange lock bolts (17 mm) on the axle housing flange and remove the axle shaft.

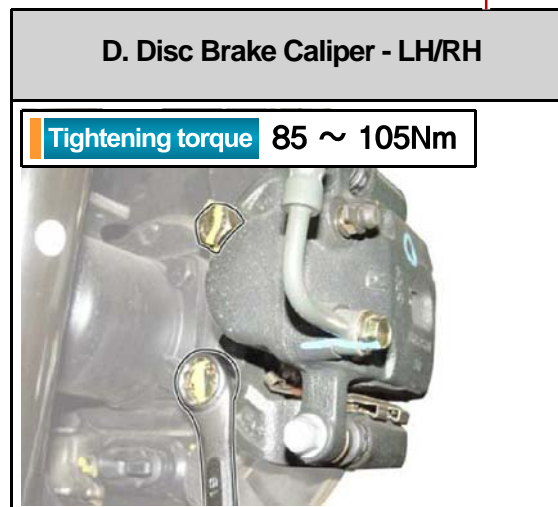
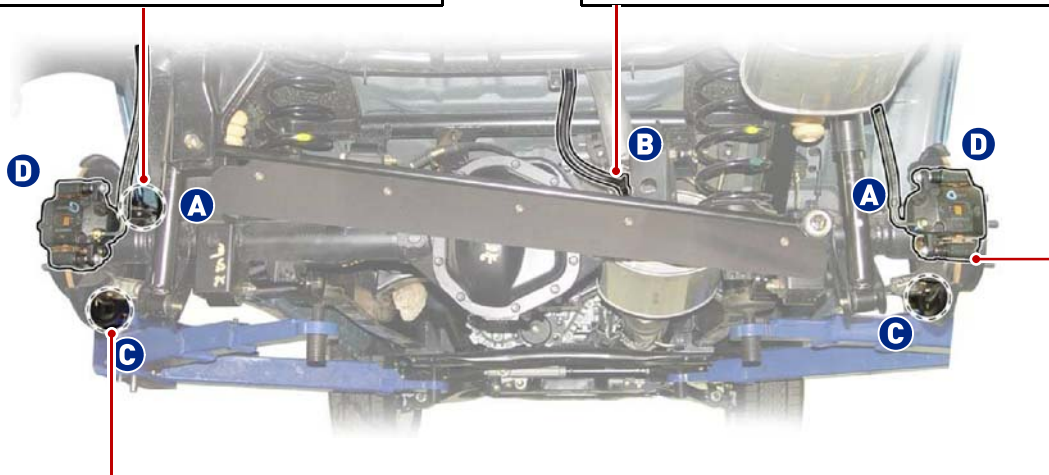
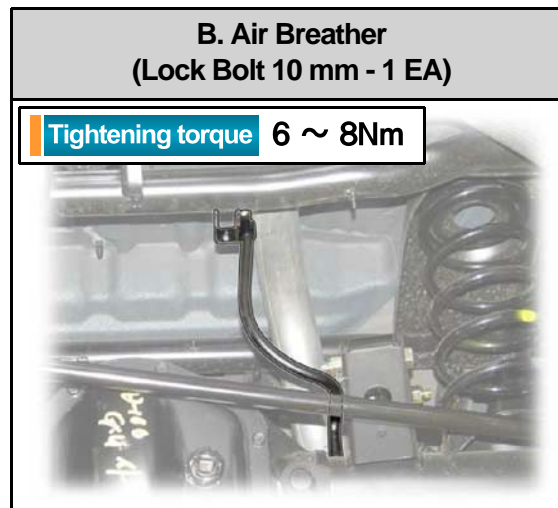
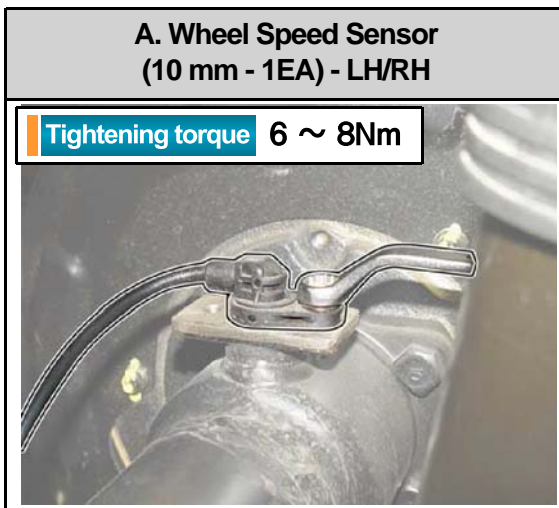
Tightening torque 50 ~ 64 Nm

Modification basis	
Application basis	
Affected VIN	

4220-01 REAR AXLE HOUSING



Preceding work 1. Remove the tire.

1. Remove the wheel speed sensor (A), the air breather lock nut (B), the parking brake cable (C) and the disc brake caliper (D) from the rear axle.




Modification basis	
Application basis	
Affected VIN	


2. Place a safety jack under the axle housing and unscrew the connections.

A. lateral rod mounting nut (22 mm)	B. Lower arm bolt/nut (22 mm)	C. Shock absorber bolt/nut (17 mm: nut, 10 mm: bolt)
		
Tightening torque 150 ~ 180 Nm	Tightening torque 150 ~ 180 Nm	Tightening torque 80 ~ 100 Nm


F. Upper arm




A. Lateral rod




B

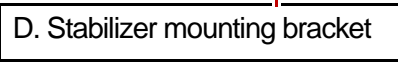

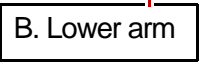
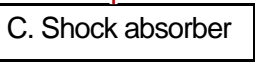



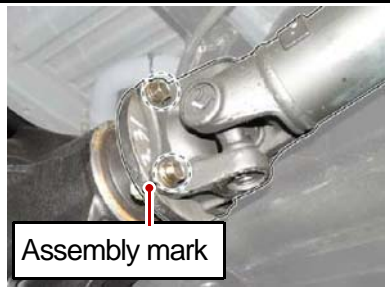
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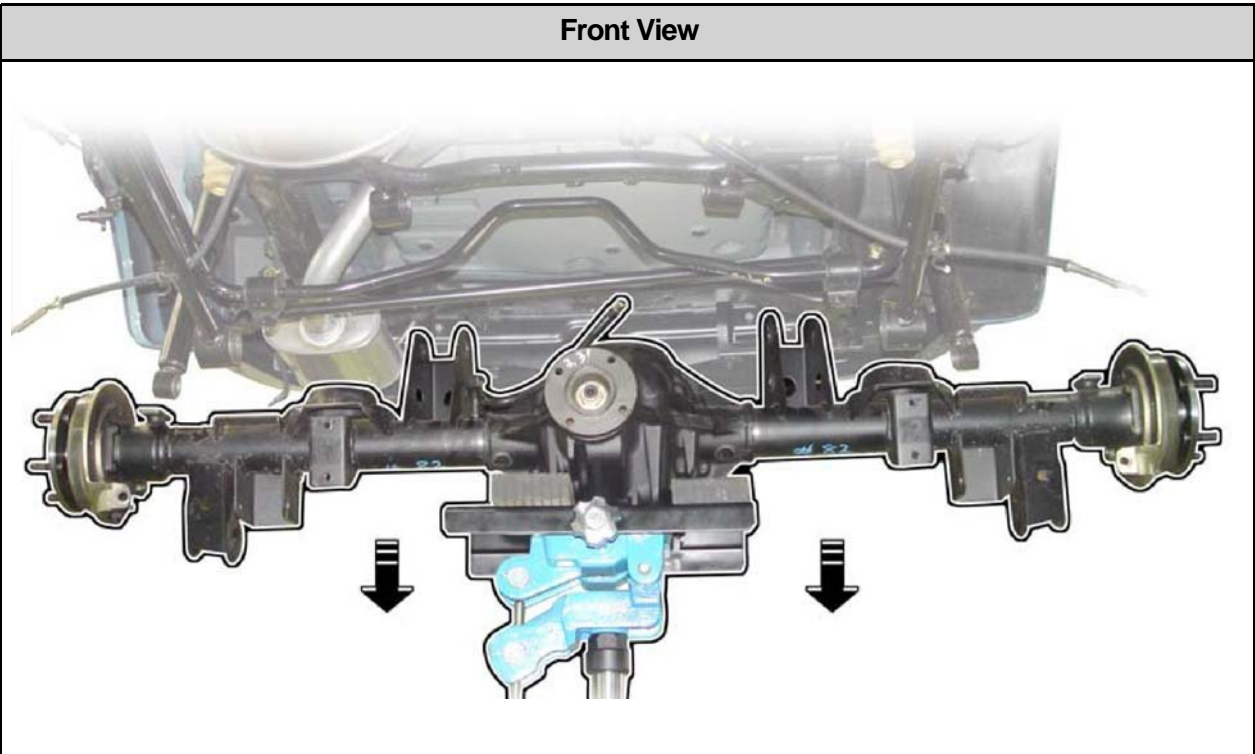
D



D. Stabilizer mounting bracket	E. Propeller shaft	B. Lower arm	C. Shock absorber
			

D. Mounting bracket bolts of stabilizer bar (14 mm - 2 EA: LH/RH)	E. Remove the propeller shaft to the rear axle housing. Assembly mark	F. Upper arm bolt/nut (22 mm)
		
Tightening torque 40 ~ 60 Nm	Tightening torque 70 ~ 80 Nm	Tightening torque 150 ~ 180 Nm

3. Carefully lower the safety jack to remove the rear axle assembly from the vehicle frame.



Modification basis	
Application basis	
Affected VIN	

Memo

[illegible]