

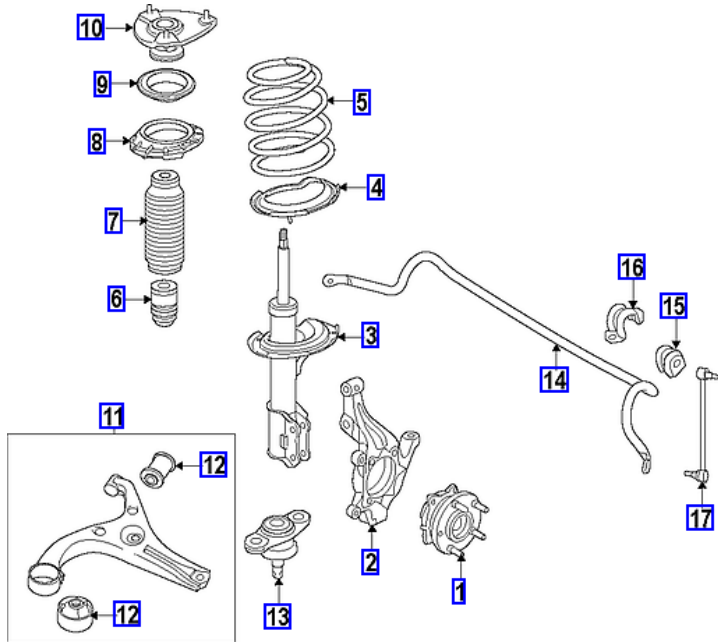
Component Procedures: Suspension

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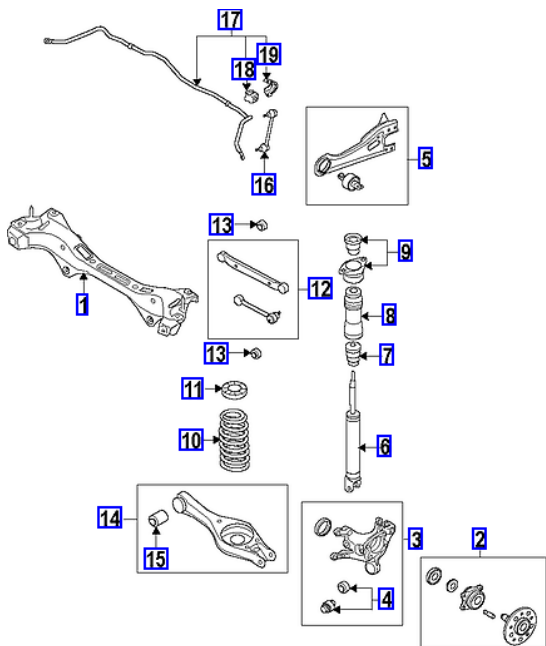
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Component Procedures: Suspension

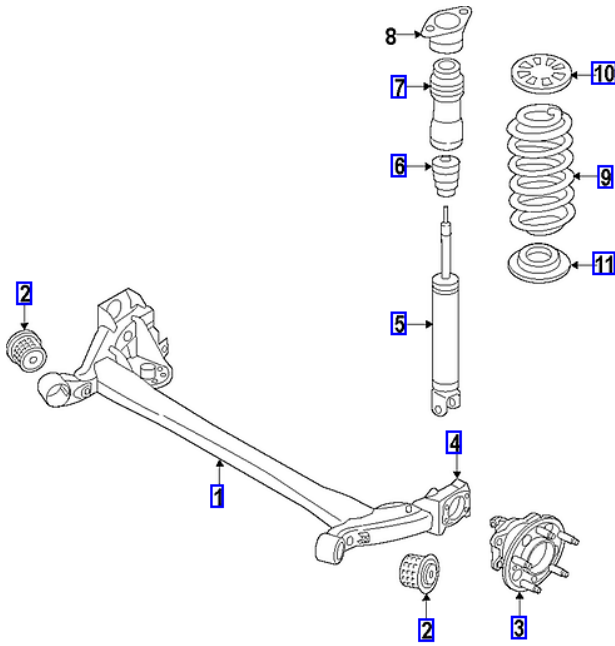
Front Suspension (Article 80012)



Rear Suspension, Multi Link (Article 80004)



Rear Suspension, Torsion Axle (Article 80014)



Parts and Labor (itype_189)

Parts

| Qualifier | Part # | Name | Price | Note |
|-------------------------------|------------|-------------------------|---------|-----------------------------|
| Multi Link > Rear Suspension? | 55210F2BA0 | 14 - Left | 447.05 | |
| Multi Link > Rear Suspension? | 55220F2BA0 | 14 - Right | 447.05 | |
| Multi Link > Rear Suspension? | 55230F2AA0 | 15 - Bushings | 51.27 | |
| Multi Link > Rear Suspension? | 55410F2BA0 | 1 - Crossmember | 833.00 | |
| Multi Link > Rear Suspension? | 55530G2000 | 16 - Link | 110.40 | |
| Multi Link > Rear Suspension? | 55510G2000 | 17 - Stabilizer Bar | 259.89 | |
| Multi Link > Rear Suspension? | 555133N200 | 18 - Bushings | 28.08 | |
| Multi Link > Rear Suspension? | 555143M101 | 19 - Left | 14.42 | |
| Multi Link > Rear Suspension? | 555153M101 | 19 - Right | 15.03 | |
| Multi Link > Rear Suspension? | 52730G2000 | 2 - Hub & Bearing Asse? | 866.18 | |
| Multi Link > Rear Suspension? | 55217F2AA0 | 4 - Bushings | 54.32 | |
| Multi Link > Rear Suspension? | 55310F2710 | 6 - Shock Absorber | 168.39 | Order By Vehicle Applicati? |
| Multi Link > Rear Suspension? | 55326F2000 | 7 - Strut Bumper | 62.71 | |
| Multi Link > Rear Suspension? | 55370G2000 | 8 - Shield | 16.26 | |
| Multi Link > Rear Suspension? | 55330F2100 | 9 - Strut Mount | 65.90 | |
| Multi Link > Rear Suspension? | 55350F2DA0 | 10 - Coil Spring | 236.56 | |
| Multi Link > Rear Suspension? | 55370C1100 | 11 - Upper Spring Insu? | 20.73 | |
| Multi Link > Rear Suspension? | 55360G2000 | Lower Spring Insulator | 16.55 | |
| Multi Link > Rear Suspension? | 52710F2AA0 | 3 - Left | 858.63 | |
| Multi Link > Rear Suspension? | 52720F2AA0 | 3 - Right | 858.63 | |
| Multi Link > Rear Suspension? | 55270F2AA0 | 5 - Left | 325.00 | |
| Multi Link > Rear Suspension? | 55280F2AA0 | 5 - Right | 325.00 | |
| Multi Link > Rear Suspension? | 55100F2BA0 | 12 - Left | 215.45 | |
| Multi Link > Rear Suspension? | 55101F2BA0 | 12 - Right | 215.45 | |
| Multi Link > Rear Suspension? | 55130F2AA0 | 13 - Bushings | 58.94 | |
| Torsion Axle > Rear Suspensi? | 55160F2100 | 2 - Bushings | 61.37 | |
| Torsion Axle > Rear Suspensi? | 55100F2000 | 1 - Torsion Assembly | 1149.27 | |
| Torsion Axle > Rear Suspensi? | 52730F2000 | 3 - Hub & Bearing Asse? | 866.18 | |
| Torsion Axle > Rear Suspensi? | 55310F2710 | 5 - Shock Absorber | 168.39 | |
| Torsion Axle > Rear Suspensi? | 55326F2000 | 6 - Strut Bumper | 62.71 | |
| Torsion Axle > Rear Suspensi? | 55316F2000 | 7 - Shield | 12.05 | |
| Torsion Axle > Rear Suspensi? | 55330F2100 | 8 - Strut Mount | 65.90 | |
| Torsion Axle > Rear Suspensi? | 55350F2300 | 9 - Coil Spring | 236.56 | |
| Torsion Axle > Rear Suspensi? | 55370F2000 | 10 - Upper Spring Insu? | 27.81 | |

| | | | | |
|-------------------------------|------------|-------------------------|--------|-----------------------------|
| Torsion Axle > Rear Suspensi? | 55360F2100 | 11 - Lower Spring Insu? | 16.55 | |
| Torsion Axle > Rear Suspensi? | | 4 - Part Of Crossmembe? | 0.00 | |
| Torsion Axle > Rear Suspensi? | 55310F2710 | 5 - With 17" Wheels | 168.39 | |
| Front Suspension > Bushings ? | | 12 - Part Of Lower Con? | 0.00 | |
| Front Suspension > Front Sus? | 62405F2050 | Korea Built | 974.14 | |
| Front Suspension > Front Sus? | 62405F3050 | Us Built | 960.68 | |
| Front Suspension > Front Sus? | 62486F2000 | Lower | 50.08 | |
| Front Suspension > Front Sus? | 62485F2000 | Left | 40.52 | |
| Front Suspension > Front Sus? | 62485F2100 | Right | 40.52 | |
| Front Suspension > Lower Con? | 545513X000 | 12 - A Bushing | 42.60 | |
| Front Suspension > Lower Con? | 54584F2AA0 | 12 - With Sport | 52.66 | |
| Front Suspension > Lower Con? | 54584F2000 | 12 - Without Sport | 52.66 | |
| Front Suspension > Lower Con? | 54584F2000 | 12 - G Bushing | 52.66 | |
| Front Suspension > Lower Con? | | 12 - Part Of Lower Cnt? | 0.00 | |
| Front Suspension > Lower Con? | 54500F2AA0 | 11 - Left | 450.94 | Includes Ball Joint & Bush. |
| Front Suspension > Lower Con? | 54501F2AA0 | 11 - Right | 450.94 | Includes Ball Joint & Bush. |
| Front Suspension > Lower Con? | 54500F2000 | 11 - Left | 450.94 | Includes Ball Joint & Bush. |
| Front Suspension > Lower Con? | 54501F2000 | 11 - Right | 450.94 | Includes Ball Joint & Bush. |
| Front Suspension > Lower Con? | 54530F2000 | 13 - Left | 128.85 | |
| Front Suspension > Lower Con? | 54530F2100 | 13 - Right | 128.85 | |
| Front Suspension > Lower Con? | 54500F3000 | 11 - Left | 463.84 | Includes Ball Joint & Bush. |
| Front Suspension > Lower Con? | 54501F3000 | 11 - Right | 420.27 | Includes Ball Joint & Bush. |
| Front Suspension > Stabilize? | 54810G2000 | 14 - With Sport | 264.87 | Includes Bushings & Bracke? |
| Front Suspension > Stabilize? | 54810F2000 | 14 - Without Sport | 264.87 | Includes Bushings & Bracke? |
| Front Suspension > Stabilize? | 54830F2000 | 17 - Link | 97.73 | |
| Front Suspension > Stabilize? | 548143R000 | 16 - Left | 10.87 | |
| Front Suspension > Stabilize? | 548143R000 | 16 - Right | 10.87 | |
| Front Suspension > Stabilize? | 548133S110 | 15 - With Sport | 17.87 | |
| Front Suspension > Stabilize? | 548132T000 | 15 - Without Sport | 24.52 | |
| Front Suspension > Suspensio? | 51750F2000 | 1 - Front Hub | 478.77 | |
| Front Suspension > Suspensio? | 54626F2000 | 6 - Strut Bumper | 75.69 | |
| Front Suspension > Suspensio? | 54625F2000 | 7 - Shield | 42.02 | |
| Front Suspension > Suspensio? | 54612C1000 | 9 - Strut Bearing | 57.27 | |
| Front Suspension > Suspensio? | 54630F2860 | 5 - With Power Touch S? | 176.00 | |
| Front Suspension > Suspensio? | 54630F2660 | 5 - Without Power Touc? | 176.00 | |
| Front Suspension > Suspensio? | 51715F2000 | 2 - Left | 467.48 | |
| Front Suspension > Suspensio? | 51716F2000 | 2 - Right | 467.48 | |
| Front Suspension > Suspensio? | 54633F2000 | 4 - Korea Built | 27.76 | |
| Front Suspension > Suspensio? | 54633F3000 | 4 - Us Built | 36.66 | |
| Front Suspension > Suspensio? | 54651F2800 | 3 - Left | 239.82 | |
| Front Suspension > Suspensio? | 54661F2800 | 3 - Right | 239.82 | |
| Front Suspension > Suspensio? | 54651F2800 | 3 - Left | 239.82 | |
| Front Suspension > Suspensio? | 54661F3800 | 3 - Right | 424.68 | |
| Front Suspension > Suspensio? | 54651F3700 | 3 - Left | 353.27 | |
| Front Suspension > Suspensio? | 54661F3700 | 3 - Right | 353.27 | |
| Front Suspension > Suspensio? | 54612C1000 | 9 - Us Built | 57.27 | |
| Front Suspension > Suspensio? | 54610F3000 | 10 - Us Built | 322.06 | |
| Front Suspension > Suspensio? | 54610F2AA0 | 10 - With Sport | 222.23 | |
| Front Suspension > Suspensio? | 54610F2000 | 10 - Without Sport | 222.23 | |
| Front Suspension > Suspensio? | 54623D4000 | 8 - Korea Built | 19.29 | |
| Front Suspension > Suspensio? | 54623C2000 | 8 - Us Built | 58.13 | |

Labor

| Operation | Qualifier Path | Skill | Std Hrs | Wty Hrs |
|------------------|--|-------|---------|---------|
| Remove & Replace | Front Suspension > Crossmember, R&R | B | 3.6 | 0.0 |
| Remove & Replace | Front Suspension > Lower Control Arm > Lower ? | B | 1.1 | 0.0 |
| Remove & Replace | Front Suspension > Lower Control Arm > Lower ? | | 0.3 | |
| Remove & Replace | Front Suspension > Lower Control Arm > Lower ? | | 0.2 | |
| Remove & Replace | Front Suspension > Lower Control Arm > Lower ? | | 0.2 | |

NU 2.0 6 MT BJ#23 CTJ#23 46.5° 23°
6 A/T BJ#23 CTJ#23
1.4 T-GDI 6 MT BJ#23 CTJ#23 46.5° 23°
7DCT BJ#24 CTJ#24
- Tightening torque
Item N.m kgf.m lb-ft
Front Hub nut s 107.9 ~ 127.5 11.0 ~ 13.0 79.6 ~ 94.0
Driveshaft caulking nut 274.6 ~ 294.2 28.0 ~ 30.0 202.5 ~ 217.0
Strut assembly to knuckle 156.9 ~ 176.5 16.0 ~ 18.0 115.7 ~ 130.2
Front caliper to knuckle 78.5 ~ 98.1 8.0 ~ 10.0 57.9 ~ 72.3
Wheel speed sensor mounting bolt 7.8 ~ 11.8 0.8 ~ 1.2 5.8 ~ 8.7
Disc fixing screw 4.9 ~ 5.9 0.5 ~ 0.6 3.6 ~ 4.3
Lower arm to knuckle 58.8 ~ 70.6 6.0 ~ 7.2 43.4 ~ 52.1
Tie rod end castle nut 24.5 ~ 34.3 2.5 ~ 3.5 18.1 ~ 25.3
Rear Hub nuts 107.9 ~ 127.5 11.0 ~ 13.0 79.6 ~ 94.0
Rear caliper to torsion beam axle 63.7 ~ 73.5 6.5 ~ 7.5 47.0 ~ 54.2
Wheel speed sensor mounting bolt 8.8 ~ 13.7 0.9 ~ 1.4 6.5 ~ 10.1
Rear herb assembly to torsion beam axle 49.0 ~ 58.8 5.0 ~ 6.0 36.2 ~ 43.4
Replace caulking nuts with new ones after removal.

NOTICE

- Replace caulking nuts with new ones after removal.
- Lubricants

Engine Joint type Lubricants Quantity

NU 2.0 BJ BM71-141 90g + 10g

TJ CW09-VX21 125g + 10g

1.4 T-GDI BJ BM71-141 100g + 10g

TJ CW09-VX21 130g + 10g

Driveshaft and Axle - Specifications (Article 45258)

- Specification

Engine Transaxle Joint type Max. permissible angle

Outer Inner Outer Inner

NU 2.0 6 MT BJ#23 CTJ#23 46.5° 23°

6 A/T BJ#23 CTJ#23

1.4 T-GDI 6 MT BJ#23 CTJ#23 46.5° 23°

7DCT BJ#24 CTJ#24

- Tightening torque

Item N.m kgf.m lb-ft

Front Hub nut s 107.9 ~ 127.5 11.0 ~ 13.0 79.6 ~ 94.0

Driveshaft caulking nut 274.6 ~ 294.2 28.0 ~ 30.0 202.5 ~ 217.0

Strut assembly to knuckle 156.9 ~ 176.5 16.0 ~ 18.0 115.7 ~ 130.2

Front caliper to knuckle 78.5 ~ 98.1 8.0 ~ 10.0 57.9 ~ 72.3

Wheel speed sensor mounting bolt 7.8 ~ 11.8 0.8 ~ 1.2 5.8 ~ 8.7

Disc fixing screw 4.9 ~ 5.9 0.5 ~ 0.6 3.6 ~ 4.3

Lower arm to knuckle 58.8 ~ 70.6 6.0 ~ 7.2 43.4 ~ 52.1

Tie rod end castle nut 24.5 ~ 34.3 2.5 ~ 3.5 18.1 ~ 25.3

Rear Hub nuts 107.9 ~ 127.5 11.0 ~ 13.0 79.6 ~ 94.0

Rear caliper to torsion beam axle 63.7 ~ 73.5 6.5 ~ 7.5 47.0 ~ 54.2

Wheel speed sensor mounting bolt 8.8 ~ 13.7 0.9 ~ 1.4 6.5 ~ 10.1

Rear herb assembly to torsion beam axle 49.0 ~ 58.8 5.0 ~ 6.0 36.2 ~ 43.4

Replace caulking nuts with new ones after removal.

NOTICE

- Replace caulking nuts with new ones after removal.

- Lubricants

Engine Joint type Lubricants Quantity

NU 2.0 BJ BM71-141 90g + 10g

TJ CW09-VX21 125g + 10g

1.4 T-GDI BJ BM71-141 100g + 10g

TJ CW09-VX21 130g + 10g

Suspension System - Specifications (Article 44268)

- Specifications

Front Suspension

Item Specification

Suspension type Mac Pherson Strut

Shock absorber Type Advanced Valve(RS Valve)

Rear Suspension

Suspension type Torsion Beam Axle

Wheel & Tire

Wheel Aluminum 6.0J * 15

6.5J * 16

7.0J * 17

7.5J * 18

Steel 6.0J * 15

Tire 195/65 R15

205/55 R16

225/45 R17

225/40 R18

Spare tire TMK (tire mobility kit)

T125/80 D15

T125/80 D16

Tire pressure kPa (psi) 195/65 R15 230 (33)

205/55 R16 230 (33)

215/45 R17 230 (33)

225/40 R18 230 (33)

T125/80 D15 420 (60)

T125/80 D16 420 (60)

Wheel Alignment

Front Toe-in Total $0.1^\circ \pm 0.2^\circ$

Individual $0.05^\circ \pm 0.1^\circ$

Camber angle $-0.55 \pm 0.5^\circ$

Caster angle $4.5^\circ \pm 0.5^\circ$

King-pin angle $14.0^\circ \pm 0.5^\circ$

Ride Height 367 ± 10 mm (14.4488 ± 0.3937)

Rear Toe-in Total $0.34^\circ \pm 0.3^\circ$

Individual $0.17^\circ \pm 0.15^\circ$

Camber angle $-1.2^\circ \pm 0.5^\circ$

Ride Height 364 ± 10 mm (14.3307 ± 0.3937)

Tightening Torques

Item Tightening torque (kgf.m)

N.m kgf.m lb-ft

Hub nut s 107.9 - 127.5 11.0 - 13.0 79.6 - 94.0
Lower arm to sub frame (Front) 117.7 - 137.3 12.0 - 14.0 86.8 - 101.3
Lower arm to sub frame (Rear) 156.9 - 176.5 16.0 - 18.0 115.7 - 130.2
Lower arm to knuckle 58.8 - 70.6 6.0 - 7.2 43.4 - 52.1
Tie rod end castle nut 24.5 - 34.3 2.5 - 3.5 18.1 - 25.3
Steering gear box to sub frame 88.3 - 107.9 9.0 - 11.0 65.1 - 79.6
Stabilizer bar to stabilizer link 98.1 - 117.7 10.0 - 12.0 72.3 - 86.8
Stabilizer bar to sub frame 44.1 - 53.9 4.5 - 5.5 32.5 - 39.8
Stabilizer bar to front strut assembly 98.1 - 117.7 10.0 - 12.0 72.3 - 86.8
Front strut assembly to front axle 156.9 - 176.5 16.0 - 18.0 115.7 - 130.2
Strut assembly lock nut 98.1 10 72.3
Sub frame mounting bolt & nut 156.9 - 176.5 16.0 - 18.0 115.7 - 130.2
Sub frame stay bolt 44.1 - 53.9 4.5 - 5.5 32.5 - 39.8
Bolt connecting universal joint to pinion 32.4 - 38.3 3.3 - 3.8 23.9 - 27.5
Roll rod bracket to roll rod support bracket fixing bolt & nut 107.9 - 127.5 11.0 - 13.0 79.6 - 94.0
Hub nuts 107.9 - 127.5 11.0 - 13.0 79.6 - 94.0
Shock absorber to body 49.0 - 63.7 5.0 - 6.5 36.2 - 47.0
Shock absorber to torsion beam axle 98.1 - 117.7 10.0 - 12.0 72.3 - 86.8
Torsion beam axle to frame 156.9 - 176.5 16.0 - 18.0 115.7 - 130.2
Bitmap Torsion beam axle to brake caliper 63.7 - 73.5 6.5 - 7.5 47.0 - 54.2

All Technical Service Bulletins (itype_100)

Tsbs

- WHEEL BEARING NOISE INSPECTION (19-DS-001H-1, 2019/02/05)

Driveshaft and Axle - Troubleshooting (Article 45283)

- Troubleshooting

Trouble Symptom Probable cause Remedy

Vehicle pulls to one side Scoring of driveshaft ball joint Replace

Wear, rattle or scoring of wheel bearing Replace

Defective front suspension and steering Adjustment or Replace

Vibration Wear, damage or bending of driveshaft Replace

Driveshaft rattle and hub serration Replace

Wear, rattle or scratching of wheel bearing Replace

Shimmy Defective wheel balance Adjustment or Replace

Excessive noise Wear, damage or bending of driveshaft Replace

Rattle of driveshaft and worn hub splines Replace

Loose hub nut Adjustment or Replace

Suspension System - Troubleshooting (Article 44275)

- Troubleshooting

Symptom Possible cause Remedy

Hard steering Improper front wheel alignment Excessive turning resistance of lower arm ball joint Low tire pressure No power assist Correct Replace Adjust Repair and replace

Poor return of steering wheel to center Improper front wheel alignment Correct

Poor or rough ride Improper front wheel alignment Malfunctioning shock absorber Broken or worn stabilizer

Broken or worn coil spring Worn lower arm bushing Correct Repair or replace Replace Replace Replace the lower arm assembly

Abnormal tire wear Improper front wheel alignment Improper tire pressure Malfunctioning shock absorber Correct Adjust or replace Replace

Wandering Improper front wheel alignment Poor turning resistance of lower arm ball joint Loose or worn lower arm bushing Correct Repair Retighten or replace

Vehicle pulls to one side Improper front wheel alignment Excessive turning resistance of lower arm ball joint

Broken or worn coil spring Bent lower arm Correct Replace Replace Repair

Steering wheel shimmy Improper front wheel alignment Poor turning resistance of lower arm ball joint Broken or worn stabilizer Worn lower arm bushing Malfunctioning shock absorber Broken or worn coil spring Correct

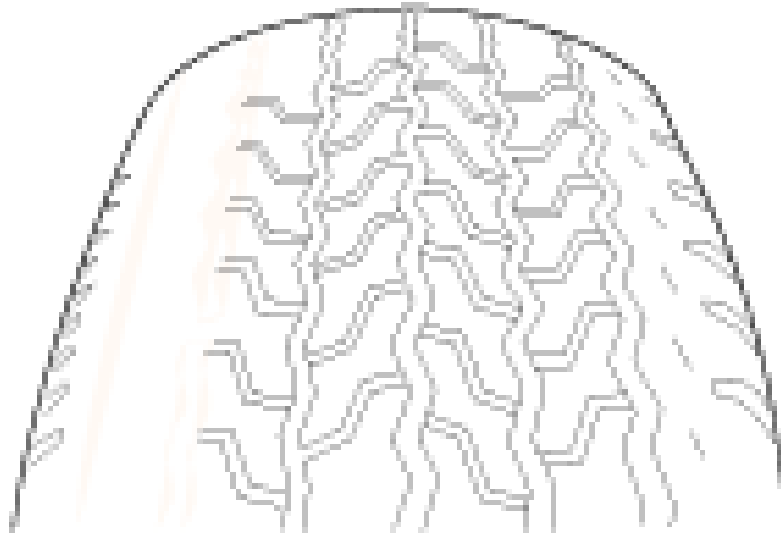
Replace Replace Replace Replace Replace

Bottoming Broken or worn coil spring Malfunctioning shock absorber Replace Replace

Wheel and tire diagnosis

Rapid wear at the center Rapid wear at both shoulders Wear at one shoulder

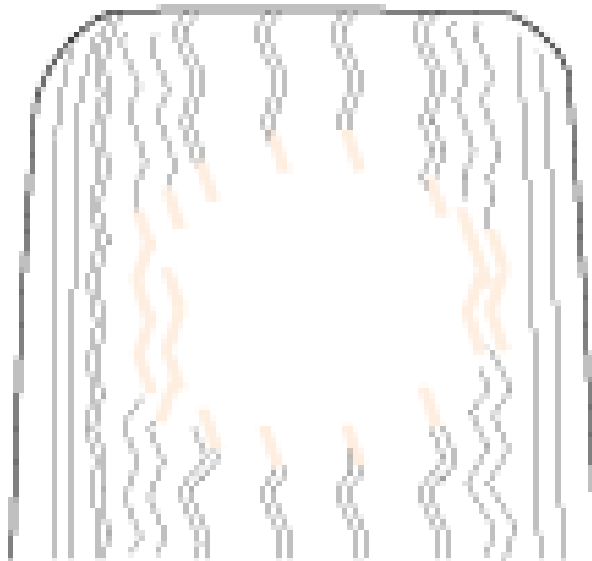


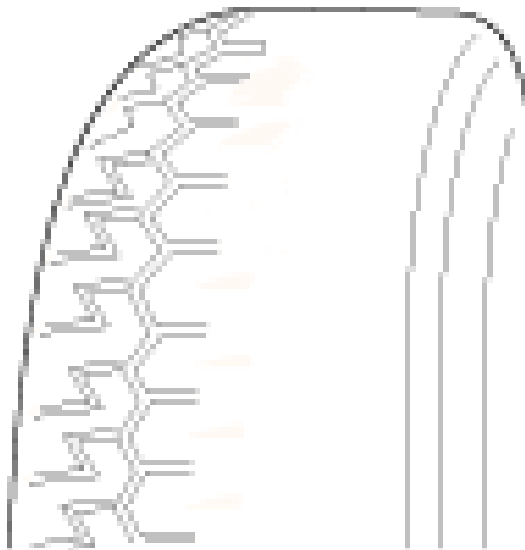


Center-tread down to fabric due to excessive over inflated tires Lack of rotation Excessive toe on drive wheels Heavy acceleration on drive Under-inflated tires Worn suspension components Excessive cornering speeds Lack of rotation Toe adjustment out of specification Camber out of specification Damaged strut Damaged lower arm

- Center-tread down to fabric due to excessive over inflated tires
- Lack of rotation
- Excessive toe on drive wheels
- Heavy acceleration on drive
- Under-inflated tires
- Worn suspension components
- Excessive cornering speeds
- Toe adjustment out of specification
- Camber out of specification
- Damaged strut
- Damaged lower arm

Partial wear Feathered edge Wear pattern



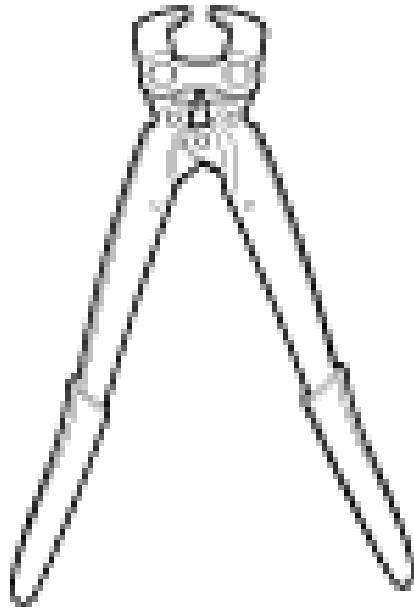


Caused by irregular burrs on brake drums Toe adjustment out of specification Damaged or worn tie rod s Damaged knuckle Excessive toe on non-drive wheels Lack of rotation

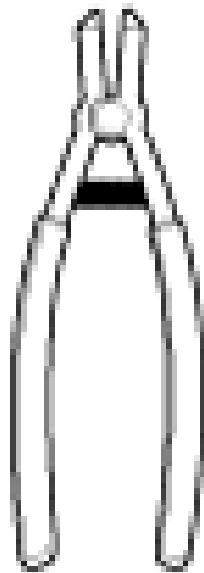
- Caused by irregular burrs on brake drums
- Damaged or worn tie rod s
- Damaged knuckle
- Excessive toe on non-drive wheels

Driveshaft and Axle - Special Service Tools (Article 45277)

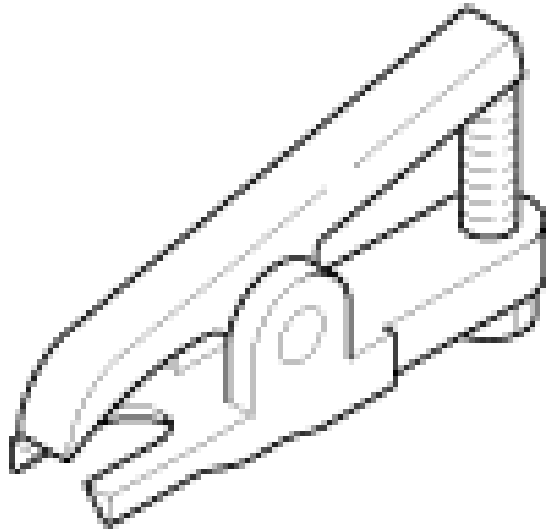
- Special Service Tools
- Tool(Number and Name) Illustration Use
 09495-3K000 Band installer Installation of ear type boot band



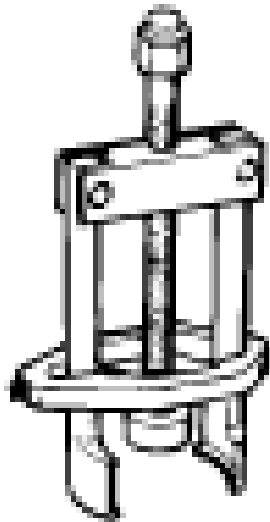
09495-39100 Band installer Installation of hook type boot band



09568-1S100 Ball joint puller Saperate the ball joint from the front axle



09495-33000 Puller Removal of spider assembly from a drive shaft

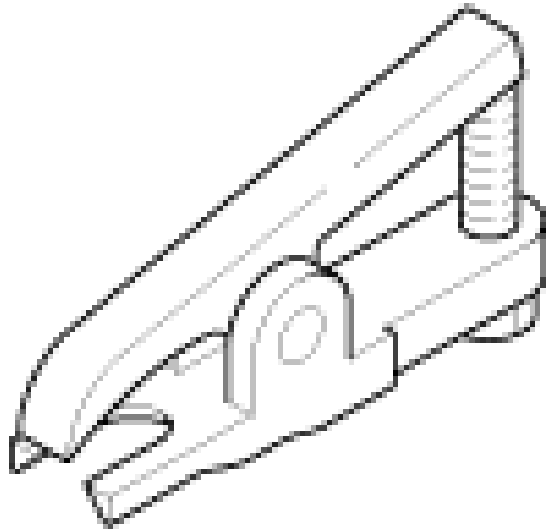


Suspension System - Special Service Tools (Article 44274)

- Special Service Tools

Tool (Number and Name) Illustration Use

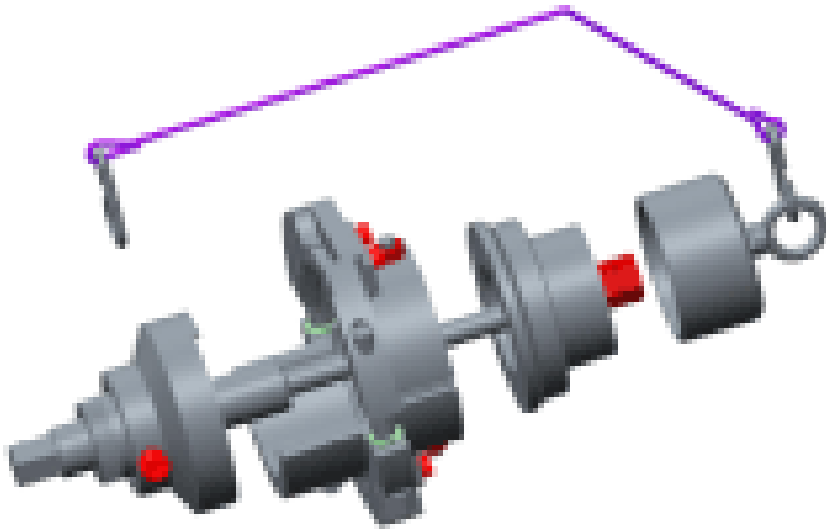
09568-1S100 Saperate the ball joint from the front axle



09546-3X100 Shock absorber lock nut removal tool Used for remove the shock absorber lock nut.



09551-AL100 Rear torsion beam axle bush removal / installation tool Rear torsion beam axle bush removal and installation tool



09545-AL100 Front lower arm G bushing replacement tool Used for replacement of the front lower arm G bushing



Noise (itype_156)

Tsbs

- WHEEL BEARING NOISE INSPECTION (19-DS-001H-1, 2019/02/05)