Driveshaft and Axle

GENERAL

FRONT AXLE FRONT HUB / KNUCKLE

DRIVESHAFT FRONT DRIVESHAFT ASSEMBLY FRONT DRIVESHAFT (TJ-BJ TYPE)

REAR AXLE REAR HUB / AXLE

حیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



DRIVESHAFT AND AXLE

DS -2

GENERAL

SPECIFICATIONS E1BBF0AA

Item		2.4 M/T	2.4 A/T	
Wheel bearing	Туре		Double row angular contact ball bearing	
	Starting torque		28N (0.18 kgf·m, 16 lbf·in) or less	
	Dimension (O.D x I.D.) mm (in)		Ø 84 X Ø45	
Drive shaft	Joint type	Outer	BJ	BJ
		Inner	TJ	TJ
	Maximum normiasible angle	Outer	45°	45°
	Maximum permissible angle	Inner 21°	21°	21°
Hub end play		0.008 mm (0.0003 in) or less		

- B.J. : Birfield Joint

- T.J. : Tripod Joint

TIGHTNING TORQUE **EECC2819**

Item	N⋅m	kgf-m	lbf-ft
Drive shaft castle nut	200~280	20~28	148~207
Brake caliper to knuckle	50~60	5~6	<mark>36</mark> ~44
Lower arm ball joint to knuckle nut	100~120	10~12	74~88
نه دیجیتا رتعمیرکاران خودرودر Wheel nut	90~110	9~11	66~ <mark>81</mark>
Shock absorber lower mounting bolt	140~160	14~16	101~ <mark>118</mark>
Stabilizer link mounting nut	100~120	10~12	74~88
Tie rod end self locking nut	24~34	2.4~3.4	18~25
Rear upper arm to carrier self locking nut	80~90	8~9	59~66
Lower arm ball joint self locking nut	75~90	7.5~9	54.2~66
Rear axle mounting bolt	60~70	6~7	44~52
Front Upper arm to knuckle self locking nut	35~45	3.5~4.5	26~33

Replace self-locking nuts with new ones after removal.

GENERAL

SPECIAL TOOLS EDECB799

DS -3

Tool (Number and Name)	Illustration	Use
09568-4A000 Ball joint remover	KPRE 103	Removal of the front lower arm and tie rod end ball joint
09517-21500	KPRE 1031	Manurament of wheel bearing
Front hub remover and installer		Measurement of wheel bearing preload
	EIRF001A	
09432-11000 Bearing and gear puller سامانه (مسئوليت محدود) سيركاران خودرو در ايران	HAR .	Removal of the bearing inner race from the front hub
09532-11600 Preload socket	EIRF001C	Measurement of the wheel bearing preload (use with torque wrench)
09216-21100	EIKF001C	Removal of the center hearing
Mount bushing removerand installer		 Removal of the center bearing Press-fitting of the front wheel bearing outer race (Use with 09495-33100, 09216-21600)
	KIRE103D	

021-62999292

DS -4

DRIVESHAFT AND AXLE

Tool (Number and Name)	Illustration	Use
09495-33000 Mainshaft bearing puller		Removal of the tone wheel
	KIRE103E	
09216-21600 Mount bushing removerand installer		Removal of the wheel bearing outer race
	KIRE103D	
09545-21100 Ball joint dust cover installer		Press-fitting of the front hub to the knuckle
	EIRF001D	
09545-34100 Lower arm bushing removerand installer	اوین ساماله دیجیتال ته	Removal of the bearing inner race from the front hub
	KIRE103H	

021-62999292

GENERAL

Tool (Number and Name)	Illustration	Use
, , ,	IndStration	
09453-33000B Snap ring installer	KIRE 103I	Removal and installation of the rear axle carrier bushing (Use with 09552-38200)
09216-22100 Mount bushing removerand installation base	KIRE103J	Removal of the wheel bearing outer race (Use with 09216-21600)

حیجیتال خودرو سامانه (مسئولیت محدود)



ولین سامانه دیجیتال تعمیرکاران خودرو در ایران

DRIVESHAFT AND AXLE

TROUBLESHOOTING E7A3AAA3

Symptom	Possible cause	Remedy
Vehicle pulls to one side	Scoring of driveshaft ball joint Wear, rattle or scoring of wheel bearing Defective front suspension and steering	Replace Replace Adjust or replace
Vibration	Wear, damage or bending of driveshaft Driveshaft rattle and worn hub splines Wear, rattle or scratching of wheel bearing	Replace Replace Replace
Shimmy	Improper wheel balance Bent wheel Defective front suspension and steering	Adjust or replace Replace Adjust or replace
Excessive noise	Wear, damage or bending of driveshaft Driveshaft rattle and worn hub splines Driveshaft rattle and worn side gear splines Wear, rattle or galling of wheel bearing Loose hub nut Defective front suspension and steering	Replace Replace Replace Replace Adjust or replace Adjust or replace
Bent cage	Cage damaged by improper handling or tool usage	Replace bearing
Galling	Metal smears on roller end due to overheating, incorrect lubricant or overloading	Replace bearing Check seals, check for proper lubrication
Cracked inner race	Race cracked due to improper fit, cocking or poor bearing seats	Replace bearing
فسئوليت محEtching	Bearing surfaces appear gray or grayish black in color accompanied by material etched away usually at roller spacing	Replace bearing Check seals, check for proper lubrication
Brinelling	Surface indentations on race surface caused by rollers being under impact loading or vibration while the bearing is not rotating	Replace bearing
Heat discoloration	Heat discoloration is dark blue resulting from overload or no lubricant (Yellow or brown color is normal)	Replace bearing Check seals and other parts
Fatigue spalling	Flaking of surface metal resulting from fatigue	Replace bearing Clean all related parts

DRIVESHAFT

DRIVESHAFT

FRONT DRIVESHAFT ASSEMBLY

COMPONANTS E3D60C34



- 2. Circlip
- 3. Transaxle

4. Circlip

5. Driveshaft (RH)

EIRF200A

WWW.DIGITALKHODRO.COM

021-62999292

DS-8

REMOVAL E89AD40C

- 1. Remove the wheel and tire.
- 2. Remove the split pin and driveshaft castle nut from the front hub.





Remove the 2 bolts and disconnect the ball joint from the knuckle.



5. Using a plastic hammer, disconnect the driveshaft from the axle hub.



KIRE201C

Removing the driveshaft from the transaxle by using 6. a pry bar as shown below.





KHRE120A

4. Remove the tie rod end ball joint from the front axle assembly.



- Use a pry bar so you do not damage the joint.
- · If you pull the driveshaft by excessive force, components inside the joint can be displaced causing the boot to be torn and the bearing to be damaged.
- Plug the transaxle case opening with an oil seal cap in order to avoid contamination.
- Support the driveshaft properly.
- Replace the retainer ring each time the driveshaft is removed from the transaxle case.
- · While loosening the driveshaft nut, do not allow vehicle weight to be concentrated on the wheel bearing. If the vehicle moves, hold the wheel bearing using the special tool.

021-62999292

DS-9

KIRE203A

DRIVESHAFT



KIRE201E

7. Using the special tool (09432-11000), remove the tone wheel.



FIOF110F

INSPECTION EBD4EC0E

- Check the driveshaft boots for damage and deteriora-1. tion.
- 2. Check the splines for wear and damage.

INSTALLATION E1143DDC

Replace the circlip with new ones after removal.

1. Tighten the following parts to the specified torque.

Drive shaft castle nut : 200~280N·m 20~28kgf·m 148~207 lbf·ft Lower arm ball joint to knuckle nut : 100~120N·m 10~12kgf·m 74~88 lbf·ft Lower arm ball joint self locking nut : 75~90N·m 7.5~9kgf·m 54.2~66 lbf·ft

- Replace the retainer ring with new one whenever re-2. moving the driveshaft from the transaxle.
- 3. Position the washer so that the convex side faces outside and install the castle nut and split pin.



EIRF205A

3. Check the ball joints for wear and operating condition.



DRIVESHAFT AND AXLE

FRONT DRIVESHAFT (TJ-BJ TYPE)

COMPONANTS E2DD6B50



EIRF300A

WWW.DIGITALKHODRO.COM

DRIVESHAFT

DISASSEMBLY E8D29E44

DRIVESHAFT (LH)

NOTE

- Do not disassemble the BJ. assembly.
- Special grease must be applied to the driveshaft joint. Do not substitute with another type of grease.
- The boot band should be replaced with a new one.
- 1. Remove the circlip(B) from driveshaft splines(A) of the transaxle side TJ. case(C).

С



EIRF301C

EIRF301D

- 3. Pull out the boot from the transaxle side joint(TJ).
- 4. While dividing joint(TJ) boot(A) of the transaxle side wipe the grease in TJ. case(B) and collect them respectively.

2. Remove the both boot clamps from the transaxle side TJ. case.

 Using a plier or flat-tipped (-) screwdriver, remove the both clamps(TJ. boot band(B), boot band(A)) of the transaxle side.



В

- Be careful not to damage the boot.
- According to below the illustrated, put marks(D) on roller of spider assembly(A), TJ. case(B) and spline part(C), for providing assembly.

EIRF301B

EIRF301A

021-62999292

DS -12



EIRF301E

5. Using a plier or flat-tipped (-) screwdriver, remove the circlip(A).

DRIVESHAFT AND AXLE

For reusing the boot(A) wrap tape(B) around the driveshaft splines(C) to protect the boot(A).



EIRF301H

9. Using a plier or flat-tipped (-) screwdriver, remove the both side of clamps(B,C) of the dynamic damper(A).



EIRF301I

10. Fix the driveshaft(A) with a vice(B) as illustrated.



EIRF301J

A B



EIRF301G

- 7. Clean the spider assembly.
- 8. Remove the boot(A), of the transaxle side joint(TJ).

WWW.DIGITALKHODRO.COM

DRIVESHAFT

- 11. Apply soap powder on the shaft to prevent being damaged between the shaft spline and the dynamic damper when the dynamic damper is removed.
- 12. Saperate the dynamic damper(A) from the shaft(B) carefully.



13. Using a plier or flat-tipped (-) screwdriver, remove the

both clamps(A,B) on the side of wheel.



REASSEMBLY EECA8033

- Wrap tape around the driveshaft splines (TJ. side) to 1. prevent damage to the boots.
- 2. Apply grease to the driveshaft and install the boots.

В

Recommended lubricant : B.J. Boot grease : CENTOPLEX 278M/136K T.J. Boot grease : MX-13KT

3. Install the clamps(A,B) to both boots. В EIRF301L

EIRF301K

14. Pull out the joint(BJ) on the side of wheel into the transaxle direction. Be carefull not to damage the boot.

INSPECTION EECFD53D

- Check the driveshaft spline for wear or damage. 1.
- Check that there is no water or foreign material in the 2. BJ.
- 3. Check the spider assembly for roller rotation, wear or corrosion.
- Check the groove inside the TJ. case for wear or cor-4. rosion.

EIRF301L

WWW.DIGITALKHODRO.COM

021-62999292

DS -13

5. Check the dynamic damper for damage or cracks.

To reassemble the dynamic damper(A), keeping 4. the shaft(B) in the straight, tighten the dynamic damper(A) with dynamic bands(C), as the illustration.



- DRIVESHAFT AND AXLE
- 7. Add the specified grease to the TJ. as mush as wiped away at inspection.

T.J. boot grease gr. :				
		joint	boot	
DSL 2.0	AT	115 ± 5g	60 ± 5g	
	MT	100g ± 5g	45 ± 5g	
GAS 2.4		100g ± 5g	45g ± 5g	

- 8. Install the boots.
- Tighten the TJ. boot bands. 9.
- 10. To control the air in the T.J. boot, keep the specified distance between the boot bands when they are tightened.

EIRF301N

- 5. Ir
- 6. Ir S A

Install the TJ. boot bands and TJ. boot.	Standard value (A/B) :		
install the 13. boot bands and 13. boot.		LH side	RH side
Install the spider assembly(A) and the circlip(E) to the	A/T	543.8	833.9
spline(C) on the drivershaft. At this time align the marks(D) each other.	M/T	528.1	849.9
جیتال خودر و سامانه (مسئولیت م			
مانه ديدينال تعمر حرج ايران	اور ين سار	O A	
A E			

EIRF301O

EIRF301P



EIRF301E

FRONT AXLE

FRONT AXLE

FRONT HUB / KNUCKLE

COMPONANTS E8CC0B30



- 1. Split pin
- 2. Driveshaft nut
- 3. Brake disc
- 4. Hub
- 5. Wheel bearing
- 6. Snap ring

- 7. Dust cover
- 8. Lower arm ball joint
- 9. Knuckle
- 10. Driveshaft

EIRF400A

WWW.DIGITALKHODRO.COM

021-62999292

DRIVESHAFT AND AXLE

DS -16

REMOVAL EBEA1BC8

- 1. Remove the wheel and tire.
- 2. Disconnect the wheel speed sensor from the knuckle.
- Disconnect the brake hose from the knuckle. 3.
- Remove the caliper assembly and suspend it with 4. wire.



Remove the 2 bolts and disconnect the ball joint from 6. the knuckle.



KHRE120A

- Using a plastic hammer, disconnect the driveshaft 7. from the axle hub.
- Remove the split pin and driveshaft castle nut from 5.





- KIRE401C
- Using the special tool (09568-4A000), disconnect the 8. tie rod end from the knuckle.

KIRE401B

KIRE401A



KIRE401D

021-62999292

DS -17

FRONT AXLE

- 9. Loosen the upper armmounting nut but do not remove it.
- 10. Using the special tool (09568-4A000), disconnect the upper arm from the knuckle.





KHRE130B

- 11. Remove the front axle and knuckle together.

DISASSEMBLY

- 1
- 2.



EIRF402B

EIRF402C

Using the special tools (09432-11000, 09545-34100), 4. remove the wheel bearing inner race from the hub.





Using the special tools (09216-21600, 09216-22100), 5. remove the wheel bearing outer race from the knuckle.





EIRF402D

Using the special tool (09545-34100), disconnect the 3. hub from the knuckle.

WWW.DIGITALKHODRO.COM

021-62999292

DRIVESHAFT AND AXLE

DS -18

INSPECTION E035D6E3

- 1. Check the hub for cracks and splines for wear.
- 2. Check the snap ring for cracks or damage.
- 3. Check the knuckle inner surface for scoring and cracks.

REASSEMBLY EE2B011E

- Apply a thin coat of multi-purpose grease to the 1. knuckle and bearing contact surface.
- Using the special tool (09216-21100), press-in the 2. bearing to the knuckle.

NOTE

- Do not press against the inner race of the wheel bearing beacuse that can cause damage to the bearing assembly.
- Always use a new bearing assembly.

Using the special tool (09545-21100), press the hub 4. on to the knuckle.



Do not press against the outer race of the wheel bearing because that can cause damage to the bearing assembly.



EIRF404B

Tighten the hub to the knuckle to 200 Nm (20 kgf·m, 148 lbf-ft) with the special tool (09517-21500).



5.

3. Install the snap ring into the groove of the knuckle.

EIRF404C

FRONT AXLE

- 6. Rotate the hub to seat the bearing.
- 7. Measure the wheel bearing starting torque.

Standard value

Starting torque : 1.8 Nm (0.18 kgf·m, 16 lbf·ft) or less





EIRF404E

8. Remove the special tool.

())))))

9. Install the disc to the hub.

DRIVESHAFT AND AXLE

DS -20

REAR AXLE

REAR HUB / AXLE

COMPONENTS E4ED39BA



- 1. Brake disc
- 2. Hub
- 3. Hub bearing

- 4. Brake assembly
- 5. Tone wheel (ABS System)
- 6. Carrier assembly

EIRF500A

021-62999292

DS -21

REAR AXLE

REMOVAL EDE8C2FE

- 1. Release the parking brake.
- 2. Remove the wheel and tire.
- 3. Remove the ABS sensor from the carrier.
- 4. Remove the caliper assembly from the carrier and suspend it with wire.
- 5. Remove the brake disc.
- 6. Remove the rear axle hub mounting bolts (4).

9. After unstaking the flange nut, remove the nut.



EIRF501C

10. While supporting the flange area of the bearing outer race, press out the rear axle hub.

KIRE501A7. Using the special tool (09432-11000), remove the tone wheel.

09432-11000

EIRF501B

EIRF501D

11. Using the special tool (09432-11000), remove the bearing inner race from the axle hub.



EIRF501E

WWW.DIGITALKHODRO.COM

Remove the carrier assembly.

8.

021-62999292

DS -22

DRIVESHAFT AND AXLE

- 12. Using the special tools (09453-33000B, 09545-21100), remove the 2 bushings from the carrier.
- 2. Apply a thin coat of multi-purpose grease to the hub and bearing contact surface.
- 3. Using the special tool (09545-21100), press-in the bearing to the hub.



EIRF501F

INSPECTION E1D4BE99

- 1. Check the rear hub bearing for wear or damage.
- 2. Check the rear tone wheel for chipped teeth.
- 3. Check the hub inner surface for scoring.
- 4. Check the carrier for crack.

INSTALLATION E2680CDA

1. Using the special tools (09453-33000B, 09545-21100) press-in the 2 bushings to the carrier.





EIRF501C

EIRF501F

09453-33000B 09545-21100

EIRF504C

🔟 ΝΟΤΕ

4.

- Do not press against the outer race of the bearing because that can cause the damage to the bearing assembly.
- Always use a new bearing assembly.
- After tightening the flange nut, stake the nut to meet the concave portion of the spindle.

021-62999292

DS -23

REAR AXLE

5. Using the special tool (09221-21000), press-in the tone wheel.





EIRF504F

7. Tighten the 4 bolts to the specified torque.



EIRF504E

NOTE

If it is difficult to fix, adjust the parking brake adjusting nut in clockwise direction to enlarge the space between the shoe and lining assembly.

021-62999292

DS -24

DRIVESHAFT AND AXLE

9. Using a spring balance, measure the wheel bearing starting torque.

Standard value

Starting torque : 1.76 Nm (0.18 kgf·m, 15.6 lbf·in) or less



KIRE504A

10. Fix a dial gauge and measure the hub end play. Check that it is within the standard value.

Standard value

Hub end play : 0.008 mm (0.0003 in) or less





KIRE504B