# Clutch System

**GENERAL** 

CLUTCH SYSTEM
CLUTCH COVER AND DISC

CLUTCH MASTER CYLINDER CLUTCH PEDAL CLUTCH RELEASE CYLINDER CH -2 CLUTCH SYSTEM

# **GENERAL**

# SPECIFICATIONS EC53B64D

Engine type	G4EE(1.4)/G4ED(1.6)
Clutch operation method Clutch disc Type	Hydraulic type Single dry with diaphragm
Facing diameter (outside x inside)mm (in.)	215 x 145 (8.5 x 5.7)
Clutch cover assembly Type	Diaphragm spring strap
Clutch release cylinder * I.D. mm (in.)	20.64 (0.81)
Clutch master cylinder * I.D. mm(in.)	15.87 (0.62)

<sup>\*</sup> I.D: Inside diameter

## **SERVICE STANDARD**

Standard value Clutch disc thickness [When free] Clutch pedal height[without carpet]  Clutch pedal free play Clutch pedal stroke	8.2 ~ 8.8 mm (0.322 ~ 0.346 in.) LHD: 163.9 mm (6.45 in.) RHD: 174.5 mm (6.87 in.) LHD/ RHD: 6 ~ 13 mm (0.24 ~ 0.51 in.) LHD/ RHD: 145 mm (5.7 in.)
Limit Clutch disc rivet sink Diaphragm spring end height difference Clutch replease cylinder clearance to piston Clutch master cylinder clearance to piston	1.1 mm (0.043 in.) 0.5 mm (0.02 in.) 0.15 mm (0.006 in.) 0.15 mm (0.006 in.)

## **TIGHTENING TORQUE**

Item	Nm	kgf.cm	lb-ft
Clutch pedal to pedal support member (Clutch pedal bracket)	25 ~ 35	250 ~ 350	18 ~ 25
Clutch pedal support member to master cylinder	19 ~ 20	190 ~ 200	13 ~ 14
Clutch tube flare nut	13 ~ 17	130 ~ 170	10 ~ 13
Clutch tube bracket	15 ~ 22	150 ~ 220	11 ~ 16
Clutch release cylinder	15 ~ 22	150 ~ 220	11 ~ 16
Clutch release cylinder union bolt	25 ~ 40	250 ~ 400	18 ~ 29
Clutch cover assembly	12 ~ 22	120 ~ 220	9 ~ 16
Ignition lock switch nut	8 ~ 10	80 ~ 100	6 ~ 7
Clutch release lever fulcrum	55 ~ 60	550 ~ 600	40 ~ 43
Master cylinder cap screw	2 ~ 3	20 ~ 30	1.4 ~ 2.2
Master cylinder push rod nut	9 ~ 14	90 ~ 140	6.5 ~ 10
Master cylinder nut	9 ~ 14	90 ~ 140	6.5 ~ 10

GENERAL CH -3

# **LUBRICANTS**

Items	Specified lubricants	Quantity
Contact surface of release bearing and fulcrum of clutch release fork	CASMOLY L9508	As required
Inner surface of clutch release bearing	CASMOLY L9508	As required
Inner surface of clutch release cylinder and outer circumference of piston and cup	Brake fluid DOT 3 or DOT 4	As required
Inner surface of clutch disc spline	CASMOLY L9508	As required
Inner surface of clutch master cylinder and outer circumference of piston assembly	Brake fluid DOT 3 or DOT 4	As required
Clutch master cylinder push rod, clevis pin and washer	Wheel bearing grease SAE J310, NLGI No.2V	As required
Clutch pedal shaft and bushings	Chassis grease SAE J310a, NLGI No.1	As required
Contact portion of release fork to release cylinder push rod	CASMOLY L9508	As required
Input shaft spline	CASMOLY L9508	As required

# SPECIAL TOOLS E13BAED1

Tool (Number and name)	Illustration	Use
09411-25000 Clutch disc guide		Installation of the clutch disc.
	EOKD001A	

CH -4 **CLUTCH SYSTEM** 

# TROUBLESHOOTING EDFF450F

Trou	ıble symptom	Suspect area	Remedy (See page)
Clutch slipping  Car will not respond to engine speed during acceleration  Insufficient vehicle speed		Insufficient pedal free play	Adjust
		Clogged hydraulic system	Correct or replace parts
	during uphill driving	Excessive wear of clutch disc facing	Replace
		Hardened clutch disc facing, or oil on surface	Replace
		Damaged pressure plate or flywheel	Replace
		Weak or broken pressure spring	Replace
Difficult gear shiftir	ng (gear noise during shifting)	Excessive pedal free play	Adjust
		Hydraulic system fluid leaks, air trapping or clogging	Repair or replace parts
		Unusual wear or corrosion of the clutch disc spline	Replace
		Excessive vibration (distortion) of the clutch disc	Replace
Clutch noisy	When the clutch is not used	Insufficient play of the clutch pedal	Adjust
		Excessive wear of the clutch disc facing	Replace
	A noise is heard after the clutch is disengaged	Unusual wear and/ or damage of the release bearing	Replace
	A noise is heard when the clutch is disengaged	Insufficient grease on the sliding surface of the bearing sleeve	Repair
		Improperly installed clutch assembly or bearing	Repair
	A noise is heard when the car suddenly rolled up with the clutch partially engaged	Damaged pilot bushing	Replace
Hard pedal effort		Insufficient lubrication of the clutch pedal	Repair
		Insufficient lubrication of the spline part of clutch disc	Repair
		Insufficient lubrication of the clutch release lever shaft	Repair
		Insufficient lubrication of the front bearing retainer	Repair
Hard to shift or will not shift		Excessive clutch pedal free play	Adjust the pedal free play
		Faulty of the clutch release cylinder	Repair the release cylinder
		Clutch disc out of place, runout is excessive or lining broken	Inspect the clutch disc
		Spline on the input shaft or clutch disc dirty or burned	Repair as necessary
		Faulty of the clutch pressure plate	Replace the clutch cover

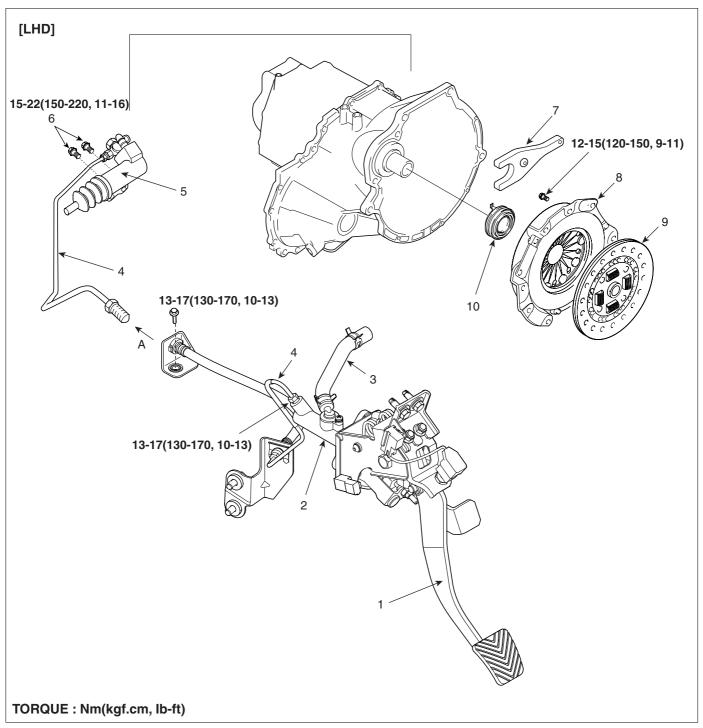
GENERAL CH-5

Trouble symptom	Suspect area	Remedy (See page)
Clutch slips	Insufficient clutch pedal free play	Adjust the pedal free play
	Clogged of the hydraulic system	Repair or replace parts
	Clutch disc lining oily or worn out	Inspect the clutch disc
	Faulty pressure plate	Replace the clutch cover
	Binding of the release fork	Inspect the release fork
Clutch grabs/chatters	Clutch disc lining oily or worn out	Inspect the clutch disc
	Faulty the pressure plate	Replace the clutch cover
	Bent clutch diaphragm spring	Replace the clutch cover
	Worn or broken torsion spring	Replace the clutch disc
	Engine mounts loose	Repair as necessary
Clutch noisy	Damaged the clutch pedal bushing	Replace the clutch pedal bushing
	Loose part inside housing	Repair as necessary
	Worn or dirty release bearing	Replace the replease bearing
	Sticking release fork or linkage	Repair as necessary

CH -6 CLUTCH SYSTEM

# **CLUTCH SYSTEM**

# COMPONENTS (1) EF192322

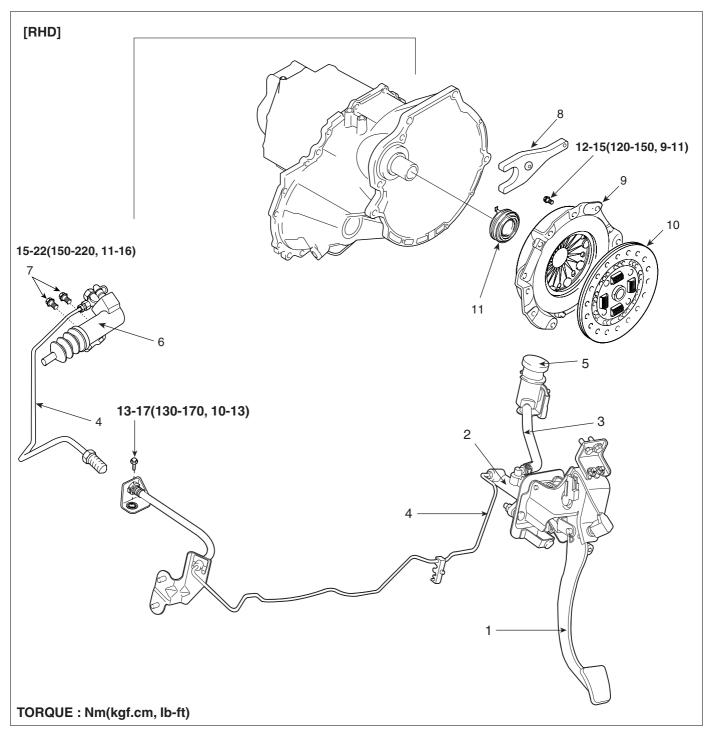


- 1. Clutch pedal
- 2. Master cylinder
- 3. Reserve hose
- 4. Clutch tube
- 5. Clutch release cylinder

- 6. Bolt
- 7. Clutch release fork
- 8. Clutch cover
- 9. Clutch disc
- 10. Clutch release bearing

CLUTCH SYSTEM CH -7

# **COMPONENTS (2)**



- 1. Clutch pedal
- 2. Master cylinder
- 3. Reserve hose
- 4. Clutch tube
- 5. Reservior tank
- 6. Clutch release cylinder

- 7. Bolt
- 8. Clutch release fork
- 9. Clutch cover
- 10. Clutch disc
- 11. Clutch release bearing

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**CH-8 CLUTCH SYSTEM** 

# SERVICE ADJUSTMENT PROCEDURE E54C0944

### **CLUTCH PEDAL INSPECTION AND ADJUSTMENT**

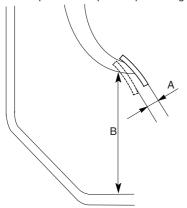
Measure the clutch pedal height (from the face of the pedal pad to the floorboard) and the clutch pedal clevis pin play (measured at the face of the pedal pad.)

Standard value

(A) LHD/ RHD: 1 ~ 3 mm (0.04~0.11 in.)

(B) LHD: 163.9 mm (6.45 in.) RHD: 174.9 mm (6.87 in.)

Clutch pedal clevis pin and pedal height



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- If the clutch pedal clevis pin freeplay and height is not within the standard value range, adjust as follows:
  - Turn and adjust the bolt within the standard value, then secure by tightening the lock nut.

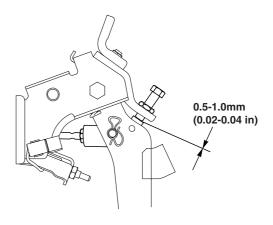
# MOTE

If the clutch pedal height is lower than the standard value, loosen the bolt and adjust the push rod. After adjustment, tighten the bolt so that the clearance with pedal stopper becomes 0.5mm(0.02 in) to 1.0mm (0.04 in) and secure with lock nut.

Turn the push rod to agree with the standard value and then secure the push rod with the lock nut.

## /!\ CAUTION

When adjusting the clutch pedal height or the clutch pedal clevis pin play, be careful not to push the push rod toward the master cylinder.

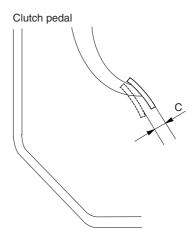


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3. After completing the adjustments, check that the clutch pedal free play (measured at the face of the pedal pad) is within the standard value ranges.

Standard value

LHD/RHD: (C) 6~13 mm (0.24~0.51 in.)



LOJF012B

If the clutch pedal free play and the distance between the clutch pedal and the floor board when the clutch is disengaged, do not meet with the standard values, it may be the result of either air in the hydraulic system or a faulty the clutch master cylinder. Bleed the air or disassemble and inspect the master cylinder or clutch.

**CLUTCH SYSTEM** CH -9

## **BLEEDING**

Whenever the clutch tube, the clutch hose, and/or the clutch master cylinder have been removed, or if the clutch pedal is spongy, bleed the system.

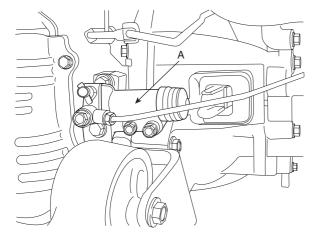


# 🔥 CAUTION

Use the specified fluid. Avoid mixing different brands of fluid.

Specified fluid: SAE J1703 (DOT 3 or DOT 4)

Loosen the bleeder screw(B) at the clutch release cylinder(A).



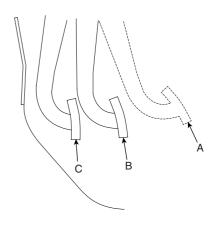
Pump the clutch pedal slowly until all air is expelled.

- 3. Hold the clutch pedal down until the bleeder is retightened.
- Refill the clutch master cylinder with the specified fluid.



# /!\ CAUTION

The rapidly-repeated operation of the clutch pedal in B-C range may disrupt the release cylinder's position. During the bleeding operation, press the clutch pedal to the floor after it returns to the "A" point.



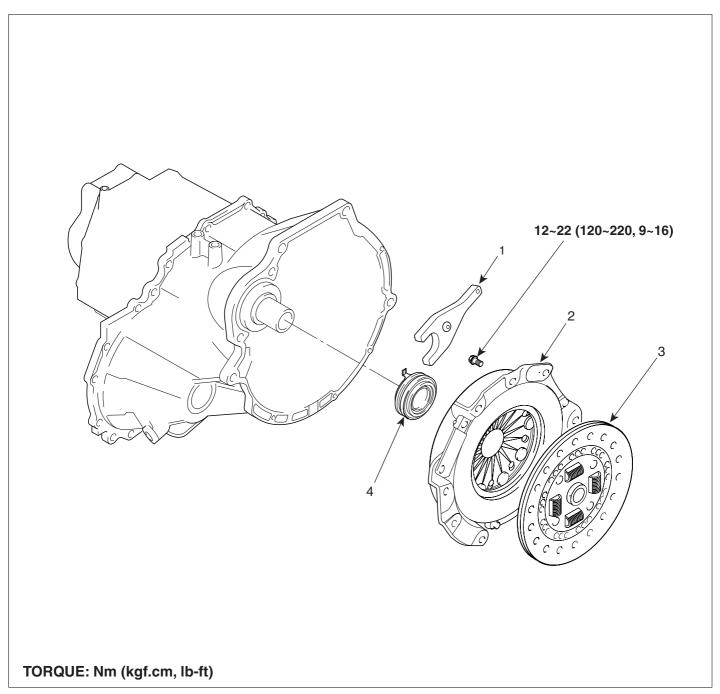
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LOJF004B

CH -10 CLUTCH SYSTEM

# **CLUTCH COVER AND DISC**

# COMPONENTS EB4E6FEE



- 1. Clutch release fork
- 2. Clutch disc cover

- 3. Clutch disc
- 4. Clutch release bearing

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CLUTCH SYSTEM CH -11

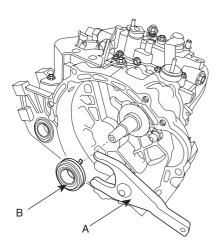
## REMOVAL ED7846C5

 To remove the transaxle assembly, first drain the clutch fluid and transaxle gear oil, then remove the air cleaner joint and the mounting bracket etc.

- Remove the transaxle assembly, after removing each bolt which connects the transaxle assembly and engine.
- Loosen the bolts attached to the release cylinder and remove the release cylinder.
- 4. Remove the clutch release fork(A) and bearing(B).

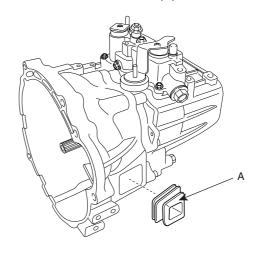
# **NOTE**

- It is impossible to remove the transaxle assembly without performing this step because the clutch cover assembly, release bearing and release fork are held together.
- To reduce rattling noise from the gear, a new dual mass flywheel has been used. Due to the application of the dual mass flywheel, the clutch assembly has also been changed. When replacing the flywheel with the dual mass flywheel, the clutch disc and cover should be replaced with the new parts at the same time.



LOGF003B

Remove the shift fork boot(A).



LOGF003C

- 6. Insert the special tool (09411-25000) in the clutch disc to prevent the disc from shifting.
- Loosen the bolts which attach the clutch cover to the flywheel in a star pattern. Loosen the bolts in succession, one or two turns at a time, to avoid bending the cover.



Do not clean the clutch disc or the release bearing with cleaning solvent.