

DAIHATSU
F70, F75, F77

Service
manual

CLUTCH

DAIHATSU MOTOR CO., LTD.

NO.9703-FE

CL

DAIHATSU

F70, F75, F77

CLUTCH

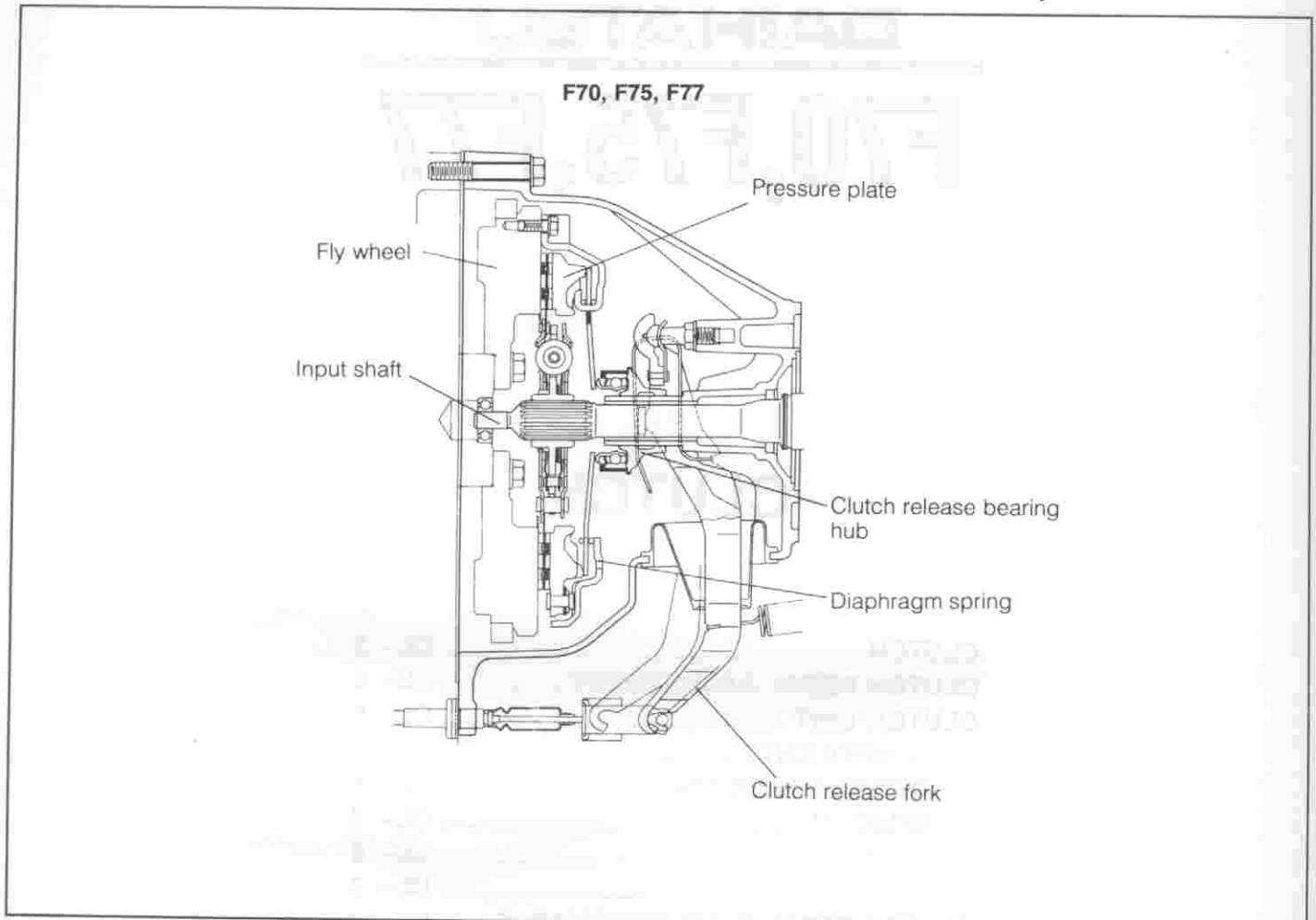
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WRE91-CL001

CLUTCH

CLUTCH

The clutch mechanism employs a dry, single-disc, diaphragm spring type. As for its operating method, it adopts a cable method which features positive operation and excellent serviceability.



WRE91-CL002

Clutch disc specifications

		Natural aspiration vehicle	Turbo charger-equipped vehicle
Clutch disc outer diameter	mm	240	←
Clutch disc inner diameter	mm	160	←
Thickness	Flywheel side	mm	3.5
	Pressure plate side	mm	3.5
Lining surface area	cm ²	251.2	←

WRE91-CL003

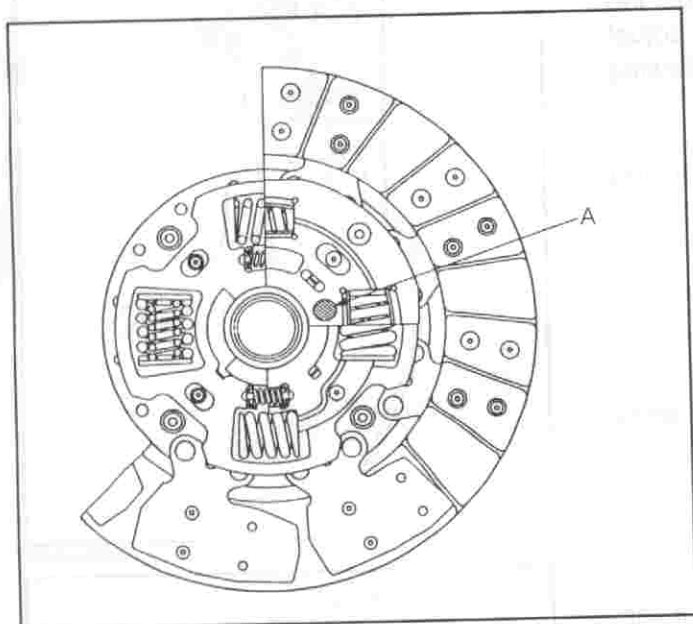
Clutch cover specifications

		Natural aspiration vehicle	Turbo charger-equipped vehicle
Clutch cover outer diameter	mm	300	294
Diaphragm spring load as assembled	kg	392	470

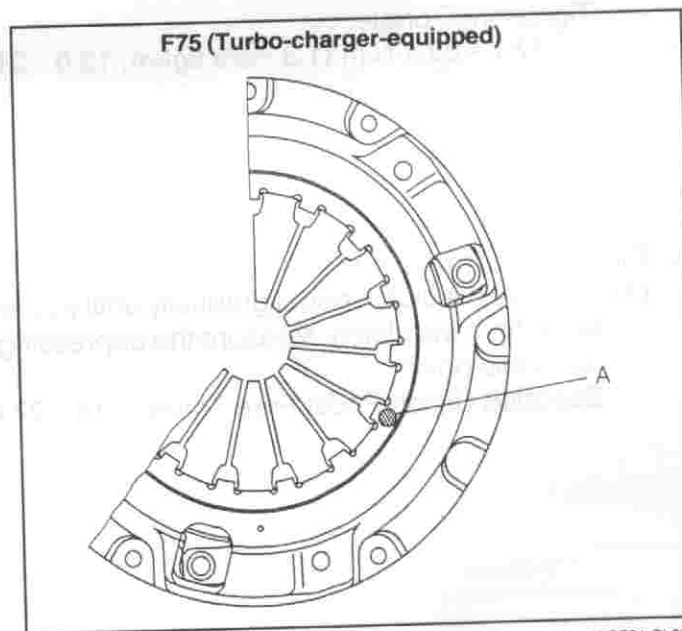
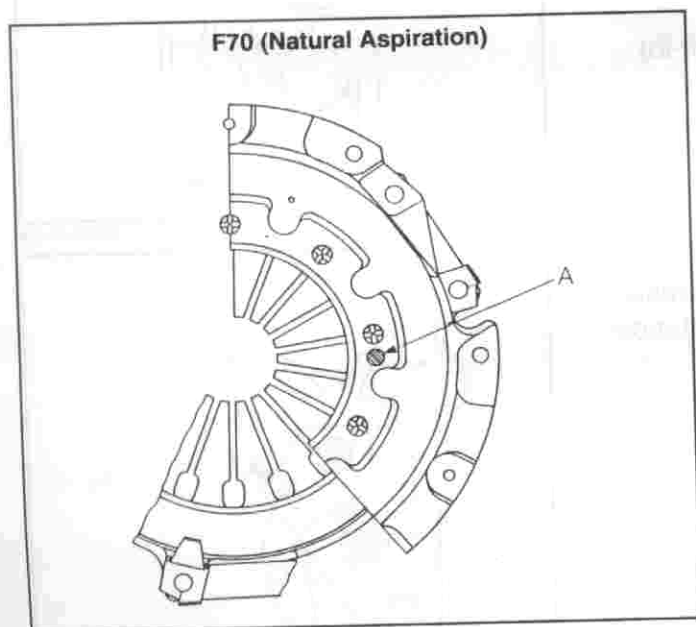
WRE91-CL004

Following is the identification method for the clutch discs and clutch covers of F-70 (natural aspiration vehicles) and F-75 (turbo charger-equipped vehicles).

CLUTCH DISC



CLUTCH COVER



WRE91-CL005

A: Identification marking position

Engine type	Clutch cover side	Clutch disc side
Natural Aspiration	Blue paint mark or equivalent	White paint mark or equivalent
Turbo charger-equipped	Green paint mark or equivalent	Green paint mark or equivalent

WRE91-CL006

CLUTCH

CLUTCH PEDAL ADJUSTMENT

1. Check the clutch pedal for installation height.

Pedal installation height

NOTE:

- Ensure that the clutch pedal installation height is 10.0 mm higher than the brake pedal surface. Adjust the clutch pedal installation height, as required. Then, adjust the clutch pedal installation height to the following specification.

(Distance between pedal pad upper surface's center and dash panel)

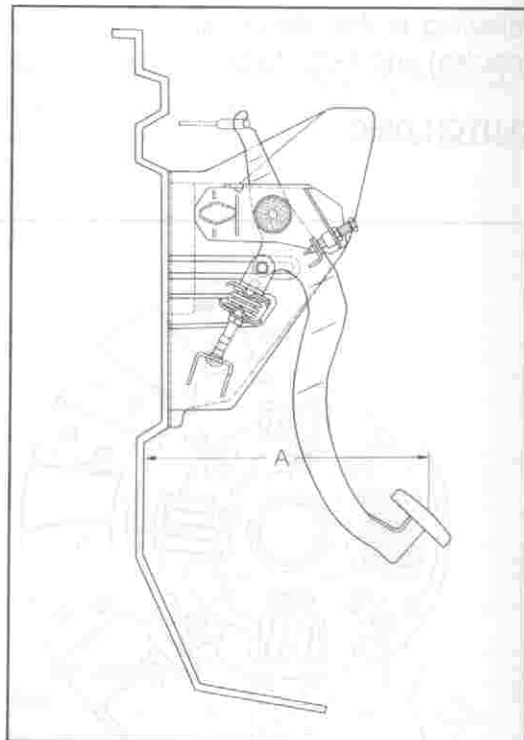
Clutch Pedal Installation Height:

L.H.D: $221 \pm 3\text{mm}$

R.H.D: $221^{+6\text{mm}}_{-0\text{mm}}$

NOTE:

- The figure above indicates the dimension from the body metal section to the pedal. It is, therefore, necessary to roll up the carpet and floor mat prior to the measurement.

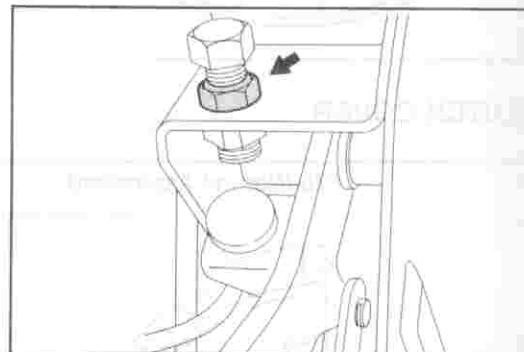


WRE91-CL.007

2. Adjust the pedal installation height, as required.
 - (1) Slacken the lock nut. Turn the stopper bolt until the installation height conforms to the specification.
 - (2) Tighten the lock nut.

Tightening Torque:

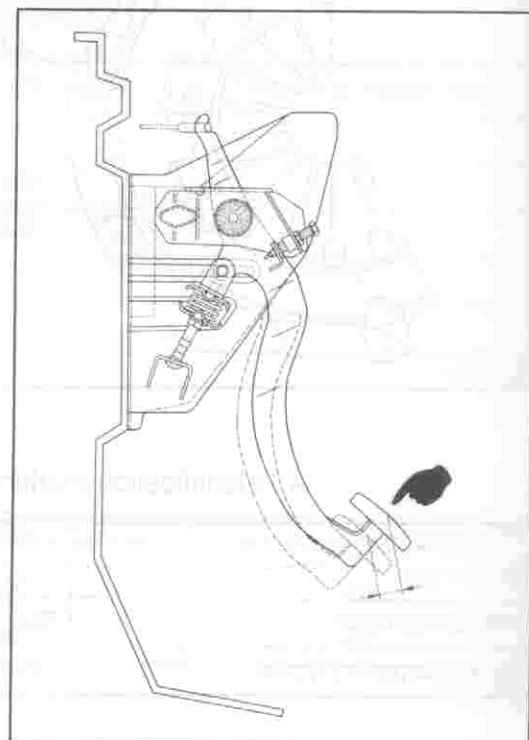
17.7 - 29.4 N·m (1.8 - 3.0 kgf·m, 13.0 - 21.7 ft·lb)



WRE91-CL.008

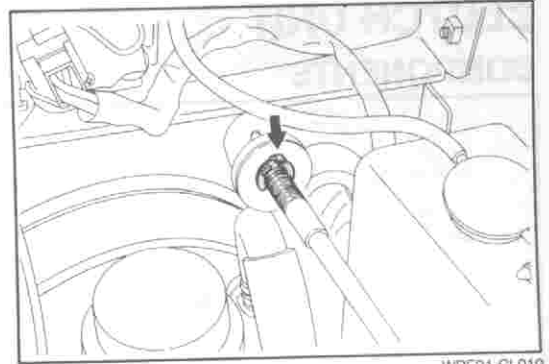
3. Clutch pedal free travel
 - (1) Depress the clutch pedal gradually until you feel a resistance from the clutch. Measure the depressing distance up to this point.

Specified Clutch Pedal Free Travel: 18 - 27 mm



WRE91-CL.009

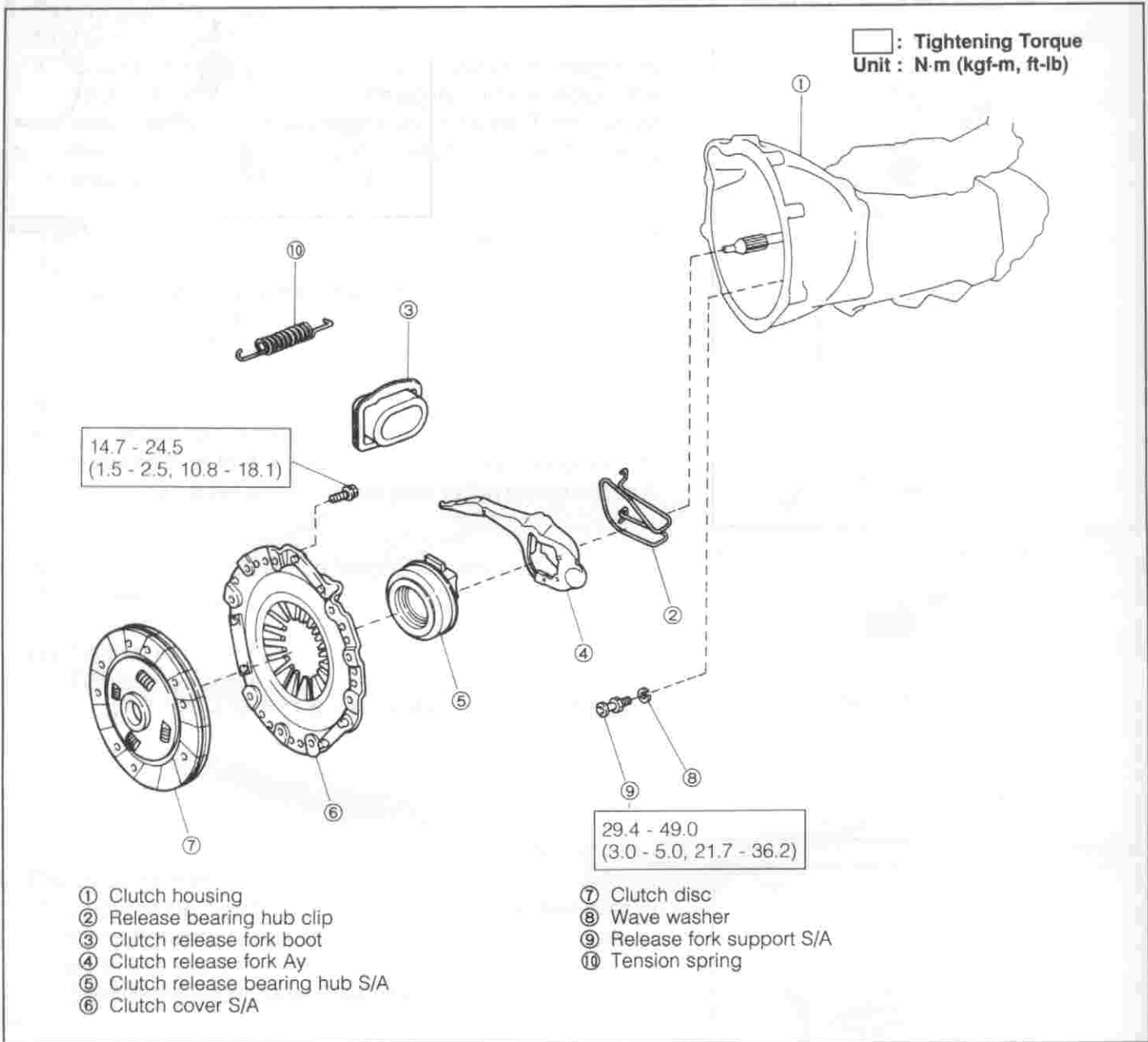
If the free travel of the clutch pedal fails to conform to the specification, adjust it to the specified value by changing the "E" ring position of the clutch cable.



WRE91-CL010

CLUTCH

CLUTCH UNIT COMPONENTS



WRE91-CL011

TROUBLE SHOOTING

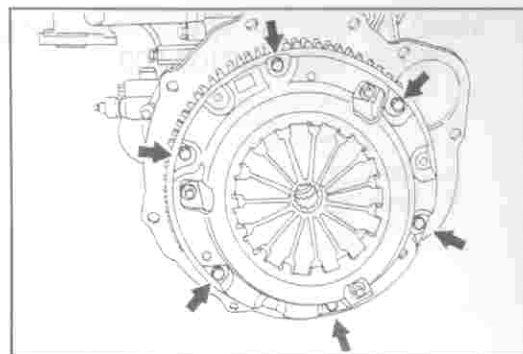
Symptom	Possible causes	Remedies
Dragging clutch	<ul style="list-style-type: none"> Excessive free travel or clutch pedal travel improperly adjusted Deformed clutch disc Clutch disc spline malfunctioning 	<ul style="list-style-type: none"> Adjust free travel or clutch pedal travels. Check clutch disc. Check clutch disc.
Clutch judder	<ul style="list-style-type: none"> Abnormal surface of clutch disc Excessive runout of clutch disc Unevenness of clutch cover diaphragm spring heights Faulty clutch release bearing 	<ul style="list-style-type: none"> Check clutch disc. Check clutch disc runout. Check clutch cover. Check clutch release bearing.
Slipping clutch	<ul style="list-style-type: none"> Worn clutch disc Excessively worn clutch pressure plate Faulty clutch cover diaphragm springs 	<ul style="list-style-type: none"> Check clutch disc. Check pressure plate. Check clutch cover.

WRE91-CL012

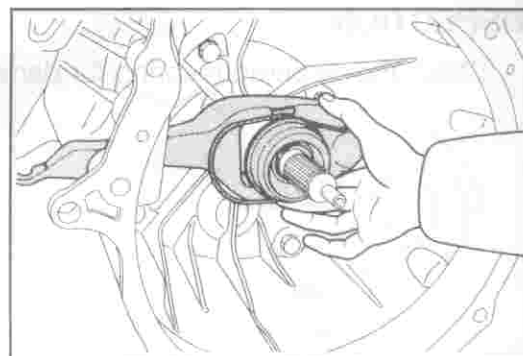
Following are the removal, inspection and installation procedures for the clutch pedal and release cable assembly. The procedures have been described typically for Model F-75, L.H.D. unit.

REMOVAL

1. Remove the transmission and transfer case assemblies from the vehicle. (For the removal procedure, see the MT section.)
2. Remove the clutch cover and clutch disc by removing the six bolts.
3. Detach the clutch release fork boot from the clutch housing.
4. Remove the clutch release fork, together with the clutch release bearing hub subassembly, by pulling the fork lightly toward you.



WRE91-CL013

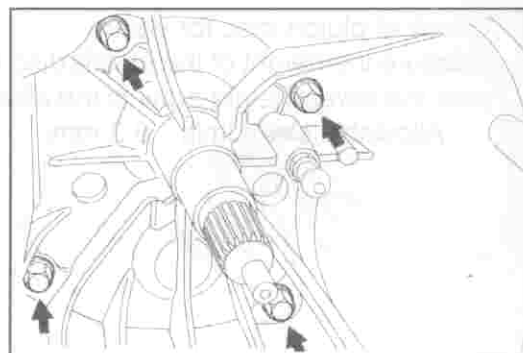
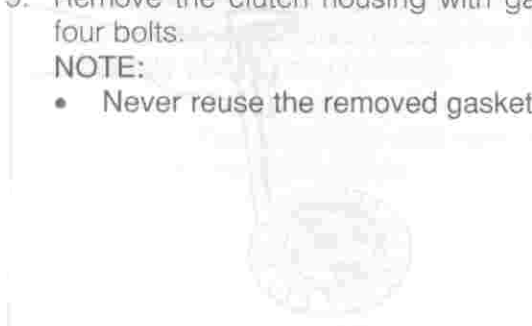


WRE91-CL014

5. Remove the clutch housing with gasket by removing the four bolts.

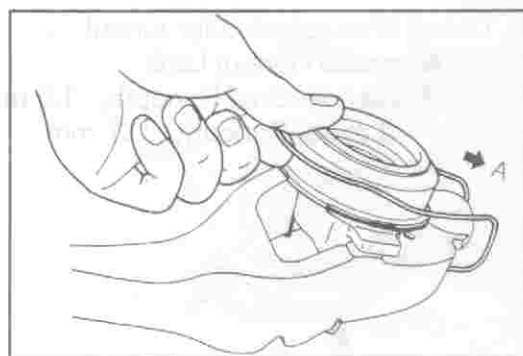
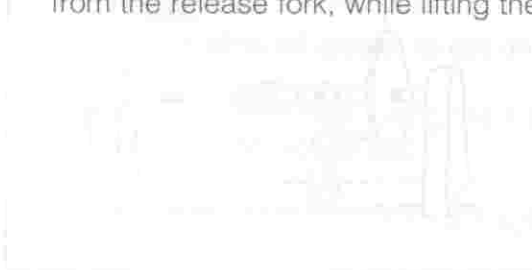
NOTE:

- Never reuse the removed gasket



WRE91-CL070

6. Slide the release bearing clip toward the section A, as indicated in the right figure. Detach the release bearing from the release fork, while lifting the hub clip lightly.



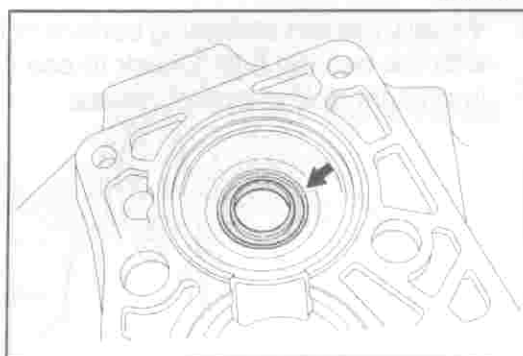
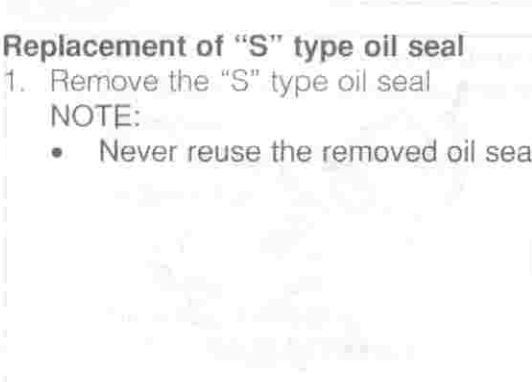
WRE91-CL015

Replacement of "S" type oil seal

1. Remove the "S" type oil seal

NOTE:

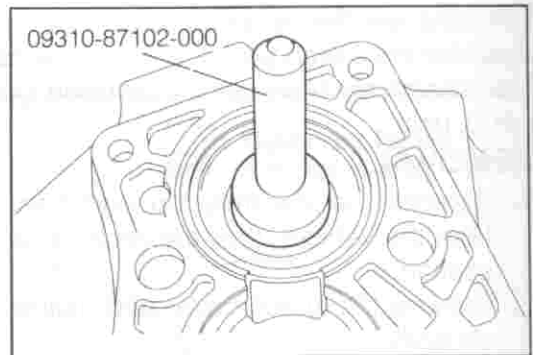
- Never reuse the removed oil seal



WRE91-CL071

CLUTCH

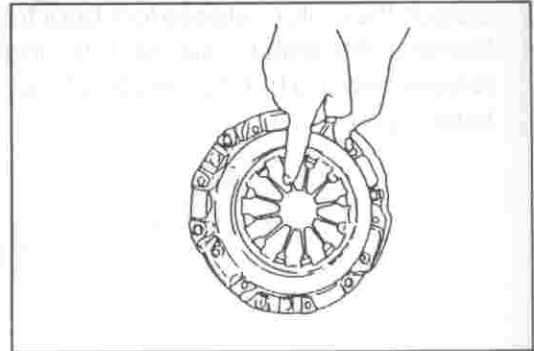
2. Install the new "S" type oil seal, using the following SST.
SST: 09310-87102-000



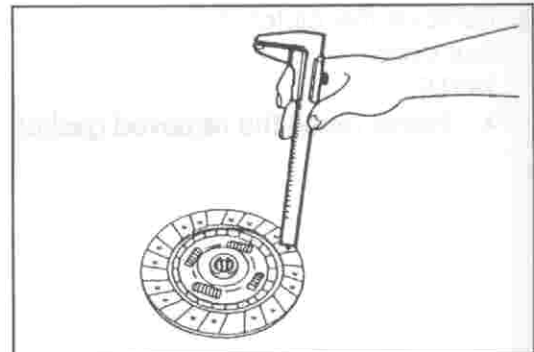
WRE91-CL072

INSPECTION

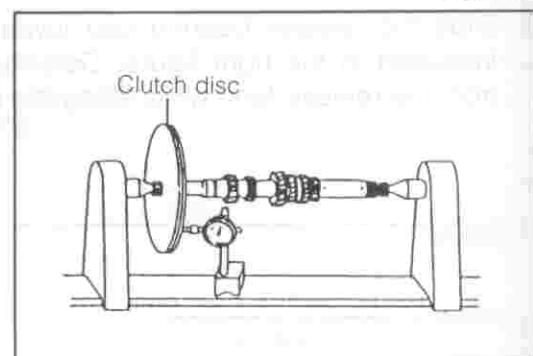
1. Check the diaphragm spring for damage or wear.
2. Check of clutch disc for wear
Measure the height of the clutch disc from each rivet. Compare the lowest height against the allowable use limit below.
Allowable Use Limit: 0.3 mm
3. Check of clutch disc for runout
Allowable Runout Limit
(Longitudinal Runout): 1.0 mm
(Lateral Runout): 0.7 mm
4. Visually inspect the sliding surface of the clutch release fork with the bearing hub. Check to see if any damage or wear is present due to lack of grease.



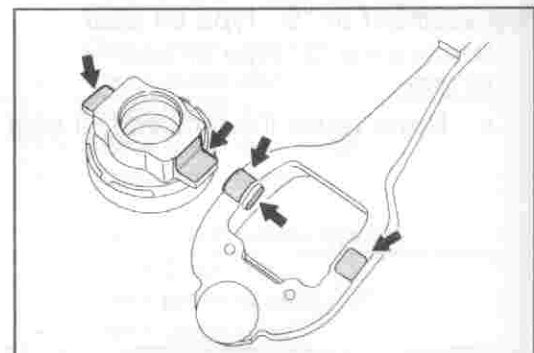
WRE91-CL016



WRE91-CL017

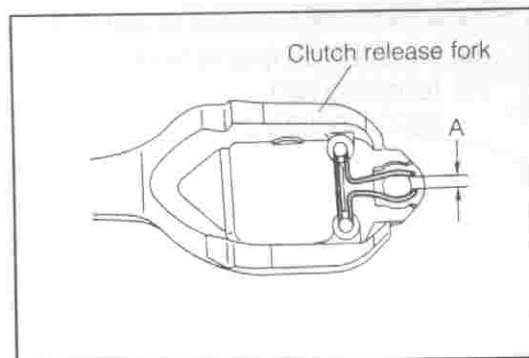


WRE91-CL018



WRE91-CL019

5. Measure the section A of the clutch release fork (attaching section of the clutch release support).
Allowable Limit: 10 ± 0.4 mm

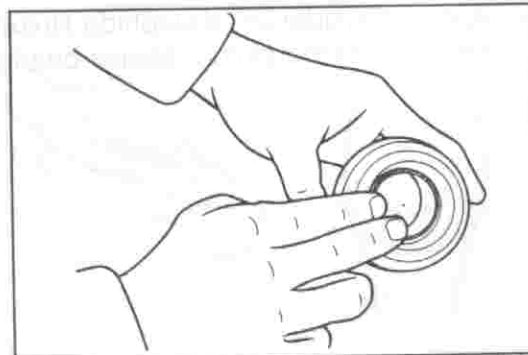


WRE91-CL020

6. Rotate the release bearing with your fingers. Ensure that the release bearing rotates smoothly without any binding.

NOTE:

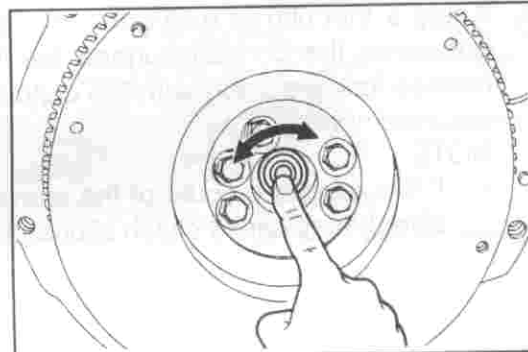
- Since the release bearing is packed with grease, never clean it, using oil.



WRE91-CL021

7. Rotate the pilot bearing with your fingers. Prior to the installation of the clutch disc, ensure that the pilot bearing rotates smoothly without any binding.

- * As for the installation and removal of the pilot bearing, refer to the EM section.



WRE91-CL022

INSTALLATION

1. Install the clutch disc.

CAUTION:

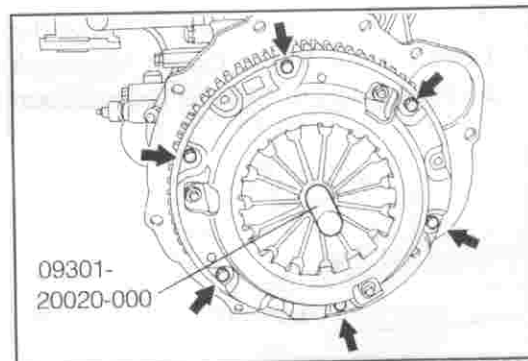
- Do not allow oil grease to get on the rubbing face.

2. Install the clutch cover, using the following SST.

SST: 09301-20020-000

Tightening Torque:

14.7 - 24.5 N-m (1.5 - 2.5 kgf-m, 10.8 - 18.1 ft-lb)



WRE91-CL023

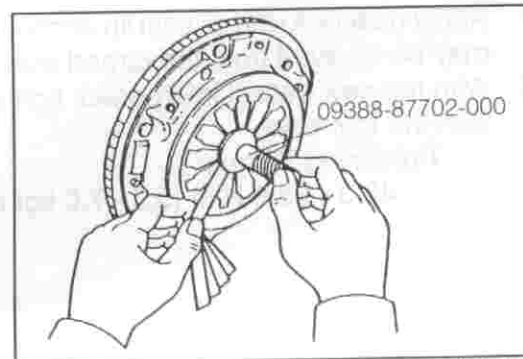
CAUTION:

- Be sure to tighten the bolts diagonally within the tightening torque range above so that the clutch cover may be tightened evenly.
(The right figure indicates a typical example of tightening sequence.)

3. Check the diaphragm spring fingers for unevenness in height, using the following SST.

Allowable Limit of Unevenness in Height: 0.8 mm

SST: 09388-87702-000

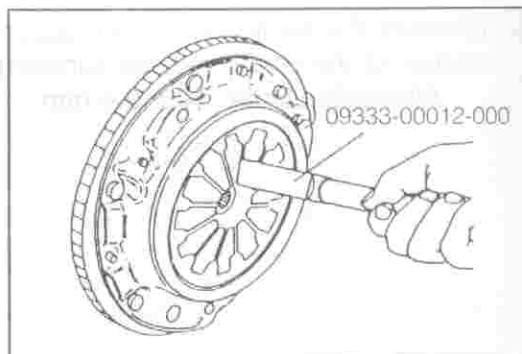


WRE91-CL024

CLUTCH

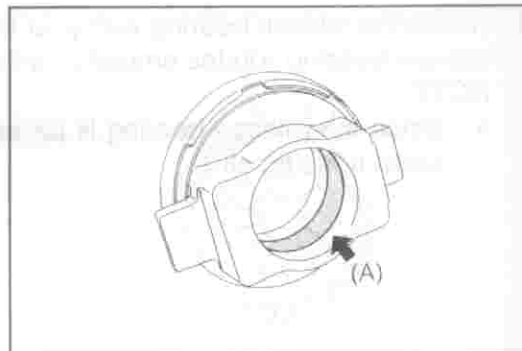
4. If the inspection results reveal that the unevenness in height exceeds the allowable limit, correct the unevenness, using the following SST.

SST: 09333-00012-000



WRE91-CL025

5. Apply molybdenum disulphide lithium base grease to the section A of the clutch release bearing hub subassembly.

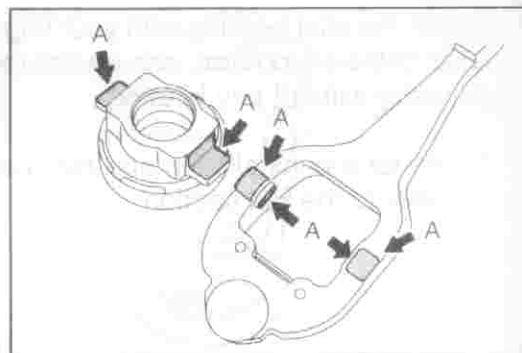


WRE91-CL026

6. Apply a thin film of molybdenum disulphide lithium base grease to the contact surface (section A) of the clutch release fork assembly with the clutch release bearing hub subassembly.

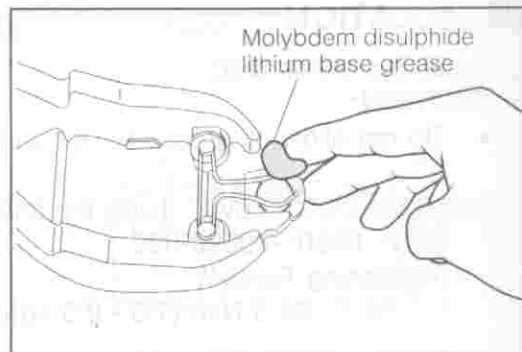
NOTE:

- If the applied amount of the aforesaid grease is excessive, it may cause clutch slippage.



WRE91-CL027

7. Apply a suitable amount of molybdenum disulphide lithium base grease to the clutch release fork assembly (contact surface with the release fork support subassembly).



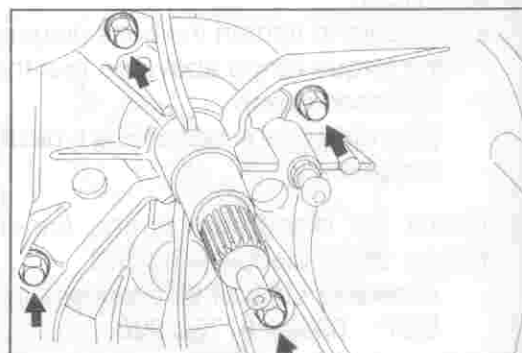
WRE91-CL028

8. Apply gear oil to the oil seal lip section so that the lip section may be aboived from the turned over.

9. With the new gasket interposed, tighten the clutch housing with the four bolts.

Tightening Torque:

49.0 - 68.6 N·m (5.0 - 7.0 kgf-m, 36.2 - 50.6 ft-lb)

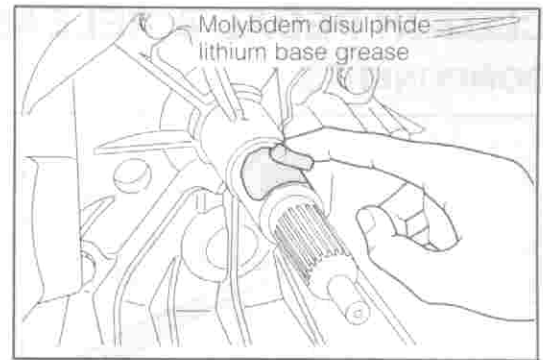


WRE91-CL073

10. Apply a thin and even film of molybdenum disulphide lithium base grease to the sliding surface of the clutch release bearing subassembly (as indicated in the right figure).

NOTE:

- If the applied amount of the aforesaid grease is excessive, it may cause clutch slippage.
- Failure to apply the aforesaid grease may cause heavier operation of the clutch pedal.

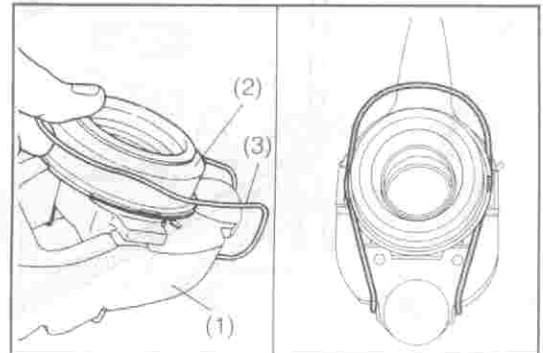


WRE91-CL029

11. Set the following parts given below.
- (1) Clutch release fork assembly
 - (2) Clutch release bearing hub subassembly
 - (3) Clutch release bearing hub clip

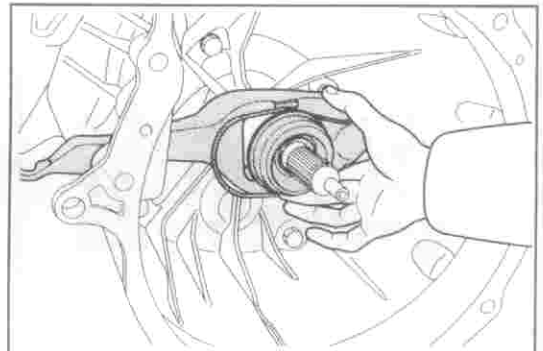
NOTE:

- Make sure that the clutch release bearing hub clip is attached positively to the clutch release bearing hub subassembly.



WRE91-CL030

12. Install the clutch release fork assembly by pushing the release fork support subassembly lightly.



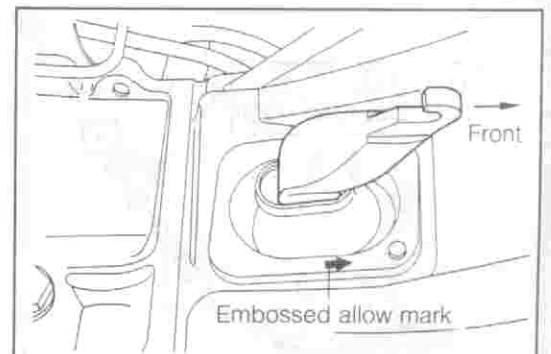
WRE91-CL031

13. Install the clutch release fork boot to the clutch housing.

NOTE:

- Be sure that the embossed arrow mark of the clutch release fork boot faces toward the engine side.

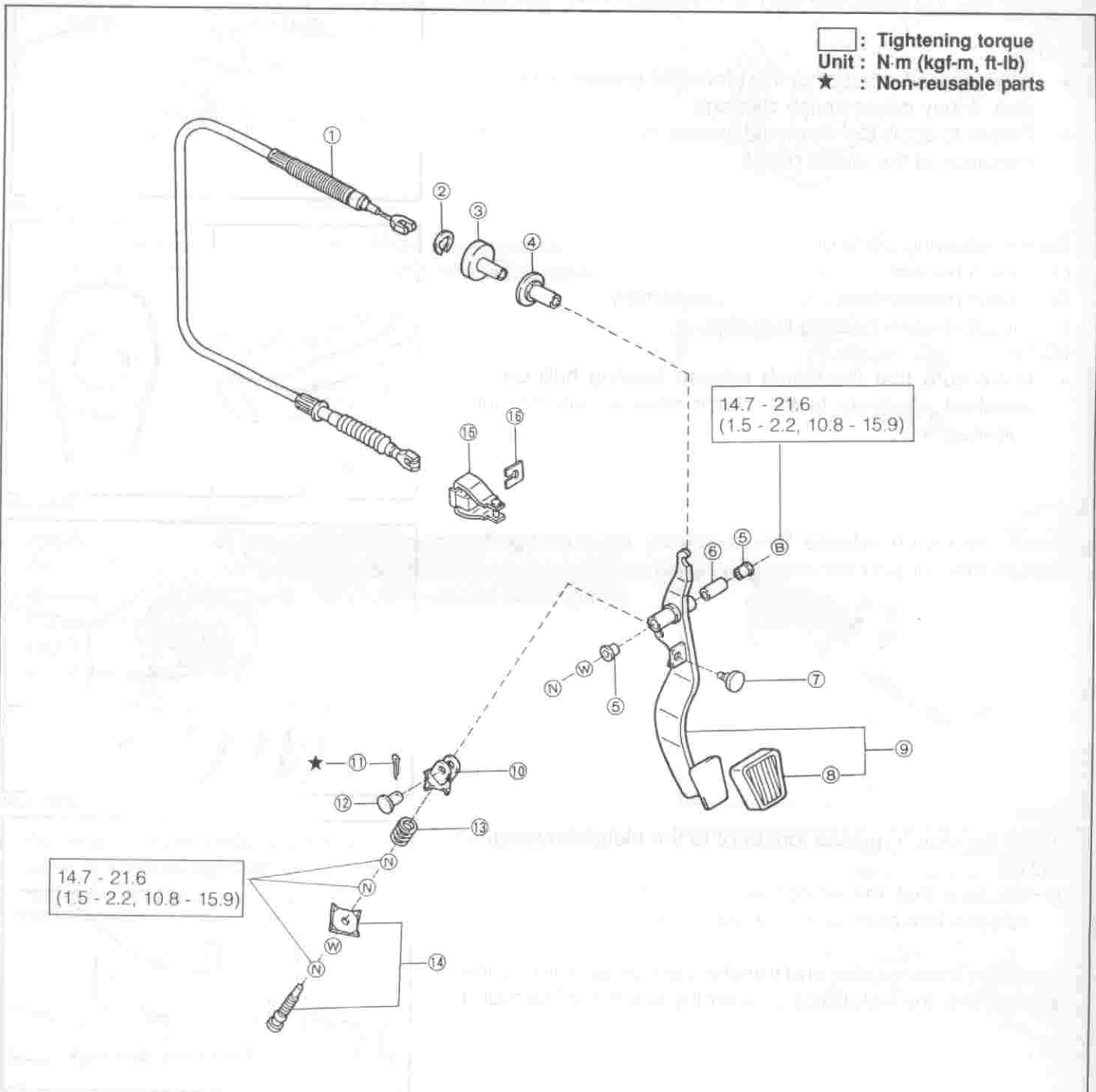
14. Install the transmission and transfer case assemblies to the vehicle. (For the installation procedure, see the MT section.)



WRE91-CL032

CLUTCH

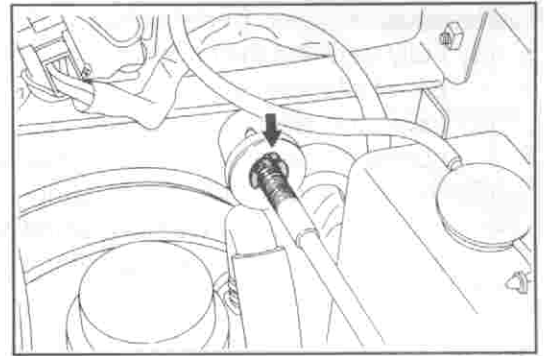
CLUTCH PEDAL & RELEASE CABLE COMPONENTS



- | | |
|---|--|
| <ul style="list-style-type: none"> ① Clutch release cable Ay ② "E"-ring ③ Bush ④ Clutch cable inner holder ⑤ Bush ⑥ Spacer ⑦ Cushion ⑧ Clutch pedal pad | <ul style="list-style-type: none"> ⑨ Clutch pedal S/A ⑩ Clutch pedal return spring clevis ⑪ Cotter pin ⑫ Clutch pedal clevis pin ⑬ Compression spring ⑭ Clutch return spring holder ⑮ Clutch cable clevis ⑯ Clutch cable end |
|---|--|

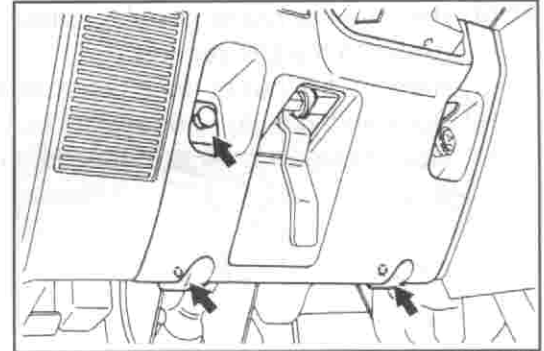
REMOVAL

1. Detach the "E" ring from the clutch release cable.



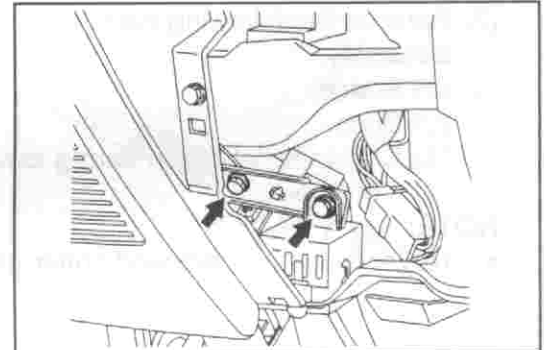
WRE91-CL034

- 2. Remove the headlamp leveling knob by pulling it toward you. (Headlamp leveling knob-equipped vehicle only)
- 3. Remove the instrument panel finish lower panel by removing the two screws.
- 4. Disconnect the rear defogger coupler.



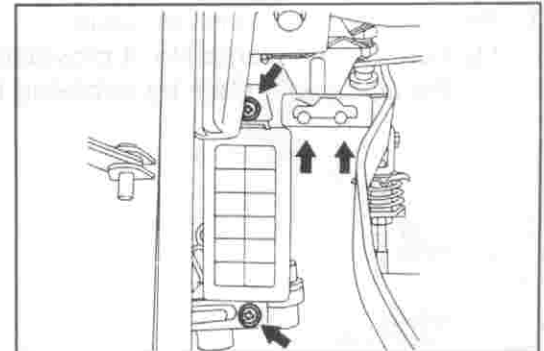
WRE91-CL035

5. Remove the sub-fuse box by removing the two bolts.



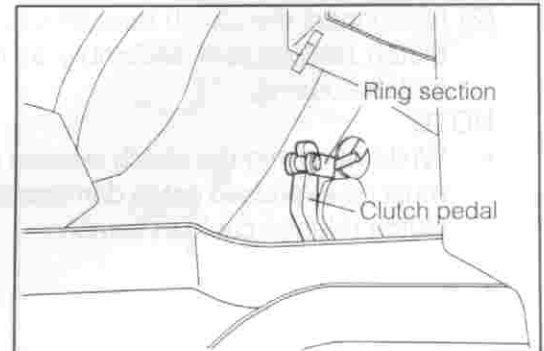
WRE91-CL036

- 6. Remove the hood opener lever by removing the two bolts.
- 7. Remove the two screws attaching the fuse box.



WRE91-CL037

8. Disconnect the ring section provided at the tip end of the clutch release cable from the clutch pedal subassembly.

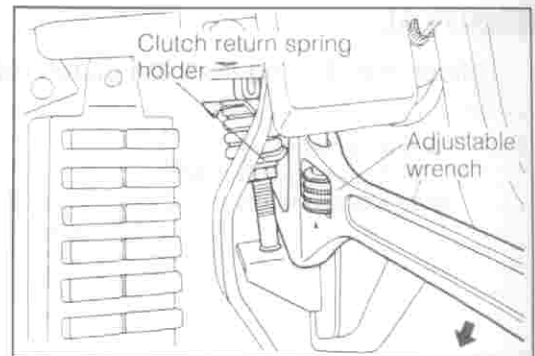


WRE91-CL038

CLUTCH

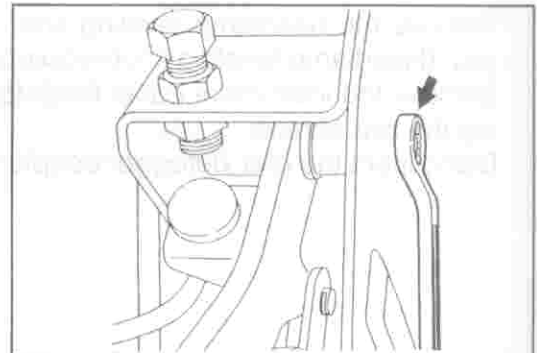
9. Removal of clutch pedal subassembly

- (1) Fully depress the clutch pedal, until it contacts the dash panel silencer.
- (2) Insert the adjustable wrench between the clutch return spring holder and the clutch pedal bracket.
- (3) Remove the clutch return spring and holder from the clutch pedal subassembly, while holding the adjustable wrench downward, as indicated by the arrow in the right figure.



WRE91-CL039

- (4) Remove the brake pedal subassembly. (Refer to the BR section.)
- (5) Remove the nut of the clutch pedal shaft bolt.
- (6) Remove the clutch pedal shaft bolt from the brake pedal side. Proceed to remove the clutch pedal subassembly.



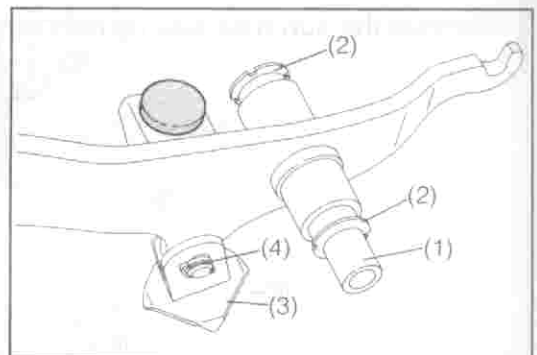
WRE91-CL040

(7) Remove the following parts from the clutch pedal subassembly.

- (1) Spacer
- (2) Bush
- (3) Clutch pedal return spring clevis
- (4) Cotter pin

NOTE:

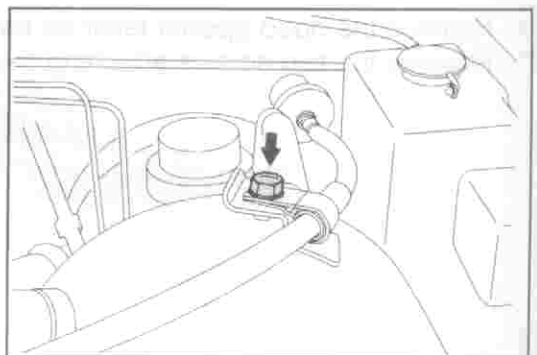
- Never reuse the removed cotter pin.



WRE91-CL041

10. Removal of clutch release cable

- (1) Remove the clamp No. 4 provided at the upper part of the air cleaner case by removing the bolt.

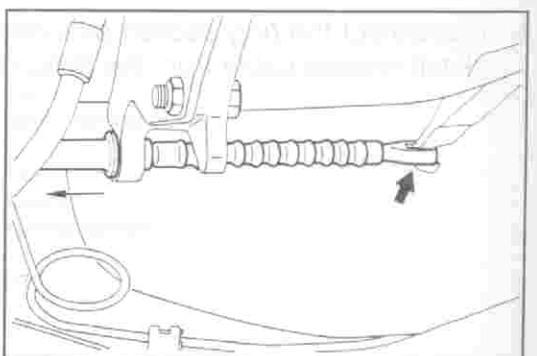


WRE91-CL042

- (2) Disconnect the clutch release cable assembly from the clutch release fork assembly at the lower part of the clutch housing.

NOTE:

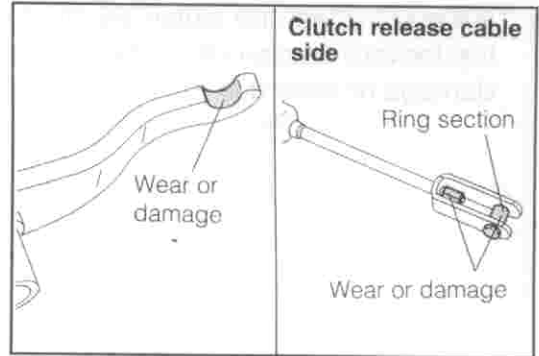
- While removing the clutch release cable assembly, care must be exercised not to damage the boot section of the clutch release cable assembly.



WRE91-CL043

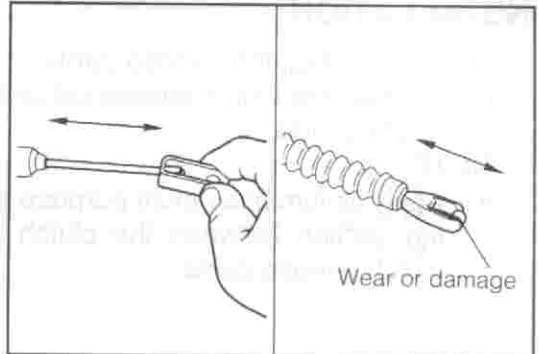
INSPECTION (Clutch pedal & Release cable)

1. Visually inspect the ring section of the clutch release cable assembly and clutch pedal assembly for wear or damage.



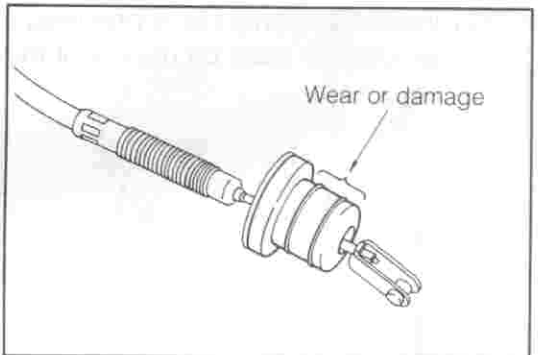
WRE91-CL044

2. Holding the eye end section of the inner cable by hands, move the inner cable in a fore-&-aft direction. Thus, check that the cable moves smoothly.



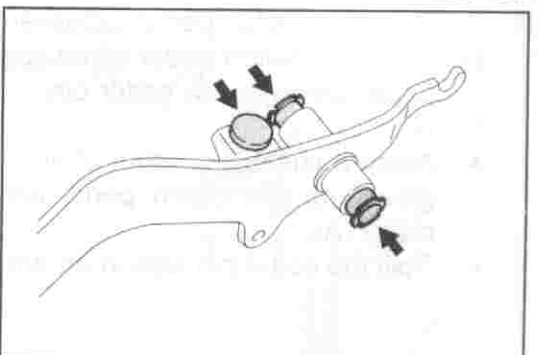
WRE91-CL045

3. Visually inspect the clutch cable inner holder for external damage and wear.



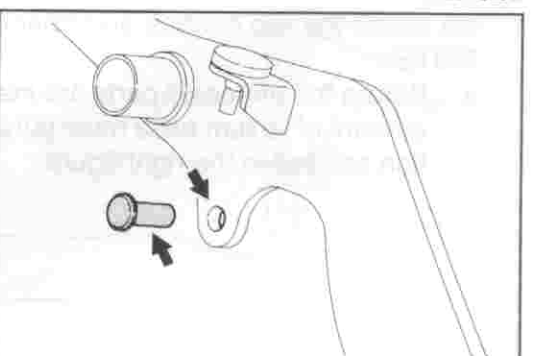
WRE91-CL046

4. Visually inspect the bush and cushion for wear due to lack of grease.



WRE91-CL047

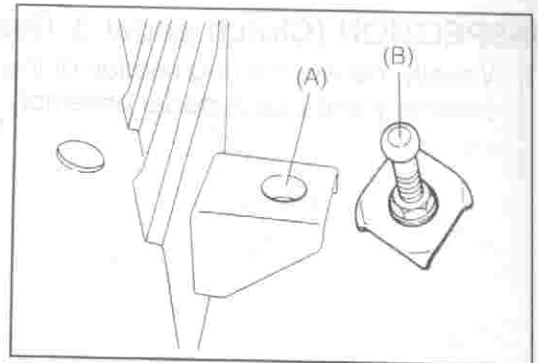
5. Visually inspect the clutch pedal clevis pin retaining inner surface and the clevis pin outer peripheral surface for damage or wear.



WRE91-CL048

CLUTCH

6. Visually inspect the clutch pedal stopper section (A) and the forward section (B) of the clutch return spring bolt for damage or wear due to lack of grease.



WRE91-CL049

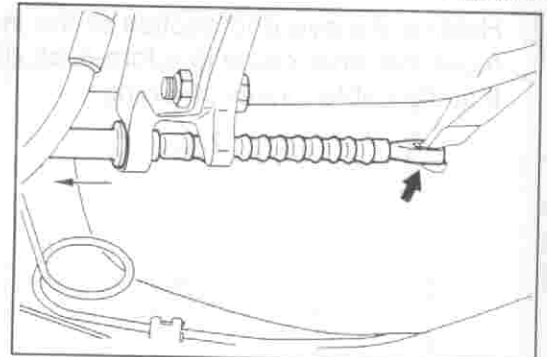
INSTALLATION

1. Installation of clutch release cable

- (1) Connect the clutch release cable assembly at the clutch housing side.

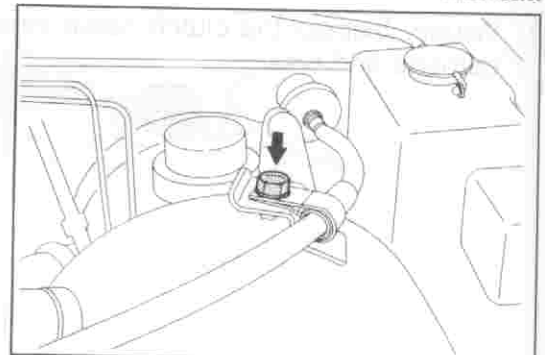
NOTE:

- Apply lithium base multi-purpose grease to the connecting section between the clutch release fork and the clutch release cable.



WRE91-CL050

- (2) Install the clamp No. 4 provided at the upper part of the air cleaner case by means of the bolt.



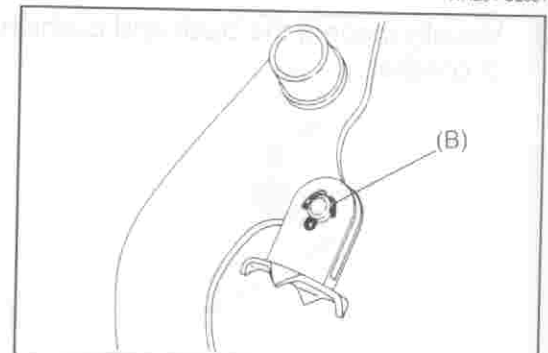
WRE91-CL051

2. Installation of clutch pedal subassembly

- (1) Install the clutch pedal return spring clevis to the clutch pedal, using a new cotter pin.

NOTE:

- Apply a suitable amount of lithium base multi-purpose grease to the clutch pedal and clutch return spring clevis (A).
- Split the cotter pin legs in an anchor shape (B).

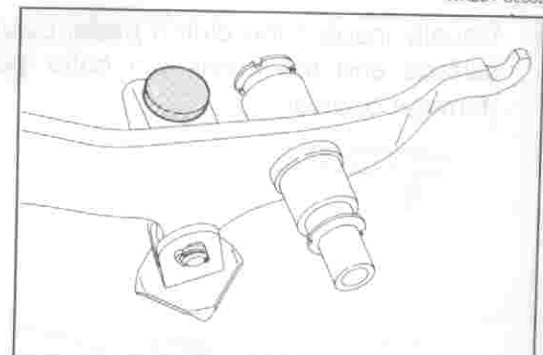


WRE91-CL052

- (2) Install the two bushes and spacer to the clutch pedal.

NOTE:

- Before the aforesaid parts are installed, apply a suitable amount of lithium base multi-purpose grease to the section shaded in the right figure.



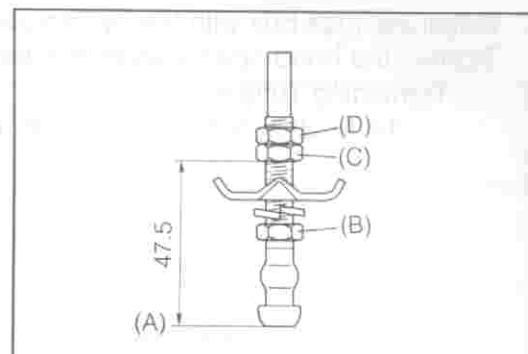
WRE91-CL053

- (3) Press the nut (B), spring washer and clutch return spring holder into the pedal return spring rod, as indicated in the right figure.

- Set the length from the pedal bracket surface (section A) to the lower surface of the nut (C) to 47.5 mm. Tighten the nuts (C) and (D).
- Tighten the nut (B).

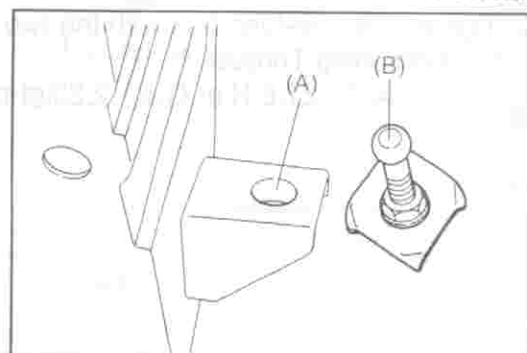
Tightening Torque for Nuts (B), (C) and (D)

14.7 - 21.6 N·m (1.5 - 2.2 kgf-m, 10.8 - 15.9 ft-lb)



WRE91-CL074

- (4) Apply lithium base multi-purpose grease to the sections (A) and (B) as indicated in the right figure.

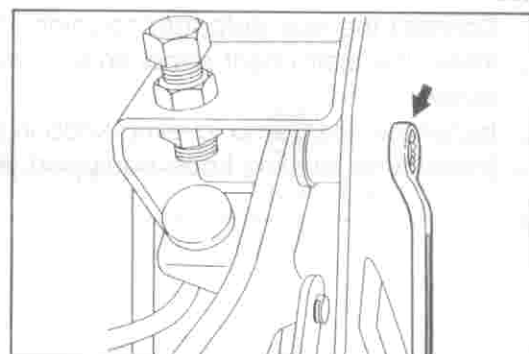


WRE91-CL054

- (5) Insert the clutch pedal shaft bolt from the brake pedal side. Install and tighten the spring washer and a nut.

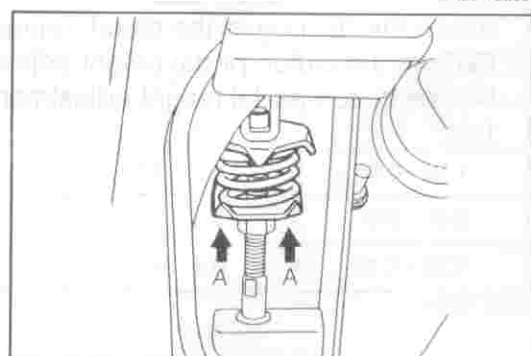
Tightening Torque:

14.7 - 21.6 N·m (1.5 - 2.2 kgf-m, 10.8 - 15.9 ft-lb)



WRE91-CL055

- (6) Install the clutch return spring holder by pushing it upward from the underside (section A) in the right figure).

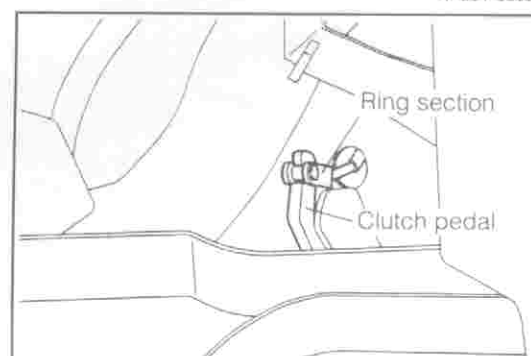


WRE91-CL056

3. Connect the ring section provided at the tip end of the clutch release cable to the clutch pedal subassembly.

NOTE:

- Apply lithium base multi purpose grease to the connecting section, prior to connect.



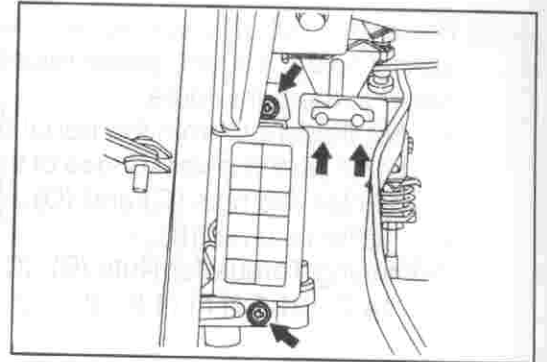
WRE91-CL057

CLUTCH

4. Install the fuse box with the two screws.
5. Tighten the hood opener lever with the two bolts.

Tightening Torque:

14.7 - 21.6 N·m (1.5 - 2.2 kgf-m, 10.8 - 15.9 ft-lb)

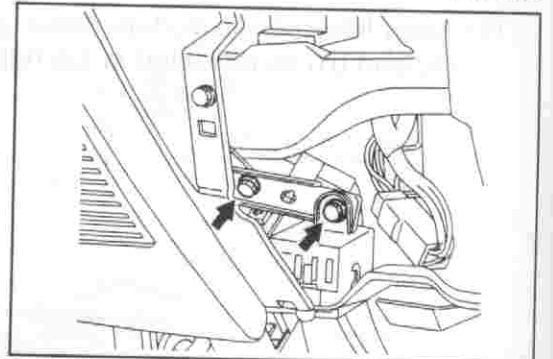


WRE91-CL058

6. Tighten the sub-fuse box with the two bolts.

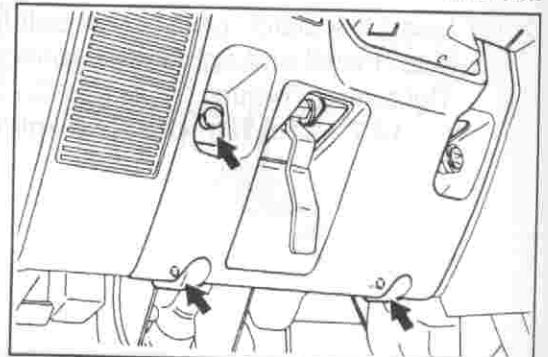
Tightening Torque:

14.7 - 21.6 N·m (1.5 - 2.2 kgf-m, 10.8 - 15.9 ft-lb)



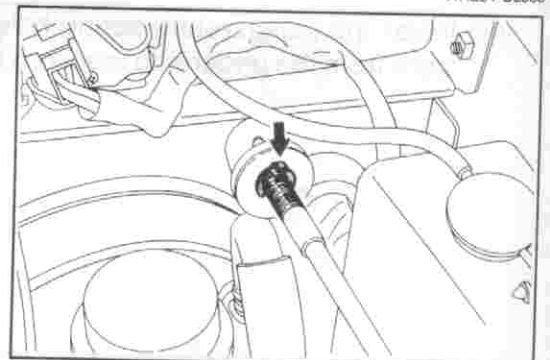
WRE91-CL059

7. Connect the rear defogger coupler.
8. Install the instrument panel finish lower panel with the two screws.
9. Install the headlamp leveling knob in place.
(Headlamp leveling knob-equipped vehicle only)




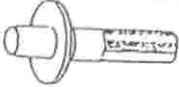

WRE91-CL060

10. Attach the "E" ring to the clutch release cable.
11. Perform the clutch pedal height adjustment.
For the clutch pedal height adjustment, see the CL-4 section.



WRE91-CL061

SSTs

Shape	Part No.	Part Name
	09301-20020-000	Clutch guide tool
	09333-00012-000	Clutch diaphragm spring aligner
	09388-87702-000	Clutch diaphragm spring height gauge

WRE91-CL062

Unit: mm

SERVICE SPECIFICATIONS

Item		Specified value	Allowable value	Remarks
Clutch disc	Rivet depth	—	0.3	Remaining lining stock
	Runout	—	1.0	Longitudinal runout
		—	0.7	Lateral runout
Clutch cover	Variation in height diaphragm spring	—	0.8	
Clutch pedal	Height	221 ⁺⁶ ₋₀ 221±3	—	RHD LHD
	Free travel	18 - 27	—	RHD, LHD

TIGHTENING TORQUE

Tightening components	Tightening torque		
	N-m	Kgf-m	ft-lb
Clutch cover × Flywheel	14.7 - 24.5	1.5 - 2.5	10.8 - 18.1
Clutch height adjusting bolt × brake pedal bracket	17.7 - 29.4	1.8 - 3.0	13.0 - 21.7
Clutch pedal × shaft bolt	14.7 - 21.6	1.5 - 2.2	10.8 - 15.9
Clutch housing × Support S/A release fork	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2

WRE91-CL063