

Last Modified: 3-27-2012	6.4 N	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003WYV00FX
Title: CLUTCH: CLUTCH FLUID: BLEEDING (2013 FR-S)		

BLEEDING

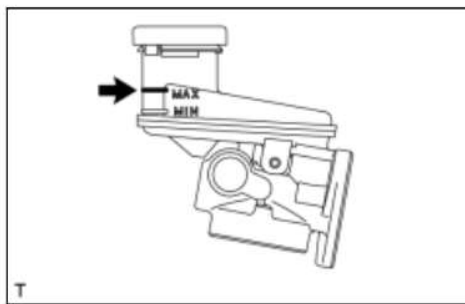
NOTICE:

Immediately wash off any clutch fluid that comes into contact with any painted surfaces.

HINT:

If any work is done on the clutch system or if air in the clutch lines is suspected, bleed the air from the system.

1. FILL CLUTCH FLUID



(a) Fill the clutch fluid.

Fluid:

SAE J1703 or FMVSS No. 116 DOT3

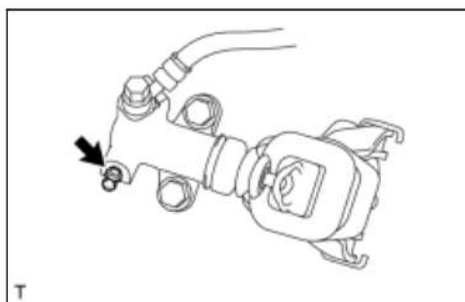
NOTICE:

Add clutch fluid to keep the level between the MIN and MAX lines of the master cylinder reservoir sub-assembly while bleeding the clutch.

2. BLEED CLUTCH LINE

NOTICE:

In case of clutch fluid replacement, make sure that the old fluid is replaced in the clutch line between the master cylinder reservoir sub-assembly and the bleeder before bleeding.



(a) Connect a vinyl tube to the clutch release cylinder bleeder plug.

- (b) Depress the clutch pedal 5 times, and then loosen the clutch release cylinder bleeder plug while the pedal is depressed (Step C).
- (c) When fluid no longer comes out, tighten the clutch release cylinder bleeder plug, and then release the clutch pedal (Step D).
- (d) Repeat Steps C and D until all the air in the fluid is completely bled out.
- (e) Tighten the clutch release cylinder bleeder plug.

Torque: 7.8 N·m (80 kgf·cm, 69in·lbf)

(f) Depress the clutch pedal 10 times or more and confirm its operation.

3. INSPECT FOR CLUTCH FLUID LEAK

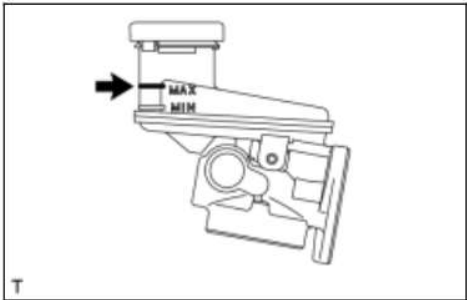
4. INSPECT CLUTCH FLUID LEVEL

[INFO](#)

Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002WKJ014X
Title: CLUTCH: CLUTCH FLUID: ON-VEHICLE INSPECTION (2013 FR-S)		

ON-VEHICLE INSPECTION

1. INSPECT CLUTCH FLUID LEVEL



(a) Check the clutch fluid level.

If clutch fluid level is lower than the MIN line, check for leaks and inspect the clutch lines. If necessary, refill the master cylinder reservoir sub-assembly with clutch fluid to the MAX line after repair or replacement.

Fluid:
SAE J1703 or FMVSS No. 116 DOT 3

NOTICE:
When adjusting fluid amount using a dropper or the like, do not use one which was used with liquid petroleum, water, or deteriorated clutch fluid. This may deteriorate seals or fluid, resulting a fluid leak and poor clutch function.



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM0000033BB00WX
Title: CLUTCH: CLUTCH FLUID: REPLACEMENT (2013 FR-S)		

REPLACEMENT

NOTICE:

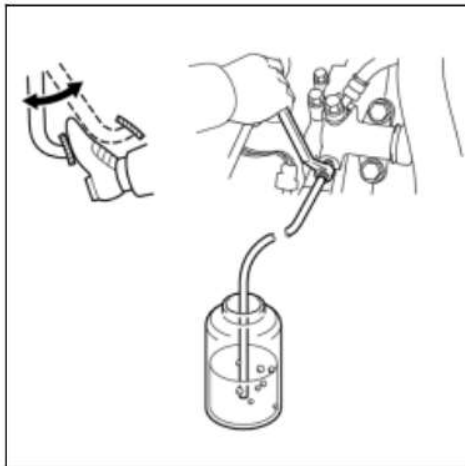
Immediately wash off any clutch fluid that comes into contact with any painted surfaces.

HINT:

If any work is done on the clutch system or if air in the clutch lines is suspected, bleed the air from the system.

1. FILL CLUTCH FLUID INFO

2. REPLACE CLUTCH FLUID



(a) Connect a vinyl tube to the clutch release cylinder bleeder plug.

- (b) Depress the clutch pedal several times, and then loosen the clutch release cylinder bleeder plug with the pedal depressed (Step A).
- (c) At the point where the fluid stops coming out, tighten the clutch release cylinder bleeder plug, and then release the clutch pedal (Step B).
- (d) Repeat Steps A and B until the new clutch fluid is comes out.

NOTICE:

Make sure that the master cylinder reservoir sub-assembly does not run out of clutch fluid.

- (e) Tighten the clutch release cylinder bleeder plug.

Torque: 7.8 N·m (80 kgf·cm, 69in·lbf)

- (f) Repeat the above procedure to bleed the air out of the clutch line for each wheel.

3. INSPECT FOR CLUTCH FLUID

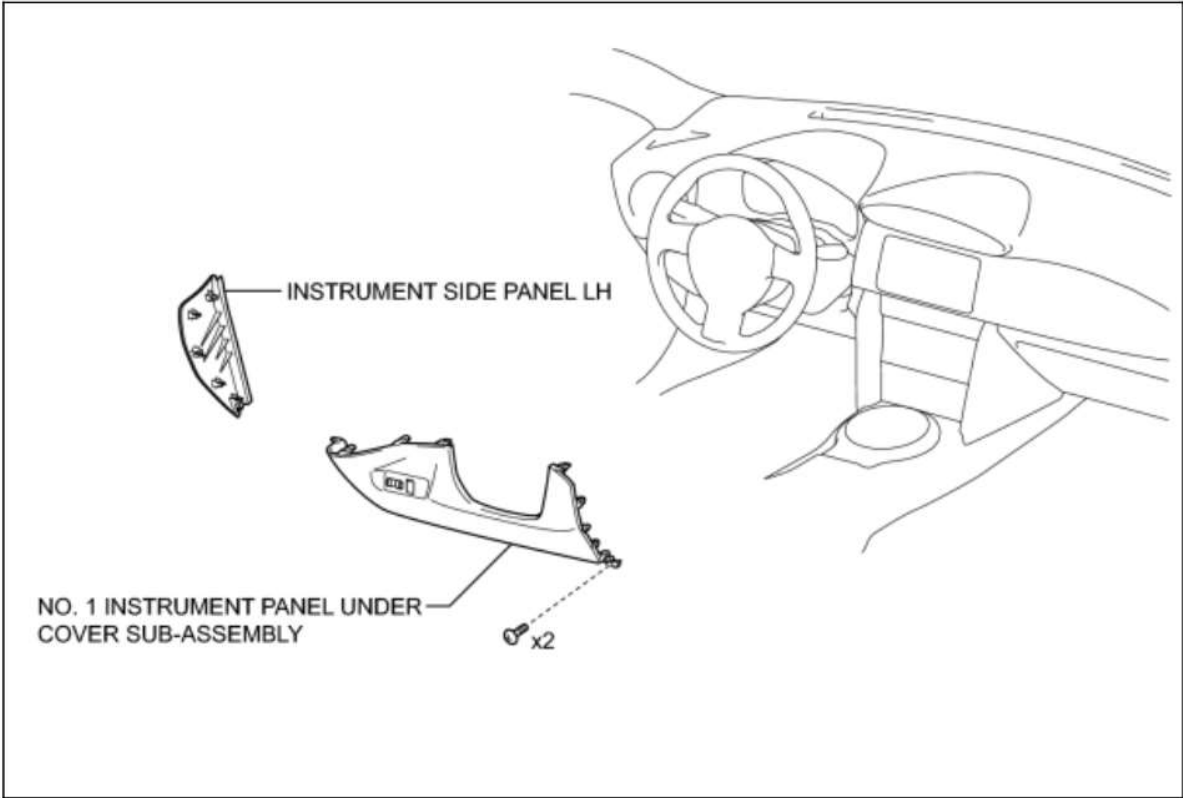
4. INSPECT CLUTCH FLUID LEVEL INFO



Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001B2Z01VX
Title: CLUTCH: CLUTCH MASTER CYLINDER: COMPONENTS (2013 FR-S)		

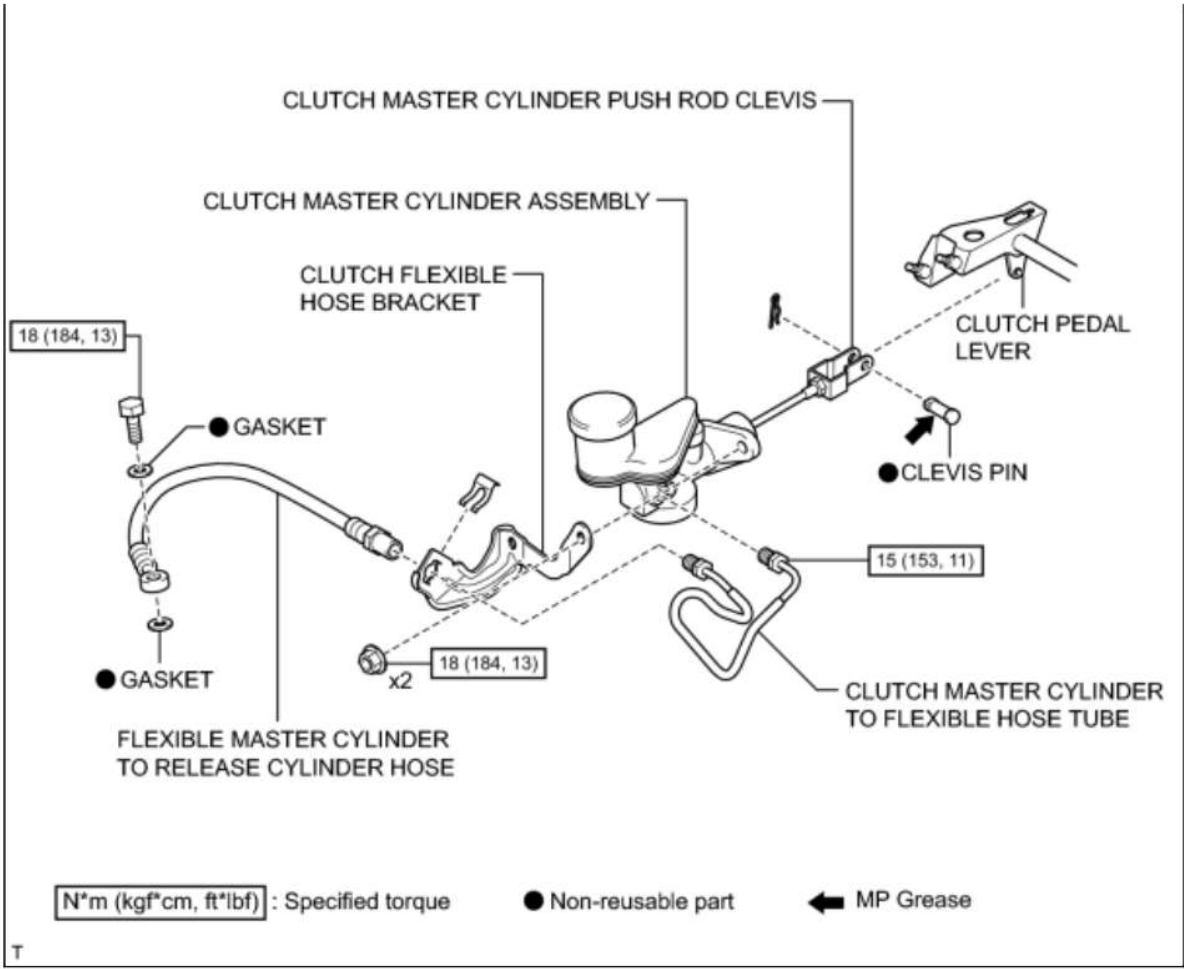
COMPONENTS

ILLUSTRATION

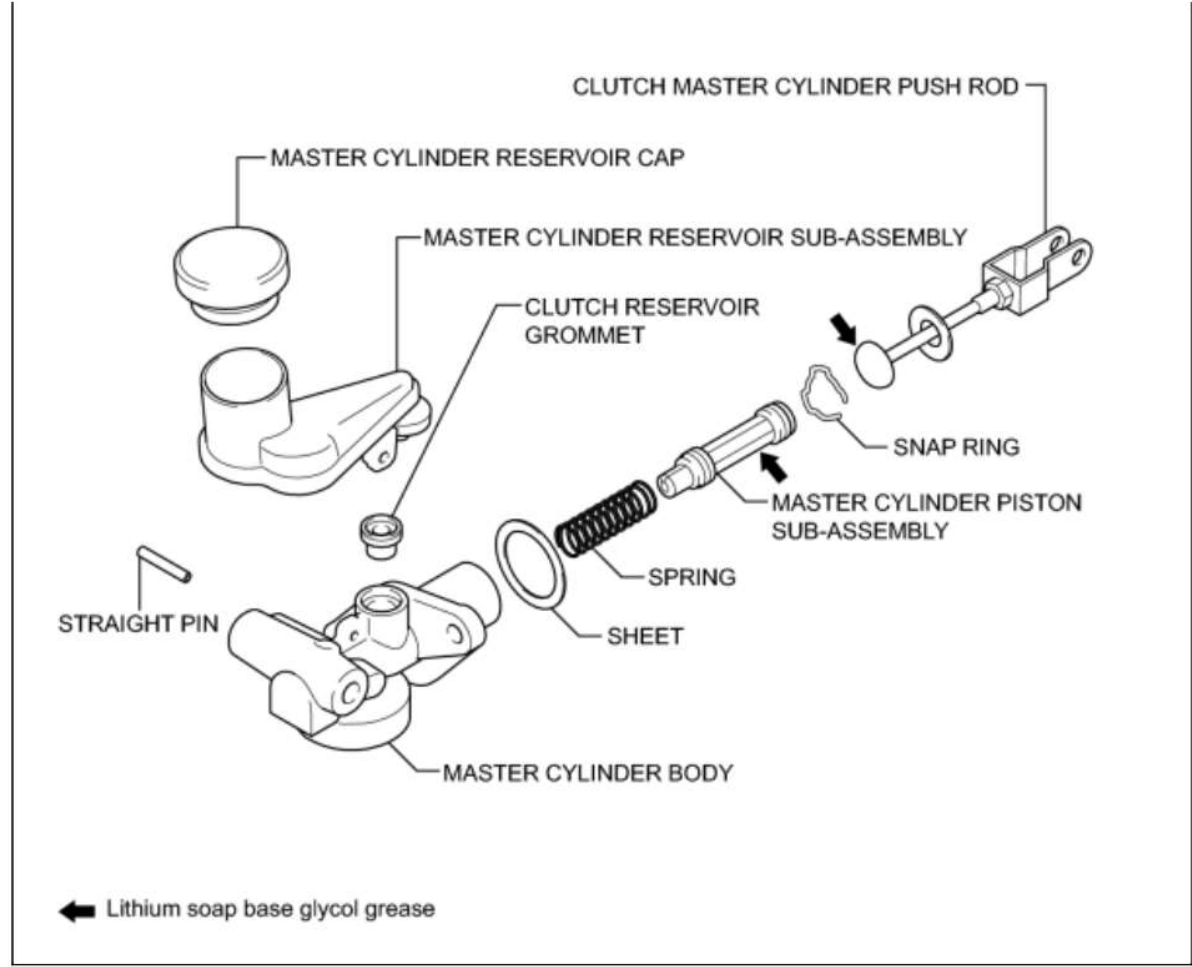


ILLUSTRATION

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ILLUSTRATION



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM0000023TJ01OX
Title: CLUTCH: CLUTCH MASTER CYLINDER: DISASSEMBLY (2013 FR-S)		

DISASSEMBLY

1. REMOVE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY

- (a) Remove the master cylinder reservoir cap.
- (b) Fix the clutch master cylinder assembly in a vise between aluminum plates.

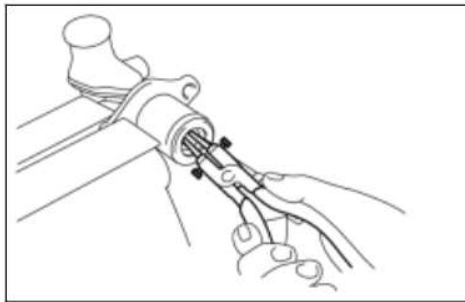
NOTICE:

Do not overtighten the vise.

- (c) Using a pin punch and a hammer, tap out the straight pin and remove the master cylinder body.

2. REMOVE CLUTCH RESERVOIR GROMMET

- (a) Remove the clutch reservoir grommet from the clutch master cylinder assembly.



3. REMOVE MASTER CYLINDER PISTON SUB-ASSEMBLY

- (a) Using snap ring pliers, remove the snap ring while pushing the clutch master cylinder push rod.
- (b) Remove the master cylinder piston sub-assembly and spring from the master cylinder body.

NOTICE:

Do not damage the inside of the master cylinder body.



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001B2Y02UX
Title: CLUTCH: CLUTCH MASTER CYLINDER: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL CLUTCH MASTER CYLINDER TO FLEXIBLE HOSE TUBE

- (a) Install the master cylinder to release cylinder hose to the clutch flexible hose bracket with the clip.
- (b) Using a union nut wrench (10 mm), connect the clutch master cylinder to flexible hose tube to the master cylinder to release cylinder hose.

Torque: 15 N·m (153 kgf·cm, 11ft·lbf)

NOTICE:

Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench [INFO](#) .

- (c) Using a union nut wrench (10 mm), connect the clutch master cylinder to flexible hose tube to the clutch master cylinder assembly.

Torque: 15 N·m (153 kgf·cm, 11ft·lbf)

NOTICE:

Use the formula to calculate special torque values for situations where a union nut wrench is combined with a torque wrench [INFO](#) .

2. INSTALL CLUTCH MASTER CYLINDER ASSEMBLY

- (a) Install the sheet to the clutch master cylinder assembly.
- (b) Install the clutch master cylinder assembly with the 2 nuts.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

- (c) Install the master cylinder to release cylinder hose with a union bolt and 2 new gaskets.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

3. INSTALL CLUTCH MASTER CYLINDER PUSH ROD CLEVIS

- (a) Apply MP grease to the new clevis pin.
- (b) Install the clutch master cylinder push rod clevis to the clutch pedal lever sub-assembly with the clevis pin and a clip.

HINT:

Install the clevis pin from the left side of the vehicle.

4. FILL UP FILL CLUTCH FLUID [INFO](#)

5. BLEED CLUTCH LINE [INFO](#)

6. INSPECT FOR CLUTCH FLUID LEAK

7. INSPECT CLUTCH FLUID LEVEL [INFO](#)

8. INSPECT AND ADJUST CLUTCH PEDAL

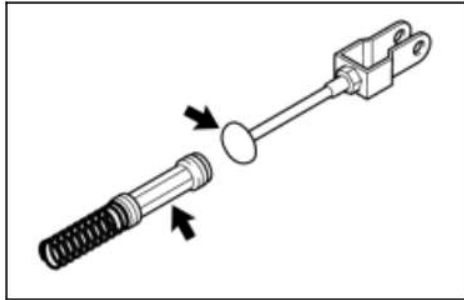
[INFO](#)

9. INSTALL FRONT SUSPENSION UPPER TO COWL BRACE SUB-ASSEMBLY LH**INFO****10. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY****INFO****11. INSTALL INSTRUMENT SIDE PANEL LH****INFO**

Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM0000023TK01PX
Title: CLUTCH: CLUTCH MASTER CYLINDER: REASSEMBLY (2013 FR-S)		

REASSEMBLY

1. INSTALL MASTER CYLINDER PISTON SUB-ASSEMBLY



(a) Apply lithium soap base glycol grease to the portions shown in the illustration.

Text in Illustration

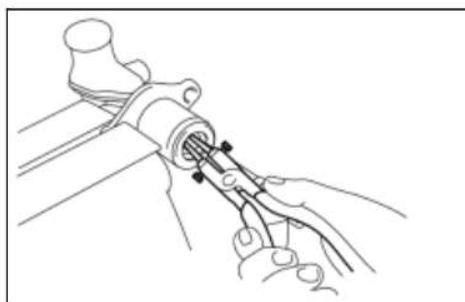
	Lithium Soap Base Glycol Grease
---	---------------------------------

(b) Install the master cylinder piston sub-assembly and spring into the master cylinder body.

(c) Fix the clutch master cylinder assembly in a vise between aluminum plates.

NOTICE:

Do not overtighten the vise.



(d) Using snap ring pliers, install the snap ring while pushing the clutch master cylinder push rod.

2. INSTALL CLUTCH RESERVOIR GROMMET

(a) Install the clutch reservoir grommet onto the master cylinder body.

3. INSTALL MASTER CYLINDER RESERVOIR SUB-ASSEMBLY

(a) Install the master cylinder reservoir sub-assembly to the master cylinder body.

(b) Using a pin punch and a hammer, tap in the straight pin.

(c) Install the master cylinder reservoir cap.



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Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001B3002TX
Title: CLUTCH: CLUTCH MASTER CYLINDER: REMOVAL (2013 FR-S)		

REMOVAL

1. DRAIN CLUTCH FLUID

[INFO](#)

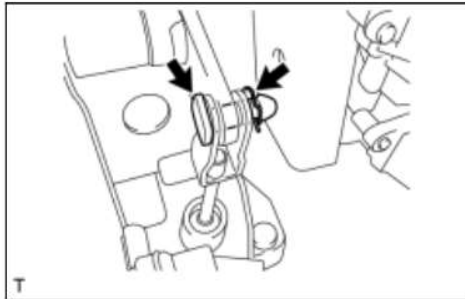
2. REMOVE INSTRUMENT SIDE PANEL LH

[INFO](#)

3. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

[INFO](#)

4. REMOVE CLUTCH MASTER CYLINDER PUSH ROD CLEVIS

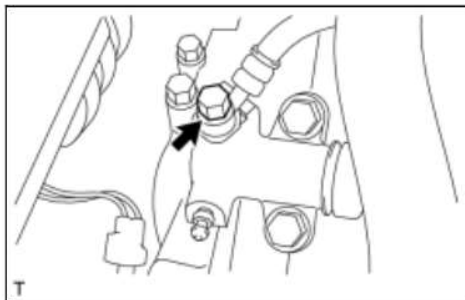


- (a) Remove the clip and the clevis pin, and separate the clutch master cylinder push rod clevis from the clutch pedal lever sub-assembly.

5. REMOVE FRONT SUSPENSION UPPER TO COWL BRACE SUB-ASSEMBLY LH

[INFO](#)

6. REMOVE CLUTCH MASTER CYLINDER ASSEMBLY

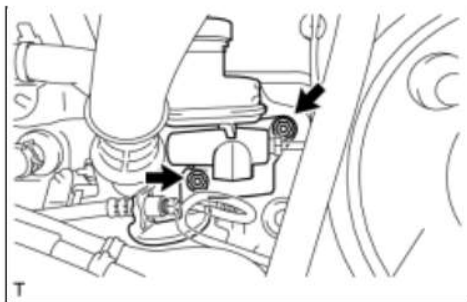


- (a) Remove the union bolt, 2 gaskets and the master cylinder to the release cylinder hose from the clutch release cylinder assembly.

HINT:

Use a container to collect the fluid.

- (b) Remove the 2 nuts and the clutch master cylinder assembly and sheet.

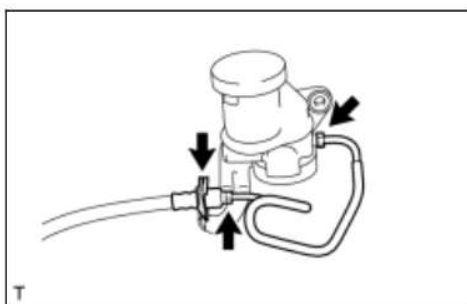


7. REMOVE CLUTCH MASTER CYLINDER TO FLEXIBLE HOSE TUBE

- (a) Using a union nut wrench (10 mm), disconnect the clutch master cylinder to flexible hose tube from the master cylinder to release cylinder hose.

HINT:

Use a container to collect the fluid.



- (b) Remove the clip and the clutch flexible hose bracket.

- (c) Using a union nut wrench (10 mm), remove the clutch master cylinder to flexible hose tube from the clutch master cylinder assembly.

HINT:

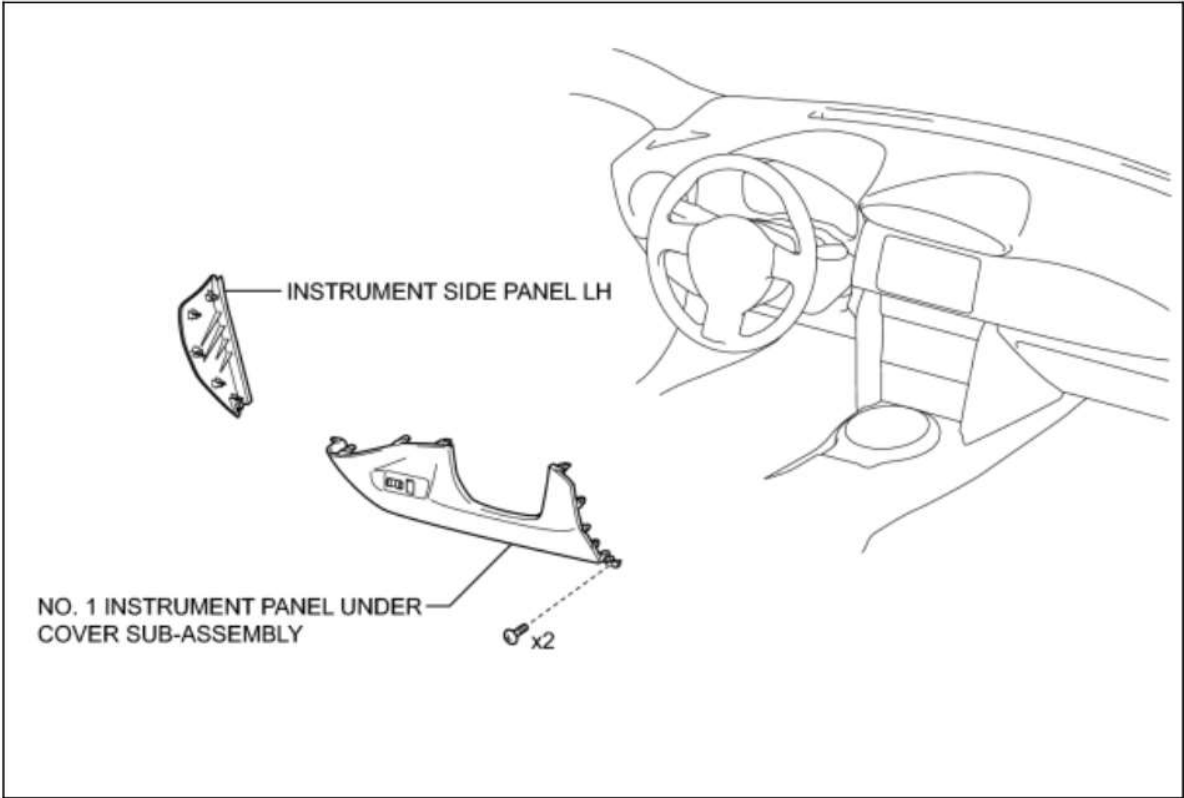
Use a container to collect the fluid.



Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001B3C012X
Title: CLUTCH: CLUTCH PEDAL SWITCH: COMPONENTS (2013 FR-S)		

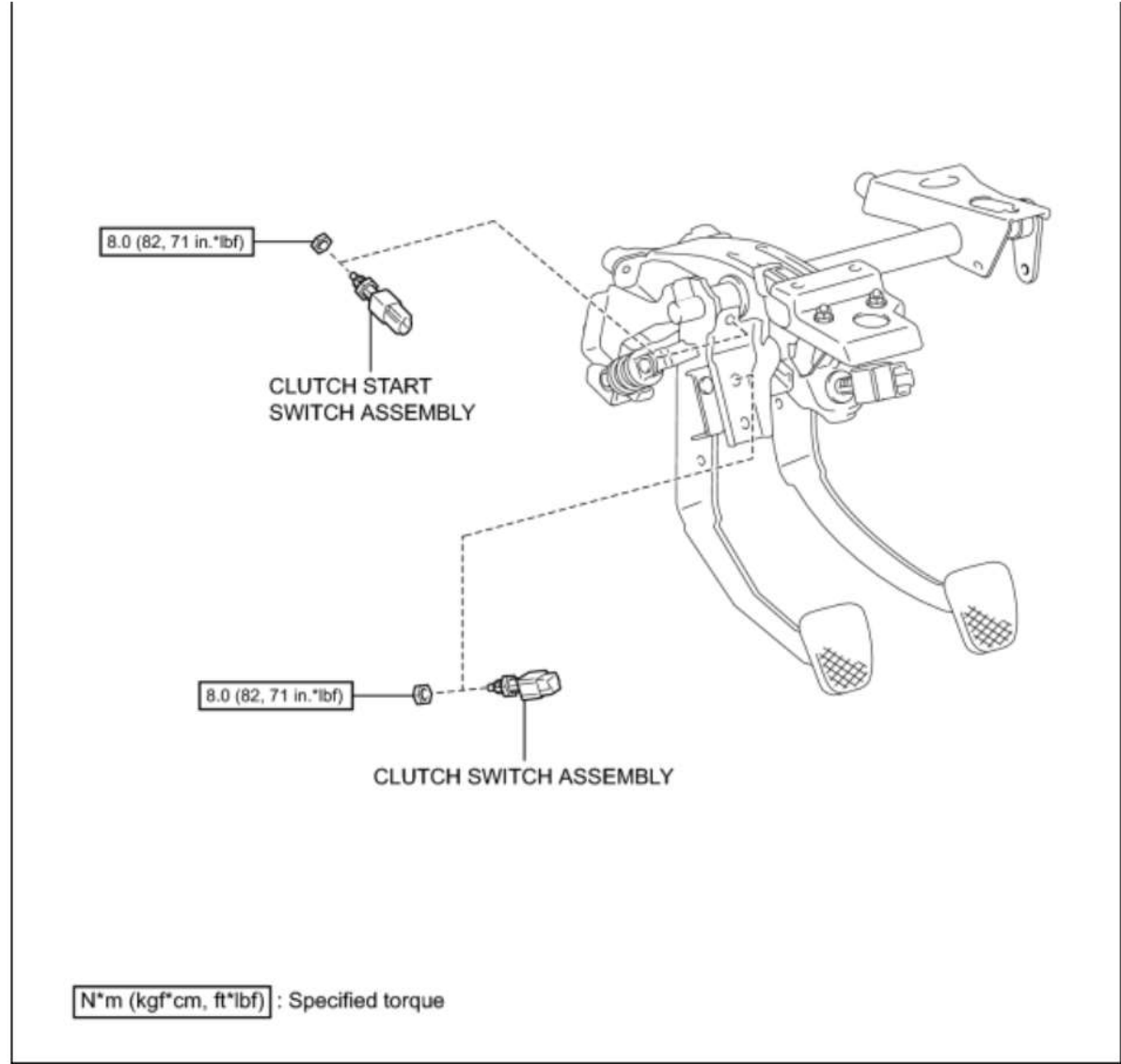
COMPONENTS

ILLUSTRATION



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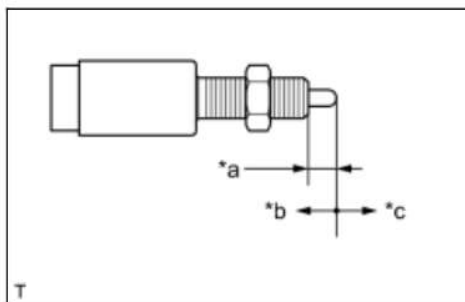
Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001B3B016X
Title: CLUTCH: CLUTCH PEDAL SWITCH: INSPECTION (2013 FR-S)		

INSPECTION

1. INSPECT CLUTCH START SWITCH ASSEMBLY

(a) Measure the resistance according to the value(s) in the table below.

Text in Illustration



*a	9.0 to 10.0 mm (0.354 to 0.394 in.)
*b	ON
*c	OFF

Standard Resistance:

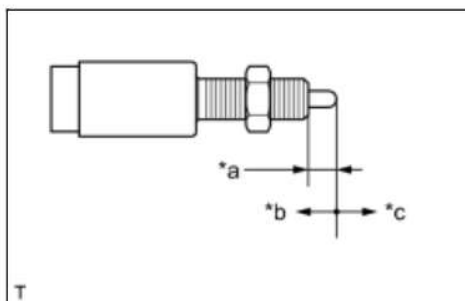
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	ON (Pushed in)	Below 1Ω
	OFF (Released)	10 kΩ or higher

If the resistance is not as specified, replace the clutch start switch assembly.

2. INSPECT CLUTCH SWITCH ASSEMBLY

(a) Measure the resistance according to the value(s) in the table below.

Text in Illustration



*a	5.0 to 6.5 mm (0.197 to 0.256 in.)
*b	ON
*c	OFF

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	ON (Pushed in)	Below 1Ω
	OFF (Released)	10 kΩ or higher

If the resistance is not as specified, replace the clutch switch assembly.



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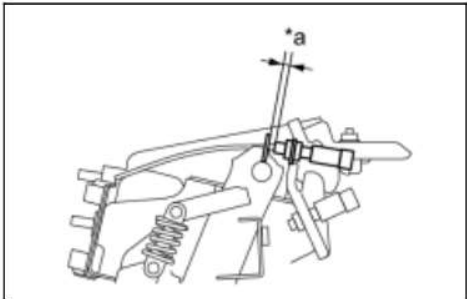
Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001B3A013X
Title: CLUTCH: CLUTCH PEDAL SWITCH: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL CLUTCH START SWITCH ASSEMBLY

- (a) Install the clutch start switch assembly to the clutch pedal support sub-assembly with the nut.
- Torque: 8.0 N·m (82 kgf·cm, 71in·lbf)**
- (b) Connect the clutch start switch connector.

- (c) With the clutch pedal fully depressed, check that the clearance shown in the illustration is as specified.



Text in Illustration

*a	Clearance
----	-----------

Standard clearance:
3.0 to 3.5 mm (0.118 to 0.138n.)

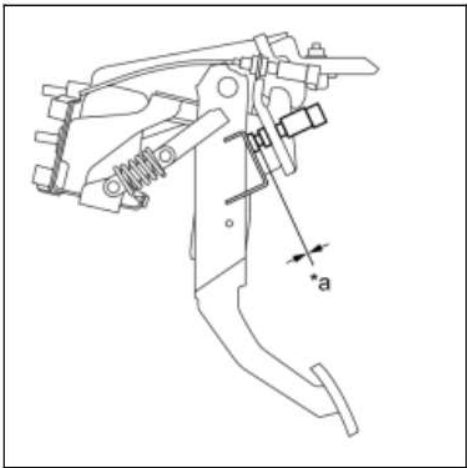
HINT:
Do not turn the clutch start switch assembly.

2. INSTALL CLUTCH PEDAL SUPPORT SUB-ASSEMBLY

INFO

3. INSTALL CLUTCH SWITCH ASSEMBLY

- (a) Install the clutch switch assembly to the clutch pedal support sub-assembly with the nut.
- Torque: 8.0 N·m (82 kgf·cm, 71in·lbf)**
- (b) Connect the clutch switch connector.



- (c) Without depressing the clutch pedal, check that there is no clearance between the switch shaft and the clutch pedal stopper.

Text in Illustration

*a	No Clearance
----	--------------

HINT:
Do not turn the clutch switch assembly.

4. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY [INFO](#)

5. INSTALL INSTRUMENT SIDE PANEL LH [INFO](#)

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL [INFO](#)

7. INSPECT CLUTCH START SYSTEM [INFO](#)



Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001BFZ010X
Title: CLUTCH: CLUTCH PEDAL SWITCH: ON-VEHICLE INSPECTION (2013 FR-S)		

ON-VEHICLE INSPECTION

1. INSPECT CLUTCH START SYSTEM

- (a) Check that the engine does not start when the clutch pedal is released.
- (b) Check that the engine starts when the clutch pedal is fully depressed.

If necessary, replace or adjust the clutch start switch assembly.



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001B3D013X
Title: CLUTCH: CLUTCH PEDAL SWITCH: REMOVAL (2013 FR-S)		

REMOVAL

1. REMOVE INSTRUMENT SIDE PANEL LH

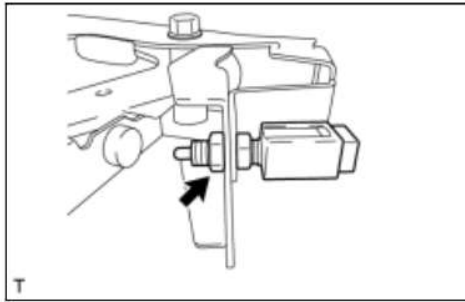
[INFO](#)

2. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

[INFO](#)

3. REMOVE CLUTCH SWITCH ASSEMBLY

- (a) Disconnect the clutch switch connector.



- (b) Remove the nut and the clutch switch assembly from the clutch pedal support sub-assembly.

HINT:

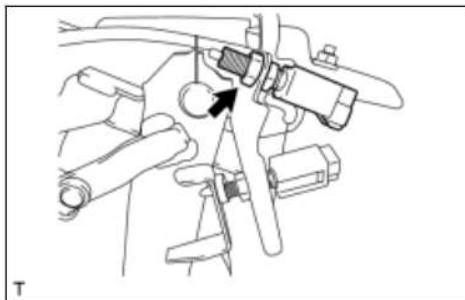
Do not turn the clutch switch assembly.

4. REMOVE CLUTCH PEDAL SUPPORT SUB-ASSEMBLY

[INFO](#)

5. REMOVE CLUTCH START SWITCH ASSEMBLY

- (a) Disconnect the clutch start switch connector.



- (b) Remove the nut and the clutch start switch assembly from the clutch pedal support sub-assembly.

HINT:

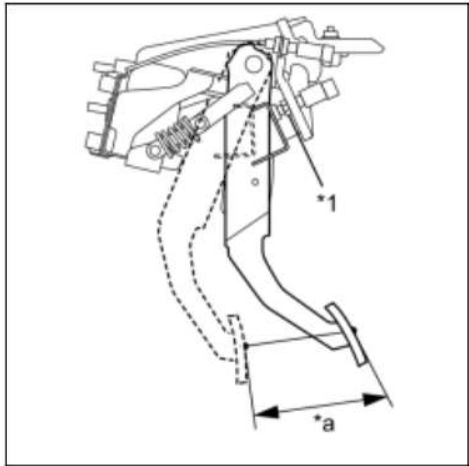
Do not turn the clutch start switch assembly.

Last Modified: 3-27-2012	6.4 N	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000000ERC032X
Title: CLUTCH: CLUTCH PEDAL: ADJUSTMENT (2013 FR-S)		

ADJUSTMENT

1. INSPECT AND ADJUST CLUTCH PEDAL

- (a) If the full stroke of the clutch pedal sub-assembly is not within the specified value, loosen the lock nuts of the clutch switch assembly and adjust the full stroke of the clutch pedal sub-assembly with the clutch switch assembly.



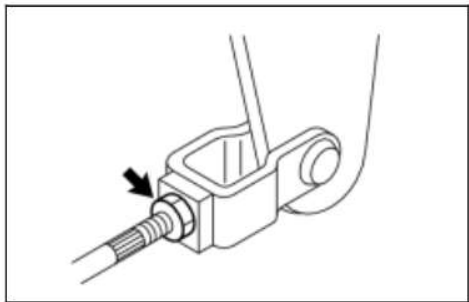
Text in Illustration

*1	Lock Nut
*a	Pedal stroke

Pedal stroke:
110 to 115 mm (4.331 to 4.528 in.)
Torque: 8.0 N·m (82 kgf·cm, 71in·lbf)

NOTICE:
When adjusting the full stroke of clutch pedal sub-assembly, do not turn the clutch switch assembly.

HINT:
If the clutch switch assembly cannot adjust the full stroke of clutch pedal sub-assembly to the specified value, adjust it by turning the clutch master cylinder push rod.

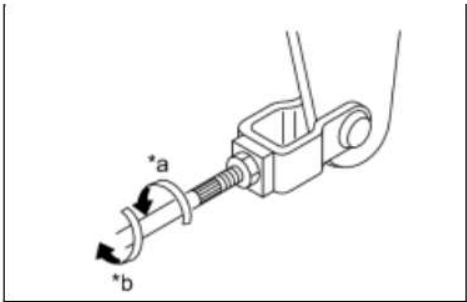


- (b) Loosen the push rod lock nuts of the clutch master cylinder assembly.

- (c) Rotate the clutch master cylinder push rod to adjust.

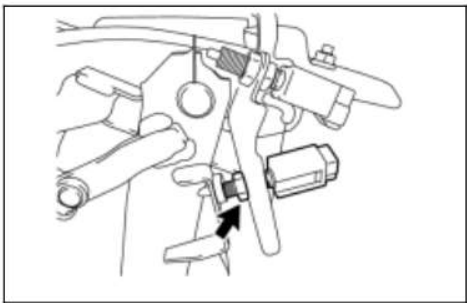
Text in Illustration

*a	In the Longer Direction
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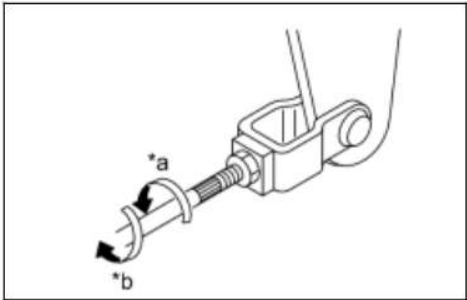
*b	In the Shorter Direction

- (d) Make sure that the clutch pedal sub-assembly contacts the clutch pedal stopper when the clutch pedal sub-assembly is at the maximum stroke position.
- (e) Make sure that the clutch pedal sub-assembly contacts the clutch switch side when the pedal is released.



- (f) Turn the clutch master cylinder push rod to shorten until a clearance is gained on the clutch switch side.

- (g) Turn the clutch master cylinder push rod to lengthen until the clutch pedal sub-assembly contacts the clutch switch assembly.



- (h) Turn further in the direction that will shorten the clutch master cylinder push rod by 270°.

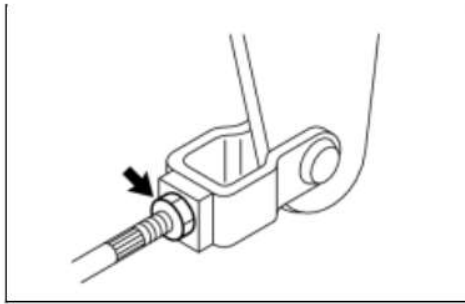
Text in Illustration

*a	In the Longer Direction
*b	In the Shorter Direction

- (i) Check that the clevis pin moves smoothly by moving it to the left and right directions.

- (j) Tighten the clutch master cylinder push rod lock nut of the clutch master cylinder assembly.

Torque: 10 N·m (102 kgf·cm, 7ft·lbf)

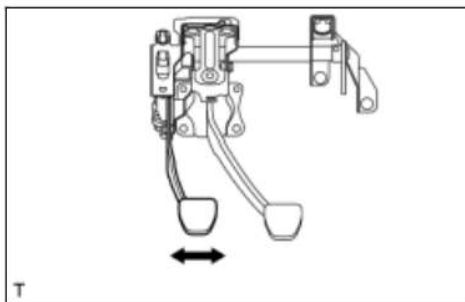


- (k) Depress and release the clutch pedal sub-assembly two or three times to ensure that the clutch pedal sub-assembly and the release lever operate smoothly. If the clutch pedal sub-assembly and the release lever do not operate smoothly, bleed the air from the clutch line.
- (l) Measure the clutch pedal sub-assembly full stroke length again to ensure that it is within specifications. If it is not within specifications, repeat the adjustment procedures again from the beginning.

Pedal stroke:

105 to 115 mm (4.134 to 4.528 in.)

2. INSPECT CLUTCH PEDAL SUB-ASSEMBLY



- (a) Move the clutch pedal sub-assembly in the lateral direction with a force of approximately 10 N (1.0 kgf, 2.2 lbf) to check that the clutch pedal sub-assembly deflection is within the service limit.

Maximum play:

4.0 (0.158 in.)

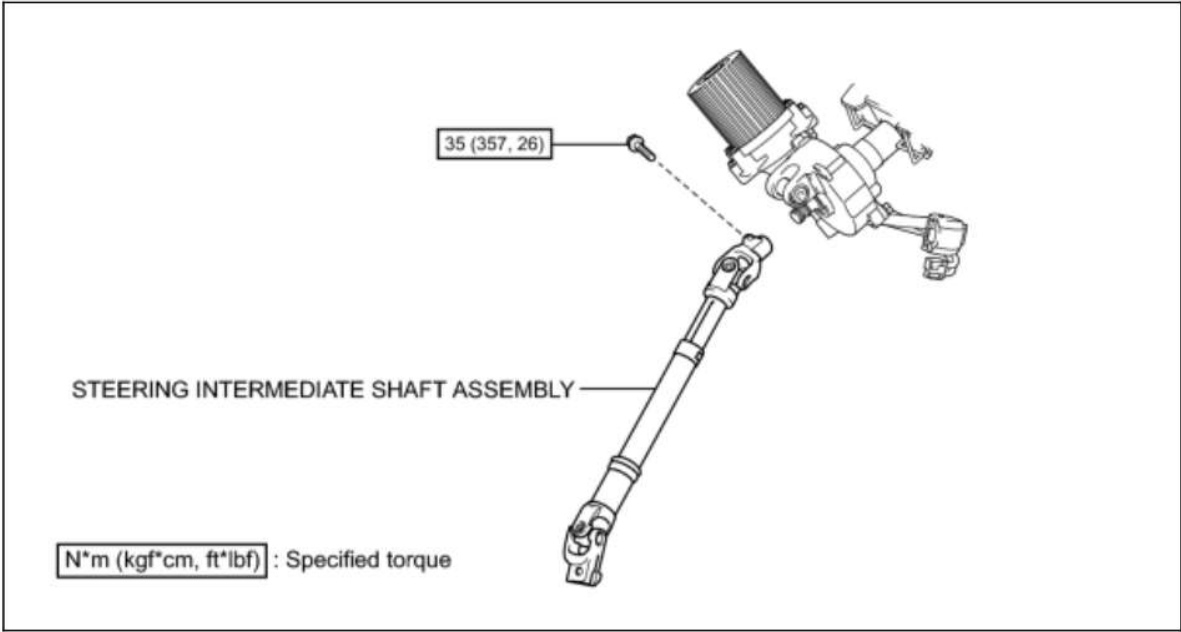
If the play exceeds the maximum, replace the clutch pedal sub-assembly.



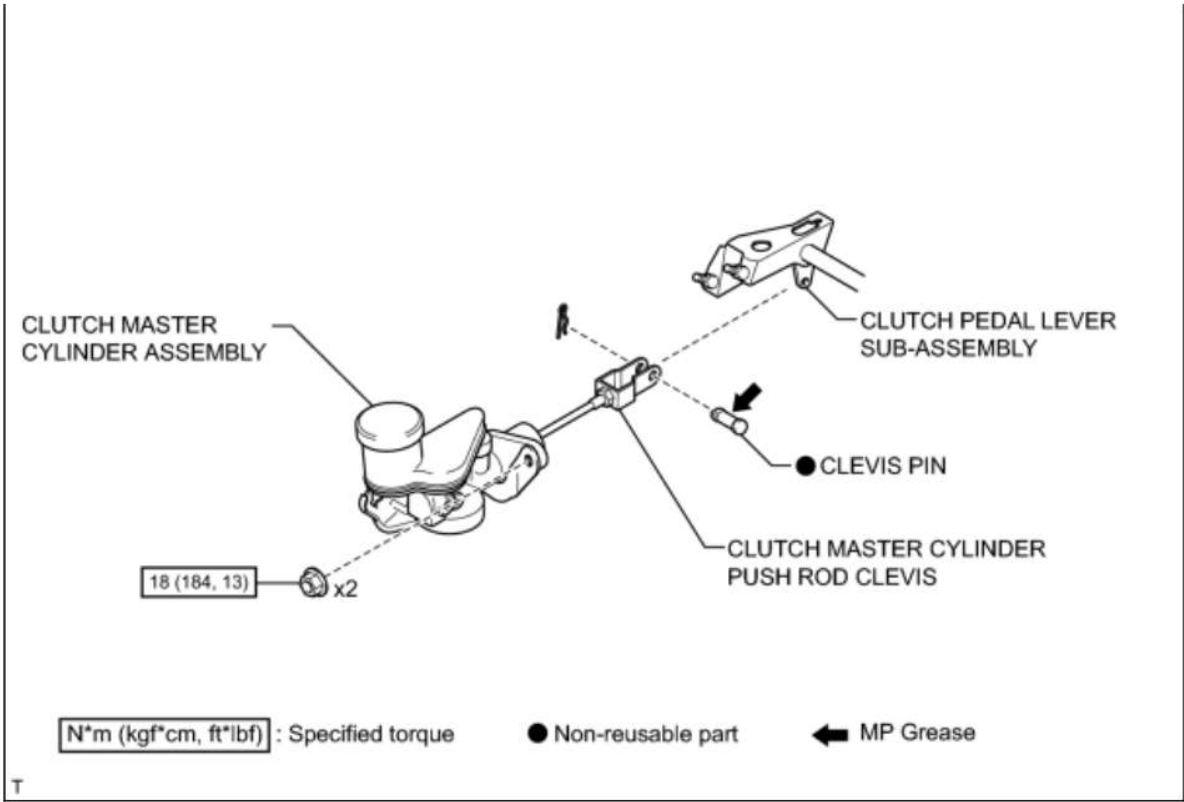
Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002VLN000X
Title: CLUTCH: CLUTCH PEDAL: COMPONENTS (2013 FR-S)		

COMPONENTS

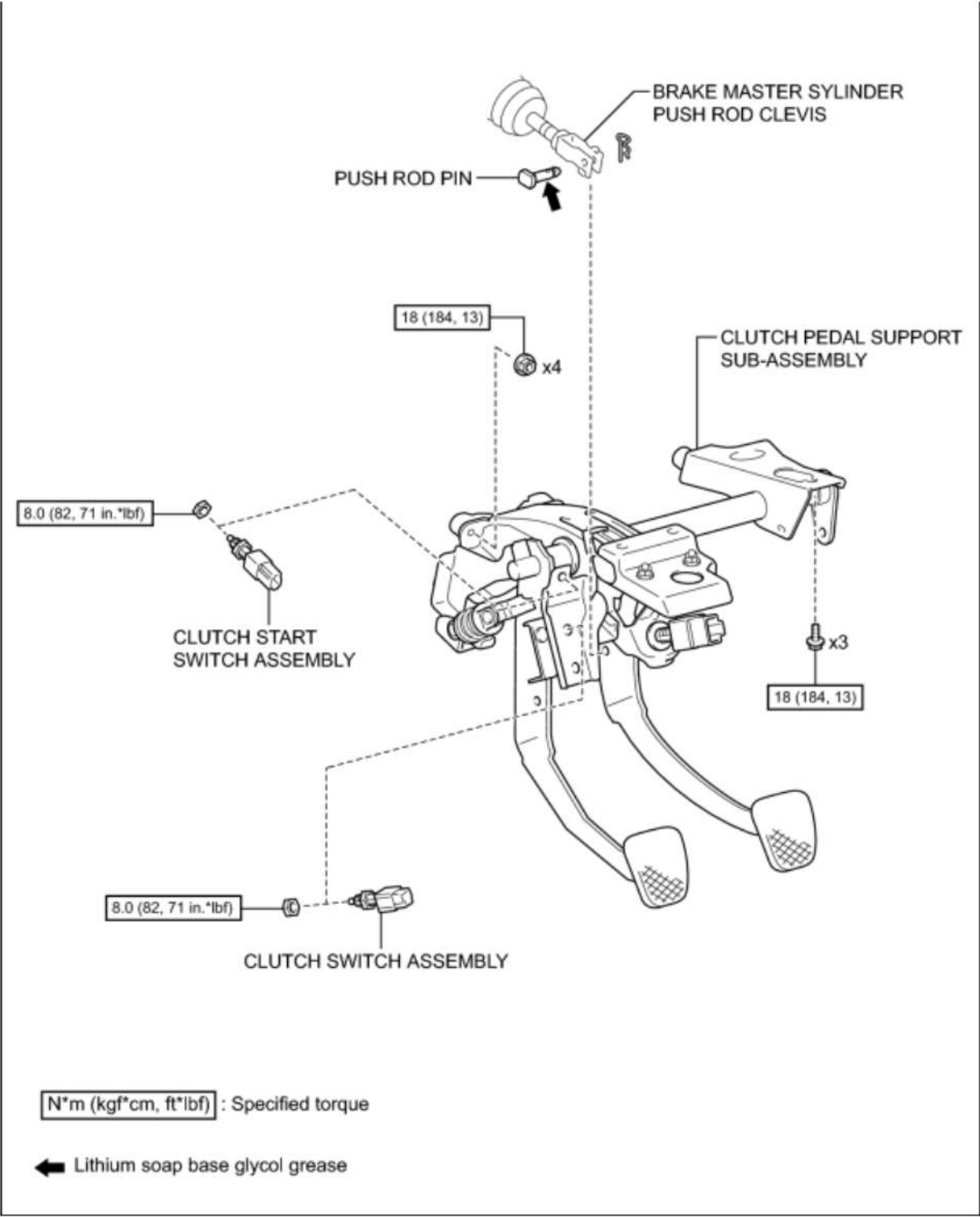
ILLUSTRATION



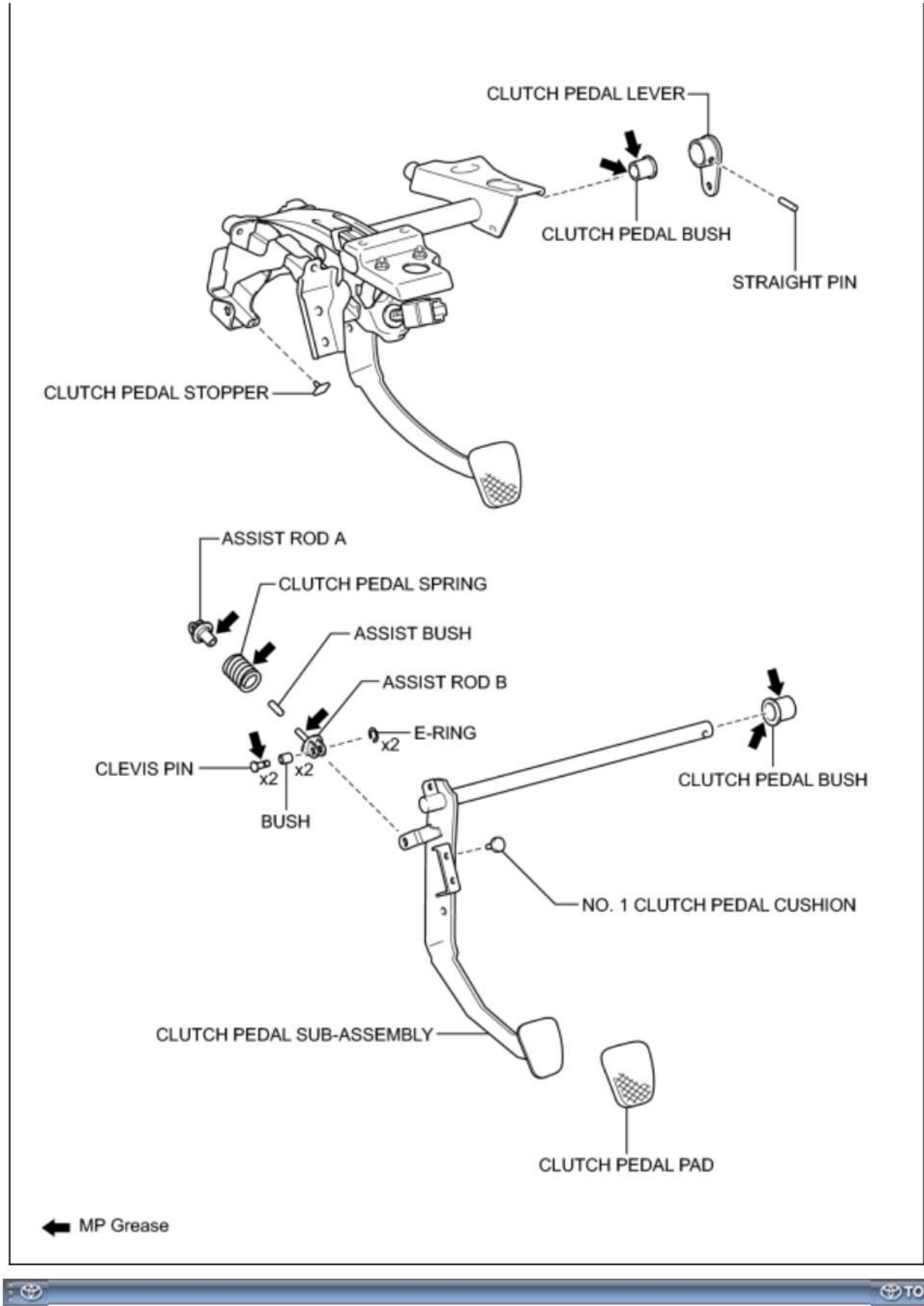
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001EXM00ZX
Title: CLUTCH: CLUTCH PEDAL: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL CLUTCH PEDAL PAD

- (a) Install the clutch pedal pad to the clutch pedal sub-assembly.

2. INSTALL NO. 1 CLUTCH PEDAL CUSHION

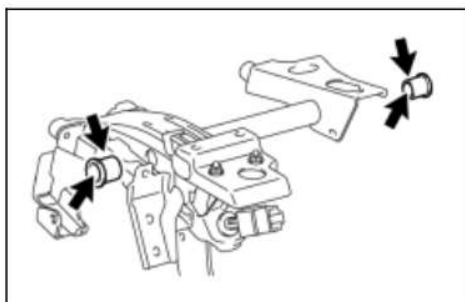
- (a) Install the No. 1 clutch pedal cushion to the clutch pedal sub-assembly.

3. INSTALL CLUTCH PEDAL STOPPER

- (a) Install the clutch pedal stopper to the clutch pedal support sub-assembly.

4. INSTALL CLUTCH PEDAL SUB-ASSEMBLY

- (a) Apply MP grease to the 2 clutch pedal bushes.



Text in Illustration

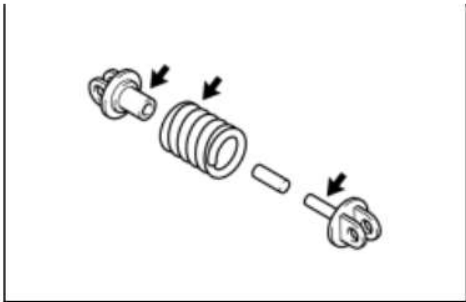
	MP grease
---	-----------

- (b) Install the clutch pedal sub-assembly and 2 clutch pedal bushes to the clutch pedal support sub-assembly.

- (c) Using a pin punch (3 mm (0.118 in.)) and a hammer, align the clutch pedal lever sub-assembly hole and the clutch pedal sub-assembly hole, and insert the straight pin from above.

5. INSTALL CLUTCH PEDAL SPRING

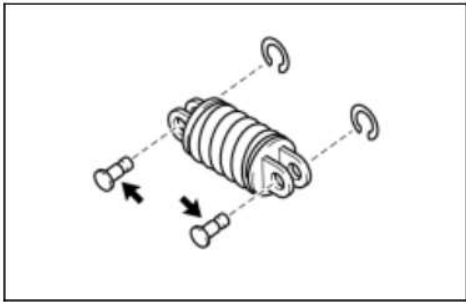
- (a) Install the 2 bushes to the clutch pedal sub-assembly and clutch pedal support sub-assembly.
 (b) Apply MP grease to the assist rod A, assist rod B and clutch pedal spring.



Text in Illustration

	MP grease
---	-----------

- (c) Install the assist rod A, assist rod B, clutch pedal spring and assist bush to the clutch pedal sub-assembly and the clutch pedal support sub-assembly.
- (d) Apply MP grease to the 2 clevis pins.



Text in Illustration

	MP grease
---	-----------

- (e) Install the 2 clevis pins and 2 E-rings.

HINT:

Install the clevis pin from the left side of the vehicle.

6. INSTALL CLUTCH SWITCH ASSEMBLY

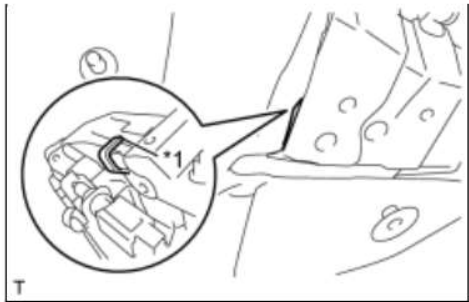
- (a) Install the clutch switch assembly to the clutch pedal support sub-assembly with the nut.
Torque: 8.0 N·m (82 kgf·cm, 71in·lbf)

7. INSTALL CLUTCH START SWITCH ASSEMBLY INFO

8. INSTALL CLUTCH PEDAL SUPPORT SUB-ASSEMBLY

- (a) Insert the hook on the clutch pedal support sub-assembly into the vehicle panel.

Text in Illustration



*1	Hook
----	------

(b) Install the clutch pedal support sub-assembly to the vehicle with the 4 nuts and 3 bolts.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

(c) Install the clutch master cylinder assembly with the 2 nuts.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

(d) Apply MP grease to the new clevis pin.

(e) Install the clutch master cylinder push rod clevis to the clutch pedal lever sub-assembly with the clevis pin and a clip.

HINT:

Install the clevis pin from the left side of the vehicle.

(f) Apply MP grease to the push rod pin.

(g) Install the brake master cylinder push rod clevis with the push rod pin and a clip.

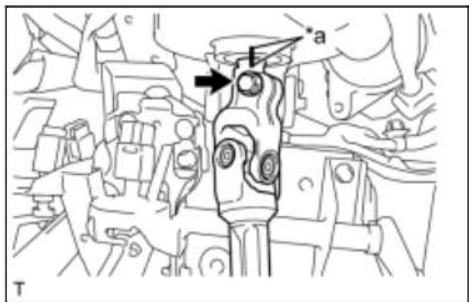
HINT:

Install the push rod pin from the left side of the vehicle.

(h) Connect the connector and engage the wire harness clamp.

(i) Connect the 3 connectors.

9. INSTALL STEERING INTERMEDIATE SHAFT ASSEMBLY



(a) Install the steering intermediate shaft assembly to the steering column assembly.

Text in Illustration

*a	Matchmark
----	-----------

NOTICE:

Align the matchmarks on the steering intermediate shaft assembly and the steering column assembly.

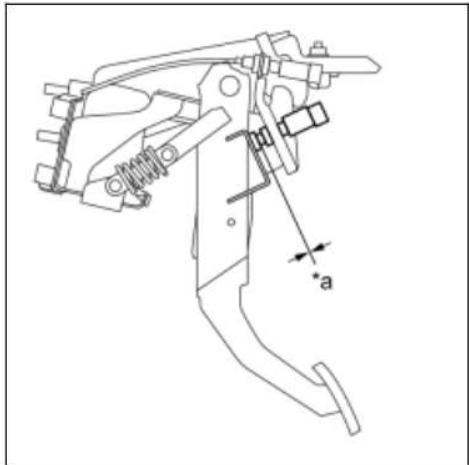
(b) Install the bolt.

Torque: 35 N·m (357 kgf·cm, 26ft·lbf)

10. INSPECT AND ADJUST CLUTCH PEDAL



11. INSPECT CLUTCH SWITCH ASSEMBLY



(a) Without depressing the clutch pedal sub-assembly, check that there is no clearance between the clutch switch shaft and the clutch pedal stopper.

Text in Illustration

*a	No Clearance
----	--------------

12. INSTALL POWER STEERING ECU ASSEMBLY

INFO

13. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

INFO

14. INSPECT CLUTCH START SYSTEM

INFO



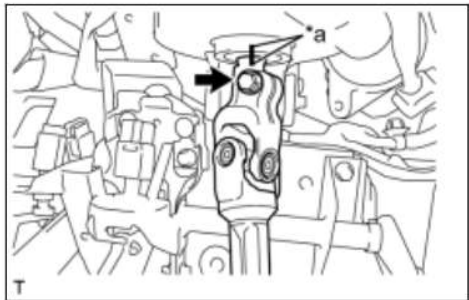
Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001EXO00ZX
Title: CLUTCH: CLUTCH PEDAL: REMOVAL (2013 FR-S)		

REMOVAL

1. REMOVE POWER STEERING ECU ASSEMBLY

INFO

2. SEPARATE STEERING INTERMEDIATE SHAFT ASSEMBLY



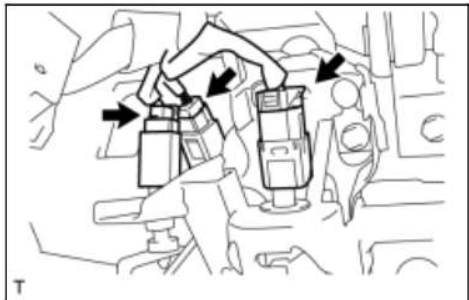
(a) Put matchmarks on the steering intermediate shaft assembly and the steering column assembly.

Text in Illustration

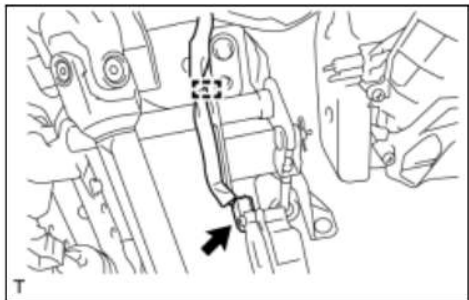
*a	Matchmark
----	-----------

(b) Remove the bolt and separate the steering intermediate shaft assembly from the steering column assembly.

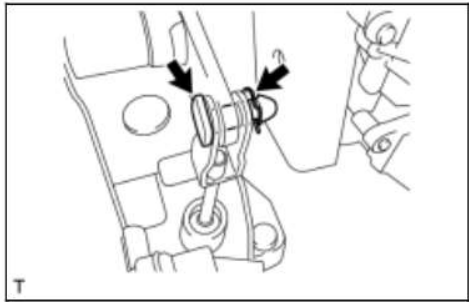
3. REMOVE CLUTCH PEDAL SUPPORT SUB-ASSEMBLY



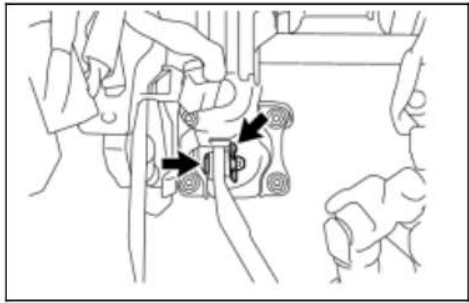
(a) Disconnect the 3 connectors.



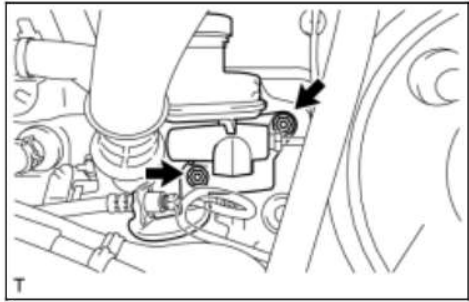
(b) Disconnect the connector and wire harness clamp.



(c) Remove the clip and the clevis pin, and separate the clutch master cylinder push rod clevis from the clutch pedal lever sub-assembly.

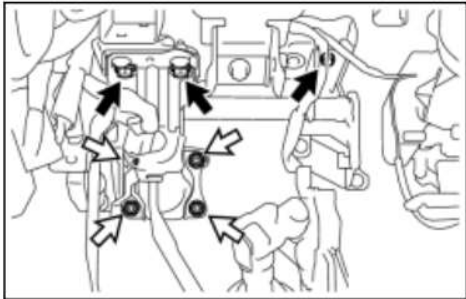


(d) Remove the clip and push rod pin, and separate the brake master cylinder push rod clevis from the brake pedal.



(e) Remove the 2 nuts and separate the clutch master cylinder assembly.

(f) Remove the 3 bolts, 4 nuts and the clutch pedal support sub-assembly.



Text in Illustration

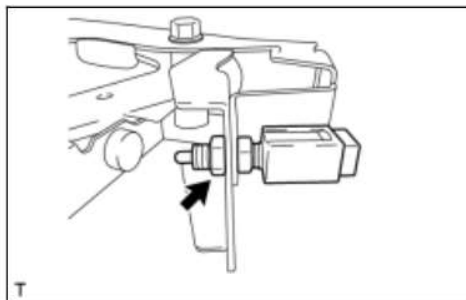
	Bolt
---	------



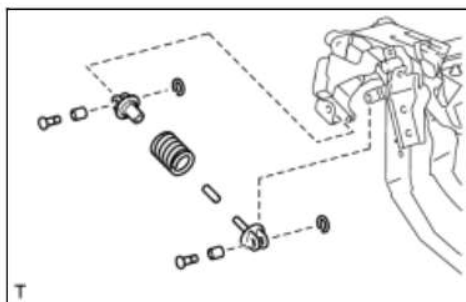
Nut

4. REMOVE CLUTCH START SWITCH ASSEMBLY INFO

5. REMOVE CLUTCH SWITCH ASSEMBLY



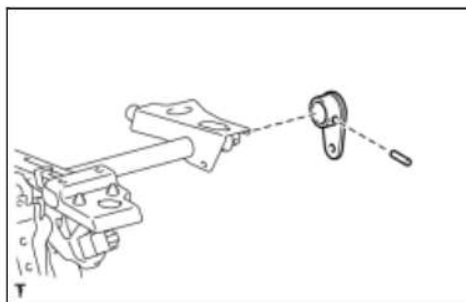
- (a) Remove the nut and the clutch switch assembly from the clutch pedal support sub-assembly.



6. REMOVE CLUTCH PEDAL SPRING

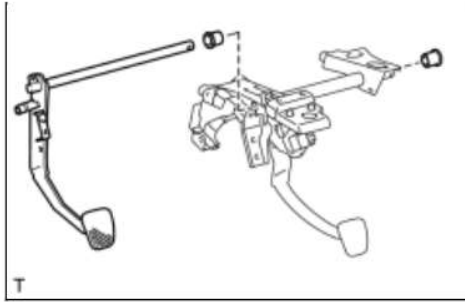
- (a) Remove the 2 E-rings and the 2 clevis pins.
 (b) Remove the assist rod A, assist rod B, clutch pedal spring and assist bush.
 (c) Remove the 2 bushes from the clutch pedal sub-assembly and clutch pedal support sub-assembly.

7. REMOVE CLUTCH PEDAL SUB-ASSEMBLY

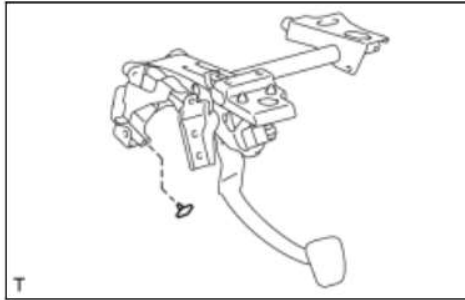


- (a) Using a pin punch (3 mm (0.118 in.)) and a hammer, tap out the straight pin and remove the clutch pedal lever sub-assembly.

- (b) Remove the clutch pedal sub-assembly and 2 clutch pedal bushes from the clutch pedal support sub-assembly.



8. REMOVE CLUTCH PEDAL STOPPER



- (a) Remove the clutch pedal stopper from the clutch pedal support sub-assembly.

9. REMOVE NO. 1 CLUTCH PEDAL CUSHION

- (a) Remove the No. 1 clutch pedal cushion from the clutch pedal sub-assembly.

10. REMOVE CLUTCH PEDAL PAD

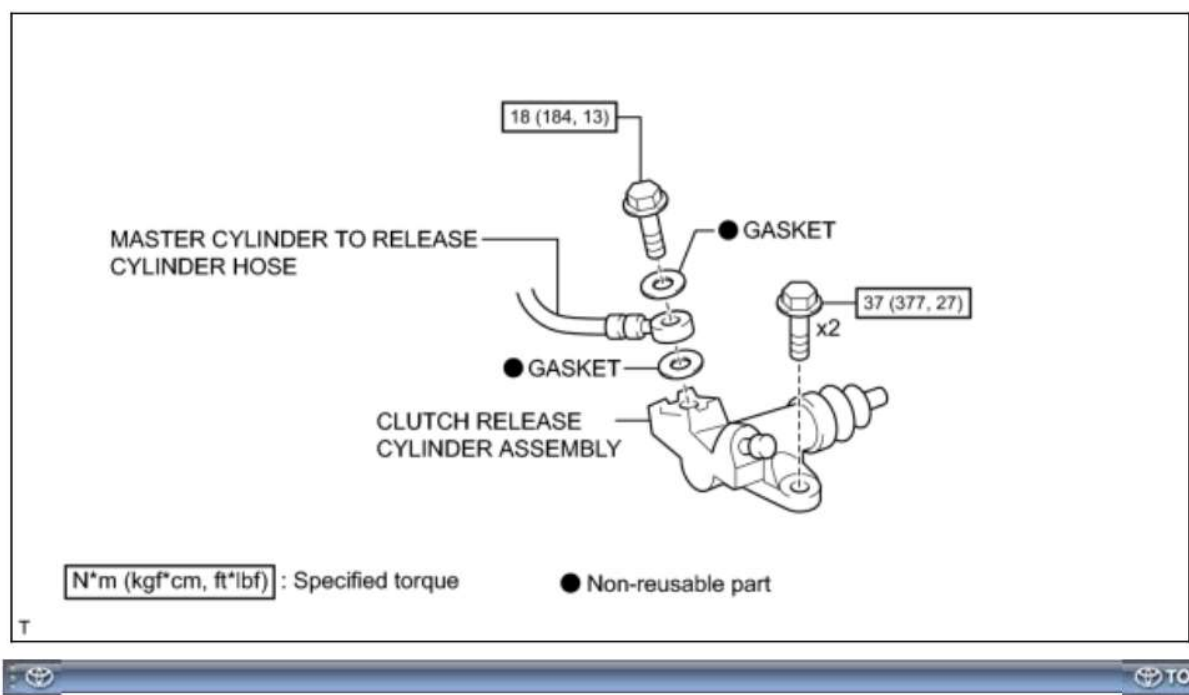
- (a) Remove the clutch pedal pad from the clutch pedal sub-assembly.



Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001EXS008X
Title: CLUTCH: CLUTCH RELEASE CYLINDER: COMPONENTS (2013 FR-S)		

COMPONENTS

ILLUSTRATION



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001F1D008X
Title: CLUTCH: CLUTCH RELEASE CYLINDER: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL CLUTCH RELEASE CYLINDER ASSEMBLY

- (a) Install the clutch release cylinder assembly with the 2 bolts.

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

2. CONNECT MASTER CYLINDER TO RELEASE CYLINDER HOSE

- (a) Install the master cylinder to release cylinder hose with a union bolt and 2 new gaskets.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

3. FILL CLUTCH FLUID INFO

4. BLEED CLUTCH LINE INFO

5. INSPECT FOR CLUTCH FLUID LEAK

6. INSPECT CLUTCH FLUID LEVEL INFO



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001F1E008X
Title: CLUTCH: CLUTCH RELEASE CYLINDER: REMOVAL (2013 FR-S)		

REMOVAL

1. DRAIN CLUTCH FLUID

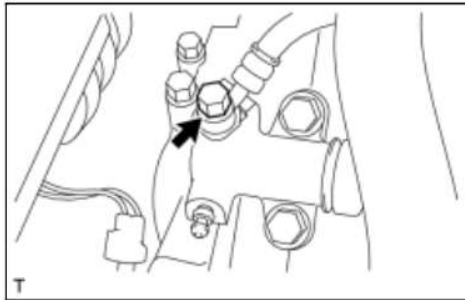
NOTICE:

Immediately wash off any clutch fluid that comes into contact with any painted surfaces.

HINT:

If any work is done on the clutch system or if air in the clutch lines is suspected, bleed the air from the system.

2. DISCONNECT MASTER CYLINDER TO RELEASE CYLINDER HOSE

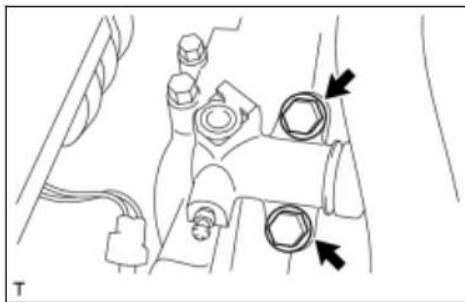


- (a) Remove the union bolt, 2 gaskets and disconnect the master cylinder to release cylinder hose from the clutch release cylinder assembly.

HINT:

Use a container to collect the fluid.

3. REMOVE CLUTCH RELEASE CYLINDER ASSEMBLY



- (a) Remove the 2 bolts and the clutch release cylinder assembly.

Last Modified: 3-27-2012	6.4 T	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000004UA6005X
Title: CLUTCH: CLUTCH SYSTEM: PROBLEM SYMPTOMS TABLE (2013 FR-S)		

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Clutch System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Clutch grabs/chatters	Engine mounting (Loose)	-
	Clutch disc assembly (Excessive runout)	INFO
	Clutch disc assembly (Oily)	INFO
	Clutch disc assembly (Worn out)	INFO
	Clutch disc torsion spring (Damaged)	INFO
	Clutch disc assembly (Glazed)	INFO
	Diaphragm spring (Tip out of alignment)	INFO
Clutch pedal spongy	Clutch line (Air in line)	INFO
	Master cylinder cup (Damaged)	INFO
	Release cylinder cup (Damaged)	INFO
Clutch noisy	Clutch release bearing assembly (Worn, dirty or damaged)	INFO
	Clutch disc torsion spring (Damaged)	INFO
Clutch slips	Clutch pedal (Free play out of adjustment)	INFO
	Clutch disc assembly (Oily)	INFO
	Clutch disc assembly (Worn out)	INFO
	Diaphragm spring (Damaged)	INFO
	Pressure plate (Distorted)	INFO
	Flywheel sub-assembly (Distorted)	INFO
Clutch does not disengage	Clutch pedal (Free play out of adjustment)	INFO
	Clutch line (Air in line)	INFO
	Master cylinder cup (Damaged)	INFO
	Release cylinder cup (Damaged)	INFO
	Clutch disc assembly (Out of line)	INFO
	Clutch disc assembly (Excessive runout)	INFO

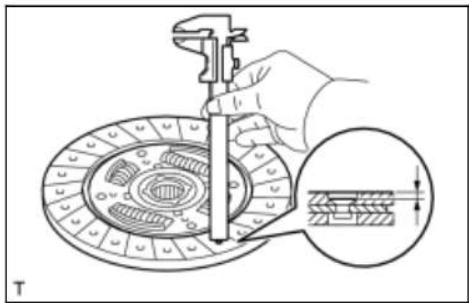
	Clutch disc assembly (Lining broken)	INFO
	Clutch disc assembly (Dirty or burned)	INFO
	Clutch disc assembly (Oily)	INFO
	Clutch disc assembly (Lack of spline grease)	INFO

TOYOTA

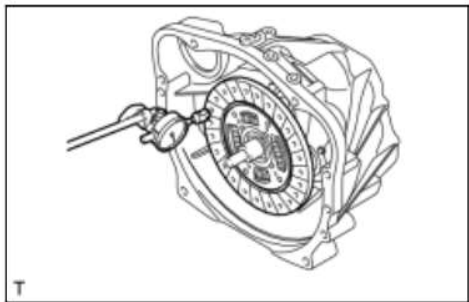
Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000000OPT00EX
Title: CLUTCH: CLUTCH UNIT: INSPECTION (2013 FR-S)		

INSPECTION

1. INSPECT CLUTCH DISC ASSEMBLY



- (a) Using a vernier caliper, measure the rivet head depth.
- Minimum rivet depth:
0.3 mm (0.0118 in.)
- If necessary, replace the clutch disc assembly.

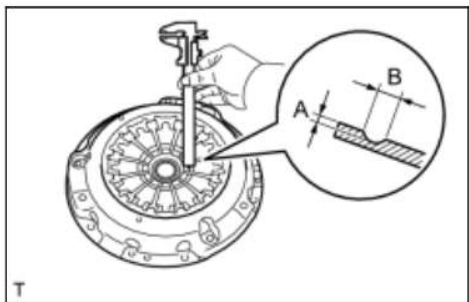


- (b) Install the clutch disc assembly to the manual transmission assembly.

NOTICE:
Insert the clutch disc assembly in the correct direction.

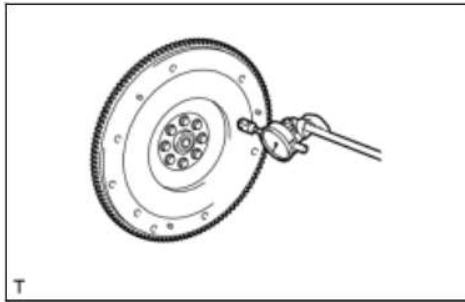
- (c) Using a dial indicator with a roller instrument, measure the clutch disc assembly runout.
- Maximum runout:
0.8 mm (0.0315 in.)
- If necessary, replace the clutch disc assembly.

2. INSPECT CLUTCH COVER ASSEMBLY



- (a) Using a vernier caliper, measure the depth and width of the diaphragm spring wear.
- Maximum:
- A (Depth)**
0.5 mm (0.0197 in.)
- B (Width)**
6.0 mm (0.236 in.)
- If necessary, replace the clutch cover assembly.

3. INSPECT FLYWHEEL SUB-ASSEMBLY



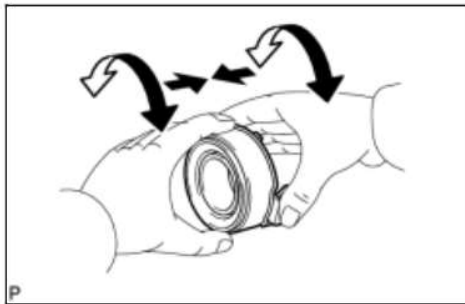
- (a) Using a dial indicator, measure the flywheel sub-assembly runout.

Maximum runout:

0.1 mm (0.00394 in.)

If necessary, replace the flywheel sub-assembly.

4. INSPECT CLUTCH RELEASE BEARING ASSEMBLY



- (a) Check that the clutch release bearing assembly moves smoothly without abnormal resistance by turning the sliding parts of the clutch release bearing assembly (contact surfaces with the clutch cover) while applying force in the axial direction.

- (b) Inspect the clutch release bearing assembly for damage and wear.

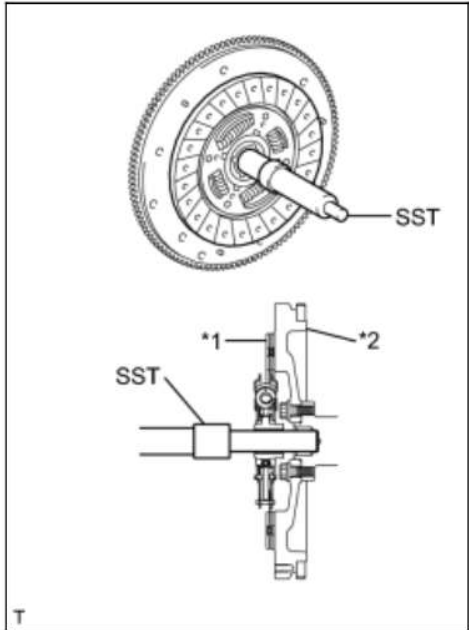
If necessary, replace the clutch release bearing assembly.



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000000PA600EX
Title: CLUTCH: CLUTCH UNIT: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL CLUTCH DISC ASSEMBLY



(a) Insert SST into the clutch disc assembly, and then insert them both into the flywheel sub-assembly.

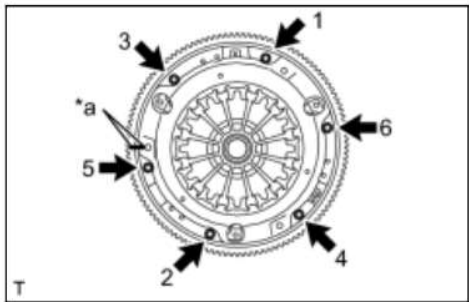
Text in Illustration

*1	Clutch Disc Assembly
*2	Flywheel Sub-assembly

SST: 09301-00110

NOTICE:
Insert the clutch disc assembly in the correct direction.

2. INSTALL CLUTCH COVER ASSEMBLY



(a) Align the matchmark on the clutch cover assembly with that on the flywheel sub-assembly.

Text in Illustration

*a	Matchmark
----	-----------

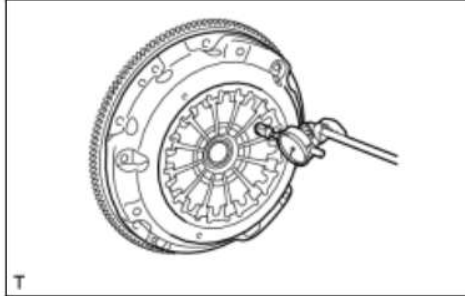
(b) Following the procedures shown in the illustration, tighten the 6 bolts in order, starting with the bolt located near the knock pin at the top.

SST: 09301-00110
Torque: 16 N·m (163 kgf·cm, 12ft·lbf)

HINT:

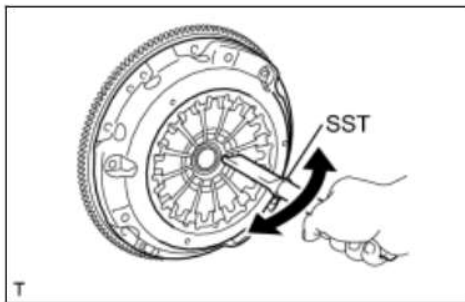
- Following the order in the illustration, tighten the bolts evenly one at a time.
- Move SST up, down, right and left lightly after checking that the disc is in the center, and tighten the bolts.

3. INSPECT AND ADJUST CLUTCH COVER ASSEMBLY



- (a) Using a dial indicator with a roller instrument, measure the diaphragm spring tip alignment.

Maximum non-alignment:
0.5 mm (0.0197 in.)



- (b) If the alignment is not as specified, using SST, adjust the diaphragm spring tip alignment.

SST: 09333-00013

4. INSTALL RELEASE FORK SUPPORT

- (a) Install the release fork support to the manual transmission assembly.

Torque: 16 N·m (163 kgf·cm, 12ft·lbf)

5. INSTALL CLUTCH RELEASE FORK BOOT

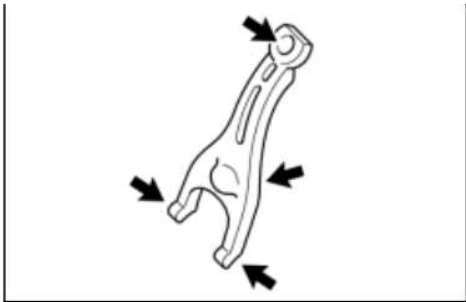
- (a) Install the clutch release fork boot to the manual transmission assembly.

6. INSTALL RELEASE BEARING HUB CLIP

- (a) Install the 3 release bearing hub clips to the clutch release bearing assembly.
(b) Install the release bearing hub clip to the clutch release fork sub-assembly.

7. INSTALL CLUTCH RELEASE FORK SUB-ASSEMBLY

- (a) Apply release hub grease to the contact surfaces of the clutch release fork sub-assembly and clutch release bearing assembly, clutch release fork sub-assembly and clutch release cylinder push rod, and clutch release fork sub-assembly and release fork support.



Text in Illustration

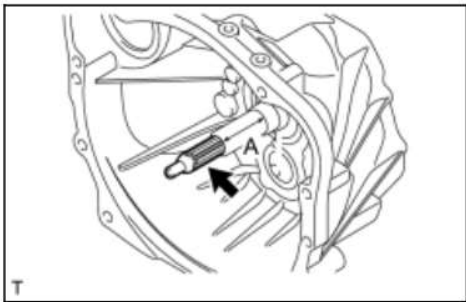
	Release Hub Grease
--	--------------------

Grease:
Toyota Genuine Release Hub Grease or equivalent

- (b) Engage the 2 release bearing hub clips and install the clutch release fork sub-assembly to the clutch release bearing assembly.

8. INSTALL CLUTCH RELEASE BEARING ASSEMBLY

- (a) Apply clutch spline grease to the input shaft spline.



Text in Illustration

	Clutch Spline Grease
--	----------------------

Grease:
Toyota Genuine Clutch Spline Grease or equivalent

NOTICE:
Do not apply grease to portion A shown in the illustration.

- (b) Install the clutch release bearing assembly with the clutch release fork sub-assembly to the manual transmission assembly.

NOTICE:
After the installation, move the fork forward and backward to check that the release bearing slides smoothly.

9. INSTALL MANUAL TRANSMISSION ASSEMBLY

INFO



cardiagn.com

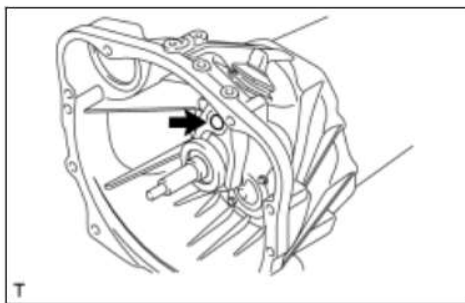
Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000000PA700EX
Title: CLUTCH: CLUTCH UNIT: REMOVAL (2013 FR-S)		

REMOVAL

1. REMOVE MANUAL TRANSMISSION ASSEMBLY

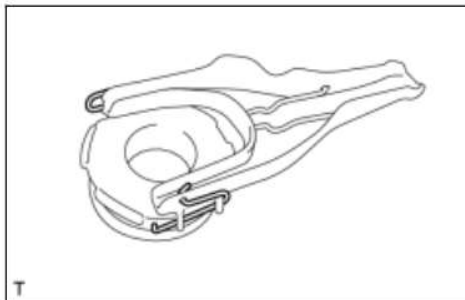
INFO

2. REMOVE CLUTCH RELEASE FORK SUB-ASSEMBLY



- (a) Remove the clutch release fork sub-assembly with the clutch release bearing assembly from the manual transmission assembly.

3. REMOVE CLUTCH RELEASE BEARING ASSEMBLY



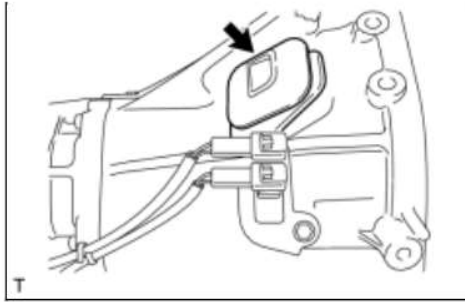
- (a) Disengage the 2 release bearing hub clips and remove the clutch release bearing assembly from the clutch release fork sub-assembly.

4. REMOVE RELEASE BEARING HUB CLIP

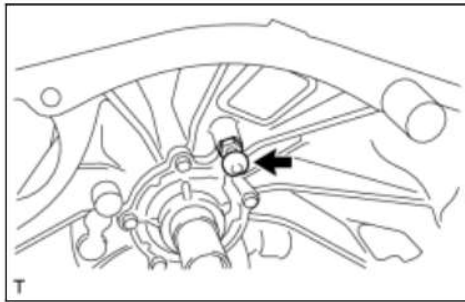
- (a) Remove the 3 release bearing hub clips from the clutch release bearing assembly.

5. REMOVE CLUTCH RELEASE FORK BOOT

- (a) Remove the clutch release fork boot from the manual transmission assembly.

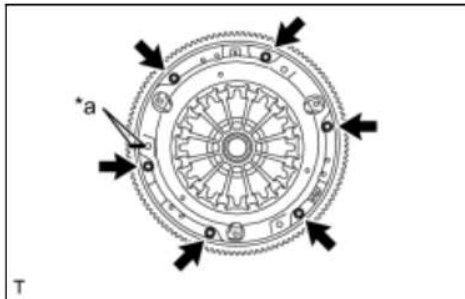


6. REMOVE RELEASE FORK SUPPORT



- (a) Remove the release fork support from the manual transmission assembly.

7. REMOVE CLUTCH COVER ASSEMBLY



- (a) Put the matchmarks on the clutch cover assembly and the flywheel sub-assembly.

Text in Illustration

*a	Matchmark
----	-----------

- (b) Loosen the 6 bolts one turn at a time until spring tension is released.
 (c) Remove the 6 bolts and pull off the clutch cover assembly.

NOTICE:

Do not drop the clutch disc assembly.

8. REMOVE CLUTCH DISC ASSEMBLY

- (a) Remove the clutch disc assembly.

NOTICE:

Keep the lining part of the clutch disk and the surfaces of the pressure plate and flywheel free of oil and foreign matter.

