

Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCI01UX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1401: M Check NG (2013 FR-S)		

DTC	B1401	M Check NG
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code if the main body ECU (network gateway ECU) reference code and the reference code from the combination meter do not match.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1401	The main body ECU (network gateway ECU) reference code and reference code from the combination meter assembly do not match.	Combination meter assembly

INSPECTION PROCEDURE

NOTICE:

If the combination meter assembly is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs [INFO](#) .

OK:

DTC B1407 or B1408 is not output.

NG ► **GO TO DTC CHART**

OK



2.	REGISTER RECOGNITION CODES
-----------	-----------------------------------

(a) Register the recognition codes [INFO](#) .

OK:

The ECU code can be registered.

NG ► **CHECK FOR DTC**

OK ► END

3.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs INFO .

OK:

DTC B1407 or B1408 is not output.

NG ► GO TO DTC CHART

OK ► REPLACE COMBINATION METER
ASSEMBLY



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCN01XX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1402: Immobiliser Key Check NG (2013 FR-S)		

DTC	B1402	Immobiliser Key Check NG
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code if an improper key (a key not registered in the main body ECU (network gateway ECU)) is inserted into the ignition key cylinder.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1402	When an improper key (a key not registered in the main body ECU (network gateway ECU)) is inserted into the ignition key cylinder.	• Key • Main body ECU (network gateway ECU)

INSPECTION PROCEDURE

NOTICE:

If the main body ECU (network gateway ECU) is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs [INFO](#) .

OK:

DTC B1410 and B1411 are not output.

NG  **GO TO DTC CHART**

OK



2.	REGISTER KEY
-----------	---------------------

(a) Reregister the key [INFO](#) .

OK:

The key ID can be registered.

NG ► **REGISTER KEY**

OK ► **END**

3.	REGISTER KEY
-----------	---------------------

(a) Using an unregistered key, register the key ID INFO.

OK:

The key ID can be registered.

NG ► **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

OK ► **END**



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCJ028X
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1405: SCU Check NG (2013 FR-S)		

DTC	B1405	SCU Check NG
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code if the main body ECU (network gateway ECU) reference code and the reference code from the transponder key ECU assembly do not match.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1405	The main body ECU (network gateway ECU) reference code and reference code from the transponder key ECU assembly do not match.	Transponder key ECU assembly

INSPECTION PROCEDURE

NOTICE:

If the transponder key ECU assembly is replaced, refer to Registration .

PROCEDURE

1.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs .

OK:

DTC B1406 and B1409 are not output.

NG  **GO TO DTC CHART**

OK



2.	REGISTER RECOGNITION CODES
-----------	-----------------------------------

(a) Register the recognition codes .

OK:

The ECU code can be registered.

NG  **CHECK DTC**

OK ► END

3. CHECK DTC

(a) Check for DTCs INFO .

OK:

DTC B1406 and B1409 are not output.

NG ► GO TO DTC CHART

OK ► REPLACE TRANSPONDER KEY ECU
ASSEMBLY



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCN01ZX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1406: SCU EEPROM NG (2013 FR-S)		

DTC	B1406	SCU EEPROM NG
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code when an internal malfunction is detected in the transponder key ECU assembly or when the ROM in the transponder key ECU assembly cannot be accessed.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1406	Internal malfunction in the transponder key ECU assembly when the ROM in the transponder key ECU assembly cannot be accessed.	Transponder key ECU assembly

INSPECTION PROCEDURE

NOTICE:

If the transponder key ECU assembly is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	REGISTER RECOGNITION CODE
-----------	----------------------------------

(a) Register the recognition codes [INFO](#) .

NEXT



2.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs [INFO](#) .

OK:

DTC B1406 is not output.

NG ► **REPLACE TRANSPONDER KEY ECU ASSEMBLY**

OK ► **END**



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Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002X2F03MX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1407: M Communication Circuit (2013 FR-S)		

DTC	B1407	M Communication Circuit
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code if a communication problem is detected between the main body ECU (network gateway ECU) and the combination meter assembly.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1407	When there is a problem in communication between the main body ECU (network gateway ECU) and the combination meter assembly.	Combination meter assembly

INSPECTION PROCEDURE

NOTICE:

If the combination meter assembly is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs [INFO](#) .

Result

RESULT	PROCEED TO
Other than DTC B1407 are not output	A
Other than DTC B1407 are output	B

B ► **GO TO DTC CHART**

A ► **REPLACE COMBINATION METER ASSEMBLY**



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000000TUG07SX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1408: Meter EEPROM Circuit (2013 FR-S)		

DTC	B1408	Meter EEPROM Circuit
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code when an internal malfunction is detected in the combination meter assembly.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1408	Internal malfunction in the combination meter assembly.	Combination meter assembly

INSPECTION PROCEDURE

NOTICE:

If the combination meter assembly is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	REGISTER RECOGNITION CODES
-----------	-----------------------------------

(a) Register the recognition codes [INFO](#) .

NEXT



2.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs [INFO](#) .

OK:

DTC B1408 is not output.

NG ► **REPLACE COMBINATION METER ASSEMBLY**

OK ► **END**



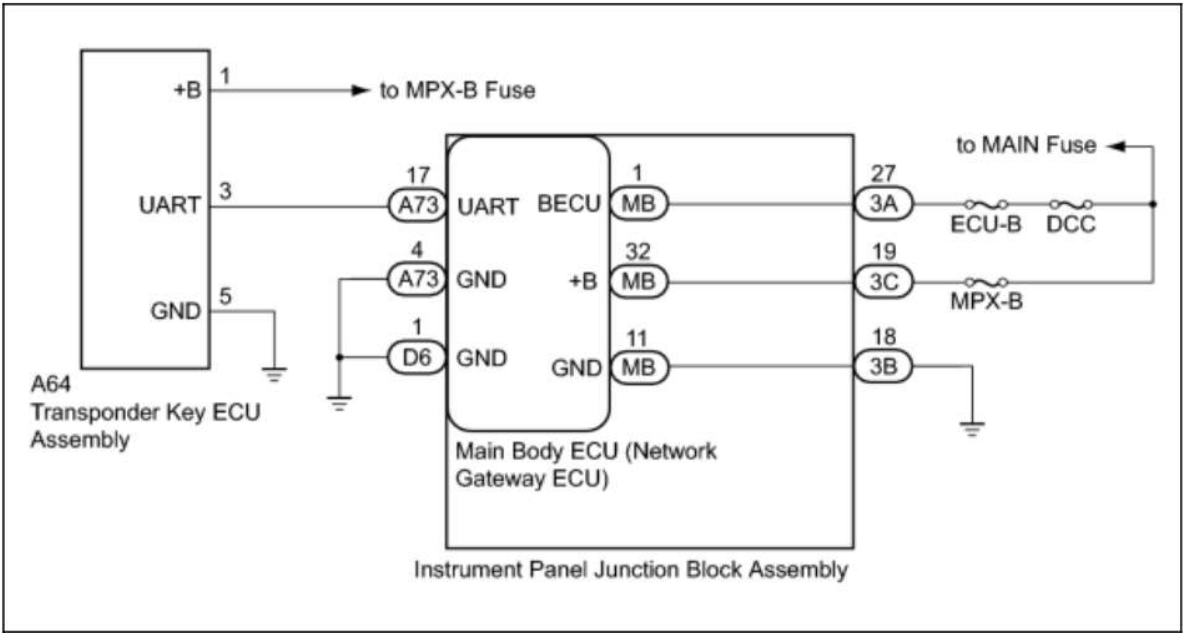
Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002X2G031X
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1409: SCU Communication Circuit (2013 FR-S)		
DTC	B1409	SCU Communication Circuit

DESCRIPTION

The main body ECU (network gateway ECU) stores this code if a communication problem is detected between the main body ECU (network gateway ECU) and the transponder key ECU assembly.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1409	When there is a problem in communication between the main body ECU (network gateway ECU) and the transponder key ECU assembly.	• Harness or connector • Main body ECU (network gateway ECU) • Transponder key ECU assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

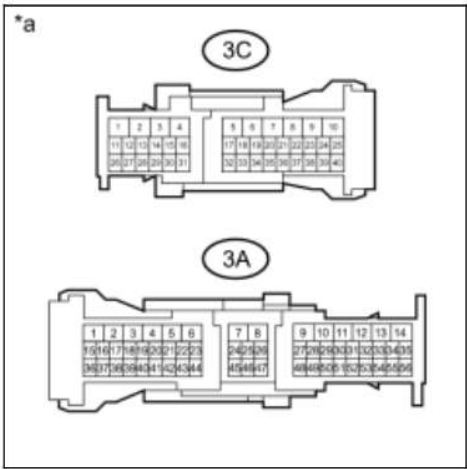
- If the main body ECU (network gateway ECU) or transponder key ECU assembly is replaced, refer to Registration **INFO** .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.

CHECK HARNESS AND CONNECTOR (INSTRUMENT PANEL JUNCTION BLOCK - BATTERY, BODY GROUND)

- (a) Disconnect the A73 and D6 main body ECU (network gateway ECU) connectors.
- (b) Disconnect the 3A, 3B and 3C instrument panel junction block assembly connectors.



(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3A-27 - Body ground	Always	11 to 14 V
3C-19 - Body ground	Always	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3B-18 - Body ground	Always	Below 1 Ω
A73-4 (GND) - Body ground	Always	Below 1 Ω
D6-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a

Front view of wire harness connector
(to Instrument Panel Junction Block Assembly)

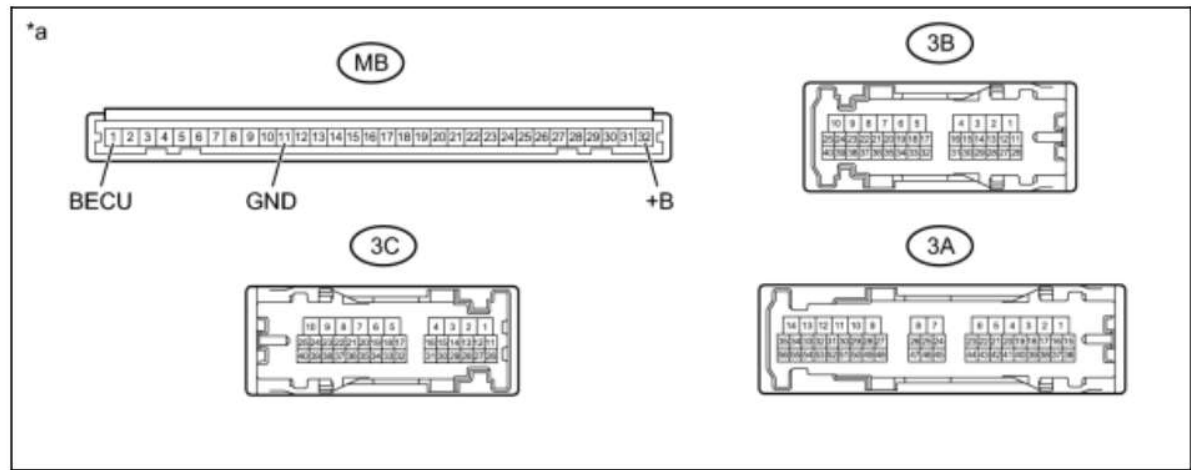
NG  REPAIR OR REPLACE HARNESS OR CONNECTOR

OK


2.

INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- (a) Remove the instrument panel junction block assembly  .
- (b) Remove the main body ECU (network gateway ECU) from the instrument panel junction block assembly.
- (c) Measure the resistance according to the value(s) in the table below.



Text in Illustration

*a	Component without harness connected (Instrument Panel Junction Block Assembly)	-	-
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Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MB-1 (BECU) - 3A-27	Always	Below 1 Ω
MB-32 (+B) - 3C-19	Always	Below 1 Ω
MB-11 (GND) - 3B-18	Always	Below 1 Ω

NG  REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK

3.	CHECK HARNESS AND CONNECTOR (TRANSPONDER KEY ECU ASSEMBLY - BATTERY, BODY GROUND)
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- (a) Disconnect the A64 transponder key ECU assembly connector.
- (b) Measure the voltage according to the value(s) in the table below.
- Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A64-1 (+B) - Body ground	Always	11 to 14 V

- (c) Measure the resistance according to the value(s) in the table below.
- Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A64-5 (GND) - Body ground	Always	Below 1 Ω

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4.	CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - TRANSPONDER KEY ECU ASSEMBLY)
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- (a) Measure the voltage and resistance according to the value(s) in the table below.
- Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A73-17 (UART) - Body ground	Always	Below 1 V

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A73-17 (UART) - A64-3 (UART)	Always	Below 1 Ω
A73-17 (UART) - Body ground	Always	10 k Ω or higher

NG▶

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

▼

5. REPLACE TRANSPONDER KEY ECU ASSEMBLY

(a) Replace the transponder key ECU assembly with a new one

INFO

 .

NEXT

▼

6. CHECK FOR DTC

(a) Check for DTCs

INFO

 .

OK:
DTC B1409 is not output

NG▶

REPAIR MAIN BODY ECU (NETWORK GATEWAY ECU)

OK▶

END (TRANSPONDER KEY ECU ASSEMBLY WAS DEFECTIVE)



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002X2F03LX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1410: Transponder Communication Circuit (2013 FR-S)		

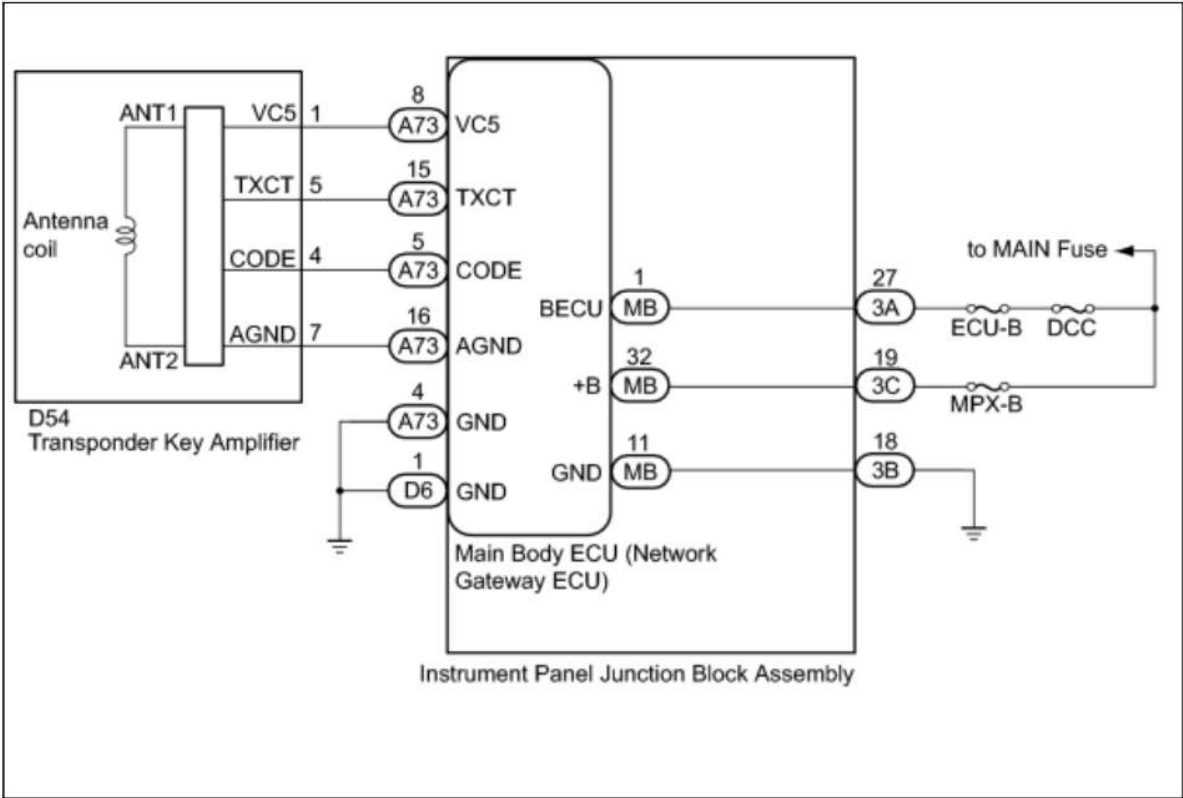
DTC	B1410	Transponder Communication Circuit
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code if a communication problem is detected between the key and the main body ECU (network gateway ECU).

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1410	When there is a problem in communication between the key and the main body ECU (network gateway ECU).	• Key • Transponder key amplifier • Main body ECU (network gateway ECU)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- If the main body ECU (network gateway ECU) is replaced, refer to Registration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.

CHECK FOR DTC

(a) Using Techstream, check that the DTC is stored with all the registered keys INFO .

Result

RESULT	PROCEED TO
DTC B1410 is stored with all the keys.	A
DTC B1410 is not stored with some of the keys.	B

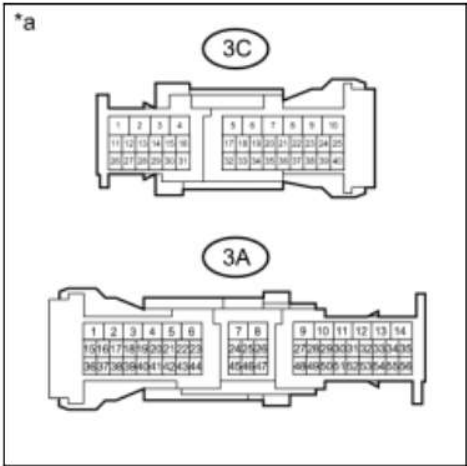
NG▶ REPLACE KEY THAT STORED DTC

OK
▼

2.

CHECK HARNESS AND CONNECTOR (BATTERY, BODY GROUND)

- (a) Disconnect the A73 and D6 main body ECU (network gateway ECU) connectors.
- (b) Disconnect the 3A, 3B and 3C instrument panel junction block assembly connectors.



(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3A-27 - Body ground	Always	11 to 14 V
3C-19 - Body ground	Always	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3B-18 - Body ground	Always	Below 1 Ω
A73-4 (GND) - Body ground	Always	Below 1 Ω
D6-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
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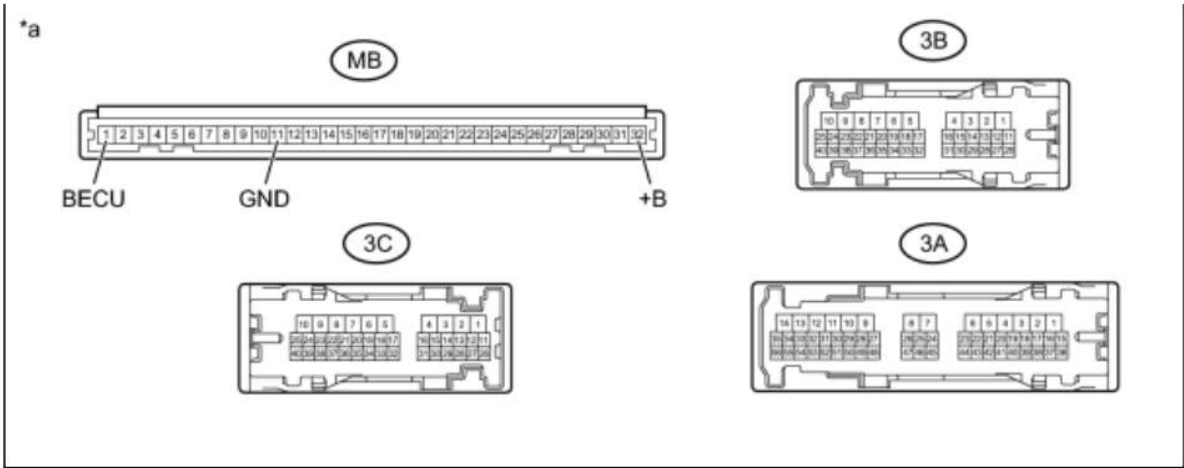
NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



3.	INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY
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- (a) Remove the instrument panel junction block assembly  .
- (b) Remove the main body ECU (network gateway ECU) from the instrument panel junction block assembly.
- (c) Measure the resistance according to the value(s) in the table below.



Text in Illustration

*a	Component without harness connected (Instrument Panel Junction Block Assembly)	-	-
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Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MB-1 (BECU) - 3A-27	Always	Below 1 Ω
MB-32 (+B) - 3C-19	Always	Below 1 Ω
MB-11 (GND) - 3B-18	Always	Below 1 Ω

NG▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK
▼

4. INSPECT TRANSPONDER KEY AMPLIFIER (POWER SOURCE)

- (a) Install the main body ECU (network gateway ECU) to the instrument panel junction block assembly.
- (b) Install the instrument panel junction block assembly INFO.
- (c) Reconnect the 3A, 3B and 3C instrument panel junction block assembly connectors.
- (d) Disconnect the D54 transponder key amplifier connector.



(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D54-1 (VC5) - Body ground	Ignition switch ON	4.5 to 5.5 V

Result

RESULT	PROCEED TO
NG	A
OK	B

Text in Illustration

*a	Component with harness connected (Transponder Key Amplifier)
----	---

B ► **CHECK HARNESS AND CONNECTOR
(TRANSPONDER KEY AMPLIFIER - BODY
GROUND)**

A



5.	CHECK HARNESS AND CONNECTOR (TRANSPONDER KEY AMPLIFIER - INSTRUMENT PANEL JUNCTION BLOCK)
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(a) Disconnect the A73 main body ECU (network gateway ECU) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D54-1 (VC5) - A73-8 (VC5)	Always	Below 1 Ω
D54-1 (VC5) - Body ground	Always	10 k Ω or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

6.	CHECK HARNESS AND CONNECTOR (TRANSPONDER KEY AMPLIFIER - BODY GROUND)
-----------	--

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D54-7 (AGND) - Body ground	Always	Below 1 Ω

Result

RESULT	PROCEED TO
NG	A
OK	B

B ► **CHECK HARNESS AND CONNECTOR (TRANSPONDER KEY AMPLIFIER - INSTRUMENT PANEL JUNCTION BLOCK)**

A
▼

7.	CHECK HARNESS AND CONNECTOR (TRANSPONDER KEY AMPLIFIER - INSTRUMENT PANEL JUNCTION BLOCK)
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(a) Disconnect the A73 main body ECU (network gateway ECU) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D54-7 (AGND) - A73-16 (AGND)	Always	Below 1 Ω

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

8.	CHECK HARNESS AND CONNECTOR (TRANSPONDER KEY AMPLIFIER - INSTRUMENT PANEL JUNCTION BLOCK)
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(a) Disconnect the A73 main body ECU (network gateway ECU) connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D54-5 (TXCT) - A73-15 (TXCT)	Always	Below 1 Ω
D54-4 (CODE) - A73-5 (CODE)	Always	Below 1 Ω
D54-5 (TXCT) - Body ground	Always	10 k Ω or higher
D54-4 (CODE) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK


9.	REPLACE TRANSPONDER KEY AMPLIFIER
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(a) Temporarily replace the transponder key amplifier with a new or known good one  .

NEXT


10.	CHECK FOR DTC
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(a) Key is inserted into ignition key cylinder.

(b) Turn the ignition switch off or ACC.

(c) Check for DTCs  .

OK:

DTC B1410 is not output

NG ► **CHECK FOR DTC**

OK ► **END (TRANSPONDER KEY AMPLIFIER
WAS DEFECTIVE)**

11. CHECK FOR DTC

(a) Replace the keys in which the DTC B1410 is stored, and perform the registration.

(b) Check for DTCs **INFO** .

OK:

DTC B1410 is not output

NG ► **REPLACE MAIN BODY ECU (NETWORK
GATEWAY ECU)**

OK ► **END (KEY WAS DEFECTIVE)**



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCJ02BX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1411: Immobiliser Antenna Circuit (2013 FR-S)		

DTC	B1411	Immobiliser Antenna Circuit
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DESCRIPTION

The main body ECU (network gateway ECU) stores this code if a malfunction is detected in the antenna coil inside the transponder key amplifier.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1411	Malfunction in the antenna coil inside the transponder key amplifier.	• Transponder key amplifier • Main body ECU (network gateway ECU)

INSPECTION PROCEDURE

NOTICE:

If the main body ECU (network gateway ECU) is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	CHECK FOR DTC
-----------	----------------------

(a) Key is removed from ignition key cylinder.

(b) Key is inserted into ignition key cylinder.

(c) Turn the ignition switch to ON.

(d) Check for DTCs [INFO](#) .

OK:

DTC B1411 is not output.

NG ► **REPLACE TRANSPONDER KEY AMPLIFIER**

OK ► **END**

2.	REPLACE TRANSPONDER KEY AMPLIFIER
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(a) Temporarily replace the transponder key amplifier with a new or known good one [INFO](#) .

NEXT**3. CHECK FOR DTC**

- (a) Key is inserted into ignition key cylinder.
- (b) Turn the ignition switch to ON.
- (c) Check for DTCs INFO.

OK:

DTC B1411 is not output.

NG ► **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

OK ► **END**



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000004F7J00MX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1571: Immobiliser Key Check NG (2013 FR-S)		

DTC	B1571	Immobiliser Key Check NG
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DESCRIPTION

The ECM stores this code if the main body ECU (network gateway ECU) reference code and the reference code from the ECM do not match.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1571	The main body ECU (network gateway ECU) reference code and reference code from the ECM do not match.	- ECM - Main body ECU (network gateway ECU)

INSPECTION PROCEDURE

NOTICE:

If the main body ECU (network gateway ECU) or ECM is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	READ VALUE USING TECHSTREAM (NUMBER OF REGISTRATION KEY)
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- Connect Techstream to DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Data List.
- According to the display on the Techstream, read the Data List.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Number of Registration Key	Number of registered key/ min. 0, max. 8	Number of registered key	-

Result

RESULT	PROCEED TO
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The registered number of the key is 0.	A
he registered number of the key is 1 or more.	B

B ► REGISTER ECU COMMUNICATION ID

A
▼

2.	REGISTER KEY
-----------	---------------------

(a) Register the key **INFO** .

OK:

The key ID can be registered.

NG ► CHECK FOR DTC

OK ► END

3.	REGISTER ECU COMMUNICATION ID
-----------	--------------------------------------

(a) Register the ECU communication ID **INFO** .

OK:

The ECU communication ID can be registered.

NG ► CHECK FOR DTC

OK ► END

4.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs **INFO** .

Result

RESULT	PROCEED TO
DTC B1571 is output	A
Other than DTC B1571 are output	B

B ► GO TO DTC CHART

A

▼

5.	REPLACE ECM
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(a) Temporarily replace the ECM with a new or known good one INFO .

NEXT

▼

6.	REGISTER ECU COMMUNICATION ID
----	-------------------------------

(a) Register the ECU communication ID INFO .

OK:
The ECU communication ID can be registered.

NG ► REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)

OK ► END



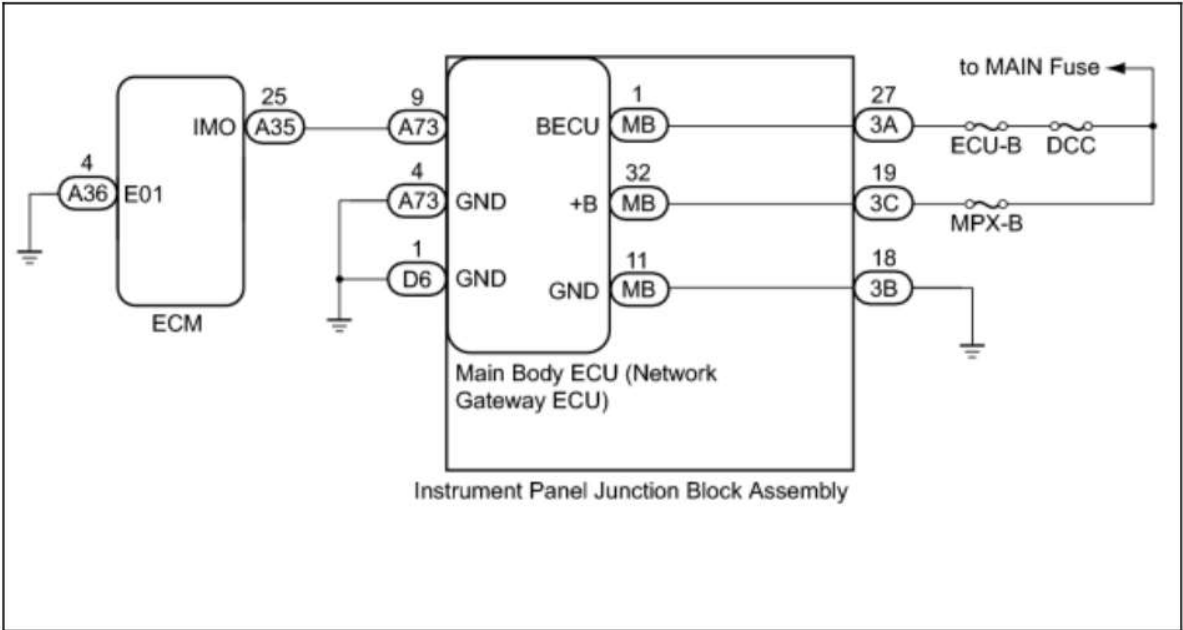
Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCG01YX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1572: Immobiliser System Communication Malfunction (2013 FR-S)		
DTC	B1572	Immobiliser System Communication Malfunction

DESCRIPTION

The ECM stores this code if a communication problem is detected between the main body ECU (network gateway ECU) and the ECM.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1572	When there is a problem in communication between the main body ECU (network gateway ECU) and ECM.	• Harness or connector • ECM • Instrument panel junction block assembly • Main body ECU (network gateway ECU)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

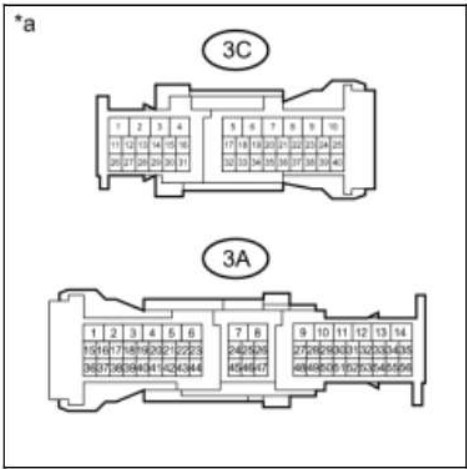
- If the main body ECU (network gateway ECU) or ECM is replaced, refer to Registration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.

CHECK HARNESS AND CONNECTOR (BATTERY, BODY GROUND)

- (a) Disconnect the A73 and D6 main body ECU (network gateway ECU) connectors.
- (b) Disconnect the 3A, 3B and 3C instrument panel junction block assembly connectors.



(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3A-27 - Body ground	Always	11 to 14 V
3C-19 - Body ground	Always	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3B-18 - Body ground	Always	Below 1 Ω
A73-4 (GND) - Body ground	Always	Below 1 Ω
D6-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
----	---

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

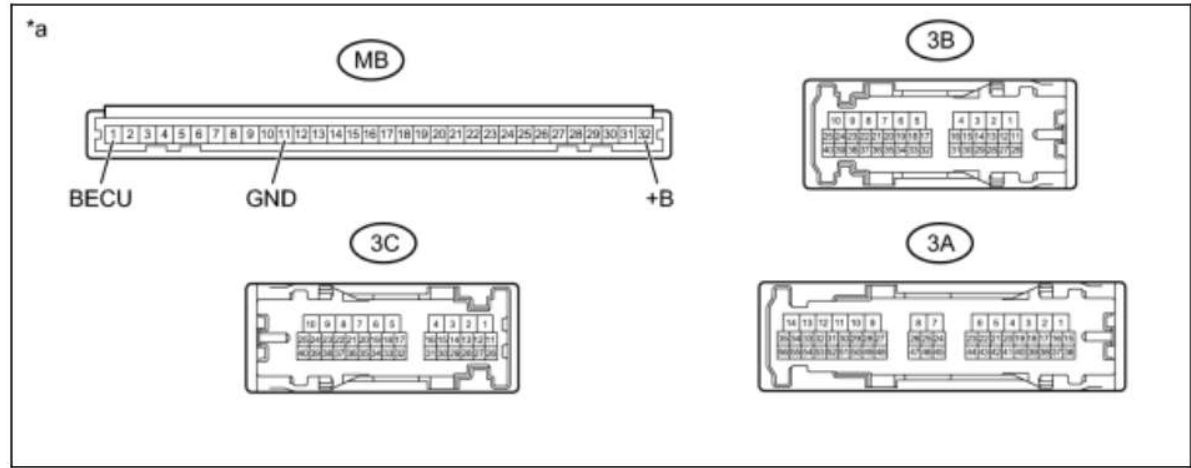
OK

2. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- (a) Remove the instrument panel junction block assembly

INFO

 .
- (b) Remove the main body ECU (network gateway ECU) from the instrument panel junction block assembly.
- (c) Measure the resistance according to the value(s) in the table below.



Text in Illustration

*a	Component without harness connected (Instrument Panel Junction Block Assembly)	-	-
----	---	---	---

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MB-1 (BECU) - 3A-27	Always	Below 1 Ω
MB-32 (+B) - 3C-19	Always	Below 1 Ω
MB-11 (GND) - 3B-18	Always	Below 1 Ω

NG

REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK



3. CHECK HARNESS AND CONNECTOR

- (a) Disconnect the A73 main body ECU (network gateway ECU) connector.
- (b) Disconnect the A35 and A36 ECM connectors.
- (c) Measure the voltage and resistance according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A73-9 - Body ground	Always	Below 1 V
A35-25 (IMO) - Body ground	Always	Below 1 V

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A73-9 - A35-25 (IMO)	Always	Below 1 Ω
A36-4 (E01) - Body ground	Always	Below 1 Ω
A73-9 - Body ground	Always	10 k Ω or higher

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



4. REPLACE ECM

- (a) Temporarily replace the ECM with a new or known good one .
- (b) Register the ECU communication ID .

NEXT



5. CHECK FOR DTC

(a) Turn the ignition switch to ON and wait 5 seconds.

(b) Check for DTCs **INFO** .

OK:

DTC B1572 is not output

NG ► **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

OK ► **END (ECM WAS DEFECTIVE)**



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002X2F03JX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1576: Key Write Malfunction to EFI ECU (2013 FR-S)		

DTC	B1576	Key Write Malfunction to EFI ECU
------------	--------------	---

DESCRIPTION

The ECM stores this code when an internal malfunction is detected in the ECM, or when the ROM in the ECM cannot be accessed when registering a key.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1576	- Internal malfunction in the ECM. - When the ROM in the ECM cannot be accessed when registering a key.	ECM

INSPECTION PROCEDURE

NOTICE:

If the ECM is replaced, refer to Registration .

PROCEDURE

1.	REGISTER ECU COMMUNICATION ID
-----------	--------------------------------------

(a) Register the ECU communication ID .

OK:

The ECU Communication ID can be registered.

NG  **REGISTER ECU COMMUNICATION ID**

OK  **END**

2.	REGISTER ECU COMMUNICATION ID
-----------	--------------------------------------

(a) Register the ECU communication ID .

OK:

The ECU Communication ID can be registered.

NG  **REGISTER ECU COMMUNICATION ID**

OK ► END

3.	REGISTER ECU COMMUNICATION ID
-----------	--------------------------------------

(a) Register the ECU communication ID INFO.

OK:

The ECU Communication ID can be registered.

NG ► REPLACE ECM

OK ► END



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002X2G02ZX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1577: Immobiliser System EEPROM Malfunction (2013 FR-S)		

DTC	B1577	Immobiliser System EEPROM Malfunction
------------	--------------	--

DESCRIPTION

The ECM stores this code when an internal malfunction is detected in the main body ECU (network gateway ECU) or when the ROM in the main body ECU (network gateway ECU) cannot be accessed.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1577	- Internal malfunction in the main body ECU (network gateway ECU). - When the ROM in the main body ECU (network gateway ECU) cannot be accessed.	Main body ECU (network gateway ECU)

INSPECTION PROCEDURE

NOTICE:

If the main body ECU (network gateway ECU) is replaced, refer to Registration [INFO](#) .

PROCEDURE

1.	REGISTER ECU COMMUNICATION ID
-----------	--------------------------------------

(a) Register the ECU communication ID [INFO](#) .

OK:

The ECU communication ID can be registered.

NG ► **REGISTER ECU COMMUNICATION ID**

OK ► **END**

2.	REGISTER ECU COMMUNICATION ID
-----------	--------------------------------------

(a) Register the ECU communication ID [INFO](#) .

OK:

The ECU communication ID can be registered.

NG ► **REGISTER ECU COMMUNICATION ID**

OK ► END

3.	REGISTER ECU COMMUNICATION ID
-----------	--------------------------------------

(a) Register the ECU communication ID INFO .

OK:

The ECU communication ID can be registered.

NG ► REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)

OK ► END



Last Modified: 3-27-2012	6.4 C	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCL029X
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: B1578: Immobiliser System Data Mismatch Key (2013 FR-S)		

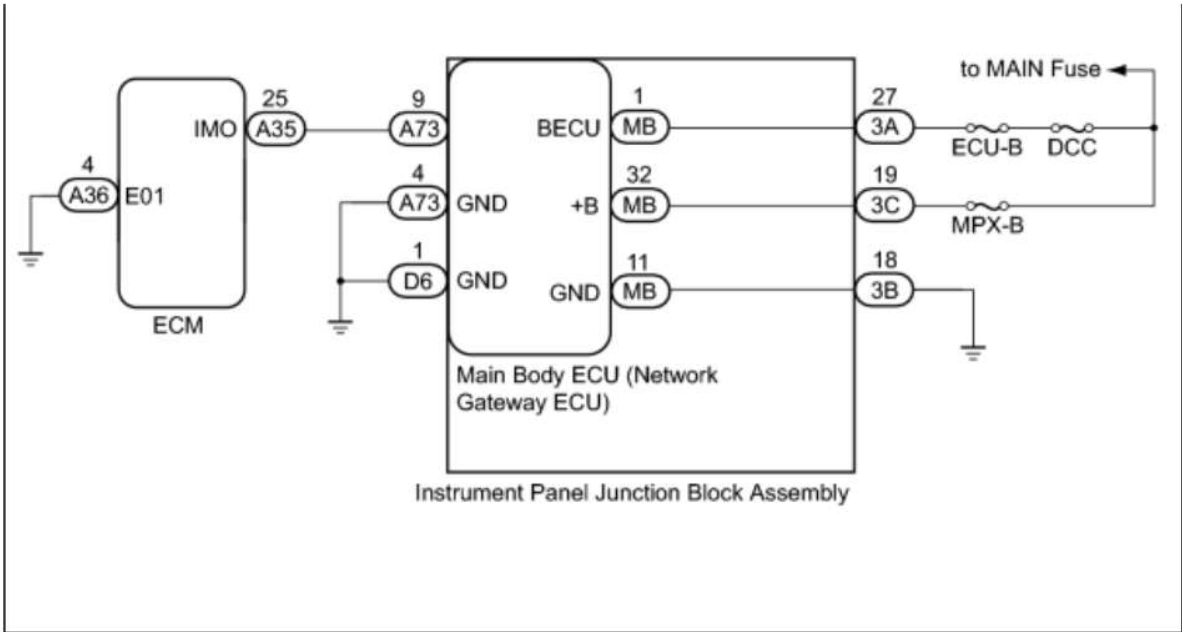
DTC	B1578	Immobiliser System Data Mismatch Key
------------	--------------	---

DESCRIPTION

The ECM stores this code when the combination meter assembly reference code and reference code from the main body ECU (network gateway ECU) do not match, or when a communication error is detected between the main body ECU (network gateway ECU) and the ECM.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1578	- The combination meter assembly reference code and the reference code from the main body ECU (network gateway ECU) do not match. - Communication error between the main body ECU (network gateway ECU) and the ECM.	- Harness or connector - ECM - Instrument panel junction block assembly - Main body ECU (network gateway ECU)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- If the main body ECU (network gateway ECU) or ECM is replaced, refer to Registration INFO .
- Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	CHECK DTC
----	-----------

(a) Check for DTCs INFO .

OK:

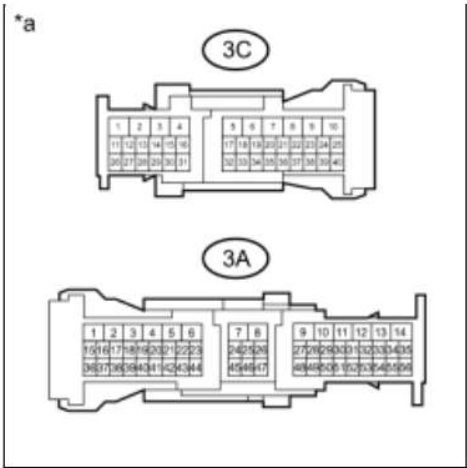
DTC B1401, B1405, B1407 and B1408 are not output

NG ► **GO TO DTC CHART**

OK
▼

2.	CHECK HARNESS AND CONNECTOR (BATTERY, BODY GROUND)
----	--

- (a) Disconnect the A73 and D6 main body ECU (network gateway ECU) connectors.
- (b) Disconnect the 3A, 3B and 3C instrument panel junction block assembly connectors.



(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3A-27 - Body ground	Always	11 to 14 V
3C-19 - Body ground	Always	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3B-18 - Body ground	Always	Below 1 Ω
A73-4 (GND) - Body ground	Always	Below 1 Ω
D6-1 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
----	---

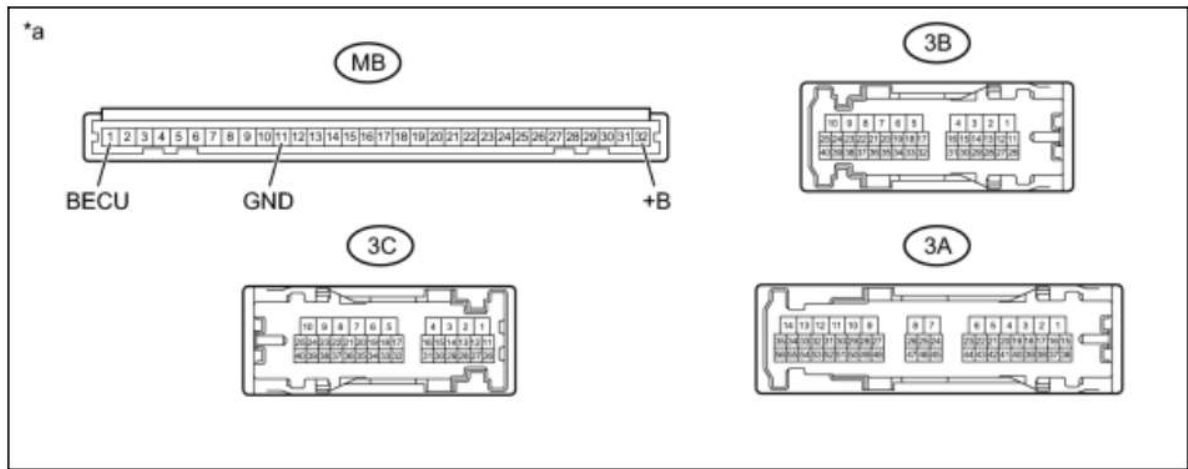
NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK


3. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

(a) Remove the instrument panel junction block assembly  .

- (b) Remove the main body ECU (network gateway ECU) from the instrument panel junction block assembly.
- (c) Measure the resistance according to the value(s) in the table below.



Text in Illustration

*a	Component without harness connected (Instrument Panel Junction Block Assembly)	-	-
----	---	---	---

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MB-1 (BECU) - 3A-27	Always	Below 1 Ω
MB-32 (+B) - 3C-19	Always	Below 1 Ω
MB-11 (GND) - 3B-18	Always	Below 1 Ω

NG▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK
▼

4.	CHECK HARNESS AND CONNECTOR (MAIN BODY ECU (NETWORK GATEWAY ECU) - ECM, BODY GROUND)
----	--

- (a) Disconnect the A73 main body ECU (network gateway ECU) connector.
- (b) Disconnect the A35 and A36 ECM connectors.
- (c) Measure the voltage and resistance according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A73-9 - Body ground	Always	Below 1 V
A35-25 (IMO) - Body ground	Always	Below 1 V

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A73-9 - A35-25 (IMO1)	Always	Below 1 Ω
A36-4 (E01) - Body ground	Always	Below 1 Ω
A73-9 - Body ground	Always	10 k Ω or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



5.	REPLACE ECM
-----------	--------------------

(a) Temporarily replace the ECM with a new or known good one **INFO** .

(b) Register the ECU communication ID **INFO** .

NEXT



6.	CHECK FOR DTC
-----------	----------------------

(a) Check for DTCs **INFO** .

OK:

DTC B1578 is not output

NG ► **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

OK ► **END**



Last Modified: 3-27-2012	6.4 U	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCS01SX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: DATA LIST / ACTIVE TEST (2013 FR-S)		

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical or Powertrain / Main Body or Engine / Data List.
- Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Number of Registration Key	Number of registered key / 0 to 8	Number of registered key	-
IG SW	Ignition switch ON signal / OFF or ON	OFF: Ignition switch ACC or off ON: Ignition switch ON	-
ACC SW	Ignition switch ACC signal / OFF or ON	OFF: Ignition switch off ON: Ignition switch ACC or ON	-
Key Unlock Warning SW	Unlock warning switch signal / OFF or ON	OFF: No key in ignition key cylinder ON: Key inserted in ignition key cylinder	-
Battery Power Supply Control Voltage	Battery power supply control voltage / 0 to 21.4 V	11 to 14 V	-
Battery Power Supply Back Up Voltage	Battery power supply backup voltage / 0 to 21.4 V	11 to 14 V	-

IG Power Supply Voltage	IG power supply voltage / 0 to 21.4 V	11 to 14 V	-
ACC Voltage	ACC voltage / 0 to 21.4 V	11 to 14 V	-
Immobiliser Light	Security indicator light status / OFF or ON	OFF: Security indicator light OFF ON: Security indicator light ON	-
Immobiliser Power Supply	Main body ECU (network gateway ECU) engine immobiliser system power supply output status / OFF or ON	OFF: Power not supplied to engine immobiliser system ON: Power supplied to engine immobiliser system	-

Engine

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Immobiliser Fuel Cut	Status of immobiliser fuel cut / ON or OFF	-	-
Immobiliser Fuel Cut History	Status of immobiliser fuel cut history / ON or OFF	-	-

2. ACTIVE TEST

HINT:

Using the Techstream to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Active Test.
- According to the display on the Techstream, perform the Active Test.

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Security Indicator	Security indicator light	ON/OFF	-



Last Modified: 3-27-2012	6.4 S	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCA025X
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: DIAGNOSTIC TROUBLE CODE CHART (2013 FR-S)		

DIAGNOSTIC TROUBLE CODE CHART

Main Body ECU (Network Gateway ECU)

DTC CODE	DETECTION ITEM	SEE PAGE
B1401*1	M Check NG	INFO
B1402	Immobiliser Key Check NG	INFO
B1405*2	SCU Check NG	INFO
B1406*2	SCU EEPROM NG	INFO
B1407*1	M Communication Circuit	INFO
B1408*1	Meter EEPROM Circuit	INFO
B1409*2	SCU Communication Circuit	INFO
B1410	Transponder Communication Circuit	INFO
B1411	Immobiliser Antenna Circuit	INFO

*1: w/o Transponder Key ECU Assembly

*2: w/ Transponder Key ECU Assembly

ECM

DTC CODE	DETECTION ITEM	SEE PAGE
B1571	Immobiliser Key Check NG	INFO
B1572	Immobiliser System Communication Malfunction	INFO
B1576	Key Write Malfunction to EFI ECU	INFO
B1577	Immobiliser System EEPROM Malfunction	INFO
B1578	Immobiliser System Data Mismatch Key	INFO



Last Modified: 3-27-2012	6.4 D	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCQ01VX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: DTC CHECK / CLEAR (2013 FR-S)		

DTC CHECK / CLEAR

1. CHECK FOR MAIN BODY ECU (NETWORK GATEWAY ECU) DTC

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Main Body / Trouble Codes.
- (e) Check for DTCs.

2. CHECK FOR ECM DTC

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Powertrain / Engine / Trouble Codes.
- (e) Check for DTCs.

3. CLEAR MAIN BODY ECU (NETWORK GATEWAY ECU) DTC

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Main Body / Trouble Codes.
- (e) Clear the DTCs.

4. CLEAR ECM DTC

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Powertrain / Engine / Trouble Codes.
- (e) Clear the DTCs.



Last Modified: 3-27-2012	6.4 D	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TC902BX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING (2013 FR-S)		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the engine immobiliser system.
- *: Use the Techstream.

1.	VEHICLE BROUGHT TO WORKSHOP
-----------	------------------------------------

NEXT



2.	INSPECT BATTERY VOLTAGE
-----------	--------------------------------

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

HINT:

A simple method to determine whether the battery is depleted is to operate the horn.

NEXT



3.	CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*
-----------	--

(a) Use the Techstream to check if the CAN communication system is functioning normally

 .

Result

RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B  **GO TO CAN COMMUNICATION SYSTEM**

A

▼

4.	CHECK FOR DTC*
----	----------------

(a) Check for DTCs and note any codes that are output INFO

Result

RESULT	PROCEED TO
DTC is not output	A
SFI system DTC is output	B
Engine immobiliser system DTC is not output	C

(b) Based on the DTCs output above, proceed to each diagnostic procedure.

B ► GO TO SFI SYSTEM

C ► PROCEED TO DTC CHART

A

▼

5.	PROBLEM SYMPTOMS TABLE
----	------------------------

(a) Refer to Problem Symptoms Table INFO .

Result

RESULT	PROCEED TO
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B ► Go to step 7

A

▼

--	--

6. OVERALL ANALYSIS AND TROUBLESHOOTING*

- (a) Data List / Active Test INFO .
- (b) Terminals of ECU INFO .

NEXT

▼

7. ADJUST, REPAIR OR REPLACE

NEXT

▼

8. CHECK FOR DTC*

- (a) Clear the DTCs INFO .
- (b) Check for DTCs INFO .

HINT:

Before checking for DTCs, perform the "DTC Output Confirmation Operation" of each diagnostic procedure INFO .

Result

RESULT	PROCEED TO
DTC is not output	A
Engine immobiliser system DTC is output	B

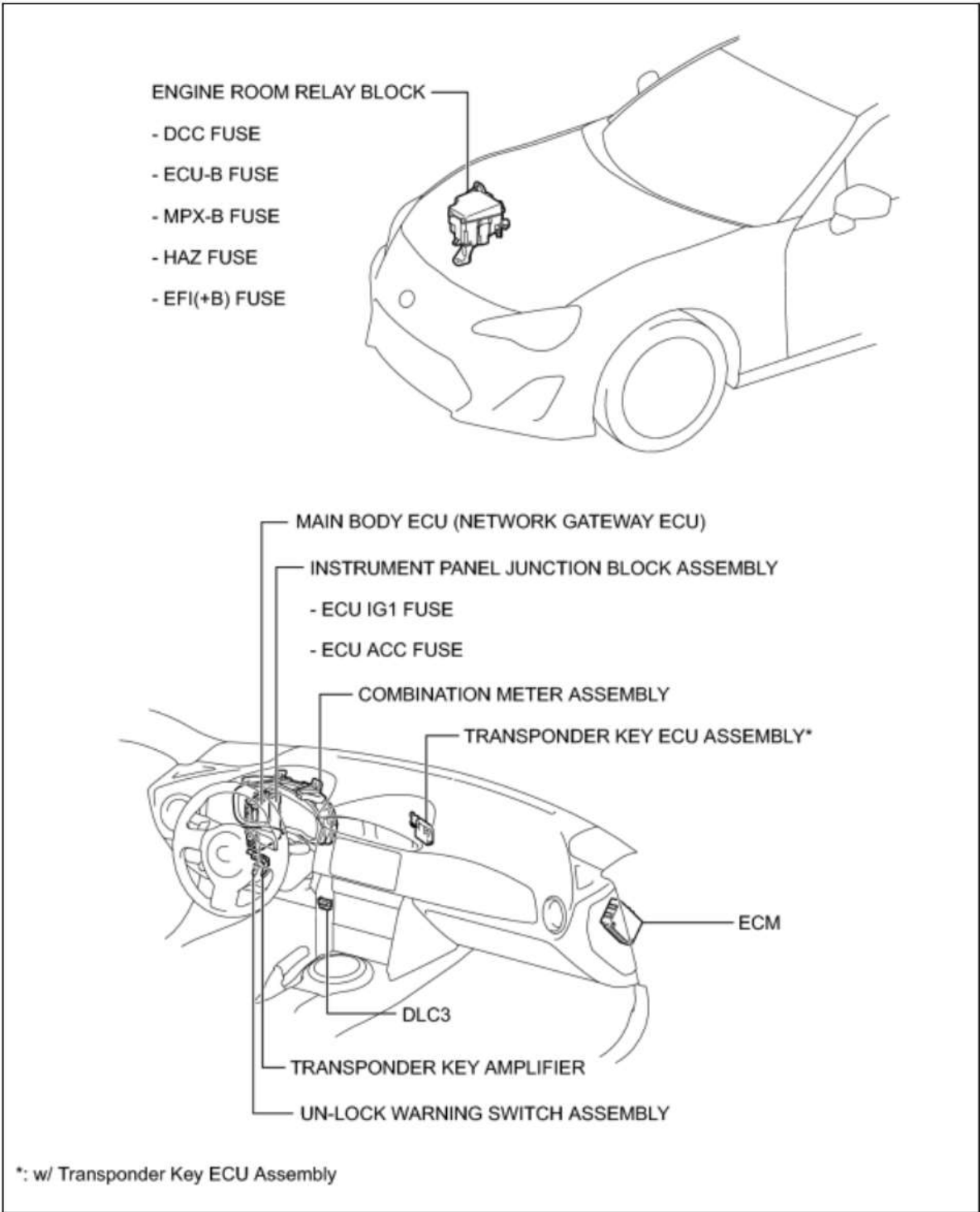
B ► GO TO DIAGNOSTIC TROUBLE CODE CHART

A ► END

Last Modified: 3-27-2012	6.4 R	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000004G5H00DX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: PARTS LOCATION (2013 FR-S)		

PARTS LOCATION

ILLUSTRATION





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Last Modified: 3-27-2012	6.4 T	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001WOZ01YX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER 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.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Engine Immobiliser System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Security indicator light does not blink	Proceed to "Security Indicator Light does not Blink"	INFO



Last Modified: 3-27-2012	6.4 M	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM00000120Y027X
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: REGISTRATION (2013 FR-S)		

REGISTRATION

1. DESCRIPTION OF CODE REGISTRATION

- (a) The key has 2 codes: the key code (immobiliser code) and the wireless code. Both of these codes need to be registered. For the wireless code registration procedures, refer to Wireless Door Lock Control System [INFO](#) .

2. KEY REGISTRATION PROCEDURES WHEN ADDING OR REPLACING KEY OR WHEN KEY IS LOST

HINT:

- The following procedures require the use of the Techstream:
 - New key code registration
 - Additional key code registration
 - Key code erasure
- A maximum of 6 key codes can be registered.

CUSTOMER REQUEST/CONDITION	REGISTRATION PROCEDURE CONDITION	PROCEDURE	REFER TO
Registering additional key	Customer must bring at least 1 key.	1. Register additional keys as necessary (additional key code registration).	PROCEDURE "C"
- Replacing a key - Making a lost key unusable HINT: After key code erasure, any remaining keys that are not registered at this time cannot be used. Therefore, after key code erasure, register all remaining keys.	Customer must bring at least 1 key.	1. Using remaining key, clear all registered keys except one (key code erasure).	PROCEDURE "D"
		2. Register additional keys as necessary (additional key code registration).	PROCEDURE "C"
All keys are lost	-	1. Reset all keys (all keys ID erasure (key code reset)).	PROCEDURE "E"
		2. Register all keys new key ID registration.	PROCEDURE "A"

3. PART REPLACEMENT AND KEY REGISTRATION PROCEDURES

- (a) The following table shows ECU replacement and key registration procedures for cases in which an ECU has been determined to be malfunctioning during troubleshooting of the engine immobiliser system.

HINT:

- The following procedures require the use of the Techstream:
 - New key code registration
 - Additional key code registration
 - Key code erasure
- A maximum of 6 key codes can be registered.

MALFUNCTIONING ECU	REGISTRATION PROCEDURE CONDITION	PROCEDURE	REFER TO
Main body ECU (network gateway ECU)	Customer must bring all keys.*3	1. Replace main body ECU (network gateway ECU).	*4
		2. Reregister all keys.	PROCEDURE "B"
		3. Register ECU communication ID.	PROCEDURE "G"
Combination meter assembly*1	Customer must bring at least 1 key.	1. Replace combination meter assembly.	*5
		2. Register recognition codes (ECU code registration).	PROCEDURE "F"
Transponder key ECU assembly*2	Customer must bring at least 1 key.	1. Replace transponder key ECU assembly.	*6
		2. Register recognition codes (ECU code registration).	PROCEDURE "F"
ECM	Customer must bring at least 1 key.	1. Replace ECM.	*7
		2. Register ECU communication ID.	PROCEDURE "G"
Main body ECU (network gateway ECU) and combination meter assembly*1	-	1. Replace main body ECU (network gateway ECU).	*4
		2. Replace combination meter assembly.	*5
		3. Reregister all keys.	PROCEDURE "A"
Main body ECU (network gateway ECU) and transponder key ECU assembly*2	-	1. Replace main body ECU (network gateway ECU).	*4
		2. Replace transponder key ECU assembly.	*6
			PROCEDURE

		3. Reregister all keys.	"A"
Main body ECU (network gateway ECU) and ECM	Customer must bring all keys.*3	1. Replace main body ECU (network gateway ECU).	*4
		2. Replace ECM.	*7
		3. Reregister all keys.	PROCEDURE "B"
		4. Register ECU communication ID.	PROCEDURE "G"
Combination meter assembly and ECM*1	Customer must bring at least 1 key.	1. Replace combination meter assembly.	*5
		2. Replace ECM.	*7
		3. Register recognition codes (ECU code registration).	PROCEDURE "F"
		4. Register ECU communication ID.	PROCEDURE "G"
Transponder key ECU assembly and ECM*2	Customer must bring at least 1 key.	1. Replace transponder key ECU assembly.	*6
		2. Replace ECM.	*7
		3. Register recognition codes (ECU code registration).	PROCEDURE "F"
		4. Register ECU communication ID.	PROCEDURE "G"
Main body ECU (network gateway ECU), combination meter assembly and ECM*1	-	1. Replace main body ECU (network gateway ECU).	*4
		2. Replace combination meter assembly.	*5
		3. Replace ECM.	*7
		4. Reregister all keys.	PROCEDURE "A"
		5. Register ECU communication ID.	PROCEDURE "G"
Main body ECU (network gateway ECU), transponder key ECU assembly and ECM*2	-	1. Replace main body ECU (network gateway ECU).	*4
		2. Replace transponder key ECU assembly.	*6
		3. Replace ECM.	*7
		4. Reregister all keys.	PROCEDURE "A"
		5. Register ECU	PROCEDURE

		communication ID.	"G"
--	--	-------------------	-----

*1: w/o Transponder Key ECU Assembly

*2: w/ Transponder Key ECU Assembly

*3: If none of the registered keys are available, the main body ECU (network gateway ECU) is unable to authenticate users, and registration will not be possible. It will therefore be necessary to replace the combination meter assembly*1 or transponder key ECU assembly*2 with a new one. After replacement with a new combination meter assembly*1 or transponder key ECU assembly*2, carry out new key ID registration and registration of communications code between ECUs. However, if there is at least 1 registered key, then deleting the key ID will mean that replacement of the combination meter assembly*1 or transponder key ECU assembly*2 will not be necessary.

*4: INFO

*5: INFO

*6: INFO

*7: INFO

NOTICE:

Information on main body ECU (network gateway ECU) and combination meter assemblies that have been registered in another vehicle cannot be deleted from within the ECUs, meaning that re-registration is not possible, therefore it is necessary to replace the main body ECU (network gateway ECU) and combination meter assembly with new parts.

4. KEY REGISTRATION (PROCEDURE "A")

(a) New key code registration (Procedure "A"):

NOTICE:

Make sure that no key codes are registered in the main body ECU (network gateway ECU) and combination meter assembly*1 or transponder key ECU assembly*2.

*1: w/o Transponder Key ECU Assembly

*2: w/ Transponder Key ECU Assembly

HINT:

- In this mode, a maximum of 6 key codes can be registered.
- New key codes must be registered with the battery connected. The ignition switch can be either ON or off.
- When a main body ECU (network gateway ECU) and combination meter assembly*1 or transponder key ECU assembly*2 is installed with a new one, key codes must be registered in the main body ECU (network gateway ECU) and combination meter assembly*1 or transponder key ECU assembly*2.
- In the chart below, the numbers in the "Procedure" column (1, 2, 3, etc.) indicate the step numbers. Perform the steps in numerical order.

*1: w/o Transponder Key ECU Assembly

*2: w/ Transponder Key ECU Assembly

Automatic Key Code Registration (New Registration)

PROCESS	PROCEDURE
1. Start of	1. Turn the ignition switch off. 2. Connect Techstream to DLC3. 3. Turn the ignition switch to ON. 4. Turn Techstream on. 5. Enter the following menus: Body Electrical / Main Body / Utility /

registration	Key Registration HINT: After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.
2. Verification of unregistered key	- Following the instructions on the Techstream, insert the key to be registered into the ignition key cylinder. - Perform operation according to prompts on Techstream screen.
3. End of registration	Finish new key code registration.

HINT:

A brief outline of a new key code registration procedure is shown above. For detailed information, refer to the Techstream screen.

(b) End automatic key code registration mode:

Automatic key code registration mode can be forced to end when at least 1 key code (immobiliser code) has been registered.

HINT:

Follow the instruction on the Techstream screen to end new key code registration mode.

5. KEY REGISTRATION (PROCEDURE "B")

(a) Key code re-registration (Procedure "B"):

NOTICE:

If none of the registered keys for the vehicle are available, the main body ECU (network gateway ECU) is unable to authenticate users, and registration will not be possible. It will therefore be necessary to replace the combination meter assembly*1 or transponder key ECU assembly*2 with a new one. However, if there is at least 1 registered key, then deleting the key code will mean that replacement of the combination meter assembly*1 or transponder key ECU assembly*2 will not be necessary.

*1: w/o Transponder Key ECU Assembly

*2: w/ Transponder Key ECU Assembly

HINT:

- Carried out this work when replacing only the main body ECU (network gateway ECU) with a new one.
- Registration mode will end if any step is not completed within the specified time.
- In the chart below, the numbers in the "Procedure" column (1, 2, 3, etc.) indicate the step numbers. Perform the steps in numerical order.

Key Code Re-registration

PROCESS	PROCEDURE
1. Start of registration	- Prepare all keys registered to the vehicle. - Turn the ignition switch off. - Connect Techstream to DLC3. - Turn the ignition switch to ON. - Turn Techstream on. - Enter the following menus: Body Electrical / Main Body / Utility / Key Registration

	HINT: After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.
2. Confirmation of registered key*1	Following the directions on the Techstream screen, insert a key registered to the vehicle into the ignition switch locking cylinder, and then remove it. Carry out this procedure for all keys registered to the vehicle.
3. Verification of unregistered key*2	Following the directions on the Techstream screen, insert a key to be registered to the vehicle into the ignition switch locking cylinder, and then remove it. Carry out this procedure for all keys to be registered to the vehicle.
4. End of registration	Finish key code re-registration.

HINT:

A brief outline of a key code re-registration procedure is shown above. For detailed information, refer to the Techstream screen.

*1: Carry out "Confirmation of registered key" for all keys registered to the vehicle. If all keys registered to the vehicle are not available, such as when keys are lost, then the ECU is unable to perform user authentication, and registration will not be possible.

*2: Insert and remove all keys including the keys used in "Confirmation of registered key" into and from the ignition switch locking cylinder.

6. KEY REGISTRATION (PROCEDURE "C")

(a) Additional registration (Procedure "C"):

NOTICE:

When the ignition key cylinder has been replaced, locking and unlocking doors is possible with the new key transmitter module (removed from the original key). However, the new key will not be able to lock and unlock doors through the door key cylinder. Keep the original key. If the battery in the new key transmitter module fails, the original key can be used to lock and unlock doors through the door key cylinder.

HINT:

- In this mode, a maximum of 6 key codes can be registered.
- Registration mode will end if any step is not completed within the specified time.
- When the ignition cylinder or the key cylinder set is replaced, remove the transmitter module from the original key. Then install this transmitter module to a new key and use the new key. If necessary, use this key to register other keys.
- In the chart below, the numbers in the "Procedure" column (1, 2, 3, etc.) indicate the step numbers. Perform the steps in numerical order.

Additional Registration

PROCESS	PROCEDURE
	1. Turn the Ignition switch off. 2. Connect Techstream to DLC3. 3. Turn the ignition switch to ON. 4. Turn Techstream on.

1. Start of registration	5. Enter the following menus: Body Electrical / Main Body / Utility / Key Registration HINT: After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.
2. Confirmation of registered key	1. Following the instructions on the Techstream, insert the key registered into the ignition key cylinder. 2. Turn the ignition switch to ON. 3. Perform operation according to prompts on Techstream screen
3. Verification of unregistered key	1. Following the instructions on the Techstream, insert the key to be registered into the ignition key cylinder. 2. Perform operation according to prompts on Techstream screen.
4. End of registration	Finish key code registration.

HINT:

A brief outline of a key code registration procedure is shown above. For detailed information, refer to the Techstream screen.

7. KEY REGISTRATION (PROCEDURE "D")

(a) Key code erasure (Procedure "D"):

HINT:

- Performing this procedure will erase all key codes except for the key, which is used for erasing the key codes. In order to use a key whose code has been erased, a new key code must be registered.
- This procedure will be canceled if each step is not completed within the specified time.
- In the chart below, the numbers in the "Procedure" column (1, 2, 3, etc.) indicate the step numbers. Perform the steps in numerical order.

Key Code Erasure

PROCESS	PROCEDURE
1. Start of erasure	1. Turn the ignition switch off. 2. Connect Techstream to DLC3. 3. Turn the ignition switch to ON. 4. Turn Techstream on. 5. Enter the following menus: Body Electrical / Main Body / Utility / Key Code Erasure HINT: After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.
2. Confirmation of registered key	1. Following the instructions on the Techstream, insert the key registered into the ignition key cylinder. 2. Perform operation according to prompts on Techstream screen.

3. End of erasure	Finish key code erasure.
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HINT:

A brief outline of a key code erasure procedure is shown above. For detailed information, refer to the Techstream screen.

8. KEY REGISTRATION (PROCEDURE "E")

(a) All key code erasure (Procedure "E"):

HINT:

- To perform this procedure, at least 1 key should be registered to the transponder key ECU assembly.
- This procedure can be performed using either a registered or unregistered key.
- In the chart below, the numbers in the "Procedure" column (1, 2, 3, etc.) indicate the step numbers. Perform the steps in numerical order.

All Key Code Erasure

PROCESS	PROCEDURE
1. Start of erasure	1. Turn the ignition switch off. 2. Connect Techstream to DLC3. 3. Insert the previous registered key or unregistered key into ignition key cylinder. 4. Turn the ignition switch to ON. 5. Using TIS, confirm that user and vehicle match. 6. Turn Techstream on. 7. Enter the following menus: Body Electrical / Main Body / Utility / Key Reset HINT: After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.
2. Erasure of ID code	1. Perform operation according to prompts on Techstream screen. 2. Wait for 15 minutes.
3. End of erasure	Finish all key code erasure.

HINT:

A brief outline of all key code erasure procedure is shown above. For detailed information, refer to the Techstream screen.

9. KEY REGISTRATION (PROCEDURE "F")

(a) ECU code registration (Procedure "F"):

NOTICE:

The ECU code should be registered when the combination meter assembly*1 or transponder key ECU assembly*2 is replaced with a new one in order to match the ECU code.

*1: w/o Transponder Key ECU Assembly

*2: w/ Transponder Key ECU Assembly

HINT:

- This procedure will be canceled if each step is not completed within the specified time.
- In the chart below, the numbers in the "Procedure" column (1, 2, 3, etc.) indicate the step numbers. Perform the steps in numerical order.

ECU code registration

PROCESS	PROCEDURE
1. Start of registration	1. Turn the ignition switch off. 2. Connect Techstream to DLC3. 3. Turn the ignition switch to ON. 4. Turn Techstream on. 5. Enter the following menus: Body Electrical / Main Body / Utility / ECU Communication ID Registration HINT: After completing the above operation, proceed to the next step in accordance with the prompts on the Techstream screen.
2. Confirmation of registered key	1. Following the instructions on the Techstream, insert the key registered into the ignition key cylinder. 2. Turn the ignition switch to ON.
3. Registration of ECU code	Perform operation according to prompts on Techstream screen.
4. End of registration	Finish ECU code registration.

HINT:

A brief outline of a ECU code registration procedure is shown above. For detailed information, refer to the Techstream screen.

10. KEY REGISTRATION (PROCEDURE "G")

- (a) ECU communication ID registration (When the main body ECU (network gateway ECU) is replaced with a new one, or when the ECM is replaced with other than a new one.):

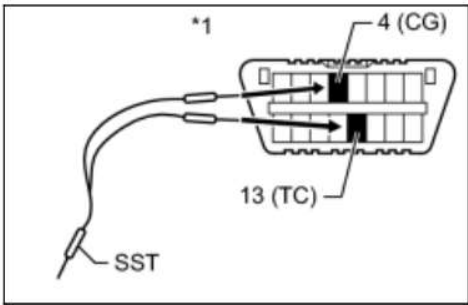
NOTICE:

- The ECU communication ID should be registered when the main body ECU (network gateway ECU) is replaced with a new one, or when the ECM is replaced with other than a new one. in order to match the ECU communication ID.
- If registration of the main body ECU (network gateway ECU) or combination meter assembly*1 or transponder key ECU assembly*2 is not completed, then this work will not be possible. Therefore, prior to carrying out ECU communications code registration, carry out main body ECU (network gateway ECU) or combination meter assembly*1 or transponder key ECU assembly*2 registration.
- The engine cannot be started unless the ECU communication IDs match.
- After registration, turning the ignition switch to the START position may not start the engine on the first try. If so, turn the ignition switch to the START position again.
- Using the Techstream, clear DTC B1572 (code for ECM immobiliser communication error) after the engine is started.

- *1: w/o Transponder Key ECU Assembly
- *2: w/ Transponder Key ECU Assembly

HINT:

If both the main body ECU (network gateway ECU) and ECM have been replaced with new items at the same time, then proceed as in "(b) When the ECM is replaced with a new one".



(1) Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

SST: 09843-18040

Text in Illustration

*1	DLC3
----	------

(2) Turn the ignition switch to ON and leave the vehicle as is for 30 minutes.

HINT:

Do not start the engine.

- (3) Start the engine.
- (4) Check that the engine starts and stays on for more than 5 sec.
- (b) ECU communication ID registration (When the ECM is replaced with a new one):

NOTICE:

The ECU communication ID should be registered when the ECM is replaced with a new one in order to match the ECU communication ID.

ECU Communication ID Registration

PROCEDURE
1. Start
2. Insert an already registered key into the ignition key cylinder.
3. Start the engine.
4. Check that the engine starts and stays on for more than 5 sec.
5. End



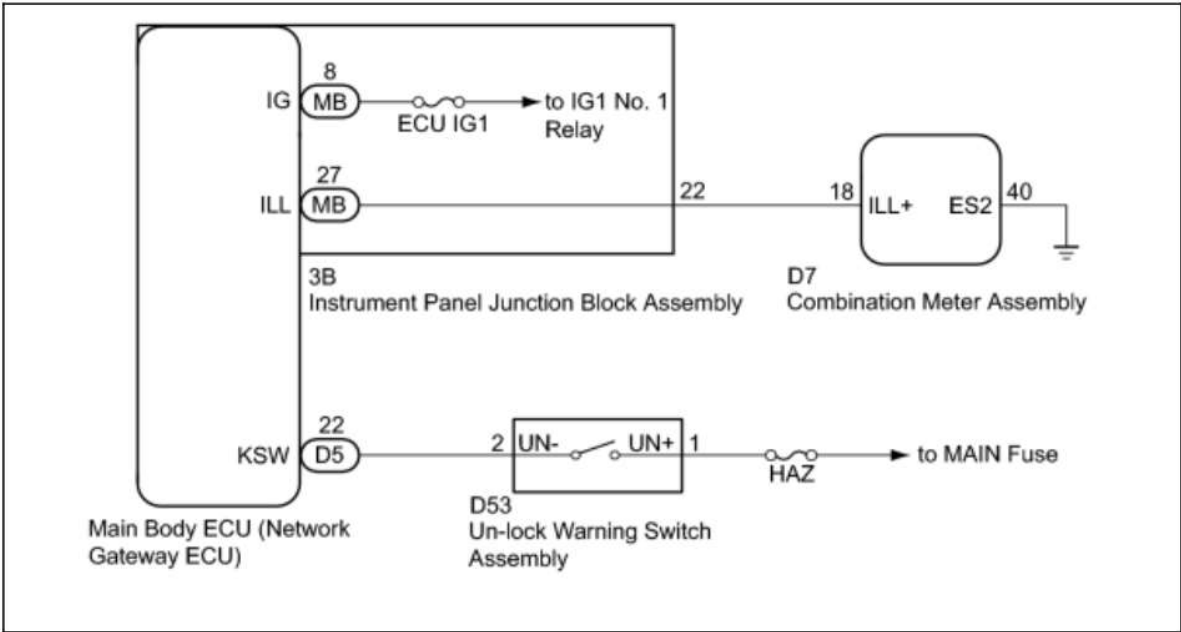
Last Modified: 3-27-2012	6.4 J	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000000W12067X
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: Security Indicator Light Does not Blink (2013 FR-S)		

Security Indicator Light Does not Blink

DESCRIPTION

When the engine immobiliser system is set, the security indicator light blinks continuously, but does not illuminate if the engine immobiliser system is not set.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- Inspect the fuses for circuits related to this system before performing the following inspection procedure.
- If the combination meter assembly and main body ECU (network gateway ECU) is replaced, refer to Registration INFO .

PROCEDURE

1.	CHECK FOR DTC
----	---------------

- (a) Check for DTCs INFO .
- OK:

DTC is not output.

NG ► **GO TO DTC CHART**

OK



2. PERFORM ACTIVE TEST USING TECHSTREAM (SECURITY INDICATOR)

(a) Check that the security indicator light illuminates when operating it with the Active Test

INFO .

Main Body

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Security Indicator	Security indicator light	ON/OFF	-

OK:

Security indicator light can be turned on and off using the Techstream.

NG ► **CHECK HARNESS AND CONNECTOR
(INSTRUMENT PANEL JUNCTION BLOCK -
COMBINATION METER ASSEMBLY)**

OK



3. READ VALUE USING TECHSTREAM (IG SW, KEY UNLOCK WARNING SW)

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Main Body / Data List.

(e) Read the Data List according to the display on the Techstream.

Main Body

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
IG SW	Ignition switch ON signal / OFF or ON	OFF: Ignition switch ACC or off ON: Ignition switch ON	-
		OFF: No key in ignition key	

Key Unlock Warning SW	Un-lock warning switch signal / OFF or ON	cylinder ON: Key inserted in ignition key cylinder	-
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OK:

On the Techstream screen, the display changes between ON and OFF according to the chart above.

Result

RESULT	PROCEED TO
OK	A
NG (IG SW)	B
NG (Key Unlock Warning SW)	C

B ► GO TO LIGHTING SYSTEM (IG Signal Circuit)

C ► INSPECT UN-LOCK WARNING SWITCH ASSEMBLY

A ► REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)

4. INSPECT UN-LOCK WARNING SWITCH ASSEMBLY

(a) Remove the un-lock warning switch assembly  .

(b) Inspect the un-lock warning switch assembly  .

NG ► REPLACE UN-LOCK WARNING SWITCH ASSEMBLY

OK



5. CHECK HARNESS AND CONNECTOR (UN-LOCK WARNING SWITCH ASSEMBLY - MAIN BODY ECU)

(a) Disconnect the D5 main body ECU (network gateway ECU) connector.

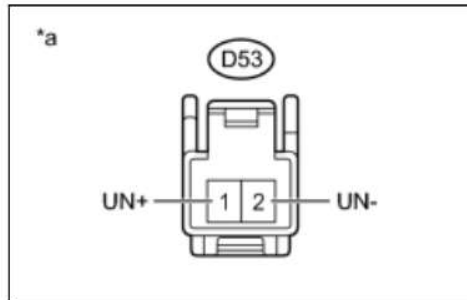
(b) Measure the voltage and resistance according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D53-1 (UN+) - Body ground	Always	11 to 14 V

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D53-2 (UN-) - D5-22 (KSW)	Always	Below 1 Ω
D53-2 (UN-) - Body ground	Always	10 k Ω or higher



Text in Illustration

*a	Front view of wire harness connector (to Un-lock Warning Switch Assembly)
----	--

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

6.	CHECK HARNESS AND CONNECTOR (INSTRUMENT PANEL JUNCTION BLOCK - COMBINATION METER ASSEMBLY)
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- (a) Disconnect the 3B instrument panel junction block assembly connector.
- (b) Disconnect the D7 combination meter assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3B-22 - D7-18	Always	Below 1 Ω
D7-40 - Body ground	Always	Below 1 Ω
3B-22 - Body ground	Always	10 k Ω or higher

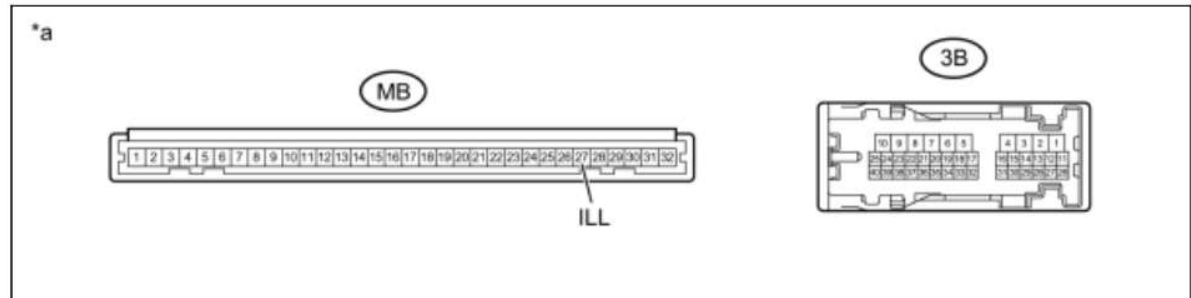
NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

▼

7. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- (a) Remove the instrument panel junction block assembly INFO.
- (b) Remove the main body ECU (network gateway ECU) from the instrument panel junction block assembly.
- (c) Measure the resistance according to the value(s) in the table below.



Text in Illustration

*a	Component without harness connected (Instrument Panel Junction Block Assembly)	-	-
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Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MB-17 - 3B-22	Always	Below 1 Ω

NG

▶ REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK

▼

8. REPLACE COMBINATION METER ASSEMBLY

- (a) Replace the combination meter assembly with a new one INFO.
- (b) When the immobiliser is set, check that the security indicator light blinks.

OK:

Security indicator light blinks.

NG ► **REPLACE MAIN BODY ECU (NETWORK GATEWAY ECU)**

OK ► **END (COMBINATION METER ASSEMBLY WAS DEFECTIVE)**



Last Modified: 3-27-2012	6.4 D	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TC001VX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: SYSTEM DESCRIPTION (2013 FR-S)		

SYSTEM DESCRIPTION

1. ENGINE IMMOBILISER SYSTEM DESCRIPTION

- (a) The engine immobiliser system is a system for preventing theft of the vehicle. The engine immobiliser system utilizes the main body ECU (network gateway ECU) and combination meter assembly to store a key ID. When an improper key is used to attempt to start the engine, the main body ECU (network gateway ECU) sends a fuel cut and starter cut signal to the ECM, making it impossible to start the engine.

2. FUNCTION OF MAIN COMPONENTS

COMPONENT	OUTLINE
Main body ECU (network gateway ECU)	Checks the key ID received from the transponder key amplifier to assess whether it matches a key ID that has already been registered. At the same time, data is exchanged with the combination meter assembly to check whether the key ID matches the key ID stored in the combination meter assembly. When both key IDs match, the main body ECU (network gateway ECU) sends an engine start permission signal to the ECM.
Combination meter assembly*1	Checks the key ID received from the main body ECU (network gateway ECU) and the key ID stored when the key was registered, and sends the results of this check to the main body ECU (network gateway ECU).
Transponder key ECU assembly*2	Checks the key ID received from the main body ECU (network gateway ECU) and the key ID stored when the key was registered, and sends the results of this check to the main body ECU (network gateway ECU).
Transponder key amplifier	When the key is inserted into the ignition key cylinder, receives the key ID from the antenna coil, and outputs the key ID code boosted in the amplifier to the main body ECU (network gateway ECU).
ECM	Starts the engine based on the ID results collected from the main body ECU (network gateway ECU).
Un-lock warning switch assembly	Detects whether the key is in the ignition key cylinder and outputs the results to the main body ECU (network gateway ECU).

*1: w/o Transponder Key ECU Assembly

*2: w/ Transponder Key ECU Assembly

3. SYSTEM FUNCTION

- (a) When the main body ECU (network gateway ECU) detects that the un-lock warning switch assembly is on, it sends power to the transponder key amplifier, which magnetizes the area around the antenna coil. The transponder chip inside the key grip uses the electromotive force generated by this magnetism to output a key ID signal. The transponder key amplifier receives the key ID signal, which is boosted by the amplifier and sent to the main body ECU (network gateway ECU). The main body ECU (network gateway ECU) checks whether the key ID received

from the transponder key amplifier matches the registered key ID. Simultaneously, the main body ECU (network gateway ECU) sends the key ID to the transponder key ECU assembly*1 or combination meter assembly*2. The transponder key ECU assembly*1 or combination meter assembly*2 compares the key ID to those it has stored, and sends the results of this comparison to the main body ECU (network gateway ECU). When both ID codes match, the engine immobiliser system is canceled, and the engine start control (fuel injection and starter control) is placed on standby.

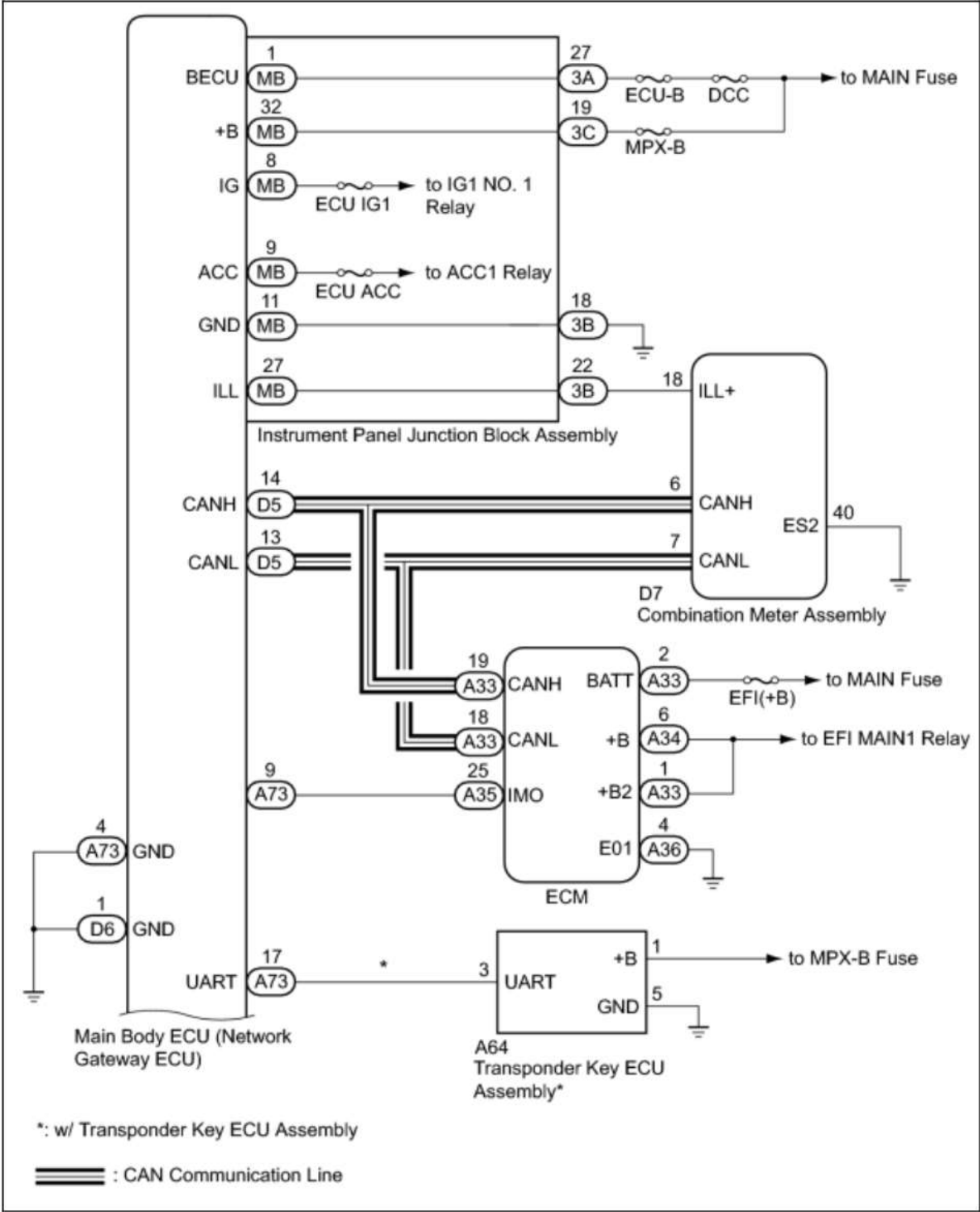
*1: w/ Transponder Key ECU Assembly

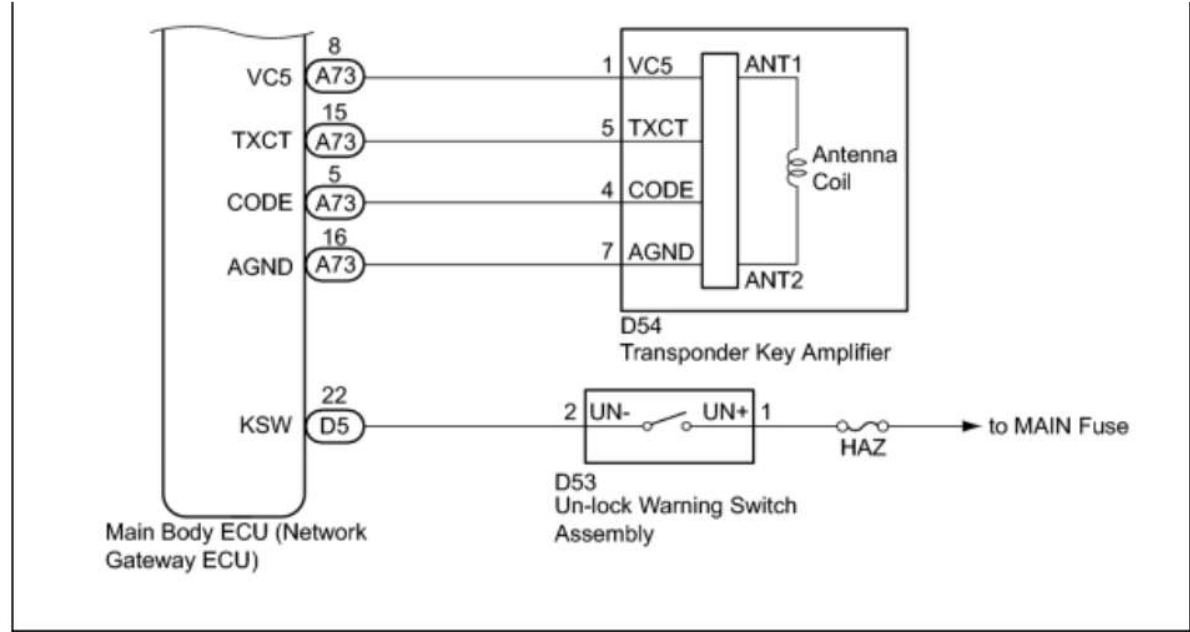
*2: w/o Transponder Key ECU Assembly



Last Modified: 3-27-2012	6.4 U	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000001TCR01XX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: SYSTEM DIAGRAM (2013 FR-S)		

SYSTEM DIAGRAM

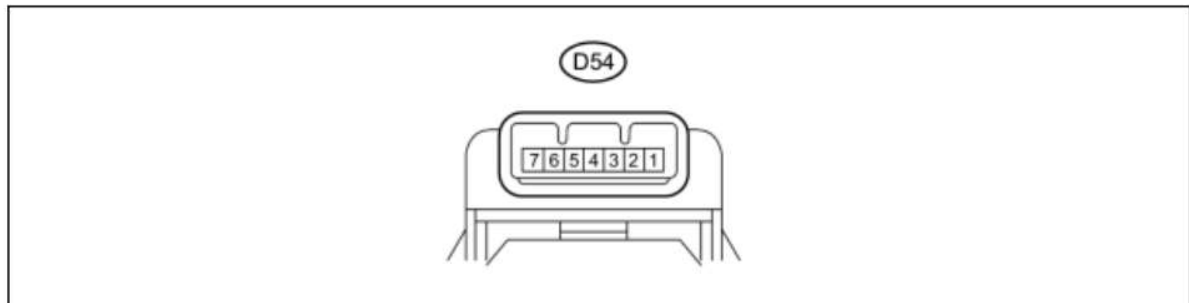




Last Modified: 3-27-2012	6.4 U	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000002X2W01JX
Title: THEFT DETERRENT / KEYLESS ENTRY: ENGINE IMMOBILISER SYSTEM: TERMINALS OF ECU (2013 FR-S)		

TERMINALS OF ECU

1. CHECK TRANSPONDER KEY AMPLIFIER



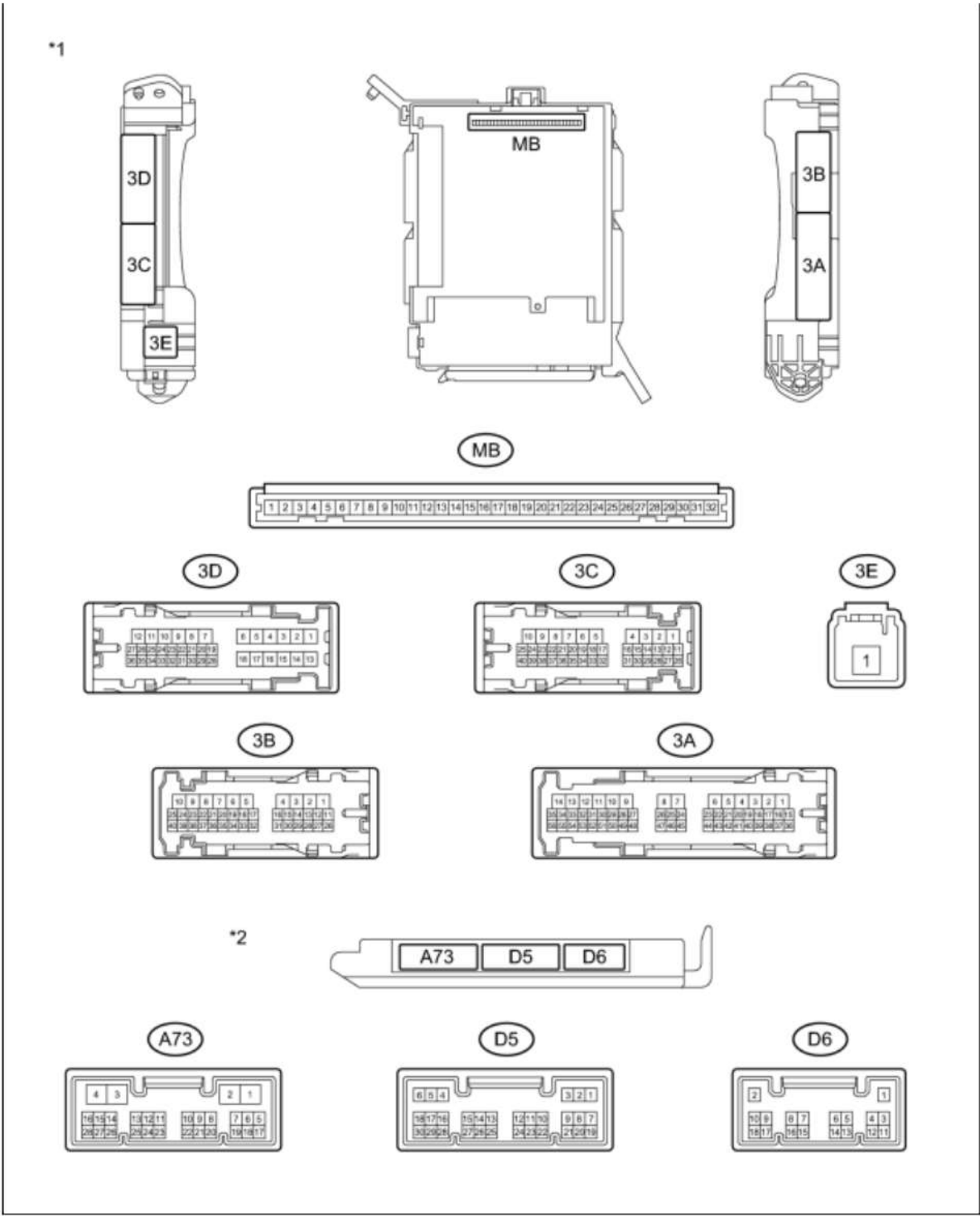
- (a) Disconnect the D54 transponder key amplifier connector.
- (b) Measure the resistance and voltage, and check for pulses according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	INPUT/OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
D54-7 (AGND) - Body ground	-	GR - Body ground	Ground	Always	Below 1 Ω

- (c) Reconnect the D54 transponder key amplifier connector.
- (d) Measure the voltage and check for pulses according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	INPUT/OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
D54-1 (VC5) - D54-7 (AGND)	Input	R - GR	Transponder key amplifier power supply	Ignition switch ON	4.5 to 5.5 V
D54-4 (CODE) - D54-7 (AGND)	Output	LG - GR	Demodulated signal of key code data	Key inserted in ignition key cylinder	Pulse generation
D54-5 (TXCT) - D54-7 (AGND)	Output	W-G - GR	Key code output signal	No key in ignition key cylinder	Below 1 V
				Key inserted in ignition key cylinder	Pulse generation

2. CHECK INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY AND MAIN BODY ECU (NETWORK GATEWAY ECU)



Text in Illustration

*1	Instrument Panel Junction Block Assembly	*2	Main Body ECU (Network Gateway ECU)
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- (a) Remove the main body ECU (network gateway ECU) from the instrument panel junction block assembly.
- (b) Disconnect the D5, D6 and A73 main body ECU (network gateway ECU) connectors.
- (c) Measure the resistance and voltage according to the value(s) in the table below.

TERMINAL NO.	INPUT/OUTPUT	WIRING	TERMINAL	CONDITION	SPECIFIED
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(SYMBOL)		COLOR	DESCRIPTION		CONDITION
MB-1 (BECU) - Body ground	Input	None - Body ground	Battery power supply	Always	11 to 14 V
MB-8 (IG) - Body ground	Input	None - Body ground	Ignition switch power supply	Ignition switch ON	11 to 14 V
				Ignition switch off	Below 1 V
MB-9 (ACC) - Body ground	Input	None - Body ground	ACC power supply	Ignition switch ACC	11 to 14 V
				Ignition switch off	Below 1 V
MB-11 (GND) - Body ground	-	None - Body ground	Ground	Always	Below 1 Ω
MB-32 (+B) - Body ground	Input	None - Body ground	Battery power supply	Always	11 to 14 V
D5-22 (KSW) - Body ground	Input	BR - Body ground	Unlock warning switch input	No key in ignition key cylinder (off)	Below 1 V
				Key inserted ignition key cylinder (on)	11 to 14 V
D6-1 (GND) - Body ground	-	B - Body ground	Ground	Always	Below 1 Ω
A73-4 (GND) - Body ground	-	B-Y - Body ground	Ground	Always	Below 1 Ω

(d) Reconnect the D5, D6 and A73 main body ECU (network gateway ECU) connectors.

(e) Install the main body ECU (network gateway ECU) to the instrument panel junction block assembly.

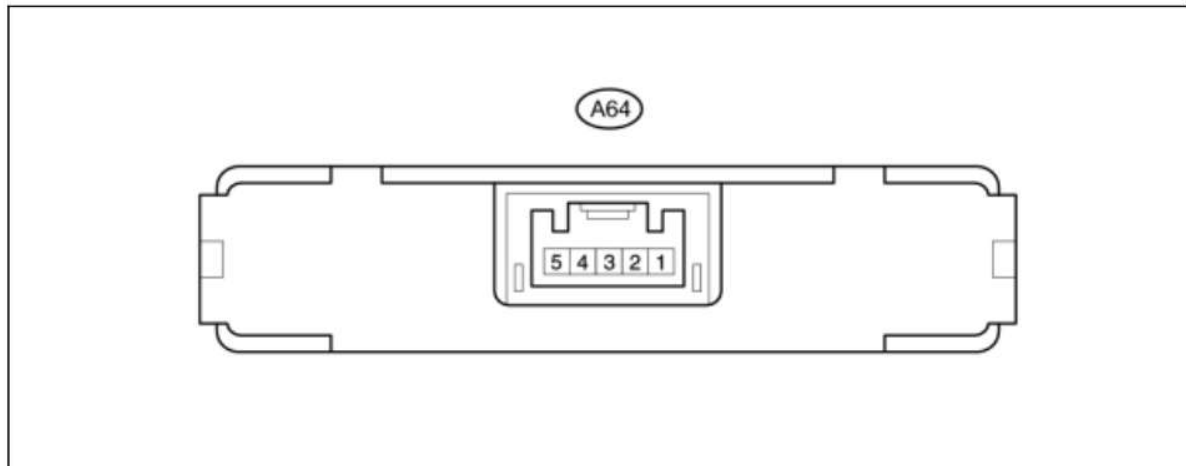
(f) Measure the resistance and voltage, and check for pulses according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	INPUT/OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A73-5 (CODE) - Body ground	Input	LG - Body ground	Demodulated signal of key code data	Key inserted in ignition key cylinder	Pulse generation
A73-9 - Body ground	Input / output	Y - Body ground	EFI communication	Ignition switch off	Below 1 V
				Ignition switch ON	Pulse generation
A73-8 (VC5) - Body ground	Output	R - Body ground	Transponder key amplifier power supply	Ignition switch ON	4.5 to 5.5 V
A73-15 (TXCT) - Body ground	Input	W - Body ground	Key code output signal	Key inserted in ignition key cylinder	Pulse generation
A73-16 (AGND) -		GR -	Transponder key		

Body ground	-	Body ground	amplifier ground	Always	Below 1 Ω
A73-17 (UART) - Body ground*	Input / output	SB - Body ground	Transponder key ECU communication	Key inserted in ignition key cylinder	Pulse generation

*: w/ Transponder Key ECU Assembly

3. CHECK TRANSPONDER KEY ECU ASSEMBLY



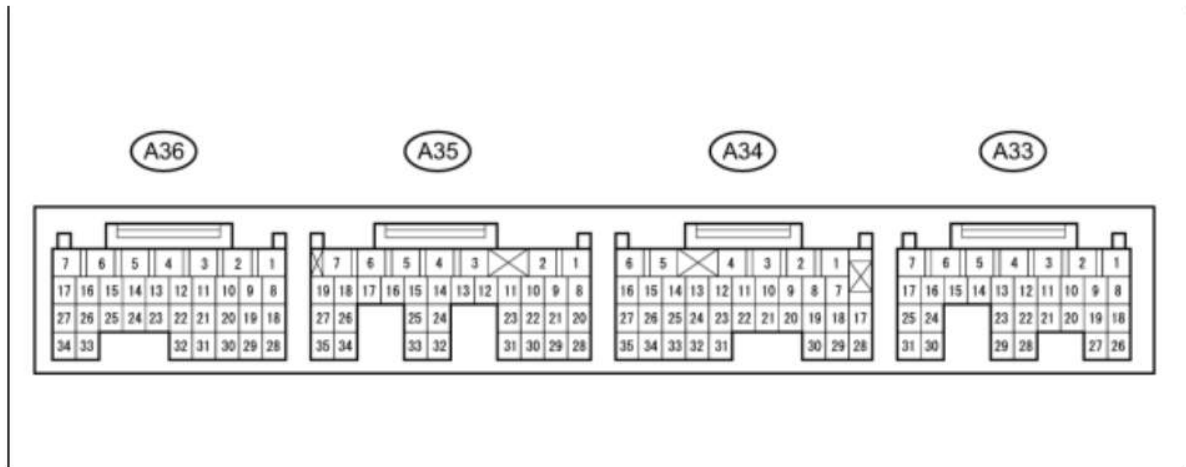
- (a) Disconnect the A64 transponder key ECU assembly connector.
 (b) Measure the resistance and voltage according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	INPUT/OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A64-1 (+B) - Body ground	Input	L-R - Body ground	Battery power supply	Always	11 to 14 V
A64-5 (GND) - Body ground	-	B-Y - Body ground	Ground	Always	Below 1 Ω

- (c) Reconnect the A64 transponder key ECU assembly connector.
 (d) Measure the voltage and check for pulses according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	INPUT/OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A64-3 (UART) - A64-5 (GND)	Input/Output	SB - B-Y	Main body ECU communication	Key inserted in ignition key cylinder	Pulse generation

4. CHECK ECM



(a) Measure the resistance and voltage, and check for pulses according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	INPUT/OUTPUT	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A33-1 (+B2) - A36-4 (E01)	Input	V - B-L	Battery power supply	Ignition switch off	Below 1 V
				Ignition switch ON	11 to 14 V
A33-2 (BATT) - A36-4 (E01)	Input	W - B-L	Battery power supply	Always	11 to 14 V
A34-6 (+B) - A36-4 (E01)	Input	V - B-L	Battery power supply	Ignition switch off	Below 1 V
				Ignition switch ON	11 to 14 V
A35-25 (IMO) - A36-4 (E01)	Input/Output	Y - B-L	Main body ECU communication	Ignition switch off	Below 1 V
				Ignition switch ON	Pulse generation
A36-4 (E01) - Body ground	-	B-L - Body ground	Ground	Always	Below 1 Ω

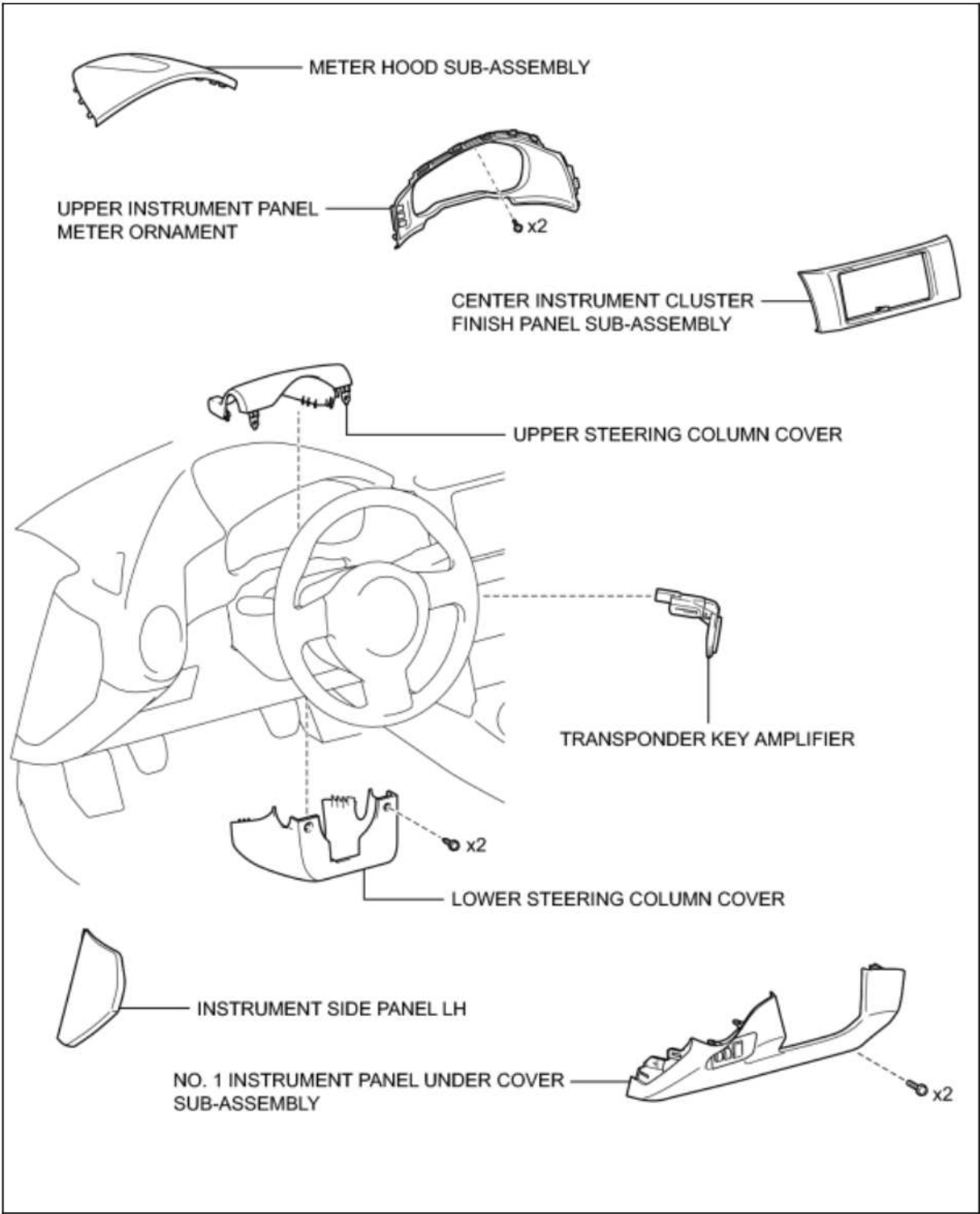


TOYOTA

Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003YO000SX
Title: THEFT DETERRENT / KEYLESS ENTRY: TRANSPONDER KEY AMPLIFIER: COMPONENTS (2013 FR-S)		

COMPONENTS

ILLUSTRATION





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Model Year: 2013	Model: FR-S	Doc ID: RM000003YNY00WX
Title: THEFT DETERRENT / KEYLESS ENTRY: TRANSPONDER KEY AMPLIFIER: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL TRANSPONDER KEY AMPLIFIER

- (a) Connect the connector.
- (b) Attach the 2 claws to install the transponder key amplifier.

2. INSTALL UPPER STEERING COLUMN COVER [INFO](#)

3. INSTALL LOWER STEERING COLUMN COVER [INFO](#)

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

5. INSTALL UPPER INSTRUMENT PANEL METER ORNAMENT [INFO](#)

6. INSTALL METER HOOD SUB-ASSEMBLY [INFO](#)

7. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY [INFO](#)

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

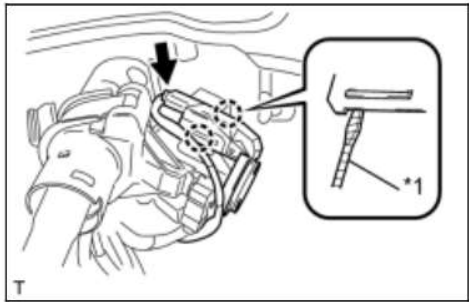


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Model Year: 2013	Model: FR-S	Doc ID: RM000003YO100WX
Title: THEFT DETERRENT / KEYLESS ENTRY: TRANSPONDER KEY AMPLIFIER: REMOVAL (2013 FR-S)		

REMOVAL

1. REMOVE INSTRUMENT SIDE PANEL LH
2. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY
3. REMOVE METER HOOD SUB-ASSEMBLY
4. REMOVE UPPER INSTRUMENT PANEL METER ORNAMENT
5. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
6. REMOVE LOWER STEERING COLUMN COVER
7. REMOVE UPPER STEERING COLUMN COVER
8. REMOVE TRANSPONDER KEY AMPLIFIER



(a) Disconnect the connector.

(b) Using a screwdriver with its tip wrapped with protective tape, detach the 2 claws and remove the transponder key amplifier.

Text in illustration

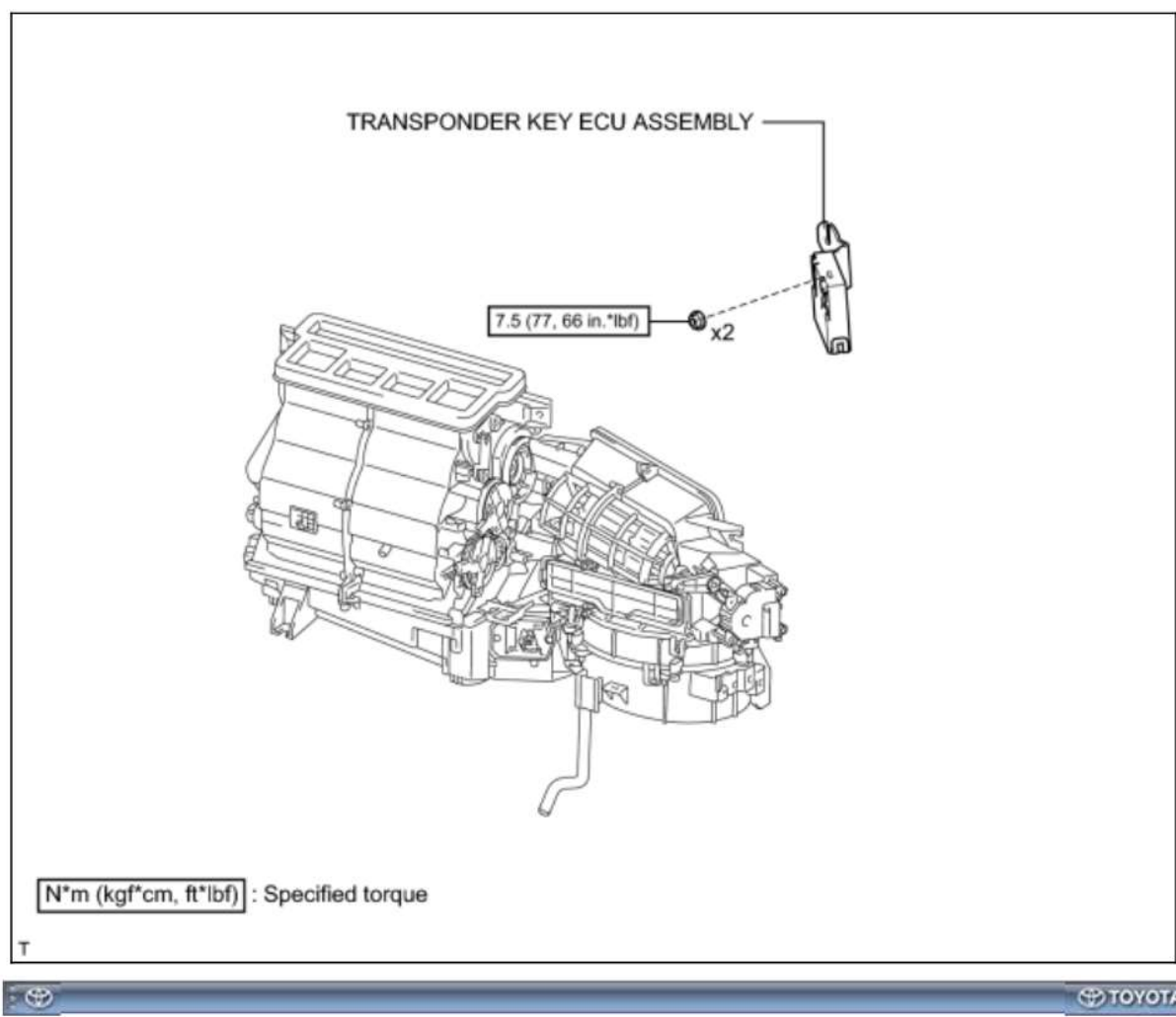
*1	Protective Tape
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Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000004IP2004X
Title: THEFT DETERRENT / KEYLESS ENTRY: TRANSPONDER KEY ECU: COMPONENTS (2013 FR-S)		

COMPONENTS

ILLUSTRATION



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000004IP1004X
Title: THEFT DETERRENT / KEYLESS ENTRY: TRANSPONDER KEY ECU: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL TRANSPONDER KEY ECU ASSEMBLY

- (a) Connect the connector.
- (b) Install the transponder key ECU assembly with the 2 nuts.

Torque: 7.5 N·m (77 kgf·cm, 66in·lbf)

2. INSTALL AIR CONDITIONING UNIT

INFO

3. REGISTER ECU CODE

- (a) Register the ECU code INFO .



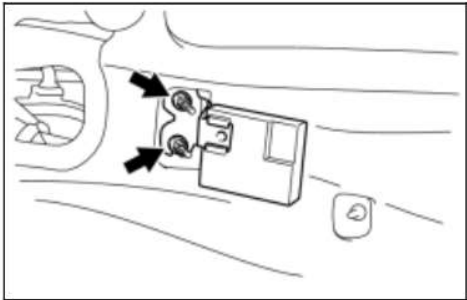
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Model Year: 2013	Model: FR-S	Doc ID: RM000004IP3004X
Title: THEFT DETERRENT / KEYLESS ENTRY: TRANSPONDER KEY ECU: REMOVAL (2013 FR-S)		

REMOVAL

1. REMOVE AIR CONDITIONING UNIT

INFO



2. REMOVE TRANSPONDER KEY ECU ASSEMBLY

- (a) Disconnect the connector.
- (b) Remove the 2 nuts and the transponder key ECU assembly.