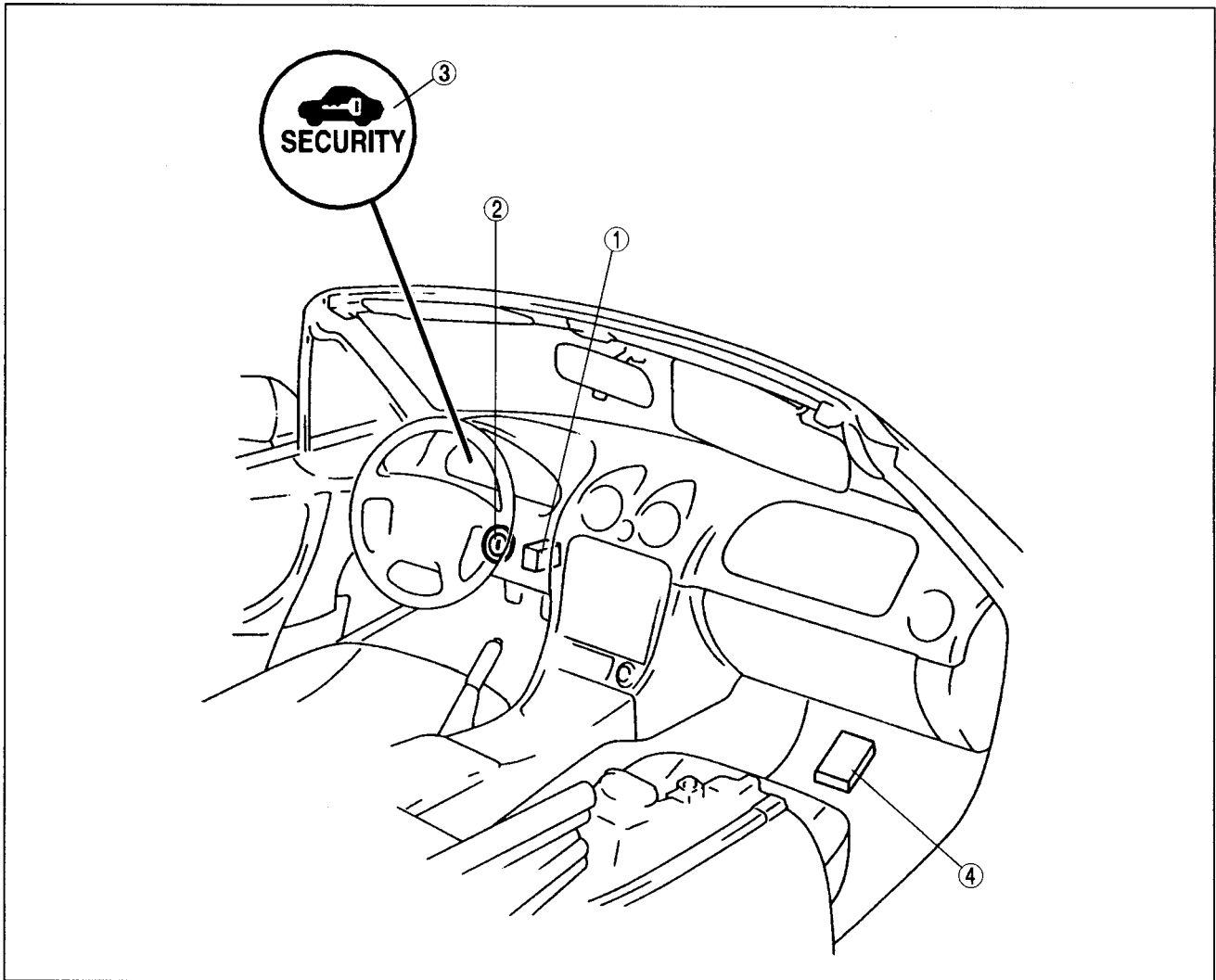


IMMOBILIZER SYSTEM LOCATION INDEX

Z5U091467000W01



Z5U0914W201

1	Immobilizer unit (See 09-14-19 IMMOBILIZER UNIT REMOVAL/ INSTALLATION) (See 09-14-19 IMMOBILIZER UNIT INSPECTION)
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2	Coil (See 09-14-20 COIL REMOVAL/INSTALLATION)
3	Security light
4	PCM

IMMOBILIZER SYSTEM SERVICE CAUTION

Z5U091467000W02

**Caution**

- When an immobilizer system component (such as the PCM, immobilizer unit, coil or the key) has failed, it must be accurately determined according to the troubleshooting procedures or by the display of the DTCs prior to carrying out the service procedures.
- If a normal component is mistakenly replaced and the ID number and/or code word are input into the new component, then neither component can be reused on other vehicles.
- When a new key registration or immobilizer unit and/or PCM replacement is performed on vehicles equipped with an immobilizer system, the new ID number should be registered using the procedure that includes engine cranking through idling. When the engine starts to reprogram the immobilizer system, if the input voltage to the immobilizer unit becomes lower than the operation voltage of the immobilizer system, the ID number can not be input momentarily. This is not a unit failure, so do not misunderstand during the problem diagnosis (when the terminal voltage goes back to the operation voltage, then the unit also begins to operate normally). Charge or replace the battery.

**IMMOBILIZER UNIT REMOVAL/INSTALLATION**

Z5U091467003W01

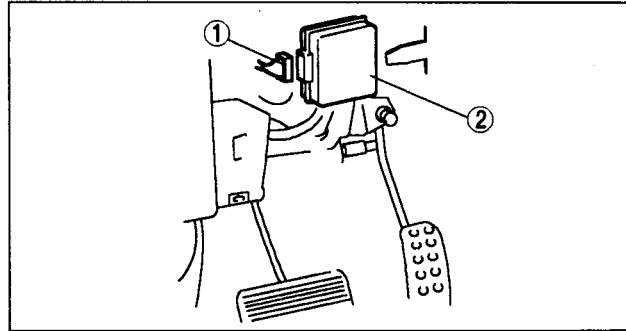
1. Disconnect the negative battery cable.
2. Remove in the order indicated in the table.

1	Connector
2	Immobilizer unit

3. Install in the reverse order of removal.

**Caution**

- After replacing the immobilizer unit with a new one, the engine cannot be started without reprogramming the ID number of the keys and the code word of the new immobilizer unit. Input the ID number and code word. (See 09-14-20 IMMOBILIZER SYSTEM REPROGRAM PROCEDURE.)



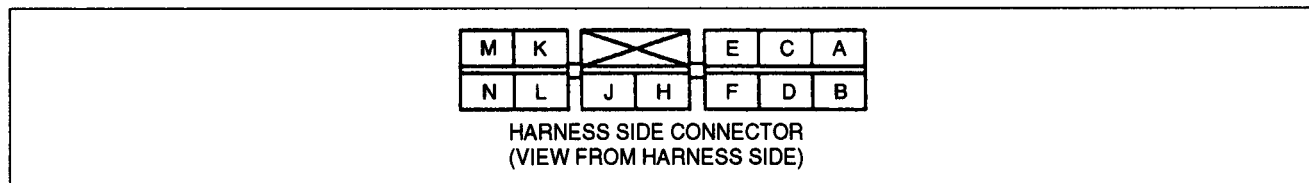
Z5U914WA0

**IMMOBILIZER UNIT INSPECTION**

Z5U091467003W02

1. Measure the voltage at the immobilizer unit terminals as indicated below.
2. Disconnect the immobilizer unit connector before inspecting for continuity at terminal C.
  - If not as specified, inspect the parts listed under "Action".
  - If the parts and wiring harnesses are okay but the system still does not work properly, replace the immobilizer unit.

**Terminal Voltage Table (Reference)**



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Z5U0914W202

Terminal	Signal	Connected to	Test condition	Voltage (V)/continuity	Action
A	Communication with PCM	PCM	IG SW LOCK position	Below 0.1	<ul style="list-style-type: none"> <li>• Inspect PCM (See 01-40-6 PCM INSPECTION)</li> <li>• Inspect related harness</li> </ul>
			IG SW ON position	B+	
B	—	—	—	—	—
C	GND	GND	Under any condition: inspect for continuity to ground	Yes	<ul style="list-style-type: none"> <li>• Inspect GND</li> </ul>
D	Power supply to coil	Coil	IG SW LOCK position	Below 0.1	<ul style="list-style-type: none"> <li>• Inspect coil</li> <li>• Inspect related harness</li> </ul>
			IG SW ON position	Can not be measured	
E	—	—	—	—	—
F	Key ID number input	Coil	IG SW LOCK position	Below 0.1	<ul style="list-style-type: none"> <li>• Inspect coil</li> <li>• Inspect related harness</li> </ul>
			IG SW ON position	Can not be measured	
H	—	—	—	—	—
J	Back-up power supply	Battery	Under any condition	B+	<ul style="list-style-type: none"> <li>• Inspect ROOM 15 A fuse</li> <li>• Inspect related harness</li> </ul>
K	—	—	—	—	—
L	Power supply	Ignition switch	IG SW LOCK position	0	<ul style="list-style-type: none"> <li>• Inspect ENGINE 10 A fuse</li> <li>• Inspect related harness</li> </ul>
			IG SW ON position	B+	
M	Security light output	Security light	Security light does neither illuminate nor blink	B+	<ul style="list-style-type: none"> <li>• Inspect security light</li> <li>• Inspect related harness</li> </ul>
N	—	—	—	—	—

Z5U0914W202

**COIL REMOVAL/INSTALLATION**

Z5U091467004W01

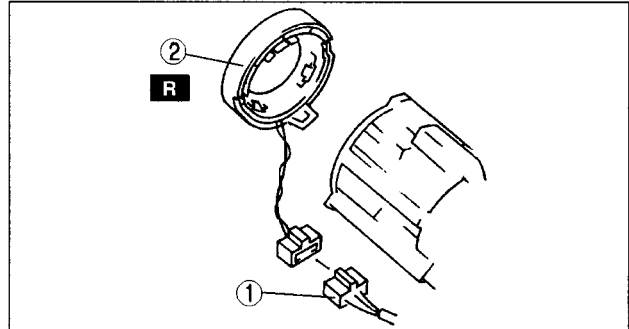
**Note**

- Do not remove the coil unless you are replacing it.
- When only the coil is replaced, the immobilizer system reprogram procedure is not necessary.

1. Disconnect the negative battery cable.
2. Remove the column cover.
3. Remove in the order indicated in table.

1	Connector
2	Coil (See 09-14-20 Coil Installation Note)

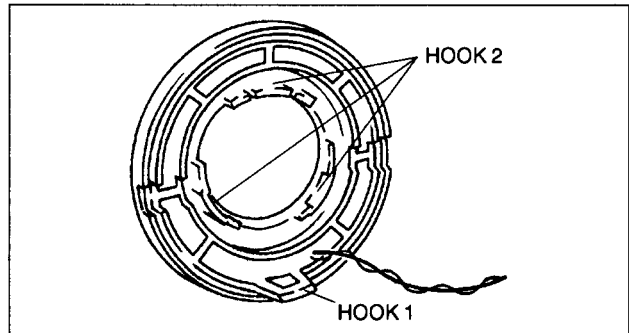
4. Install in the reverse order of removal.



W6U914WAX

**Coil Installation Note**

1. Install the hook 1 to the steering lock.
2. Install the hook 2 to the steering lock.



W6U914WBL

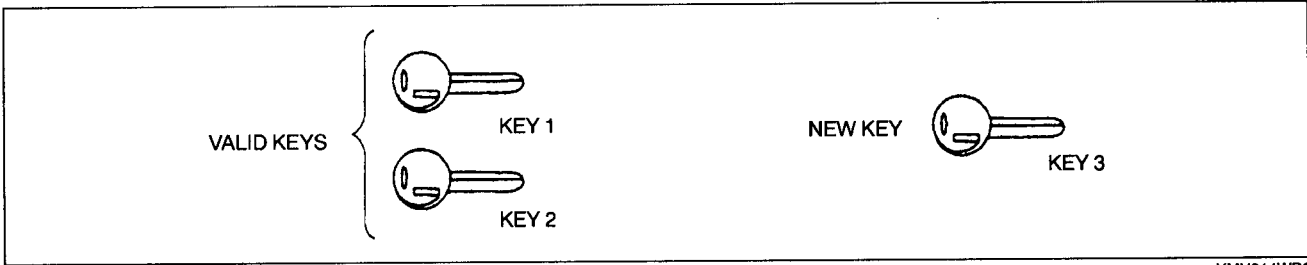
**IMMOBILIZER SYSTEM REPROGRAM PROCEDURE**

Z5U091467000W03

**Note**

- When an error occurs during the reprogram procedures, except when both the immobilizer unit and PCM are replaced, repeat the procedure from Step 1. If you still cannot reprogram, confirm how many keys can start the engine. Then, perform the key replacement or addition reprogram procedure according to the valid key number.
- To make a copy of the key or replace the immobilizer system component parts (the key(s), steering lock, immobilizer unit and/or PCM), the customer should bring all keys to the dealer. This is because the previously programmed key IDs are erased when reprogramming the key IDs into the immobilizer unit and PCM.
- If the customer has only one valid key when replacing the immobilizer system component parts, the dealer should contact a distributor to obtain the code word.
- To replace the immobilizer unit or PCM, there should be at least one valid key. Otherwise, both the immobilizer unit and PCM should be replaced.
- The immobilizer unit and PCM cannot be changed from one car to another. If an immobilizer unit or PCM is replaced with one from another car, the engine will not start. Reprogramming of the IDs and code word of an immobilizer unit that has already been programmed as set is not possible.
- The immobilizer unit and PCM should not be newly replaced as a trial during troubleshooting. If this is done, the ID and code word will be programmed into the new unit and it cannot be used for other cars even if you find that the old unit was normal.
- The immobilizer system cannot be deactivated.
- Confirm that all keys registered can start the engine after the reprogram procedure. When confirming, wait for **more than 5 seconds** before inserting the next key.
- When the customer does not need to register more than two keys, the following procedures can be stopped after registering two keys.

**Key Replacement or Addition**  
**When customer has brought two or more valid keys**



YMU914WB6

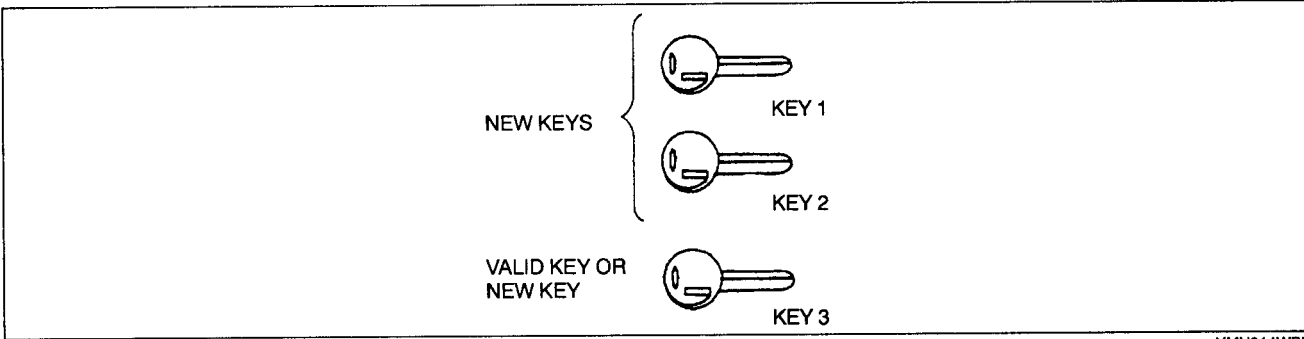
**Note**

- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Cut new transponder equipped key(s).
2. Using key 1, turn ignition switch to ON position then back to LOCK position **five times**. The key should not remain at ON position or LOCK position for **more than 1 second**.
  - (1) Turn key 1 back to ON position. Observe illumination of security light in instrument cluster.
  - (2) Turn key 1 to LOCK position and remove key 1 from steering lock. Observe security light goes out.
3. Using key 2, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 2 to LOCK position and remove from steering lock.
4. Repeat Step 3 with key 1.
5. Repeat Step 3 with key 3.
6. If there are 4—8 keys (valid and/or new keys), repeat Step 3.
7. Wait for **30 seconds** to quit reprogram mode.

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**When customer has brought only one or no valid key (code word is required)**



YMU914WB7

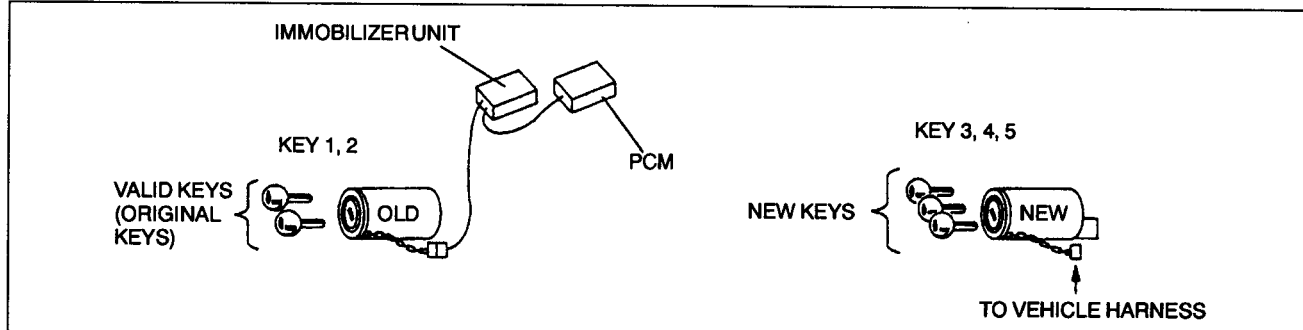
**Note**

- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Cut new transponder equipped key(s).
2. Using key 1, turn ignition switch to ON position then back to LOCK position **five times**. The key should not remain at ON position or LOCK position for **more than 1 second**.
  - (1) Turn key 1 back to ON position. Observe flashing of security light (**300 ms ON—300 ms OFF**) in instrument cluster.
  - (2) Turn key 1 to LOCK position and wait for **5 minutes** until security light decreases in flashing frequency to **1.2 seconds**.
  - (3) Input code word. (See 09-14-26 CODE WORD INPUT PROCEDURE.)
  - (4) Observe security light stops flashing and illuminates.
  - (5) Start engine with key 1. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (6) Turn key 1 to LOCK position and remove from steering lock.
3. Using key 2, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 2 to LOCK position and remove from steering lock.
4. Repeat Step 3 with key 3.
5. If there are 4—8 keys (valid and/or new keys), repeat Step 3.
6. Wait for **30 seconds** to quit reprogram mode.

### Steering Lock Replacement

When customer has brought two or more valid keys for old steering lock



YMU914WB8

**Note**

- When replacing the steering lock, the coil and keys should be replaced as a set.
- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Remove old steering lock.
2. Connect new steering lock to ignition switch connector.
3. Connect old steering lock to coil connector as shown in figure.
4. Insert key 1 into old steering lock.
5. Insert key 3 into new steering lock and turn to ON position then back to LOCK position **five times**. The key should not remain at ON position or LOCK position for **more than 1 second**.
  - (1) Turn key 3 back to ON position. Observe illumination of security light in instrument cluster.
  - (2) Turn key 3 to LOCK position. Observe security light goes out.

**Note**

- Operate next two steps **within 30 seconds** of Step 5-(2).

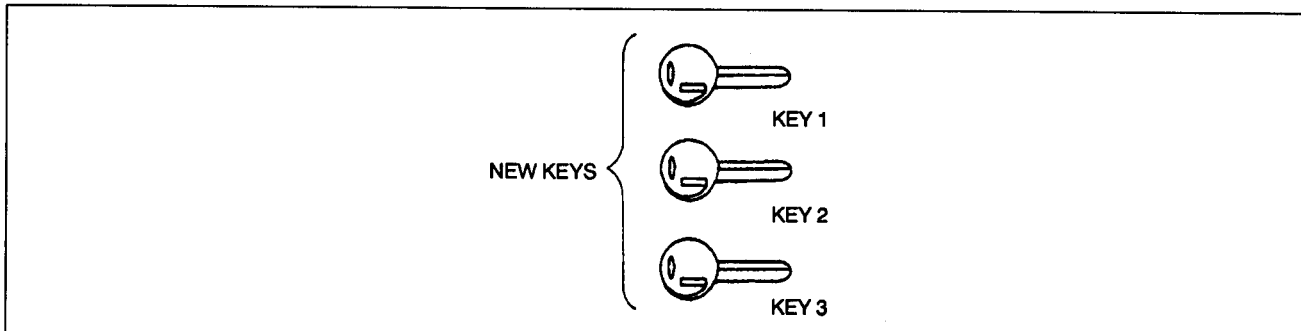
6. Remove key 1 from old steering lock and insert key 2 into old steering lock.
7. Using key 3 of new steering lock, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 3 to LOCK position.

**Note**

- Operate next two steps within 30 seconds of Step 7-(1).

8. Disconnect coil connector from old steering lock, and reconnect coil connector to new steering lock.
9. Using key 3 of new steering lock, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 3 to LOCK position and remove from steering lock.
10. Repeat Step 9 with key 4.
11. Repeat Step 9 with key 5.
12. Wait for **30 seconds** to quit reprogram mode.
13. Install new steering lock.

When customer has brought only one or no valid key (code word is required)



YMU914WB9

**Note**

- When replacing the steering lock, the coil and keys should be replaced as a set.
- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Replace steering lock.
2. Using key 1, turn ignition switch to ON position then back to LOCK position **five times**. Key should not remain at ON position or LOCK position for **more than 1 second**.
  - (1) Turn key 1 back to ON position. Observe flashing of security light (**300 ms ON—300 ms OFF**) in instrument cluster.
  - (2) Turn key 1 to LOCK position and wait for **5 minutes** until security light decreases in flashing frequency to **1.2 seconds**.
  - (3) Input code word. (See 09–14–26 CODE WORD INPUT PROCEDURE.)
  - (4) Observe the security light stops flashing and illuminates.
  - (5) Start engine with key 1. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (6) Turn key 1 to LOCK position and remove from steering lock.
3. Using key 2, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 2 to LOCK position and remove from steering lock.
4. Repeat Step 3 with key 3.
5. Wait for **30 seconds** to quit reprogram mode.

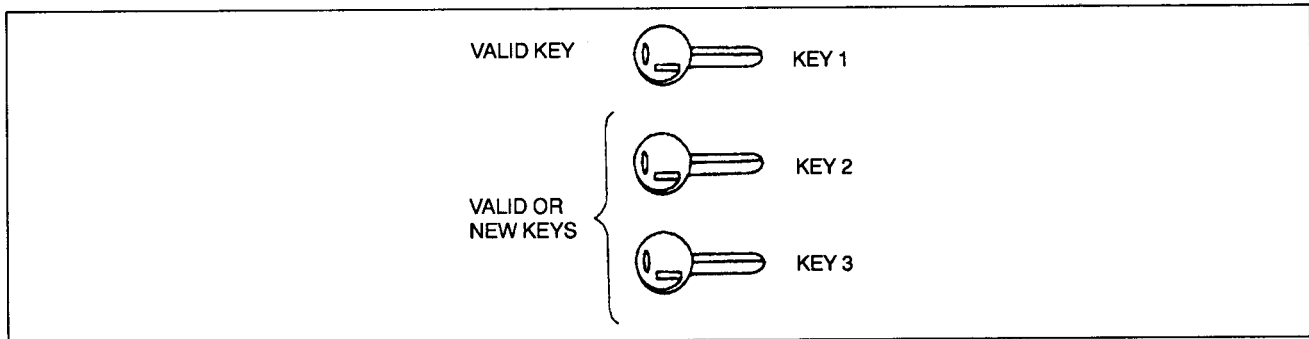
**Immobilizer Unit Replacement**

**When customer does not have valid key**

- PCM needs to be replaced with immobilizer unit. Perform “Both Immobilizer unit and PCM Replacement” of the IMMOBILIZER SYSTEM REPROGRAM PROCEDURE. (See 09–14–25 Both Immobilizer Unit and PCM Replacement.)

**When customer has brought at least one valid key (code word is required)**

09–14



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**Note**

- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Cut new transponder equipped key(s) if necessary.
2. Replace immobilizer unit. (See 09–14–19 IMMOBILIZER UNIT REMOVAL/INSTALLATION.)
3. Using key 1, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 1 to LOCK position and remove from steering lock.
4. Using key 2, turn ignition switch to ON position then back to LOCK position **five times**. The key should not remain at ON position or LOCK position for **more than 1 second**.
  - (1) Turn key 2 back to ON position. Observe flashing of security light (**300 ms ON—300 ms OFF**) in instrument cluster.
  - (2) Turn key 2 to LOCK position and wait for **5 minutes** until security light decreases in flashing frequency to **1.2 seconds**.
  - (3) Input code word. (See 09–14–26 CODE WORD INPUT PROCEDURE.)
  - (4) Observe the security light stops flashing and illuminates.
  - (5) Start engine with key 2. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (6) Turn key 2 to LOCK position and remove from steering lock.
5. Using key 1, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 1 to LOCK position and remove from steering lock.

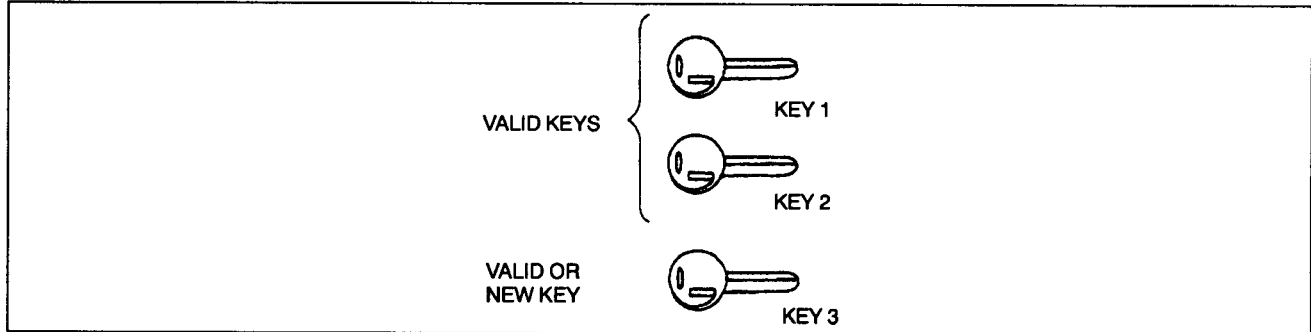
6. Repeat Step 5 with key 3.
7. If there are 4—8 keys (valid and/or new keys), repeat Step 5.
8. Wait for **30 seconds** to quit reprogram mode.

**PCM Replacement**

**When customer does not have valid key**

- Immobilizer unit needs to be replaced with PCM. Perform “Both Immobilizer unit and PCM Replacement” of the IMMOBILIZER SYSTEM REPROGRAM PROCEDURE. (See 09–14–25 Both Immobilizer Unit and PCM Replacement.)

**When customer has brought two or more valid keys**



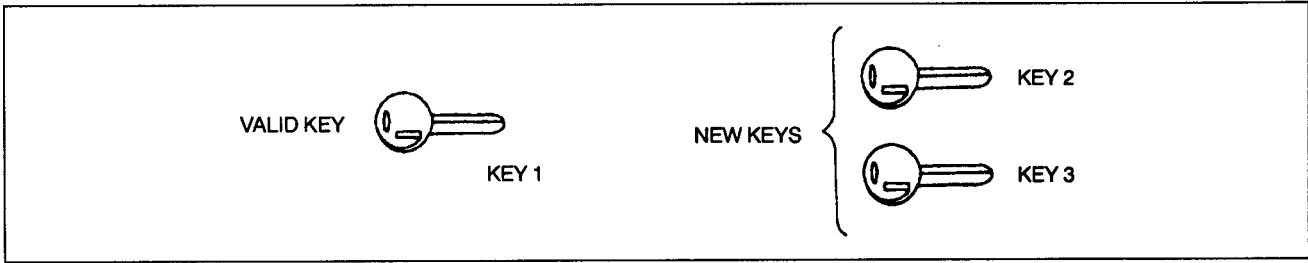
YMU914WBA

**Note**

- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Cut new transponder equipped key(s) if necessary.
2. Replace PCM. (See 01–40–6 PCM REMOVAL/INSTALLATION.)
3. Using key 1, turn ignition switch to ON position, and observe that security light illuminates (for **1—2 seconds**) in instrument cluster.
  - (1) Turn key 1 to LOCK position.
  - (2) Turn key 1 to ON position then back to LOCK position **six times**. The key should not remain at ON position or LOCK position for **more than 1 second**. It is particularly important to ensure that the 6th turn is done **within 1 second**.
  - (3) Remove key 1.
4. Using key 2, turn ignition switch to ON position. Observe that security light illuminates (for **1—2 seconds**).
  - (1) Turn key 2 to LOCK position and remove from steering lock.
5. Using key 1, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 1 to LOCK position and remove from steering lock.
6. Repeat Step 5 with key 3.
7. If there are 4—8 keys (valid and/or new keys), repeat Step 5.
8. Wait for **30 seconds** to quit reprogram mode.
9. After reprogramming, clear DTCs of PCM with NGS tester.

**When customer has brought only one valid key (code word is required)**



YMU014WBB

**Note**

- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Cut new transponder equipped key(s) if necessary.
2. Replace PCM. (See 01-40-6 PCM REMOVAL/INSTALLATION.)
3. Using key 1, turn ignition switch to ON position. Observe that security light illuminates (for **1—2 seconds**) in instrument cluster.
  - (1) Turn key 1 to LOCK position and remove from steering lock.
4. Using key 2, turn ignition switch to ON position then back to LOCK position **six times**. The key should not remain at ON position or LOCK position for **more than 1 second**. It is particularly important to ensure that the 6th turn is done **within 1 second**.
  - (1) Observe flashing of security light (**300 ms ON—300 ms OFF**) in instrument cluster.
  - (2) Wait for **5 minutes** until security light decreases in flashing frequency to **1.2 seconds**.
  - (3) Input code word. (See 09-14-26 CODE WORD INPUT PROCEDURE.)
  - (4) Observe the security light stops flashing and illuminates.
  - (5) Turn key 2 to ON position. Observe that security light illuminates (for **1—2 seconds**).
  - (6) Turn key 2 to LOCK position and remove from steering lock.
5. Using key 3, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
  - (1) Turn key 3 to LOCK position and remove from steering lock.
6. Repeat Step 5 with key 1.
7. If there are 4—8 keys (valid and/or new keys), repeat Step 5.
8. Wait for **30 seconds** to quit reprogram mode.
9. After reprogramming, clear DTC of PCM with NGS tester.

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**Both Immobilizer Unit and PCM Replacement**

**When customer has brought two or more valid keys**

**Note**

- Keys may be valid or new keys.
- When an error occurs in Steps 1 to 4, repeat the procedure from Step 1.
- When an error occurs in Step 5, perform the "Reprogram error recovery procedure for both immobilizer unit and PCM replacement".
- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Cut new transponder equipped key(s) if necessary.
2. Replace immobilizer unit and PCM. (See 09-14-19 IMMOBILIZER UNIT REMOVAL/INSTALLATION.) (See 01-40-6 PCM REMOVAL/INSTALLATION.)
3. Using key 1, turn ignition switch to ON position. Observe security light illuminates and then goes out in instrument cluster.
  - (1) Turn key 1 to LOCK position. Observe security light blinks once repeatedly.
4. Using key 2, turn ignition switch to ON position. Observe security light illuminates and then goes out.
  - (1) Turn key 2 to LOCK position. Observe security light blinks twice repeatedly.
5. Using key 3, turn ignition switch to ON position. Observe security light illuminates and then goes out.
  - (1) Turn key 3 to LOCK position. Observe security light blinks three times repeatedly.
6. If there are 4—8 keys (valid and/or new keys), repeat Step 4.
7. Wait for **30 seconds** to quit reprogram mode.
8. After reprogramming, clear DTCs of PCM with NGS tester.



**Reprogram error recovery procedure for both immobilizer unit and PCM replacement**

**Note**

- If no specific time interval is given, each step should be performed **within 30 seconds** of the previous step.

1. Using key 1, start engine. After security light illuminates for **1—2 seconds**, turn key 1 to LOCK position.
2. Using key 1, turn ignition switch to ON position then back to LOCK position **five times**. Key should not remain at ON position or LOCK position for **more than 1 second**.
3. Using key 1, turn ignition switch to ON position (security light illuminates).
4. Turn key 1 to LOCK position and remove from steering lock (security light goes out).
5. Using key 2, start engine. Observe that security light illuminates (for **1—2 seconds**) and engine continues to run.
6. Turn key 2 to LOCK position and remove from steering lock.
7. Repeat Steps 5 and 6 with key 1.
8. Repeat Steps 5 and 6 with key 3.
9. If there are 4—8 keys (valid and/or new keys), repeat Steps 5 and 6.
10. Wait for **30 seconds** to quit reprogram mode.
11. After reprogramming, clear DTCs of PCM with NGS tester.

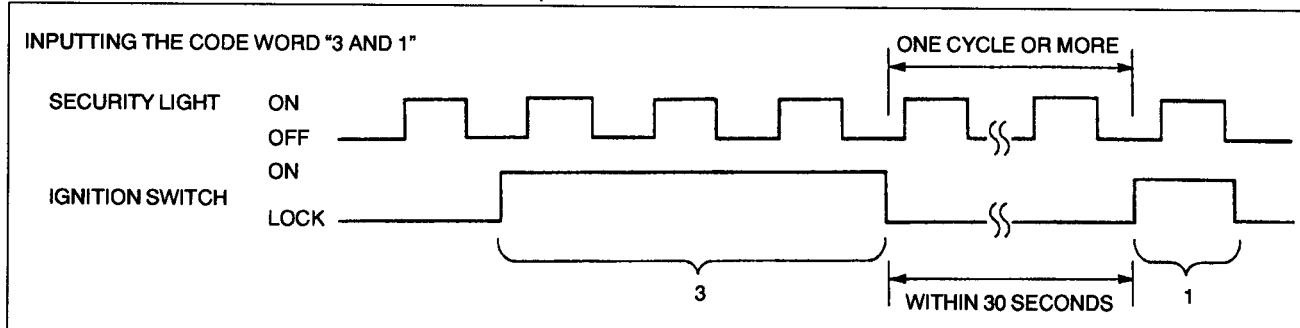
**CODE WORD INPUT PROCEDURE**

Z5U09146700W04

**Note**

- A code word is composed of eight digits from 1—9 and is part of the immobilizer unit from the manufacturer. Each unit has its own code word. To obtain the code word, you need to have the immobilizer serial number, then ask the distributor.
- To input the code word into the PCM, turn the ignition key and count the number of flashes of the security light. The calculation of the number of flashes of the security light comes with the timing of the turning of the key.

1. Wait for **5 minutes** until security light flashes slowly. (**300 ms ON—300 ms OFF → 1.2 s ON—1.2 s OFF**)
2. Input the code word as shown in the example below.



YMU914WBC

- (1) Turn ignition switch to ON position while security light is off and count three illumination cycles. As the light goes out after the third illumination, turn key to LOCK position.
- (2) Wait at least one illumination cycle and **within 30 seconds** of going to LOCK position, turn ignition switch to ON position while security light is off and count one illumination cycle. As the light goes out after the first illumination, turn key to LOCK position.
- (3) Repeat Step (2) for rest of six digits.
3. When code word is registered correctly in the PCM, the security light stops flashing and illuminates.
4. As soon as the security light stops flashing and illuminates, the following immobilizer system reprogram procedure should be started.

**Note**

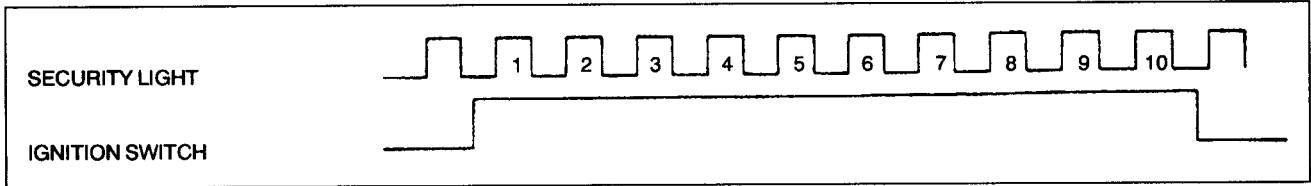
- If the code word is not input correctly, the security light goes out after all eight digits are input. In this case, perform the "Code Word Input Error Recovery Procedure".

Examples of Incorrect Input of Code Word

Note

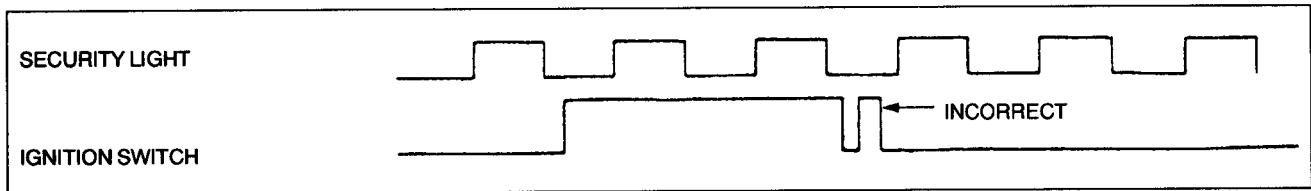
- The security light must flash one or more times between the digits of the code word.
- If the code word is input incorrectly, the security light goes out. Turn the ignition switch to ON position then back to LOCK position **five times** (except PCM replacement) or **six times** (PCM replacement) and repeat the procedure to input all eight figures for the code word.
- When an error occurs during the reprogram procedures except when both the immobilizer unit and PCM are replaced, repeat the procedure from Step 1. If you still cannot reprogram, confirm how many keys can start the engine. Then, perform the key replacement or addition reprogram procedure according to the valid key number.

- The security light flashes ten or more times while the ignition switch is at ON position.



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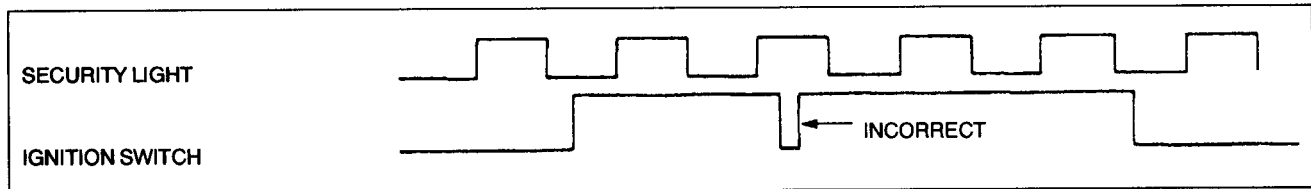
- The ignition switch is turned to ON position and LOCK position while the security light is off.



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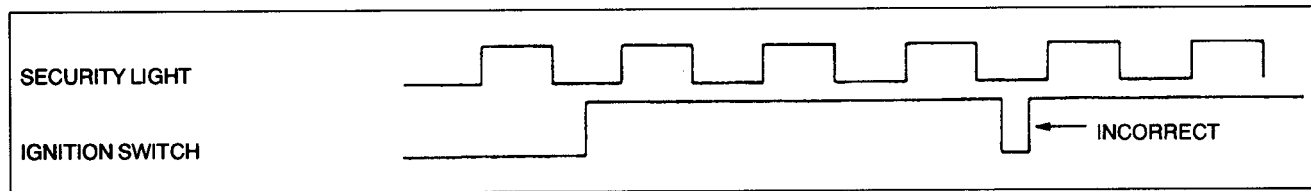
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- The ignition switch is turned to LOCK position and ON position while the security light is on.



YMU914WBF

- The ignition switch is turned to LOCK position and ON position while the security light is off.



YMU914WBG

- The unmatching code word is input to the immobilizer unit.

Code Word Input Error Recovery Procedure

1. Turn ignition switch to ON position then back to LOCK position **five times** (except PCM replacement) or **six times** (PCM replacement). The key should not remain at ON position or LOCK position for **more than 1 second**.
2. Repeat the "CODE WORD INPUT PROCEDURE".