# TOYOTA

**Technical Service BULLETIN**

*October 18, 2004*

**TSB**

Title:
## M.I.L. "ON" DTC P3191, P3190, AND/OR P0A0F

Models:
## '04 – '05 Prius

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**TSB REVISION NOTICE:**
- **February 22, 2005: Applicable Vehicles has been updated to include 2005 model year.**
- **November 19, 2004: The Caution in Repair Procedure B Step 1 was updated.**

**The previous TSB should be discarded.**

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**TSB UPDATE NOTICE:**

**The information contained in this TSB supercedes TSB No. EG027–04.**
**TSB No. EG027–04 is now obsolete and should be discarded.**

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**Introduction**

Some customers may report a M.I.L. and Master Warning Light "ON" condition that may occur after slowing down and stopping, and when attempting to restart. The vehicle may experience abnormally low power output condition or inability to "Ready On." The following Diagnostic Trouble Codes may be found: P3191 "Engine Does Not Start," P3190 "Poor Engine Power," and/or P0A0F "Engine Failed To Start." Reprogram the Engine and HV Hybrid ECU to improve this condition.

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**NOTE:**

**Updating the HV ECU as part of Special Service Campaign (SSC) 40D is required to fully correct the P3191, P3190 and/or P0A0F condition. Verify that SSC 40D has been performed prior to reprogramming of the Engine Control Module (ECM) (SAE term: Powertrain Control Module/PCM).**

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**Applicable Vehicles**

- **All 2004** model year **Prius** vehicles.
- **2005** model year **Prius** vehicles produced **BEFORE** the Production Change Effective VINs shown on the following page.

**Warranty Information**

| OP CODE | DESCRIPTION | TIME | OFP | T1 | T2 |
|---------|-------------|------|-----|----|----|
| EG4017 | Reprogram Prius Engine ECU | 0.8 | 89661–47070 89661–47071 89661–47100 | 8A | 99 |

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**Applicable Warranty*:**

**This repair is covered under the Toyota Specified Major Emission Control Component Warranty. This warranty is in effect for 96 months or 80,000 miles, whichever occurs first, from the vehicle's in-service date.**

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\* Warranty application is limited to correction of a problem based upon a customer's specific complaint.

*Toyota Supports ASE Certification*

**Production Change Information**

| MODEL | PLANT | PRODUCTION CHANGE EFFECTIVE VIN |
|---|---|---|
| Prius | Plant 1 | JTDKB2#U#50133248 |
| | | JTDKB2#U#53013255 |
| | Plant 2 | JTDKB2#U#57003414 |

**Parts Information**

| PREVIOUS PART NUMBER | CURRENT PART NUMBER | PART NAME | QTY |
|---|---|---|---|
| N/A | 00451–00001–LBL | Authorized Modification Label | 1 |
| 89661–47070<br>89661–47071<br>89661–47100 | 89661–47101* | Computer, Engine Control | N/A |

\* The Engine ECU should **NOT** be replaced as a part of this repair procedure.

> **NOTE:**
>
> **Authorized Modification Labels may be ordered in packages of 25 from the Materials Distribution Center (MDC) through the Dealer Daily Dealer Support Materials System, or by calling the MDC at 1–800–622–2033.**

**Calibration ID Information**

| CURRENT CALIBRATION ID | NEW CALIBRATION ID |
|---|---|
| 34702000<br>34702100<br>34702200<br>34705000 | 34705100 |

**Required SSTs**

| SPECIAL SERVICE TOOLS (SSTs) | | PART NUMBER | QUANTITY |
|---|---|---|---|
| Toyota Diagnostic Tester Kit* | | 01001271 | 1 |
| CAN Interface Module Kit* | | 01002744 | 1 |
| 12 Megabyte Diagnostic Tester Program Card with version 12.01a (R040, 11/19/04) Software (or later)* | | 01002593-005 | 1 |
| Prius Automatic Charger** | | 00002–YA122–01 | 1 |
| Midtronics Battery Tester* | | 00002–MP815–T | 1 |

\* Essential SSTs.
\*\* Essential SST. Supercedes 00002–YA121–01. P/N 00002–YA121–01 may still be used (with switch in 10 AMP position).
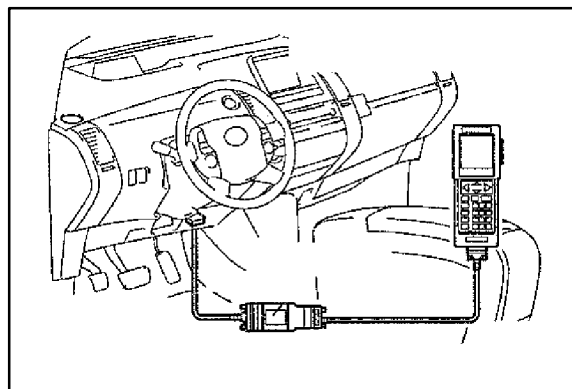
> **NOTE:**
>
> **Additional Diagnostic Tester Kits, CAN Interface Modules, Program Cards or other SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.**

**Repair Procedure A**

> **CAUTION:**
>
> **USING ANY PREVIOUS VERSIONS OF VERSION 12.01a SOFTWARE FOR REPROGRAMMING MAY RESULT IN IRREPARABLE DAMAGE TO THE ENGINE ECU (you MUST use R040, dated 11/19/04 release, or newer)! Please refer to the verification procedure in step 6 below.**

### Confirming the Current Engine ECU Calibration

1. Confirm that the vehicle has undergone Pre–Delivery Service (PDS).

2. Connect the Midtronics Tester and check the condition of the 12 volt auxiliary battery. Charge if necessary before proceeding.

**Repair Procedure A** (Continued)

3. Attach the 12 volt Prius Automatic Charger (P/N 00002–YA122–01).

> **NOTE:**
>
> **If Prius Automatic Battery Charger P/N 00002–YA122 is used, ensure that the charger is set to the "HIGH" current setting.**

4. Connect the Diagnostic Tester with the CAN Interface Module to the DLC3 connector.

5. Turn on the Diagnostic Tester.

6. Press the "YES" button on the Diagnostic Tester.

   The number "040," or greater, should appear in the upper right–hand corner.

> **CAUTION:**
>
> **Confirm that the correct version of the software (12.01a) and calibration update is loaded into the Diagnostic Tester, otherwise,**
> **IRREPARABLE DAMAGE WILL OCCUR TO THE ENGINE ECU.**
>
> **The date shown under "Version 12.01a" MUST be "11/19/04" or more recent.**

> **IF NOT:  STOP!!!**
>
> **Update Diagnostic Tester with the newest version of software – 12.01a.**
>
> **The date shown must be "11/19/04" or newer.**

```
                           ( 040 )

              TOYOTA
         DIAGNOSTIC TOOLSET
           PROGRAM CARD

            Version 12.01a


            ( 11/19/04 )

          PRESS [ENTER]
```

7. Insert key into key slot.

8. Push the "POWER" switch twice without depressing the brake pedal and confirm that the hybrid system is "IG–ON."
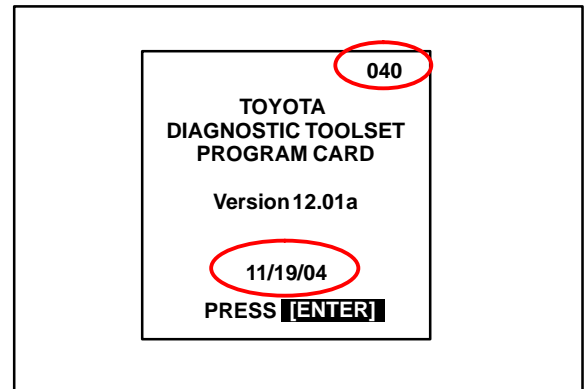
> **NOTE:**
> • **Do not the start the hybrid system. If the "READY" light is on, turn off and repeat step 7.**
> • **Confirm that the "POWER" switch indicator is _amber_ in color.**

**Light Should Be Amber**
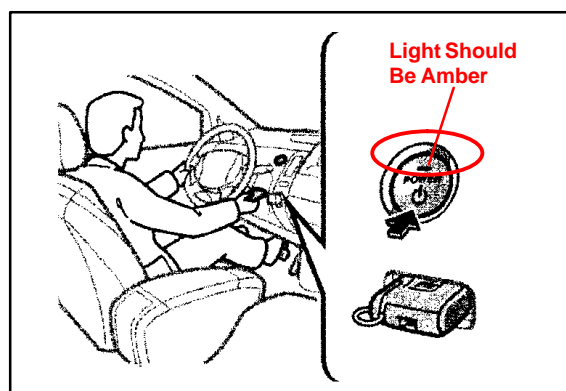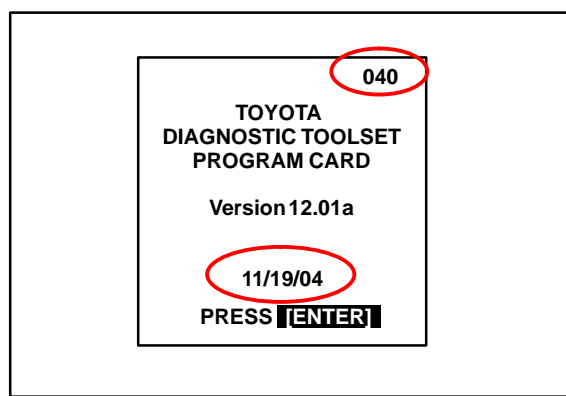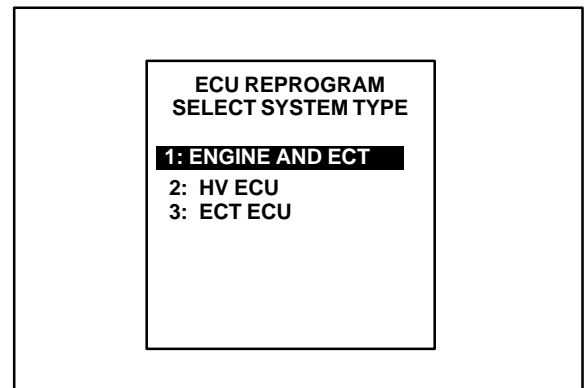
**Repair Procedure A**
(Continued)

9. Press the "ENTER" key on the Diagnostic Tester (after the screen is displayed and the newest version of software, **12.01a**, is confirmed, as shown in step 6 on previous page).

```
                        040

              TOYOTA
      DIAGNOSTIC TOOLSET
         PROGRAM CARD

         Version 12.01a


           11/19/04

        PRESS  [ENTER]
```

10. Select "3: ECU REPROGRAM" from the "APPLICATION SELECT" menu.

```
      *APPLICATION SELECT*


      1:  DIAGNOSIS
      2:  CUSTOMIZE
      3:  ECU REPROGRAM
```
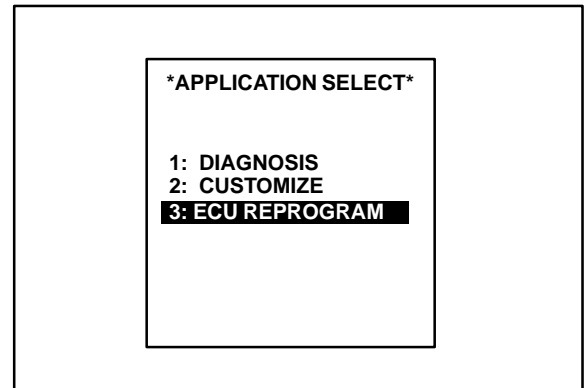
11. Select "1. ENGINE AND ECT" from the "ECU REPROGRAM SELECT SYSTEM TYPE" menu.

```
         ECU REPROGRAM
       SELECT SYSTEM TYPE

      1:  ENGINE AND ECT
      2:  HV ECU
      3:  ECT ECU
```

12. Select "2. CURRENT ECU CAL" from the "ECU REPROGRAM MAIN MENU."

```
         ECU REPROGRAM
           MAIN MENU
        SYS: ENGINE ECU

      1:  GET CAL FROM PC
      2:  CURRENT ECU CAL
      3:  UPDATE ECU CAL
      4:  CAL ON TESTER
      5:  CLEAR CAL DATA
```

**Repair
Procedure A**
(Continued)

13. Press the "YES" key.

```
*Verify Connections*

Connect the tester.
Turn IG ON



DLC3 Cable
[YES] to continue
```
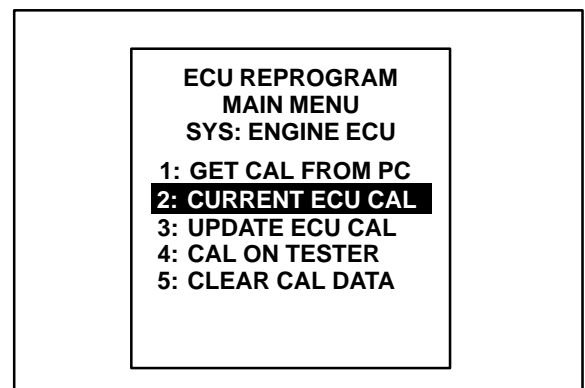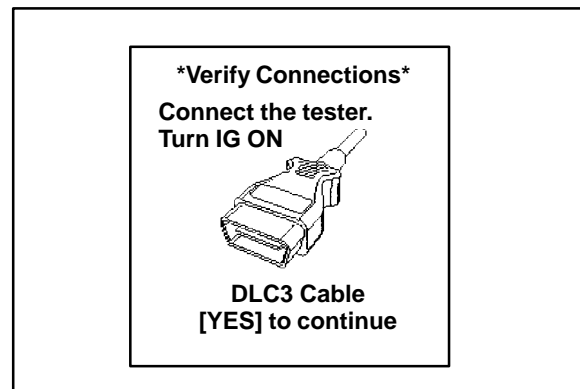
14. The Diagnostic Tester is currently confirming that the CAN Interface Module has been updated. If not, the next three screens will be displayed. If the CAN Interface Module has been updated, proceed to Step 18.

```
INITIALIZING CAN
INTERFACE

PLEASE WAIT
```

15. Press the "ENTER" key.

```
Update available
for this CAN
module.

Procedure will
take 3 minutes.

PRESS [ENTER]
```
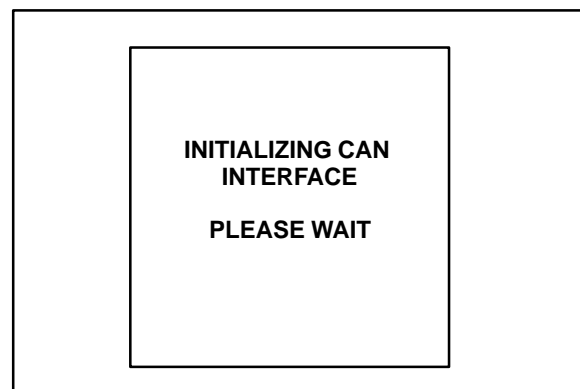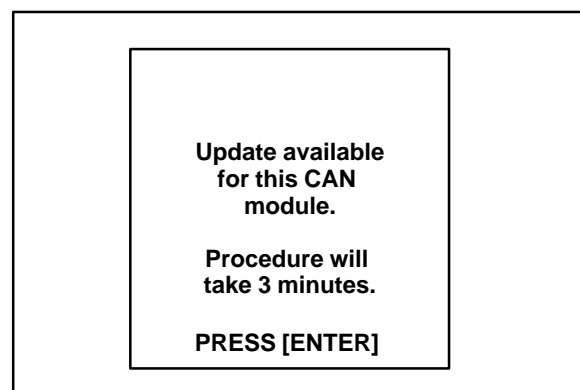
16. The CAN Interface Module update takes approximately 3 minutes.

```
UPDATE CAN MOD


REPROGRAMMING

TIME 00:00:02
```
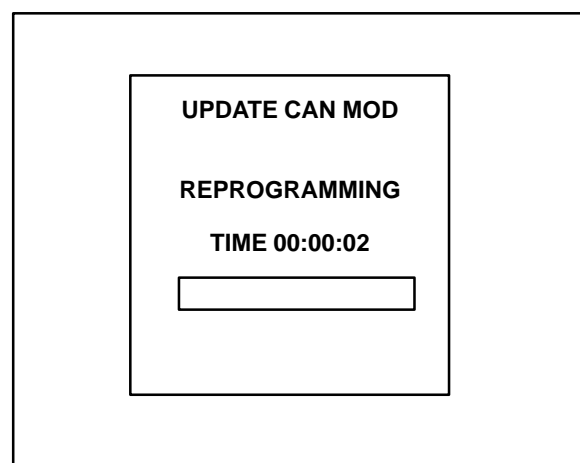
**Repair Procedure A**
(Continued)

17. Press the "EXIT" key.

```
UPDATE COMPLETE
CAN Module

Version 1.0
Installed



PRESS [EXIT]
```

18. Confirm that the Diagnostic Tester displays one of the following calibration IDs:

   • 34702200, 34702100, 34702000, or 34705000.

> **NOTE:**
>
> **If the display shows a calibration ID of 34705100 or later, then the ENGINE ECU has already been reprogrammed. Press the "EXIT" key and turn off the Diagnostic Tester.  Proceed to Recalibration Label Installation (page 12 of this TSB).**

```
CURRENT ECU CAL

CALIBRATION ID

34702100*



PRESS [ENTER]
```

**\*Actual Diagnostic Tester Screen will Show more than one Calibration Number**

19. Press the "ENTER" key to return the main menu.

**Repair Procedure B**

**Reprogramming the Engine ECU**

1. Confirm that the auxiliary battery is fully charged using the Midtronics Battery Tester before proceeding. The Prius Automatic Charger **MUST** be connected during reprogramming.

> **CAUTION:**
>
> **Do not use a jumper battery in place of the Prius Automatic Charger or IRREPARABLE DAMAGE TO THE ENGINE ECU MAY RESULT.**

```
ECU REPROGRAM
MAIN MENU

1: GET CAL FROM PC
2: CURRENT ECU CAL
3: UPDATE ECU CAL
4: CAL ON TESTER
5: CLEAR CAL DATA
```
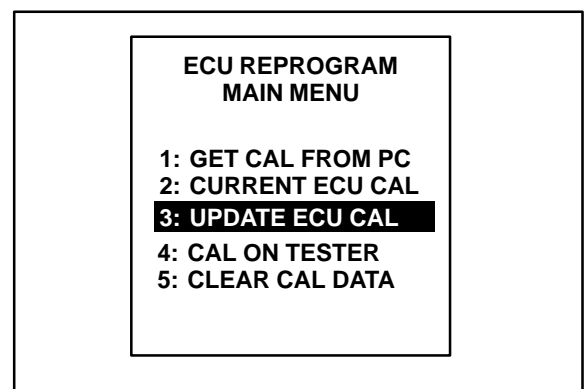
2. Select "3. UPDATE ECU CAL" from the "ECU REPROGRAM MAIN MENU."

**Repair Procedure B** (Continued)

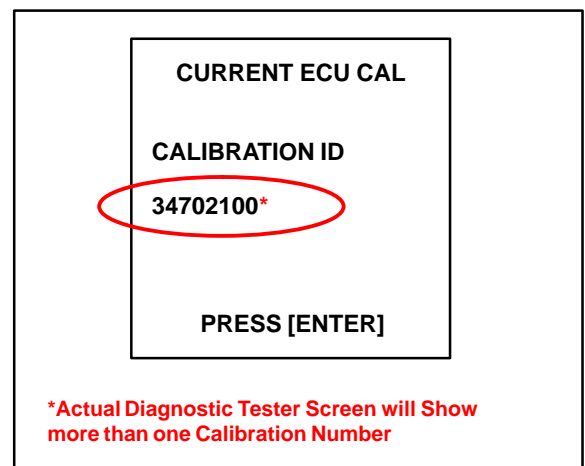3. Select "1: IN–SERVICE ECU" from "UPDATE ECU CAL SELECT ECU TYPE" menu.

```
┌─────────────────────────────┐
│                             │
│    UPDATE ECU CAL           │
│    SELECT ECU TYPE          │
│                             │
│  ▐1: IN–SERVICE ECU▌        │
│    2: NEW ECU               │
│                             │
│                             │
│                             │
└─────────────────────────────┘
```

4. Confirm the following before proceeding:

   - IG is "OFF." Push the "POWER" switch once **without** depressing brake pedal until the indicator lamp turns off.

   - Engine hood is opened.

   - All electrical accessories are OFF (i.e., audio systems, dome lamp, navigation system, air conditioner, etc.).

   - The parking brake is applied.

```
┌─────────────────────────────┐
│    UPDATE ECU CAL           │
│  – PLEASE CONFIRM           │
│    IG OFF                   │
│  – HOOD OPEN                │
│  – ALL ELECTRICAL           │
│    ACCESSORIES ARE          │
│    OFF                      │
│  – Parking Brake Applied    │
│                             │
│  PRESS [YES] OR [NO]        │
└─────────────────────────────┘
```

5. Press the "YES" key.

6. Confirm that the Diagnostic Tester displays the appropriate vehicle type. If it is not the correct vehicle, please refer to TSB No. SS002–01 "ECU Flash Reprogramming Process" to update the Diagnostic Tester.

7. Press the "ENTER" key.

```
┌─────────────────────────────┐
│                             │
│    UPDATE ECU CAL           │
│                             │
│  ▐04 PRIUS                  │
│   NHW20L ENG: 1NZ–FXE       │
│   SYS: ENG & ECT▌           │
│                             │
│     SELECT CAL TO           │
│     UPDATE ECU              │
│   PRESS [ENTER]/[EXIT]      │
└─────────────────────────────┘
```

8. Confirm that the Diagnostic Tester displays "34705100" or later.

> **NOTE:**
>
> **If the Diagnostic Tester displays "YES" instead of "NO," the Engine ECU has been reprogrammed already. Press the "EXIT" key and turn off the Diagnostic Tester. Proceed to Recalibration Label Installation (page 12 of this TSB).**
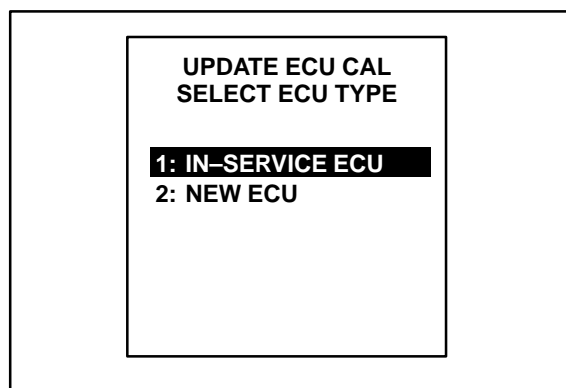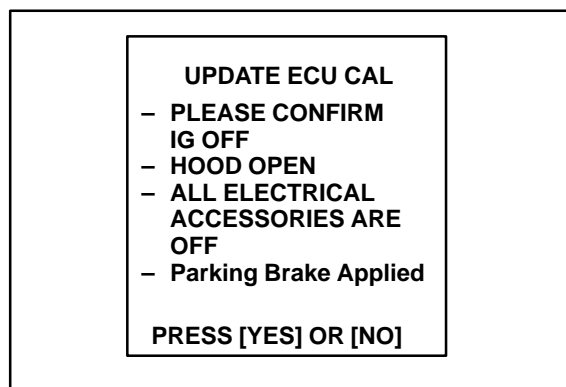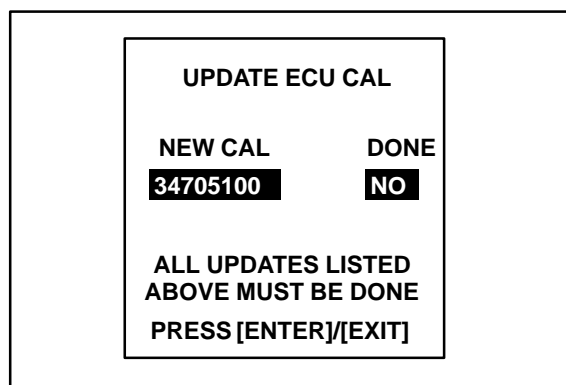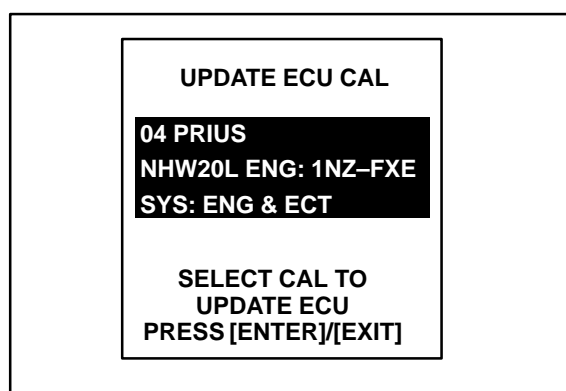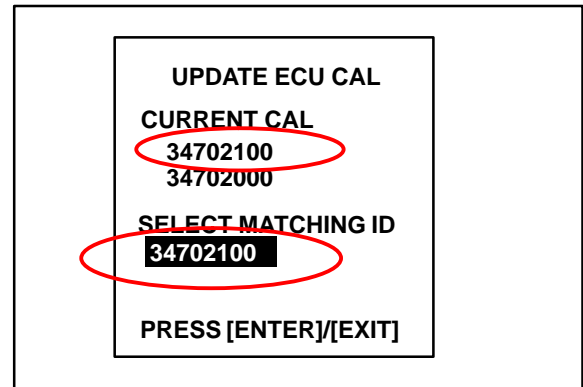
```
┌─────────────────────────────┐
│                             │
│    UPDATE ECU CAL           │
│                             │
│   NEW CAL          DONE     │
│  ▐34705100▌       ▐NO▌      │
│                             │
│   ALL UPDATES LISTED        │
│   ABOVE MUST BE DONE        │
│   PRESS [ENTER]/[EXIT]      │
└─────────────────────────────┘
```

**Repair
Procedure B**
(Continued)

9. Press the "ENTER" key.

10. Select the current matching calibration ID that is currently on the vehicle.

11. Press the "ENTER" key.

```
UPDATE ECU CAL

CURRENT CAL
  34702100
  34702000

SELECT MATCHING ID
  34702100


PRESS [ENTER]/[EXIT]
```
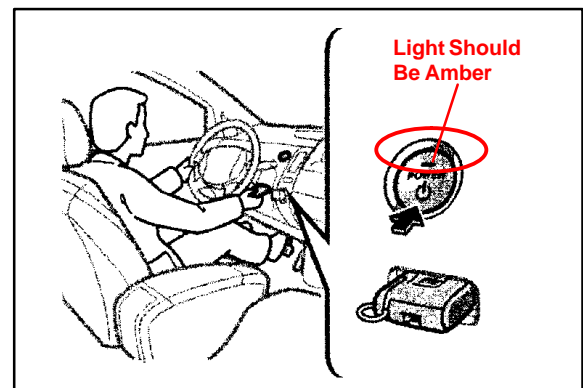
**NOTE:**

**If you select the wrong calibration ID, the Diagnostic Tester will display the screen shown to the right. Please select the correct calibration ID again after pressing the "ENTER" key.**

```
UPDATE ECU CAL

   ERROR


  INCORRECT
 CALIBRATION
  SELECTED


 PRESS [ENTER]
```
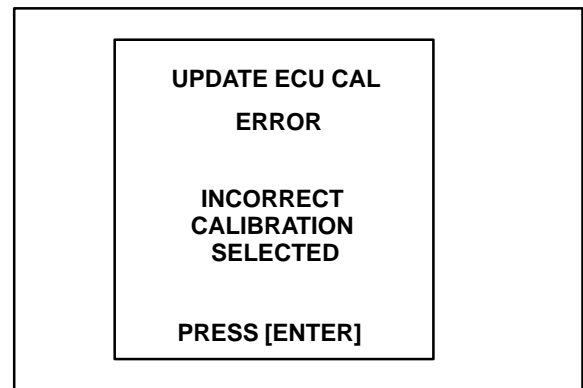
12. Push the "POWER" switch twice **without** depressing the brake pedal and confirm that the hybrid system is "IG–ON."

**NOTE:**
*   **Do not start the hybrid system if the "READY" light is on. You will need to turn the vehicle OFF and repeat step 12.**
*   **Confirm that the power switch indicator is _amber_ in color.**

Light Should Be Amber

**Repair Procedure B**
(Continued)

13. Press the "YES" key.

> **NOTE:**
>
> **Do not do anything that will increase an electrical load to the vehicle after pressing the "YES" key.**

```
UPDATE ECU CAL

PLEASE TURN IG ON TO
START REPROGRAM
CAUTION!




PROGRAM?
PRESS [YES] OR [NO]
```

> **CAUTION:**
> - **The progress bar will display after approximately one minute.**
> - **It will take approximately 24 minutes to complete the reprogramming.**
> - **During the reprogramming, do not touch the Diagnostic Tester and the cable in order to avoid reprogramming failures.**
> - **After reprogramming, warning lights may be displayed on the dash and multi–display. DTCs may be set in the memory of various ECUs. This is normal and the codes must be cleared prior to release of the vehicle.**

```
UPDATE ECU CAL


REPROGRAMMING

TIME 00:05:15

[███        ]
```
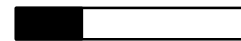
14. After approximately 24 minutes, the Diagnostic Tester will display the screen shown at right.

15. Push the "POWER" switch until the indicator lamp turns off without depressing the brake pedal.

16. Press the "ENTER" key.

```
UPDATE ECU CAL


REPROGRAM COMPLETE

PLEASE TURN IG OFF



PRESS [ENTER]
```

17. Confirm that the Diagnostic Tester displays "34705100" (or a newer calibration) and "YES."

18. Press the "EXIT" key.

```
UPDATE ECU CAL


NEW CAL          DONE

34705100         YES


ALL UPDATES LISTED
ABOVE MUST BE DONE

PRESS [ENTER]/[EXIT]
```
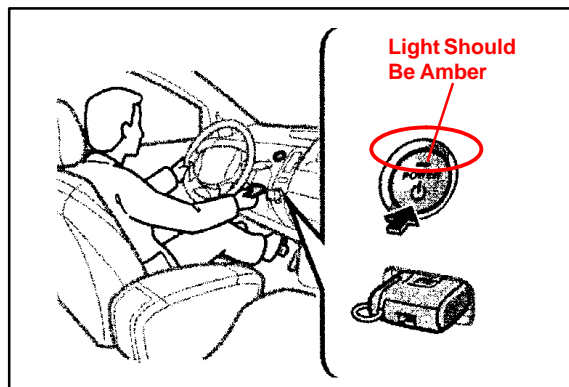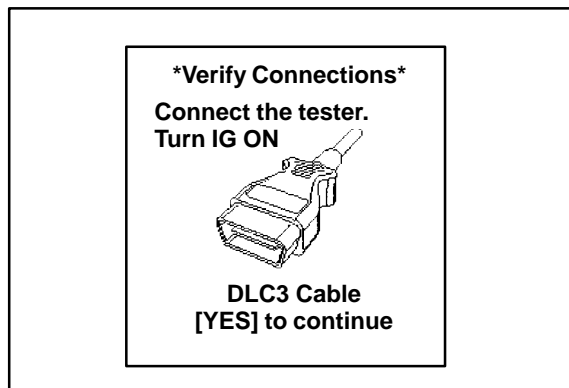
**Repair
Procedure B**
(Continued)

19. Push the "POWER" switch twice without the brake pedal depressed and confirm that the hybrid system is "IG–ON."
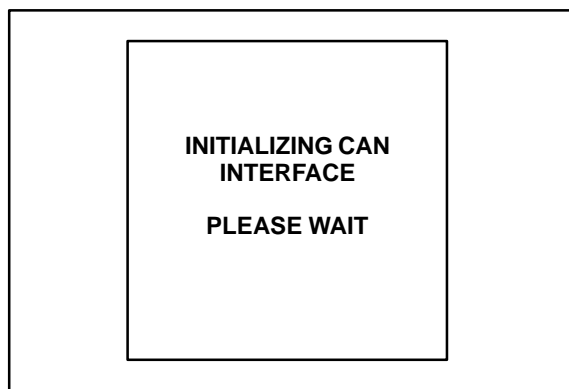
> **NOTE:**
> • **Do not start the hybrid system in "READY" mode.**
> • **Power switch indicator must be <u>amber</u> in color.**

**Light Should Be Amber**

20. Press the "YES" key.

**\*Verify Connections\***

**Connect the tester.
Turn IG ON**

**DLC3 Cable
[YES] to continue**

21. The Diagnostic Tester is establishing communication with the Engine ECU.

**INITIALIZING CAN
INTERFACE**

**PLEASE WAIT**

22. Select "2. CURRENT ECU CAL" from the "ECU REPROGRAM MAIN MENU."

**ECU REPROGRAM
MAIN MENU
SYS: ENGINE ECU**

**1: GET CAL FROM PC
2: CURRENT ECU CAL
3: UPDATE ECU CAL
4: CAL ON TESTER
5: CLEAR CAL DATA**
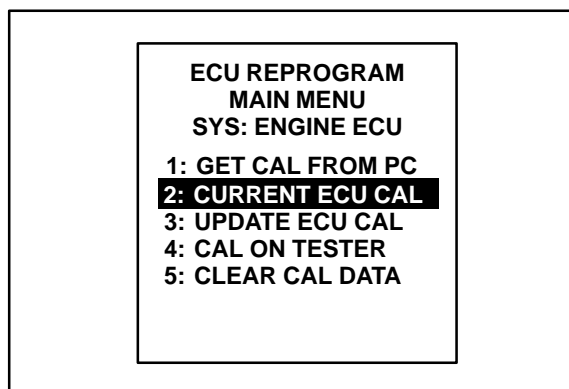
**Repair Procedure B** (Continued)

23. Confirm that the Diagnostic Tester displays the correct calibration ID: 34705100 (or a newer calibration).

24. Press the "ENTER" key.

25. Turn off the Diagnostic Tester.

26. Push the "POWER" switch once without depressing the brake pedal to turn ignition off.

27. Clear any DTC codes that have been set.

```
CURRENT ECU CAL

CALIBRATION ID

34705100


↑/↓ to Scroll
PRESS [ENTER]
```
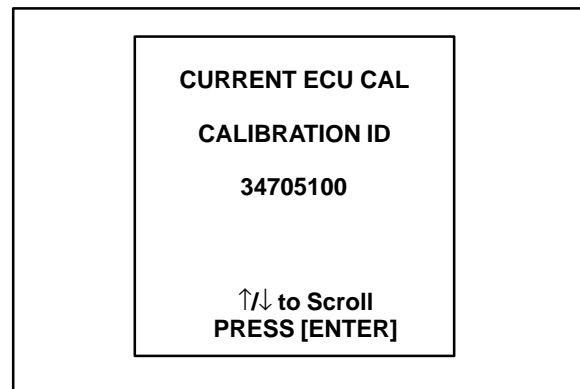
**Recalibration Label Installation**

1. Install the Recalibration (Authorized Modifications) Label.

   A. Using a permanent marker, write the following information on the recalibration label:

   • ECU part number 89661–47101 (or newer part number).

   • Calibration number 34705100 (or newer calibration).

   • Dealer code.

   • Repair date.

   • Change authority (this TSB No.).

   B. Install the Recalibration Label on the underside of the hood in front of the driver (see illustration).



Location of Authorized Modifications Label on 2004 Prius

Replacement ECM (PCM) Part Number

Calibration ID(s)

Dealer Code

TSB Number

Date Completed

**TOYOTA MOTOR CORPORATION**
**AUTHORIZED MODIFICATIONS**
THE FOLLOWING MODIFICATIONS HAVE BEEN MADE:
*89661–47101*
*34705100*
THESE MODIFICATIONS HAVE BEEN APPROVED AS APPROPRIATE BY EPA AND CARB
DEALER CODE:                    DATE:
CHANGE AUTHORITY: *TSB EG047–04*