TOYOTA

Technical Service BULLETIN

December 7, 2001

Title:

WINDSHIELD WIPER BLADE MAINTENANCE AND CLEANING

Models:

All Models & All Years Through Current

TSB

BODY
REVISED
BO030-01

TSB REVISION NOTICE:

July 13, 2004: The Applicable Vehicles has been changed to all models and all years through current.
All previous versions of this TSB should be discarded.

Introduction

The following procedures are recommended to maintain windshield wiper blade performance.

Applicable Vehicles

- **All models and model years through current.**

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Maintenance, Cleaning and Use

Recommendations for Windshield Wiper Maintenance, Cleaning and Use:

1. Scheduled Maintenance
   - Check wiper rubber blades every 4 – 6 months or 7,500 miles for wear, cracking and contamination.
   - Clean glass and rubber wiper blades if blades are not clearing glass adequately. If this does not correct the problem, then replace the rubber elements.
2. Cleaning Procedure
   - Wiper Rubber: Bugs, dirt, sap and road grime on blades will cause streaking. Clean wiper rubber of road and environmental debris using cloth or paper towel soaked with windshield washer fluid or mild detergent.
   - **DO NOT USE** fuel, kerosene, or petroleum based products to clean rubber wiper blades.
   - Windshield: Bugs, road grime, sap and car wash wax treatments decrease wiper performance.
   - Rinse windshield with water and apply non–abrasive cleaner, such as Bon–Ami (www.faultless.com), with a sponge.

NOTE:

Make sure to use plenty of water with all powder based cleaners so the glass is not scratched.

Maintenance, Cleaning and Use (Continued)

3. Contributors to Poor Performance/Decreased Rubber Blade Life (require rubber replacement)
   - Dusty areas cause the rubber edge to wear quickly.
   - Sand and salt used for road conditioning during winter causes the edge to wear quickly, so areas with significant snowfall require more frequent wiper replacement.
   - Heat and time cause the rubber to become excessively “permanent set,” so the rubber does not turn over, resulting in streaking and/or unwiped areas on the glass.
   - Rubber is easily cut or torn while using ice scrapers on the glass.
   - Rubber can be torn when pulling blades off a frozen windshield.
   - Using wipers instead of an ice scraper to remove frost and ice from the windshield during a car warm up can dull, nick, or tear the rubber.
   - Banging wiper on the glass to remove ice & snow can cause the blade to bend and rubber to come out of the blade providing the potential to scratch the glass.
   - Ice forms in wiper blade pin joints, which causes streaking and unwiped areas. To remove ice from pin joints, compress the blade and rubber with your hand to loosen the frozen joints. To prevent this condition, use winter blades with a rubber cover.

TOYOTA

Technical Service BULLETIN

February 4, 2000

Title:

FRONT LICENSE PLATE BRACKET INSTALLATION

Models:

'00 MR2 Spyder

TSB

Introduction

The 2000 model year MR2 Spyder front license plate bracket and three attaching screws are placed in the glovebox of the vehicle at the assembly plant. For states that require a front license plate, install the bracket on the front bumper cover during Pre–Delivery Service (PDS) according to the following procedures.

Applicable Vehicle

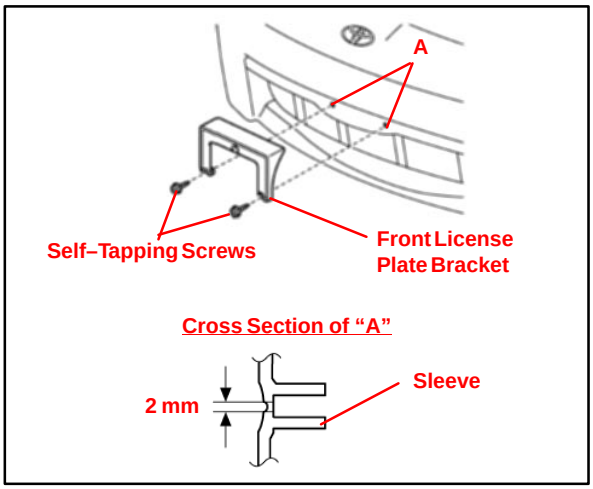
- **2000** model year **MR2 Spyder**

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Installation Procedure

1. Drill two holes, 2 mm (0.078 in.) diameter, at dimples “A” on the front bumper.

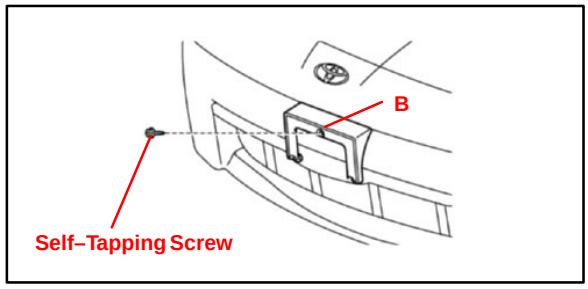


NOTE:
Do NOT drill holes oversize.

2. Using two self–tapping screws, install the front license plate bracket on the front bumper.

NOTE:
Screw the driver’s side self–tapping screw in first.

3. Drill one hole, 2 mm (0.078 in.) diameter, on the front bumper at hole “B” of the bracket.

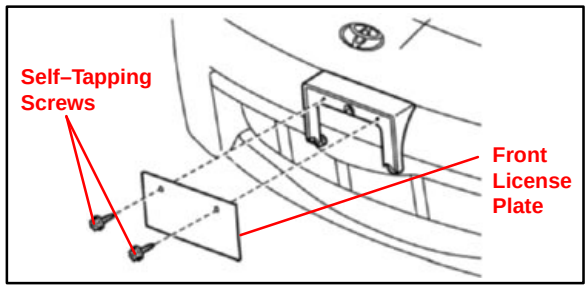


NOTE:
Do NOT drill hole oversize.

4. Screw the self–tapping screw into hole “B” to retain the bracket.

NOTE:
Do NOT overtighten the screw because there is no sleeve behind the bumper cover at “B”.

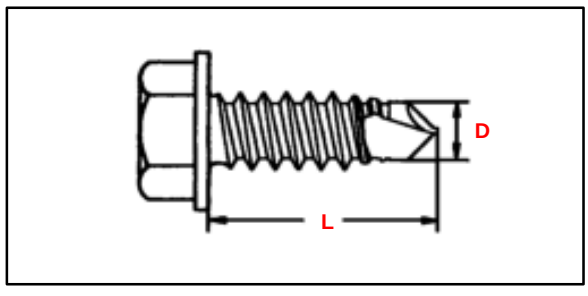
5. Install the front license plate to the bracket using self–tapping screws of a non–corroding type having the following size:



Length (L):
18.0 – 25.0 mm (0.71 – 0.98 in.)

Diameter (D):
6.0 mm (0.24 in.)

Pitch:
2.5 mm (0.098 in.).



TOYOTA

Technical Service BULLETIN

February 18, 2000

Title:

ECU-B1 FUSE INSTALLATION DURING PDS

Models:

'00 MR2 Spyder

TSB

PG005–00

PRODUCT GENERAL INFORMATION

Introduction

To minimize battery discharge during transportation and storage, the ECU–B1 fuse has been removed at the assembly plant.

Applicable Vehicles

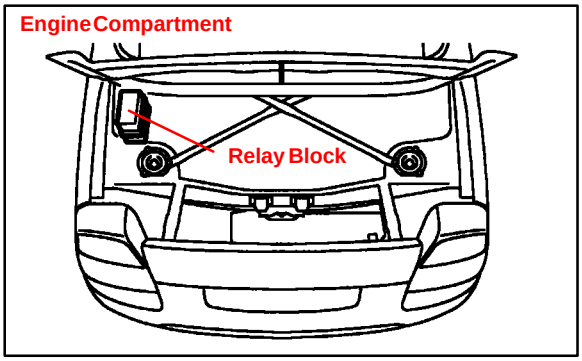
- **2000** model year **MR2 Spyder**

Affected Systems

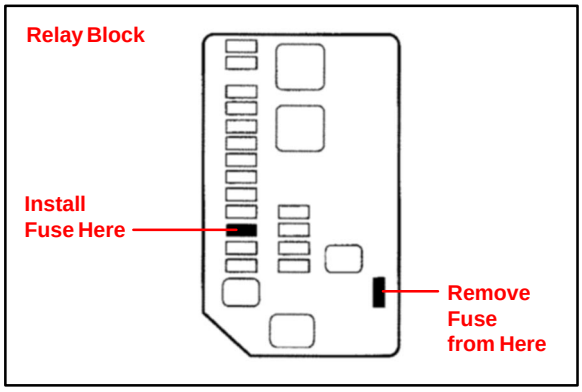
The ECU–B1 fuse provides power to the DOME, Radio1, and ECU–B circuits. Removal of the ECU–B1 fuse will affect the following systems:

- Clock
- Key Reminder Buzzer
- Day Time Running Light System
- Radio and CD Player
- Interior Light
- Light Reminder Buzzer
- Radio Antenna Motor
- Open Door Warning Light (with Ignition OFF)

1. The ECU–B1 fuse (25 A) is stored in the blank space of the Relay Block in the engine compartment.



2. During Pre–Delivery Service (PDS), install the ECU–B1 fuse in the Relay Block as shown.



NOTE:

If the vehicle is stored at the dealership for a long period of time after PDS, disconnect the negative battery terminal to prevent battery discharge. Refer to TSB EL001–96 for battery maintenance information.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

January 7, 2000

Title:

2000 TECHNICAL SERVICE BULLETIN INFORMATION

Models:

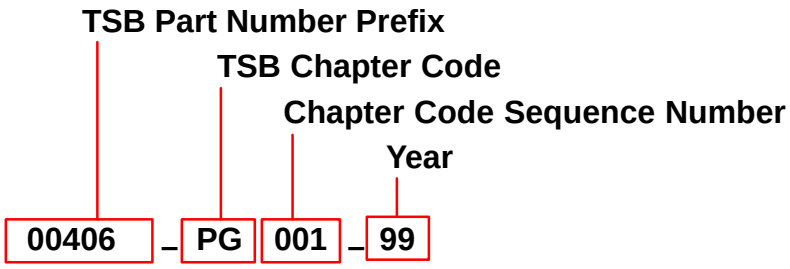
All Models

TSB

Introduction

Toyota Technical Service Bulletins (TSBs) continue to be one of the most current sources of technical information available. To ensure complete access to this reference source, use the following steps:

- All 1999 Technical Service Bulletins should be relocated to a temporary binder.
- Place this bulletin along with all 2000 TSBs into the emptied TSB binder.
- During the month of March, all dealers will receive bound books containing all TSBs issued in 1999. Upon receipt, discard all 1999 TSBs and refer only to the bound book for reference.
- Additional copies of 1994 through 2000 TSBs are available to all Toyota dealerships through the Toyota Non–Parts System (MDC NPM System) by using the following Part Number designation:



Parts Information

MATERIAL DESCRIPTION	PART NUMBER
TSB Binder, tabs and all 2000 bulletins issued to date	TSB00
New TSB Binder and tabs **ONLY**	00406–61012
1999 TSB Bound Book	00442–99002*
1998 TSB Bound Book	00442–98005
1997 TSB Bound Book	00442–97011
1996 TSB Bound Book	00442–97003
1995 TSB Bound Book	00401–43055

* Available in March, 2000.

NOTE:

If you have any questions concerning Toyota Technical Service Bulletins, please contact your District Service Manager.

TOYOTA

Technical Service BULLETIN

February 28, 2003

Title:

REPAIR MANUAL CORRECTIONS INDEX

Models:

All Models

TSB

PG001-03

PRODUCT GENERAL INFORMATION

Introduction

Corrections have been made in the repair manuals listed below. Corrections available in the last quarter are marked in **red**. The Toyota Technical Information system (TIS) is the best way to access up–to–date service information.

> **NOTE:**
> **When ordering a technical publication (i.e., Repair Manual, Electrical Wiring Diagram) from the MDC, any Correction Page(s) associated with that particular Publication will automatically be included with your order.**

Parts Information

Correction Pages are available through the Dealer Support Material Network (MDC NPM System) via the corresponding part numbers from the following table.

	Publication	Number	Page(s)	Part Number
4Runner	2003 4Runner	RM1001–U1	03–36	00400–RM100–12131
		RM1001–U2	29–6	↓
			29–23	↓
			25–18	00400–RM100–22146
			26–3	↓
			26–17	↓
			27–6	↓
			27–9	↓
			27–29	↓
			27–31	↓
			27–32	↓
			27–34	↓
			27–36	↓
			27–37	↓
		RM1001–U1	05–614 to 05–616	00400–RM100–12156
			05–712	↓
			05–713	↓
			05–713–1 to 05–713–7	↓
			05–724 to 05–737	↓
			05–811 to 05–813	↓

	Publication	Number	Page(s)	Part Number
Avalon	2000 Avalon	RM746–U2	BE–3	00400–RM746–2167B
			BE–4	↓
			BE–5	↓
			BE–6	↓
	2001 Avalon	RM808–U2	BE–3	00400–RM808–2166B
			BE–4	↓
			BE–5	↓
			BE–6	↓
	2002 Avalon	RM872–U2	BE–96	00400–RM872–2088B
			BE–3	00400–RM872–2165B
			BE–4	↓
			BE–5	↓
			BE–6	↓
Camry	2002 Camry	EWD461U	45	00400–EWD46–12107
			77	↓
			89	↓
			317	↓
			M5	↓
			M6	↓
	2003 Camry	EWD506U	45	00400–EWD50–62108
			77	↓
			89	↓
			319	↓
			M5	↓
			M6	↓
Corolla	2003 Corolla	EWD484U	49	00400–EWD48–42150
Highlander	2001 Highlander	RM837–U2	11–15	00400–RM837–2140B
			11–16	↓
			11–30	↓
			11–31	↓
	2002 Highlander	RM918–U2	11–15	00400–RM918–2141B
			11–16	↓
			11–30	↓
			11–31	↓
	2003 Highlander	RM987–U2	11–13	00400–RM987–2157B
			11–14	↓
			11–14–1	↓
			11–14–2	↓
			11–26	↓
			11–27	↓
			11–27–1	↓

	Publication	Number	Page(s)	Part Number
Matrix	2003 Matrix	EWD486U	55	00400–EWD48–62151
		RM940–U1	05–833	00400–RM940–2116
			05–834	↓
			05–820	00400–RM940–2159
			05–821	↓
			05–825	↓
			05–826	↓
			05–829	↓
			05–830	↓
			05–837	↓
			05–840	↓
		RM940–U2	73–9	00400–RM940–2163B
MR2 Spyder	2001 MR2 Spyder	RM801–U1	DI–8	00400–RM801–2105
			DI–9	↓
			DI–150	↓
			DI–151	↓
			DI–152	↓
			DI–153	↓
			DI–183	↓
			DI–184	↓
			DI–184–1	↓
			DI–184–2	↓
	2002 MR2 Spyder	RM900–U1	DI–8	00400–RM900–2106
			DI–9	↓
			DI–151	↓
			DI–152	↓
			DI–153	↓
			DI–154	↓
			DI–184	↓
			DI–185	↓
			DI–186	↓
			DI–187	↓
		RM900–U2	BO–46	00400–RM900–2137
Prius	2001 Prius	RM778–U1	DI–680	00400–RM778–2095
	2002 Prius	RM883–U1	DI–687	00400–RM883–2096
	2003 Prius	RM957–U1	DI–687	00400–RM957–2097

	Publication	Number	Page(s)	Part Number
Sequoia	2003 Sequoia	RM959–U1	DI–304	00400–RM959–12128
			DI–312	↓
			DI–313	↓
			DI–321	↓
			DI–325	↓
			DI–326	↓
			DI–330 to DI–333	↓
			DI–335	↓
			DI–340	↓
			DI–347	↓
			DI–357	↓
			DI–358	↓
			DI–360 to DI–362	↓
			DI–372	↓
			DI–373	↓
			DI–377	↓
			DI–377–1	↓
Sienna	2001 Sienna	EWD420U	37	00400–EWD42–2121
			64	↓
			267	↓
			M2	↓
	2002 Sienna	EWD454U	37	00400–EWD45–2122
			64	↓
			271	↓
			M2	↓
	2003 Sienna	EWD490U	37	00400–EWD49–02123
			64	↓
			271	↓
			M2	↓
Tacoma	2002 Tacoma	RM921–U1	DI–510	00400–RM921–2089
Tundra	2000 Tundra	EWD367U	129	00400–EWD36–72133
			222	↓
			M28	↓
	2001 Tundra	EWD429U	121	00400–EWD42–92134
			208	↓
			M26	↓
	2002 Tundra	EWD468U	121	00400–EWD46–82135
			208	↓
			M26	↓

TOYOTA

Technical Service BULLETIN

December 31, 2000

Title:

REPAIR MANUAL CORRECTIONS INDEX

Models:

All Models

TSB

REVISED

PG002–00

PRODUCT GENERAL INFORMATION

Introduction

Corrections have been made in the repair manuals listed below. Corrections available in the last quarter are marked in **red**, and have already been mailed to all dealers.

NOTE:
When ordering a technical publication (i.e. Repair Manual, Electrical Wiring Diagram) from the MDC, and Correction Page(s) associated with that particular Publication will automatically be included with your order.

Parts Information

Correction Pages are available through the Dealer Support Material Network (MDC NPM System) via the corresponding part numbers from the following table:

	Publication	Number	Page(s)	Part Number
Avalon	2001 Avalon	RM746–U1	DI–259	00400–RM746–Z107
			DI–260	↓
			DI–311	↓
			DI–312	↓
			DI–314	↓
			DI–316	↓
			DI–317–1	↓
			DI–317–2	↓
Celica	2000 Celica	RM744–U1	SS–45	00400–RM744–9094A
			SS–47	↓
			SS–52	↓
		RM744–U2	SA–02	00400–RM744–9094B
			SA–41	↓
			SA–44	↓
			SR–33	↓
			SR–51	↓
			EM–4	00400–RM744–Z066
			EM–5	↓
			EM–6	↓
			EM–7	↓
			EM–9	↓
			EM–10	↓
			EM–11	↓
			EM–12–1	↓
			SF–10	00400–RM744–Z130
			SF–12	↓
			SF–13	↓
			SF–15	↓

	Publication	Number	Page(s)	Part Number
Celica (Continued)	2001 Celica	RM818–U2	SF–10	00400–RM818–Z130
			SF–12	↓
			SF–13	↓
			SF–15	↓
ECHO	2000 ECHO	RM750–U	BR–16	00400–RM591–8121
			BR–27	↓
			BR–28	↓
			BR–31	↓
			PP–50	00400–RM591–8063
			SS–37	↓
			SS–38	↓
			BR–32	00400–RM750–Z140
	2001 ECHO	RM816–U	BR–32	00400–RM816–Z140
Highlander	2001 Highlander	EWD442–U	239	00400–EWD44–2Z149
			266	↓
Land Cruiser	2000 Land Cruiser	RM722–U1	DI–305	00400–RM722–Z018
			DI–306	↓
			DI–307	↓
			DI–308	↓
			SS–30	00400–RM722–9093A
			SS–31	↓
		RM722–U2	SA–3	00400–RM722–9093B
			SA–37	↓
			SA–40	↓
			SA–41	↓
			SA–42	↓
			SA–43	↓
			SA–44	↓
			SA–46	↓
			SA–47	↓
			SA–48	↓
			SA–49	↓
			SA–50	↓
			SA–52	↓
			SA–53	↓
			SA–54	↓
			SA–55	↓
			SA–56	↓
			SA–57	↓
			BR–10	00400–RM722–Z038
MR2 Spyder	2000 MR2	RM760–U	BR–8	00400–RM760–Z141
	2001 MR2	RM801–U	BR–8	00400–RM801–Z141

	Publication	Number	Page(s)	Part Number
Prius	2001 Prius	BRM09–6E	BP–17	00400–BRM09–6Z112
			BP–18	↓
			BP–33	↓
			BP–48	↓
			BP–49	↓
			BP–54	↓
			BP–55	↓
			PC–2	↓
		RM778–U1	DI–105	00400–RM778–Z093
			DI–106	↓
			SS–21	00400–RM778–Z123
			DI–504	↓
			DI–593–1	↓
			DI–593–2	↓
			DI–593–3	↓
			HV–22	↓
			DI–661	00400–RM778–Z120A
			DI–661–1	↓
			DI–665	↓
			DI–666	↓
			DI–670	↓
			DI–671	↓
		RM778–U2	BE–22	00400–RM778–Z151
			BE–23	↓
			BE–44	00400–RM778–Z120B
			BE–46–1	↓
RAV4	1996 RAV4	RM447–U	SA–62	00400–RM447–Z071
	1997 RAV4	RM505–U	SA–66	00400–RM505–Z071
	1998 RAV4	RM595–U	SA–79	00400–RM595–Z071
	1999 RAV4	RM668–U2	SA–79	00400–RM668–Z071
	2000 RAV4	RM711–U2	SA–79	00400–RM711–Z071
	2001 RAV4	RM797–U1	DI–489	00400–RM797–Z096
			SS–42	00400–RM797–Z106A
		RM797–U2	SA–5	00400–RM797–Z106B
			SA–7	↓
			SA–69	00400–RM797–Z071
Sequoia	2001 Sequoia	RM832–U1	SS–31	00400–RM832–Z139
Sienna	1998 Sienna	RM594–U	SR–37	00400–RM594–9095
			SR–47	↓
			SR–48	↓
	1999 Sienna	RM657–U	SR–37	00400–RM657–9095
			SR–47	↓
			SR–48	↓

	Publication	Number	Page(s)	Part Number
Sienna (Continued)	2000 Sienna	RM701–U	SR–37	00400–RM701–9095
			SR–47	↓
			SR–48	↓
			DI–387	00400–RM701–Z121
			DI–388	↓
			DI–389	↓
			DI–389–1	↓
			DI–389–2	↓
			DI–389–3	↓
Tacoma	1998 Tacoma	RM576–U1	DI–349	00400–RM576–Z105
			DI–350	↓
	1998 Tacoma Suppl.	RM614–U	PP–8	00400–RM614–9123
			PP–9	↓
			SA–8	↓
			SA–10	↓
			SA–11	↓
			SS–8	↓
	1999 Tacoma	RM673–U1	SS–72	00400–RM673–9123A
			DI–373	00400–RM673–Z105
			DI–374	↓
		RM673–U2	SA–23	00400–RM673–9123B
			SA–26	↓
			SA–28	↓
	2000 Tacoma	RM712–U1	SS–73	00400–RM712–9123A
			DI–415	00400–RM712–Z105
			DI–416	↓
		RM712–U2	SA–23	00400–RM712–9123B
			SA–26	↓
			SA–28	↓
	2001 Tacoma	RM835–U1	DI–340	00400–RM835–Z105
			DI–341	↓
Tundra	2000 Tundra	RM682–U2	TR–43	00400–RM682–Z055
			TR–44	↓
			TR–45	↓

TOYOTA

Technical Service BULLETIN

September 30, 2002

Title:

REPAIR MANUAL CORRECTIONS INDEX

Models:

All Models

TSB

REVISED

PG002-02

PRODUCT GENERAL INFORMATION

Introduction

Corrections have been made in the repair manuals listed below. Corrections available in the last quarter are marked in **red**, have already been mailed to all dealers, and are updated in TIS.

> **NOTE:**
> **When ordering a technical publication (i.e., Repair Manual, Electrical Wiring Diagram) from the MDC, any Correction Page(s) associated with that particular Publication will automatically be included with your order.**

Parts Information

Correction Pages are available through the Dealer Support Material Network (MDC NPM System) via the corresponding part numbers from the following table.

	Publication	Number	Page(s)	Part Number
4Runner	2001 4Runner	RM796–U1	DI–477	00400–RM796–2086
	2002 4Runner	EWD471–U	158	00400–EWD471–2050
		RM887–U1	DI–487	00400–RM887–2087
Avalon	2002 Avalon	EWD45–3U	258	00400–EWD45–32038
			21	↓
		RM872–U1	DI–232	00400–RM872–2054
			DI–530	00400–RM872–2052
Camry	1998 Camry	RM589–U2	BE–64	00400–RM589–2005B
			BE–65	↓
			BE–66	↓
	1999 Camry	RM654–U2	BE–65	00400–RM654–2005B
			BE–66	↓
			BE–67	↓
	2000 Camry	RM742–U2	BE–65	00400–RM742–2005B
			BE–66	↓
			BE–67	↓
	2001 Camry	RM819–U2	BE–66	00400–RM819–2005B
			BE–67	↓
			BE–68	↓

	Publication	Number	Page(s)	Part Number
Camry (Continued)	2002 Camry	EWD46–1U	77	00400–EWD46–12039
		RM881–U1	05–418	00400–RM881–2054
			05–1230	00400–RM881–2077
		RM881–U2	73–8	00400–RM881–2060B
			73–9	↓
			73–10	↓
Celica	2000 Celica	RM744–U1	DI–510	00400–RM744–2074
	2001 Celica	RM818–U1	DI–511	00400–RM818–2075
	2002 Celica	RM902–U1	DI–514	00400–RM902–2076
Corolla	2003 Corolla	RM938–U1	05–169	00400–RM938–2054
ECHO	2000 ECHO	RM750–U	BE–66	00400–RM750–2011
			BE–66–1	↓
	2001 ECHO	RM816–U	BE–66	00400–RM816–2011
			BE–66–1	↓
	2002 ECHO	RM884–U	BE–66	00400–RM884–2011
			BE–66–1	↓
Highlander	2002 Highlander	RM918–U1	05–919	00400–RM918–2053
		RM918–U2	82–4	00400–RM918–2058B
			82–5	↓
Land Cruiser	1998 Land Cruiser	RM615–U2	BE–80	00400–RM615–2006B
			BE–81	↓
	1999 Land Cruiser	RM661–U2	BE–82	00400–RM661–2006B
			BE–83	↓
	2000 Land Cruiser	RM722–U2	BE–82	00400–RM722–2006B
			BE–83	↓
	2001 Land Cruiser	RM795–U2	BE–91	00400–RM795–2006B
			BE–92	↓
			BE–93	↓
	2002 Land Cruiser	RM893–U2	BE–91	00400–RM893–2006B
			BE–92	↓
			BE–93	↓
Prius	2001 Prius	RM778–U1	DI–654	00400–RM778–2072
	2002 Prius	RM883–U1	DI–669	00400–RM883–2073

	Publication	Number	Page(s)	Part Number
RAV4	2001 RAV4	RM797–U1	DI–450	00400–RM797–2084
		RM797–U2	BE–63	00400–RM797–2012B
			BO–9	00400–RM797–2040B
			BO–10	↓
			BO–11	↓
			BO–11–1	↓
	2002 RAV4	RM891–U1	DI–450	00400–RM891–2085
		RM891–U2	BE–64	00400–RM891–2012B
			BO–9	00400–RM891–2040B
			BO–10	↓
			BO–11	↓
			BO–11–1	↓
Sequoia	2002 Sequoia	RM886–U1	DI–253	00400–RM886–2054
Sienna	1998 Sienna	RM594–U	BE–59	00400–RM594–2013
	1999 Sienna	RM657–U	BE–60	00400–RM657–2013
	2000 Sienna	RM701–U	BE–60	00400–RM701–2013
Solara	2002 Solara	RM882–U1	DI–446	00400–RM882–2054
Tacoma	2002 Tacoma	EWD478–U	71	00400–EWD–2051
			4	↓
Tundra	2002 Tundra	RM885–U1	DI–371	00400–RM885–2054

TOYOTA

Technical Service BULLETIN

December 28, 2001

Title:
REPAIR MANUAL CORRECTIONS INDEX

Models:
All Models

TSB

REVISED

PRODUCT GENERAL INFORMATION

Introduction Corrections have been made in the repair manuals listed below. Corrections available in the last quarter are marked in red, and have already been mailed to all dealers.

NOTE:
When ordering a technical publication (ie Repair Manual, Electrical Wiring Diagram) from the MDC, any Correction Page(s) associated with that particular Publication will automatically be included with your order.

Parts Information Correction Pages are available through the Dealer Support Material Network (MDC NPM System) via the corresponding part numbers from the following table:

	Publication	Number	Page(s)	Part Number
Avalon	2000 Avalon	RM746U1	DI-449	00400-RM746-1008
			DI-466	↓
			SS-33	00400-RM746-1085A
		RM746U2	SR-1	00400-RM746-1085B
			SR-21	↓
	2001 Avalon	RM808U1	SS-33	00400-RM808-1085A
		RM808U2	SR-1	00400-RM808-1085B
			SR-21	↓
	2002 Avalon	RM872U1	SS-33	00400-RM872-1085A
		RM872U2	SR-1	00400-RM872-1085B
			SR-21	↓
Camry	2000 Camry	RM742U1	DI-723	00400-RM742-1006
	2002 Camry	RM836-U	40-60	00400-RM836-122
		RM840-U	40-57	00400-RM840-123
		RM881U2	32-16	00400-RM881-137B
			73-22-1	00400-RM881-152B
		EWD46-1U	186	00400-EWD46-1169
			187	↓
			230	↓
			16-5	↓
			17-1	↓

Publication		Number	Page(s)	Part Number
Celica	2000 Celica	RM735U	PP-1	00400-RM735-1047
			PP-2	↓
			PP-3	↓
			PP-4	↓
			AX-13	↓
			AX-18	↓
			AX-20	↓
			AX-25	↓
			AX-30	↓
			AX-58	↓
			AX-61	↓
			AX-64	↓
			AX-66	↓
		RM740U	AX-52	00400-RM740-118
		RM744U1	DI-427	00400-RM744-1005
			SS-34	00400-RM744-101A
			SS-35	↓
			SS-39	↓
			SS-40	↓
		RM744U2	MX-3 (C56)	00400-RM744-101B
			MX-5 (C56)	↓
			MX-6 (C56)	↓
			MX-7 (C56)	↓
			MX-7-1 (C56)	↓
			MX-8 (C56)	00400-RM744-101B
			MX-3 (C60)	↓
			MX-5 (C60)	↓
			MX-6 (C60)	↓
			MX-7 (C60)	↓
			MX-7-1 (C60)	↓
			MX-8 (C60)	↓
			CL-14	00400-RM744-1043B
			CL-16	↓
			CL-16-1	↓
	2001 Celica	RM818U2	CL-14	00400-RM818-1044B
			CL-16	↓
			CL-16-1	↓
			SS-34 (C56)	00400-RM818-1012B
			SS-35 (C56)	↓
			MX-3 (C56)	↓
			MX-5 (C56)	↓
			MX-6 (C56)	↓
			MX-7 (C56)	↓
			MX-7-1 (C56)	↓

	Publication	Number	Page(s)	Part Number
Celica 2001 (Continued)	Celica	RM818U2	MX-8 (C56)	00400-RM818-1012B
			MX-3 (C60)	↓
			MX-5 (C60)	↓
			MX-6 (C60)	↓
			MX-7 (C60)	↓
			MX-7-1 (C60)	↓
			MX-8 (C60)	↓
			SS-39 (C60)	↓
			SS-40 (C60)	↓
Corolla 2000	Corolla	RM719-U	DI-265	00400-RM719-1009
			DI-334	↓
ECHO 2000	ECHO	RM735-U	PP-1	00400-RM735-1047
			PP-2	↓
			PP-3	↓
			PP-4	↓
			AX-13	↓
			AX-18	↓
			AX-20	↓
			AX-25	↓
			AX-30	↓
			AX-58	↓
			AX-61	↓
			AX-64	↓
			AX-66	↓
Highlander 2001	Highlander	RM837U2	73 INDEX	00400-RM837-1017
			73-1 to 73-23	↓
			72-1	00400-RM837-1040B
			72-2	↓
			72-5	↓
			72-6	↓
			72-7	↓
			76-5	00400-RM837-1083B
			76-5-1	↓
			73-11	↓
			73-12	↓
			73-13	↓
		RM836-U	40-60	00400-RM836-122
		RM840-U	40-57	00400-RM840-123
		EWD44-2U	29	00400-EWD44-21025

	Publication	Number	Page(s)	Part Number
Land Cruiser	1999 Land Cruiser	RM661U1	SS-25	00400-RM661-1034A
		RM661U2	TR-32	00400-RM661-1034B
	2000 Land Cruiser	RM722U1	DI-516	00400-RM722-1010
			SS-25	00400-RM722-1034A
			SS-30	00400-RM722-Z154A
		RM722U2	SA-3	00400-RM722-Z154B
			TR-32	00400-RM722-1034B
	2001 Land Cruiser	RM795U1	SS-25	00400-RM795-1034A
			SS-30	00400-RM795-Z154A
		RM795U2	SA-3	00400-RM795-Z154B
			TR-32	00400-RM795-1034B
MR2 Spyder	2000 MR2	RM760U	BR-17	00400-RM760-143
Prius	2001 Prius	RM778U1	DI-330	00400-RM778-1035A
			DI-330-1	↓
			DI-340	↓
			DI-340-1	↓
			DI-340-2	↓
			DI-341	↓
			DI-342	↓
			DI-342-1	↓
			DI-342-2	↓
			DI-477	00400-RM778-Z157A
			DI-478	↓
			DI-480	00400-RM778-1052A
		RM778U2	SR-17	00400-RM778-Z157B
			SR-25	↓
			SR-26	↓
			HV-10	00400-RM778-1021B
			HV-11	↓
RAV4	2000 RAV4	RM772-U	AX-45	00400-RM772-120
	2001 RAV4	RM815-U	AX-52	00400-RM815-121
		RM797U2	BR-21	00400-RM797-142B
Sequoia	2001 Sequoia	RM832U1	DI-231	00400-RM832-Z156A
			DI-232	↓
			DI-233	↓
			DI-240	↓
			DI-241	↓

	Publication	Number	Page(s)	Part Number
Sequoia (Continued)	2001 Sequoia	RM832U1	BR-51	00400-RM832-1014
			DI-232	00400-RM832-1019
		RM832U2	AC-102	00400-RM832-1065B
			AC-105	↓
			AC-107	↓
			AC-108	↓
			SA-4	00400-RM832-Z156B
			SA-15	↓
			SA-62	↓
			SA-68	↓
			SA-77	↓
			BR-20	↓
			BR-54	↓
			SR-1	↓
			SR-23	↓
			SR-54	↓
			SS-41	00400-RM832-1014
			BR-50	↓
			TR-49	00400-RM832-1064B
Sienna	2000 Sienna	RM701U1	DI-322	00400-RM701-1007
Solara	2000 Solara	RM713U1	DI-575	00400-RM713-1004
			DI-644	↓
Tacoma	2000 Tacoma	EWD38-5U	42	00400-EWD38-51041
			43	↓
			173	↓
			198	↓
			202	↓
	2001 Tacoma	RM835U1	SS-65	00400-RM835-Z153
			SS-66	↓
			SS-67	↓
			SS-68	↓
			SS-69	↓
			SS-70	↓
	2002 Tacoma	RM921U1	DI-367	00400-RM921-155
			DI-369	↓
			DI-402	↓

TOYOTA

Technical Service BULLETIN

March 31, 2000

Title:

CA/50 STATE CERTIFIED EMISSION CONTROL UNDERHOOD LABEL ORDERING

Models:

All Models

TSB

PG006–00

PRODUCT GENERAL INFORMATION

Introduction

It is no longer necessary to fax the CA/50 State Emission Label Order Form to TMS. California (CA) and 50 State Certified underhood emission control labels (emission labels) may now be obtained through your dealership Parts Department utilizing standard replacement parts ordering procedures via the TDN. Follow the guidelines outlined in this TSB to ensure proper label application.

Applicable Vehicles

- **All** model year **Toyota Vehicles.**
  We have included tables reflecting 1997 – 2000 MY CA and 50 State Emission Label part number information for your convenience. Please continue to consult the Electronic Parts Catalog (EPC) or the parts microfiche for information regarding other model years as well as Federal Emission label part numbers.

NOTE:

Although the California Smog Impact Fee has been discontinued, dealers are still required by regulation to verify the correct emission label is installed on the correct vehicle.

REGULATIONS:

The United States Clean Air Act, Title II, Sections 202, 203, 205, and 207 mandates that the emission control label must correctly match the emissions equipment on the vehicle. Any person violating this requirement is subject to applicable State penalties and a Federal civil penalty of no more than $25,000 for each instance.

Personnel at franchised dealerships are authorized to affix such labels to vehicles and are, therefore, subject to this regulation and the attendant penalties.

- **Do not sell the labels over the counter. Always install the label on the vehicle.**
- **Never install a California and/or 50 State Label on a vehicle that is not a California/50 State Emission Certified Vehicle.**
- **Do not install Federal Emission labels on vehicles that are not Federal Emissions Certified.**

Warranty Information

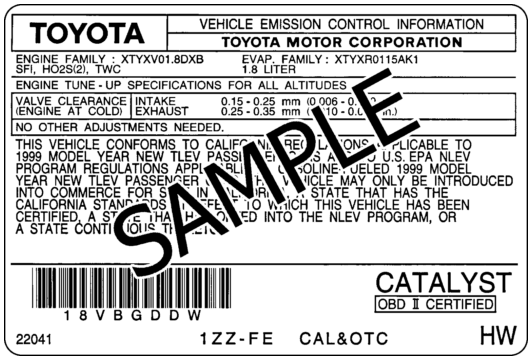
OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Label Ordering Procedure

To ensure that the emission control labels are affixed to the correct vehicle, it is necessary to follow these procedures:

1. Record the Vehicle Identification Number (VIN) from the vehicle requiring a replacement label.

2. A dealership associate (must be assigned by Parts Manager), with authorized TDN access, must confirm the emissions equipment of the vehicle by referring to the following accessory codes:
   - **CA – California Certified**
   - **FE – 50 State Certified**
   - **RE – Federal Certified**
   - **CN – California and New York Certified**



3. Once the emissions equipment information is verified, obtain the part number information by referring to the attached table for 1998 – 2000 MY vehicles or consulting the EPC/microfiche for other Toyota vehicles, including Federal Specification Vehicles.

4. Order the label through your Parts Department, using normal parts ordering procedures via the TDN.

5. When the part arrives, verify that the emission label matches the emissions equipment on the vehicle. This will ensure the correct label is affixed to the vehicle.

1997 MY CA/50 State Certified Emission Control Labels

MODEL	ENGINE NAME	TRANSMISSION	EMISSIONS*	PART NUMBERS
Tercel	5E–FE	All	USA	11298–11452
Paseo	5E–FE	All	CA	11298–11452
Corolla	4A–FE	All	CA	11298–1D060
	7A–FE	All	CA	11298–1D090
Celica	7A–FE	All	CA	11298–1D120
	5S–FE	All	CA	11298–7A390
Camry	5S–FE	M/TM	CA	11298–7A330
	5S–FE	A/TM	CA	11298–7A350
	1MZ–FE	All	CA	11298–20110
Supra	2JZ–GE	All	USA	11298–46121
	2JZ–GTE	All	USA	11298–46102
Avalon	1MZ–FE	A/TM	CA	11298–20110
Previa	2TZ–FZE	A/TM	USA	11298–76083
RAV4	3S–FE	All	CA	11298–7A410
4Runner	3RZ–FE (2WD)	All	USA	11298–75220
	3RZ–FE (4WD)	All	USA	11298–75260
	5VZ–FE	All	CA	11298–62450
Tacoma	2RZ–FE (2WD)	All	CA	11298–75210
	3RZ–FE (4WD)	M/TM	CA	11298–75200
	3RZ–FE (4WD)	All	USA	11298–75220
	5VZ–FE (2WD XtraCab)	All	USA	11298–62430
	5VZ–FE (4WD RegCab)	M/TM	USA	11298–62430
	5VZ–FE (4WD XtraCab)	All	CA	11298–62450
T–100	3RZ–FE (2WD)	All	USA	11298–75240
	5VZ–FE (2WD/4WD)	All	CA	11298–62500
Land Cruiser	1FZ–FE	A/TM	USA	11298–66070

* CA = California Emission Specification, USA = 50 State Emission Specification

1998 MY CA/50 State Certified Emission Control Labels

MODEL	ENGINE NAME	TRANSMISSION	EMISSIONS*	PART NUMBERS
Tercel	5E–FE	All	CA	11298–11453
Corolla	1ZZ–FE	All	CA	11298–22040
Celica	5S–FE	All	CA	11298–7A470
Camry	5S–FE	All	CA	11298–7A430
	1MZ–FE	A/TM	CA	11298–20160
	1MZ–FE	M/TM	CA	11298–20190
Supra	2JZ–GE	A/TM	CA	11298–46122
Avalon	1MZ–FE	A/TM	CA	11298–20160
Sienna	1MZ–FE	All	CA	11298–20140
RAV4	3S–FE	All	CA	11298–7A510
4Runner	3RZ–FE (2WD)	All	CA	11298–75320
	3RZ–FE (4WD)	All	CA	11298–75380
	5VZ–FE	All	CA	11298–62540
Tacoma	2RZ–FE (2WD)	All	CA	11298–75300
	3RZ–FE (4WD)	M/TM	CA	11298–75310
	3RZ–FE (4WD)	A/TM	CA	11298–75320
	5VZ–FE (2WD)	All	CA	11298–62530
	5VZ–FE (4WD XtraCab)	All	CA	11298–62540
T–100	3RZ–FE (2WD)	All	USA	11298–75360
	5VZ–FE (2WD/4WD)	All	CA	11298–62580
Land Cruiser	2UZ–FE	A/TM	CA	11298–50200

* CA = California Emission Specification, USA = 50 State Emission Specification

1999 MY CA/50 State Certified Emission Control Labels

MODEL	ENGINE NAME	TRANSMISSION	EMISSIONS*	PART NUMBERS
Corolla	1ZZ–FE	All	CA	11298–22041
Celica	5S–FE	All	CA	11298–7A560
Camry	5S–FE	All	CA	11298–7A521
	1MZ–FE	M/TM	USA	11298–20240
	1MZ–FE	A/TM	CA	11298–20181
Camry Solara	5S–FE	All	CA	11298–7A521
	1MZ–FE	M/TM	USA	11298–20240
	1MZ–FE	A/TM	USA	11298–20181
Avalon	1MZ–FE	All	CA	11298–20181
Sienna	1MZ–FE	A/TM	CA	11298–20270
RAV4	3S–FE (2WD/4WD)	All	CA	11298–7A541
4Runner	3RZ–FE (2WD/4WD)	All	USA	11298–75400
	5VZ–FE (2WD/4WD)	All	CA	11298–62660
Tacoma	2RZ–FE (2WD)	All	USA	11298–75460
	3RZ–FE (PreRunner/4WD)	A/TM	USA	11298–75470
	3RZ–FE (4WD)	M/TM	CA	11298–75480
	3RZ–FE (2WD XtraCab)	A/TM	USA	11298–75400
	5VZ–FE (2WD XtraCab)	All	USA	11298–62590
	5VZ–FE (PreRunner/4WD)	All	USA	11298–62600
Land Cruiser	2UZ–FE	A/TM	USA	11298–50181

* CA = California Emission Specification, USA = 50 State Emission Specification

2000 MY CA/50 State Certified Emission Control Labels

MODEL	ENGINE NAME	TRANSMISSION	EMISSIONS*	PART NUMBERS
ECHO	1NZ–FE	All	USA	11298–21010
Corolla	1ZZ–FE	All	USA	11298–22032
Celica	1ZZ–FE	All	USA	11298–22080
	2ZZ–GE	All	USA	11298–22050
Camry	5S–FE	All	USA	11298–7A590
	1MZ–FE	M/TM	USA	11298–20320
	1MZ–FE	A/TM	CA	11298–20310
Camry Solara	5S–FE	All	USA	11298–7A590
	1MZ–FE	M/TM	USA	11298–20320
	1MZ–FE	A/TM	CA	11298–20310
Camry Solara Convertible	5S–FE	A/TM	USA	11298–7A590
	1MZ–FE	A/TM	CA	11298–20310
Camry (CNG)	5S–FNE	A/TM	USA	11298–7A640
Avalon	1MZ–FE	A/TM	USA	11298–20290
Sienna	1MZ–FE	A/TM	USA	11298–20340
RAV4	3S–FE (2WD/4WD)	All	USA	11298–7A620
4Runner	3RZ–FE (2WD)	All	USA	11298–75550
	3RZ–FE (4WD)	M/TM	USA	11298–75550
	5VZ–FE (2WD/4WD)	All	USA	11298–62690
Tacoma	2RZ–FE (2WD)	All	USA	11298–75510
	3RZ–FE (2WD/4WD)	A/TM	USA	11298–75530
	3RZ–FE (4WD XtraCab)	M/TM	USA	11298–75530
	3RZ–FE (4WD XtraCab)	A/TM	USA	11298–75550
	3RZ–FE (PreRunner)	A/TM	USA	11298–75530
	5VZ–FE (2WD XtraCab)	All	USA	11298–62670
	5VZ–FE (4WD & PreRunner)	All	USA	11298–62690
Tundra	5VZ–FE	All	CA	11298–62640
	2UZ–FE	A/TM	USA	11298–50241
Land Cruiser	2UZ–FE	A/TM	USA	11298–50182

* CA = California Emission Specification, USA = 50 State Emission Specification

TOYOTA

Technical Service BULLETIN

May 4, 2001

Title:

REPLACEMENT CERTIFICATION LABELS

Models:

All Models

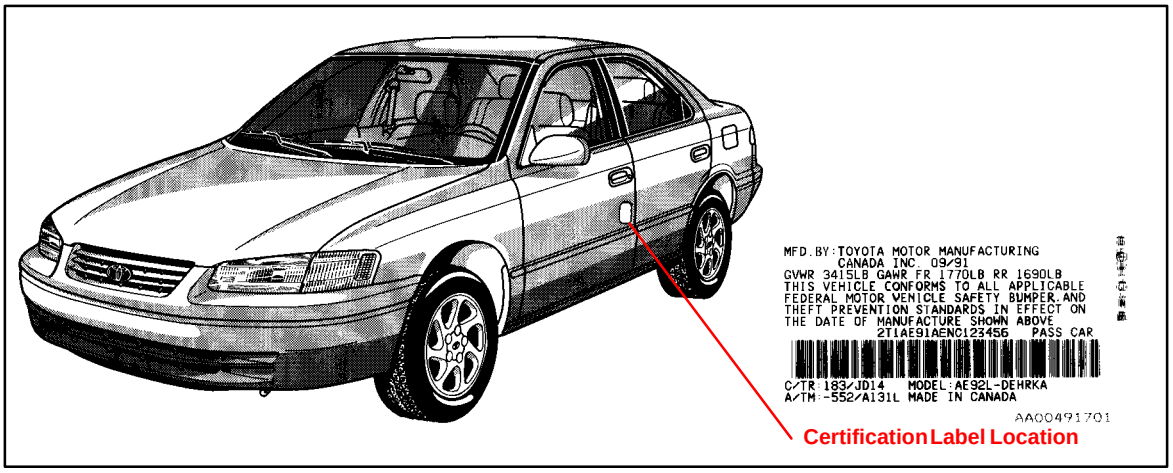
TSB

PG006-01

PRODUCT GENERAL INFORMATION

Introduction

Replacement Certification Labels (vinyl label affixed to driver's door or door post) **may be** available from Toyota providing the request meets one of the criteria listed below.



Applicable Vehicles

- All Toyota vehicles.

Certification Label Criteria

1. The vehicle is in an accident and the label is damaged or is attached to a part that will be replaced during the repair.

NOTE:

- **Processing a new label *will be delayed significantly if the old certification label is not available.***
- **A replacement label MAY NOT be available if the vehicle is more than 5 years old and the old label does not accompany this request.**

2. The label is stolen.

Procurement Procedure

To request a replacement label, complete a copy of the form on the back of this bulletin. Your dealer parts account will be billed $10.00 for each replacement of a damaged or stolen label.

NOTE:

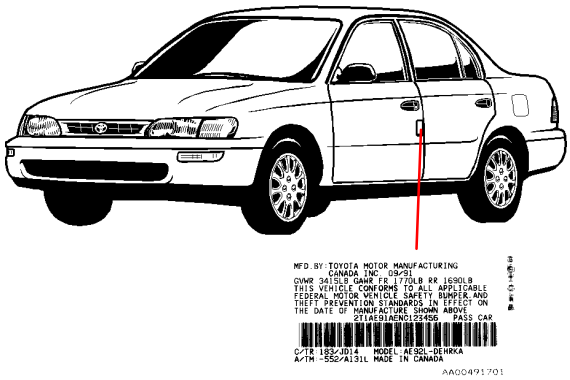
All replacement labels for damaged and/or stolen vehicles are subject to approval by the Technical Compliance Department. If you have any specific questions, contact (310) 468–3390.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

APPLICATION FOR REPLACEMENT CERTIFICATION LABEL



REASON FOR REPLACEMENT

- ☐ ACCIDENT DAMAGE
- ☐ STOLEN
- ☐ OTHER _____

REASON/EXPLANATION

PLEASE PROVIDE CORRECT VIN _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

ATTACH ORIGINAL LABEL HERE

NOTE:
Original label MUST accompany this application or order will be significantly delayed.

DEALER INFORMATION

DEALER CODE: ☐☐☐☐☐

DEALER NAME: _____

ADDRESS: _____
STREET ADDRESS

_____
CITY, STATE, ZIP CODE

TELEPHONE: ( ) _____
AREA CODE, TELEPHONE NUMBER

CONTACT: _____
FIRST NAME, LAST NAME

MAIL (*DO NOT FAX*) THE COMPLETED REQUEST FORM WITH THE OLD LABEL TO:

TOYOTA MOTOR SALES, U.S.A. INC.
TECHNICAL COMPLIANCE DEPARTMENT, S207
19001 S. WESTERN AVENUE
TORRANCE, CA 90509–2991

TOYOTA

Technical Service BULLETIN

September 26, 2003

Title:

WARRANTY PARTS MARKING PROCEDURE

Models:

All Models

TSB

PG006–03

PRODUCT GENERAL INFORMATION

Introduction

Effective September 1, 2003, all warranty parts (as indicated on the next page) must be marked in the area or location of the failure. The technician should complete this procedure after the failed part has been removed from the vehicle and before the part is placed in the 10–bin storage. (Exchanged parts and remanufactured parts are not included in this procedure.)

Failed parts marking will be beneficial in detecting and resolving product and parts quality issues. This will also offer additional opportunities to make future enhancements to our parts and products.

Parts are subject to random inspection in the dealership by field representatives to ensure compliance with this new policy.

Failure to comply with this policy may result in a debit of the corresponding warranty claim(s).

Applicable Vehicles

- All models.

Parts Marking Procedure

All technicians must follow these procedures to ensure proper parts marking:

- Wipe the part clean (no excess fluid should be present).
- Indicate area of defect or failure by marking the specific part(s) with a water resistant permanent marker. Use a color that can be easily seen against the background of the part being marked. For dark surfaces the color yellow is highly recommended as well as the color black for light surfaces.
- Mark the area of failure or defect by drawing a circle, a square, pointing an arrow or adhering tape with an indication of the failed or defect location.
- Attach a completed Warranty Parts Tag (M/N 00404–PRETN–TAGS) to the marked part.

All other parts recovery/shipping policies and procedures apply.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Parts Marking Requirement

Dealers are requested to mark the location of the failure of all warranty parts that are listed below. ***This list is not inclusive.*** There may be other components that can be marked in the area of failure. All other parts that can be marked should be marked.

Parts Marking List

- assist grip assy
- audio (blemish)
- back door garnish
- bumper covers
- cargo cover (retractable)
- carpet
- clutch disc
- clutch flywheel
- combination meter glass
- console and components
- cowl assy
- cowl side trim sub–assy
- cupholders
- cylinder head cover sub–assy
- dash panel insulator assy
- dashboard and trim
- disc wheel
- display panels
- door handle assy
- door moulding
- door trim panel & molding
- emblems
- engine oil pan
- exhaust manifold
- floor and cargo mats
- gear shift knob
- grills
- headlamps
- headliner
- hoses
- instrument panel safety pad sub–assy
- Interior light assemblies and covers
- knobs, levers, handles
- l/pulley pump assy
- mirrors (side and rearview)
- navigation or VES screens
- pillar garnish
- rack and pinion/power steering gear assy
- radiator
- room partition board
- rotors (mark where min. runout is exceeded or warped)
- seat covers/cushions
- seat tracks
- soft trim
- spare tire cover
- steering column cover
- steering wheel
- tail lamps and covers
- transmission oil pan
- visor
- washer jar
- wheel cap
- wheels

Parts Marking List (Continued)

NOTE:

The following parts do not have to be marked unless the technician can determine failure and location.

air induction/ejection systems
all computers
alternators
audio (internal)
batteries
bearings
belts
catalytic converter
crankshaft
cruise control
distributors
EGR systems
engine control systems
exchange parts
exhaust systems
fuel injection systems
fuel injectors
fuel pump
ignition system
internal engine components
internal transmission components
oil cooler
power door lock switches
remanufactured parts
starters
suspension components
valve covers
window regulators
wiper motors

TOYOTA

Technical Service BULLETIN

May 4, 2001

Title:

REPLACEMENT VIN PLATES

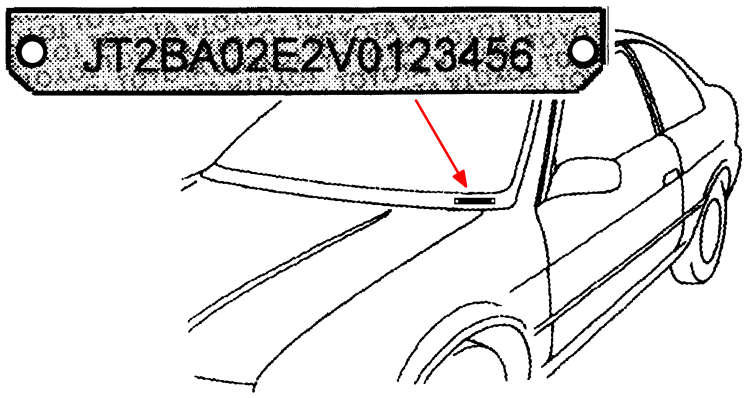
Models:

All Models

TSB

Introduction

Replacement **VIN** plates (metal plates riveted to dashboard) **may be** available from Toyota providing the request meets the criteria listed below.



VIN Plate Location

Applicable Vehicles

- All Toyota vehicles.

Replacement VIN Plate Criteria

- The vehicle is in an accident and the plate is damaged.

NOTE:

The original plate to be replaced MUST accompany the request.

NOTE:

If a plate is stolen, be sure to contact the State Police or your State's Department of Motor Vehicles (DMV). In most cases the State DMV will issue a unique number so that the original number can be included on stolen vehicle listings. If this is the case, a replacement plate is NOT available from Toyota. However, the original VIN, NOT the state issued VIN, must be used on all warranty claims.

Procurement Procedure

To request a replacement plate, complete a copy of the form on the back of this page. Note that the damaged VIN plate **MUST** accompany the request form. Your dealer parts account will be billed $10.00 for each replacement of a damaged plate.

NOTE:

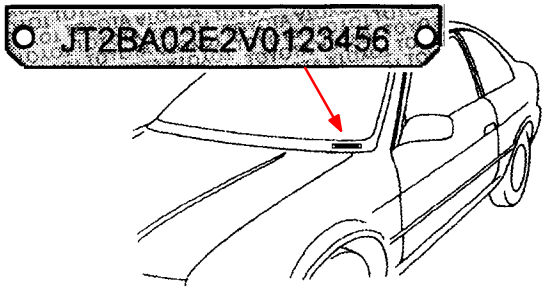
All replacement plates for damaged and/or stolen vehicles are subject to approval by the Technical Compliance Department. If you have any specific questions, contact (310) 468–3390.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

APPLICATION FOR REPLACEMENT VIN PLATE



REASON FOR REPLACEMENT

☐ ACCIDENT DAMAGE

☐ OTHER _____

REASON/EXPLANATION

PLEASE PROVIDE CORRECT VIN _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

DEALER INFORMATION

DEALER CODE: ☐☐☐☐☐

DEALER NAME: _____

ADDRESS: _____

STREET ADDRESS

_____

CITY, STATE, ZIP CODE

TELEPHONE: ( ) _____

AREA CODE, TELEPHONE NUMBER

CONTACT: _____

FIRST NAME, LAST NAME

MAIL (*DO NOT FAX*) THE COMPLETED REQUEST FORM WITH THE OLD PLATE TO:

TOYOTA MOTOR SALES, U.S.A. INC.
TECHNICAL COMPLIANCE DEPARTMENT, S207
19001 S. WESTERN AVENUE
TORRANCE, CA. 90509–2991

TOYOTA

Technical Service BULLETIN

January 18, 2002

Title:

REPLACEMENT CERTIFICATION LABELS

Models:

All Models

TSB

PG008-02

PRODUCT GENERAL INFORMATION

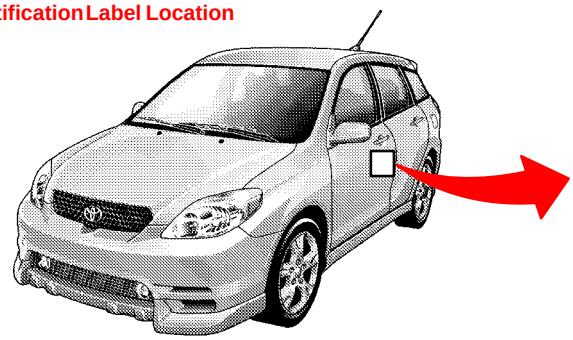
TSB UPDATE NOTICE:

The information contained in this TSB updates PG006–01 dated May 4, 2001. Revised text is red and underlined. The changes will take place February 1, 2002.

Introduction

Replacement Certification Labels (vinyl label affixed to driver's door or door post) **may be** available from Toyota providing the request meets one of the criteria listed below.

Certification Label Location



MFD.BY:TOYOTA MOTOR MANUFACTURING
CANADA INC. 10/01
GVWR 3935LB GAWR FR 1970LB RR 1985LB
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY, BUMPER, AND
THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE.
XT0XX00X0X000000 PASS.CAR

C/TR:3L5/FB14 MODEL:ZZE134L – DHPNKA
A/TM:–04A/U341F MADE IN CANADA
S26 AA01904759

Applicable Vehicles

- All Toyota vehicles.

Certification Label Criteria

1. The vehicle is in an accident and the label is damaged or is attached to a part that will be replaced during the repair.

NOTE:

- **Processing a new label *will be delayed significantly if the original certification label is not available.***
- **A replacement label MAY NOT be available if the vehicle is more than 5 years old and the old label does not accompany this request.**

2. The label is stolen.

Procurement Procedure

To request a replacement label, complete a copy of the form on the back of this bulletin. Your dealer parts account will be billed $25.00 for each replacement of a damaged or stolen label.

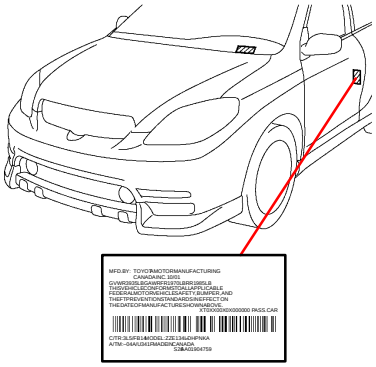
NOTE:

All replacement labels for damaged and/or stolen vehicles are subject to approval by the Technical Compliance Department. If you have any specific questions, contact (310) 468–3390.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

APPLICATION FOR REPLACEMENT CERTIFICATION LABEL



REASON FOR REPLACEMENT

☐ ACCIDENT DAMAGE
☐ STOLEN
☐ OTHER _____

REASON/EXPLANATION

PLEASE PROVIDE CORRECT VIN _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

ATTACH ORIGINAL LABEL HERE

NOTE:
Original label MUST accompany this application or order will be significantly delayed.

DEALER INFORMATION

DEALER CODE: ☐☐☐☐☐

DEALER NAME: _____

ADDRESS: _____
STREET ADDRESS

_____
CITY, STATE, ZIP CODE

TELEPHONE: ( ) _____
AREA CODE, TELEPHONE NUMBER

CONTACT: _____
FIRST NAME, LAST NAME

MAIL (*DO NOT FAX*) THE COMPLETED REQUEST FORM WITH THE OLD LABEL TO:

TOYOTA MOTOR SALES, U.S.A. INC.
TECHNICAL COMPLIANCE DEPARTMENT, S207
19001 S. WESTERN AVENUE
TORRANCE, CA 90509–2991

TOYOTA

Technical Service BULLETIN

January 18, 2002

Title:

REPLACEMENT VIN PLATES

Models:

All Models

TSB

PG009-02

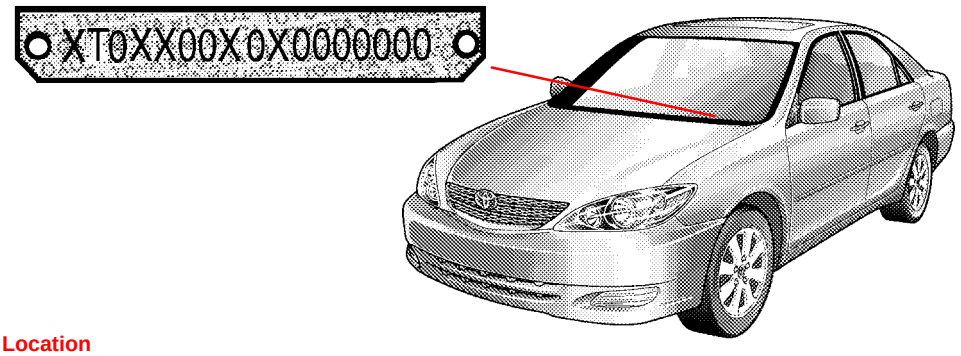
PRODUCT GENERAL INFORMATION

TSB UPDATE NOTICE:

The information contained in this TSB updates PG007–01 dated May 4, 2001. Revised text is red and underlined. The changes will take place February 1, 2002.

Introduction

Replacement **VIN** plates (metal plates riveted to dashboard) **may be** available from Toyota providing the request meets the criteria listed below.



VIN Plate Location

Applicable Vehicles

- All Toyota vehicles.

Replacement VIN Plate Criteria

- The vehicle is in an accident and the plate is damaged.

NOTE:

The original plate to be replaced MUST accompany the request.

NOTE:

If a plate is stolen, be sure to contact the State Police or your State's Department of Motor Vehicles (DMV). In most cases the State DMV will issue a unique number so that the original number can be included on stolen vehicle listings. If this is the case, a replacement plate is NOT available from Toyota. However, the original VIN, NOT the state issued VIN, must be used on all warranty claims.

Procurement Procedure

To request a replacement plate, complete a copy of the form on the back of this page. Note that the damaged VIN plate **MUST** accompany the request form. Your dealer parts account will be billed $25.00 for each replacement of a damaged plate.

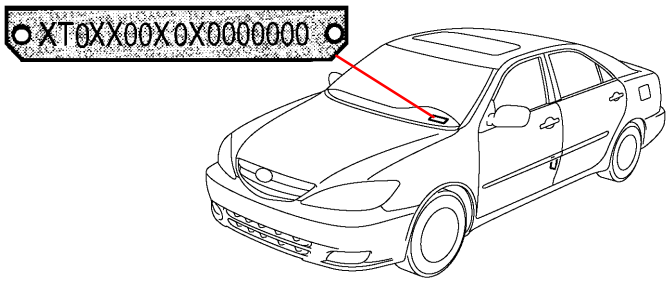
NOTE:

All replacement plates for damaged and/or stolen vehicles are subject to approval by the Technical Compliance Department. If you have any specific questions, contact (310) 468–3390.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

APPLICATION FOR REPLACEMENT VIN PLATE



REASON FOR REPLACEMENT

☐ ACCIDENT DAMAGE

☐ OTHER _____

REASON/EXPLANATION

PLEASE PROVIDE CORRECT VIN _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

DEALER INFORMATION

DEALER CODE: ☐☐☐☐☐

DEALER NAME: _____

ADDRESS: _____

STREET ADDRESS

_____

CITY, STATE, ZIP CODE

TELEPHONE: ( ) _____

AREA CODE, TELEPHONE NUMBER

CONTACT: _____

FIRST NAME, LAST NAME

MAIL (*DO NOT FAX*) THE COMPLETED REQUEST FORM WITH THE OLD PLATE TO:

TOYOTA MOTOR SALES, U.S.A. INC.
TECHNICAL COMPLIANCE DEPARTMENT, S207
19001 S. WESTERN AVENUE
TORRANCE, CA. 90509–2991

TOYOTA

Technical Service BULLETIN

December 4, 2002

Title:

SUSPENSION BALL JOINT INSPECTION

Models:

See Applicable Models

TSB

PG027-02

PRODUCT GENERAL INFORMATION

Introduction

This bulletin describes the inspection method and free play specification figures for suspension ball joints. The on–vehicle inspection methods have been standardized.

Applicable Vehicles

- **1989 – 1992** model year **Cressida** vehicles.
- **1989 – 1998** model year **Supra** vehicles.
- **2001 – 2003** model year **Highlander** vehicles.
- **1995 – 2003** model year **Avalon** vehicles.
- **1989 – 2003** model year **Camry / Camry Solara** vehicles.
- **1985 – 2003** model year **MR2** vehicles.
- **1990 – 2003** model year **Celica** vehicles.
- **2001 – 2003** model year **Prius** vehicles.
- **1988 – 2003** model year **Corolla / Corolla Matrix** vehicles.
- **2000 – 2003** model year **ECHO** vehicles.
- **1991– 1999** model year **Tercel** vehicles.
- **1991 – 1999** model year **Paseo** vehicles.
- **1990 – 1997** model year **Previa** vehicles.
- **1998 – 2003** model year **Sienna** vehicles.
- **1996 – 2003** model year **RAV4 / RAV4 EV** vehicles.
- **1999 – 2003** model year **Land Cruiser** vehicles.
- **2001 – 2003** model year **Sequoia** vehicles.
- **1989 – 2003** model year **4Runner** vehicles.
- **2000 – 2003** model year **Tundra** vehicles.
- **1995 – 2003** model year **Tacoma** vehicles.
- **1989 – 1995** model year **Truck** vehicles.
- **1993 – 1998** model year **T–100** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Inspection Information

MODEL	LOCATION	LOWER BALL JOINT OR SUSPENSION BALL JOINT			UPPER BALL JOINT		
		INSP. METHOD	MAX. PLAY	TURNING TORQUE	INSP. METHOD	MAX. PLAY	TURNING TORQUE
Cressida (MX8#) 1989 – 1992	Front	1–(C)	No Play Felt	40 in.•lbf (4.5 N•m) or Less	N/A	N/A	N/A
	Rear	3	No Play Felt	31 in.•lbf (3.5 N•m) or Less	2–(A)	No Play Felt	31 in.•lbf (3.5 N•m) or Less
Supra (MA70) 1989 – 1994	Front	1–(A)	0.4 mm	4 in.•lbf (0.5 Nm) or Less	2–(A)	No Play Felt	31 in.•lbf (3.5 N•m) or Less
	Rear	3	No Play Felt	31 in.•lbf (3.5 N•m) or Less			
Supra (JZA80) 1994 – 1998	Front	1–(A)	0.4 mm	27 in.•lbf (3.0 N•m) or Less	2–(A)	No Play Felt	31 in.•lbf (3.5 N•m) or Less
	Rear	1–(A)	No Play Felt	31 in.•lbf (3.5 N•m) or Less			
Highlander (ACU2#, MCU2#) 2001 – 2003	Front	1–(C)	No Play Felt	31 in.•lbf (3.5 N•m) or Less	N/A	N/A	N/A
Avalon (MCX10, 20) 1995 – 2003	Front	1–(C)	No Play Felt	31 in.•lbf (3.5 N•m) or Less	N/A	N/A	N/A
Camry, Camry Solara (SV2#, VZV21, VCV10, MCV10, 20, 30 ACV 20, 30 SVX 10, 20) 1989 – 2003	Front	1–(C)	No Play Felt	31 in.•lbf (3.5 N•m) or Less	N/A	N/A	N/A

Inspection Information (Continued)

MODEL	LOCATION	LOWER BALL JOINT OR SUSPENSION BALL JOINT			UPPER BALL JOINT		
		INSP. METHOD	MAX. PLAY	TURNING TORQUE	INSP. METHOD	MAX. PLAY	TURNING TORQUE
MR2 (AW1#) 1985 – 1989	Front	1–(C)	No Play Felt	27 in.•lbf (3.0 N•m) or Less	N/A	N/A	N/A
	Rear	1–(C)*1 3*2	No Play Felt	27 in.•lbf (3.0 N•m) or Less*1 31 in.•lbf (3.5 N•m) or Less*2			
MR2 (SW2#) 1990 – 1996	Front	1–(C)	No Play Felt	22 in.•lbf (2.5 N•m) or Less	N/A	N/A	N/A
	Rear			27 in.•lbf (3.0 N•m) or Less			
MR2 (ZZW30) 2000 – 2003	Front	1–(C)	No Play Felt	22 in.•lbf (2.5 N•m) or Less	N/A	N/A	N/A
	Rear	3		9 in.•lbf (1.0 N•m) or Less			
Celica (AT180, ST18#) 1990 – 1993	Front	1–(C)	No Play Felt	35 in.•lbf (4.0 N•m) or Less	N/A	N/A	N/A
Celica (AT200, ST20#, ZZT23#) 1994 – 2003	Front	1–(C)	No Play Felt	44 in.•lbf (5.0 N•m) or Less	N/A	N/A	N/A
Prius (NHW11) 2001 – 2003	Front	1–(C)	No Play Felt	44 in.•lbf (5.0 N•m) or Less	N/A	N/A	N/A
Corolla (AE9#, 10#) 1988 – 2003	Front	1–(C)	No Play Felt	27 in.•lbf (3.0 N•m) or Less	N/A	N/A	N/A
Corolla/ Corolla Matrix (AE10#, ZZE11#, 13#) 1988 – 2003	Front	1–(C)	No Play Felt	44 in.•lbf (5.0 N•m) or Less	N/A	N/A	N/A
ECHO (NCP1#) 2000 – 2003	Front	1–(C)	No Play Felt	31 in.•lbf (3.5 N•m) or Less	N/A	N/A	N/A
Tercel, Paseo (EL4#, 5#) 1991 – 1999	Front	1–(C)	No Play Felt	27 in.•lbf (3.0 N•m) or Less	N/A	N/A	N/A

Inspection Information (Continued)

MODEL	LOCATION	LOWER BALL JOINT OR SUSPENSION BALL JOINT			UPPER BALL JOINT		
		INSP. METHOD	MAX. PLAY	TURNING TORQUE	INSP. METHOD	MAX. PLAY	TURNING TORQUE
Previa (TCR1#, 2#) 1990 – 1997	Front	1–(C)	No Play Felt	35 in.•lbf (4.0 N•m) or Less	N/A	N/A	N/A
Sienna (MCL10) 1998 – 2003	Front	1–(C)	No Play Felt	31 in.•lbf (3.5 N•m) or Less	N/A	N/A	N/A
RAV4/ RAV4 EV (SXA1#, BEA11) 1996 – 2000	Front	1–(C)	No Play Felt	40 in.•lbf (4.5 N•m) or Less	N/A	N/A	N/A
	Rear	3	No Play Felt	31 in.•lbf (3.5 N•m) or Less			
RAV4 (ACA2#) 2001 – 2003	Front	1–(C)	No Play Felt	44 in.•lbf (5.0 N•m) or Less	N/A	N/A	N/A
Land Cruiser 100 (UZJ100) 1999 – 2003	Front	1–(A)	No Play Felt	27 in.•lbf (3.0 N•m) or Less	2–(A)	No Play Felt	40 in.•lbf (4.5 N•m) or Less
Sequoia (UCK35, 45) 2001 – 2003	Front	1–(A)	0.5 mm	22 in.•lbf (2.5 N•m) or Less	2–(A)	No Play Felt	40 in.•lbf (4.5 N•m) or Less
4Runner (VZN120, 13#, RN13#, 12#) 1989 – 1995	Front	1–(C)	2.3 mm	53 in.•lbf (6.0 N•m) or Less	2–(B)	No Play Felt	Turns Smoothly
4Runner (RZN18#, VZN18#) 1996 – 2003	Front	1–(A)	0.5 mm	22 in.•lbf (2.5 N•m) or Less	2–(A)	No Play Felt	40 in.•lbf (4.5 N•m) or Less
Tundra (VCK30, 40, UCK30, 40) 2000 – 2003	Front	1–(A)	0.5 mm	22 in.•lbf (2.5 N•m) or Less	2–(A)	No Play Felt	40 in.•lbf (4.5 N•m) or Less

Inspection Information (Continued)

MODEL	LOCATION	LOWER BALL JOINT OR SUSPENSION BALL JOINT			UPPER BALL JOINT		
		INSP. METHOD	MAX. PLAY	TURNING TORQUE	INSP. METHOD	MAX. PLAY	TURNING TORQUE
Tacoma*3 (RZN140, 150, VZN150) 1995 – 2003	Front	1–(A)	0.5 mm	40 in.•lbf (4.5 N•m) or Less	2–(A)	No Play Felt	40 in.•lbf (4.5 N•m) or Less
Tacoma*4 (RZN140, 150, VZN150) 1995 – 2003	Front	1–(A)	0.5 mm	31 in.•lbf (3.5 N•m) or Less	2–(A)	No Play Felt	40 in.•lbf (4.5 N•m) or Less
Tacoma (RZN161, 171, 19#, VZN160, 170, 195) 1995 – 2003	Front	1–(A)	0.5 mm	22 in.•lbf (2.5 N•m) or Less	2–(A)	No Play Felt	40 in.•lbf (4.5 N•m) or Less
Truck*5 (RN8#, 90 VZN85, 9#) 1989 – 1995	Front	1–(B)	2.3 mm	44 in.•lbf (5.0 N•m) or Less	2–(A)	2.3 mm	35 in.•lbf (4.0 N•m) or Less
Truck*6 (RN8#, 90 VZN85, 9#) 1989 – 1995	Front	1–(B)	0.5 mm	44 in.•lbf (5.0 N•m) or Less	2–(A)	2.3 mm	35 in.•lbf (4.0 N•m) or Less
Truck (RN10#, 11# VZN10#, 110) 1989 – 1995	Front	1–(C)	2.3 mm	53 in.•lbf (6.0 N•m) or Less	2–(B)	2.3 mm	Turns Smoothly
T–100 (RCK10, VCK1#) 1993 – 1998	Front	1–(A)	0.5 mm	62 in.•lbf (7.0 N•m) or Less	2–(A)	1.9 mm	35 in.•lbf (4.0 N•m) or Less
T–100 (VCK2#) 1993 – 1998	Front	1–(C)	2.3 mm	53 in.•lbf (6.0 N•m) or Less	2–(B)	No Play Felt (from 1995 MY)	Turns Smoothly

*1 Lower Ball Joint

*2 Suspension Arm Ball Joint

*3 With Serial Number Prior to Z718190

*4 With Serial Number After and including Z718190

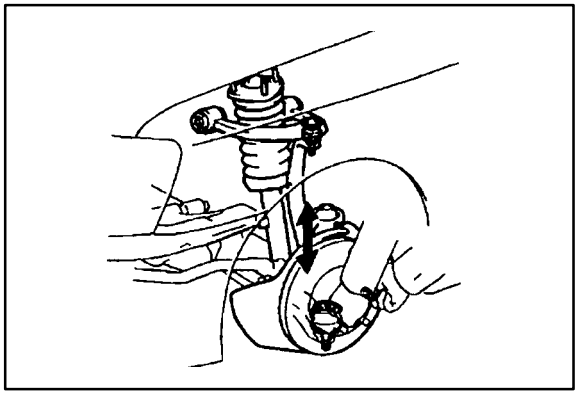
*5 With Serial Number Prior to those listed in *6

*6 RN80–0087125, RN80–5130170, RN85–0004477, RN85–5046258, RN85–9010725, RN90–0014600, RN90–5047105, RN90–9002376, VZN85–0003605, VZN85–5004547, VZN90–5025989, VZN95–0025290, VZN90–0006119

On–Vehicle Inspection

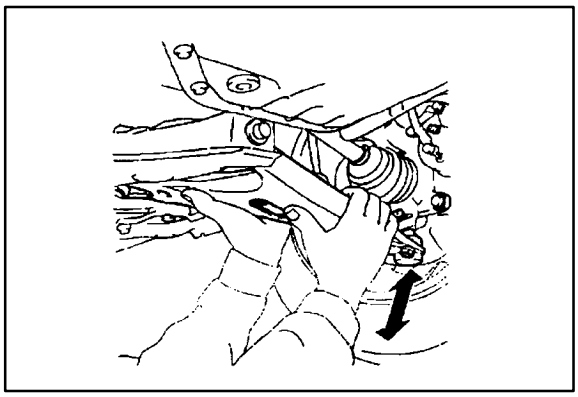
NOTE:
- **Be sure to check the table for the applicable inspection type based on the vehicle model.**
- **Refer to the table for the standard free play values.**

1. Inspect Lower Ball Joint Free Play



A. Move the hub up and down by hand (most models with wishbone suspension):
   a. Remove the tire.
   b. Install the 2 lug nuts.
   c. Inspect the free play while moving the lug nuts up and down at a force of 67 lbf (294 N, 30 kgf).

B. Move the lower arm using a lever (some models with double wishbone type suspension):
   a. Lift up the vehicle.
   b. Place the tip of the lever to the wheel and inspect the free play while moving the lower arm up and down.



C. Move the lower arm by hand (all models with strut type suspension and some models with wishbone type suspension):
   a. Lift up the vehicle.
   b. Inspect the free play while moving the lower arm up and down at a force of 67 lbf (294 N, 30 kgf).

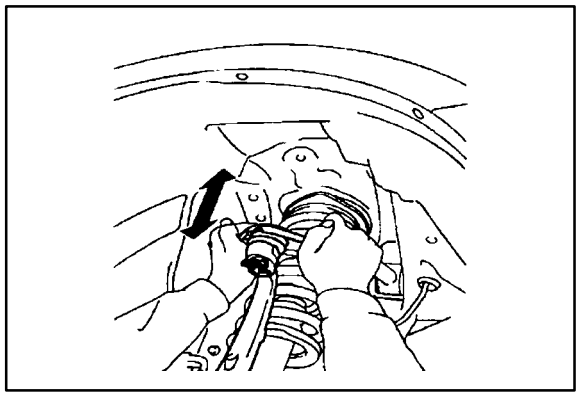
On–Vehicle Inspection (Continued)

2. Inspect Upper Ball Joint Free Play

A. Move the upper arm by hand (models with the LOWER control arm linked by a torsion bar, and all models using a coil spring).

a. Remove the front tire.

b. Inspect the free play while moving the upper arm up and down at a force of 67 lbf (294 N, 30 kgf).



B. Move the tire with a lever (models with the UPPER control arm linked by a torsion bar).

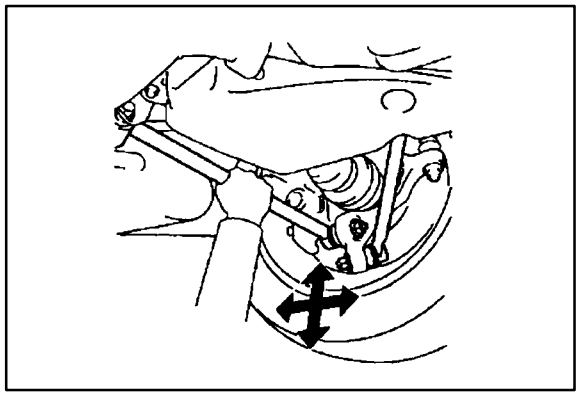
a. Lift up the vehicle.

b. Place the lever under the tire, and inspect the free play while lifting the tire using a wooden stick, etc., as a fulcrum.

3. Inspect the Suspension Arm Ball Joint Free Play

A. Lift up the vehicle.

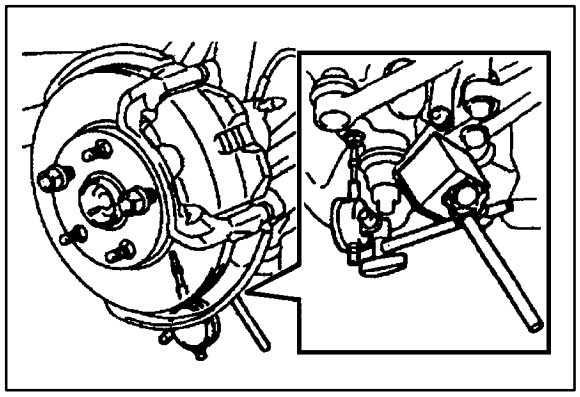
B. Inspect the free play while moving the control arm by hand.



(Reference)

Free Play Inspection Method (Gauge Installation)

- Position the dial gauge between the arm (upper or lower) and the knuckle, and measure free play.
  (This illustration shows how to measure free play for vehicles with double wishbone type suspension with coil spring.)



4. Inspect Ball Joint Dust Cover

Check for cracks and grease leaks on the dust cover (boots).

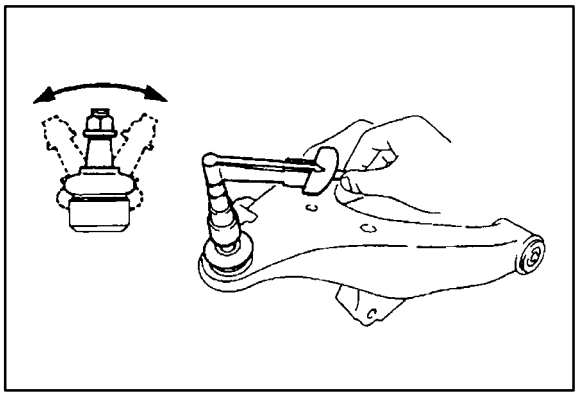
Turning Torque Inspection

Inspect Ball Joint Turning Torque

Move the stud back and forth 5 times, and then turn the stud continuously at 3–5 seconds per turn, and measure the turning torque at the 5th turn.

HINT:

Refer to the table for standard values for the turning torque.



TOYOTA

Technical Service BULLETIN

December 24, 1999

Title:

YEAR 2000 READINESS DISCLOSURE

Models:

All Models

TSB

PG032–99

PRODUCT GENERAL INFORMATION

Introduction

Based upon information we have obtained from our suppliers,[1] all factory–installed systems in Toyota cars, sports utility vehicles and trucks distributed and/or sold by Toyota ("Vehicles")[2] will not be affected by the change of date from 1999 to the year 2000.

Toyota anticipates no problems with past, current or future Toyota brand vehicles or Genuine Toyota parts and accessories regarding year 2000 readiness. We hope the following information is helpful to you.

Please contact our Customer Service Department at 1–800–331–4331 should you have any other questions.

Applicable Vehicles

- **All Models**

Warranty

WARRANTY STATEMENT WITH RESPECT TO TOYOTA BRAND VEHICLES

Toyota is pleased to confirm that the manufacturer's limited express warranty and Toyota's powertrain warranty warrant that all factory–installed systems in new Vehicles and Toyota Certified Used Vehicles shall be free of any defect arising solely due to a change in date from the year 1999 to the year 2000.[3]

With respect to Vehicles no longer covered under such Toyota limited express warranty, Toyota is not aware of any operational safety or functional impact the year 2000 date change would have upon any factory–installed system in Toyota Vehicles. Should Toyota become aware of any material impact to the operational safety or functionality of such systems, Toyota shall publish such information promptly.

WARRANTY STATEMENT WITH RESPECT TO GENUINE TOYOTA PARTS AND ACCESSORIES

Toyota is pleased to confirm that the manufacturer's limited express warranty warrants that all new Toyota Genuine Parts and Accessories shall be free of any defect arising solely due to a change in date from the year 1999 to the year 2000. [3]

With respect to products no longer covered under a Toyota limited express warranty, Toyota is not aware of any operational safety or functional impact the year 2000 date change would have upon such products. Should Toyota become aware of any material impact to the operational safety or functionality of such a product, Toyota shall publish such information promptly.

[1] Toyota relies on the statements made by its suppliers and has not independently verified such information.
[2] Vehicles includes alternative fuel vehicles.
[3] Please refer to terms of limited express warranty for disclaimers, limitations and restrictions.

Parts & Accessories

GENUINE TOYOTA PARTS AND ACCESSORIES

Based upon information we have obtained from our suppliers,[1] all new Genuine Toyota Parts and Accessories will not be affected by the change of date from 1999 to the year 2000.

DEALER–INSTALLED AND OTHER THIRD PARTY–INSTALLED SYSTEMS/ PRODUCTS

Our dealers and distributors may sell and/or install products that are not Genuine Toyota Parts and Accessories. Toyota can only determine the Year 2000 readiness status of Genuine Toyota Parts and Accessories. Therefore, the above statements do not apply to products that are not Genuine Toyota Parts and Accessories or were not installed by the factory. We encourage you to contact your dealer or other relevant third party regarding products installed on your Toyota vehicle(s) that are not Genuine Toyota Parts and Accessories and/or were not installed by the factory to determine any Year 2000 issues associated with those products.

[1] Toyota relies on the statements made by its suppliers and has not independently verified such information.

TOYOTA

Technical Service BULLETIN

October 1, 1999

Title:

TIRE INFLATION & WHEEL LUG TORQUE REFERENCE CHART

Models:

All '00 Models

TSB

Introduction

Proper tire inflation is important to **maximize tire life** and **vehicle ride comfort.** 2000 MY Toyota vehicles are available with a wide variety of wheel sizes and tire profiles. **Prior to customer vehicle delivery,** refer to the following table to identify the appropriate tire pressure setting. Adjust tire pressures accordingly.

Applicable Vehicles

- **All 2000 Models**

Tire Pressure Settings

MODEL	TIRE SIZE	TIRE PRESSURE COLD		WHEEL NUT TORQUE (ft•lbf)
		FRONT (psi)	REAR (psi)	
Tundra	P245/70R16 106S	26	35	83
	P265/70R16 111S	26	29	83
Tacoma	P195/75R14 92S	29	35	83
	P215/70R14 96S	29	29	83
	P225/75R15 102S	26	29	83
	P265/75R15 112S	26	26	83
	31X10.5R15LT C	26	29	83
Tacoma PreRunner	P225/75R15 102S	26	29	83
	P265/75R15 112S	26	26	83
	31X10.5R15LT C	26	29	83
Land Cruiser	P275/70R16 114S	29/29*	32/35*	97
4Runner	P225/75R15 102S	29	29	83
	P265/70R16 111S	32	32	83
RAV4 2 Door	P215/70R16 99S	26	26	76
	P235/60R16 100H	25	25	76
RAV4 4 Door	P215/70R16 99S	28	26	76
	P235/60R16 100H	25	25	76
Sienna	P205/70R15 95S	35	35	76
	P215/65R15 95S	32/35*	32/35*	76

* Recommended tire inflation pressure under high load capacity.

Tire Pressure Settings (Continued)

MODEL	TIRE SIZE	TIRE PRESSURE COLD		WHEEL NUT TORQUE (ft•lbf)
		FRONT (psi)	REAR (psi)	
ECHO	155/80R13 79S	32	32	76
	P175/65R14 81S	32	32	76
Corolla	P175/65R14 81S	30	30	76
	P185/65R14 85S	30	30	76
Celica 2ZZ–GE	P205/55R15 87V	32	32	76
	205/50R16 87V	32	32	76
Celica 1ZZ–FE	195/60R15 88H	29	29	76
	P195/60R15 87H	29	29	76
Camry	P195/70R14 90S	30	30	76
	P205/65R15 92H	32*/29**/32***	32*/29**/32***	76
	P205/60R16 91H	32	32	76
Camry Solara	P205/65R15 92H	29	29	76
	P205/60R16 91H	32	32	76
Avalon	P205/65R15 92H	31	31	76
	P205/60R16 91H	32	32	76

* For vehicle capacity weight.

** For reduced loads (1 to 4 passengers).

*** For trailer towing.

TOYOTA

Technical Service BULLETIN

May 18, 2004

Title:

REPAIR MANUAL CORRECTIONS INDEX

Models:

All Models

TSB

PG003-04

PRODUCT GENERAL INFORMATION

Introduction

Correction pages are available for the service publications listed below. This bulletin summarizes service publication content changes that have been released between February 2003 and March 2004. These changes have already been implemented in the Toyota Technical Information System (TIS). For the most accurate service information content, technicians are strongly encouraged to refer to TIS (*http://tis.toyota.com*). Internet access is also available to Toyota service information content by subscription (*http://techinfo.toyota.com*).

NOTE:

Inventory quantities of printed correction pages are limited, and part numbers are obsolete when supplies are exhausted. When ordering a technical publication (i.e., Repair Manual, Electrical Wiring Diagram) from the MDC, any correction page(s) associated with that particular publication which were published at the time of purchase will automatically be included with your order.

Parts Information

Correction pages may be ordered from the Materials Distribution Center (MDC) through Dealer Daily or by calling the MDC at 1–800–622–2033 using the corresponding part numbers from the following table.

	Publication	Number	Page(s)	Part Number
4Runner	2002 4Runner	RM887–U2	BE–18, BE–19	00400–RM887–3043B
	2003 4Runner	RM1034–U	14–31, 14–70, 14–85	00400–RM103–2174
		RM1001–U1	02–32 to 02–34	00400–RM100–3110
			05–816, 05–817,	00400–RM100–3162
			05–817–1, 05–817–2	↓
			03–46, 05–449	00400–RM100–3194
		RM1001–U2	11–21–1 to 11–21–4	00400–RM100–2172B
			27–15, 27–16	00400–RM100–3025B
			73–23, 73–26	00400–RM100–3103B
			30–38	00400–RM100–3110B
			27–7, 27–30, 27–35	00400–RM100–3239B
Avalon	2002 Avalon	RM872–U2	BE–23, BE–24	00400–RM872–3080B
	2003 Avalon	EWD487–U	209	00400–EWD48–3183
		RM953–U2	BE–4 to BE–6	00400–RM953–2164B
			BE–102 to BE–105	00400–RM953–2196B
			BE–23, BE–24	00400–RM953–3088B

	Publication	Number	Page(s)	Part Number
Camry	1997 Camry	RM503–U2	BE–69	00400–RM503–2218B
	2000 Camry	RM742–U2	BE–70	00400–RM742–2221B
	2002 Camry	EWD461–U	38, 78, 289,	00400–EWD46–2181
			Overall M:5 (cont'd)	↓
		RM881–U1	05–894, 05–895,	00400–RM881–3158
			05–895–1, 05–895–2	↓
		RM881–U2	12–10, 12–20	00400–RM881–3086B
			14–57	00400–RM881–3142B
			33–3, 33–7, 33–14	00400–RM881–3245B
	2003 Camry	RM972–U1	05–1008, 05–1009,	00400–RM972–3160
			05–1009–1, 05–1009–2	↓
		RM972–U2	73–8	00400–RM972–2183B
			12–9, 12–19	00400–RM972–3087B
			14–54	00400–RM972–3141B
			33–3, 33–7, 33–14	00400–RM972–3246B
		RM1026–U	73–1, 73–4	00400–RM102–3101
Celica	2004 Celica	RM1066–U1	DI–380	00400–RM106–3307
Corolla	2003 Corolla	RM938–U1	05–484 to 05–487	00400–RM938–2160
			05–421, 05–422,	00400–RM938–3155
			05–422–1, 05–422–2	↓
			05–40 to 05–42,	00400–RM938–3236
			05–112, 05–113	↓
ECHO	2002 ECHO	RM884–U	DI–108	00400–RM884–3203
	2003 ECHO	RM984–U	DI–154	00400–RM984–3204
Highlander	2002 Highlander	RM918–U1	05–943, 05–962–1	00400–RM918–3108B
			05–710, 05–711,	00400–RM918–3156
			05–711–1, 05–711–2	↓
			03–47	00400–RM918–3232
			32–24, 32–28	00400–RM918–3232B
		RM918–U2	14–56	00400–RM918–3144B
	2003 Highlander	RM987–U1	05–1028, 05–1047–1	00400–RM100–3109
			05–788, 05–789,	00400–RM987–3153
			05–789–1, 05–789–2	↓
			03–47	00400–RM987–3233
		RM987–U2	73–11	00400–RM987–2184B
			14–51	00400–RM881–3143B
Land Cruiser	1999 Land Cruiser	RM661–U2	BE–28, BE–29	00400–RM661–3057B
	2002 Land Cruiser	RM893–U2	BE–28, BE–29	00400–RM722–3060B

	Publication	Number	Page(s)	Part Number
Land Cruiser (Continued)	2003 Land Cruiser	EWD510–U	71, 84, 85, 96, 97,	00400–EWD51–2195
			244, 245, 383, 387,	↓
			388, 396, Overall M:24	↓
		RM966–U1	SS–23	00400–RM966–3195
		RM966–U2	BE–95	00400–RM966–2185B
			BE–34, BE–35	00400–RM966–3061B
Matrix	2003 Matrix	RM940–U1	05–710, 05–711,	00400–RM940–3154
			05–711–1, 05–711–2	↓
			05–89, 05–95,	00400–RM940–3275
			05–241, 05–247	↓
		RM940–U2	65–7	00400–RM940–2205B
MR2 Spyder	2001 MR2 Spyder	EWD424–U	61, Overall M:2	00400–EWD42–2214
		RM801–U	DI–180 to DI–188,	00400–RM801–2192
			DI–188–1, DI–188–2	↓
	2002 MR2 Spyder	RM900–U	BR–17	00400–RM900–1143
			DI–189	00400–RM900–2190
	2003 MR2 Spyder	RM967–U1	DI–245	00400–RM967–2189
			SS–35	00400–RM967–3006
			DI–121, DI–128,	00400–RM967–3278
			DI–134, DI–156	↓
		RM967–U2	SA–3, SA–5, SA–7	00400–RM967–3006B
Prius	2001 Prius	RM778–U1	DI–671	00400–RM778–2095R
	2002 Prius	RM883–U1	DI–762, 766 to 769,	00400–RM883–2224
			774, 777 to 780, 782,	↓
			785 to 792, 794, 796	↓
			DI–337 to DI–344	00400–RM883–3241
	2003 Prius	RM957–U1	DI–762, 766 to 769,	00400–RM957–2223
			774, 777 to 780, 782,	↓
			785 to 792, 794, 796	↓
			DI–337 to DI–344	00400–RM957–3242
	2004 Prius	EWD555–U	20, 22, 23, 194,	00400–EWD55–3296
			293, 297, 306, 343,	↓
			Overall 4–1, 11–5	↓
RAV4	2002 RAV4	RM891–U1	DI–18	00400–RM891–3091
		RM891–U2	BR–21	00400–RM891–1142B
Sequoia	2002 Sequoia	RM886–U1	IN–17	00400–RM886–3309
		RM886–U2	BE–54	00400–RM886–3096B
	2003 Sequoia	EWD495–U	37, 246, Overall M:24	00400–EWD49–2213
			199, Overall M:15–4	00400–EWD49–5U
		RM959–U1	PP–55	00400–RM959–2125
			DI–605	00400–RM959–2179

	Publication	Number	Page(s)	Part Number
Sequoia (Continued)	2003 Sequoia	RM959–U1	DI–600, DI–602 to DI–605, DI–608 to DI–610	00400–RM959–2204 ↓
			DI–308, DI–328	00400–RM959–2206
			PP–52	00400–RM959–3137
			DI–329	00400–RM959–3179
			DI–128, DI–129, DI–135, DI–136, DI–142, DI–143, DI–163, DI–164	00400–RM959–3271 ↓ ↓
			PP–35	00400–RM959–3228
			SS–38	00400–RM959–3260
			IN–17	00400–RM959–3310
			DI–300, DI–304, DI–404	00400–RM959–3311 ↓
		RM959–U2	SA–98	00400–RM959–2125B
			BE–140	00400–RM959–2179B
			SR–12, BE–24	00400–RM959–2206B
			BE–58	00400–RM959–3094B
			SA–90	00400–RM959–3137B
	2004 Sequoia	EWD541–U	199, Overall M:15–4	00400–EWD54–3214
		RM1089–U1	IN–17	00400–RM108–3312
			DI–446, DI–450, DI–550	00400–RM108–3313 ↓
Sienna	2002 Sienna	RM871–U2	BE–23, BE–24	00400–RM871–3081B
			SR–3	00400–RM871–3132B
	2003 Sienna	EWD490–U	193	00400–EWD49–3208
		RM954–U2	SR–3	00400–RM954–3133B
			BE–23, BE–24	00400–RM954–3082B
	2004 Sienna	EWD524–U	96, 97, 126, 127, Overall M:1	00400–EWD52–3184 ↓
		RM1025–U1	05–304, 05–355, 05–359	00400–RM102–3126 ↓
			05–865, 05–866, 05–866–1, 05–866–2	00400–RM102–3163 ↓
		RM1025–U2	73–23, 73–26	00400–RM102–3102B
			14–1	00400–RM102–3134B
			28–2, 28–3, 28–4	00400–RM102–3135B
			82–3 to 82–6, 82–6–1, 82–6–2	00400–RM102–3186B ↓
Solara	2003 Solara	RM955–U1	DI–287	00400–RM955–3219
	2004 Solara	EWD554–U	168 to 170, Overall M:15–1	00400–EWD554–3294 ↓

	Publication	Number	Page(s)	Part Number
Tacoma	2002 Tacoma	RM921–U2	BE–40	00400–RM921–3084B
		RM921–U1	DI–323	00400–RM921–3218
	2003 Tacoma	RM1002–U2	BE–40	00400–RM100–3085B
Tundra	2002 Tundra	RM885–U2	BE–52 to BE–56	00400–RM885–3105B
	2003 Tundra	EWD491–U	139, 240, Overall M:30 ↓	00400–EWD49–12136
			31, 33, 235, 261, Overall M:29 ↓	00400–EWD49–2216
			176, Overall M:18–5	00400–EWD49–3210
		RM956–U1	SS–79	00400–RM956–3258
			DI–115, DI–117, DI–316, DI–318 ↓	00400–RM956–3282
		RM956–U2	BE–57 to BE–60	00400–RM956–3106B
	2004 Tundra	EWD567–U	230, 446, Overall M:19–5, M:49–4 ↓	00400–EWD56–3209
			21, 94, 210, 515	00400–EWD56–3298

TOYOTA

Technical Service BULLETIN

February 4, 2000

Title:

FRONT LICENSE PLATE BRACKET INSTALLATION

Models:

'00 MR2 Spyder

TSB

Introduction

The 2000 model year MR2 Spyder front license plate bracket and three attaching screws are placed in the glovebox of the vehicle at the assembly plant. For states that require a front license plate, install the bracket on the front bumper cover during Pre–Delivery Service (PDS) according to the following procedures.

Applicable Vehicle

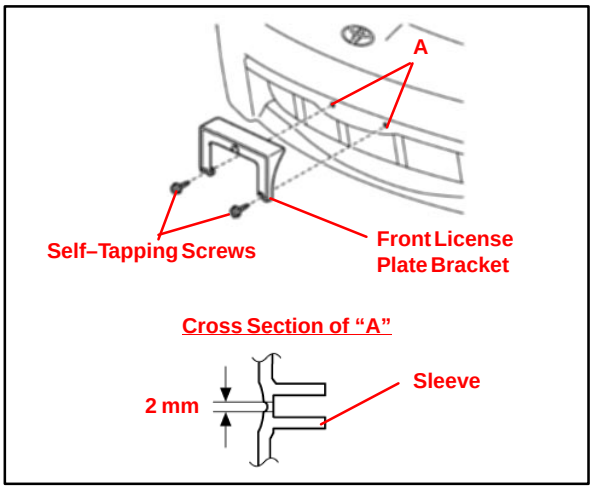
- **2000** model year **MR2 Spyder**

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Installation Procedure

1. Drill two holes, 2 mm (0.078 in.) diameter, at dimples “A” on the front bumper.

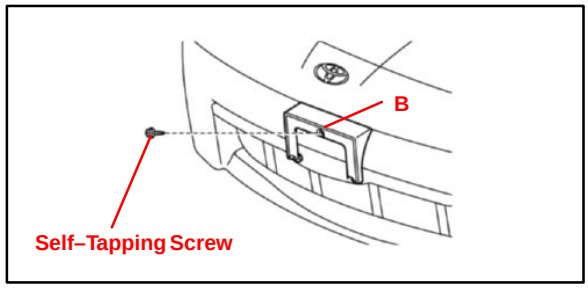


NOTE:
Do NOT drill holes oversize.

2. Using two self–tapping screws, install the front license plate bracket on the front bumper.

NOTE:
Screw the driver’s side self–tapping screw in first.

3. Drill one hole, 2 mm (0.078 in.) diameter, on the front bumper at hole “B” of the bracket.

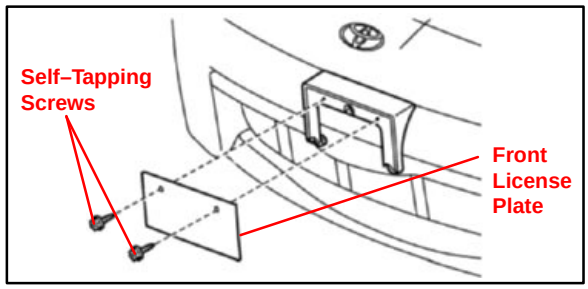


NOTE:
Do NOT drill hole oversize.

4. Screw the self–tapping screw into hole “B” to retain the bracket.

NOTE:
Do NOT overtighten the screw because there is no sleeve behind the bumper cover at “B”.

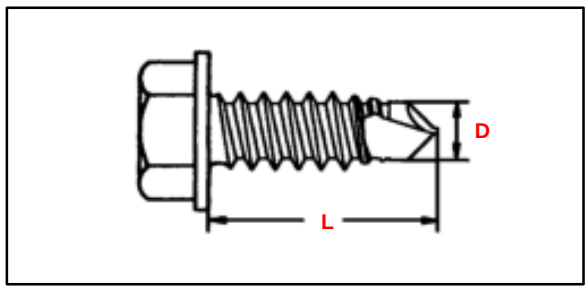
5. Install the front license plate to the bracket using self–tapping screws of a non–corroding type having the following size:



Length (L):
18.0 – 25.0 mm (0.71 – 0.98 in.)

Diameter (D):
6.0 mm (0.24 in.)

Pitch:
2.5 mm (0.098 in.).



TOYOTA

Technical Service BULLETIN

February 18, 2000

Title:

ECU-B1 FUSE INSTALLATION DURING PDS

Models:

'00 MR2 Spyder

TSB

PG005–00

PRODUCT GENERAL INFORMATION

Introduction

To minimize battery discharge during transportation and storage, the ECU–B1 fuse has been removed at the assembly plant.

Applicable Vehicles

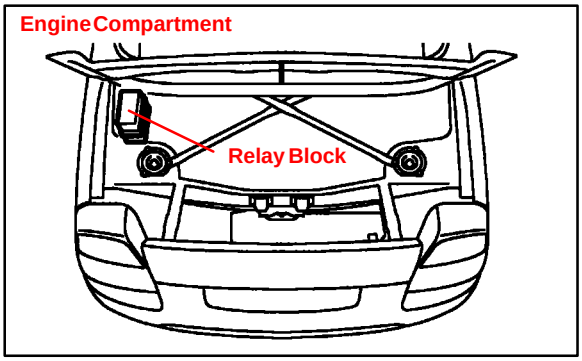
- **2000** model year **MR2 Spyder**

Affected Systems

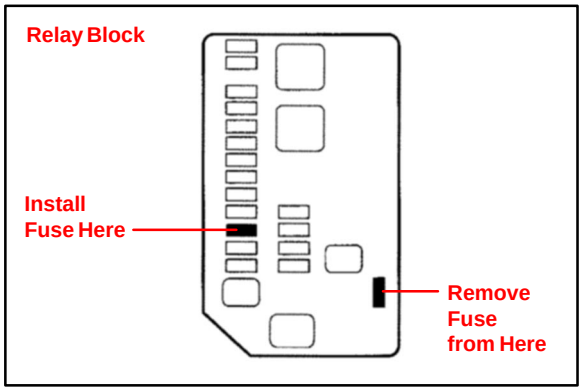
The ECU–B1 fuse provides power to the DOME, Radio1, and ECU–B circuits. Removal of the ECU–B1 fuse will affect the following systems:

- Clock
- Key Reminder Buzzer
- Day Time Running Light System
- Radio and CD Player
- Interior Light
- Light Reminder Buzzer
- Radio Antenna Motor
- Open Door Warning Light (with Ignition OFF)

1. The ECU–B1 fuse (25 A) is stored in the blank space of the Relay Block in the engine compartment.



2. During Pre–Delivery Service (PDS), install the ECU–B1 fuse in the Relay Block as shown.



NOTE:

If the vehicle is stored at the dealership for a long period of time after PDS, disconnect the negative battery terminal to prevent battery discharge. Refer to TSB EL001–96 for battery maintenance information.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

September 1, 1999

Title:

2000 MODEL YEAR PRE-DELIVERY SERVICE (PDS)

Models:

All Models

TSB

Introduction

Pre–Delivery Service is a critical step in satisfying your dealership's new car customers. Customer feedback indicates the following areas deserve special attention when performing PDS:

- Careful inspection for Paint Chips/Scratches and Body Dents/Dings
- Proper Operation of Electrical Accessories (including interior light, clock and radio reset).
- Interior Cleanliness
- Proper Function of Mechanical Systems

Periodic in–dealership training for technicians, both new and experienced, is a requirement to ensure that PDS is performed correctly. A number of training resources are available in your dealership.

- Pre–Delivery Service – The Final Touch video (P/N 00401–43067)
- Pre–Delivery Service Technician's Handbook (P/N 00401–43068)

The "Service Manager's Guide to Technician Orientation and Training" is included in the Dealer Delivery Quality Operations Guide (P/N 00116–DDQOG–98) and provides a sample training agenda to conduct a successful session in your dealership. (These training materials have been distributed to dealers. Additional copies are available through the TDN system – Dealer Support Materials.)

A new PDS form has been developed for the 2000 model year. Some check points have been added, expanded or clarified. For improved customer satisfaction, please pay particular attention to the Fuse Installation and Electrical Operation areas indicated in bold red type.

PDS Form Ordering Information

An initial distribution of PDS forms will be mailed to each dealership. Additional PDS forms (P/N 00406–PDS00) may be ordered via TDN – Dealer Support Materials or from the Material Distribution Center utilizing form 1450.

Warranty Policy

If the need for additional repairs or adjustments is noted during the Pre–Delivery Service, required service should be performed under warranty. Reimbursement should be requested via regular warranty channels.

The Warranty Policy and Procedures Manual requires that you maintain the completed PDS check sheet in the customer file. If you cannot produce a completed form for each retailed vehicle upon TMS and/or Region/Distributor audit, the PDS payment amount will be subject to debit.

An additional Repair Order completed in conjunction with normal PDS must have time punch/flags for service. If multiple repairs are performed, separate time flags must be punched for each repair.

See Page 7, Warranty Information section for Opcode information.

TOYOTA

1999 TOYOTA PRE-DELIVERY SERVICE CHECK SHEET

A. BEFORE INSPECTION

	OK	Adjust/ Repair
01 INSTALL FUSE(S) See Application Chart on back	☐	
02 Install outside rearview mirrors*		☐

B. FUNCTIONAL OPERATION

Apply parking brake and turn ignition "ON;" place gear selector in reverse; turn on lights and rear defogger. Unlock doors; release gas door; release trunk hatch.

	OK	Adjust/ Repair
01 Check dome, courtesy, map and sun visor lights*	☐	☐
02 Check warning/indicator lights, gauges and horn	☐	☐
03 Check passenger air bag system cutoff switch and light*	☐	☐
04 Check windshield wipers and washers	☐	☐
05 Check headlights, instrument lights, turn signals, emergency flashers and brake lights	☐	☐
06 Check inside/outside rearview mirror operation/adjustment	☐	☐
07 Check cigarette lighter and power outlet*	☐	☐
08 Check sunroof/convertible top*	☐	☐
09 Check audio system/remote function and set clock*	☐	☐
10 Install shift-lock override button cover		☐

C. WALKAROUND INSPECTION

Start at left front door. Check window and door lock operation (from master power switch, if equipped). Continue around vehicle in a counterclockwise direction checking each door and window operation, child door locks, seat belts, interior condition, all lights, trunk contents. Remove rubber body plugs from glove box for installation during UNDER VEHICLE INSPECTION. Finish by checking headlight aim and continue into UNDER HOOD checks.

	OK	Adjust/ Repair
01 Check window operation	☐	☐
02 Check door and door lock operation, including wireless remote control/theft deterrent system*	☐	☐
03 Check that engine starts with all keys	☐	☐
04 Check power sliding door operation (Sienna)*	☐	☐
05 Check that Child Safety Door Locks are in normal (unlocked) position*	☐	☐
06 Check seats and seat belt operation	☐	☐
07 Check integrated child seat and seat belt operation	☐	☐
08 Check rear defogger*	☐	☐
09 Check side marker, tail, backup and license plate lights	☐	☐
10 Check trunk light* and trunk trim appearance	☐	☐
11 Check spare tire pressure and jack and tool installation	☐	☐
12 Check headlight aim	☐	☐

D. UNDER HOOD

	OK	Adjust/ Repair
01 Check engine oil and ATM* fluid levels	☐	☐
02 Check brake, clutch* and power steering fluid levels	☐	☐
03 Check engine coolant level	☐	☐
04 Check battery state-of-charge by Open Circuit Voltage method. Recharge if below 12.4 volts (75% charge)	☐	☐

* Inspect or Install when Equipped/Required

E. UNDER VEHICLE (ON HOIST)

	OK	Adjust/ Repair
01 Remove disc brake anti-rust covers*	☐	
02 Remove front spring spacers* (See Application Chart on back)		☐
03 Remove engine protector (Celica w/5S-FE)		☐
04 Install rubber body plugs*		☐
05 Inspect tires for defects/damage and adjust tires' pressure	☐	☐
06 Install wheel covers/caps		☐
07 Install mudguards*		☐

F. ROAD TEST

A complete road test helps assure Customer Satisfaction. Drive vehicle over a variety of road surfaces and driving conditions. Check for unusual noise and driving performance.

Enter Odometer Reading

Reading before test _____

Reading after test _____

	OK	Adjust/ Repair
01 Check cold engine operation	☐	☐
02 Check engine operation during warm-up	☐	☐
03 Check engine at normal operating temperature	☐	☐
04 Check clutch/transmission operation	☐	☐
05 Check brake and parking brake operation	☐	☐
06 Check steering operation and off-center	☐	☐
07 Inspect for abnormal noises and vibration	☐	☐
08 Inspect for squeaks and rattles	☐	☐
09 Check front and rear* heater and A/C* operation	☐	☐
10 Check cruise control operation*	☐	☐
11 Check front seat heater* and seat memory function*	☐	☐

G. FINAL INSPECTION AND CLEANING

	OK	Adjust/ Repair
01 Remove interior protective covers, unnecessary labels, tags, etc.	☐	
02 Visually inspect all interior parts for installation, damage, fit, dirt, etc.	☐	☐
03 Remove Rapgard™ protective film		☐
04 Wash and clean vehicle		☐
05 Inspect paint finish for scratches, chips, rust, dents, damage, etc.	☐	☐
06 Inspect exterior body parts for proper installation, damage, rust, etc.	☐	☐
07 Sign "Commitment to Excellence" sticker (P/N 00103-STICK-PDS96) and affix to window	☐	☐

COMMENTS

_____

_____

_____

_____

_____

Completion and retention of this form is required to comply with Toyota's Warranty Policy.

TECHNICIAN'S SIGNATURE _____ SERVICE MANAGER'S SIGNATURE _____

NAME (PLEASE PRINT) _____ NAME (PLEASE PRINT) _____

THE TOYOTA TOUCH
COMMITMENT TO EXCELLENCE

We hereby certify that all items on this form have been checked and corrected for proper operation as required.

Date	Dealer Name	Dealer Code	Vehicle Identification Number (Sticker)

Order additional forms through the Dealer Support Materials System (MDC).
98-PRT-129

00406 PDS99

Before Inspection

When performing new car Pre–Delivery Service, install fuse(s) before moving vehicle from storage lot so that FUNCTIONAL OPERATION checks can begin as soon as vehicle is moved into the service stall.

A01 Install fuse(s)*

MODEL	FUSE(S)	STORED IN
Avalon	FUSE (or SHORT PIN) NOT REMOVED	
Camry (VINs starting with 4T1)		
Camry (VINs starting with JT2)	SHORT PIN	FUSE BOX
Camry Solara		
Celica	DCC	FUSE BOX
Corolla	DOME	FUSE BOX
ECHO		
Land Cruiser	RADIO, ECU–B1	FUSE BOX
MR2 Spyder	ECU–B1	FUSE BOX
RAV4	DOME	FUSE BOX
Sienna	FUSE (or SHORT PIN) NOT REMOVED	
Tacoma		
Tundra		
4Runner	DOME, MPX–B	FUSE BOX

A02 Install outside rearviewmirrors*

Functional Operation

Apply parking brake and turn ignition “ON”, place gear selector in reverse, turn on lights and rear defogger. Unlock all doors, release fuel door, release trunk/rear hatch.

B01 Check dome, courtesy, map and sunvisor lights*

B02 Check warning/indicator lights, gauges and horn

B03 Check Passenger Air Bag System Cutoff switch and light*

NOTE:

Make sure the Passenger Air Bag Cutoff System is “ON“ when finished with PDS. The indicator light should be off.

Check the system for proper operation by cycling from the “ON” to the “OFF“ position.

Check that the indicator light comes on when the system is “OFF“.

B04 Check windshield wipers and washers

B05 Check headlights, instrument lights, turn signals, emergency flashers and brake lights

Functional Operation (Continued)

B06 Check inside/outside rearview mirror operation/adjustment

B07 Check cigarette lighter and power outlet*

Check the power outlet using an electrical accessory designed for this use.

B08 Check sunroof/convertible top*

> **NOTE:**
> **Convertible top will not operate while car is moving.**

B09 Check audio system and set clock*

B10 Install shift–lock override button cover

Walk–Around Inspection

Starting at the left front door, check window and door lock operation and the operation of all power windows and door locks from master switch on vehicles so equipped. While walking around vehicle in a counterclockwise direction, open left rear door and check operation of window regulator and door lock, set Child Safety Door Lock to the normal (unlocked) position. Assure tightness of interior garnishes and check seat belts. Inspect trunk contents and lights at rear of vehicle. Repeat checks at right rear door. Inspect right front door window regulator and lock operation and garnishes. Check seat and seat belt operation. Continue on around to the front of the vehicle checking lights. Make necessary adaptations for two–door, hatchback, Truck and Sienna models.

C01 Check window operation

C02 Check door and door lock operation, including wireless remote control/theft deterrent system*

C03 Check that engine starts with all keys

C04 Check power sliding door operation (Sienna)*

C05 Check that Child Safety Door Locks are in normal (unlocked) position*

C06 Check Seats and Seat Belt Operation

C07 Check integrated child seat and seat belt operation*

C08 Check rear defogger*

C09 Check side marker, tail, backup and license plate lights

C10 Check trunk light* and trunk trim appearance

C11 Check spare tire pressure and jack and tool installation

> **NOTE:**
> **Compact spare tire – 60 psi (413 kPa).**

C12 Check headlight aim

Ensure that ignition, light switch, etc., are ”OFF” and A/T selector is in PARK.

Under Hood

D01 Check engine oil and ATM* fluid levels

D02 Check brake, clutch* and power steering fluid levels

Visually inspect using see–through reservoirs.

D03 Check engine coolant level

D04 Check battery state–of–charge by Open Circuit Voltage method. Recharge if below 12.4 Volts (75% of charge)

Under Vehicle (On Hoist)

E01 Remove disc brake anti–rust covers*

Visually inspect rotors for rust.

North American produced models are not equipped with anti–rust covers.

E02 Remove front spring spacers*

Remove Spring Spacers from Japan Production Camry V6 models.

Remove Spring Spacers from Celica models.

MODEL	LOCATION
Camry V6 (Japan Production Only)	FRONT COIL SPRINGS
Celica	

E03 Install rubber body plugs*

Install the rubber plugs (stored in glove box) into rear torque box holes.

E04 Inspect tires for defects/damage and adjust tires' pressure

The recommended tire inflation pressure changes with tire size, driving conditions and vehicle model. For precise tire pressure information, refer to the Owner's Manual and/or tire information label located on the vehicle.

Sidewall "Maximum" cold tire inflation pressure should not be used for normal driving.

E05 Install wheel covers/caps

E06 Install mudguards (Solara)

E07 Install antenna (Tundra)

Road Test A complete road test helps assure Customer Satisfaction. Drive vehicle over a variety of road surfaces and driving conditions. Check for unusual noise and driving performance.

F01 Check cold engine operation
Check starting and fast idle operation performance.

F02 Check engine operation during warm–up
Check that engine operates smoothly during warm–up.
Check for unusual noise, engine vibration, rough idle, etc.

F03 Check engine at normal operating temperature
Check engine performance over a broad range of driving conditions, including idle quality, acceleration, cruise and deceleration.

F04 Check clutch/transmission operation
Check clutch operation, including: engagement, disengagement, chattering and unusual noise.
Check manual transmission operation, including shift lever/linkage and unusual noise.
Check automatic transmission operation, including operation in each range, neutral start switch and shift lock system.

F05 Check brake and parking brake operation
Check brake function, including unusual noise, parking brake performance and all related brake system indicator lights.

F06 Check steering operation and off–center
Check steering function and steering wheel centering.
Check for suspension noise.

F07 Inspect for abnormal noises and vibration

F08 Inspect for squeaks and rattles

F09 Check front and rear* heater and A/C* operation

F10 Check cruise control operation*
Check cruise control, including On–Off switch, “SET/COAST”, “RESUME/ACCEL”, and “CANCEL” functions.

F11 Check front seat heater* and seat memory function*

F12 Set/Calibrate compass (Avalon XLS)

Road Test

G01 Remove interior protective covers, unnecessary labels, tags, etc. (Remove protective covers just before delivery to customer).

- Remove plastic covers from door panels, seats, head restraints and sunvisors, as required.
- Remove labels, tags and stickers (except those containing owner information).

> **NOTE:**
> **Consumer Information Label such as Air Bag Information Warning and Bumper Information Labels must be left on the vehicle until delivery to a retail customer.**

G02 Visually inspect all interior parts for installation, damage, fit, dirt, etc.

G03 Remove RapgardTM protective film

G04 Wash and clean vehicle

G05 Inspect paint finish for scratches, chips, rust, dents, damage, etc.

G06 Inspect exterior body parts for proper installation, damage, rust, etc.

G07 Sign “Commitment To Excellence“ sticker (P/N 00405–STICK–PDS98) and affix to window

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
001013	Pre Delivery Service	*	N/A	N/A	N/A

* Variable by model.

TOYOTA

Technical Service BULLETIN

June 10, 2003

Title:

ECM RESET MEMORY FUNCTION

Models:

'00 – '03 All Models & '04 Sienna

TSB

REVISED

TC002-03

TRANSMISSION & CLUTCH

TSB REVISION NOTICE:

- **January 16, 2004: Tundra vehicles were added to the Applicable Vehicles chart.**
- **December 17, 2003: T–100 vehicles were removed from the Applicable Vehicles chart. Previous versions of this TSB should be discarded.**

Introduction

Whenever an automatic transmission is replaced, overhauled or individual components are replaced, use this procedure to clear Engine Control Module (ECM, SAE term: Powertrain Control Module, PCM) "Learned Values" to prevent subsequent driveability complaints.

CAUTION:

Failure to follow the procedure below may lengthen the time to readjust the ECM "Learned Values," potentially resulting in driveability complaints.

Applicable Vehicles

Refer to **Reset Procedure 1** for the following vehicles with Electronically Controlled Automatic Transmissions:

- **2000 – 2003** model year **ECHO** and **Celica** vehicles.
- **2001 – 2003** model year **Highlander** and **RAV4** vehicles.
- **2002 – 2003** model year **Camry** vehicles.
- **2002 – 2003** model year **Solara** vehicles **with 2AZ engine**.
- **2003** model year **Matrix** vehicles.
- **2004** model year **Sienna** vehicles.

Refer to **Reset Procedure 2** for the following vehicles with Electronically Controlled Automatic Transmissions:

- **2000** model year **Highlander** and **RAV4** vehicles.
- **2000 – 2001** model year **Camry** vehicles.
- **2000 – 2001** model year **Solara** vehicles **with 5S engine**.
- **2000 – 2003** model year **Solara** vehicles **with 1MZ engine**.
- **2000 – 2003** model year **4Runner, Avalon, Corolla, Land Cruiser** and **Sienna** vehicles.
- **2000 – 2003** model year **Tacoma** and **Tacoma Pre–Runner** vehicles.
- **2000 – 2003** model year **Tundra** vehicles.
- **2001 – 2003** model year **Sequoia** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Required SSTs

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.0a Software (or later)* 	01002593-005	1

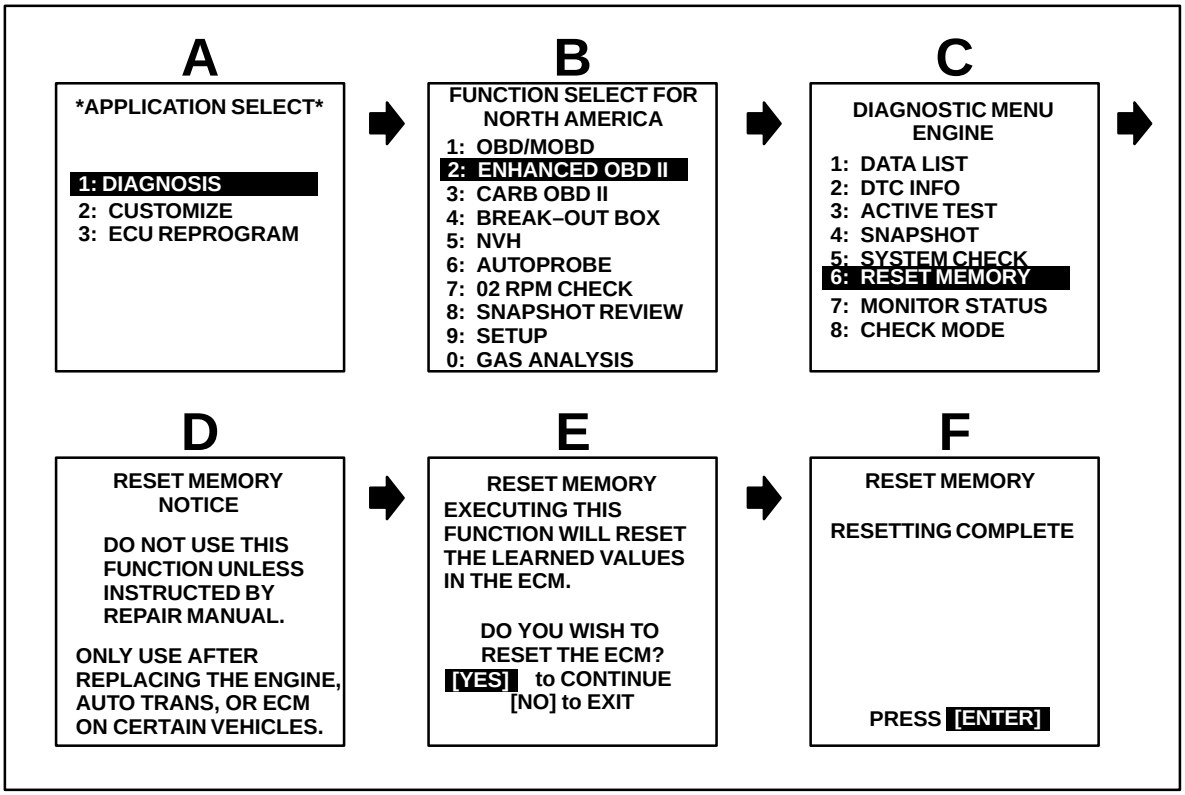
* Essential SSTs.

NOTE:

Additional Diagnostic Tester Kits, Program Cards or SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Reset Procedure 1

1. Connect the Toyota Diagnostic Tester to the vehicle.
2. Reset the ECM (PCM). Refer to the procedures below.



3. Start the engine and warm it up to normal operating temperatures before test–driving.
4. Perform a thorough test drive with several accelerations from a stop with “light throttle” application until proper transmission shifting is verified.

Reset Procedure 2

1. Record radio station presets and No. 1 driver's seat memory position.
2. Disconnect the negative battery cable for 5 minutes.

> **NOTE:**
> **Record presets before disconnecting battery cable.**

3. Reconnect battery cable and reset radio presets and No. 1 driving position seat memory.
4. If necessary, perform the following operations:
   - Initialize moon roof
   - Initialize power windows
   - Calibrate compass

   For more detailed information on performing these operations, refer to TIS for the applicable TSB and/or repair procedures.
5. Start the engine and warm it up to normal operating temperatures before test–driving.
6. Perform a thorough test drive with several accelerations from a stop with "light throttle" application until proper transmission shifting is verified.

TOYOTA
SCION
Technical Service BULLETIN
December 17, 2003

Title:

O2S TEST RESULTS (MODE 05)

Models:

All '96 – '03, '04 Corolla, ECHO, Matrix, Sienna & Scion xA & xB

TSB

SS002-03

SPECIAL SERVICE TOOLS

Introduction

This Service Bulletin contains Oxygen Sensor (O2S) Monitor threshold values for all models from 1996 to 2003 and some 2004 models. Starting in 2004, the O2S Monitor threshold values can be found in the repair manual. These values are used when analyzing the O2S test results to determine the O2S condition.

Applicable Vehicles

- **All 1996 – 2003** model year **Toyota** vehicles.
- **2004** model year **Corolla, ECHO, Matrix** and **Sienna** vehicles.
- **2004** model year **Scion xA** and **xB** vehicles.

Function Description

Checking O2S Test Results

To view O2S test results, the O2S Monitor must be completed and the test results must be checked within the same key cycle. If the ignition key is cycled OFF, the O2S test results will be set to the minimum or maximum limits, and all test results will be erased. The O2S test results are stored in the ECU (SAE term: Powertrain Control Module/PCM) when the monitor is completed. The test results are static and will not change once the monitor is complete.

The process for checking O2S test results is described in the following three basic steps:

1. Completing the O2S Readiness Monitor (page 2).
2. Accessing O2S Test Results (page 3).
3. Comparing O2S Test Results to Failure Thresholds (page 4).

Required SSTs

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* (or any OBDII Scantool) 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.1a Software (or later)* 	01002593-005	1

* Essential SSTs.

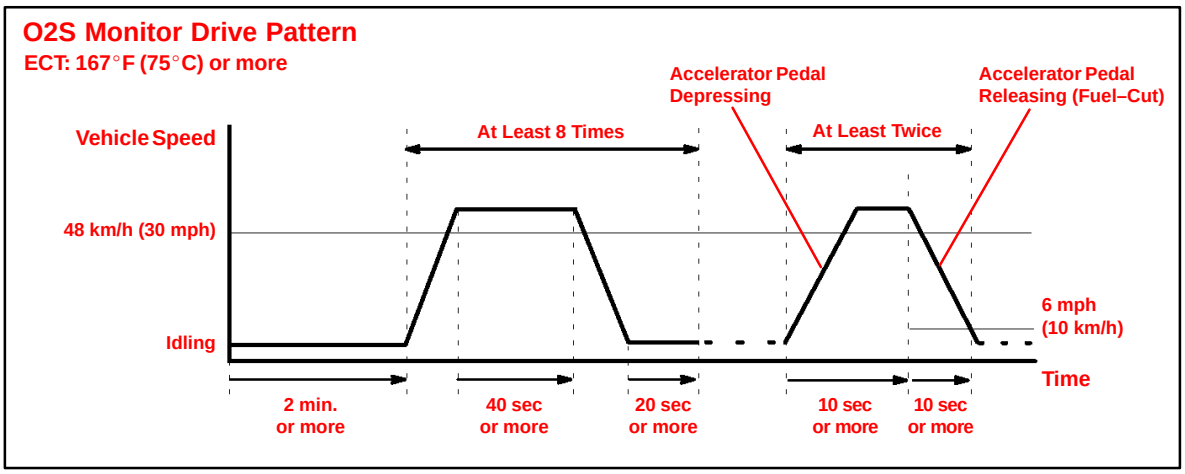
NOTE:
Additional Diagnostic Tester Kits, Program Cards or other SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Completing O2S Readiness Monitor

1. Clear any stored Diagnostic Trouble Codes (DTCs) using the Toyota Diagnostic Tester.
2. Start the engine.
3. Perform the drive pattern below to run and complete the Oxygen Sensor (O2S) Monitor.



HINT:

The O2S Monitor is completed when the following conditions are met:

- **Two (2) minutes or more passed after the engine start.**
- **The Engine Coolant Temperature (ECT) is 167°F (75°C) or more.**
- **Cumulative running time at 30 mph (48 km/h) or more exceeds 6 minutes.**
- **Vehicle is in closed loop.**
- **The fuel–cut is operated for 8 seconds or more (for Rear O2S Monitor).**

A. Allow the engine to idle for two minutes.

B. Warm up the engine until the Engine Coolant Temperature (ECT) reaches 167°F (75°C).

C. Drive the vehicle over 30 mph (48 km/h) for more than 40 seconds.

D. Stop the vehicle and allow the engine to idle for more than 20 seconds.

E. Repeat steps C and D at least 8 times in one driving cycle. (Do not cycle the ignition key.)

In addition, perform the following steps for the Rear O2S Readiness Monitor:

A. Select second gear.

B. Allow the vehicle to run at 30 mph (48 km/h) or more.

C. Keep the accelerator pedal “off–idle” for more than 10 seconds.

D. Immediately after step C, release the accelerator pedal for at least 10 seconds without depressing the brake pedal (to execute the fuel–cut).

E. Decelerate the vehicle until the vehicle speed reaches less than 6 mph (10 km/h).

F. Repeat steps B – E at least twice in one driving cycle.

Accessing O2S Test Results

1. On the Diagnostic Tester* screen, select the following menus:
   - DIAGNOSTICS
   - CARB OBD II
   - O2S TEST RESULTS

   A list of the available oxygen sensors will be displayed.

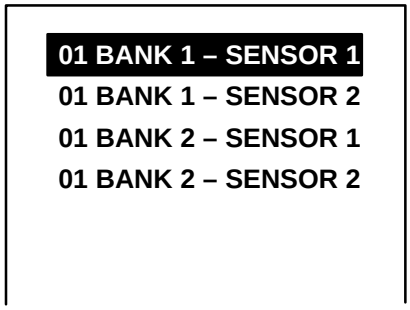
2. Select the desired oxygen sensor and press Enter.

NOTE:

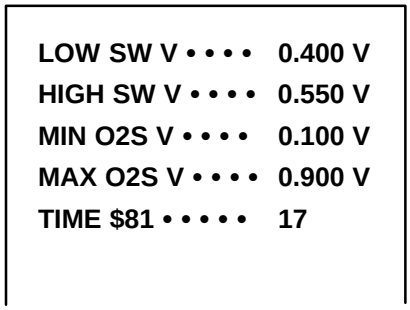
The monitor result of the A/F sensor will not be displayed. If you select "Bank 1–Sensor 1" or Bank 2–Sensor 1" for a vehicle equipped with an A/F sensor, the Diagnostic Tester will display "No parameter to display."

3. Compare the test results with the values listed in the Failure Threshold Chart.

O2S TEST RESULT Screen



TEST DATA Screen



* Although this procedure references the Toyota Diagnostic Tester, the O2S test results can be checked using a generic OBDII scantool. Refer to your OBDII scantool operator's manual for specific procedures.

Comparing O2S Test Results to Failure Thresholds

1. Determine the correct O2S Failure Threshold Chart for your vehicle by looking in the "O2S Application Table," pages 5 – 9 in this bulletin.
2. Select appropriate year, model, and engine for specified O2S Failure Threshold Chart.
3. Compare O2S test results with the specified O2S Failure Threshold Chart. It may be necessary to convert O2S test results to a specific measurement unit using the conversion factor that is supplied in the specified table. See example below:

Example:

A. The Diagnostic Tester displays "17" as a value of the "Time $81" (see illustration).

B. Find the Conversion Factor value of "Time $81" in the O2S Failure Threshold chart below. 0.3906 is specified for Time $81 in this chart.

C. Multiply "17" in step "A" by 0.3906 (Conversion Factor) in step "B." **17 x 0.3906 = 6.6 %**

D. If the answer is within the Standard Value of TEST LIMIT, the "Time $81" can be confirmed to be normal.

Example

LOW SW V • • • •	**0.400 V**
HIGH SW V • • • •	**0.550 V**
MIN O2S V • • • •	**0.035 V**
MAX O2S V • • • •	**0.835 V**
Time $81	**17**
Time $84	**84**
Time $85	**79**

NOTE:

- **"LOW SW V" indicates the O2S voltage when the O2S status changes from rich to lean.**
- **"HIGH SW V" indicates the O2S voltage when the O2S status changes from lean to rich.**
- **If the O2S voltage is lower than "LOW SW V," the O2S status is lean.**
- **If the O2S voltage is higher than "HIGH SW V," the O2S status is rich.**

Example of O2S Failure Threshold Chart:

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05V	Multiply 0.3906	%	Within 60%

NOTE:

Before the O2S Monitor completes or after the ignition switch is turned OFF, the Diagnostic Tester displays the viewable upper limit or a lower limit of the test value (example: 0 V, 1.275 V, 0 s [seconds], 10.2 s, 0 and 255).

O2S Application Table

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
1996	Avalon	1MZ–FE	All	50–State	1 (p. 10)
	Camry	5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
		1MZ–FE	All	50–State	
	Celica	7A–FE	All	50–State	1 (p. 10)
		5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
	Corolla	ALL	All	50–State	1 (p. 10)
	Land Cruiser	1FZ–FE	All	50–State	1 (p. 10)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	Previa	2TZ–FZE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	50–State	2 (p. 11)
	Supra	ALL	All	50–State	1 (p. 10)
	Tacoma	ALL	All	50–State	1 (p. 10)
	Tercel	5E–FE	All	50–State	1 (p. 10)
	T100	ALL	All	50–State	1 (p. 10)
	4Runner	ALL	All	50–State	1 (p. 10)
1997	Avalon	1MZ–FE	All	50–State	1 (p. 10)
	Camry	5S–FE	All	California	3 (p. 12)
			All	Federal	1 (p. 10)
		1MZ–FE	All	50–State	
	Celica	7A–FE	All	50–State	1 (p. 10)
		5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
	Corolla	ALL	All	50–State	1 (p. 10)
	Land Cruiser	1FZ–FE	All	50–State	1 (p. 10)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	Previa	2TZ–FZE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	50–State	2 (p. 11)
	Supra	ALL	All	50–State	1 (p. 10)
	Tacoma	2RZ–FE	All	50–State	1 (p. 10)
		3RZ–FE	A/T	50–State	
			M/T, 2WD	50–State	
			M/T, 4WD	50–State	2 (p. 11)
		5VZ–FE	All	50–State	
	Tercel	5E–FE	All	50–State	1 (p. 10)
	T100	3RZ–FE	All	50–State	1 (p. 10)
		5VZ–FE	All	50–State	2 (p. 11)
	4Runner	3RZ–FE	All	50–State	1 (p. 10)
		5VZ–FE	All	50–State	2 (p. 11)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
1998	Avalon	1MZ–FE	All	California	4 (p. 12)
			All	Federal	1 (p. 10)
	Camry	5S–FE	All	California	3 (p. 12)
			All	Federal	2 (p. 11)
		1MZ–FE	A/T	California	4 (p. 12)
				Federal	1 (p. 10)
			M/T	50–State	
	Celica	5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
	Corolla	1ZZ–FE	All	50–State	2 (p. 11)
	Land Cruiser	2UZ–FE	All	50–State	2 (p. 11)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	California	3 (p. 12)
			All	Federal	2 (p. 11)
	Sienna	1MZ–FE	All	50–State	1 (p. 10)
	Supra	2JZ–GE	All	50–State	2 (p. 11)
		2JZ–GTE	All	50–State	1 (p. 10)
	Tacoma	ALL	All	50–State	2 (p. 11)
	Tercel	5E–FE	All	50–State	1 (p. 10)
	T100	ALL	All	50–State	2 (p. 11)
	4Runner	ALL	All	50–State	2 (p. 11)
1999	Avalon	1MZ–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
	Camry CNG	5S–FNE	All	50–State	6 (p. 13)
	Celica	5S–FE	All	50–State	5 (p. 13)
	Corolla	1ZZ–FE	All	50–State	2 (p. 11)
	Land Cruiser	2UZ–FE	All	50–State	2 (p. 11)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	California	3 (p. 12)
			All	Federal	2 (p. 11)
	Sienna	1MZ–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
	Solara	5S–FE	All	California	3 (p. 12)
			All	Federal	5 (p. 13)
		1MZ–FE	A/T	California	4 (p. 12)
				Federal	5 (p. 13)
			M/T	50–State	
	Tacoma	ALL	All	50–State	2 (p. 11)
	Tercel	5E–FE	All	50–State	1 (p. 10)
	4Runner	3RZ–FE	All	50–State	2 (p. 11)
		5VZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
2000	Avalon	1MZ–FE	All	50–State	4 (p. 12)
	Camry CNG	5S–FNE	All	50–State	6 (p. 13)
	Celica	ALL	All	50–State	1 (p. 10)
	Corolla	1ZZ–FE	All	50–State	7 (p. 14)
	ECHO	1NZ–FE	All	50–State	1 (p. 10)
	Land Cruiser	2UZ–FE	All	50–State	2 (p. 11)
	MR2	1ZZ–FE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
	Sienna	1MZ–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
	Solara	5S–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
		1MZ–FE	A/T	California	4 (p. 12)
				Federal	5 (p. 13)
			M/T	50–State	
	Tacoma	2RZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
		3RZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
		5VZ–FE	All	California	8 (p. 15)
			All	Federal	2 (p. 11)
	Tundra	2UZ–FE	All	50–State	2 (p. 11)
		5VZ–FE	All	California	8 (p. 15)
			All	Federal	2 (p. 11)
	4Runner	3RZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
		5VZ–FE	All	California	8 (p. 15)
			All	Federal	2 (p. 11)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
2001	Avalon	1MZ–FE	All	50–State	4 (p. 12)
	Camry CNG	5S–FNE	All	50–State	6 (p. 13)
	Celica	ALL	All	50–State	1 (p. 10)
	Corolla	1ZZ–FE	All	50–State	7 (p. 14)
	ECHO	1NZ–FE	All	50–State	1 (p. 10)
	Highlander	1MZ–FE	All	50–State	9 (p. 15)
		2AZ–FE	All	50–State	3 (p. 12)
	Land Cruiser	2UZ–FE	All	50–State	1 (p. 10)
	MR2	1ZZ–FE	All	50–State	1 (p. 10)
	Prius	1NZ–FXE	All	50–State	11 (p. 17)
	RAV4	1AZ–FE	All	50–State	4 (p. 12)
	Sequoia	2UZ–FE	All	50–State	1 (p. 10)
	Sienna	1MZ–FE	All	50–State	4 (p. 12)
	Solara	5S–FE	All	50–State	3 (p. 12)
		1MZ–FE	A/T	50–State	9 (p. 15)
			M/T	50–State	10 (p. 16)
	Tacoma	ALL	All	50–State	4 (p. 12)
	Tundra	2UZ–FE	All	50–State	1 (p. 10)
		5VZ–FE	All	50–State	4 (p. 12)
	4Runner	ALL	All	50–State	4 (p. 12)
2002	Avalon	1MZ–FE	All	50–State	4 (p. 12)
	Celica	1ZZ–FE	All	50–State	1 (p. 10)
		2ZZ–GE	All	50–State	13 (p. 19)
	Corolla	1ZZ–FE	All	50–State	7 (p. 14)
	ECHO	1NZ–FE	All	50–State	1 (p. 10)
	Highlander	1MZ–FE	All	50–State	4 (p. 12)
		2AZ–FE	All	50–State	3 (p. 12)
	Land Cruiser	2UZ–FE	All	50–State	14 (p. 20)
	MR2	1ZZ–FE	All	50–State	1 (p. 10)
	Prius	1NZ–FXE	All	50–State	15 (p. 21)
	RAV4	1AZ–FE	All	50–State	3 (p. 12)
	Sequoia	2UZ–FE	All	50–State	14 (p. 20)
	Sienna	1MZ–FE	All	50–State	4 (p. 12)
	Solara	2AZ–FE	All	50–State	12 (p. 18)
		1MZ–FE	A/T	50–State	9 (p. 15)
			M/T	50–State	5 (p. 13)
	Tacoma	ALL	All	50–State	12 (p. 18)
	Tundra	2UZ–FE	All	50–State	14 (p. 20)
		5VZ–FE	All	50–State	12 (p. 18)
	4Runner	ALL	All	50–State	12 (p. 18)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
2003	Avalon	1MZ–FE	All	50–State	16 (p. 22)
	Camry	2AZ–FE	All	Federal	17 (p. 23)
			M/T	California	
			A/T	California	18 (p. 24)
		1MZ–FE	All	With VVT	19 (p. 25)
			All	Without VVT	20 (p. 26)
	Celica	1ZZ–FE	All	50–State	13 (p. 19)
		2ZZ–GE	All	50–State	21 (p. 27–28)
	Corolla	1ZZ–FE	All	50–State	22 (p. 29)
	ECHO	1NZ–FE	All	50–State	23 (p. 30–31)
	Highlander	1MZ–FE	All	50–State	16 (p. 22)
		2AZ–FE	All	50–State	12 (p. 18)
	Land Cruiser	2UZ–FE	All	50–State	24 (p. 32–33)
	Matrix	1ZZ–FE	All	50–State	22 (p. 29)
		2ZZ–GE	All	50–State	21 (p. 27–28)
	MR2	1ZZ–FE	All	50–State	13 (p. 19)
	Prius	1NZ–FXE	All	50–State	15 (p. 21)
	RAV4	1AZ–FE	All	50–State	25 (p. 34)
	Sequoia	2UZ–FE	All	50–State	24 (p. 32–33)
	Sienna	1MZ–FE	All	50–State	16 (p. 22)
	Solara	2AZ–FE	All	50–State	17 (p. 23)
		1MZ–FE	All	50–State	20 (p. 26)
	Tacoma	ALL	All	50–State	16 (p. 22)
	Tundra	2UZ–FE	All	50–State	24 (p. 32–33)
		5VZ–FE	All	50–State	16 (p. 22)
	4Runner	1GR–FE	All	50–State	12 (p. 18)
		2UZ–FE	All	50–State	26 (p. 35–36)
2004	Corolla	1ZZ–FE	All	50–State	27 (p. 37–38)
	ECHO	1NZ–FE	All	50–State	23 (p. 30–31)
	Matrix	1ZZ–FE	2WD	50–State	27 (p. 37–38)
			4WD	50–State	28 (p. 39–40)
		2ZZ–GE	All	50–State	29 (41–42)
	Sienna	3MZ–FE	All	50–State	30 (p. 43)
	Scion xA	1NZ–FE	All	50–State	23 (p. 30–31)
	Scion xB	1NZ–FE	All	50–State	23 (p. 30–31)

O2S Failure Threshold Charts

CHART 1:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1 second
Time $32	Time to change from Rich (≥0.55 V) to Lean (≥0.4 V)	N/A	Second	Between 0 and 1 second

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 2:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
$07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1.1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≥0.35 V)	N/A	Second	Between 0 and 1.1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 3:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor
Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

CHART 4:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor
Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 5:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1.1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 1.1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

CHART 6:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.55 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 1 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 7:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 8:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1 second
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.35 V)	N/A	Second	Between 0 and 1 second

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

CHART 9:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 10:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1.1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 1.1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 11:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.42 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.48 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.42 V) to Rich (≥0.48 V)	N/A	Second	Between 0 and 0.4 seconds
Time $32	Time to change from Rich (≥0.48 V) to Lean (≤0.42 V)	N/A	Second	Between 0 and 0.4 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 12:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≤0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 13:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 14:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 90%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 15:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.42 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.48 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.42 V) to Rich (≥0.48 V)	N/A	Second	Between 0 and 0.4 seconds
Time $32	Time to change from Rich (≥0.48 V) to Lean (≤0.42 V)	N/A	Second	Between 0 and 0.4 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 10 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 16:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 17:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 55%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 18:

Rear O2S (Bank 1 Sensor 2) Voltage Monitor

Related DTCs: P0136

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.2 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 3) Deterioration Monitor

Related DTCs: P0142

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $86	Average of the second impedance ratio between high–frequency and low–frequency	Multiply 0.0312	%	Between 0.7 and 1.35

If the average of the sensor impedance ratio is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 19:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 95%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 20:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 21:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.8 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.8 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 3.05 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 3.05 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 21 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.95 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.95 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 22:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 23:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 4.5 seconds
Time $34	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 4.5 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 23 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.9 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.9 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 24:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 24 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 90%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 25:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 26:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 26 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 27:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.45 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.45 V)	N/A	Second	Between 0 and 0.6 seconds
Time $32	Time to change from Rich (≥0.45 V) to Lean (≤0.35 V)	N/A	Second	Between 0 and 0.6 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 3 seconds
Time $34	Average Rich (≥0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 3 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 27 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 0.55 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 0.55 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 28:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.45 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.45 V)	N/A	Second	Between 0 and 0.6 seconds
Time $32	Time to change from Rich (≥0.45 V) to Lean (≤0.35 V)	N/A	Second	Between 0 and 0.6 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 2 seconds
Time $34	Average Rich (≥0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 2 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 28 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 0.5 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 0.5 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 29:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 4 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 4 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 1.08 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 1.08 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 29 (Continued):

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 30:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

TOYOTA

Technical Service BULLETIN

March 29, 2002

Title:

READINESS MONITOR DRIVE PATTERNS

Models:

All '96 – '02

TSB

REVISED

ENGINE

EG003-02

TSB REVISION NOTICE:

The information updated in this TSB is red and underlined.

Introduction

The On–Board Diagnostic (OBDII) system is designed to monitor the performance of emission–related components and report any detected abnormalities in the form of Diagnostic Trouble Codes (DTCs). Since the various components need to be monitored during different driving conditions, the OBDII system is designed to run separate monitoring programs called Readiness Monitors. Many state Inspection and Maintenance (I/M) programs require that vehicles complete their Readiness Monitors prior to beginning an emissions test.

The current status of the Readiness Monitors can be seen by using the Toyota Diagnostic Tester with version 9.0 software (or newer), or a generic OBDII Scantool.
To view the Readiness Monitor status using the Toyota Diagnostic Tester, select "Monitor Status" from the Enhanced OBDII Menu.
A status of "complete" indicates that the necessary conditions have been met to run the performance tests for the related Readiness Monitor.

The Readiness Monitor will be reset to "incomplete" if:

- ECU has lost power (battery or fuse).
- DTCs have been cleared.
- The conditions for running the Readiness Monitor have not been met.

In the event that any Readiness Monitor shows "incomplete," follow the appropriate Readiness Monitor Drive Pattern to change the readiness status to "complete."
Refer to the Readiness Monitor Drive Pattern Application Table to determine which drive pattern should be followed.

Contents

Applicable Vehicles

- **All 1996 – 2002** model year **Toyota** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Terms & Definitions

J1930 TERM	J1930 DEFINITION	TOYOTA/LEXUS DIAGNOSTIC TESTER PARAMETER
IAT	Intake Air Temperature	Intake Air
ECT	Engine Coolant Temperature	Coolant Temp

Required Tools & Material

TOOLS & MATERIAL	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 9.0a Software (or later)	01002593-005	1

NOTE:

A generic OBDII Scantool can be used in place of the Toyota Diagnostic Tester.

CAUTION:

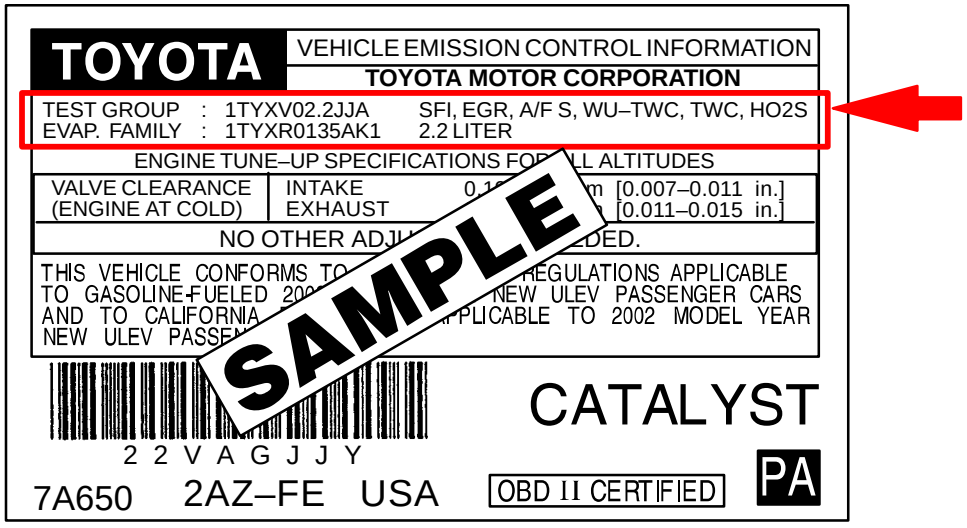
Strict observance of posted speed limits, traffic laws and road conditions are required when performing these drive patterns.

NOTE:

- **These drive patterns represent the fastest method to satisfy all necessary conditions which allow the specific Readiness Monitor to complete.**
- **In the event that the drive pattern must be interrupted (possibly due to traffic conditions or other factors) the drive pattern can be resumed and, in most cases, the Readiness Monitor will still set to "complete."**
- **To ensure rapid completion of Readiness Monitors, avoid sudden changes in vehicle load and speed (driving up and down hills and/or sudden acceleration).**

Underhood Emission Control Information Label

SAMPLE EMISSION CONTROL INFORMATION LABEL



EGR = Exhaust Gas Recirculation
A/F S = Air Fuel Sensor
O2S = Oxygen Sensor

Readiness Monitor Drive Pattern Application Tables

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CATEGORY	DRIVE PATTERN NUMBER*										
					EGR		CATALYST		EVAP				O2S/AF SENSOR		O2S/AF HTR
					1	2	3	4	5	6	7	8	9	10	11
1996	Tercel	5E–FE			X		X				X		X		X
	Paseo	5E–FE			X		X				X		X		X
	Corolla	7A–FE			X		X				X		X		X
	Celica	7A–FE			X		X				X		X		X
		5S–FE			X		X				X		X		X
	Camry	5S–FE	MTM		X		X				X		X		X
			ATM		X		X		X				X		X
		1MZ–FE	MTM		X		X		X				X		X
			ATM		X		X		X				X		X
	Avalon	1MZ–FE			X		X		X				X		X
	Supra	2JZ–GE			X		X		X				X		X
		2JZ-GTE			X		X				X		X		X
	RAV4	3S–FE			X		X		X				X		X
	Previa	2TZ–FZE			X		X				X		X		X
	Tacoma	2RZ–FE			X		X				X		X		X
		3RZ–FE			X		X		X				X		X
		5VZ–FE	2WD		X		X		X				X		X
			4WD	w/EGR**	X		X		X				X		X
				w/oEGR**	N/A		X		X				X		X
	4Runner	3RZ–FE			X		X		X				X		X
		5VZ–FE		w/EGR**	X		X		X				X		X
				w/oEGR**	N/A		X		X				X		X
	T100	3RZ–FE			X		X				X		X		X
		5VZ–FE	2WD or 4WD	w/EGR**	X		X		X				X		X
				w/oEGR**	N/A		X		X				X		X
	Land Cruiser	1FZ–FE				X	X		N/A				X		X

*** Readiness Monitor Drive Patterns:**

1. EGR (All Except 1FZ–FE Engine)
2. EGR (For 1FZ–FE Engine)
3. Catalyst (O2S Type)
4. Catalyst (AF Sensor Type)
5. EVAP (Internal Pressure Monitor/Non–Intrusive Type)
6. EVAP (Vacuum Pressure Monitor/Intrusive Type)
7. EVAP (Without Leak Detection)
8. EVAP (For Prius)
9. Oxygen Sensor Monitor (Front & Rear O2S System)
10. Oxygen/AF Sensor Monitor (Front AF Sensor & Rear O2S System)
11. Oxygen/AF Sensor Heater Monitor

**** Refer to Underhood Emissions Label on page 2.**

Readiness Monitor Drive Pattern Application Tables (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CATEGORY	DRIVE PATTERN NUMBER*										
					EGR		CATALYST		EVAP				O2S/AF SENSOR		O2S/AF HTR
					1	2	3	4	5	6	7	8	9	10	11
1997	Tercel	5E–FE			X		X				X		X		X
	Paseo	5E–FE			X		X				X		X		X
	Corolla	7A–FE			X		X				X		X		X
	Celica	7A–FE			X		X				X		X		X
		5S–FE			X		X				X		X		X
	Camry	5S–FE	MTM		X		X				X		X		X
			ATM	Fed	X		X		X				X		X
				CA	X			X	X					X	X
		1MZ–FE	MTM		X		X		X				X		X
			ATM		X		X		X				X		X
	Avalon	1MZ–FE			X		X		X				X		X
	Supra	2JZ–GE			X		X		X				X		X
		2JZ-GTE			X		X				X		X		X
	RAV4	3S–FE			X		X		X				X		X
	Previa	2TZ–FZE			X		X				X		X		X
	Tacoma	2RZ–FE			X		X				X		X		X
		3RZ–FE			X		X		X				X		X
		5VZ–FE	2WD or 4WD	w/EGR**	X		X		X				X		X
			4WD	w/oEGR**	N/A		X		X				X		X
	4Runner	3RZ–FE			X		X		X				X		X
		5VZ–FE			N/A		X		X				X		X
	T100	3RZ–FE			X		X				X		X		X
		5VZ–FE	2WD	w/EGR**	X		X		X				X		X
			2WD or 4WD	w/oEGR**	N/A		X		X				X		X
	Land Cruiser	1FZ–FE				X	X		N/A				X		X

*** Readiness Monitor Drive Patterns:**

1. EGR (All Except 1FZ–FE Engine)
2. EGR (For 1FZ–FE Engine)
3. Catalyst (O2S Type)
4. Catalyst (AF Sensor Type)
5. EVAP (Internal Pressure Monitor/Non–Intrusive Type)
6. EVAP (Vacuum Pressure Monitor/Intrusive Type)
7. EVAP (Without Leak Detection)
8. EVAP (For Prius)
9. Oxygen Sensor Monitor (Front & Rear O2S System)
10. Oxygen/AF Sensor Monitor (Front AF Sensor & Rear O2S System)
11. Oxygen/AF Sensor Heater Monitor

**** Refer to Underhood Emissions Label on page 2.**

Readiness Monitor Drive Pattern Application Tables (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CATEGORY	DRIVE PATTERN NUMBER*										
					EGR		CATALYST		EVAP				O2S/AF SENSOR		O2S/AF HTR
					1	2	3	4	5	6	7	8	9	10	11
1998	Tercel	5E–FE			N/A		X		X				X		X
	Paseo	5E–FE					X		X				X		X
	Corolla	1ZZ–FE					X		X				X		X
	Celica	5S–FE			X		X				X		X		X
	Camry	5S–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
		1MZ–FE	MTM		X		X		X				X		X
			ATM	Fed	X		X		X				X		X
				CA	X			X	X					X	X
	Avalon	1MZ–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
	Supra	2JZ–GE			N/A		X		X				X		X
		2JZ-GTE			X		X				X		X		X
	RAV4	3S–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
	Sienna	1MZ–FE			N/A		X		X				X		X
	Tacoma	2RZ–FE			X		X		X				X		X
		3RZ–FE			X		X		X				X		X
		5VZ–FE	2WD	w/EGR**	X		X		X				X		X
			4WD	w/oEGR**	N/A		X		X				X		X
	4Runner	3RZ–FE			X		X		X				X		X
		5VZ–FE			N/A		X		X				X		X
	T100	3RZ–FE			X		X		X				X		X
		5VZ–FE	2WD	w/EGR**	X		X		X				X		X
			2WD or 4WD	w/oEGR**	N/A		X		X				X		X
	Land Cruiser	2UZ–FE					X		X				X		X

*** Readiness Monitor Drive Patterns:**

1. EGR (All Except 1FZ–FE Engine)
2. EGR (For 1FZ–FE Engine)
3. Catalyst (O2S Type)
4. Catalyst (AF Sensor Type)
5. EVAP (Internal Pressure Monitor/Non–Intrusive Type)
6. EVAP (Vacuum Pressure Monitor/Intrusive Type)
7. EVAP (Without Leak Detection)
8. EVAP (For Prius)
9. Oxygen Sensor Monitor (Front & Rear O2S System)
10. Oxygen/AF Sensor Monitor (Front AF Sensor & Rear O2S System)
11. Oxygen/AF Sensor Heater Monitor

**** Refer to Underhood Emissions Label on page 2.**

Readiness Monitor Drive Pattern Application Tables (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CATEGORY	DRIVE PATTERN NUMBER*										
					EGR		CATALYST		EVAP				O2S/AF SENSOR		O2S/AF HTR
					1	2	3	4	5	6	7	8	9	10	11
1999	Tercel	5E–FE			X		X		X				X		X
	Paseo	5E–FE			X		X		X				X		X
	Corolla	1ZZ–FE			N/A		X		X				X		X
	Celica	5S–FE			X		X		X				X		X
	Camry	5S–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
		1MZ–FE	MTM		X		X		X				X		X
			ATM	Fed	X		X		X				X		X
				CA	X			X	X					X	X
	Solara	5S–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
		1MZ–FE	MTM		X		X		X				X		X
			ATM	Fed	X		X		X				X		X
				CA	X			X	X					X	X
	Avalon	1MZ–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
	RAV4	3S–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
	Sienna	1MZ–FE		Fed	N/A		X		X				X		X
				CA				X	X					X	X
	Tacoma	2RZ–FE			X		X		X				X		X
		3RZ–FE			X		X		X				X		X
		5VZ–FE	2WD	w/EGR**	X		X		X				X		X
			2WD or 4WD	w/oEGR**	N/A		X		X				X		X
	4Runner	3RZ–FE			X		X		X				X		X
		5VZ–FE		Fed	N/A		X		X				X		X
				CA				X	X					X	X
	Land Cruiser	2UZ–FE					X		X				X		X

*** Readiness Monitor Drive Patterns:**

1. EGR (All Except 1FZ–FE Engine)
2. EGR (For 1FZ–FE Engine)
3. Catalyst (O2S Type)
4. Catalyst (AF Sensor Type)
5. EVAP (Internal Pressure Monitor/Non–Intrusive Type)
6. EVAP (Vacuum Pressure Monitor/Intrusive Type)
7. EVAP (Without Leak Detection)
8. EVAP (For Prius)
9. Oxygen Sensor Monitor (Front & Rear O2S System)
10. Oxygen/AF Sensor Monitor (Front AF Sensor & Rear O2S System)
11. Oxygen/AF Sensor Heater Monitor

**** Refer to Underhood Emissions Label on page 2.**

Readiness Monitor Drive Pattern Application Tables (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CATEGORY	DRIVE PATTERN NUMBER*										
					EGR		CATALYST		EVAP				O2S/AF SENSOR		HTR
					1	2	3	4	5	6	7	8	9	10	11
2000	ECHO	1NZ–FE			N/A		X			X			X		X
	Corolla	1ZZ–FE					X			X			X		X
	Celica	1ZZ–FE					X			X			X		X
		2ZZ–GE					X			X			X		X
	MR2	1ZZ–FE					X			X			X		X
	Camry	5S–FE		Fed	X		X			X			X		X
				CA	X			X		X				X	X
		1MZ–FE	MTM		X		X			X			X		X
			ATM	Fed	X		X			X			X		X
				CA	X			X		X				X	X
	Solara	5S–FE		Fed	X		X			X			X		X
				CA	X			X		X				X	X
		1MZ–FE	MTM		X		X			X			X		X
			ATM	Fed	X		X			X			X		X
				CA	X			X		X				X	X
	Camry CNG	5S–FNE			X		N/A		N/A					X	X
	Avalon	1MZ–FE			N/A			X		X				X	X
	RAV4	3S–FE		Fed	X		X		X				X		X
				CA	X			X	X					X	X
	Sienna	1MZ–FE		Fed	N/A		X		X				X		X
				CA				X	X					X	X
	Tacoma	2RZ–FE			X		X		X				X		X
		3RZ–FE			X		X		X				X		X
		5VZ–FE	2WD	w/EGR**	X		X		X				X		X
			2WD or 4WD	w/o A/F S, w/oEGR**	N/A		X		X				X		X
				w/A/F S, w/oEGR**				X	X					X	X
	4Runner	3RZ–FE			X		X		X				X		X
		5VZ–FE		Fed	N/A		X		X				X		X
				CA				X	X					X	X
	Tundra	5VZ–FE		Fed			X		X				X		X
				CA				X	X					X	X
		2UZ–FE					X		X				X		X
	Land Cruiser	2UZ–FE					X		X				X		X

*** Readiness Monitor Drive Patterns:**

1. EGR (All Except 1FZ–FE Engine)
2. EGR (For 1FZ–FE Engine)
3. Catalyst (O2S Type)
4. Catalyst (AF Sensor Type)
5. EVAP (Internal Pressure Monitor/Non–Intrusive Type)
6. EVAP (Vacuum Pressure Monitor/Intrusive Type)
7. EVAP (Without Leak Detection)
8. EVAP (For Prius)
9. Oxygen Sensor Monitor (Front & Rear O2S System)
10. Oxygen/AF Sensor Monitor (Front AF Sensor & Rear O2S System)
11. Oxygen/AF Sensor Heater Monitor

**** Refer to Underhood Emissions Label on page 2.**

Readiness Monitor Drive Pattern Application Tables (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CATEGORY	DRIVE PATTERN NUMBER*										
					EGR		CATALYST		EVAP				O2S/AF SENSOR		O2S/AF HTR
					1	2	3	4	5	6	7	8	9	10	11
2001	ECHO	1NZ–FE			N/A		X			X			X		X
	Corolla	1ZZ–FE					X			X			X		X
	Celica	1ZZ–FE					X			X			X		X
		2ZZ–GE					X			X			X		X
	MR2	1ZZ–FE					X			X			X		X
	Camry	5S–FE			X			X		X				X	X
		1MZ–FE	MTM		X		X			X			X		X
			ATM		X			X		X				X	X
	Solara	5S–FE			X			X		X				X	X
		1MZ–FE	MTM		X		X			X			X		X
			ATM		X			X		X				X	X
	Camry CNG	5S–FNE			X		N/A		N/A					X	X
	Avalon	1MZ–FE			N/A			X		X				X	X
	Prius	1NZ-FXE					X					X	X		X
	RAV4	1AZ–FE						X		X				X	X
	High-lander	2AZ–FE						X		X				X	X
		1MZ–FE						X		X				X	X
	Sienna	1MZ–FE						X		X				X	X
	Tacoma	2RZ–FE			X			X	X					X	X
		3RZ–FE			X			X	X					X	X
		5VZ–FE	2WD		X			X	X					X	X
			4WD		N/A			X	X					X	X
	4Runner	5VZ–FE						X		X				X	X
	Tundra	5VZ–FE						X	X					X	X
		2UZ–FE					X		X				X		X
	Land Cruiser	2UZ–FE					X		X				X		X
	Sequoia	2UZ–FE					X			X			X		X

*** Readiness Monitor Drive Patterns:**

1. EGR (All Except 1FZ–FE Engine)
2. EGR (For 1FZ–FE Engine)
3. Catalyst (O2S Type)
4. Catalyst (AF Sensor Type)
5. EVAP (Internal Pressure Monitor/Non–Intrusive Type)
6. EVAP (Vacuum Pressure Monitor/Intrusive Type)
7. EVAP (Without Leak Detection)
8. EVAP (For Prius)
9. Oxygen Sensor Monitor (Front & Rear O2S System)
10. Oxygen/AF Sensor Monitor (Front AF Sensor & Rear O2S System)
11. Oxygen/AF Sensor Heater Monitor

Readiness Monitor Drive Pattern Application Tables (Continued)

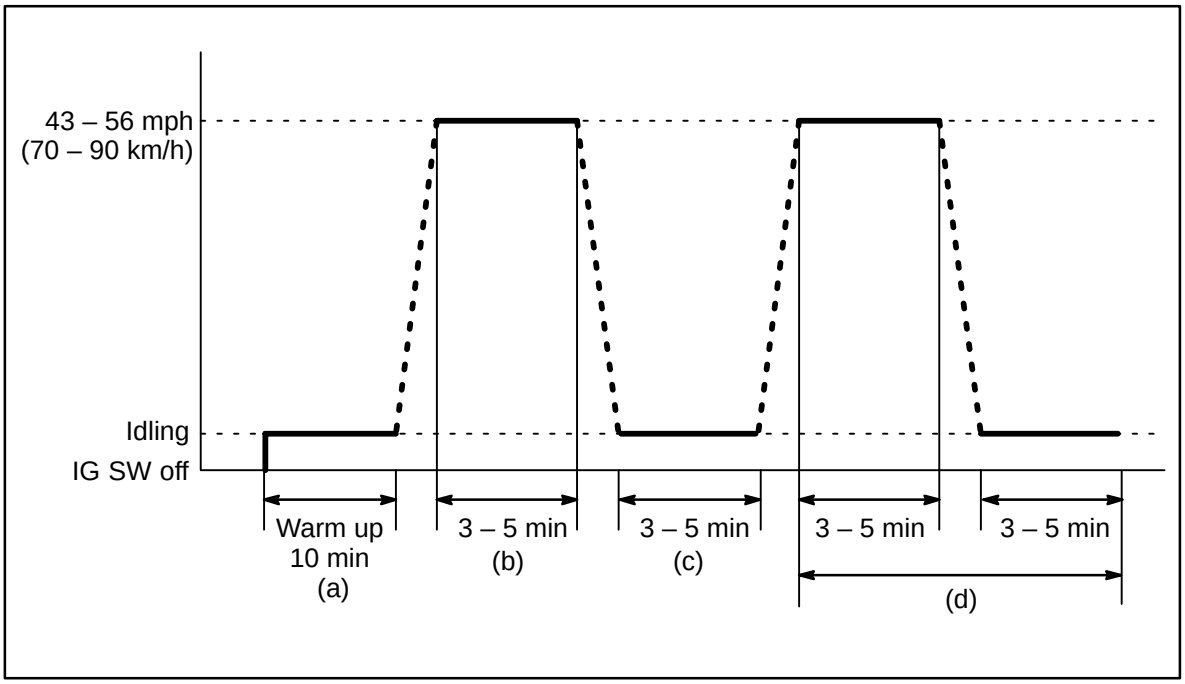
MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CATEGORY	DRIVE PATTERN NUMBER*										
					EGR		CATALYST		EVAP				O2S/AF SENSOR		O2S/AF HTR
					1	2	3	4	5	6	7	8	9	10	11
2002	ECHO	1NZ–FE			N/A		X			X			X		X
	Corolla	1ZZ–FE					X			X			X		X
	Celica	1ZZ–FE					X			X			X		X
		2ZZ–GE					X			X			X		X
	MR2	1ZZ–FE					X			X			X		X
	Camry	2AZ–FE						X		X				X	X
		1MZ–FE	MTM		X		X			X			X		X
			ATM		X			X		X				X	X
	Solara	2AZ–FE			X			X		X				X	X
		1MZ–FE	MTM		X		X			X			X		X
			ATM		X			X		X				X	X
	Camry CNG	5S–FNE			X		N/A		N/A					X	X
	Avalon	1MZ–FE			N/A			X		X				X	X
	Prius	1NZ-FXE					X					X	X		X
	RAV4	1AZ–FE						X		X				X	X
	High-lander	2AZ–FE						X		X				X	X
		1MZ–FE						X		X				X	X
	Sienna	1MZ–FE						X		X				X	X
	Tacoma	2RZ–FE			X			X	X					X	X
		3RZ–FE			X			X	X					X	X
		5VZ–FE			N/A			X	X					X	X
	4Runner	5VZ–FE						X		X				X	X
	Tundra	5VZ–FE						X	X					X	X
		2UZ–FE					X		X				X		X
	Land Cruiser	2UZ–FE					X		X				X		X
	Sequoia	2UZ–FE					X			X			X		X

*** Readiness Monitor Drive Patterns:**

1. EGR (All Except 1FZ–FE Engine)
2. EGR (For 1FZ–FE Engine)
3. Catalyst (O2S Type)
4. Catalyst (AF Sensor Type)
5. EVAP (Internal Pressure Monitor/Non–Intrusive Type)
6. EVAP (Vacuum Pressure Monitor/Intrusive Type)
7. EVAP (Without Leak Detection)
8. EVAP (For Prius)
9. Oxygen Sensor Monitor (Front & Rear O2S System)
10. Oxygen/AF Sensor Monitor (Front AF Sensor & Rear O2S System)
11. Oxygen/AF Sensor Heater Monitor

Readiness Monitor Drive Patterns: EGR Monitors

DRIVE PATTERN NO. 1: EGR Monitor (All Except 1FZ–FE Engine)



Preconditions

The monitor will not run unless:

- MIL is OFF.
- Altitude is 7800 feet (2400 m) or less.
- IAT (Intake Air) is 14°F (–10°C) or greater.

Drive Pattern Procedure

Connect the OBDII Scantool to the DLC3 connector to check monitor status and preconditions.

a. If IAT (Intake Air) is less than 50°F (10°C) when starting the engine, idle the engine for approximately 10 minutes.
b. Drive the vehicle at 43 – 56 mph (70 – 90 km/h) for a period of 3 – 5 minutes.

NOTE:
- **Do not allow the Throttle Position (TP) to exceed 30%.**
- **Drive with smooth throttle operation and avoid sudden acceleration.**

c. Stop the vehicle and let the engine idle for 3 – 5 minutes.
d. Repeat steps “b” and “c” once.

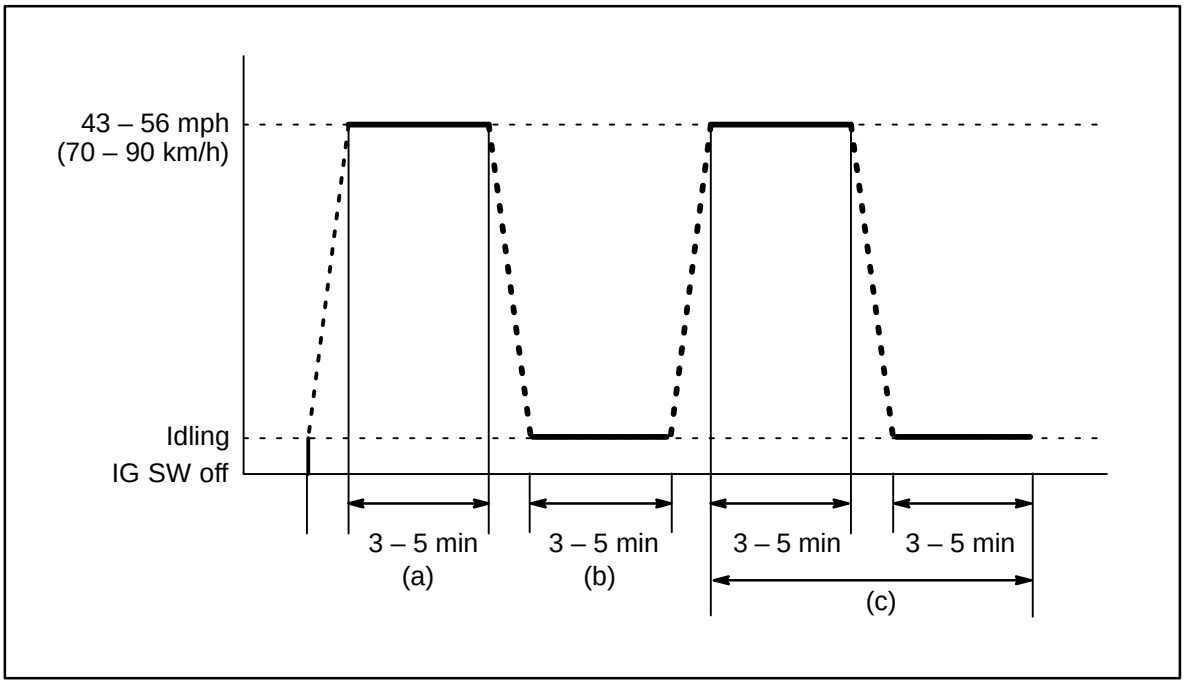
If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition OFF, then repeat steps “b” through “d.”

NOTE:

The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).
- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: EGR Monitors (Continued)

DRIVE PATTERN NO. 2: EGR Monitor (for 1FZ–FE Engine)



Preconditions

The monitor will not run unless:

- MIL is OFF.
- Altitude is 7800 feet (2400 m) or less.
- IAT (Intake Air) is 14°F (–10°C) or greater.
- ECT (Coolant Temp) is less than 104°F (40°C).

Drive Pattern Procedure

Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.

a. Start the engine and as soon as safely possible begin driving the vehicle at 43 – 56 mph (70 – 90 km/h) for a period of 3 – 5 minutes.

NOTE:
- **Do not allow the Throttle Position (TP) to exceed 30%.**
- **Drive with smooth throttle operation and avoid sudden acceleration.**

b. Stop the vehicle and let the engine idle for 3 – 5 minutes.

c. Repeat steps “a” and “b” once.

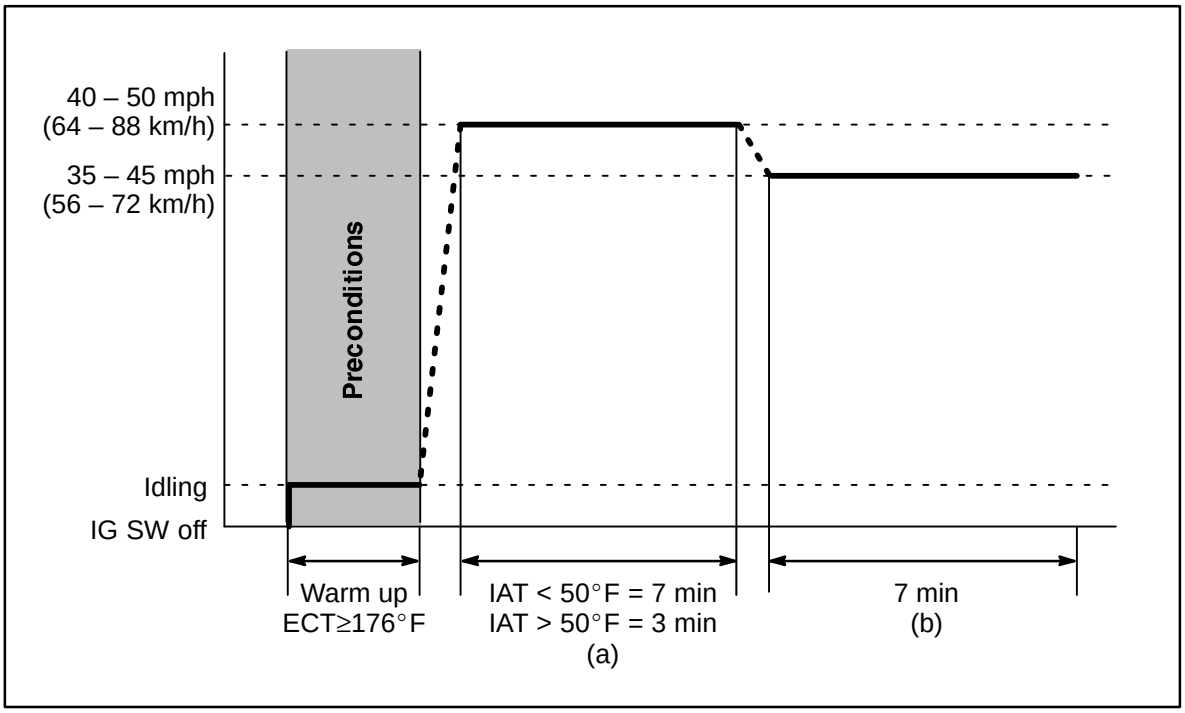
If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition OFF, then repeat steps “a” through “c.”

NOTE:

The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).
- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: Catalyst Monitors

DRIVE PATTERN NO. 3: Catalyst Monitor (O2S Type)



Preconditions

The monitor will not run unless:

- MIL is OFF.
- ECT (Coolant Temp) is 176°F (80°C) or greater.
- IAT (Intake Air) is 14°F (–10°C) or greater.*

*** For 2002 MY and later vehicles:** The readiness test can be completed in cold ambient conditions (less than 14°F / –10°C), if the drive pattern is repeated a second time after cycling the ignition OFF.

Drive Pattern Procedure

Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.

Note the IAT (Intake Air) value during engine startup. The driving time must be adjusted during step “a” based upon IAT (Intake Air) value at startup.

a. Drive the vehicle at 40 – 55 mph (64 – 88 km/h) for the time described below:
   - If IAT (Intake Air) was less than 50°F (10°C) when the engine was started, drive for 7 minutes.
   - If IAT (Intake Air) was greater than 50°F (10°C) when the engine was started, drive for 3 minutes.

b. Drive the vehicle at 35 – 45 mph (56 – 72 km/h) for approximately 7 minutes.

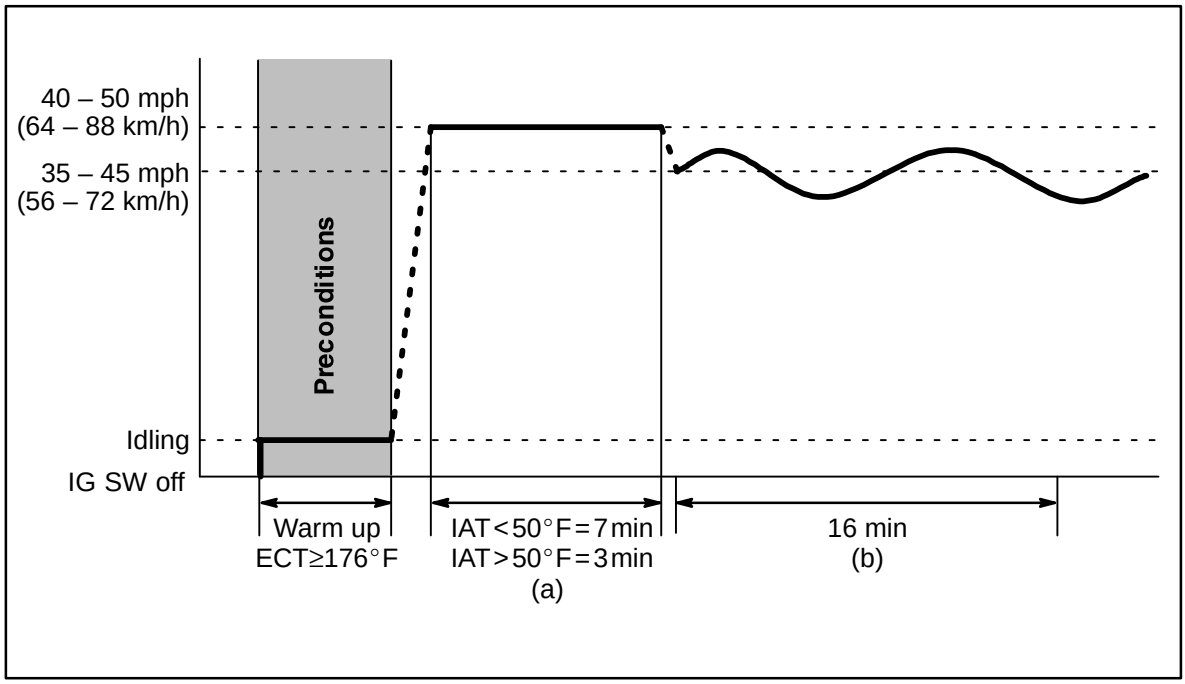
NOTE:
- **Drive with smooth throttle operation.**
- **Avoid sudden acceleration.**
- **Avoid sudden deceleration as much as possible with the throttle fully closed.**

If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition OFF, then repeat steps “a” and “b.”

NOTE:
The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).
- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: Catalyst Monitors (Continued)

DRIVE PATTERN NO. 4: Catalyst Monitor (AF Sensor Type)



Preconditions

The monitor will not run unless:

- MIL is OFF.
- ECT (Coolant Temp) is 176°F (80°C) or greater.
- IAT (Intake Air) is 14°F (–10°C) or greater.*

*** For 2002 MY and later vehicles:** The readiness test can be completed in cold ambient conditions (less than 14°F / –10°C), if the drive pattern is repeated a second time after cycling the ignition OFF.

Drive Pattern Procedure

Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.

Note the IAT (Intake Air) value during engine startup. The driving time must be adjusted during step “a” based upon IAT (Intake Air) value at startup.

a. Drive the vehicle at 40 – 55 mph (64 – 88 km/h) for the time described below:
   - If IAT (Intake Air) was less than 50°F (10°C) when the engine was started, drive for 7 minutes.
   - If IAT (Intake Air) was greater than 50°F (10°C) when the engine was started, drive for 3 minutes.

b. Drive the vehicle allowing speed to fluctuate between 35 – 45 mph (56 – 72 km/h) for about 16 minutes.

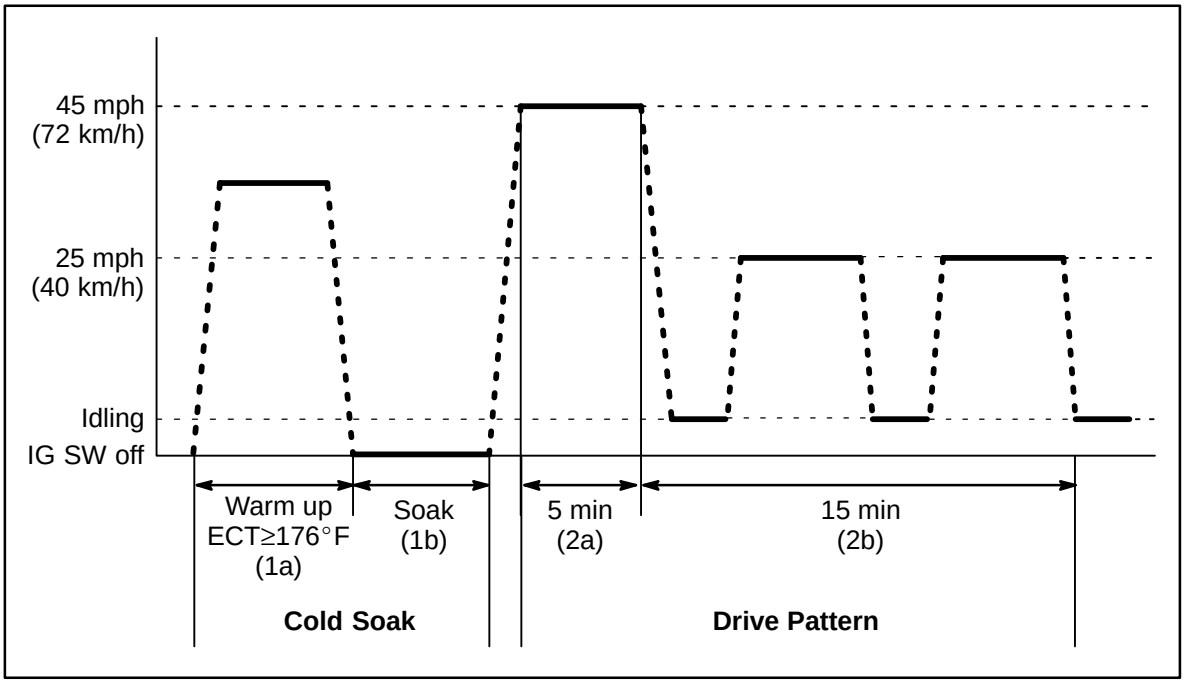
NOTE:
- **Drive with smooth throttle operation.**
- **Avoid sudden acceleration.**
- **Avoid sudden deceleration as much as possible with the throttle fully closed.**

If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition OFF, then repeat steps “a” and “b.”

NOTE:
The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).
- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: EVAP Monitors

DRIVE PATTERN NO. 5: EVAP Monitor (Internal Pressure Monitor/Non–Intrusive Type)



Cold Soak Preconditions

The monitor will not run unless:

- MIL is OFF.
- Fuel level is between 1/2 to 3/4 full (for faster completion).
- Altitude is 7800 feet (2400 m) or less.

IMPORTANT:

A cold soak must be performed prior to conducting the drive pattern to complete the Internal Pressure Readiness Monitor.

Cold Soak Procedure

1a. Start the engine and allow ECT (Coolant Temp) to reach 176°F (80°C) or greater. (This can be done by letting the engine idle or by driving the vehicle.)

1b. Let the vehicle cold soak for 8 hours or until the difference between IAT (Intake Air) and ECT (Coolant Temp) is less than 13°F (7°C).

■ **Example 1**

- ECT (Coolant Temp) = 75°F (24°C).
- IAT (Intake Air) = 60°F (16°C).
- Difference between ECT (Coolant Temp) and IAT (Intake Air) is 15°F (8°C).

⇒ The monitor will not run because the difference between ECT (Coolant Temp) and IAT (Intake Air) is greater than 13°F (7°C).

■ **Example 2**

- ECT (Coolant Temp) = 70°F (21°C).
- IAT (Intake Air) = 68°F (20°C).
- Difference between ECT (Coolant Temp) and IAT (Intake Air) is 2°F (1°C).

⇒ The monitor will run because the difference between ECT (Coolant Temp) and IAT (Intake Air) is less than 13°F (7°C).

Readiness Monitor Drive Patterns: EVAP Monitors (Continued)

Drive Pattern Preconditions

The monitor will not run unless:

- MIL is OFF.
- Fuel level is between 1/2 to 3/4 full (for faster completion).
- Altitude is 7800 feet (2400 m) or less.
- ECT (Coolant Temp) is between 40°F and 95°F (4.4°C – 35°C).
- IAT (Intake Air) is between 40°F and 95°F (4.4°C – 35°C).
- Cold Soak Procedure has been completed.

NOTE:

Before starting the engine, the difference between ECT (Coolant Temp) and IAT (Intake Air) must be less than 13°F (7°C). (Refer to Examples 1 and 2 on previous page.)

Drive Pattern Procedure

- Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.
- Release the pressure in the fuel tank by removing and then reinstalling the fuel tank cap.
- Start the engine and begin driving as directed.

NOTE:

- **Do not turn the ignition off until the drive pattern is complete.**
- **Drive on smooth roads to reduce excessive fuel sloshing.**

2a. Start the engine and as soon as safely possible begin driving at approximately 45 mph (72km/h) for 5 minutes. (See illustration on previous page.)

2b. Drive the vehicle at approximately 25 mph (40 km/h) for 15 minutes and include a minimum of two stops for approximately 30 seconds. (See illustration on previous page.)

The monitor should complete within approximately 20 minutes. If it does not, ensure preconditions are met and repeat the drive pattern process beginning with the Cold Soak Procedure.

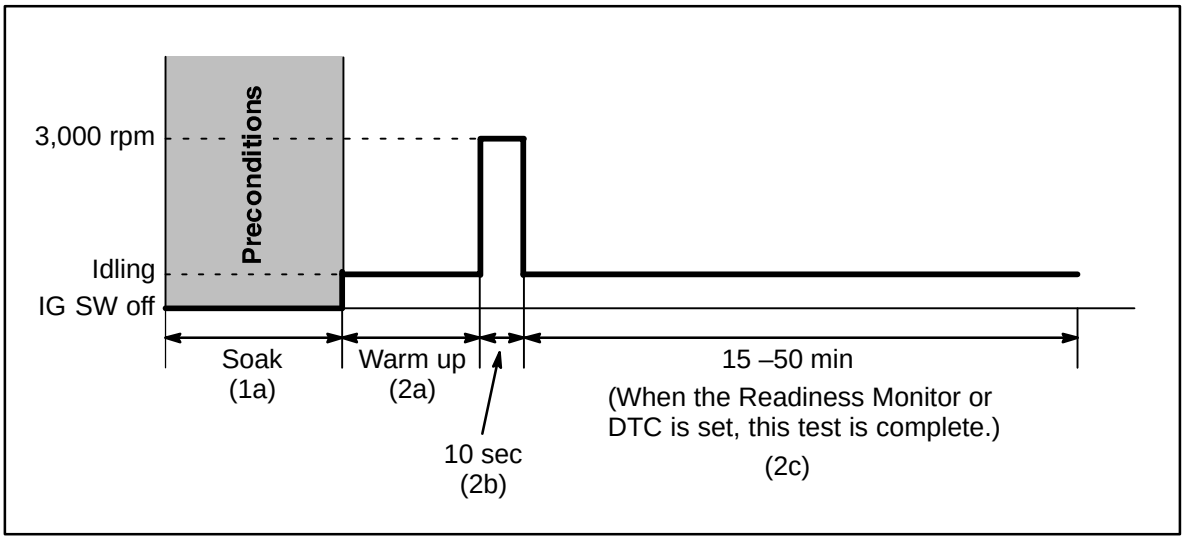
NOTE:

The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).

- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: EVAP Monitors (Continued)

DRIVE PATTERN NO. 6: EVAP Monitor (Vacuum Pressure Monitor/Intrusive Type)



Cold Soak Preconditions

The monitor will not run unless:

- MIL is OFF.
- Fuel level is between 1/2 to 3/4 full (for faster completion).
- Altitude is 7800 feet (2400 m) or less.

Cold Soak Procedure

1a. Let the vehicle cold soak for 8 hours or until the difference between IAT (Intake Air) and ECT (Coolant Temp) is less than 13°F (7°C).

■ **Example 1**

- ECT (Coolant Temp) = 75°F (24°C).
- IAT (Intake Air) = 60°F (16°C).
- Difference between ECT (Coolant Temp) and IAT (Intake Air) is 15°F (8°C).

⇒ The monitor will not run because the difference between ECT (Coolant Temp) and IAT (Intake Air) is greater than 13°F (7°C).

■ **Example 2**

- ECT (Coolant Temp) = 70°F (21°C).
- IAT (Intake Air) = 68°F (20°C).
- Difference between ECT (Coolant Temp) and IAT (Intake Air) is 2°F (1°C).

⇒ The monitor will run because the difference between ECT (Coolant Temp) and IAT (Intake Air) is less than 13°F (7°C).

Readiness Monitor Drive Patterns: EVAP Monitors (Continued)

Drive Pattern Preconditions

The monitor will not run unless:

- MIL is OFF.
- Fuel level is between 1/2 to 3/4 full (for faster completion).
- Altitude is 7800 feet (2400 m) or less.*
- ECT (Coolant Temp) is between 40°F and 95°F (4.4°C – 35°C).
- IAT (Intake Air) is between 40°F and 95°F (4.4°C – 35°C).*
- Cold Soak Procedure has been completed.

*** For 2002 MY and later vehicles:** The readiness test can be completed in cold ambient conditions (less than 40°F / 4.4°C) and/or at high altitudes (more than 7800 feet / 2400 m) if the complete drive pattern (including Cold Soak) is repeated a second time after cycling the ignition OFF.

NOTE:

Before starting the engine, the difference between ECT (Coolant Temp) and IAT (Intake Air) must be less than 13°F (7°C). (Refer to Examples 1 and 2 on previous page.)

Drive Pattern Procedure

- Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.
- Release the pressure in the fuel tank by removing and then reinstalling the fuel tank cap.

2a. Start the engine and allow it to idle until ECT (Coolant Temp) is 167°F (75°C) or greater. (See illustration on previous page.)

2b. Race the engine at 3,000 rpm for approximately 10 seconds. (See illustration on previous page.)

2c. Allow the engine to idle with the A/C ON (to create a slight load) for 15 – 50 minutes. (See illustration on previous page.)

NOTE:

If the vehicle is not equipped with A/C put a slight load on the engine by doing the following:

- **Securely set the parking brake.**
- **Block the drive wheels with wheel chocks.**
- **Allow the vehicle to idle in drive for 15 – 50 minutes.**

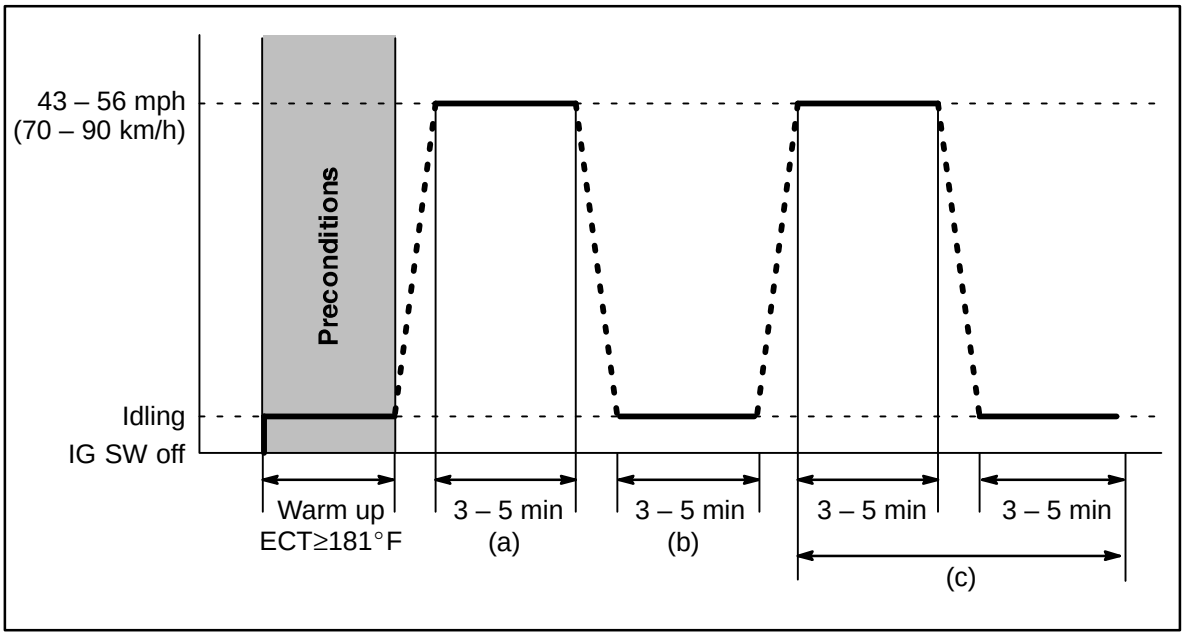
NOTE:

The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).

- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: EVAP Monitors (Continued)

DRIVE PATTERN NO. 7: EVAP Monitor (Without Leak Detection)



Preconditions

The monitor will not run unless:

- MIL is OFF.
- Altitude is 7800 feet (2400 m) or less.
- ECT (Coolant Temp) is 181°F (83°C) or greater.
- IAT (Intake Air) is 41°F (5°C) or greater.

Drive Pattern Procedure

Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.

a. Drive the vehicle at 43 – 56 mph (70 – 90 km/h) for a period of 3 – 5 minutes.

NOTE:
- **Do not allow the Throttle Position (TP) to exceed 30%.**
- **Drive with smooth throttle operation and avoid sudden acceleration.**

b. Stop the vehicle and let the engine idle for 3 – 5 minutes.

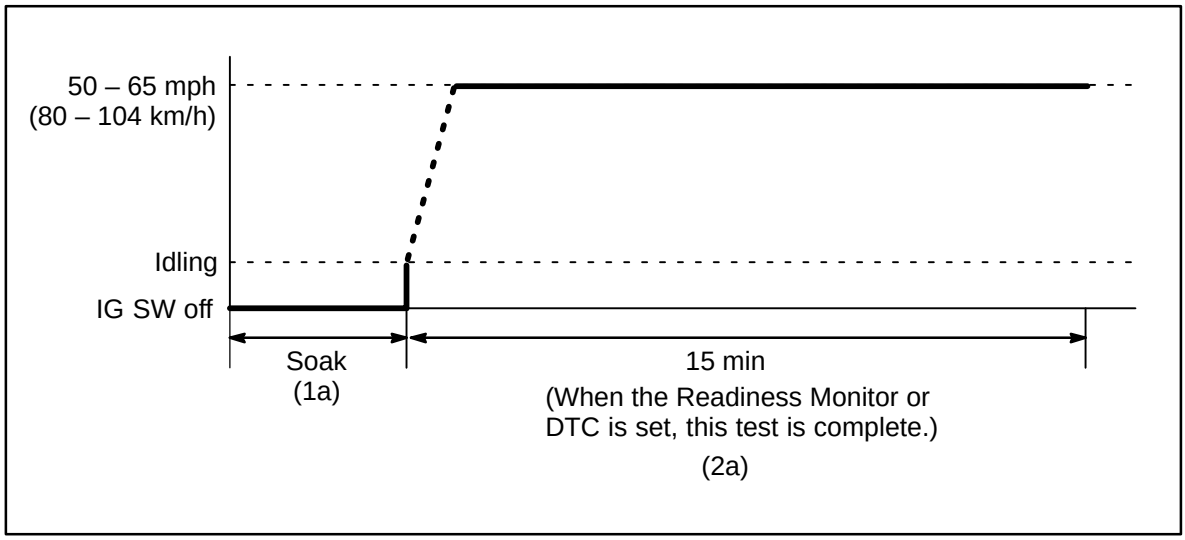
c. Repeat steps “a” and “b” once.

If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition OFF, then repeat steps “a” through “c.”

NOTE:
The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).
- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: EVAP Monitors (Continued)

DRIVE PATTERN NO. 8: EVAP Monitor (For Prius)



Cold Soak Preconditions

The monitor will not run unless:

- MIL is OFF.
- Altitude is 7800 feet (2400 m) or less.

IMPORTANT:

A cold soak must be performed prior to conducting the drive pattern to complete the Internal Pressure Readiness Monitor.

Cold Soak Procedure

1a. Let the vehicle cold soak for 8 hours or until the difference between IAT (Intake Air) and ECT (Coolant Temp) is less than 13°F (7°C).

■ **Example 1**

- ECT (Coolant Temp) = 75°F (24°C).
- IAT (Intake Air) = 60°F (16°C).
- Difference between ECT (Coolant Temp) and IAT (Intake Air) is 15°F (8°C).

  ⇒ The monitor will not run because the difference between ECT (Coolant Temp) and IAT (Intake Air) is greater than 13°F (7°C).

■ **Example 2**

- ECT (Coolant Temp) = 70°F (21°C).
- IAT (Intake Air) = 68°F (20°C).
- Difference between ECT (Coolant Temp) and IAT (Intake Air) is 2°F (1°C).

  ⇒ The monitor will run because the difference between ECT (Coolant Temp) and IAT (Intake Air) is less than 13°F (7°C).

Readiness Monitor Drive Patterns: EVAP Monitors (Continued)

Drive Pattern Preconditions

The monitor will not run unless:

- MIL is OFF.
- Altitude is 7800 feet (2400 m) or less.
- ECT (Coolant Temp) is between 40°F and 95°F (4.4°C – 35°C).
- IAT (Intake Air) is between 40°F and 95°F (4.4°C – 35°C).*
- Cold Soak Procedure has been completed.

NOTE:

Before starting the engine, the difference between ECT (Coolant Temp) and IAT (Intake Air) must be less than 13°F (7°C). (Refer to Examples 1 and 2 on previous page.)

Drive Pattern Procedure

- Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.
- Release the pressure in the fuel tank by removing and then reinstalling the fuel tank cap.
- Start the engine and as soon as safely possible begin driving as directed.

2a. Drive the vehicle at 50 – 65 mph (80 – 104 km/h) for about 15 minutes. (See illustration on previous page.)

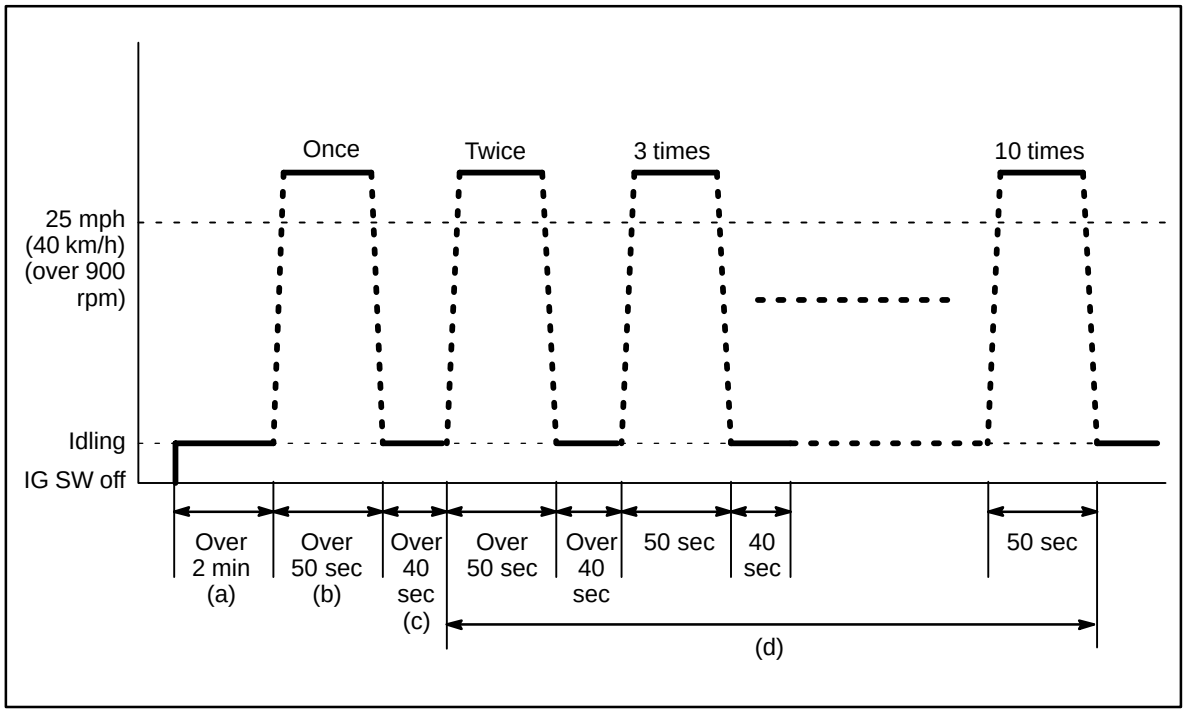
NOTE:

- **Do not turn the ignition off until the drive pattern is complete.**
- **Drive on smooth roads to reduce excessive fuel sloshing.**

If vehicle speed drops under 45 mph (72 km/h) repeat step “2a.”

Readiness Monitor Drive Patterns: Oxygen Monitors

DRIVE PATTERN NO. 9: Oxygen Sensor Monitor (Front and Rear O2S System)



Preconditions

The monitor will not run unless:

- MIL is OFF.

Drive Pattern Procedure

Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.

a. Start the engine and allow it to idle for 2 minutes or more.

b. Drive the vehicle at 25 mph (40 km/h) or more for at least 50 seconds. Be sure engine speed remains above 900 rpm.

c. Stop the vehicle and allow the engine to idle for 40 seconds or more.

d. Perform steps “b” and “c” ten times.

If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition OFF, then repeat steps “a” through “d.”

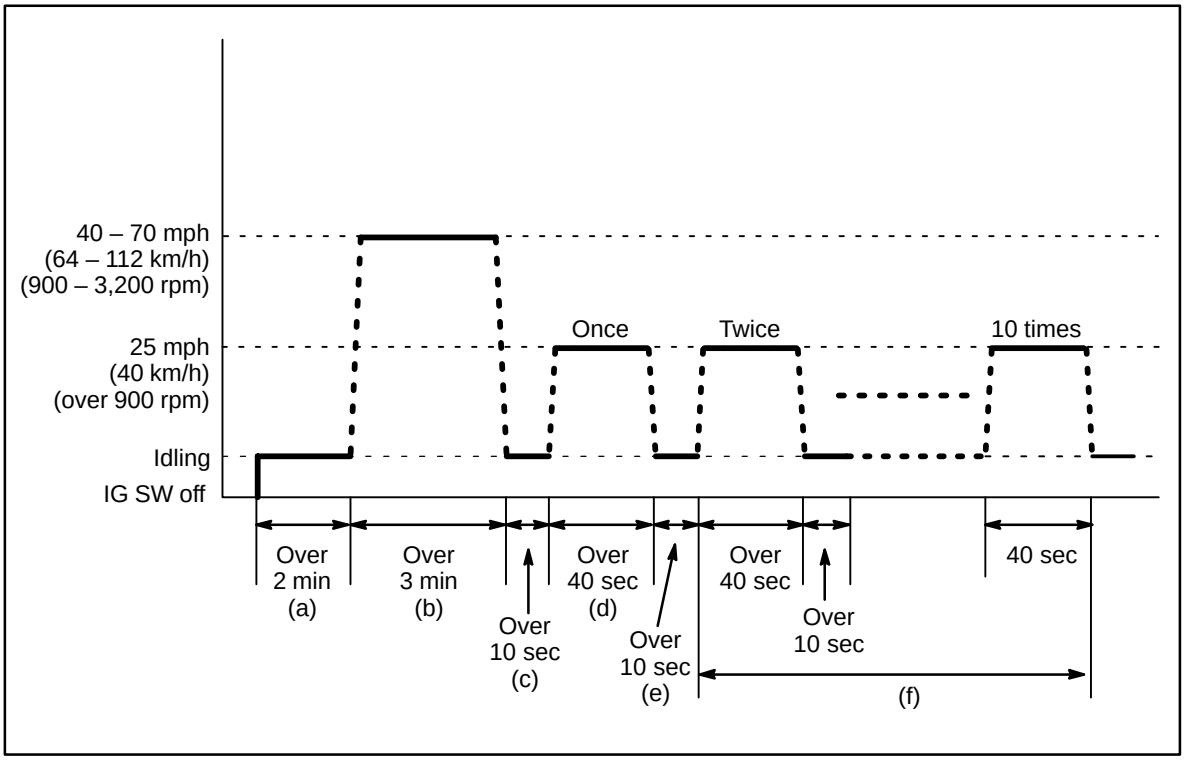
NOTE:

The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).

- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: Oxygen Monitors (Continued)

DRIVE PATTERN NO. 10: Oxygen/Air Fuel Ratio Sensor Monitor (Front AF Sensor and Rear O2S System)



Preconditions

The monitor will not run unless:

- MIL is OFF.

Drive Pattern Procedure

Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.

a. Start the engine and allow it to idle for 2 minutes or more.

b. Drive the vehicle at 40 – 70 mph (64 – 112 km/h) or more for at least 3 minutes. Be sure to maintain engine speed between 900 and 3,200 rpm.

c. Stop the vehicle and allow the engine to idle for 10 seconds or more.

d. Drive the vehicle at 25 mph (40 km/h) for at least 40 seconds or more. Be sure to maintain engine speed above 900 rpm.

e. Stop the vehicle and allow the engine to idle for 10 seconds or more.

f. Perform steps “d” and “e” ten times.

If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition switch OFF, then repeat steps “a” through “f.”

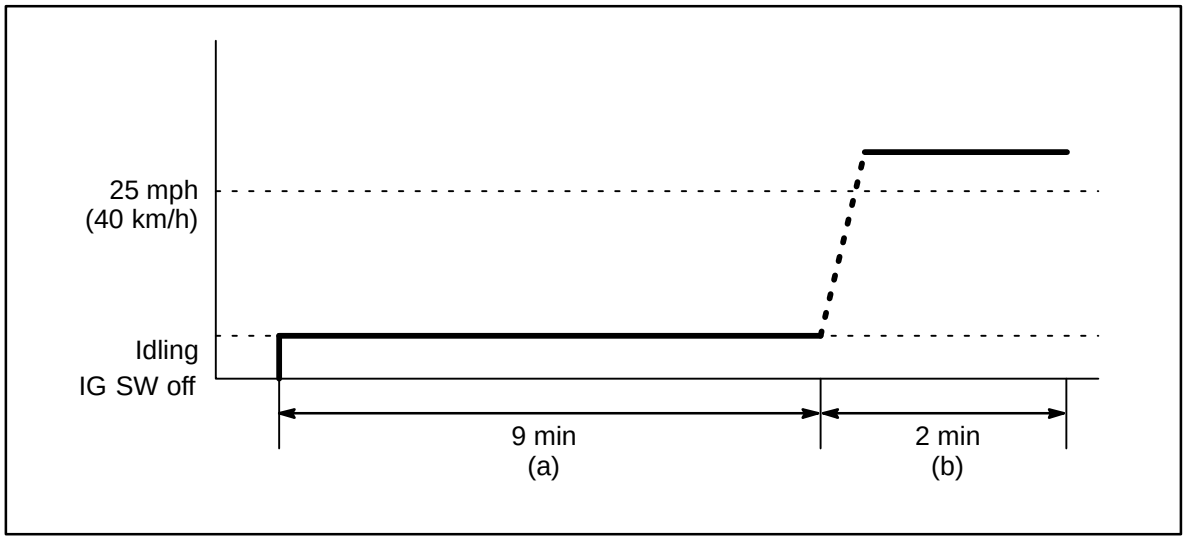
NOTE:

The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).

- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

Readiness Monitor Drive Patterns: Oxygen Monitors (Continued)

DRIVE PATTERN NO. 11: Oxygen/AF Sensor Heater Monitor



Preconditions

The monitor will not run unless:

- MIL is OFF.

Drive Pattern Procedure

Connect the OBDII Scantool to DLC3 to check monitor status and preconditions.

a. Start the engine and allow it to idle for 9 minutes.

b. Drive the vehicle at 25 mph (40 km/h) or more for at least 2 minutes.

If readiness status does not switch to “complete,” ensure preconditions are met, turn the ignition OFF, then repeat steps “a” and “b.”

NOTE:

The readiness status may not switch to “complete” after the first drive pattern trip if a Pending Code has been set (first trip for a two–trip DTC).

- **Pending Codes are available from the DTC Info Menu in Enhanced OBDII.**
- **Pending Codes indicate a POTENTIAL problem was detected. A second trip is needed to confirm the DTC prior to diagnosis.**
- **Once a second trip is completed, a current DTC will be stored.**

TOYOTA

Technical Service BULLETIN

February 24, 2003

Title:

SULFUR ODOR FROM EXHAUST

Models:

All Models

TSB

Introduction

Some owners of Toyota vehicles may experience a sulfur–like or “rotten egg” odor from the exhaust system. Sulfur is a natural component of crude oil from which gasoline is refined and the amount of sulfur can be decreased through the refining process. The amount of sulfur in fuel sold in California is regulated, however gasoline sold in other states can have substantially higher sulfur content. Sulfur content also varies considerably between gasoline brands and locations.

Applicable Vehicles

- **All Models**.

Repair Procedure

A sulfur odor emitted from the vehicle’s tailpipe does not necessarily indicate that there is an issue with the engine’s running condition, but is most likely directly related to the fuel. If the vehicle is exhibiting an excessive sulfur odor, the following checks should be performed:

- If the MIL light is ON, check for DTCs and repair as necessary.

If no trouble is found after performing the above check, recommend the customer try a different source of fuel.

Replacement of oxygen sensors, air/fuel ratio sensors or catalytic converters will not reduce the odor and will therefore **not** be considered warrantable.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

April 27, 2001

Title:

EVAP SYSTEM OPERATION INFORMATION

Models:

All '96 – '01 Models

TSB

Introduction

This service bulletin provides supplemental information regarding the system design, operation, and diagnostics of the Early Type (Non–Intrusive) and Late Type (Intrusive) EVAP Systems found on 1996 model year and later OBD II equipped vehicles.

Applicable Vehicles

MODEL	1996	1997	1998	1999	2000	2001
Avalon	Early	Early	Early	Early	Late	Late
Camry	Early (A/T only)	Early	Early	Early	Late	Late
Camry Solara	N/A	N/A	N/A	Early	Late	Late
Celica	N/A	N/A	Early	Early	Late	Late
Corolla	N/A	N/A	Early	Early	Late	Late
ECHO	N/A	N/A	N/A	N/A	Late	Late
MR2	N/A	N/A	N/A	N/A	Late	Late
Prius	N/A	N/A	N/A	N/A	Late	Late
Tercel	N/A	Early	Early	Early	N/A	N/A
4Runner	Early	Early	Early	Early	Early	Late
Land Cruiser	N/A	N/A	Early	Early	Early	Early
RAV4	Early	Early	Early	Early	Early	Late
Sequoia	N/A	N/A	N/A	N/A	N/A	Late
Sienna	N/A	N/A	Early	Early	Early	Late
Tacoma	Early (4WD only)	Early	Early	Early	Early	Early
Tundra	N/A	N/A	N/A	N/A	Early	Early
T100	N/A	Early	Early	N/A	N/A	N/A

Contents

This bulletin is divided into the following sections:

Warranty Information

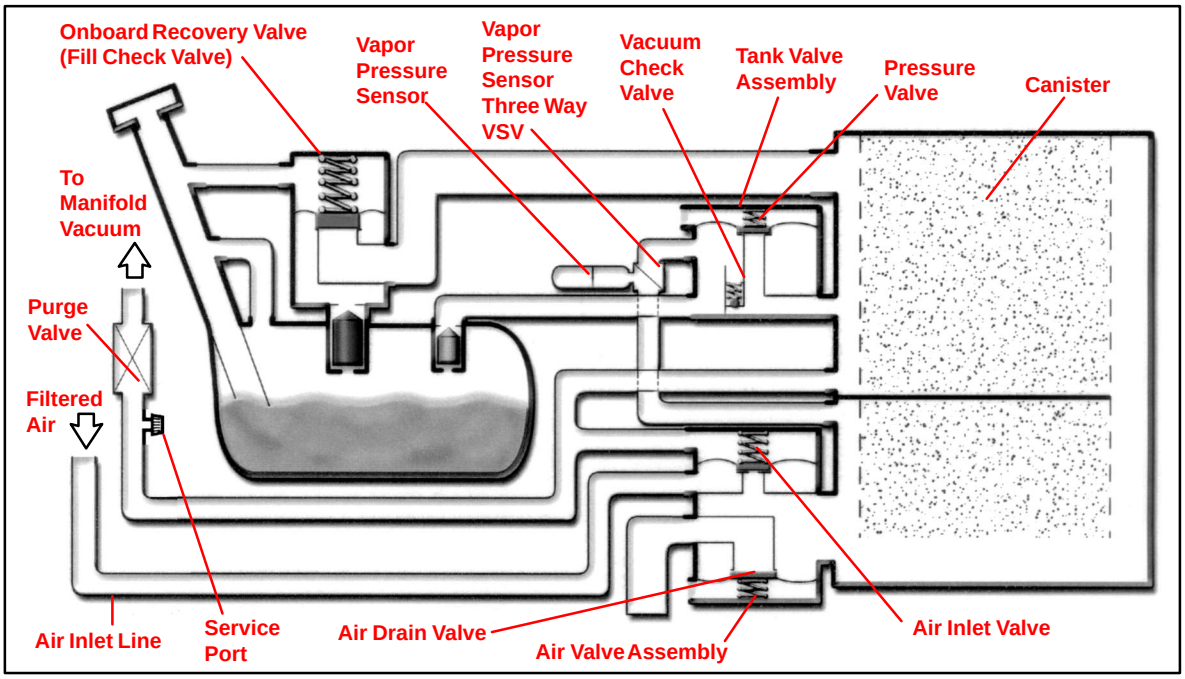
OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Early Type System Description

Early Type (Non–Intrusive) EVAP System Overview

There are a variety of EVAP systems in use with different monitoring strategies. It is essential that the EVAP system be correctly identified before beginning diagnosis. The Repair Manual is the best source for this information. The following information covers the different systems.

The first system described is the Early Type (Non–Intrusive) EVAP System. Refer to the Applicable Vehicles chart for applicability information.



Purge Operation

When the engine has reached predetermined parameters (closed loop, engine temp. above 125°F, etc.), stored fuel vapors are purged from the canister whenever the purge VSV is opened by the ECM. At the appropriate time, the ECM will turn on the purge VSV.

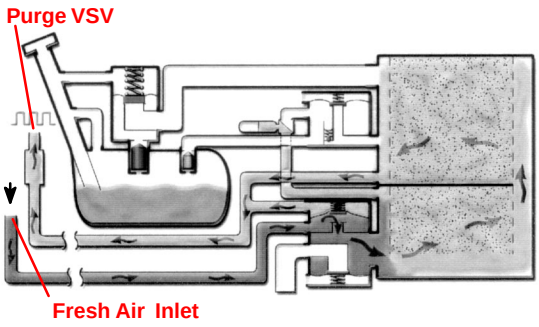


Figure 1. Purge Operation

The ECM will change the duty ratio cycle of the purge VSV thus controlling purge flow volume. Purge flow volume is determined by manifold pressure and the duty ratio cycle of the purge VSV. Atmospheric pressure is allowed into the canister to ensure that purge flow is constantly maintained whenever purge vacuum is applied to the canister (see Figure 1).

Early Type System Description (Continued)

ORVR Operation

During refueling, low pressure above the diaphragm in the onboard recovery valve lifts allowing fuel vapors into the charcoal canister. At the same time, the air drain valve opens and the charcoal absorbs the fuel vapors (see Figure 2).

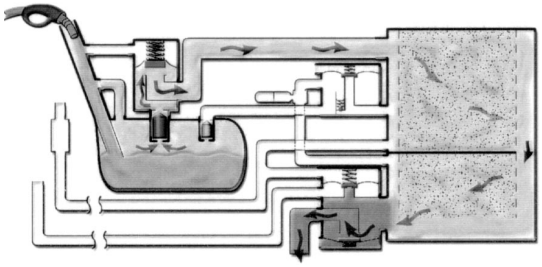


Figure 2. ORVR Operation

Early Type (Non–Intrusive) EVAP System DTCs

EVAP Monitor Leak Operation P0440

The ECM tests for leaks by measuring EVAP system pressure in the lines, charcoal canister, and fuel tank. When the EVAP pressure is higher or lower than atmospheric pressure, the ECM concludes that no leaks are present. EVAP pressure is measured by the vapor pressure sensor. If either the tank or canister purge side is at atmospheric pressure under specific conditions, the ECM determines there is a leak.

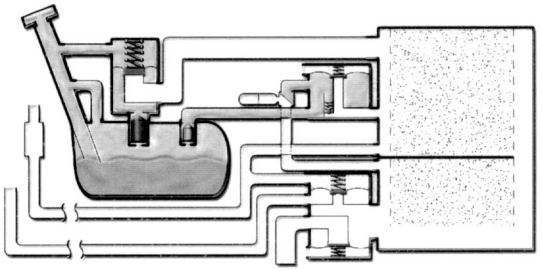


Figure 3. Fuel Tank Side of System

If DTC P0440 is present, the leak is on the fuel tank side of the EVAP system. This also includes the lines between the fuel tank and part of the canister. When the Vapor Pressure sensor is measuring tank pressure, the ECM is observing changes in pressure and comparing tank pressure to atmospheric pressure. No difference in pressure indicates a leak. The ECM may take 20 minutes or more to complete testing the fuel tank side (see Figure 3).

Canister Leak Detection P0446

When the ECM switches the vapor pressure VSV to canister side, the ECM measures canister pressure. A leak on the canister side can set multiple DTCs (see Figure 4).

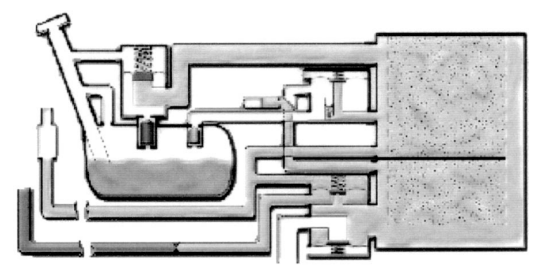


Figure 4. Canister Side of System

Early Type System Description (Continued)

Vapor Purge Flow P0441

The EVAP monitor is designed to detect:

- Restricted vapor purge flow when the purge VSV is open
- Inappropriate vapor purge flow when the purge VSV is closed

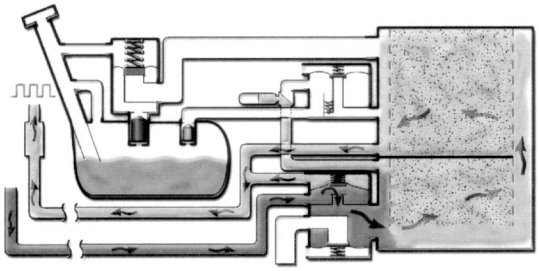


Figure 5. Flow During Purge Operation

Under normal purge conditions, pressure pulsations generated by the cycling of the purge VSV are present in the canister and detected by the Vapor Pressure sensor.

Three–Way VSV P0446

The three–way VSV is connected to the Vapor Pressure sensor, canister, and fuel tank. This VSV allows the Vapor Pressure sensor to detect either canister or tank pressure.

There are two modes the ECM can use to determine if the three–way VSV is malfunctioning. The three–way VSV is judged to be normal if there is pressure difference between the tank and canister when the three–way VSV is switched to look at the charcoal canister and fuel tank side of system.

If there isn't any pressure difference between the fuel tank and canister, the ECM looks for the following conditions:

- During purging, pressure pulsations generated by the purge VSV are not present in the canister as detected by Vapor Pressure sensor, the three–way VSV is judged to be defective.
- If there are pressure pulsations detected by the Vapor Pressure sensor present in the fuel tank, the three–way VSV is judged to be defective.

Late Type System Description

Late Type (Intrusive) EVAP System Overview

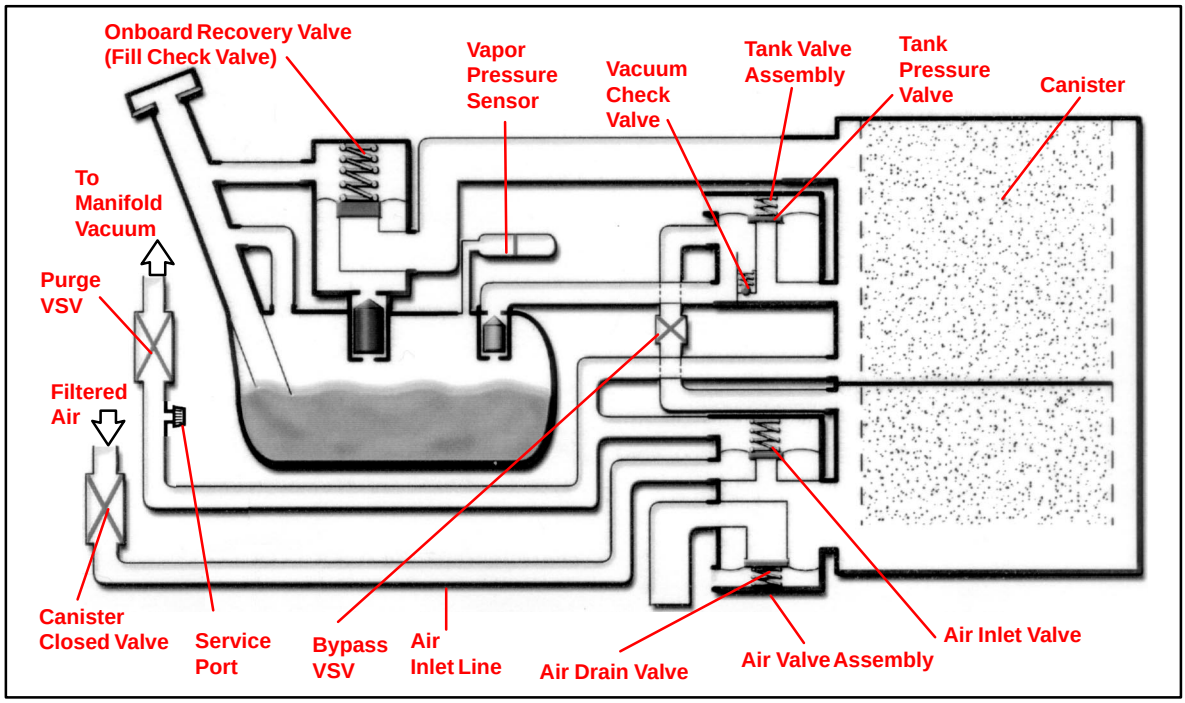
The Late Type EVAP System, also known as the Intrusive type, was developed to meet the very stringent, mandated standard of detecting a hole 0.020 inch (0.5 mm). This system uses many of the same components as the early type EVAP system. Purge, vacuum relief, pressure relief, and ORVR operations are identical to the early type. Refer to the Applicable Vehicles chart for applicability information.

The following changes were made to the Late Type EVAP System:

- Vapor pressure sensor connected to the fuel tank.
- Bypass VSV in the place of the three way VSV.
- Canister Closed Valve (CCV) on the air inlet line.

Late Type System Description (Continued)

Late Type (Intrusive EVAP System) (Except ECHO)



Tank Side

The bypass VSV and the fill check valve assembly isolates the tank pressure side from the canister side (see Figure 1).

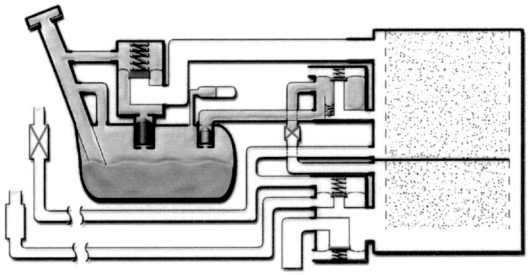


Figure 1. Fuel Tank Side of System

Canister Side

The bypass VSV and the Fill Check valve also isolate the canister side from the tank side (see Figure 2).

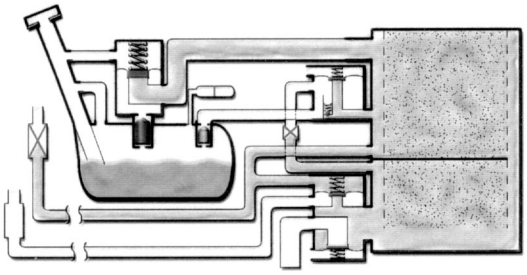
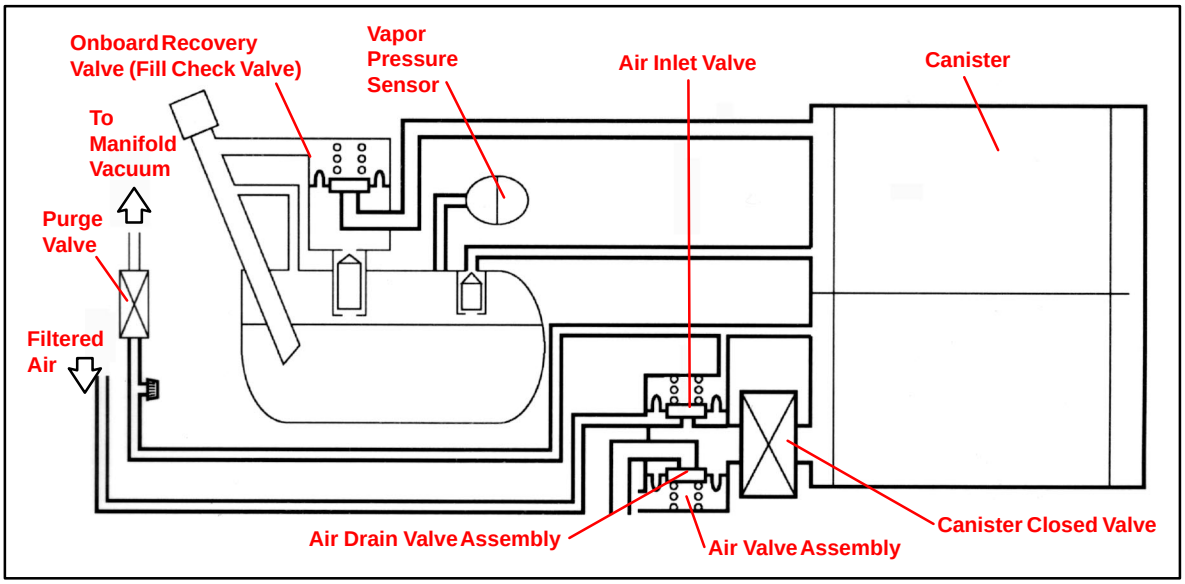


Figure 2. Canister Side of System

Late Type System Description (Continued)

ECHO Late Type (Intrusive EVAP System)

The ECHO uses a Late Type EVAP System but is configured with some small differences. For the ECHO, the Canister Closed Valve is located directly on the canister. Additionally, the bypass VSV has been eliminated.

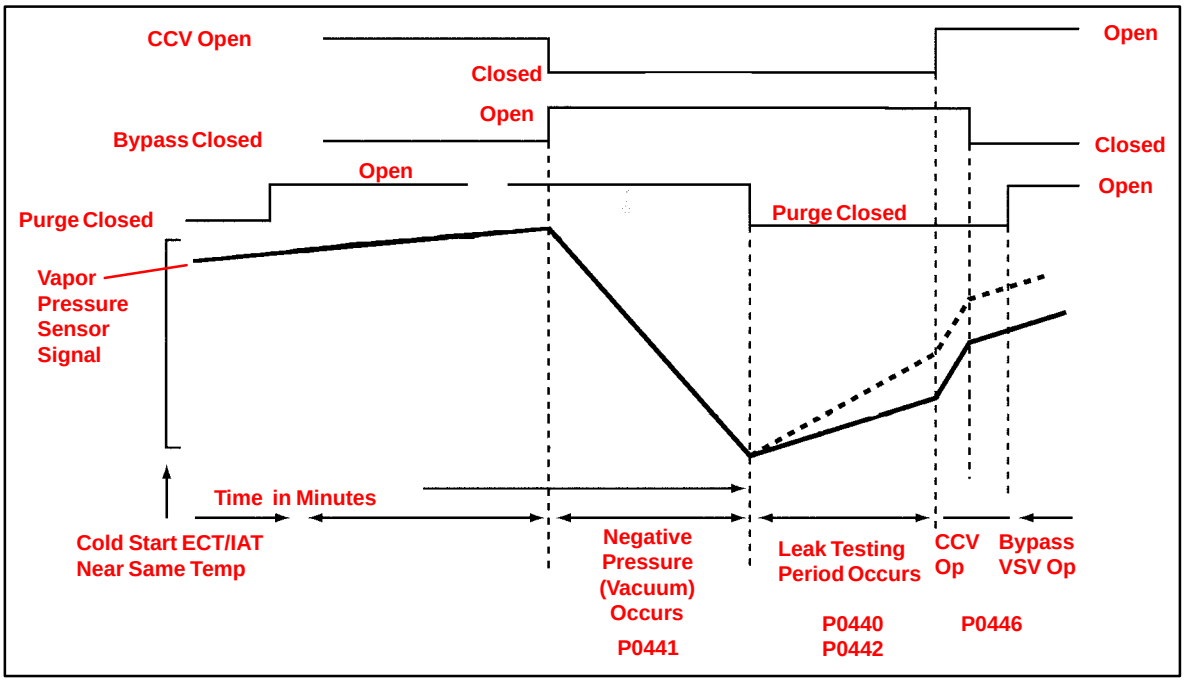


Late Type System Monitor Sequence

Late Type (Intrusive) EVAP System Monitor Sequence

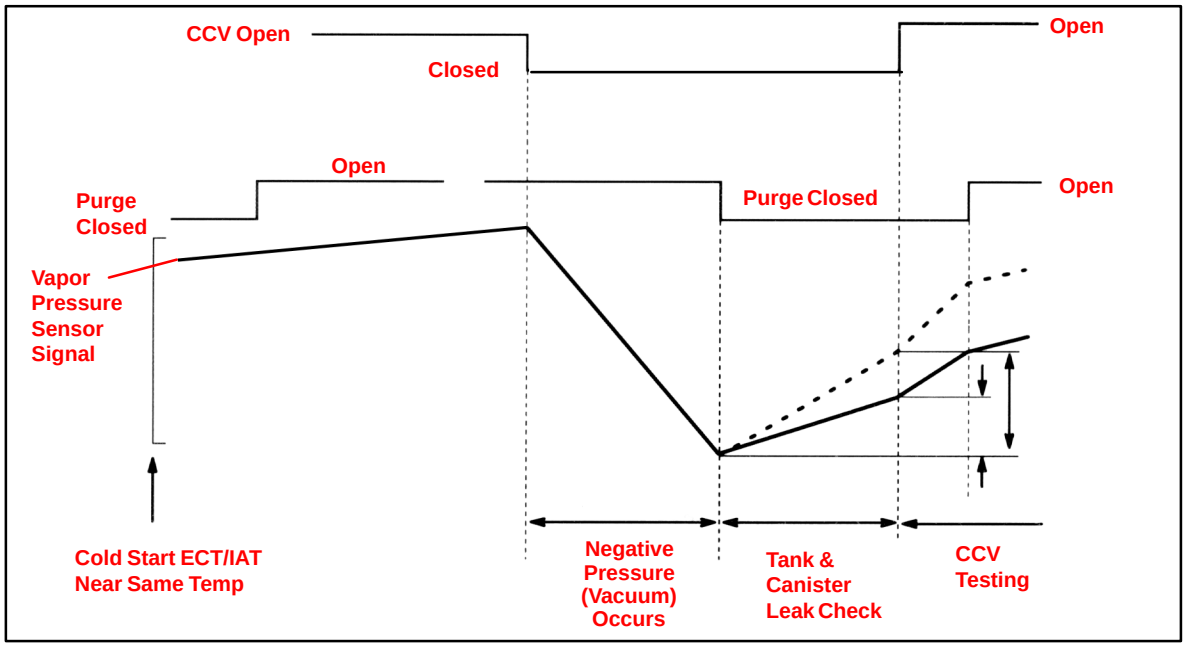
The monitoring sequence for leak detection is different from that of the Early Type EVAP System. The Late Type applies a very small vacuum to the EVAP system. The ECM then determines if there is a problem in the system based on the vapor pressure sensor signal.

Monitor Sequence (Except ECHO)



Late Type System Monitor Sequence (Continued)

ECHO Monitor Sequence



Monitor Operation

The monitor sequence begins with a cold engine start. The IAT and ECT sensors must have approximately the same temperature reading.

The ECM is constantly monitoring fuel tank pressure. As the temperature of the fuel increases, pressure slowly rises.

Except ECHO

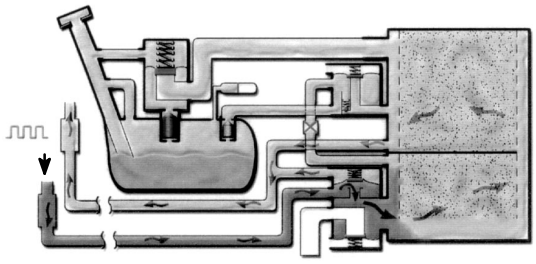


Figure 1. Canister Purge

The ECM will purge the charcoal canister at the appropriate time (see Figure 1). With bypass VSV closed, pressure will continue to rise in fuel tank.

ECHO

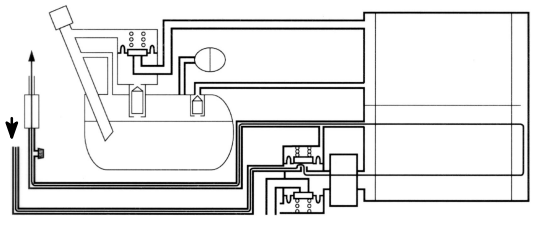


Figure 1. Canister Purge

Late Type System Monitor Sequence (Continued)

Purge VSV Operation – P0441

At a predetermined point, the ECM closes the CCV and opens the bypass VSV causing vacuum to increase in the entire EVAP system.

The ECM continues to operate the purge VSV until the vacuum is increased to a specified point at which time the ECM closes the purge VSV (see Figure 2).

If the vacuum did not increase, or if the vacuum increased beyond the specified limit, the ECM judges the purge VSV and related components to be faulty.

Except ECHO

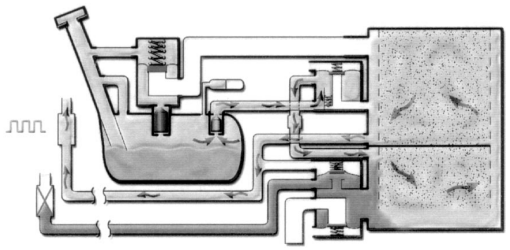


Figure 2. Vacuum Application

ECHO

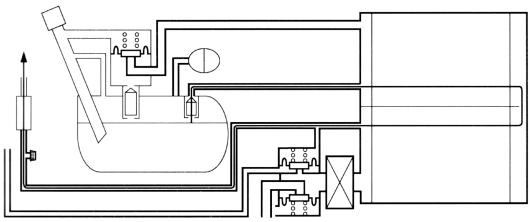


Figure 2. Vacuum Application

Hole Detection P0440 and P0442

The rate of pressure increase as detected by the vapor pressure signal indicates the if there is a leak and if it is a large or small leak.

After purge VSV operation, the purge VSV is turned off sealing the vacuum in the system and the ECM begins to monitor the pressure increase (see Figure 3). Some increase is normal. A very rapid, sharp increase in pressure indicates a leak in the EVAP system and sets the DTC P0440.

This monitoring method is also able to distinguish what is called the small leak detection. A pressure rise just above normal indicates a very small hole and will set the DTC P0442.

Except ECHO

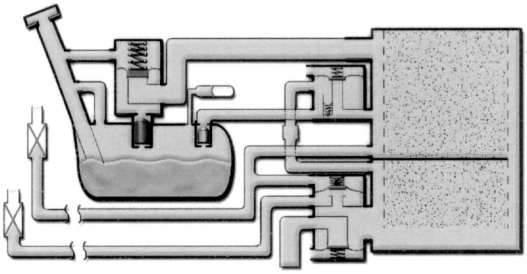


Figure 3. System Sealed

ECHO

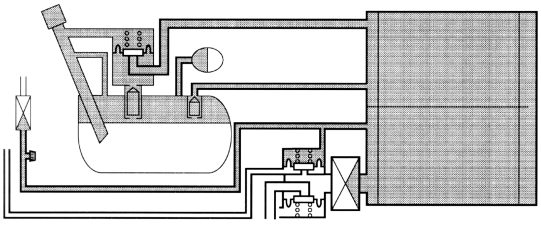


Figure 3. System Sealed

Late Type System Monitor Sequence (Continued)

Vent Control, CCV Operation P0446

This stage checks the CCV and vent (air inlet side) operation. When the vapor pressure rises to a specified point, the ECM opens the CCV. Pressure will increase rapidly because of the air allowed into the system. No increase or an increase below specified rate of pressure increase indicates a restriction on the air inlet side (see Figure 4).

Except ECHO

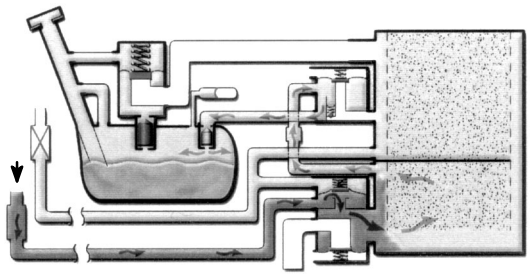


Figure 4. CCV Opens

ECHO

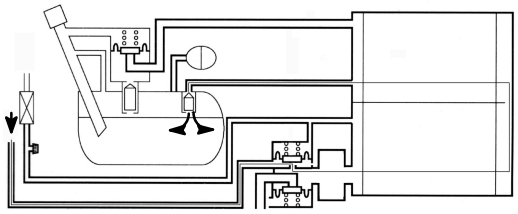


Figure 4. CCV Opens

Bypass VSV Operation P0446

In the next stage, the ECM closes the bypass VSV. This action blocks air entering the tank side of the system. The pressure rise on the fuel tank side is no longer as great. If there was no change in pressure, the ECM will conclude the bypass VSV did not close (see Figure 5).

Except ECHO

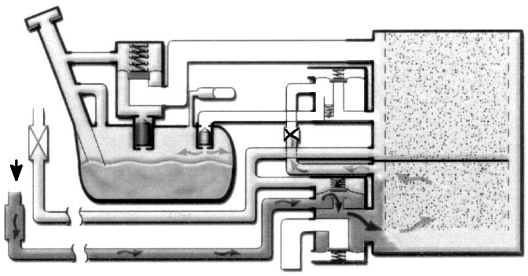


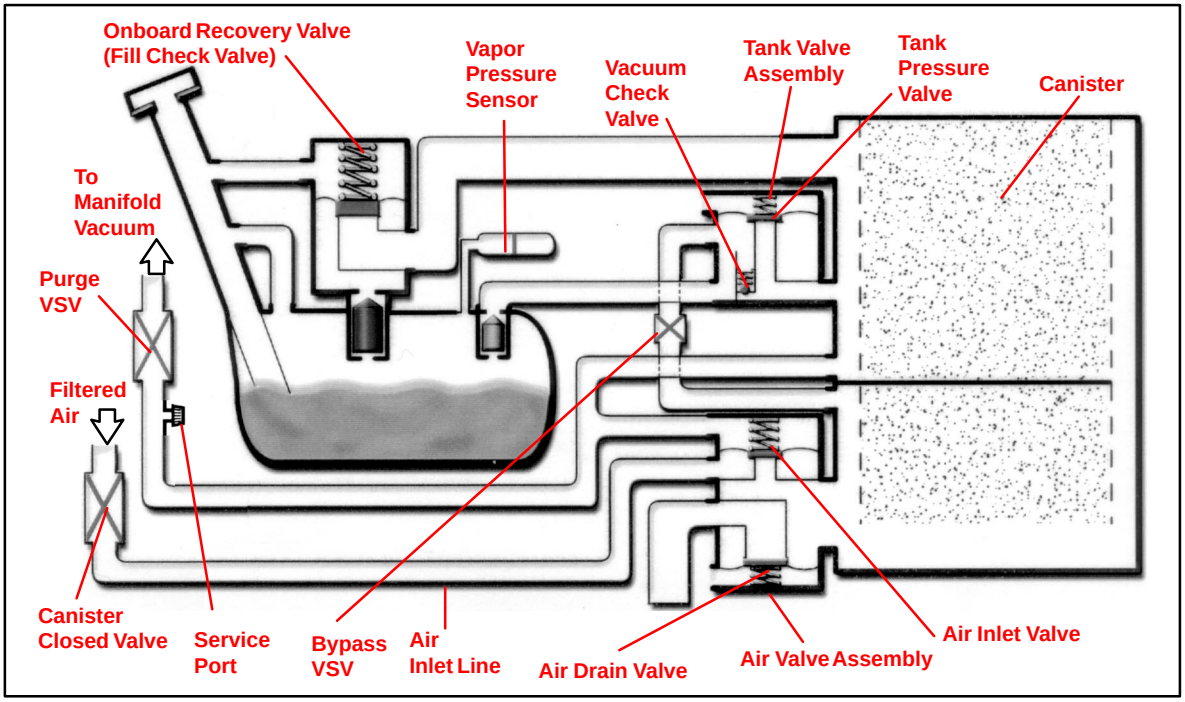
Figure 5. Bypass VSV Closes

Diagnostic Tips for Late Type EVAP System

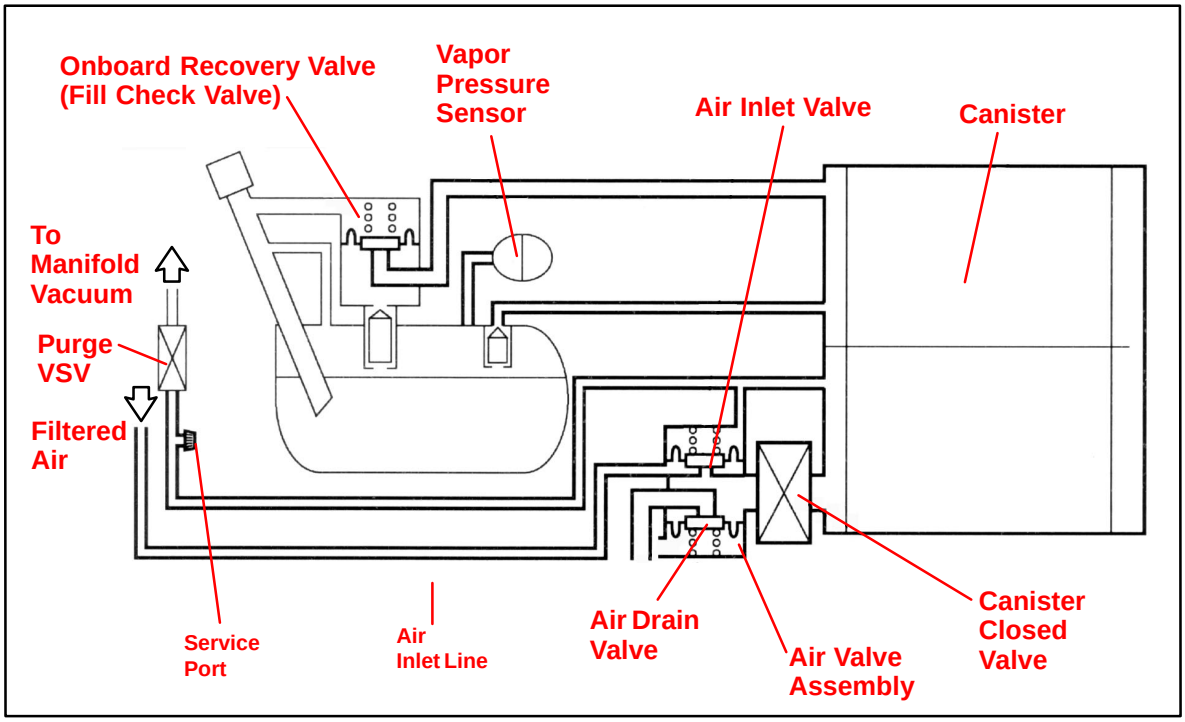
This diagnostic process tests the EVAP System. The following diagnostic tips may be used in conjunction with the Diagnostic Procedures for EVAP DTCs listed in the Repair Manual. They may be used for all Late Type (Intrusive) EVAP Systems and for all EVAP DTCs. Refer to the Applicable Vehicles chart for applicability information.

The EVAP System Pressure Test Kit (P/N 00002–6872A) and the Scan Tool can be used to diagnose the EVAP System. Measuring EVAP System pressures using the EVAP System Pressure Tester Gauge and the Scan Tool can aid in the identification of leaks in the system.

System Outline (Except ECHO)

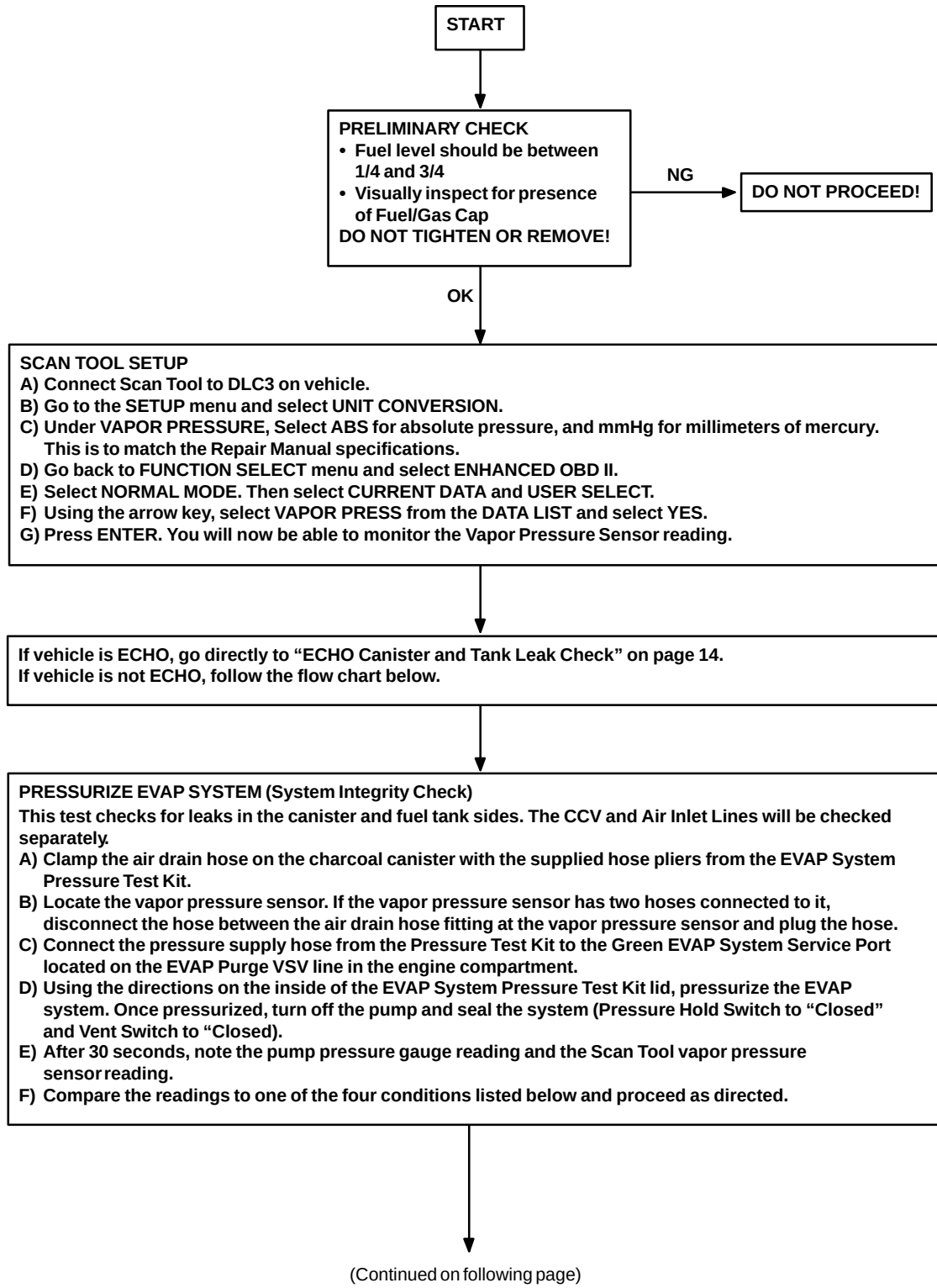


ECHO System Outline



Diagnostic Tips for Late Type EVAP System (Continued)

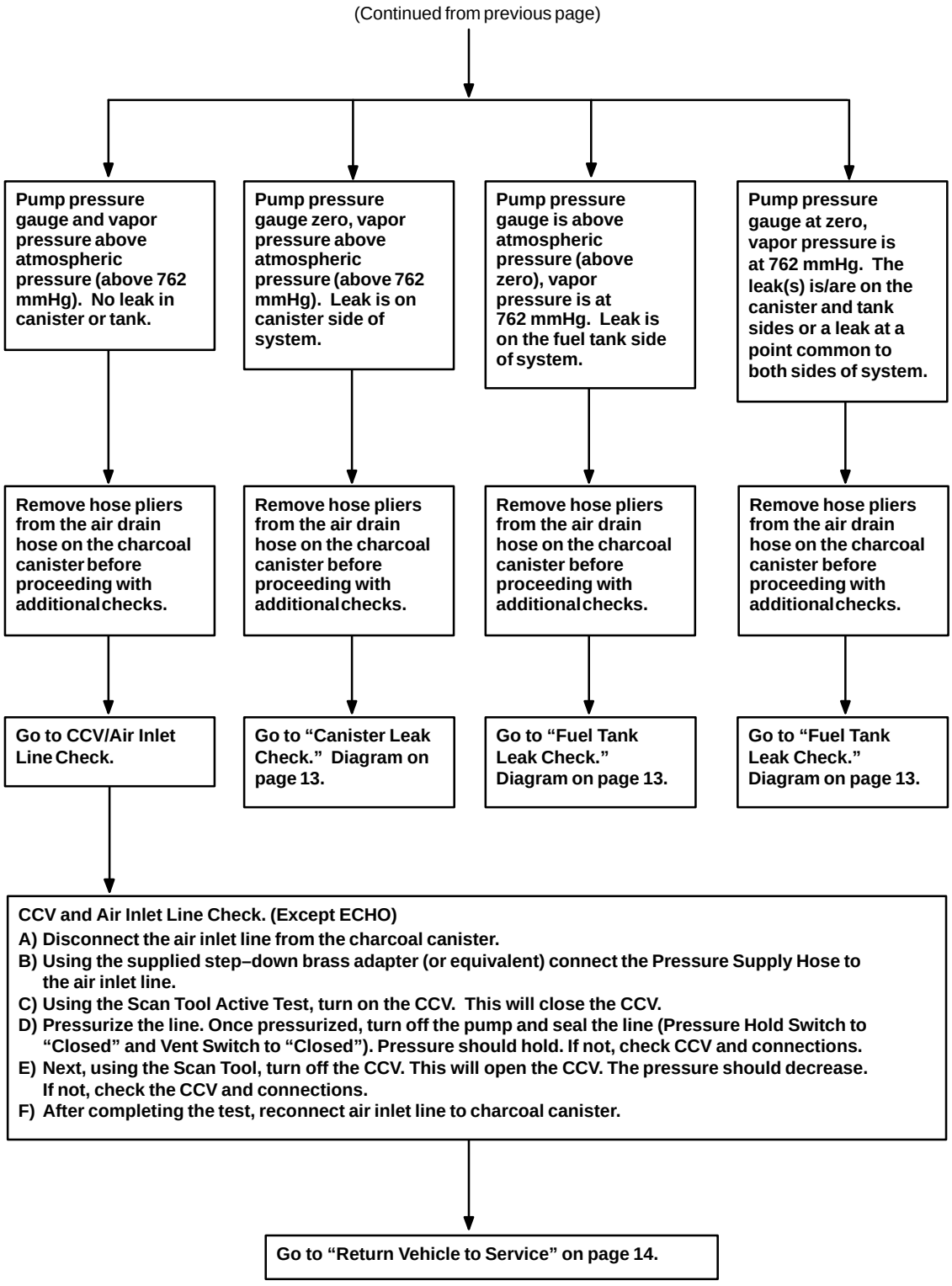
Diagnostic Process Flow Chart



(Continued on following page)

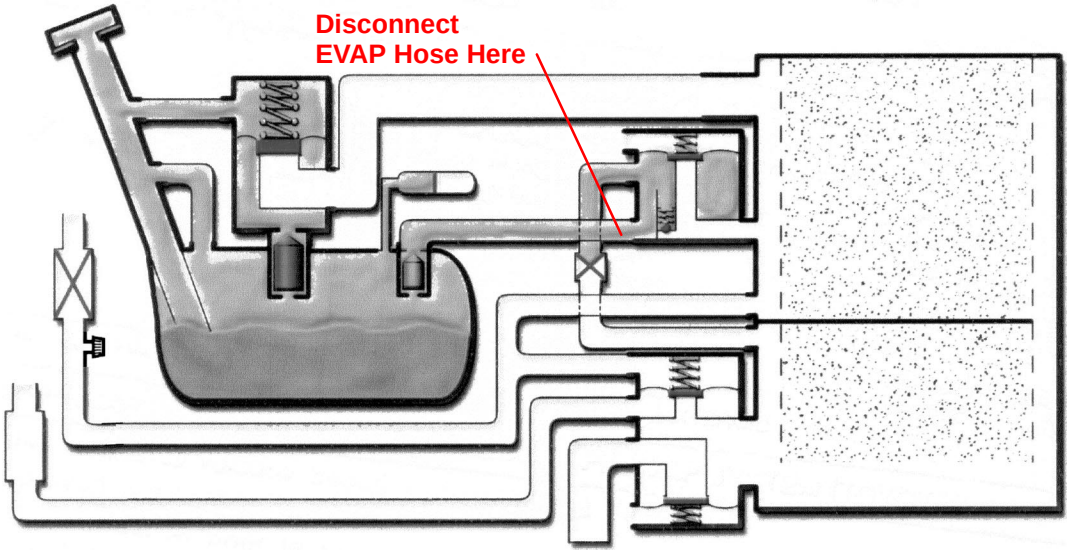
Diagnostic Tips for Late Type EVAP System (Continued)

Diagnostic Process Flow Chart (Continued)



Diagnostic Tips for Late Type EVAP System (Continued)

Fuel Tank Leak Check (Except ECHO)

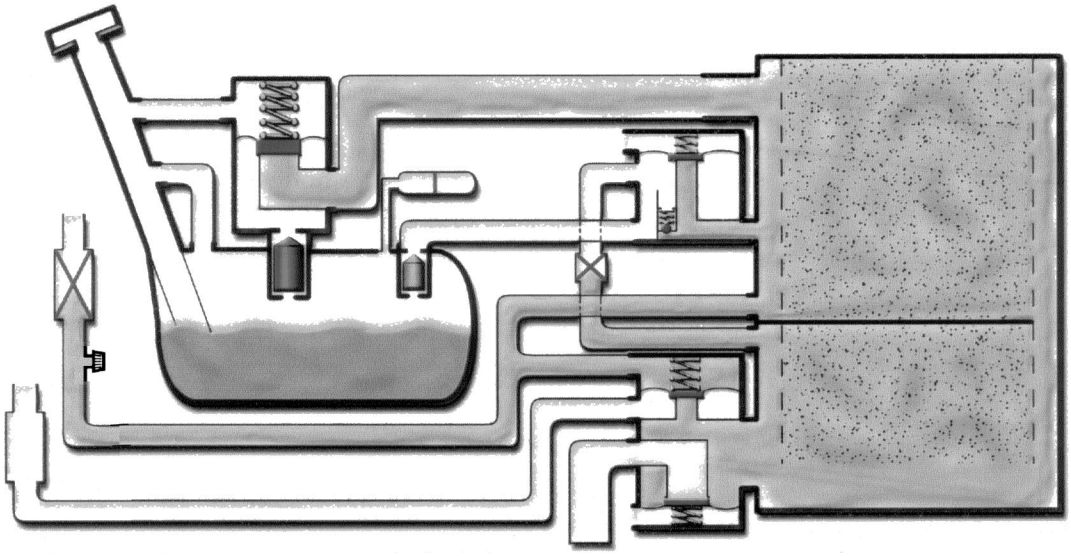


A. Using the supplied brass step–down adapter, disconnect the EVAP hose from the charcoal canister side as indicated above. Connect Pressure Supply hose from Pressure Test Kit to the EVAP hose and pressurize the fuel tank to 30 mmHg (4 kPa / 0.58 psi).

B. Check that the internal pressure of the tank will hold for 1 minute. Check shaded areas for leaks (soapy water can be used for leak detection). If pressure holds, then perform the Canister Leak Check.

C. When done, reconnect the EVAP line hose to the charcoal canister.

Canister Leak Check (Except ECHO)



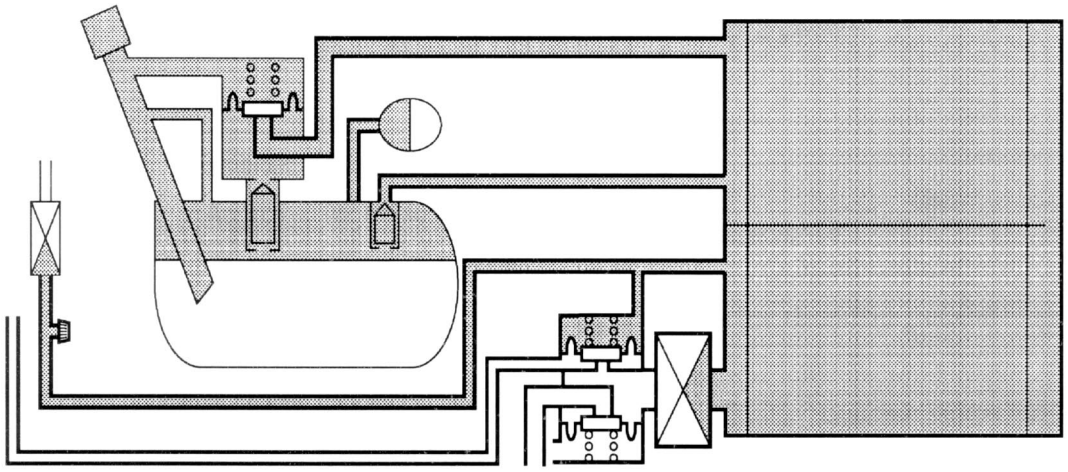
A. Connect the Pressure Supply hose from the Pressure Test Kit to the Green EVAP System Service Port located on the EVAP Purge VSV line in the engine compartment.

B. Using the directions on the inside of the EVAP System Pressure Test Kit lid, pressurize the EVAP system. Once pressurized, turn off the pump and seal the system (Pressure Hold Switch to “Closed” and Vent Switch to “Closed”)

C. With system pressurized at EVAP Service Port, check shaded areas for leaks (soapy water can be used for leak detection).

Diagnostic Tips for Late Type EVAP System (Continued)

ECHO Canister and Tank Leak Check



A. Connect the Pressure Supply hose from the Pressure Test Kit to the Green EVAP System Service Port located on the EVAP Purge VSV line in the engine compartment.
B. Using the directions on the inside of the EVAP System Pressure Test Kit lid, pressurize the EVAP system. Once pressurized, turn off the pump and seal the system (Pressure Hold Switch to "Closed" and Vent Switch to "Closed")
C. With system pressurized, check shaded areas for leaks (soapy water can be used for leak detection).

Return Vehicle to Service

A. After performing checks and/or repairs, be sure to reconnect all lines and verify that all plugs and hose pliers used for diagnosis have been removed.
B. For additional diagnostic procedures and information, refer to the appropriate Repair Manual.

TOYOTA

Technical Service BULLETIN

April 11, 2003

Title:

M.I.L. "ON" DTC P0300

Models:

'00 – '03 MR2 Spyder

TSB

ENGINE

EG005-03

Introduction

Some MR2 Spyder vehicles may exhibit a M.I.L. "ON" condition with Diagnostic Trouble Code P0300 stored in the Engine Control Module or ECM (SAE term: Powertrain Control Module/PCM). In some of these cases, standard misfire repair methods may not uncover any identifiable sources of misfire. An updated ECM (PCM) has been made available to prevent repeat occurrences of this M.I.L. "ON" condition.

Applicable Vehicles

- **2000 – 2003** model year **MR2 Spyder** vehicles produced **BEFORE** the Production Change Effective VINs shown below.

Production Change Information

MODEL	ENGINE	PRODUCTION CHANGE EFFECTIVE VIN
'03 MR2 Spyder	1ZZ–FE SMT	JTDFR320#30059064
	1ZZ–FE MT	JTDFR320#30059864

MT refers to Manual Transmission and SMT to Sequential Manual Transmission.

Parts Information

APPLICATION	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
'03 MY – SMT	89661–17690	89661–17691	Computer, Engine Control	1
'02 MY – SMT	89661–17670	89661–17671		
'03 MY – MT	89661–17720	89661–17721		
'02 MY – MT	89661–17660			
'01 MY – MT	89661–17602			
'00 MY – MT	89661–17600			

MT refers to Manual Transmission and SMT to Sequential Manual Transmission.

Repair Procedure

In the event that no problem can be identified following the diagnostic procedures for DTC P0300, the ECM (PCM) must be replaced.

ECM (PCM) location and replacement information can be found on TIS (Technical Information System) under the SFI Section and ECM Subsection for the appropriate model year MR2 Spyder.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
895011	R & R ECM (PCM)	1.2	89661–17###	08	99

Applicable Warranty*:

This repair is covered under the Toyota Federal Emissions Warranty. This warranty is in effect for 96 months or 80,000 miles, whichever occurs first, from the vehicle's in-service date.

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

TOYOTA

Technical Service BULLETIN

March 22, 2002

Title:

GENERAL MAINTENANCE TIP

Models:

All '93 – '03 Models

TSB

ENGINE

EG007-02

Introduction

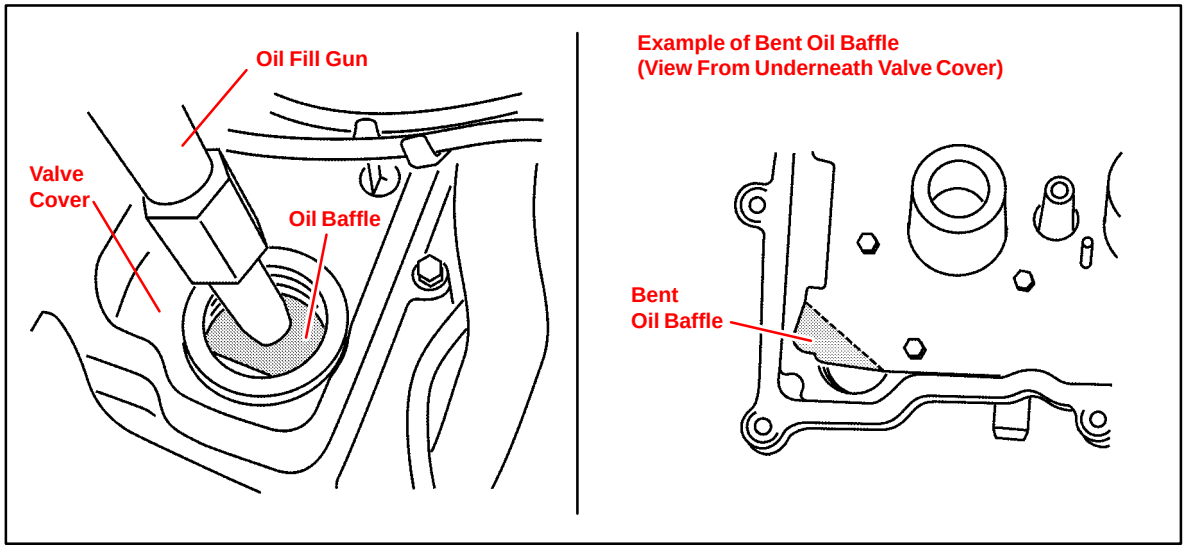
To help prevent unnecessary complications during the oil fill process, no undue load should be placed on the oil baffle attached to the inside of the valve cover (see illustration). This baffle is designed to deflect oil and should not be used to support the weight of heavy oil fill devices. These devices can place stress on the baffle, and bend or break it during the oil fill process.

Applicable Vehicles

- **All 1993 – 2003** model year **Toyota** vehicles.

Oil Filling Procedure

Please take measures to ensure that the baffle is not damaged during the oil fill process. If it does become damaged, repair it before any collateral damage occurs.



Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

May 19, 2003

Title:

M.I.L. "ON" DTC P1349 - VVTi ACTUATOR

Models:

'00 – '02 Corolla, Celica, MR2 Spyder, and ECHO

TSB

Introduction

Under certain conditions customers may experience a MIL "ON" condition with DTC P1349 indicating a variable valve timing (VVTi) malfunction. In some cases, the cause of this DTC may be the VVTi actuator. Use the procedures in this bulletin to verify the operation of the actuator.

Applicable Vehicles

- **2000 – 2002** model year **Corolla, Celica, MR2 Spyder, and ECHO** vehicles produced **BEFORE** the Production Change Effective VINs shown below.

Production Change Information

MODEL	ENGINE	PLANT	PRODUCTION CHANGE EFFECTIVE VIN
Corolla	1ZZ–FE	TMMC	2T1BR1#E#2C587636
MR2 Spyder	1ZZ–FE	Sagamihara	JTDFR320#20044337
Celica	1ZZ–FE	Kanto	JTDDR3#T#20118810
	2ZZ–GE		JTDDY3#T#20056831
ECHO	1NZ–FE	Takaoka	JTD#T1#3#20213544

Warranty Information

OP CODE	DESCRIPTION	MODEL	TIME	OFP	T1	T2
140021	Camshaft Timing Sprocket	Celica GTS – 2ZZ–GE	3.6	13050–22011	99	19
		Celica GT – 1ZZ–FE				
140021	Camshaft Timing Sprocket	Corolla	1.9			
140021K	ADD: Air Conditioning		0.2			
140021	Camshaft Timing Sprocket	MR2 Spyder	3.7			
140021K	ADD: Air Conditioning		0.1			
140021	Camshaft Timing Sprocket	ECHO	2.9	13050–210##		
140021L	ADD: Power Steering		0.1			

Applicable Warranty*:

This repair is covered under the Toyota Powertrain Warranty. This warranty is in effect for 60 months or 60,000 miles, whichever occurs first, from the vehicle's in-service date.

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

Parts Information

MODEL	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QTY
Celica GTS 2ZZ–GE	96741–19009	Same	Ring, O	1
	12255–88600	Same	Gasket, Ventilation	1
Celica GT & GTS	13050–22011	Same	Gear Assembly, Camshaft	1
Corolla				
MR2 Spyder				
'00 ECHO	13050–21021	Same		
'01–'02 ECHO	13050–21040	Same		
'00 – '02 ECHO	11213–21011	Same	Gasket, Cylinder Head Valve Cover	1

Required Tools & Material

TOOLS & MATERIALS	PART NUMBER	QUANTITY
Tube of FIPG Sealant (or equivalent)	08826–00100	1

Required SSTs

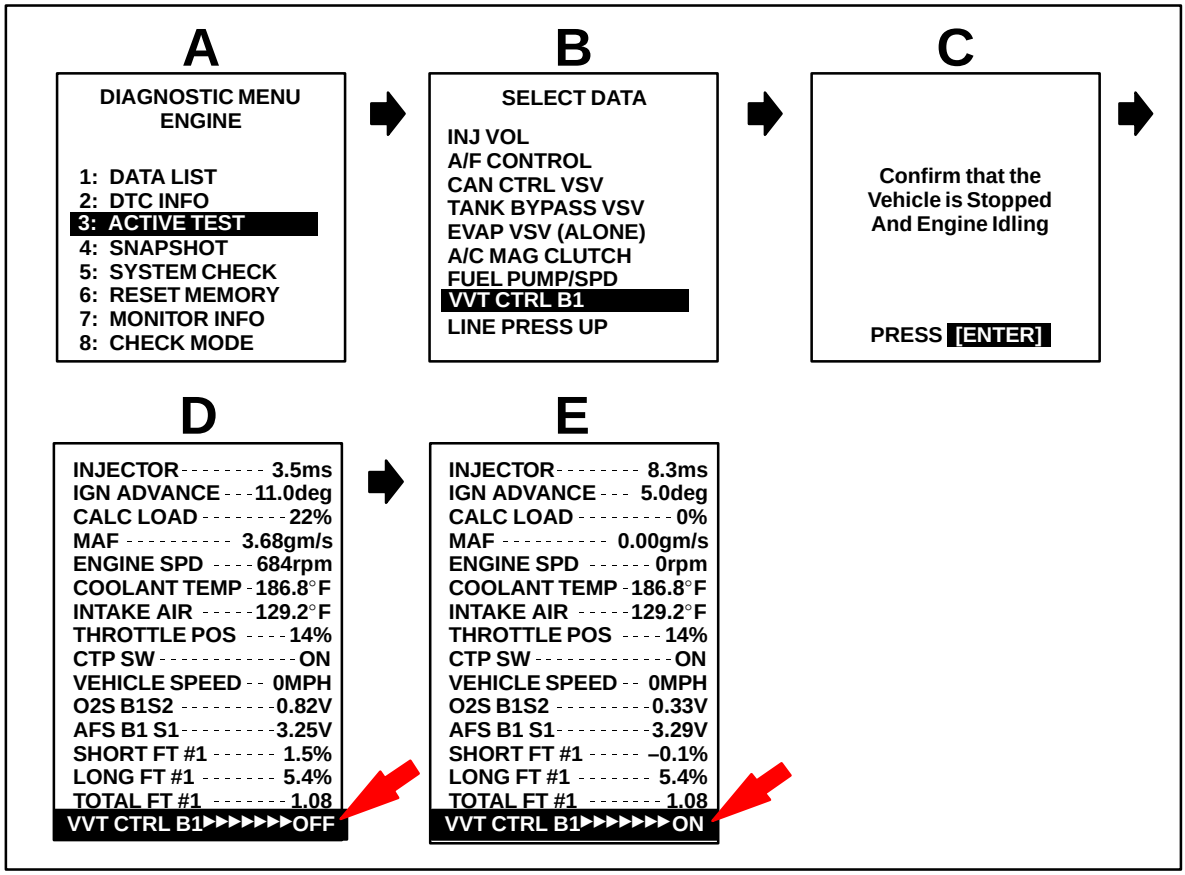
SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.0a Software (or later)* 	01002593-005	1

* Essential SSTs.

NOTE: Additional Diagnostic Tester Kits, Program Cards or SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Repair Procedure

1. Inspect the condition of the valve cover oil baffle as per TSB EG007–02. If camshaft or camshaft position sensor damage resulting from a bent baffle is identified, repair the damage as necessary.
2. Make sure the vehicle is in "PARK" with the engine idling.
3. Referring to the screen flow below, connect the Toyota Diagnostic Tester to the vehicle and select the VVT Control Bank One Active Test (VVT CTRL B1) from the Active Test Menu.



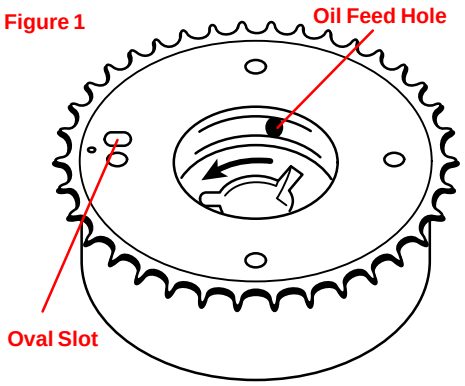
4. Using the right arrow key, toggle the VVTi actuator "ON."
5. If at this point the vehicle **does not** run rough and/or stalls when the active test is performed, proceed with Repair Manual P1349 VVTi Fault Isolation Procedure (FIP).

   If the vehicle **does** stall and/or runs rough, this indicates the the VVTi control system is operating. Proceed to replace the VVTi actuator following the repair procedures listed on the Technical Information System (TIS): Engine Mechanical Section, Camshaft, Replacement.

Service Tip Camshaft Timing Gear Assembly Installation

A. The camshaft timing gear should come in the unlocked position from the factory. If it is difficult to install the camshaft timing gear, the lock pin may be engaged. To disengage the lock pin, apply and hold approximately 20 psi of air pressure at the oil feed hole located 90 degrees clockwise of the oval slot. (See Figure 1.) Once the pin has released, turn the interior assembly counterclockwise. (See black arrow in Figure 1.)

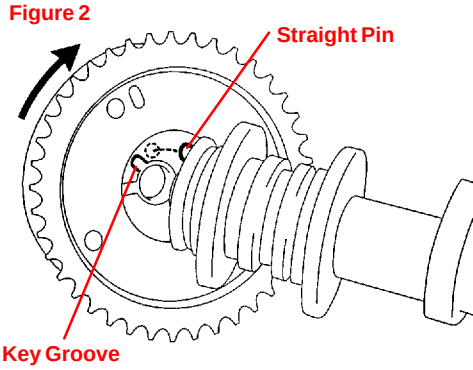
Figure 1



B. Put the camshaft timing gear assembly and the camshaft together with the straight pin off the key groove.

C. Turn the camshaft timing gear assembly (as shown in Figure 2) while pushing it lightly against the camshaft. Push further at the position where the pin fits into the groove.

Figure 2



NOTE:
Be sure not to turn the camshaft timing gear to the retard angle side (in the clockwise direction).

D. Check that there is no clearance between the end of the camshaft and the camshaft timing gear.

E. Tighten the camshaft bolt with the camshaft timing gear fixed.

Torque: 54 N•m (551 kgf•cm, 40 ft•lbf)

F. Check that the camshaft timing gear assembly can move to either side and is not locked.

TOYOTA

Technical Service BULLETIN

December 7, 2001

Title:

ACCESSORY DRIVE BELT/ BELT TENSIONER ASSEMBLY NOISE

Models:

'00 – '01 Celica & MR2 Spyder

TSB

ENGINE

EG014-01

Introduction

Some 1ZZ–FE and 2ZZ–GE engines may exhibit squealing and/or rattling noises emanating from the engine compartment during vehicle operation, especially during deceleration at slow speeds after cold soak. The Accessory Drive Belt and Belt Tensioner have been improved to correct this condition.

Applicable Vehicles

- **2000 – 2001** model year **Celica GT/GTS and MR2 Spyder** vehicles produced **BEFORE** the Production Change Effective VINs listed below.

Production Change Information

MODEL	PRODUCTION CHANGE EFFECTIVE VIN
Celica GT	JTDDR32T#10106005
Celica GTS	JTDDY38T#10049473
MR2 Spyder	JTDFR320#10039271

Parts Information

VEHICLE	PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
Celica GT w/ AC	90916–02432	90916–02534	Accessory Drive Belt
Celica GT w/o AC	90916–02468	90916–02535	
Celica GTS	90916–02310	90916–02540	
MR2 Spyder	90916–02486	90916–02537	
Celica GT Celica GTS MR2 Spyder	16601–22010	16601–22011	Belt Tensioner Sub–Assembly (Hydraulic Cylinder)
	N/A	90105–08415	Bolt, Flange
Celica GT MR2 Spyder	16620–22010	16620–22011	Belt Tensioner Assembly, Complete
Celica GTS	16620–22030	16620–22031	Belt Tensioner Assembly, Complete

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
EG8001	R & R Accessory Belt Tensioner	0.6	16620–22010	91	99

Applicable Warranty*:

This repair is covered under the Toyota Comprehensive Warranty. This warranty is in effect for 36 months or 36,000 miles, whichever occurs first, from the vehicle's in-service date.

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

Repair Procedure

1. Verify that the noise emanates from the Accessory Drive Belt/Belt Tensioner Assembly. These noises will generally manifest as a rattling or a squealing.
2. Inspect the Accessory Drive Belt and Belt Tensioner Assembly. If there is any roughness to either of the Belt Tensioner Assembly bearings or any sign of damage, scoring, or glazing on the Accessory Drive Belt or the Belt Tensioner Assembly pulley wheel, replace both the complete Belt Tensioner Assembly and the Accessory Drive Belt. If there is NO sign of damage, glazing or wear on the Belt Tensioner Assembly pulley wheel or the Accessory Drive Belt, and the noise was only a rattle, then replace the Belt Tensioner Sub–Assembly and retaining bolt with the revised parts as described below.

If your diagnosis indicates that a complete assembly replacement is in order, the repair manual page numbers for this operation have been provided for your reference.

MODEL	MODEL YEAR	PUBLICATION NUMBER	PAGE
Celica	2000	RM744U2	EM–20
	2001	RM818U2	EM–21
MR2 Spyder	2000	RM760U	EM–15
	2001	RM801U	EM–15

3. **Belt Tensioner Sub–Assembly Replacement**

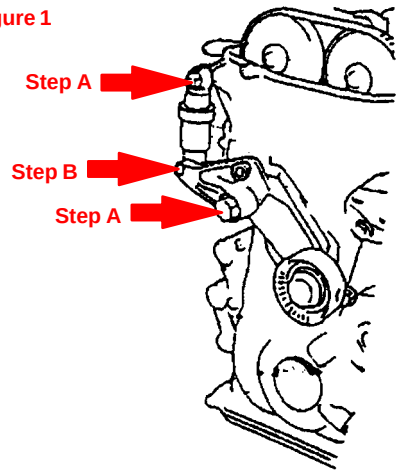
A. Remove the Accessory Drive Belt, and then the Tensioner Assembly by removing the fasteners securing the Tensioner Assembly at the pivot point and at the top of the Tensioner Sub–Assembly (see Figure 1).

B. Place the Tensioner Assembly in a vice and remove the bolt attaching the Tensioner Sub–Assembly to the Tensioner swing arm (see Figure 1).

C. Remove and replace the Tensioner Sub–Assembly. Replace the bolt securing the Tensioner Sub–Assembly to the idler arm with the new bolt (see Figure 2).

D. Re–attach the Tensioner Assembly.

Figure 1

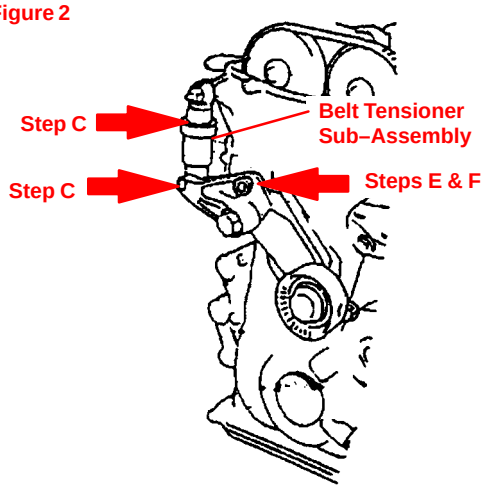


After replacing the Belt Tensioner Assembly:

E. Fit a wrench on the hexagonal portion of the Belt Tensioner swing arm (see Figure 2).

F. Slowly move the Belt Tensioner at least 4 times through its full stroke. (It should take at least 3 seconds to work it though one full stroke.) This will release any air from the Tensioner Assembly and prime it for proper operation.

Figure 2



TOYOTA

Technical Service BULLETIN

May 24, 2002

Title:

AUTOMATIC TRANSMISSION FLUID REQUIREMENTS

Models:

All ’00 – ’02 Models & ’03 Corolla & Matrix

TSB

Introduction

Please refer to the following table for correct application of Dexron® III (Dexron® II) and Toyota Type T–IV Automatic Transmission Fluids or equivalent.

MODEL	2000	2001	2002	2003
Avalon	A541E	A541E	A541E	N/A
Camry	A140E, A541E	A140E, A541E	U140E, U241E	N/A
Celica	U240E, U341E	U240E, U341E	U240E, U341E	N/A
Corolla	A131L, A245E	A131L, A245E	A131L, A245E	A245E
ECHO	U340E	U340E	U340E	N/A
Highlander	N/A	U140E, U140F, U241E	U140E, U140F, U241E	N/A
Land Cruiser	A343F	A343F	A343F	N/A
RAV4	A247E / A540H	U140F, U241E	U140F, U241E	N/A
Sequoia	N/A	A340E, A340F	A340E, A340F	N/A
Sienna	A540E	A541E	A541E	N/A
Solara	A140E, A541E	A140E, A541E	A140E / U241E	N/A
Tacoma	A340E, A340F, A43D	A340E, A340F, A44D	A340E, A340F, A44D	N/A
Tundra	A340E, A340F	A340E, A340F	A340E, A340F	N/A
4Runner	A340E, A340F	A340E, A340F	A340E, A340F	N/A
Matrix	N/A	N/A	N/A	A246E
Matrix	N/A	N/A	N/A	U240E
Matrix	N/A	N/A	N/A	U341F
Prius	N/A	P111	P111	N/A

LEGEND
Type T–IV Fluid
Dexron® III (Dexron® II)

Parts Information

PART NUMBER	PART NAME
08886–81015	ATF Type T–IV
00718–ATF00	Dexron® III (Dexron® II)

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

June 10, 2003

Title:

ECM RESET MEMORY FUNCTION

Models:

'00 – '03 All Models & '04 Sienna

TSB

REVISED

TC002-03

TRANSMISSION & CLUTCH

TSB REVISION NOTICE:

- **January 16, 2004: Tundra vehicles were added to the Applicable Vehicles chart.**
- **December 17, 2003: T–100 vehicles were removed from the Applicable Vehicles chart. Previous versions of this TSB should be discarded.**

Introduction

Whenever an automatic transmission is replaced, overhauled or individual components are replaced, use this procedure to clear Engine Control Module (ECM, SAE term: Powertrain Control Module, PCM) "Learned Values" to prevent subsequent driveability complaints.

CAUTION:

Failure to follow the procedure below may lengthen the time to readjust the ECM "Learned Values," potentially resulting in driveability complaints.

Applicable Vehicles

Refer to **Reset Procedure 1** for the following vehicles with Electronically Controlled Automatic Transmissions:

- **2000 – 2003** model year **ECHO** and **Celica** vehicles.
- **2001 – 2003** model year **Highlander** and **RAV4** vehicles.
- **2002 – 2003** model year **Camry** vehicles.
- **2002 – 2003** model year **Solara** vehicles **with 2AZ engine**.
- **2003** model year **Matrix** vehicles.
- **2004** model year **Sienna** vehicles.

Refer to **Reset Procedure 2** for the following vehicles with Electronically Controlled Automatic Transmissions:

- **2000** model year **Highlander** and **RAV4** vehicles.
- **2000 – 2001** model year **Camry** vehicles.
- **2000 – 2001** model year **Solara** vehicles **with 5S engine**.
- **2000 – 2003** model year **Solara** vehicles **with 1MZ engine**.
- **2000 – 2003** model year **4Runner, Avalon, Corolla, Land Cruiser** and **Sienna** vehicles.
- **2000 – 2003** model year **Tacoma** and **Tacoma Pre–Runner** vehicles.
- **2000 – 2003** model year **Tundra** vehicles.
- **2001 – 2003** model year **Sequoia** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Required SSTs

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.0a Software (or later)* 	01002593-005	1

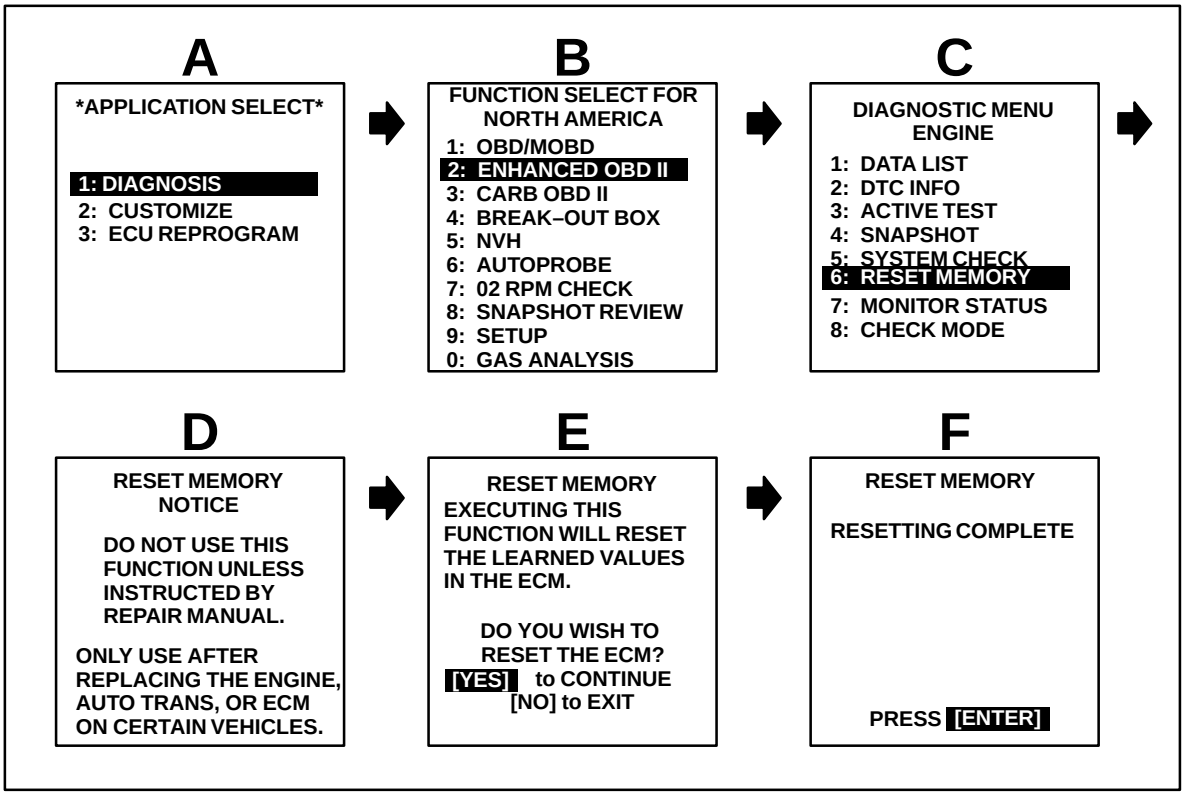
* Essential SSTs.

NOTE:

Additional Diagnostic Tester Kits, Program Cards or SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Reset Procedure 1

1. Connect the Toyota Diagnostic Tester to the vehicle.
2. Reset the ECM (PCM). Refer to the procedures below.



3. Start the engine and warm it up to normal operating temperatures before test–driving.
4. Perform a thorough test drive with several accelerations from a stop with “light throttle” application until proper transmission shifting is verified.

Reset Procedure 2

1. Record radio station presets and No. 1 driver's seat memory position.
2. Disconnect the negative battery cable for 5 minutes.

> **NOTE:**
> **Record presets before disconnecting battery cable.**

3. Reconnect battery cable and reset radio presets and No. 1 driving position seat memory.
4. If necessary, perform the following operations:
   - Initialize moon roof
   - Initialize power windows
   - Calibrate compass

   For more detailed information on performing these operations, refer to TIS for the applicable TSB and/or repair procedures.
5. Start the engine and warm it up to normal operating temperatures before test–driving.
6. Perform a thorough test drive with several accelerations from a stop with "light throttle" application until proper transmission shifting is verified.

Title:

AUTOMATIC TRANSMISSION FLUIDS

Models:

All Models

TSB

REVISION NOTICE:

The information contained in this TSB updates TC003–98 dated June 19, 1998.

Introduction

Automatic Transmission Fluid Type T–IV now replaces Type T–II fluid. Use Type T–IV for all applications that specify ATF Type T–II.

Please refer to the following table for the interchangeability between each ATF.

Affected Vehicles

- **All vehicles produced after 1993 with Automatic Transmissions specified to use ATF Type T, T–II and T–IV.**

SPECIFIED ATF	TYPE OF ATF			
	DEXTRON® II OR III	TYPE T	TYPE T–II	TYPE T–IV
DEXTRON® II OR III	OK	X	X	X
TYPE T	X	OK	X	OK
TYPE T–II	X	X	OK	OK
TYPE T–IV	X	X	X	OK
X = NOT USABLE				

NOTICE:

With the exception of mixing ATF Type T with Type T–IV fluids, different types of fluids must not be mixed.

Parts Information

SIZE	NEW PART NUMBER	PART NAME
4 Liter	08886–01705	ATF Type T–IV

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

February 16, 2001

Title:

STEERING WHEEL NUT SERVICE SPECIFICATION

Models:

All Applicable Models

TSB

Introduction

To make the steering wheel installation procedure similar for all models, the steering wheel nut tightening torque has been standardized.

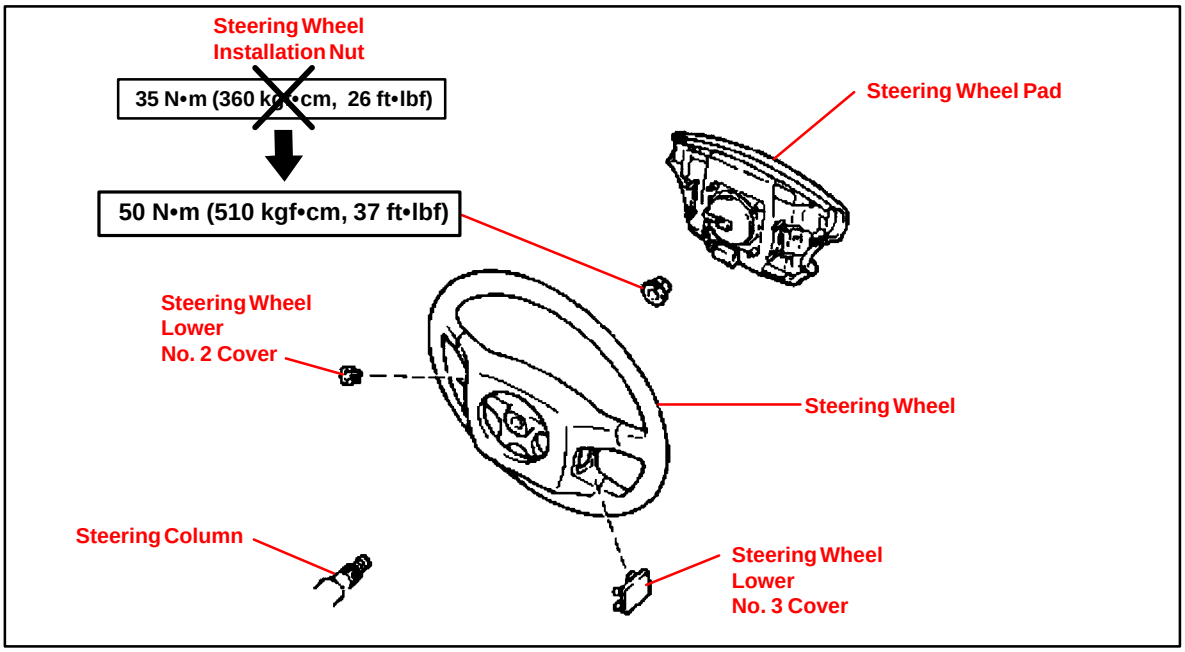
Applicable Vehicles

MODEL		MODEL YEARS
TERCEL	EL42, 53	1991 – 1998
ECHO	NCP12	2000
PASEO	EL44, 54	1992 – 1997
COROLLA	AE10#, ZZE110	1993 – 2001
CELICA	AT180, ST18#, AT2#, ST2#, ZZT23#	1990 – 2000
MR2	SW2#, ZZW30	1991 – 1995; 2000
CAMRY	SXV10, 20, MCV10, 20	1992 – 2000
CAMRY CNG	SXV23	2000 – 2001
CAMRY SOLARA	SXV20, MCV20	1999 – 2000
AVALON	MCX10, 20	1995 – 2000
SUPRA	JZA80	1993 1/2 – 1998
RAV4	SXA1#	1996 – 2000
RAV4 EV	BEA11	1998 – 2000
PREVIA	TRC10, 20	1991 – 1997
SIENNA	MCL10	1998 – 2000
HIGHLANDER	ACU20, 25, MCU20, 25	2001
4RUNNER	RN12#, 13#, VZN12#, 13#, 18#, RZN180, 185	1990 – 2000
LAND CRUISER	FZ80, FZJ80, UZJ100	1991 – 2000
TRUCK	RN8#, 9#, 10#, 110, VZN85, 9#, 10#, 110	1989 – 1995
TACOMA	RZN140, 150, 161, 171, 19#, VZN150, 160, 170, 195	1995 1/2 – 2000
T100	VCK10, 20	1993 – 1998
TUNDRA	VCK30, 40, UCK30, 40	2000

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Service Information



TOYOTA

Technical Service BULLETIN

December 17, 1999

Title:

WHEEL BALANCE ADJUSTMENT PROCEDURE

Models:

'00 MR2 Spyder

TSB

Introduction

MR2 Spyder alloy wheels have a decorative outer wheel flange which does not accept standard Toyota clip–on type wheel weights. To properly adjust wheel balance, stick–on type wheel weights must be used. Some wheel balancers do not have a "hidden weight" function which is used to measure the tire/wheel assembly imbalance in the location of the stick–on type wheel weights. The procedure included in this bulletin can be used to balance MR2 Spyder tire/wheel assemblies on wheel balancers that do not have a "hidden weight" function.

Applicable Vehicles

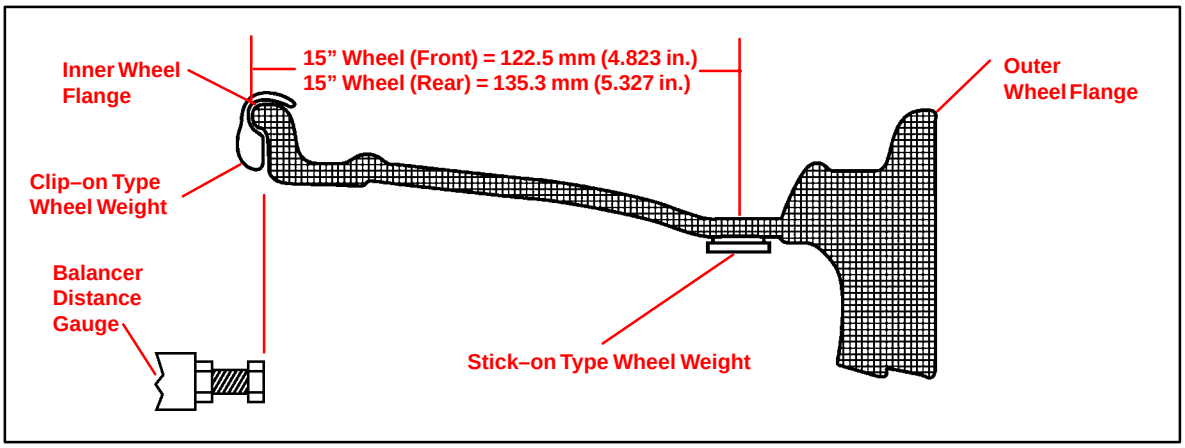
- **2000** model year **MR2 Spyder**

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Repair Procedure

1. Mount tire/wheel assembly on wheel balancer with the outside or decorative wheel flange opposite the wheel balancer arbor.



2. Input the revised wheel dimensions as follows:

ACTUAL WHEEL SIZE	REVISED WHEEL SIZE
15” x 6” JJ (Front)	15” x 4” (Front)
15” x 6.5” JJ (Rear)	16” x 4.5” (Rear)

3. Select “Wheel Flange” as the wheel weight location (clip–on type wheel weight).
4. Set the Wheel Distance (distance from inner wheel flange to a reference point on the wheel balancer) as normal.
5. Measure the tire/wheel assembly imbalance.
6. Choose the Conversion Weight for the stick–on type wheel weight using the Conversion Table on page 3. The Conversion Weight is listed next to the Imbalance Weight.

HINT:
The stick–on weight conversion is only required for the outside wheel weight location.

7. Apply the stick–on type wheel weight in the position indicated by the wheel balancer.

HINT:
Make sure the wheel is clean and dry prior to applying the stick–on type wheel weight.

8. Tap on the appropriate clip–on type wheel weight on the inner wheel flange in the location indicated by the wheel balancer.
9. Re–measure the tire/wheel assembly imbalance to ensure tire/wheel assembly is balanced.

Conversion Table

IMBALANCE WEIGHT (GRAMS)	CONVERSION WEIGHT (GRAMS)	IMBALANCE WEIGHT (GRAMS)	CONVERSION WEIGHT (GRAMS)	IMBALANCE WEIGHT (GRAMS)	CONVERSION WEIGHT (GRAMS)
1	0	31	35	61	70
2	0	32	35	62	70
3	5	33	40	63	75
4	5	34	40	64	75
5	5	35	40	65	75
6	5	36	40	66	75
7	10	37	45	67	80
8	10	38	45	68	80
9	10	39	45	69	80
10	10	40	45	70	80
11	15	41	50	71	80
12	15	42	50	72	80
13	15	43	50	73	80
14	15	44	50	74	90
15	20	45	55	75	90
16	20	46	55	76	90
17	20	47	55	77	90
18	20	48	55	78	90
19	20	49	55	79	90
20	25	50	60	80	90
21	25	51	60	81	90
22	25	52	60	82	100
23	25	53	60	83	100
24	30	54	65	84	100
25	30	55	65	85	100
26	30	56	65	86	100
27	30	57	65	87	100
28	30	58	70	88	100
29	35	59	70	89	100
30	35	60	70	90	100

TOYOTA

Technical Service BULLETIN

October 20, 2000

Title:

BRAKE PAD CLICKING NOISE

Models:

'90 – '00 All Models

TSB

Introduction

A clicking type noise may be noticed when first applying the brakes after changing vehicle travel direction (*Drive/Forward* to *Reverse, Reverse* to *Drive/Forward*). This is a normal noise caused by the required brake pad–to–caliper clearances. When the direction of travel is changed, the brake pads may "shift" towards the new direction of travel. When the brake pad contacts the caliper, a clicking noise may be heard.

To minimize this clicking noise, a disc brake caliper grease has been made available for use during brake service/maintenance operations. Under normal usage conditions this grease should be effective for a period of 6 months to 1 year.

Applicable Vehicles

- **1990 – 2000** model year **Toyota vehicles, all models.**

Parts Information

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
N/A	08887–80609	Disc Brake Caliper Grease (50 g tube)

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

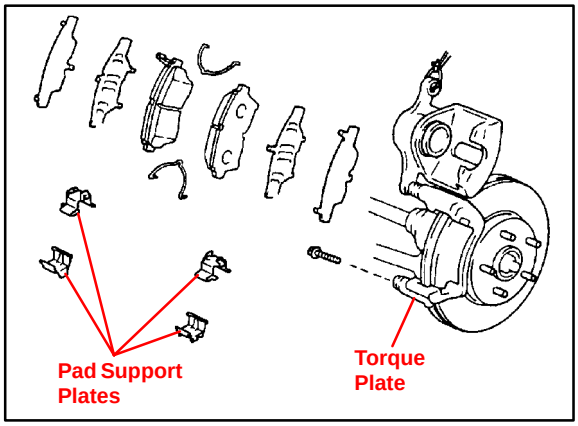
Application Procedure

There are two types of brake calipers: floating and fixed. Check the type of brake caliper installed on the vehicle by removing the wheel assembly.

1. Floating Type Brake Caliper

A. Lift up or remove the brake caliper and suspend it securely.

HINT:
Do not disconnect the flexible hose from the brake caliper.



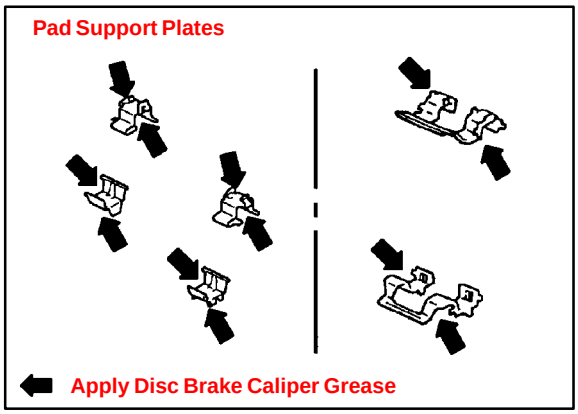
B. If equipped with anti–squeal spring: Remove the anti–squeal springs.

C. Remove the brake pads with anti–squeal shims.

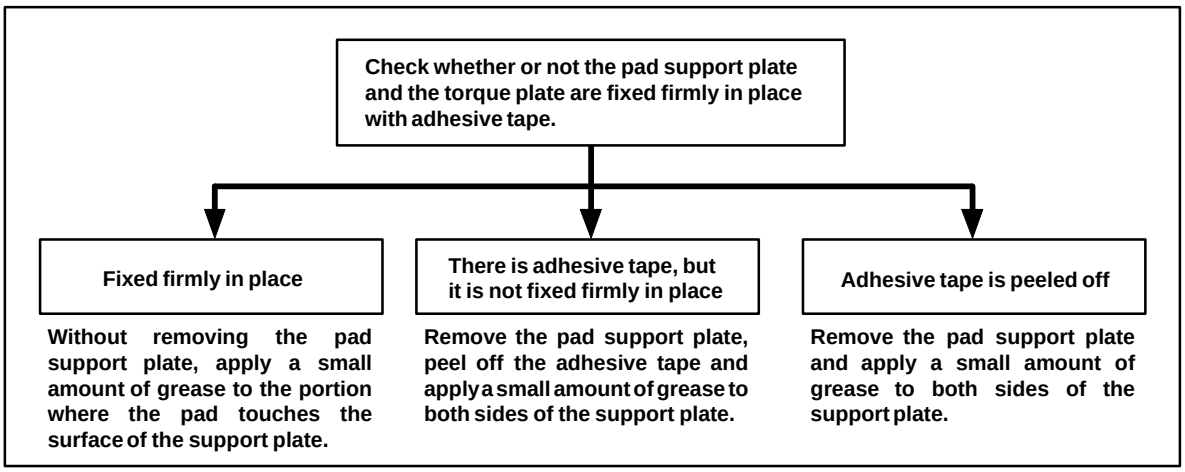
D. Remove the pad support plates from the torque plate. Clean any dust from the pad support plates, torque plates and brake pads.

E. Apply a small amount of the disc brake caliper grease (1–2 mm thick) to both sides of the pad support plates.

NOTE:
Do NOT apply grease to the friction surfaces of the brake pads or the disc rotor.



F. If the pad support plate is fixed to the torque plate with adhesive tape, perform the operation according to the following flow chart.



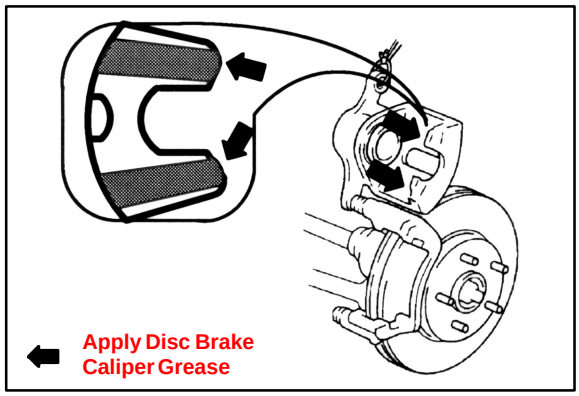
Application Procedure (Continued)

G. Apply a small amount of the disc brake caliper grease (1–2 mm thick) to the caliper as indicated in the illustration.

H. Install the brake pads with the anti–squeal shims.

I. If equipped with anti–squeal spring: Install the anti–squeal springs.

J. Press the piston in firmly and install the brake caliper.



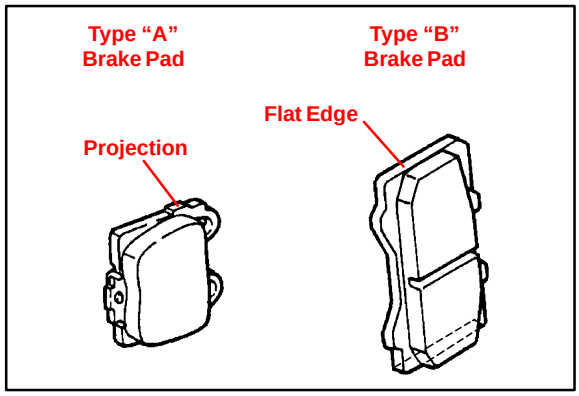
NOTE:
- **Clean excess grease from brake pad and caliper.**
- **Do NOT apply grease to the friction surfaces of the brake pads or the disc rotor.**

K. Install the wheel assembly.

2. Fixed Type Brake Caliper

There are two types of brake pads:

- Type “**A**”: Has a projection on the upper and lower side of the brake pad. (See illustration.)
- Type “**B**”: Has a flat upper and lower edge on the brake pad backing plate.

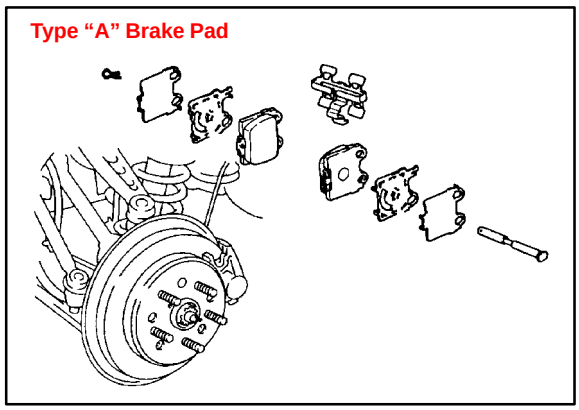


Type “A” Brake Pad

A. Remove the anti–squeal spring, clip and pad guide pin.

B. Remove the brake pads with the anti–squeal shims.

C. Clean any dust from the brake pads.



Application Procedure (Continued)

D. Apply a small amount of the disc brake caliper grease (1–2 mm thick) to the areas indicated in the illustration.

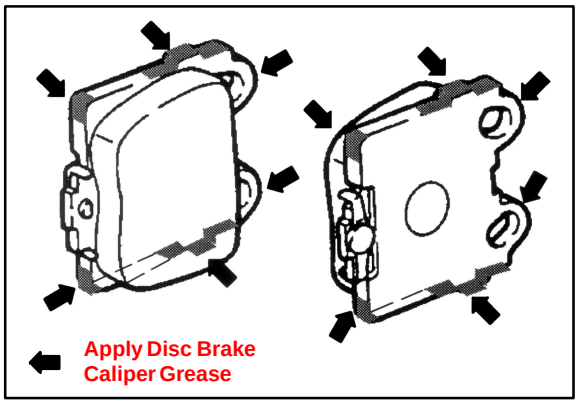
NOTE:
Do NOT apply grease to the friction surfaces of the brake pads or the disc rotor.

E. Install the brake pads with the anti–squeal shims.

NOTE:
Clean excess grease from the brake pads and caliper.

F. Install the pad guide pin, clip and anti–squeal spring.

G. Install the wheel assembly.

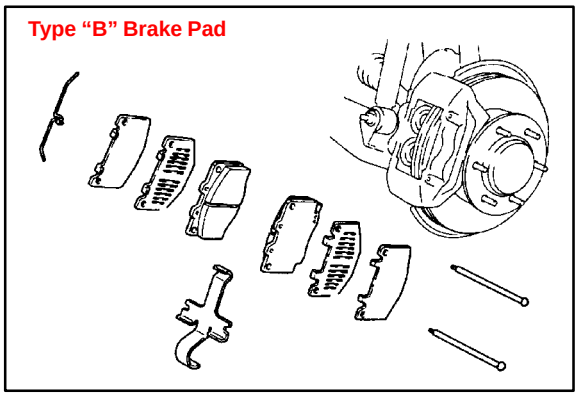


Type “B” Brake Pad

A. Remove the clip, pins and anti–rattle spring/pad retainer clip.

B. Remove the brake pads with the anti–squeal shims.

C. Clean any dust from the brake pads.



D. Apply a small amount of the disc brake caliper grease (1–2 mm thick) to the areas indicated in the illustration.

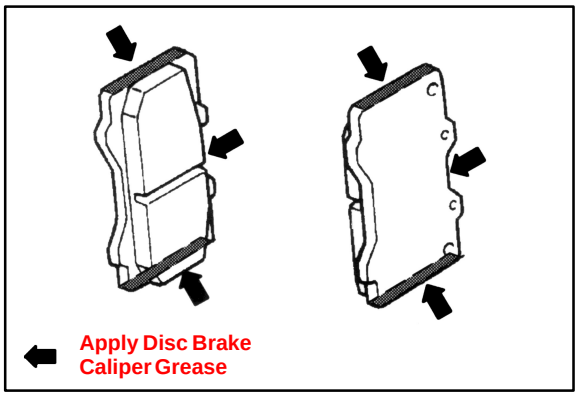
NOTE:
Do NOT apply grease to the friction surfaces of the brake pads or the disc rotor.

E. Install the brake pads with the anti–squeal shims.

NOTE:
Clean excess grease from the brake pads and caliper.

F. Install the pad guide pin, clip and anti–squeal spring.

G. Install the wheel assembly.



TOYOTA

Technical Service BULLETIN

January 21, 2000

Title:

SEAT BELT EXTENDER

Models:

'98 – '00 Model Year

TSB

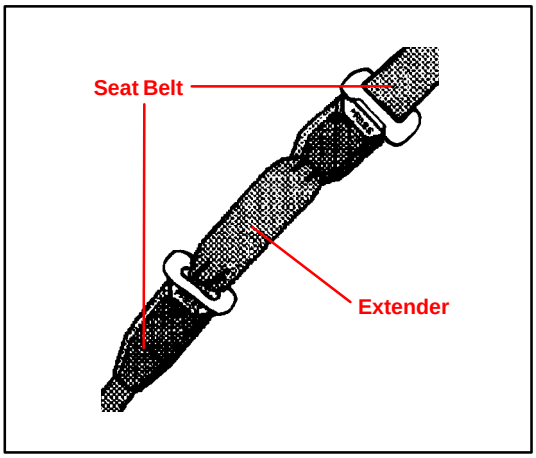
BODY

BO002–00

Introduction

Toyota customers who find it necessary to increase the length of their seat belts may obtain Seat Belt Extenders at **no cost** through their local Toyota dealer.

- The extender is available in 6 inch, 9 inch, 12 inch, 15 inch and 18 inch lengths.
- The extender is available **only in black**.
- Owners are informed of the seat belt extender availability through the Toyota Owner's Manual included in each vehicle.



The customer *(individual requiring the extender)* must visit a Toyota dealership to have the required measurements made and to complete the seat belt extender worksheet. The worksheet will allow the proper fitting and selection of a seat belt extender for the customer. The dealership personnel should then determine the applicable part number and place a ***Critical Order*** through the ***TDN Parts Network.***

The dealership service department should complete the affixed Seat Belt Extender Label and review the "owner instruction sheet" with the customer. The dealership should give a copy of the completed worksheet to the customer and keep the original in the customer's file.

To assure utmost owner satisfaction, it is recommended that a dealership designate one person to coordinate all activities related to the seat belt extender issue.

From past sales history, it is recommended that dealerships **do not stock** Seat belt extenders due to low demand and the need for customer fitting.

This bulletin contains the following information:

Applicable Vehicles

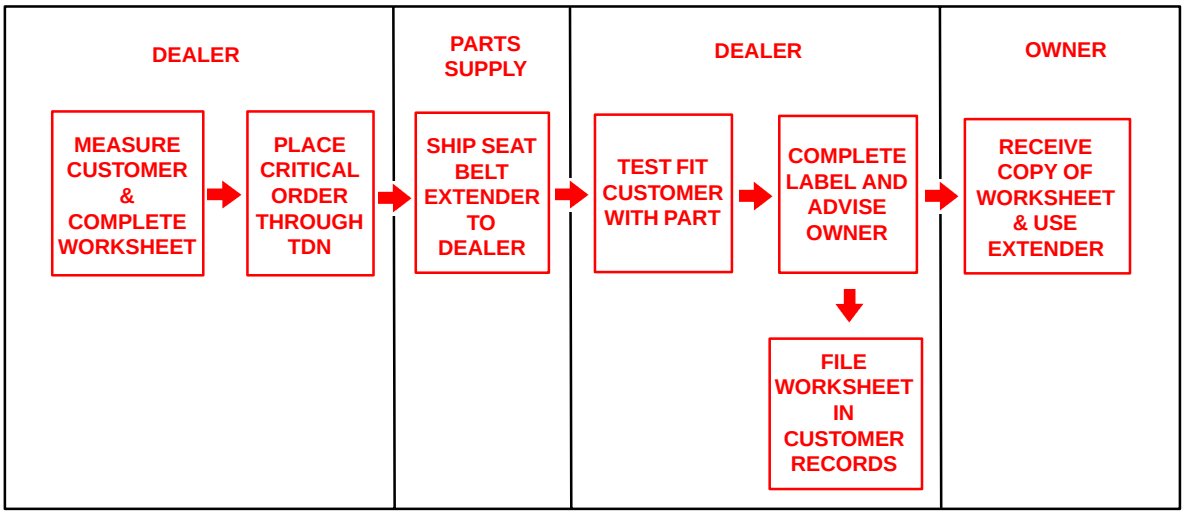
- All **Toyota** models, **1998** through **2000** model years.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Procedure

1. Owner requests a seat belt extender from dealer.
2. Dealer verifies the need for a seat belt extender and obtains a current copy of this TSB and copies the worksheet.
3. Dealer measures the customer and completes the worksheet. Dealer determines the correct part number and places a Critical Order for the part through the TDN Parts Network.
4. Dealer receives seat belt extender and calls the customer in to check fit of the part.
5. If the seat belt extender fit is good, dealership personnel completes the customer information label on the part, explains usage of the part, and gives the customer a copy of the completed worksheet.
6. Dealer places a copy of the completed worksheet in the customer's records.



Sample Seat Belt Extender Customer Information Label

CAUTION

THIS SEAT BELT EXTENDER IS TO BE USED ONLY BY: _____

ON VEHICLE: _____

VIN: _____

SEATING POSITION: _____

USE BY OTHERS, OR IN ANOTHER SEATING POSITION, OR IN ANOTHER VEHICLE COULD REDUCE SEAT BELT RESTRAINT IN AN ACCIDENT AND RESULT IN PERSONAL INJURY.

Front Seat Belt Extender Applications

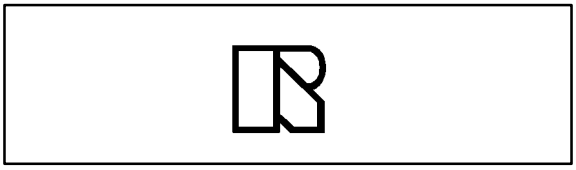
FRONT SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**’00**	**’99**	**’98**
RAV4	—	R–5	R–5	R–5
RAV4 EV	—	R–5	R–5	R–5
TERCEL	RH	—	R–5	R–5
	LH			
PASEO	COUPE (RH)	—	R–5	R–5
	COUPE (LH)			
	CONVERTIBLE	—	N–6	N–6
ECHO	—	K–5	—	—
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION			
MR2	—	N–6	—	—
CELICA	LIFTBACK & COUPE	N–6	N–6	N–6
	CONVERTIBLE	—		
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	—
	COVERTIBLE	Q–4	—	—
SUPRA	—	—	—	R–3
AVALON *1	—	T–1	Q–2	Q–2
SIENNA	—	Q–4	Q–4	Q–4
TACOMA *1	—	S–1	S–1	S–1
4RUNNER	—	K–5	K–5	K–5
LAND CRUISER	—	K–5	K–5	K–5
T100 *1	—	—	—	R–5
TUNDRA *1	—	Q–4	—	—

*1 The extender must not be used for the center seat belt of Avalon, Tacoma, T100 and Tundra which have bench seats.

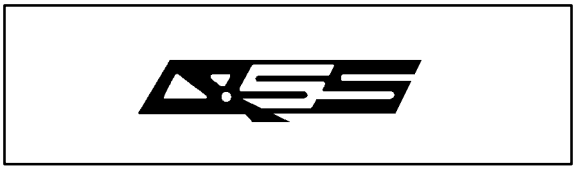
Rear Seat Belt Extender Applications

REAR SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**’01**	**’00**	**’99**
RAV4	W/TOKAI RIKA	R–5*1	R–5*1	R–5*1
	W/QSS	Q–4*2	Q–4*2	Q–4*2
RAV4 EV	—	Q–4	Q–4	Q–4
TERCEL	W/TOKAI RIKA	—	R–5*1	R–5*1
	W/QSS	—	Q–4*2	Q–4*2
PASEO	COUPE	—	R–5	R–5
	CONVERTIBLE (RH)	—	N–3	N–1*3, N–3*4
	CONVERTIBLE (LH)	—	N–6	N–5*3, N–6*4
ECHO	—	R–5	—	—
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION	T–1	T–1	T–1
CELICA	LIFTBACK & COUPE	N–6	N–6	N–6
	CONVERTIBLE (RH)	—	N–1	N–1
	CONVERTIBLE (LH)	—	N–5	N–5
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	—
	CONVERTIBLE	Q–4	—	—
SUPRA	—	—	—	R–3
AVALON	—	T–1	Q–2	Q–2
SIENNA	—	Q–4	Q–4	Q–4
TACOMA	XTRACAB	A–2	A–2	A–2
4RUNNER	—	R–5	R–5	R–5
LAND CRUISER	—	K–5	K–5	K–5
T100	XTRACAB	—	—	K–4
TUNDRA	ACCESS CAB	Q–4	—	—

*1 This seat belt was supplied by TOKAI RIKA. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.



*2 This seat belt was supplied by QSS. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.



*3 N–1 and N–5 are applied to PASEO convertible from September 1997 to November 1997 production.

*4 N–3 and N–6 are applied to PASEO convertible from December 1997 production.

Parts Information

PART NUMBER PREFIX: 73399–					
SERIES	LENGTH				
	6 INCH	9 INCH	12 INCH	15 INCH	18 INCH
R–1	–12010	–12020	–12030	–12040	–12050
R–2	–12160	–12170	–12180	–12190	–12200
R–3	–50010	–50020	–50030	–50040	–50050
R–4	–16010	–16020	–16030	–16040	–16050
R–5	–16060	–16070	–16080	–16090	–16100
N–1	–12060	–12070	–12080	–12090	–12100
N–3	–20011	–20021	–20031	–20041	–20051
N–4	–20060	–20070	–20080	–20090	–20100
N–5	–20110	–20120	–20130	–20140	–20150
N–6	–20160	–20170	–20180	–20190	–20200
K–1	–12110	–12120	–12130	–12140	–12150
K–2	–22010	–22020	–22030	–22040	–22050
K–3	–22060	–22070	–22080	–22090	–22100
K–4	–33010	–33020	–33030	–33040	–33050
K–5	–35010	–35020	–35030	–35040	–35050
A–1	–02010	–02020	–02030	–02040	–020050
A–2	–01060*1	–01070	–01080	–01090	–01100
Q–1	–02060	–02070	–02080	–02090	–02100
Q–2	–06010	–06020	–06030	–06040	–06050
Q–3	–06060	–06070	–06080	–06090	–06100
Q–4	–0W010	–0W020	–0W030	–0W040	–0W050
S–1	–04010	–04020	–04030	–04040	–04050
T–1	–01110	–01120	–01130	–01140	–01150

*1 Length: 7 $^{1}/_{4}$"

Owner Instructions

Failure to follow the recommendations indicated below could result in less effectiveness of the seat belt restraint system in case of vehicle collision, causing personal injury.

The Seat Belt Extender must not be used:

A. By anyone other than for whom it was provided (name recorded on seat belt extender).

B. In any vehicle and/or seat position other than the one for which it was provided.

C. When the Seat Belt Extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when in use.

If your seat belt cannot be fastened securely because it is not long enough, a personalized seat belt extender is available from your Toyota dealer free of charge.

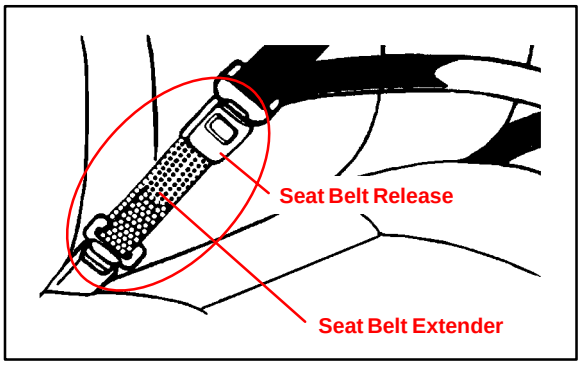
Please contact your local Toyota dealer so that the dealer can order the proper required length for the extender. Bring the heaviest coat you expect to wear for proper measurement and selection of length. Additional ordering information is available at your Toyota dealer.

CAUTION:

When using the seat belt extender, observe the following. Failure to follow these instructions could result in less effectiveness of the seat belt restraint system in case of vehicle accident, increasing the chance of personal injury.

- **Never use the Seat Belt Extender if you can COMFORTABLY fasten the seat belt without it.**
- **The Seat Belt Extender must never be used with any child safety seats.**
- **Remember that the extender provided for you may not be safe when used on a different vehicle, or for another person or at a different seating position than the one originally intended for.**

To connect the extender to the seat belt, insert the tab into the seat belt buckle so that the "PRESS" signs on the buckle–release buttons of the extender and the seat belt are both facing outward as shown.



You will hear a click when the tab locks into the buckle.

When releasing the seat belt, press on the buckle–release button on the extender, not on the seat belt. This helps prevent damage to the vehicle interior and extender itself.

When not in use, remove the extender and store in the vehicle for future use.

SEAT BELT EXTENDER WORKSHEET

PLEASE COPY THIS ORIGINAL WORKSHEET FOR EACH EXTENDER NEEDED

CAUTIONS:

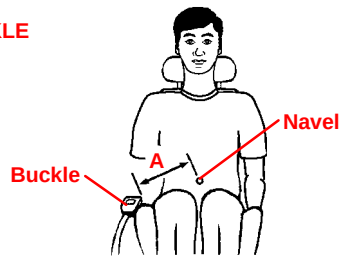
- **To minimize the chance and/or severity of injury in an accident, the seat belt extender must only be used:**
  1 By the person for whom it was provided
  2 In the seat position for which it was provided
- **The seat belt extender must never be used with any child safety seats.**
- **When the seat belt extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when extender belt is in use.**

DEALER			SEAT BELT EXTENDER APPLICATION		APPLICANT		
DEALER CODE	DEALER NAME		APPLICANT NAME				
ADDRESS			ADDRESS				
CITY & STATE		ZIP	CITY & STATE		ZIP	PHONE	
EMPLOYEE NAME	MODEL YEAR	BODY TYPE	SEATING POSITION	VEHICLE IDENTIFICATION NUMBER			

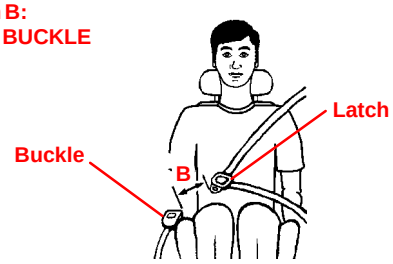
DIRECTIONS FOR DETERMINING PROPER EXTENDER LENGTH

1. **Place the seat in the position the applicant normally uses**
2. **With applicant in the seat, wearing thickest coat expected to be worn, pull belt all the way out and try to buckle belt**
   - **If the belt latches into buckle and feels comfortable against upper chest area, an extender is not needed.**
   - **If belt does not buckle continue with step 3**
   - **If buckle latches but belt has no slack remaining, continue with step 3**
3. **Measure distance between applicant's navel and seat belt buckle (dimension A) and enter on worksheet**
4. **With belt all the way out, measure distance between latch tip and buckle tip (dimension B) and enter on worksheet**
   NOTE: If belt latches but there is no slack enter zero as dimension B
5. **Subtract dimension B from dimension A and record number in check number box on worksheet**
6. **Seat belt extender length is dimension B rounded up to next extender length (without exceeding check number)**
   NOTE: If extender length exceeds check number, an extender can not be provided to the customer

Dimension A:
NAVEL TO BUCKLE



Dimension B:
LATCH TO BUCKLE



SEAT BELT EXTENDER CALCULATION		
DIMENSION A:	DIMENSION B:	CHECK NUMBER:

SEAT BELT EXTENDER AUTHORIZATION

- **The same seat belt extender can be used for right and left seating applications. Each seat belt extender will have a label identifying the owner, VIN and seating position. Seat belt extenders are available only in black.**
- **Applicant's Signature:** _____ **Date:** _____
  (Actual user of seat belt extender)

TOYOTA

Technical Service BULLETIN

January 26, 2001

Title:

SEAT BELT EXTENDER

Models:

'99 – '01 Model Year

TSB

BODY

BO002-01

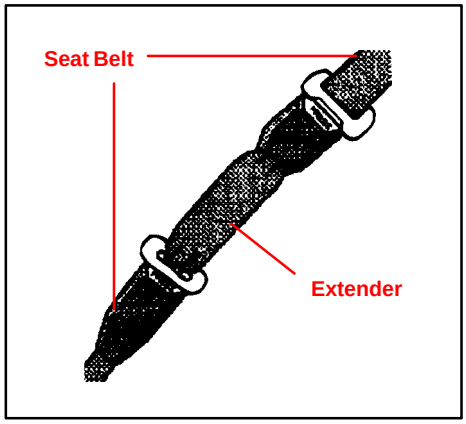
TSB UPDATE NOTICE:

The information contained in this TSB updates BO020–00 dated August 11, 2000. Revised text is red and underlined.

Introduction

Toyota customers who find it necessary to increase the length of their seat belts may obtain Seat Belt Extenders at **no cost** through their local Toyota dealer.

- The extender is available in 6 inch, 9 inch, 12 inch, 15 inch and 18 inch lengths.
- The extender is available **only in black.**
- Owners are informed of the Seat Belt Extender availability through the Toyota Owner's Manual included in each vehicle.



The customer (individual requiring the extender) must visit a Toyota dealership to have the required measurements made and to complete the Seat Belt Extender worksheet. The worksheet will allow the proper fitting and selection of a Seat Belt Extender for the customer. The dealership personnel should then determine the applicable part number and place a ***Critical Order*** through the ***TDN Parts Network.***

The dealership service department should complete the affixed Seat Belt Extender Customer Information Label and review the "Owner Instruction Sheet" with the customer. The dealership should give a copy of the completed worksheet to the customer and keep the original in the customer's file.

To assure utmost owner satisfaction, it is recommended that a dealership designate one person to coordinate all activities related to the Seat Belt Extender issue.

It is recommended that dealerships **do not stock** Seat Belt Extenders due to the need for proper fitting to individual customers.

This bulletin contains the following information:

Applicable Vehicles

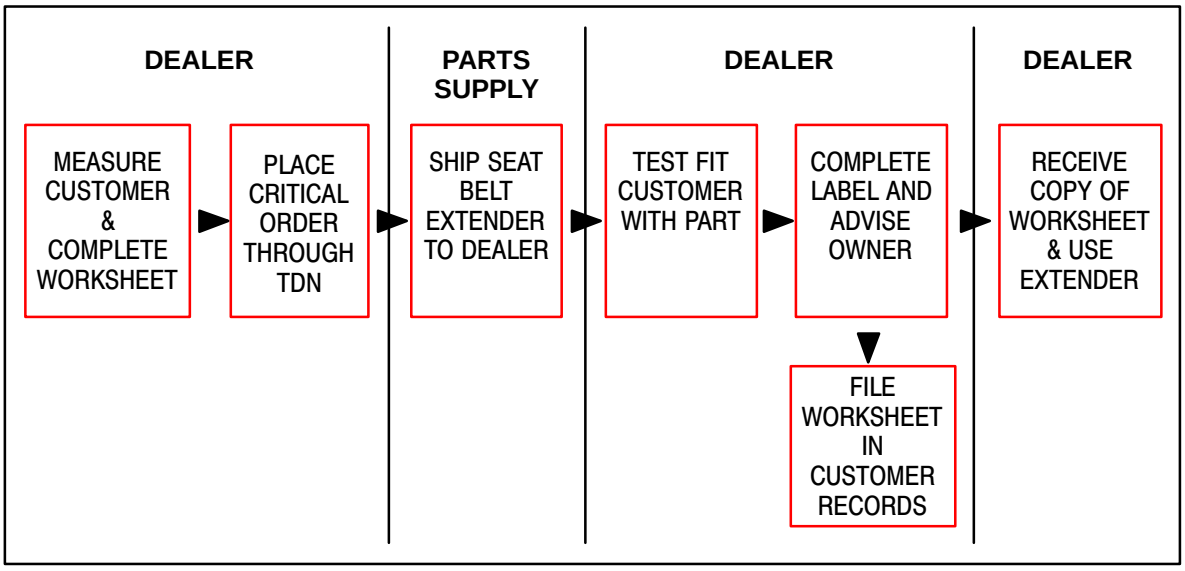
- **1999** through **2001** model year **Toyota** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Procedure

1. Owner requests a Seat Belt Extender from dealer.
2. Dealer verifies the need for a Seat Belt Extender and obtains a current copy of this TSB and copies the Worksheet.
3. Dealer measures the customer and completes the Worksheet. Dealer determines the correct part number and places a Critical Order for the part through the TDN Parts Network.
4. Dealer receives Seat Belt Extender and calls the customer in to check fit of the part.
5. If the Seat Belt Extender fit is good, dealership personnel completes the Customer Information Label on the part, explains usage of the part, and gives the customer a copy of the completed Worksheet.
6. Dealer places copy of the completed Worksheet in the customer's records.



Sample Seat Belt Extender Customer Information Label

CAUTION

THIS SEAT BELT EXTENDER IS TO BE USED ONLY BY: _____

ON VEHICLE: _____

VIN: _____

SEATING POSITION: _____

USE BY OTHERS, OR IN ANOTHER SEATING POSITION, OR IN ANOTHER VEHICLE COULD REDUCE SEAT BELT RESTRAINT IN AN ACCIDENT AND RESULT IN PERSONAL INJURY.

Front Seat Belt Extender Applications

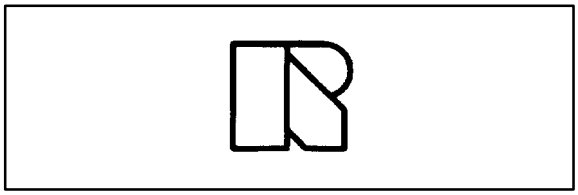
FRONT SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**'01**	**'00**	**'99**
RAV4	–	R–5	R–5	R–5
ECHO	–	K–5	K–5	–
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION			
PRIUS	–	N–7	–	–
MR2 SPYDER	–	N–6	N–6	–
CELICA	LIFTBACK & COUPE	N–6	N–6	N–6
	CONVERTIBLE	–	–	
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	Q–4
	CONVERTIBLE			–
AVALON*	–	T–1	T–1	Q–2
SIENNA	–	Q–4	Q–4	Q–4
TACOMA*	–	S–2	S–1	S–1
4RUNNER	–	K–5	K–5	K–5
LAND CRUISER	–	K–5	K–5	K–5
SEQUOIA	–	Q–4	–	–
TUNDRA*	–	Q–4	Q–4	–
HIGHLANDER	–	R–5	–	–

* The extender must not be used for the center seat of Avalon, Tacoma, and Tundra which have bench seats.

Rear Seat Belt Extender Applications

REAR SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**’01**	**’00**	**’99**
RAV4	W/TOKAI RIKA	R–5	R–5*1	R–5*1
	W/QSS	–	Q–4*2	Q–4*2
ECHO	–	R–5	R–5	–
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION	T–1	T–1	T–1
PRIUS	–	N–7	–	–
CELICA	LIFTBACK & COUPE	N–6	N–6	N–6
	CONVERTIBLE (RH)	–	–	N–1
	CONVERTIBLE (LH)			N–5
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	Q–4
	CONVERTIBLE			–
AVALON	–	T–1	T–1	Q–2
SIENNA	–	Q–4	Q–4	Q–4
TACOMA	XTRACAB	A–2	A–2	A–2
4RUNNER	–	R–5	R–5	R–5
LAND CRUISER	–	K–5	K–5	K–5
SEQUOIA	REAR SEAT #1	T–1	–	–
	REAR SEAT #2	Q–4		
TUNDRA	ACCESS CAB	Q–4	Q–4	–
HIGHLANDER	–	R–5	–	–

*1 This seat belt was supplied by TOKAI RIKA. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.



*2 This seat belt was supplied by QSS. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.

NOTE:

The seat belt extender must not be used for the center rear seat belt.

Part Number Information

PART NUMBER PREFIX: 73399–					
SERIES	**LENGTH**				
	6 INCH	**9 INCH**	**12 INCH**	**15 INCH**	**18 INCH**
R–5	–16060	–16070	–16080	–16090	–16100
N–1	–12060	–12070	–12080	–12090	–12100
N–5	–20110	–20120	–20130	–20140	–20150
N–6	–20160	–20170	–20180	–20190	–20200
N–7	–47010	–47020	–47030	–47040	–47050
K–5	–35010	–35020	–35030	–35040	–25050
A–2	–01060*****	–01070	–01080	–01090	–01100
Q–2	–06010	–06020	–06030	–06040	–06050
Q–4	–0W010	–0W020	–0W030	–0W040	–0W050
S–1	–04010	–04020	–04030	–04040	–04050
S–2	–04060	–04070	–04080	–04090	–04100
T–1	–01110	–01120	–01130	–01140	–01150

***** Length: 7-1/4”

Owner Instructions

Failure to follow the recommendations indicated below could result in reduced effectiveness of the seat belt restraint system in case of vehicle collision, causing personal injury.

The Seat Belt Extender must not be used:

a. By anyone other than for whom it was provided (name recorded on seat belt extender).

b. In any vehicle and/or seat position other than the one for which it was provided.

c. When the Seat Belt Extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when in use.

If your seat belt cannot be fastened securely because it is not long enough, a personalized Seat Belt Extender is available from your Toyota dealer free of charge.

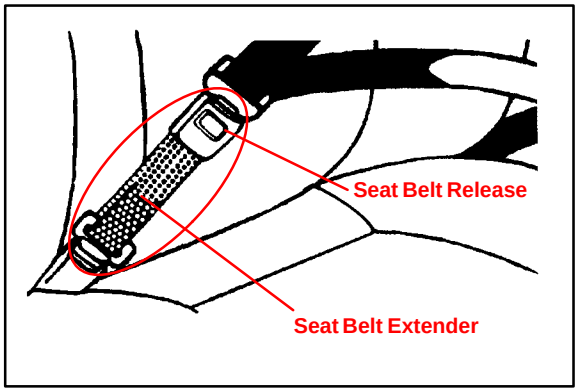
Please contact your local Toyota dealer so that the dealer can order the proper required length for the extender. Bring the heaviest coat you expect to wear for proper measurement and selection of length. Additional ordering information is available at your Toyota dealer.

CAUTION:

When using the Seat Belt Extender, observe the following. Failure to follow these instructions could result in reduced effectiveness of the seat belt restraint system in case of vehicle accident, increasing the chance of personal injury.

- **Never use the Seat Belt Extender if you can COMFORTABLY fasten the seat belt without it.**
- **The Seat Belt Extender must never be used with any child safety seats.**
- **Remember that the extender provided for you may not be safe when used on a different vehicle, or for another person or at a different seating position than the one originally intended for.**

To connect the extender to the seat belt, insert the tab into the seat belt buckle so that the "PRESS" signs on the buckle-release buttons of the extender and the seat belt are both facing outward as shown.



You will hear a click when the tab locks into the buckle.

When releasing the seat belt, press on the buckle-release button on the extender, not on the seat belt. This helps prevent damage to the vehicle interior and extender itself.

When not in use, remove the extender and store in the vehicle for future use.

PLEASE COPY THIS ORIGINAL WORKSHEET FOR EACH EXTENDER NEEDED

CAUTIONS:

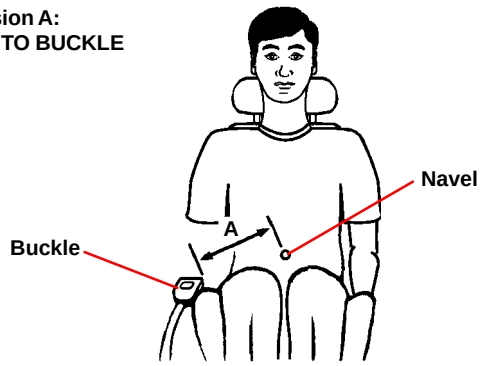
- **To minimize the chance and/or severity of injury in an accident, the Seat Belt Extender must only be used:**
  1 **By the person for whom it was provided.**
  2 **In the seat position for which it was provided.**
- **The Seat Belt Extender must never be used with any child safety seats.**
- **When the Seat Belt Extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when extender belt is in use.**

DEALER			SEAT BELT EXTENDER APPLICATION		APPLICANT	
DEALER CODE	DEALER NAME			APPLICANT NAME		
ADDRESS				ADDRESS		
CITY & STATE		ZIP		CITY & STATE	ZIP	PHONE
EMPLOYEE NAME	MODEL YEAR	BODY TYPE		SEATING POSITION	VEHICLE IDENTIFICATION NUMBER	

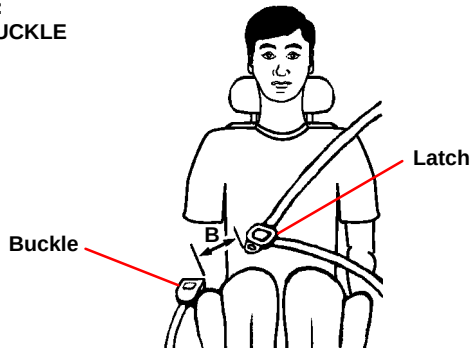
DIRECTIONS FOR DETERMINING PROPER EXTENDER LENGTH

1. **Place the seat in the position the applicant normally uses.**
2. **With the applicant in the seat, wearing the thickest coat expected to be worn, pull belt all the way out and try to buckle belt.**
   - **If belt latches into buckle and feels comfortable against upper chest area, an extender is not needed.**
   - **If belt does not buckle, continue with Step 3.**
   - **If buckle latches but belt has no slack remaining, continue with Step 3.**
3. **Measure distance between applicant's navel and seat belt buckle (Dimension A) and enter on Worksheet.**
4. **With belt all the way out, measure distance between latch tip and buckle tip (Dimension B) and enter on Worksheet.**
   NOTE: If belt latches but there is no slack enter zero as Dimension B.
5. **Subtract Dimension B from Dimension A and record number in Check Number box on Worksheet.**
6. **Seat Belt Extender length is Dimension B rounded up to next extender length (without exceeding Check Number).**
   NOTE: If extender length exceeds Check Number, an extender <u>cannot</u> be provided to the customer.

Dimension A:
NAVEL TO BUCKLE



Dimension B:
LATCH TO BUCKLE



SEAT BELT EXTENDER CALCULATION

DIMENSION A:	DIMENSION B:	CHECK NUMBER:

SEAT BELT EXTENDER AUTHORIZATION

- ***The same Seat Belt Extender can be used for right and left seating applications.*** **Each Seat Belt Extender will have a label identifying the owner, VIN and seating position. Seat Belt Extenders are available only in black.**
- **Applicant's Signature:**_____ **Date:**_____
  (Actual user of seat belt extender)

TOYOTA
Technical Service BULLETIN
February 21, 1997

Title:
WIND NOISE REPAIR KIT

Models:
All Models

TSB

BODY
BO003-97

Introduction

A kit containing special foam sponge material has been developed. This kit, when used in conjunction with procedures outlined in the Wind Noise Service Information book (P/N 00401–42978), specific Service Tips and Technical Service Bulletins, should enable effective wind noise repairs.

Affected Vehicles

- **All Models**

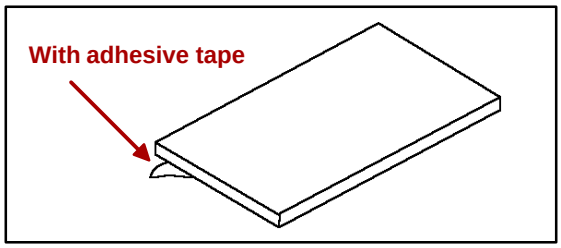
Parts Information

PART NUMBER	PART NAME	SIZE (MM)	QTY
08231–00810	Kit, Wind Noise	——	1
08231–00811 *	Caulking Sponge Sealant No. 1	297 x 150 (T = 3.0)	2
08231–00812 *	Caulking Sponge Sealant No .2	297 x 150 (T = 5.0)	2
08231–00813 *	Caulking Sponge Sealant No. 3	297 x 150 (T = 10.0)	2
08231–00814 *	Caulking Sponge Sealant No. 4	297 x 150 (T = 3.0)	2
08231–00815 *	Caulking Sponge Sealant No. 5	297 x 150 (T = 5.0)	2
08231–00816 *	Caulking Sponge Sealant No. 6	297 x 150 (T = 5.0)	2

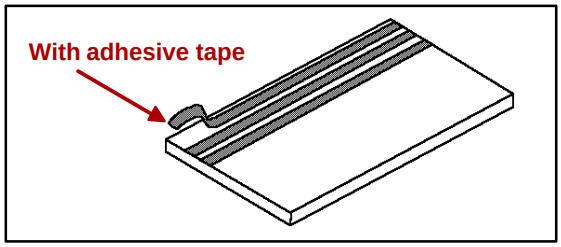
* All of these parts are included in the kit.

Kit Components

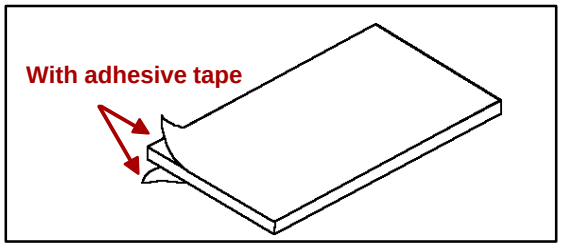
1. Caulking Sponge Sealant No. 1, No. 2 and No. 3 (Ept–sealer).



2. Caulking Sponge Sealant No. 4 and No. 5 (Ept–sealer). This sheet is divided into 27 strips, 5 mm wide.



3. Caulking Sponge Sealant No. 6 (Ept–sealer).



TOYOTA TECHNICAL SERVICE BULLETIN

REF.: BODY

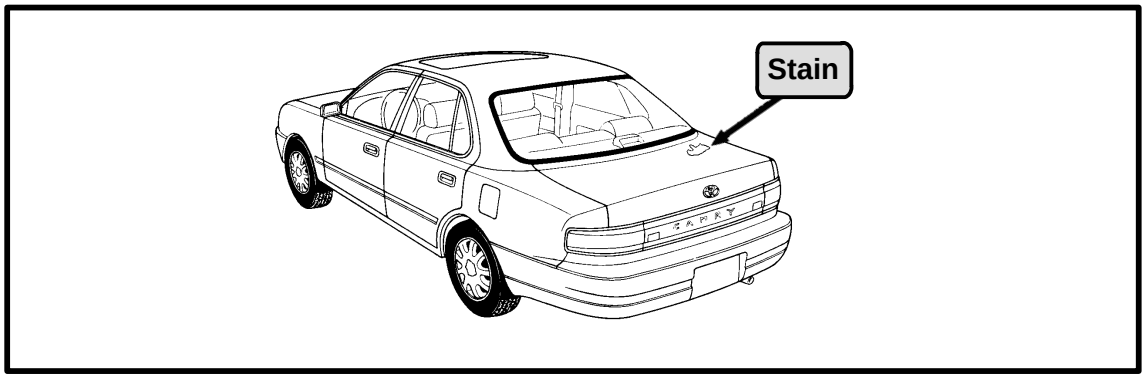
NO.: BO008–96

DATE: AUGUST 9, 1996

MODEL: ALL MODELS

STAINS ON RAPGARD APPLIED AREAS

On some Toyota models, when Rapgard is removed from the vehicle, a stain is left on the paint surface. This stain can be seen under the clear coat and is not a defect of the clear coat. The stain corresponds to a wrinkled area of Rapgard which retained liquids, such as window washer fluid, that left a discoloration.



REPAIR PROCEDURE:

To remove a stain from a vehicle, heat the stain surface to a temperature of 70°C – 80°C. When the stain is removed it will not reappear.

Equipment –

1. Infrared lamp or dryer to heat the surface.
2. Aluminum foil or a damp cloth to protect plastic parts from deformation.

Procedure –

1. Apply aluminum foil to adjoining plastic parts or cool with damp cloth periodically.
2. Use an infrared lamp or dryer on the stain developed area and heat for 5 to 10 minutes at 70°C – 80°C.
3. After heating for 5 minutes, check whether the stain has disappeared. If the stain still remains, reheat the area and check again.

NOTE: Take care that the body's paint surface temperature does not become too high.

WARRANTY INFORMATION:

OPCODE	DESCRIPTION	TIME	OPN	T1	T2
BD6004	Remove stains from paint surface caused by Rapguard	0.6	53301–XXXXX	61	99

TOYOTA

Technical Service BULLETIN

May 24, 2002

Title:

CHILD RESTRAINT SEAT TOP STRAP BRACKET INSTALLATION

Models:

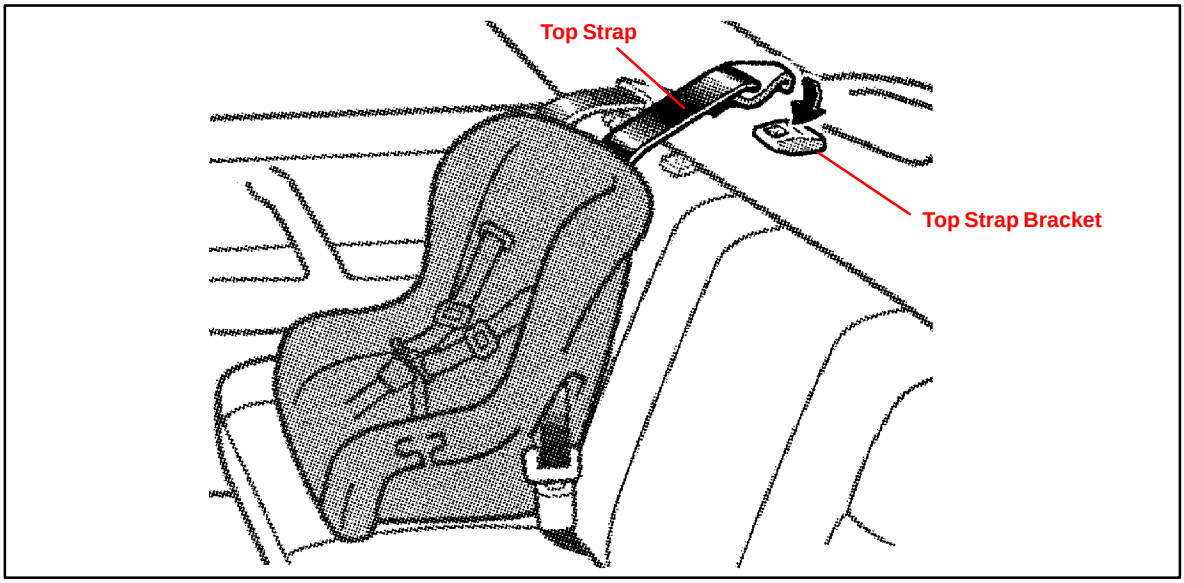
'83 – '00 All Models

Introduction

Child restraint seat top strap bracket installation procedures are provided to supplement the Owner's Manual. Beginning with 2001 models, the top strap brackets are factory installed.

NOTE:

- **The child restraint seat top strap assembly is not available as a service part. Contact the child restraint seat manufacturer for recommended top strap information, top strap to child restraint seat installation instructions, and top strap retailers.**
- **The top strap brackets can only be installed on vehicles that have nuts welded in place by the factory. The locations of these nuts can be found in the Owner's Manual (for most 1983 and newer models.) Toyota does not recommend modifying vehicles that do not have nuts welded in place by the factory. Some Land Cruiser and RAV4 vehicles, prior to 2001 model year, may not have these nuts welded in by the factory.**



Applicable Vehicles

- **1983 – 2000** model year vehicles, **all models.**

Parts Information

PART NUMBER	PART NAME
73709–12010	Bracket Sub–Assembly (Bracket, Bolt, 10 mm Spacer, and Washers)
04731–22012	CRS Kit (two Bolts [15 mm, 30 mm], three Spacers [5 mm, 10 mm, 15 mm], and Locking Clip)

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Installation Procedure

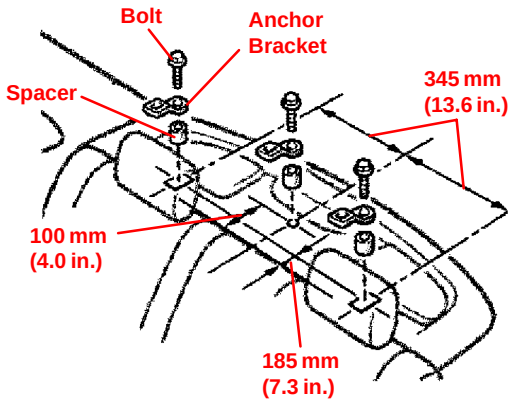
Child Restraint Seat Top Strap Bracket Installation

Obtain the exact year and vehicle model Toyota Owner's Manual before beginning installation.

1. Confirm with the customer which seat location(s) they will be installing the child restraint seat. The Owner's Manual seat section provides an illustration showing available top strap bracket location(s). The illustration page in the Owner's Manual is provided in pages 4–9 of this bulletin.

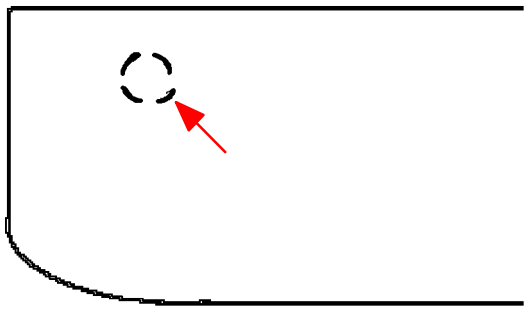
NOTE:

Determine which kit parts are needed for each specific child seat location, by referring to pages 4–9 of this bulletin.



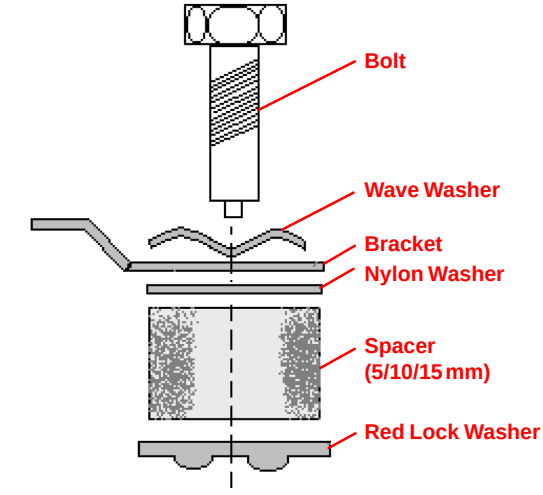
Example of 1999 Camry Showing Three (3) Available Bracket Locations

2. Remove a 20 mm diameter area of the carpet or trim material above the bracket mounting location. In some vehicles, a 20 mm circle is already pre–cut into the interior trim material. Once the interior trim material is removed, the nuts welded in by the factory should be visible.



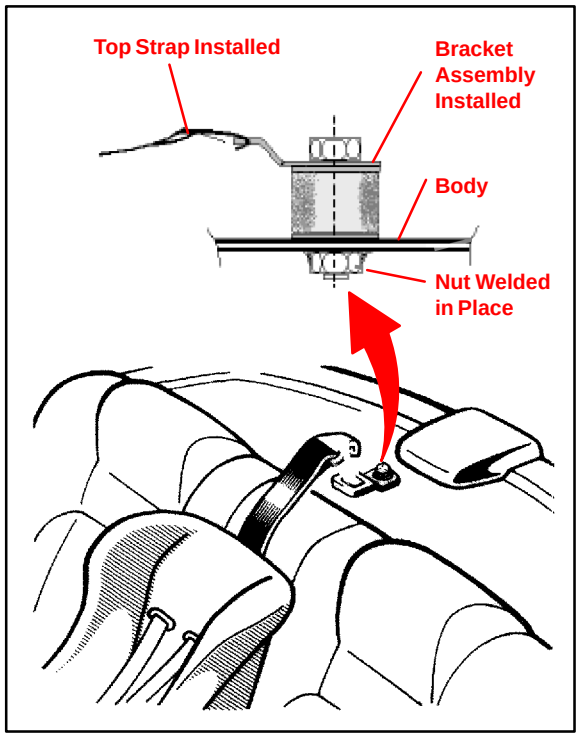
Example of Pre–Cut Circle in Package Tray Finisher

3. If a 5 mm or 15 mm spacer is specified, remove the red lock washer from the Bracket Sub–Assembly (P/N 73709–12010) and remove the 10 mm spacer. Assure the red lock washer is re–installed onto the bolt. If a 5 mm spacer is needed, use the 15 mm bolt from the CRS Kit (P/N 04731–22012).



Installation Procedure (Continued)

4. Install the bracket assembly, according to the directions in the Owner's Manual. Tighten the bolt to 16.5 – 24.7 N–m, (1.68 – 2.52 kgf–m, 12.2 – 18.2 ft–lbf).
   - Assure the top strap is attached to the child seat, according to the child seat manufacturer's instructions.
   - Assure the child seat is installed in the vehicle according to the Toyota Owner's Manual (seat section).



Installation Reference Information

Owner's Manual Installation Reference Information

The following pages of this bulletin contain a reference information chart. This chart contains:

- Owner's Manual page(s) that provide the illustration showing available top strap bracket location(s). The information goes back to 1983 model year. 2001 models and newer already had the bracket installed by the factory.
- Installation notes, such as bracket spacer sizes for each specific child seat location.

EXAMPLE:

OWNER'S MANUAL	4Runner
2000	pg 73 a

This cell contains information on the 2000 4Runner

Refer to this page in the Owner's Manual to find the illustration showing available top strap bracket locations.

Installation Note. In this case, all bracket positions on the 2000 4Runner will require a 15 mm spacer.

INSTALLATION NOTE	COMMENT
a	Spacer – 15 mm for all anchors
b	Spacer – 10 mm for outer, 15 mm for center
c	Spacer – 15 mm for outer, 10 mm for center
d	Spacer – 5 mm for all anchors
e	Spacer – 15 mm for outer, none for center
f	Spacer – 15 mm for center, none for outer
g	No Spacer
h	Spacer – 10 mm for all anchors
i	Bolt for All–Trac/4WD only (Part No. 91511–60814) (Celica & Previa)
NP	Spacer pictured but no specifications
N/A	Top strap anchor bracket mounting not available
Standard	No installation necessary, anchor already installed by factory

Installation Reference Information (Continued)

OWNER'S MANUAL	4Runner	Avalon	Camry Sedan	Camry Liftback	Camry Solara	Camry Wagon	Celica All Trac 4WD	Celica Coupe
2000	pg 73 a	Standard	Standard		Standard			
1999	pg 71 a	pg 72 a	pg 71–73 a		pg 68 a			pg 49 a
1998	pg 53 a	pg 70 a	pg 68–69 a					pg 48 a
1997	pg 52 a	pg 52 a	pg 56–57 a					pg 45 a
1996	pg 45 NP	pg 40 a	pg 47 a			pg 48 a		pg 37 a
1995	pg 31 g	pg 39 a	pg 44–45 a			pg 45 a		pg 36 a
1994	pg 29 g		pg 41–42 a			pg 42 a		pg 31 a
1993	pg 26 g		pg 33 a			pg 33–34 a	pg 30 i, g	pg 29 a
1992	pg 26 g		pg 27 a				pg 30 i, g	pg 29 a
1991	pg 27 g		pg 29 c			pg 29 g	pg 29–30 i, g	pg 29 a
1990	pg 27 g		pg 29 c			pg 29 g	pg 29–30 i, g	pg 29 a
1989	pg 31–33 g		pg 32 c			pg 33 g	pg 29–30 i, g	pg 31 a
1988	pg 19–20 g		pg 32 b			pg 32 g	pg 16 i, g	pg 16 a
1987	pg 18 g		pg 15 b			pg 16 g		pg 13 a
1986	pg 17 g		pg 13 e	pg 14 f				pg 12 a
1985	pg 16 g		pg 13 e	pg 13 f				pg 12 a
1984	pg 15–16 g		pg 13 e	pg 13 f				pg 12 a
1983			pg 12–13 e	pg 13 f				pg 11–12 a

Installation Reference Information (Continued)

OWNER'S MANUAL	Celica Liftback	Corolla FWD Sedan	Corolla FWD Liftback	Corolla 4WD Wagon	Corolla Coupe	Corolla FX/FX16	Corolla Hardtop	Corolla RWD 2–Door Coupe
2000	Standard	Standard						
1999	pg 49 a	pg 67 a						
1998	pg 49–50 a	pg 65 a						
1997	pg 46–47 a	pg 61 h						
1996	pg 37–38 a	pg 49 h						
1995	pg 37–38 a	pg 43 h						
1994	pg 32 a	pg 39 h						
1993	pg 30 g	pg 32–33 h						
1992	pg 30 g	pg 34 h		pg 34 g				
1991	pg 29–30 g	pg 44 h		pg 45 g	pg 45 a			
1990	pg 29–30 g	pg 44–45 h		pg 46 g	pg 45 a			
1989	pg 31 g	pg 40 h		pg 41–42 g	pg 41 a			
1988	pg 16 g	pg 21–22 h			pg 22 a	pg 26 f		
1987	pg 13 g	pg 13–14 a	pg 14 f					pg 12 h
1986	pg 13 g	pg 12 a	pg 12 f					pg 12 h
1985	pg 13 g	pg 13 a	pg 14 f					pg 12 h
1984	pg 12 g	pg 12–13 a	pg 13 f					pg 12 h
1983	pg 12 g	pg 10 a	pg 11 g		pg 11 g		pg 10 h	

Installation Reference Information (Continued)

OWNER'S MANUAL	Corolla RWD 3–Door Coupe	Corolla Wagon	Cressida	Cressida Wagon	Echo	Land Cruiser	MR2	Paseo Coupe & Convert.
2000					Standard	N/A		
1999						N/A		pg 63 a
1998						N/A		pg 61 a
1997						N/A		pg 55 a
1996		pg 49–50 h				N/A		pg 40 h
1995		pg 44 h				N/A	pg 38 a	pg 37 h
1994		pg 40 h				N/A	pg 33 a	pg 33 h
1993		pg 33 h				N/A	pg 31 a	pg 31 h
1992		pg 35 h	pg 29 c			N/A	pg 31 a	pg 27 h
1991		pg 46 h	pg 29 c			N/A	pg 31 a	
1990		pg 46–47 g	pg 30 c			N/A		
1989		pg 42 a	pg 34 c			N/A	pg 28 a	
1988		pg 23 h	pg 30 h			N/A	pg 12 a	
1987	pg 13 g		pg 21 h	pg 21 g		N/A	pg 11 a	
1986	pg 12 g		pg 16 h	pg 16 g		N/A	pg 11 a	
1985	pg 11 g		pg 15–16 h	pg 16 g		N/A	pg 11 a	
1984	pg 11 g		pg 15 g	pg 15 g		N/A		
1983		pg 11 g	pg 15 g	pg 15 g		N/A		

Installation Reference Information (Continued)

OWNER'S MANUAL	Previa	RAV4	RAV EV	Sienna	Starlet	Supra	T100 Ext. Cab 2WD	T100 Ext. Cab 4WD
2000		N/A	Standard	pg 99 a				
1999		N/A	N/A	pg 96 a				
1998		N/A		pg 74 a		pg 49 d	N/A	N/A
1997	pg 60 a	N/A				pg 49 d	N/A	N/A
1996	pg 47–48 a	N/A				pg 36 d	N/A	N/A
1995	pg 46–47 a					pg 36–37 d	N/A	N/A
1994	pg 41–42 a					pg 32–33 d		
1993	pg 41–42 a					pg 32–33 d		
1992	pg 37–38 i					pg 32 h		
1991	pg 33–34 i					pg 33 h		
1990						pg 31 h		
1989						pg 31 h		
1988						pg 32 h		
1987						pg 15 h		
1986						pg 13–14 g		
1985						pg 13 g		
1984					pg 9 g	pg 12 g		
1983					pg 9 g	pg 11 g		

Installation Reference Information (Continued)

OWNER'S MANUAL	T100 Reg Cab 4WD	T100 Reg Cab 2WD	Tacoma	Tercel 2 Door	Tercel 4WD Wagon	Tercel 3/5	Tercel 4WD	Tercel All Models
2000			N/A					
1999			N/A					
1998	N/A	N/A	N/A					
1997	N/A	N/A	N/A					
1996	N/A	N/A	N/A					
1995	N/A	N/A	N/A					
1994	N/A	N/A						
1993	N/A	N/A						
1992								
1991								
1990				pg 31 a		pg 31 h		
1989				pg 30–31 a		pg 30 h		
1988				pg 18 a, d		pg 17 h		
1987					pg 12 g		pg 12 g	
1986					pg 12 g		pg 12 g	
1985								pg 11–13 g
1984								pg 11 g
1983								pg 11 g

Installation Reference Information (Continued)

OWNER'S MANUAL	Tercel Sedan/ Coupe	Tercel Wagon	Truck 2x4	Truck 4x4	Tundra	Van
2000					Standard	
1999	pg 60 h					
1998	pg 59 h					
1997	pg 54 h					
1996	pg 41 h					
1995	pg 38 h					
1994	pg 39 h		pg 32 g	pg 32 g		
1993	pg 35 h		pg 27 g	pg 27 g		
1992	pg 29 h		pg 27 g	pg 27 g		
1991	pg 28 h		pg 26 g	pg 26 g		
1990			pg 26 g	pg 26 g		
1989			pg 29 g	pg 29 g		pg 37 a
1988			pg 13 g	pg 19 g		pg 23 a
1987	pg 12 g	pg 11 g	pg 14 g	pg 18 g		pg 21 a
1986	pg 12 g	pg 12 g	pg 13 g	pg 17 g		pg 20 a
1985			pg 12 g	pg 15 g		pg 17 a
1984			pg 12 g	pg 12 g		pg 17 a
1983			N/A	N/A		

TOYOTA

Technical Service BULLETIN

March 23, 2001

Title:

NEW SEAT BELT TONGUE PLATE STOPPER SERVICE PARTS

Models:

All Applicable Models

TSB

Introduction

A new service part for the seat belt tongue plate stopper has been introduced. Installation procedures are provided to supplement the Repair Manual.

Applicable Vehicles

MODEL	YEAR
Avalon	1995 – 2001
Camry	1983 – 2001
Corolla	1980 – 2001
Camry Solara	1999 – 2001
Sienna (Front Seat Belt Only)	1998 – 2001
RAV4	1997 – 2001
4Runner	1992 – 2001
Land Cruiser	1991 – 2001
Tundra	2000 – 2001
Tacoma	1997 – 2000
ECHO	2000 – 2001
Celica	1980 – 2001
Prius	2001
Tercel	1981 – 1999

Parts Information

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
N/A	73219–02010	Stopper, Tongue Plate (Black)*
N/A	73219–02020	Stopper, Tongue Plate (Gray)*
N/A	73219–02030	Stopper, Tongue Plate (Beige)*

* Use a stopper color that is closest to the seat belt webbing color.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
BD0047	Install Seat Belt Tongue Plate Stopper	0.1	73219–020#0	62	12

Applicable Warranty*:

This repair is covered under the Toyota Comprehensive Warranty. This warranty is in effect for 36 months or 36,000 miles, whichever occurs first, from the vehicle's in–service date.

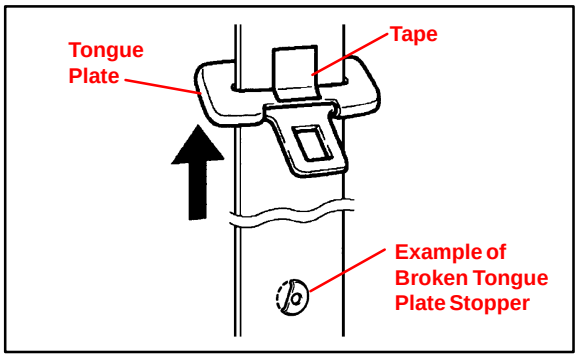
* Warranty application is limited to correction of a problem based upon a customer's specific complaint.

Installation Procedure

1. Preparation

A. Shift the Tongue Plate to the upper portion of the Tongue Plate Stopper, and temporarily hold it with a clip or tape.

B. Remove any pieces of the original Tongue Plate Stopper in the webbing, with a pair of pliers.



CAUTION:

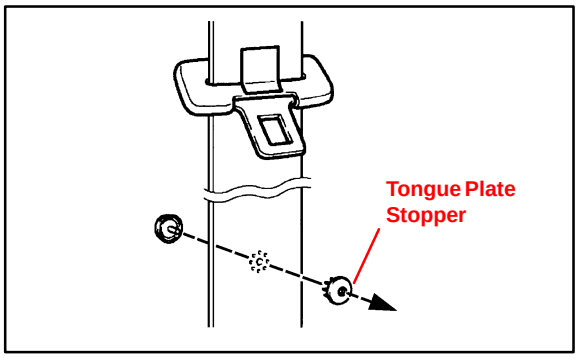
Damaged or weakened seat belts may break in an accident and injure the occupant. The seat belt assembly must be replaced if:

- **The webbing is cut, frayed, worn, or damaged.**
- **It has been used in a severe impact.**

Inspect the entire length of webbing for damage and replace the assembly if needed. Be careful not to damage the webbing during repair.

2. Install the New Tongue Plate Stopper

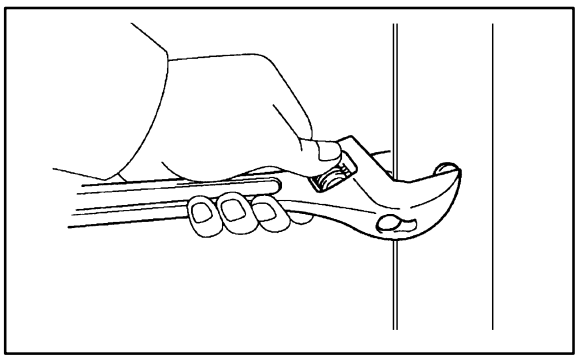
A. Install a new Tongue Plate Stopper in the hole of the webbing.



NOTE:

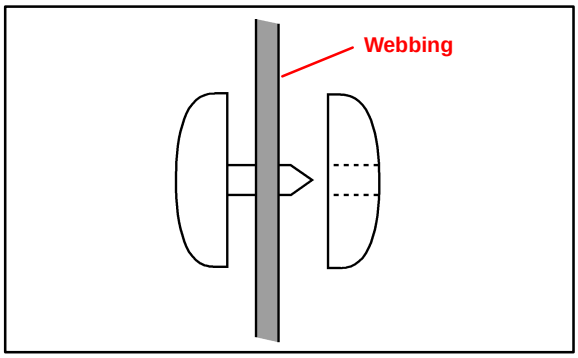
Be aware of the installation direction of the Tongue Plate Stopper as shown in the illustration.

B. Pinch the Tongue Plate Stopper into the webbing using an adjustable wrench, and turn and push the adjustment screw by hand.



HINT:

Press the adjustment screw in order to position the male and female parts of the Tongue Plate Stopper parallel to each other, as shown in illustration.

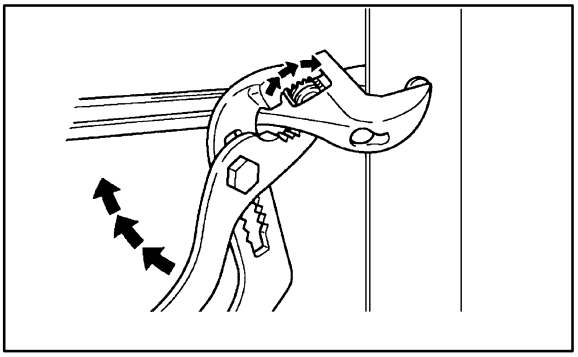


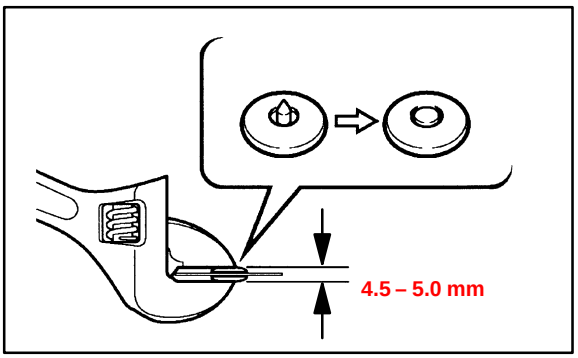
CAUTION:

DO NOT use pliers. They may damage the webbing.

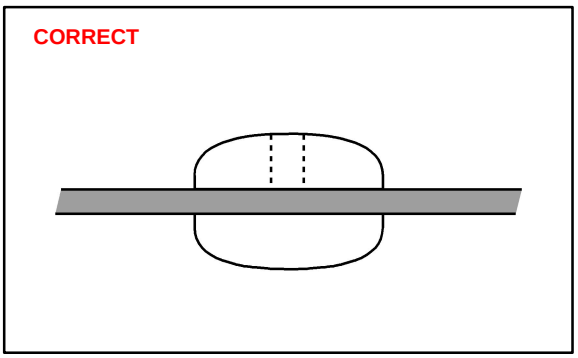
Installation Procedure (Continued)

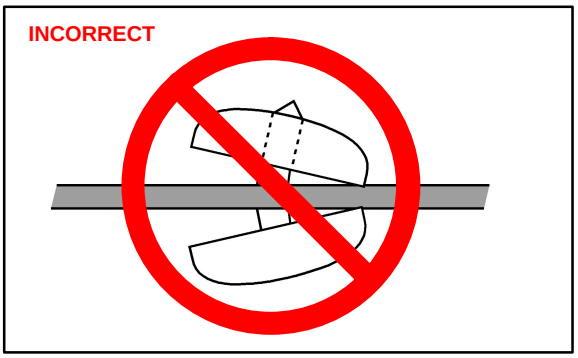
C. When the adjustment screw for the adjustable wrench can't be turned by hand, tighten the adjustment screw using a pair of adjustable joint pliers until the space between jaws of the adjustable wrench is 4.5 – 5.0 mm. (See illustrations.)





D. Check to be sure that the male pin of the Tongue Plate Stopper has become deformed evenly in the hole of the female part and is firmly held to the belt webbing. (See illustrations.)





TOYOTA

Technical Service BULLETIN

September 9, 2003

Title:

TRIM GARNISH LOOSE

Models:

All Models

TSB

REVISED

BODY

BO017-03

TSB REVISION NOTICE:

March 3, 2004: The TSB has been changed to include new inspection and replacement instructions.
Previous versions of this TSB should be discarded.

Introduction

Customers may experience an interior trim panel either loose or fitting poorly due to a deformed or missing panel attachment clips. When a trim garnish (A, B, C or D pillar garnish, door trim panel, etc.) is removed and reinstalled using the old clips, there is a possibility that the garnish may exhibit a loose condition. To prevent this condition from occurring, please use the following procedures.

Inspection/ Replacement Procedure

All Models – All trim panel attachment clips must be inspected prior to reassembly and replaced if any damage or wear is detected. If no damage is visible, the clip may be reused. Always check to make sure that the garnish is properly attached after reinstallation of all interior trim panels.

2002 – 2004 model year Camry and 2004 model year Solara – When removing the A–pillar garnish panels, replace the white plastic attachment clips (P/N 90467–A0025).

Applicable Vehicles

- **All models.**

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

August 11, 2000

Title:

SEAT BELT EXTENDER

Models:

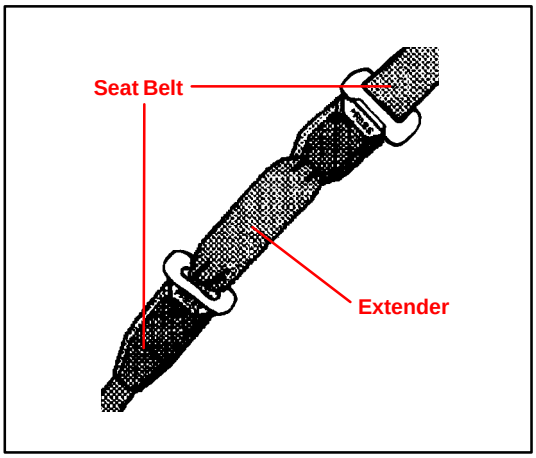
'99 – '01 Model Year

TSB

Introduction

Toyota customers who find it necessary to increase the length of their seat belts may obtain Seat Belt Extenders at **no cost** through their local Toyota dealer.

- The extender is available in 6 inch, 9 inch, 12 inch, 15 inch and 18 inch lengths.
- The extender is available **only in black**.
- Owners are informed of the seat belt extender availability through the Toyota Owner's Manual included in each vehicle.



The customer *(individual requiring the extender)* must visit a Toyota dealership to have the required measurements made and to complete the seat belt extender worksheet. The worksheet will allow the proper fitting and selection of a seat belt extender for the customer. The dealership personnel should then determine the applicable part number and place a ***Critical Order*** through the ***TDN Parts Network.***

The dealership service department should complete the affixed Seat Belt Extender Label and review the "owner instruction sheet" with the customer. The dealership should give a copy of the completed worksheet to the customer and keep the original in the customer's file.

To assure utmost owner satisfaction, it is recommended that a dealership designate one person to coordinate all activities related to the seat belt extender issue.

From past sales history, it is recommended that dealerships **do not stock** Seat belt extenders due to low demand and the need for customer fitting.

This bulletin contains the following information:

Applicable Vehicles

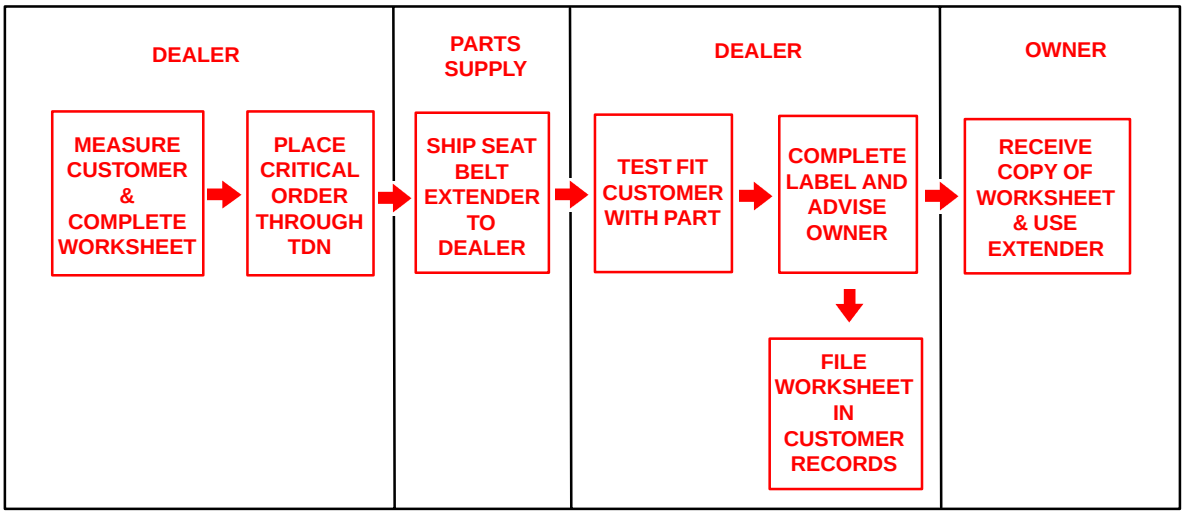
- **1999** through **2001** model year **Toyota** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Procedure

1. Owner requests a seat belt extender from dealer.
2. Dealer verifies the need for a seat belt extender and obtains a current copy of this TSB and copies the worksheet.
3. Dealer measures the customer and completes the worksheet. Dealer determines the correct part number and places a Critical Order for the part through the TDN Parts Network.
4. Dealer receives seat belt extender and calls the customer in to check fit of the part.
5. If the seat belt extender fit is good, dealership personnel completes the customer information label on the part, explains usage of the part, and gives the customer a copy of the completed worksheet.
6. Dealer places a copy of the completed worksheet in the customer's records.



Sample Seat Belt Extender Customer Information Label

CAUTION

THIS SEAT BELT EXTENDER IS TO BE USED ONLY BY: _____

ON VEHICLE: _____

VIN: _____

SEATING POSITION: _____

USE BY OTHERS, OR IN ANOTHER SEATING POSITION, OR IN ANOTHER VEHICLE COULD REDUCE SEAT BELT RESTRAINT IN AN ACCIDENT AND RESULT IN PERSONAL INJURY.

Front Seat Belt Extender Applications

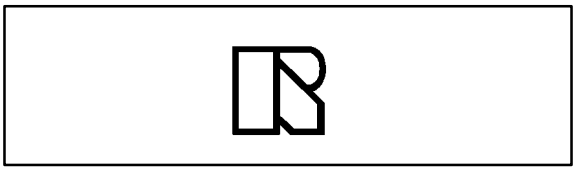
FRONT SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**’01**	**’00**	**’99**
RAV4	—	R–5	R–5	R–5
ECHO	—	K–5	5–5	—
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION			
PRIUS	—	N–7	—	—
MR2 SPYDER	—	N–6	N–6	—
CELICA	LIFTBACK & COUPE	N–6	N–6	N–6
	CONVERTIBLE	—	—	
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	Q–4
	COVERTIBLE			—
AVALON *1	—	T–1	T–1	Q–2
SIENNA	—	Q–4	Q–4	Q–4
TACOMA *1	—	S–2	S–1	S–1
4RUNNER	—	K–5	K–5	K–5
LAND CRUISER	—	K–5	K–5	K–5
SEQUIOA	—	Q–4	—	—
TUNDRA *1	—	Q–4	Q–4	—

*1 The extender must not be used for the center seat belt of Avalon, Tacoma and Tundra which have bench seats.

Rear Seat Belt Extender Applications

REAR SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**’01**	**’00**	**’99**
RAV4	W/TOKAI RIKA	R–5	R–5*1	R–5*1
	W/QSS	—	Q–4*2	Q–4*2
ECHO	—	R–5	R–5	—
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION	T–1	T–1	T–1
PRIUS	—	N–7	—	—
CELICA	LIFTBACK & COUPE	N–6	N–6	N–6
	CONVERTIBLE (RH)	—	—	N–1
	CONVERTIBLE (LH)			N–5
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	Q–4
	CONVERTIBLE			—
AVALON	—	T–1	T–1	Q–2
SIENNA	—	Q–4	Q–4	Q–4
TACOMA	XTRACAB	A–2	A–2	A–2
4RUNNER	—	R–5	R–5	R–5
LAND CRUISER	—	K–5	K–5	K–5
SEQUOIA	REAR SEAT #1	T–1	—	—
SEQUOIA	REAR SEAT #2	Q–4		
TUNDRA	ACCESS CAB	Q–4	Q–4	—

*1 This seat belt was supplied by TOKAI RIKA. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.



*2 This seat belt was supplied by QSS. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.

NOTE:

The seat belt extender must not be used for the center rear seat belt.

Parts Information

PART NUMBER PREFIX: 73399–					
SERIES	LENGTH				
	6 INCH	9 INCH	12 INCH	15 INCH	18 INCH
R–5	–16060	–16070	–16080	–16090	–16100
N–1	–12060	–12070	–12080	–12090	–12100
N–5	–20110	–20120	–20130	–20140	–20150
N–6	–20160	–20170	–20180	–20190	–20200
N–7	–47010	–47020	–47030	–47040	–47050
K–5	–35010	–35020	–35030	–35040	–35050
A–2	–01060*1	–01070	–01080	–01090	–01100
Q–2	–06010	–06020	–06030	–06040	–06050
Q–4	–0W010	–0W020	–0W030	–0W040	–0W050
S–1	–04010	–04020	–04030	–04040	–04050
T–1	–01110	–01120	–01130	–01140	–01150

*1 Length: 7 $^{1}/_{4}$"

Owner Instructions

Failure to follow the recommendations indicated below could result in less effectiveness of the seat belt restraint system in case of vehicle collision, causing personal injury.

The Seat Belt Extender must not be used:

a. By anyone other than for whom it was provided (name recorded on seat belt extender).

b. In any vehicle and/or seat position other than the one for which it was provided.

c. When the Seat Belt Extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when in use.

If your seat belt cannot be fastened securely because it is not long enough, a personalized seat belt extender is available from your Toyota dealer free of charge.

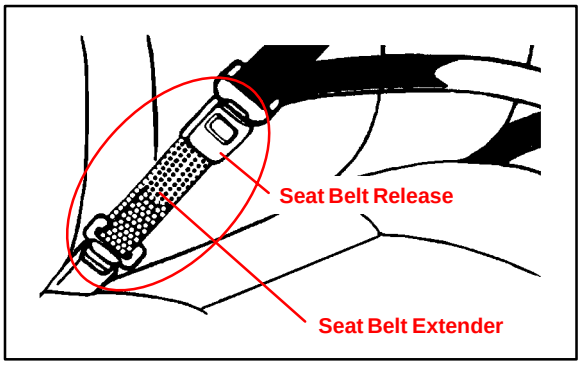
Please contact your local Toyota dealer so that the dealer can order the proper required length for the extender. Bring the heaviest coat you expect to wear for proper measurement and selection of length. Additional ordering information is available at your Toyota dealer.

CAUTION:

When using the seat belt extender, observe the following. Failure to follow these instructions could result in less effectiveness of the seat belt restraint system in case of vehicle accident, increasing the chance of personal injury.

- **Never use the Seat Belt Extender if you can comfortably fasten the seat belt without it.**
- **The Seat Belt Extender must never be used with any child safety seats.**
- **Remember that the extender provided for you may not be safe when used on a different vehicle, or for another person or at a different seating position than the one originally intended for.**

To connect the extender to the seat belt, insert the tab into the seat belt buckle so that the “PRESS” signs on the buckle–release buttons of the extender and the seat belt are both facing outward as shown.



You will hear a click when the tab locks into the buckle.

When releasing the seat belt, press on the buckle–release button on the extender, not on the seat belt. This helps prevent damage to the vehicle interior and extender itself.

When not in use, remove the extender and store in the vehicle for future use.

SEAT BELT EXTENDER WORKSHEET

PLEASE COPY THIS ORIGINAL WORKSHEET FOR EACH EXTENDER NEEDED

CAUTION:

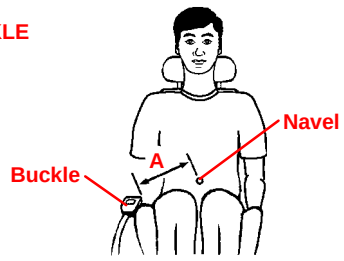
- **To minimize the chance and/or severity of injury in an accident, the seat belt extender must only be used:**
  1. **By the person for whom it was provided**
  2. **In the seat position for which it was provided**
- **The seat belt extender must never be used with any child safety seats.**
- **When the seat belt extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when extender belt is in use.**

DEALER			SEAT BELT EXTENDER APPLICATION		APPLICANT		
DEALER CODE	DEALER NAME		APPLICANT NAME				
ADDRESS			ADDRESS				
CITY & STATE		ZIP	CITY & STATE		ZIP	PHONE	
EMPLOYEE NAME	MODEL YEAR	BODY TYPE	SEATING POSITION	VEHICLE IDENTIFICATION NUMBER			

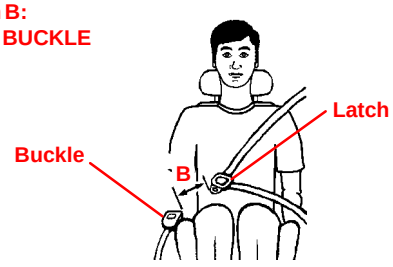
DIRECTIONS FOR DETERMINING PROPER EXTENDER LENGTH

1. **Place the seat in the position the applicant normally uses**
2. **With applicant in the seat, wearing thickest coat expected to be worn, pull belt all the way out and try to buckle belt**
   - **If the belt latches into buckle and feels comfortable against upper chest area, an extender is not needed.**
   - **If belt does not buckle continue with step 3**
   - **If buckle latches but belt has no slack remaining, continue with step 3**
3. **Measure distance between applicant's navel and seat belt buckle (dimension A) and enter on worksheet**
4. **With belt all the way out, measure distance between latch tip and buckle tip (dimension B) and enter on worksheet**
   NOTE: If belt latches but there is no slack enter zero as dimension B
5. **Subtract dimension B from dimension A and record number in check number box on worksheet**
6. **Seat belt extender length is dimension B rounded up to next extender length (without exceeding check number)**
   NOTE: If extender length exceeds check number, an extender can not be provided to the customer

Dimension A:
NAVEL TO BUCKLE



Dimension B:
LATCH TO BUCKLE



SEAT BELT EXTENDER CALCULATION		
DIMENSION A:	DIMENSION B:	CHECK NUMBER:

SEAT BELT EXTENDER AUTHORIZATION

- **The same seat belt extender can be used for right and left seating applications. Each seat belt extender will have a label identifying the owner, VIN and seating position. Seat belt extenders are available only in black.**
- **Applicant's Signature:** _____ **Date:** _____
  (Actual user of seat belt extender)

TOYOTA

Technical Service BULLETIN

September 7, 2001

Title:

ENGINE HOOD RELEASE OPERATION

Models:

'00 – '01 MR2 Spyder

TSB

BODY

BO021-01

Introduction

A new hood lock assembly with two new springs has been developed to improve inoperative and difficult–to–open conditions.

Applicable Vehicles

- **2000 – 2001** model year **MR2 Spyder** vehicles.

Production Change Information

MODEL	STARTING VIN
2001 MR2 Spyder	JTDFR3206Y0030611

Parts Information

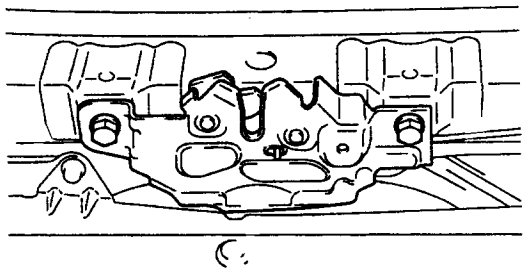
PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
69350–17050	69350–17051	Lock Assy, Engine Hood

Repair Procedure

After installation of the new part, refer to the MR2 Repair Manual for adjustment instructions:

- 2000 MR2 Repair Manual (Pub. No. RM760U) pages BO–9 and BO–10.
- 2001 MR2 Repair Manual (Pub. No. RM801U) page BO–10.

Engine Hood Lock Assembly



Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
BD1025	R & R Lock Assy, Engine Hood	0.2	69350–17050	52	83

Applicable Warranty*:

This repair is covered under the Toyota Basic Warranty. This warranty is in effect for 36 months or 36,000 miles, whichever occurs first, from the vehicle's in-service date.

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

TOYOTA

Technical Service BULLETIN

September 14, 2001

Title:

SEAT BELT EXTENDER

Models:

'00 – '02 Model Year

TSB

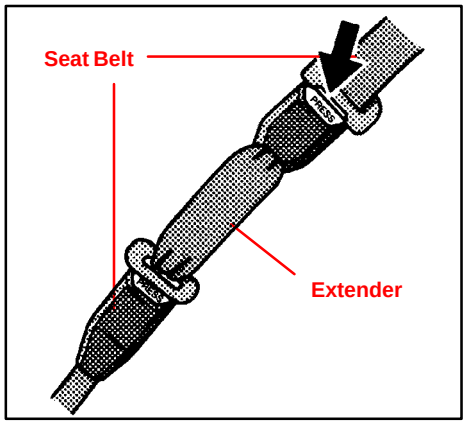
BODY

BO023-01

Introduction

Toyota customers who find it necessary to increase the length of their seat belts may obtain Seat Belt Extenders at **no cost** through their local Toyota dealer.

- The extender is available in 6 inch, 9 inch, 12 inch, 15 inch and 18 inch lengths.
- The extender is available **only in black.**
- Owners are informed of the Seat Belt Extender availability through the Toyota Owner's Manual included in each vehicle.



The customer (individual requiring the extender) must visit a Toyota dealership to have the required measurements made and to complete the Seat Belt Extender Worksheet. The worksheet will allow the proper fitting and selection of a Seat Belt Extender for the customer. The dealership personnel should then determine the applicable part number and place a ***Critical Order*** through the ***TDN Parts Network or Dealer Daily.***

The dealership service department should complete the affixed Seat Belt Extender Customer Information Label on the part and review the "Owner Instruction Sheet" with the customer. The dealership should give a copy of the completed worksheet to the customer and keep the original in the customer's file.

To assure utmost owner satisfaction, it is recommended that a dealership designate one person to coordinate all activities related to the Seat Belt Extender issue.

It is recommended that dealerships **do NOT stock** Seat Belt Extenders due to the need for proper fitting to individual customers.

This bulletin contains the following information:

Applicable Vehicles

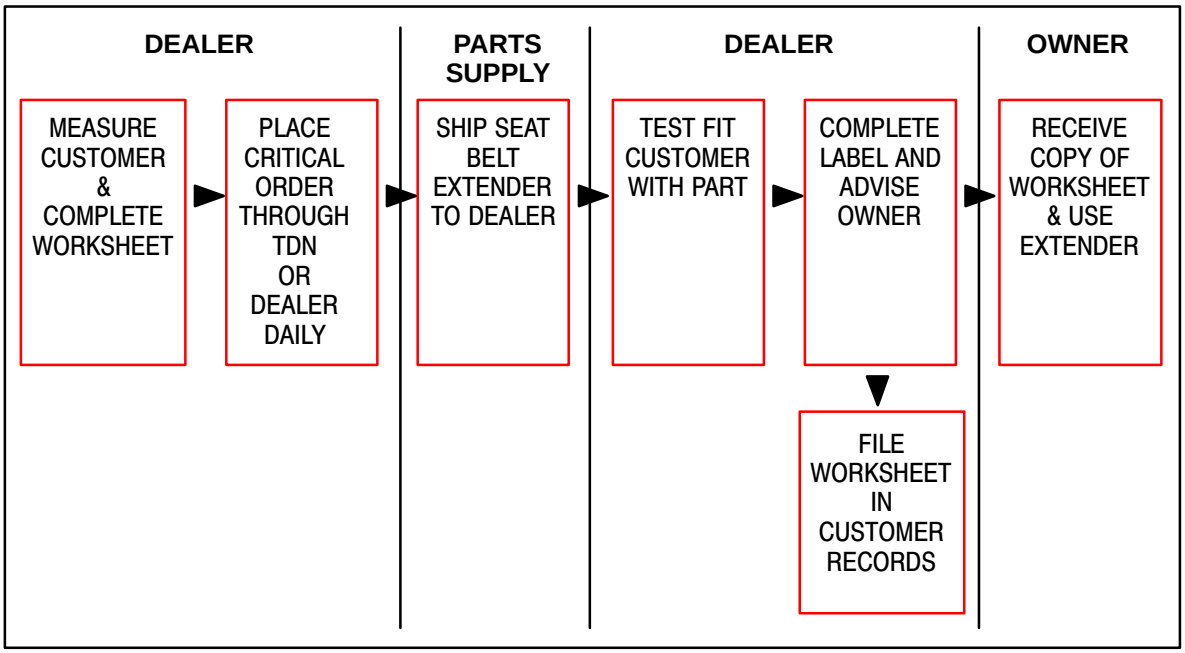
- **2000** through **2002** model year **Toyota** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Procedure

1. Owner requests a Seat Belt Extender from dealer.
2. Dealer verifies the need for a Seat Belt Extender and obtains a current copy of this TSB and copies the Worksheet.
3. Dealer measures the customer and completes the Worksheet. Dealer determines the correct part number and places a Critical Order for the part through the TDN Parts Network or Dealer Daily.
4. Dealer receives Seat Belt Extender and calls the customer in to check fit of the part.
5. If the Seat Belt Extender fit is good, dealership personnel completes the Customer Information Label on the part, explains usage of the part, and gives the customer a copy of the completed Worksheet.
6. Dealer places copy of the completed Worksheet in the customer's records.



Sample Seat Belt Extender Customer Information Label

CAUTION

THIS SEAT BELT EXTENDER IS TO BE USED ONLY BY: _____

ON VEHICLE: _____

VIN: _____

SEATING POSITION: _____

USE BY OTHERS, OR IN ANOTHER SEATING POSITION, OR IN ANOTHER VEHICLE COULD REDUCE SEAT BELT RESTRAINT IN AN ACCIDENT AND RESULT IN PERSONAL INJURY.

Front Seat Belt Extender Applications

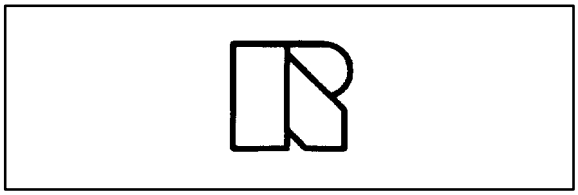
FRONT SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**'02**	**'01**	**'00**
RAV4	All Models	R–5	R–5	R–5
RAV4 EV		R–5	R–5	R–5
ECHO		K–5	K–5	K–5
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION			
PRIUS	All Models	N–7	N–7	–
MR2 SPYDER		N–7	N–6	N–6
CELICA	LIFTBACK & COUPE	N–7	N–6	N–6
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	Q–4
	CONVERTIBLE			
AVALON*	All Models	T–1	T–1	T–1
SIENNA		Q–4	Q–4	Q–4
TACOMA*		S–2	S–2	S–1
4RUNNER		K–5	K–5	K–5
LAND CRUISER		K–5	K–5	K–5
SEQUOIA		Q–4	Q–4	–
TUNDRA*		Q–4	Q–4	Q–4
HIGHLANDER		R–5	R–5	–

* The extender must not be used for the center seat of Avalon, Tacoma, and Tundra which have bench seats.

Rear Seat Belt Extender Applications

REAR SEAT – EXTENDER APPLICATION				
MODEL	**TYPE**	**'02**	**'01**	**'00**
RAV4	W/TOKAI RIKA	R–5	R–5	R–5*1
	W/QSS	–	–	Q–4*2
RAV4 EV	All Models	Q–4	Q–4	Q–4
ECHO		R–5	R–5	R–5
COROLLA	TMMC PRODUCTION	Q–4	Q–4	Q–4
	NUMMI PRODUCTION	T–1	T–1	T–1
PRIUS	All Models	N–7	N–7	–
CELICA	LIFTBACK & COUPE	N–7	N–6	N–6
CAMRY	TMC PRODUCTION	Q–4	Q–4	Q–4
	TMMK PRODUCTION			
CAMRY SOLARA	COUPE	Q–4	Q–4	Q–4
	CONVERTIBLE			
AVALON	All Models	T–1	T–1	T–1
SIENNA		Q–4	Q–4	Q–4
TACOMA	XTRACAB	T–1	T–1	A–2
	DOUBLE CAB	S–2	S–2	–
4RUNNER	All Models	R–5	R–5	R–5
LAND CRUISER		K–5	K–5	K–5
SEQUOIA	REAR SEAT #1	T–1	T–1	–
	REAR SEAT #2	Q–4	Q–4	
TUNDRA	ACCESS CAB	Q–4	Q–4	Q–4
HIGHLANDER	All Models	R–5	R–5	–

*1 This seat belt was supplied by TOKAI RIKA. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.



*2 This seat belt was supplied by QSS. Make sure that the I/D mark on the back side of the seat belt buckle is the same as shown.

NOTE:

The seat belt extender must not be used for the center rear seat belt.

Part Number Information

PART NUMBER PREFIX: 73399–					
SERIES	**LENGTH**				
	6 INCH	**9 INCH**	**12 INCH**	**15 INCH**	**18 INCH**
R–5	–16060	–16070	–16080	–16090	–16100
N–1	–12060	–12070	–12080	–12090	–12100
N–5	–20110	–20120	–20130	–20140	–20150
N–6	–20160	–20170	–20180	–20190	–20200
N–7	–47010	–47020	–47030	–47040	–47050
K–5	–35010	–35020	–35030	–35040	–35050
A–2	–01060*****	–01070	–01080	–01090	–01100
Q–2	–06010	–06020	–06030	–06040	–06050
Q–4	–0W010	–0W020	–0W030	–0W040	–0W050
S–1	–04010	–04020	–04030	–04040	–04050
S–2	–04060	–04070	–04080	–04090	–04100
T–1	–01110	–01120	–01130	–01140	–01150

***** Length: 7-1/4”

Owner Instructions

Failure to follow the recommendations indicated below could result in reduced effectiveness of the seat belt restraint system in case of vehicle collision, causing personal injury.

The Seat Belt Extender must not be used:

a. By anyone other than for whom it was provided (name recorded on seat belt extender).

b. In any vehicle and/or seat position other than the one for which it was provided.

c. When the Seat Belt Extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when in use.

If your seat belt cannot be fastened securely because it is not long enough, a personalized Seat Belt Extender is available from your Toyota dealer free of charge.

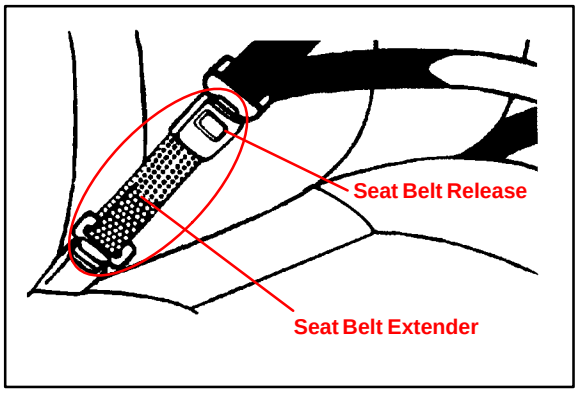
Please contact your local Toyota dealer so that the dealer can order the proper required length for the extender. Bring the heaviest coat you expect to wear for proper measurement and selection of length. Additional ordering information is available at your Toyota dealer.

CAUTION:

When using the Seat Belt Extender, observe the following. Failure to follow these instructions could result in reduced effectiveness of the seat belt restraint system in case of vehicle accident, increasing the chance of personal injury.

- **Never use the Seat Belt Extender if you can COMFORTABLY fasten the seat belt without it.**
- **The Seat Belt Extender must never be used with any child safety seats.**
- **Remember that the extender provided for you may not be safe when used on a different vehicle, or for another person or at a different seating position than the one originally intended for.**

To connect the extender to the seat belt, insert the tab into the seat belt buckle so that the "PRESS" signs on the buckle-release buttons of the extender and the seat belt are both facing outward as shown.



You will hear a click when the tab locks into the buckle.

When releasing the seat belt, press on the buckle-release button on the extender, not on the seat belt. This helps prevent damage to the vehicle interior and extender itself.

When not in use, remove the extender and store in the vehicle for future use.

SEAT BELT EXTENDER WORKSHEET

PLEASE COPY THIS ORIGINAL WORKSHEET FOR EACH EXTENDER NEEDED

CAUTIONS:

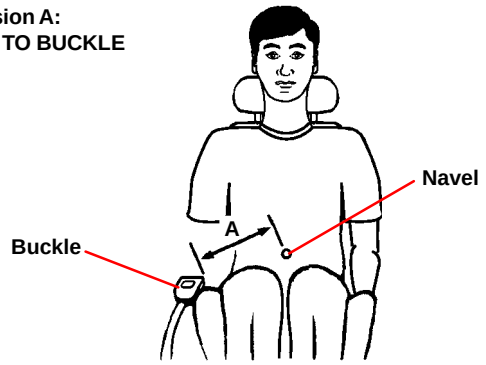
- **To minimize the chance and/or severity of injury in an accident, the Seat Belt Extender must only be used:**
  1 By the person for whom it was provided.
  2 In the seat position for which it was provided.
- **The Seat Belt Extender must never be used with any child safety seats.**
- **When the Seat Belt Extender is provided for rear seat positions (with automatic locking retractor), make sure the retractor is locked when extender belt is in use.**

DEALER			SEAT BELT EXTENDER APPLICATION		APPLICANT		
DEALER CODE	DEALER NAME		APPLICANT NAME				
ADDRESS			ADDRESS				
CITY & STATE		ZIP	CITY & STATE		ZIP	PHONE	
EMPLOYEE NAME	MODEL YEAR	BODY TYPE	SEATING POSITION	VEHICLE IDENTIFICATION NUMBER			

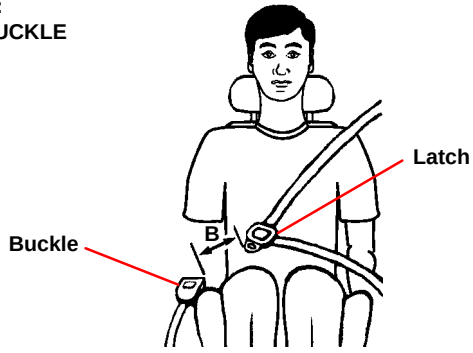
DIRECTIONS FOR DETERMINING PROPER EXTENDER LENGTH

1. **Place the seat in the position the applicant normally uses.**
2. **With the applicant in the seat, wearing the thickest coat expected to be worn, pull belt all the way out and try to buckle belt.**
   - **If belt latches into buckle and feels comfortable against upper chest area, an extender is not needed.**
   - **If belt does not buckle, continue with Step 3.**
   - **If buckle latches but belt has no slack remaining, continue with Step 3.**
3. **Measure distance between applicant's navel and seat belt buckle (Dimension A) and enter on Worksheet.**
4. **With belt all the way out, measure distance between latch tip and buckle tip (Dimension B) and enter on Worksheet.**
   NOTE: If belt latches but there is no slack enter zero as Dimension B.
5. **Subtract Dimension B from Dimension A and record number in Check Number box on Worksheet.**
6. **Seat Belt Extender length is Dimension B rounded up to next extender length (without exceeding Check Number).**
   NOTE: If extender length exceeds Check Number, an extender <u>cannot</u> be provided to the customer.

Dimension A:
NAVEL TO BUCKLE



Dimension B:
LATCH TO BUCKLE



SEAT BELT EXTENDER CALCULATION		
DIMENSION A:	DIMENSION B:	CHECK NUMBER:

SEAT BELT EXTENDER AUTHORIZATION

- ***The same Seat Belt Extender can be used for right and left seating applications.*** **Each Seat Belt Extender will have a label identifying the owner, VIN and seating position. Seat Belt Extenders are available only in black.**
- **Applicant's Signature:**_____ **Date:**_____
  (Actual user of seat belt extender)

TOYOTA

Technical Service BULLETIN

November 3, 2000

Title:

HEADLIGHT SERVICEABILITY

Models:

'00 MR2 Spyder

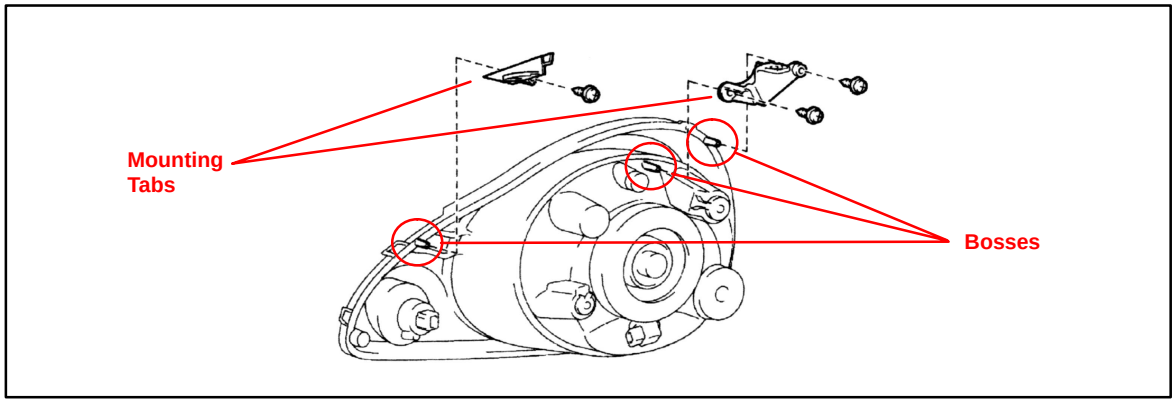
TSB

BODY

BO029-00

Introduction

To improve the serviceability of the 2000 model year MR2 Spyder headlight, bosses have been added to the headlights. If a headlight mounting tab is damaged, the headlight can be reused by following the procedure on page 2.



Production Change Information

MODEL	STARTING VIN
2000 MY MR2 Spyder	JTDFR320#Y0017384

Parts Information

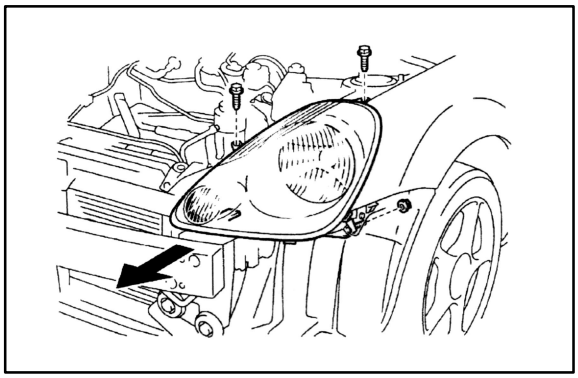
PART NUMBER	PART NAME
81193-17010	Retainer, Headlight Protector (Mounting Tab), Upper RH
81194-17010	Retainer, Headlight Protector (Mounting Tab), Upper LH
81195-17010	Retainer, Headlight Protector (Mounting Tab), Lower RH
81196-17010	Retainer, Headlight Protector (Mounting Tab), Lower LH

Warranty Information

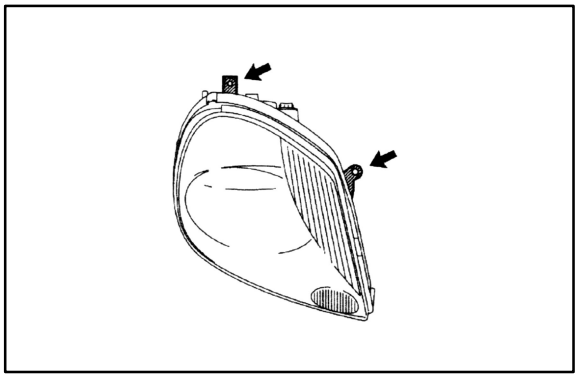
OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Repair Procedure

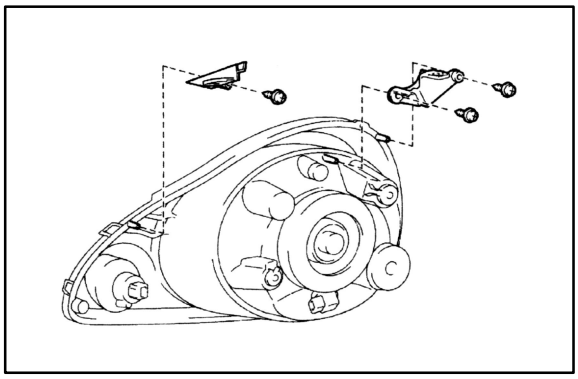
1. Remove the front bumper cover. Refer to the 2000 model year MR2 Spyder Repair Manual, page BO-4.
2. Remove the luggage compartment trim box cover.
3. Remove the headlight assembly.
   A. Remove the 2 bolts and 1 nut.
   B. Disconnect the connectors.
   C. Remove the headlight as shown.
   D. Use the same procedure to remove the other side, if necessary.



4. If the mounting tabs are damaged, cut off the mounting tabs at the base of the housing.



5. Install the new mounting tabs with the provided screws to the base of the housing.
6. Reinstall the headlight assembly and other components in the reverse order of disassembly.



TOYOTA

Technical Service BULLETIN

December 7, 2001

Title:

WINDSHIELD WIPER BLADE MAINTENANCE AND CLEANING

Models:

All Models & All Years Through Current

TSB

BODY
REVISED
BO030-01

TSB REVISION NOTICE:

July 13, 2004: The Applicable Vehicles has been changed to all models and all years through current.
All previous versions of this TSB should be discarded.

Introduction

The following procedures are recommended to maintain windshield wiper blade performance.

Applicable Vehicles

- **All models and model years through current.**

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Maintenance, Cleaning and Use

Recommendations for Windshield Wiper Maintenance, Cleaning and Use:

1. Scheduled Maintenance
   - Check wiper rubber blades every 4 – 6 months or 7,500 miles for wear, cracking and contamination.
   - Clean glass and rubber wiper blades if blades are not clearing glass adequately. If this does not correct the problem, then replace the rubber elements.
2. Cleaning Procedure
   - Wiper Rubber: Bugs, dirt, sap and road grime on blades will cause streaking. Clean wiper rubber of road and environmental debris using cloth or paper towel soaked with windshield washer fluid or mild detergent.
   - **DO NOT USE** fuel, kerosene, or petroleum based products to clean rubber wiper blades.
   - Windshield: Bugs, road grime, sap and car wash wax treatments decrease wiper performance.
   - Rinse windshield with water and apply non–abrasive cleaner, such as Bon–Ami (www.faultless.com), with a sponge.

NOTE:

Make sure to use plenty of water with all powder based cleaners so the glass is not scratched.

Maintenance, Cleaning and Use (Continued)

3. Contributors to Poor Performance/Decreased Rubber Blade Life (require rubber replacement)
   - Dusty areas cause the rubber edge to wear quickly.
   - Sand and salt used for road conditioning during winter causes the edge to wear quickly, so areas with significant snowfall require more frequent wiper replacement.
   - Heat and time cause the rubber to become excessively “permanent set,” so the rubber does not turn over, resulting in streaking and/or unwiped areas on the glass.
   - Rubber is easily cut or torn while using ice scrapers on the glass.
   - Rubber can be torn when pulling blades off a frozen windshield.
   - Using wipers instead of an ice scraper to remove frost and ice from the windshield during a car warm up can dull, nick, or tear the rubber.
   - Banging wiper on the glass to remove ice & snow can cause the blade to bend and rubber to come out of the blade providing the potential to scratch the glass.
   - Ice forms in wiper blade pin joints, which causes streaking and unwiped areas. To remove ice from pin joints, compress the blade and rubber with your hand to loosen the frozen joints. To prevent this condition, use winter blades with a rubber cover.

TOYOTA

Technical Service BULLETIN

January 28, 2000

Title:

2000 MODEL YEAR PAINT CODES

Models:

All '00 Models

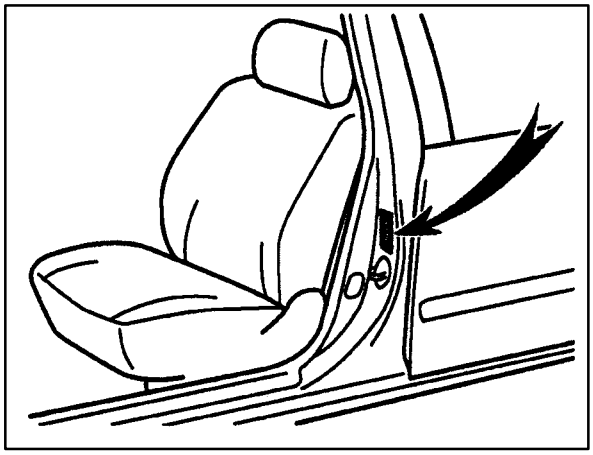
TSB

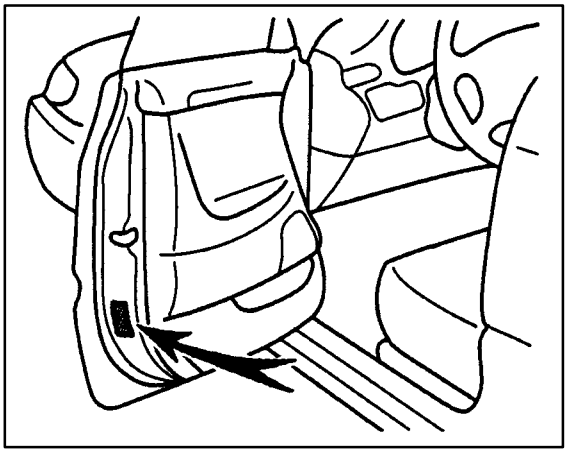
Introduction

Attached for your reference is a list of all 2000 model year OEM paint codes.

NOTE:

The body color code is on the vehicle Certification Regulation Label, located on the left front door "B" Pillar or door rear lower surface.





Please contact your local paint representative for the actual paint mixing formulas or if you need help in color matching.

Applicable Vehicles

- **All 2000 Models.**

Warranty Information

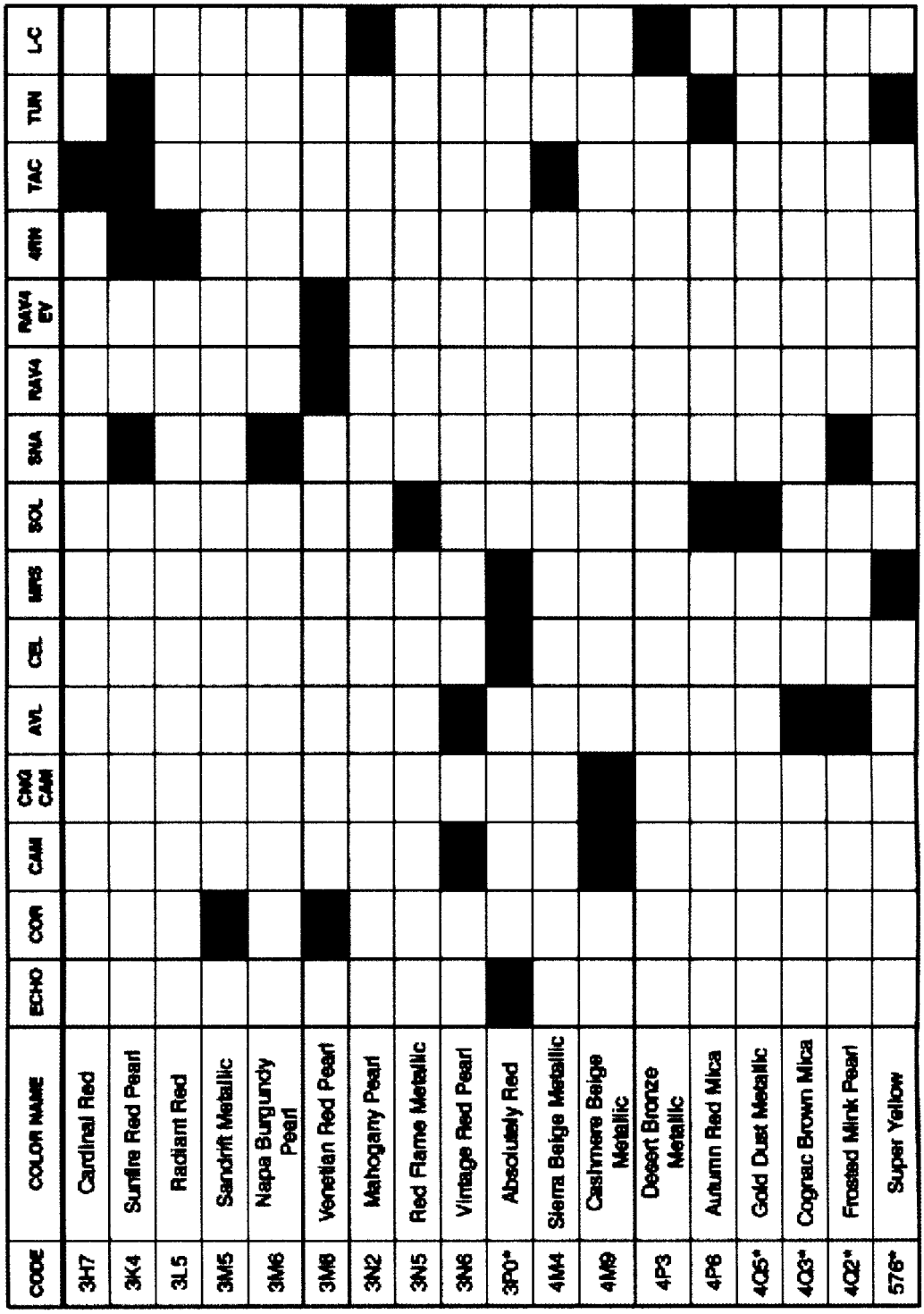
OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Paint Codes & Color Names

CODE	COLOR NAME	ECHO	COR	CAM	CNG CAM	AVL	CEL	MIR8	SOL	SNA	RAV4	RAV4 EV	4RN	TAC	TUN	L-C
056	Natural White															
040	Super White															
051	Diamond White Pearl															
1A0	Platinum Metallic															
1A5	Desert Dune Pearl															
199	Alpine Silver Metallic															
1B1	Champagne Pearl															
1B2	Antique Sage Pearl															
1B9	Quicksilver FX															
1C0	Millennium Silver Metallic															
1C3	Riverock Green Mica															
1C4	Silverstream Opalescence															
1C6*	Graphite Gray Pearl															
1C7*	Thunder Gray Metallic															
1C8	Lunar Mist Metallic															
1D0*	Liquid Silver Metallic															
202	Black															
209*	Black Sand Pearl															
210*	Carbon Blue															

* New colors for the 2000 model year.

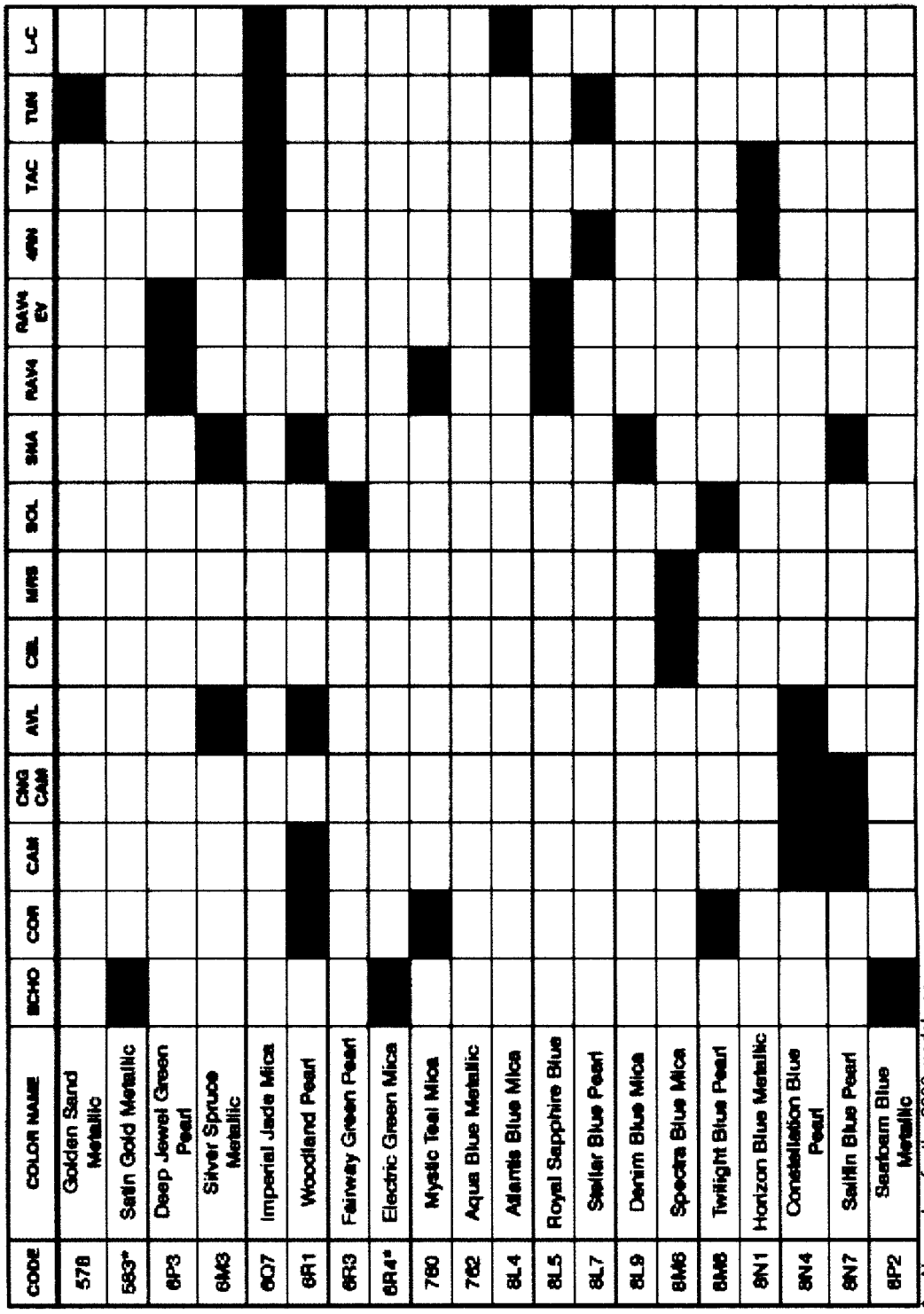
Paint Codes & Color Names (Continued)



CODE	COLOR NAME	ECHO	COR	CAM	CW0 CAM	AVL	CEL	MRS	SOL	SNA	RAV4	RAV4 EV	4RN	TAC	TUN	LC
3H7	Cardinal Red															
3K4	Sunfire Red Pearl									■			■	■	■	
3L5	Radiant Red												■			
3M5	Sandrift Metallic		■													
3M6	Napa Burgundy Pearl									■						
3M8	Venetian Red Pearl		■								■	■				
3N2	Mahogany Pearl															■
3N5	Red Flame Metallic								■							
3N6	Vintage Red Pearl			■		■										
3P0*	Absolutely Red	■					■	■								
4M4	Sierra Beige Metallic													■		
4M9	Cashmere Beige Metallic			■	■											
4P3	Desert Bronze Metallic														■	
4P8	Autumn Red Mica								■						■	
4Q5*	Gold Dust Metallic								■							
4Q3*	Cognac Brown Mica					■										
4Q2*	Frosted Mink Pearl					■				■						
576*	Super Yellow							■							■	

* New colors for the 2000 model year.

Paint Codes & Color Names (Continued)



CODE	COLOR NAME	ECHO	CON	CAM	CNG CAM	AVL	CBL	MRS	SOL	SNA	RAV4	RAV4 EV	4RN	TAC	TUN	LAC
578	Golden Sand Metallic														■	
583*	Satin Gold Metallic	■														
6P3	Deep Jewel Green Pearl										■	■				
6M3	Silver Spruce Metallic					■				■						
6G7	Imperial Jade Mica												■	■	■	■
6R1	Woodland Pearl		■	■		■				■			■			
6R3	Fairway Green Pearl								■							
6R4*	Electric Green Mica	■														
760	Mystic Teal Mica		■								■					
762	Aqua Blue Metallic															
8L4	Atlantis Blue Mica															■
8L5	Royal Sapphire Blue											■	■			
8L7	Stellar Blue Pearl														■	
8L9	Denim Blue Mica									■						
8M6	Spectra Blue Mica						■	■								
8M8	Twilight Blue Pearl		■						■							
8N1	Horizon Blue Metallic												■	■		
8N4	Constellation Blue Pearl			■	■	■										
8N7	Sailfin Blue Pearl			■	■					■						
8P2	Seafoam Blue Metallic	■														

* New colors for the 2000 model year.

TOYOTA

Technical Service BULLETIN

June 14, 2002

Title:

REFINISHING REPLACEMENT BUMPER COVERS

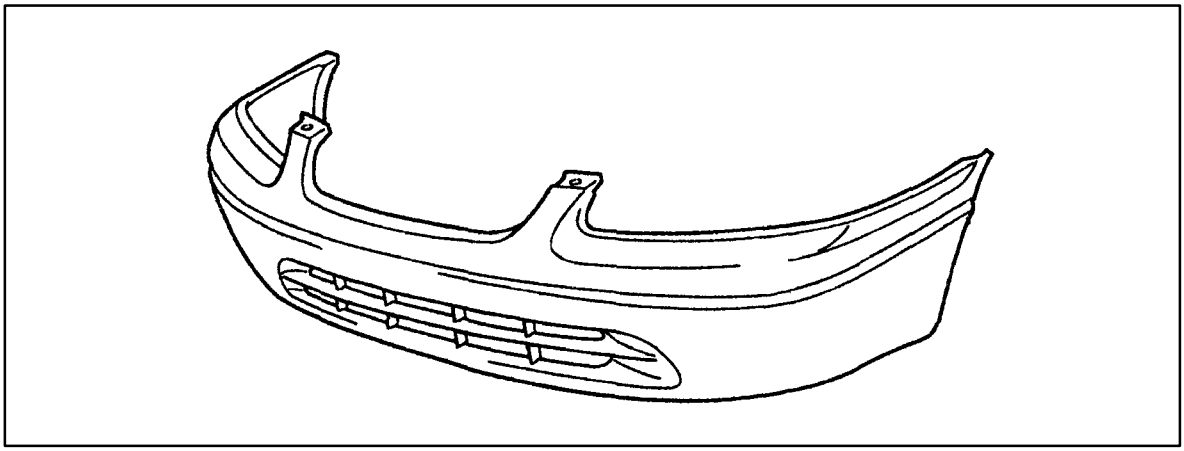
Models:

All '83 – '03 Models

TSB

Introduction

In cases where a bumper cover is being replaced, a special preparation process is necessary to assure the refinish is customer acceptable. This bulletin provides the recommended refinishing procedure for new bumper covers.



Applicable Vehicles

- **All 1983 – 2003** model year **Toyota** vehicles.

Required Tools & Material

TOOLS & MATERIALS	QUANTITY
Mild Soap — Ph neutral (no wax type)	3M™ Car Shampoo (or equivalent)
Sanding Pad	3M™ ScotchBrite (Gray) 37448
Sanding Paste	See Paint Manufacturer's Recommendations
Wax, Grease, & Silicone Remover	
Plastic Part Adhesion Promoter	
Primer and Paint	

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Refinishing Procedure

1. Mix a solution of mild soap (car wash soap with no wax additives) and clean water.

NOTE:

Carefully follow mixing instructions on the soap container. Too much soap or too much water may cause surface contamination or rinsing difficulty.

Refinishing Procedure (Continued)

2. **Scrub** the bumper covers with the soap and water solution, making sure all difficult–to–reach areas are thoroughly cleaned.
3. Rinse the entire bumper cover with clean deionized water, making sure all difficult–to–reach areas are thoroughly rinsed.
4. Dry the surface with a clean towel before water dries on the surface. Clean, dry compressed air from an oil–less compressor may be substituted for drying with a towel.
5. Degrease the surface with a wax, grease, and silicone remover.

NOTE:

Lacquer thinner or brake cleaner will NOT remove silicone. You MUST use a wax, grease, and silicone remover. Carefully follow application instructions on the container label. Fish eyes or other paint irregularities may result from not following instructions.

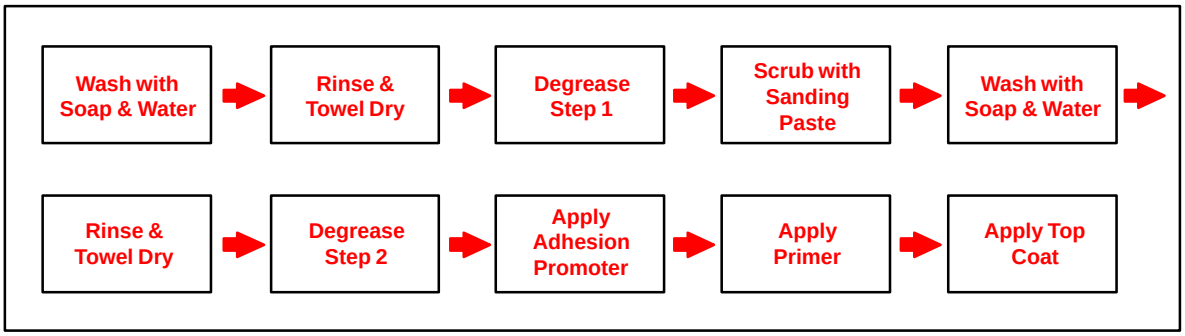
6. Apply a generous amount of sanding paste with a gray 3M™ ScotchBrite pad. Only a gray pad should be used during the sanding process. Sand the entire bumper cover surface. Be sure all difficult–to–reach areas are thoroughly sanded.
7. Clean the entire bumper cover with car wash soap and water. Be sure all difficult–to–reach areas are thoroughly cleaned.
8. Rinse the entire bumper with clean deionized water. Be sure all difficult–to–reach areas are thoroughly rinsed.
9. Degrease the surface with an anti–static plastic parts cleaner and a white body shop towel or paper towel.

NOTE:

Never use a red shop towel to wipe the surface (contains silicone).

10. Assure the bumper is firmly held in place to a steady fixture.
11. Apply a plastic parts adhesion promoter to the surface, according to the manufacturer's recommendations.
12. Apply plastic parts primer to the surface, according to the paint manufacturer's recommendations.
13. Since bumpers are made of flexible plastic urethane material, use a two–part urethane finish paint system with plasticizer (flex agent) for all bumper and cladding repairs. Apply the appropriate top coat to the surface, according to the paint manufacturer's recommendations.
14. If heat is applied to cure the paint, assure the surface temperature does not exceed 80°C (176°F.)

For additional information concerning the refinish process for plastic bumpers/cladding, please contact your respective refinish paint manufacturer's local representative.



TOYOTA

Technical Service BULLETIN

March 1, 2004

Title:

A/C COMPRESSOR INSTALLATION PROCEDURE

Models:

Applicable Models

TSB

Introduction

Use the following tip when installing an A/C compressor on the AZ or ZZ series engine to ensure proper belt alignment. Improper installation of the A/C compressor may result in abnormal belt noise or wear.

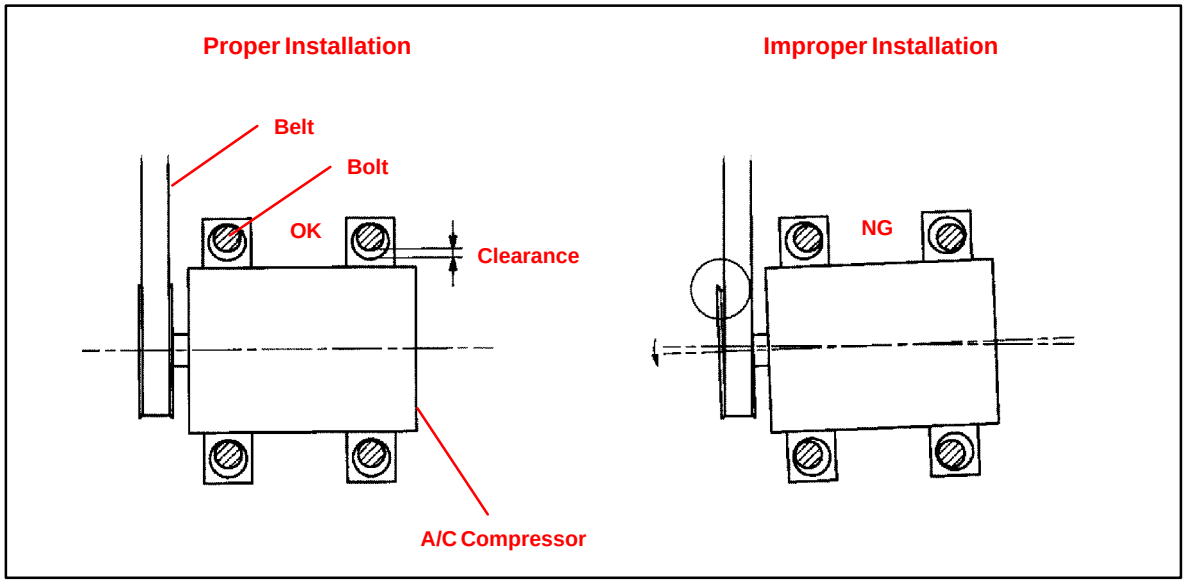
Applicable Vehicles

- **1998 – Current** model year **Corolla** vehicles.
- **2000 – Current** model year **Celica** vehicles.
- **2000 – Current** model year **MR2 Spyder** vehicles.
- **2001 – Current** model year **Highlander** vehicles **equipped with 4 cylinder engine.**
- **2001 – Current** model year **RAV4** vehicles.
- **2002 – Current** model year **Camry** vehicles **equipped with 4 cylinder engine.**
- **2002 – Current** model year **Solara** vehicles **equipped with 4 cylinder engine.**
- **2003 – Current** model year **Matrix** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Installation Procedure



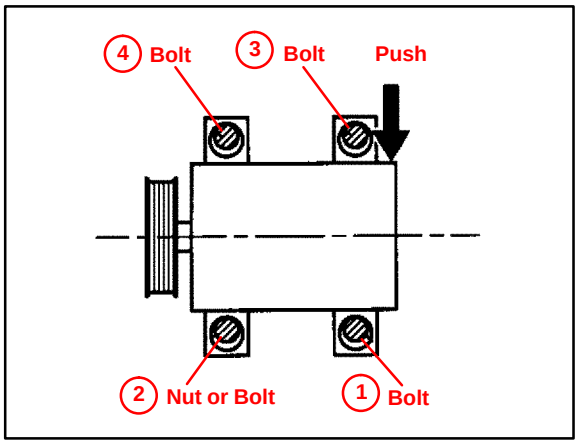
Installation Procedure (Continued)

1. AZ Series Engine: Install A/C Compressor

A. Loosely install the compressor (with the 3 bolts and nut or 4 bolts.)

Push down on the rear side of the compressor and tighten the bolts/nut in the order shown.

Torque: 24.5 N•m (250 kgf•cm, 18 ft•lbf)

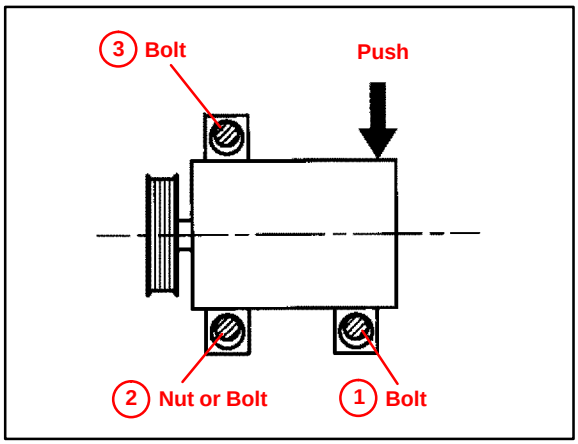


2. ZZ Series Engine: Install A/C Compressor

A. Loosely install the compressor (with the 2 bolts and nut or 3 bolts).

Push down on the rear side of the compressor and tighten the bolts/nut in the order shown.

Torque: 29 N•m (295 kgf•cm, 21 ft•lbf)



TOYOTA

Technical Service BULLETIN

October 8, 1999

Title:

ENGINE IMMOBILIZER SYSTEM PRECAUTIONS

Models:

All Models

TSB

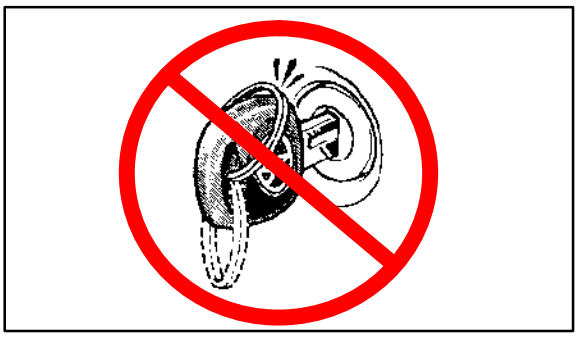
REVISION NOTICE:

The information contained in this TSB updates EL001–98 dated January 23, 1998.

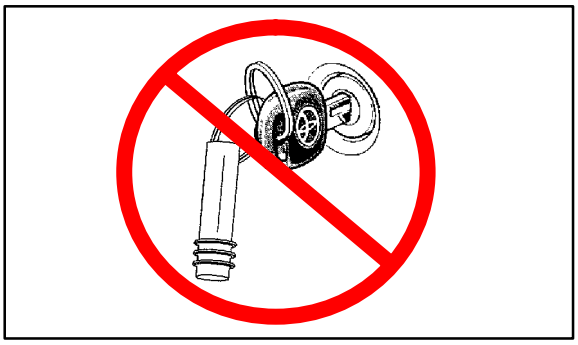
Introduction

This bulletin applies to 1998 and newer Toyota vehicles. When using an immobilizer key containing a transponder chip, observe the following precautions while starting the engine.

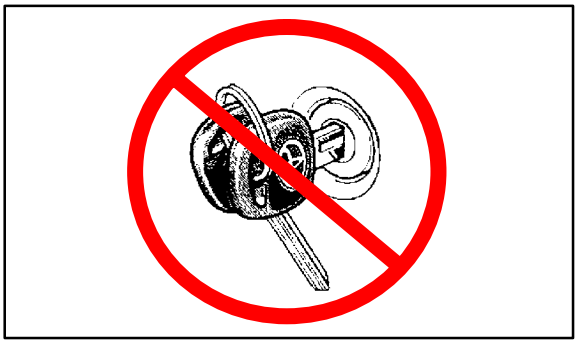
1. The key ring should **not** rest on or be pressed against the key grip.



2. Do **not** place any other transponder devices on the same key ring. Such devices would include transponder equipped units used for charging fuel.



3. Do **not** place any other immobilizer keys on the same key ring with the key used to start the vehicle.
4. If the above precautions are not observed and an engine starting or running problem occurs, remove all items which may interfere with the ignition key transponder signal. Turn off the engine and then restart.



Applicable Vehicles

- **All Toyota models equipped with an engine immobilizer system.**

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

December 20, 2002

Title:

WIRELESS TRANSMITTER & PROGRAMMING GUIDE

Models:

All Applicable

TSB

REVISED

ELECTRICAL

EL008-02

TSB REVISION NOTICE:

- **February 28, 2003: In Wireless Transmitter Identification section (pages 5 and 6), Figures 5, 9, 10, 12, and 13 updated to include 2003 model year; Figure 11 updated to include 1999 and 2003 model year.**
- **January 17, 2003: 2003 model year added to Solara in the Application Chart on page 3.**
- **The information contained in this TSB supercedes TSB EL010–01, dated October 26, 2001. The previous TSB, EL010–01, should be discarded.**

Introduction

Difficulties during Remote Keyless Entry Transmitter Programming can arise due to confusion between Toyota Factory Wireless systems and Toyota Port/Dealer installed systems. This bulletin will assist in identifying the system/correct remote transmitters for each vehicle, and provide the location of the most accurate programming procedure for each system.

Applicable Vehicles

- All applicable **Toyota** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

System Identification

The following table contains all of the necessary information to correctly identify the type of system installed, and where to go to get programming procedures for each vehicle.

NOTE:

Should a vehicle having both VIP and Factory systems available (as identified in the following table) be brought in without any remotes (or one non–working remote), use the following tips to help determine which type of wireless system (O.E. or PIO/DIO) the vehicle has.

- **Look at the Trim Level of the vehicle. Higher–grade vehicles will tend to have O.E. systems, while entry–grade vehicles will tend to have VIP. For example, the 2001 Camry XLE has Factory RKE, but the LE and CE grades have VIP.**
- **Look for a "Status Monitor" with a glass breakage sensor and an LED externally installed into the dashboard or on the center console. Most VIP systems will have this.**
- **Locate the ECU (refer to the applicable vehicle VIP Manual installation instructions for location). Once located, refer to the part label.**
- **Attempt to perform the factory wireless programming procedure to get a response from the vehicle. Select the "confirmation mode" and see if any "Lock/Unlock" response is received, if so, the vehicle has a factory system.**

Application Chart

APPLICATION		DEALER/PORT INSTALLED		FACTORY INSTALLED	
VEHICLE	**YEAR**	**SYSTEM/REMOTE**	**PROGRAMMING**	**FACTORY REMOTE**	**PROGRAMMING**
Avalon	1995	TVSS / Fig. 2 *1	TVSS Owner's Guide	Fig. 8	TSB – EL003–99
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 1999	RS3000 / Fig. 4		Fig. 9 *2	RM 02 V2, BE–99
	2000 – 2001	RS3200 / Fig. 5	2000 VIP Manual *6		TSB – EL004–01
	2002 – 2003	N/A	N/A		
Camry	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996	RS3000 / Fig. 3	TSB – AX005–99		
	1997			Fig. 7	TSB – EL008–98
	1998 – 1999	RS3000 / Fig. 4			
	2000 – 2001	RS3200 / Fig. 5 or 6 *7	2000 VIP Manual *6	Fig. 11	RM 01 V2, BE–86
	2002 – 2003			Fig. 9 *2	TSB – EL004–01
Celica	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 1999	RS3000 / Fig. 4			
	2000 – 2003	RS3200 / Fig. 5	2000 VIP Manual *6	Fig. 11	TSB – EL004–01
Corolla	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 2002	RS3000 / Fig. 4			
	2003	RS3200 / Fig. 5	2000 VIP Manual *6	Fig. 11	TSB – EL004–01
Cressida	1991 – 1992	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
ECHO	2000 – 2003	RS3200 / Fig. 5	2000 VIP Manual *6	Fig. 11	TSB – EL004–01
4Runner	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
	1999			Fig. 10 *5	RM 02 V2, BE–98
	2000 – 2002	RS3200 / Fig. 5	2000 VIP Manual *6		
	2003	N/A	N/A		RM 03, 73–16
Highlander	2001 – 2003	N/A	N/A	Fig. 11	TSB – EL004–01
Land Cruiser	1991 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 2002	N/A	N/A	Fig. 13	RM 02 V1, DI–624
	2003				RM 03 V2, BE–93

Application Chart (Continued)

APPLICATION		DEALER/PORT INSTALLED		FACTORY INSTALLED	
VEHICLE	**YEAR**	**SYSTEM/REMOTE**	**PROGRAMMING**	**FACTORY REMOTE**	**PROGRAMMING**
Matrix	2003	N/A	N/A	Fig. 11	TSB – EL004–01
MR2	1991 – 1994	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	2001 – 2003	RS3200 *3 / Fig.5	2003 VIP Manual		
Paseo	1992 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
Previa	1991 – 1994	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
Prius	2001 – 2003	N/A	N/A	Fig. 11	TSB – EL004–01
RAV4	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99	N/A	N/A
	1998 – 2000	RS3000 / Fig. 4			
	2001 – 2003	RS3200 / Fig. 5	2000 VIP Manual *6	Fig. 11	TSB – EL004–01
Sequoia	2001 – 2003	N/A	N/A	Fig. 10 *5	RM 03 V2, BE–105
Sienna	1998	RS3000 / Fig. 4	TSB – AX005–99	Fig. 7	TSB – EL009–98
	1999			Fig. 11 / Fig. 12	
	2000	RS3000 / Fig.4 *4			
	2001 – 2002	RS3200 / Fig. 5	2000 VIP Manual *6		RM 02 V2, BE–87
	2003	N/A	N/A		RM 03 V2, BE–91
Solara	1999 – 2001	RS3000 / Fig. 4	TSB – AX005–99	Fig. 11	RM 02 V2, BE–87
	2002–2003	N/A	N/A	Fig. 9 *2	
Supra	1991 – 1992	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TDSE / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
T100	1993 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
Tacoma	1995	TVSS / Fig. 2 *1	TSB – AX005–99	N/A	N/A
	1996 – 1997	RS3000 / Fig. 3			
	1998 – 2001	RS3000 / Fig. 4			
	2002	RS3200 / Fig. 5	2000 VIP Manual *6		
	2003	RS3200*3 / Fig. 5	2003 VIP Manual *6		

Application Chart (Continued)

APPLICATION		DEALER/PORT INSTALLED		FACTORY INSTALLED	
VEHICLE	**YEAR**	**SYSTEM/REMOTE**	**PROGRAMMING**	**FACTORY REMOTE**	**PROGRAMMING**
Tercel	1991 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
Truck	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
Tundra	2000 – 2001	RS3000 / Fig. 4	TSB – AX005–99	N/A	N/A
	2002 – 2003	RS3200*3 / Fig. 5	2003 VIP Manual		

*1 Original style TVSS/TDSE system remotes are no longer available as replacement parts. Black RS3000 remotes (Figure 3) can be used with these systems.

*2 While the outward appearances are the same, there are 3 different remotes of this style (not interchangeable). Check the FCC ID Number on the back of the remote to verify correct application:
- Avalon 1998 – 1999 FCC ID: HYQ1512Y / 2000 – 2003 FCC ID: HYQ12BAN
- Camry/Solara 2002 – 2003 FCC ID: GQ43VT14T

*3 This is a variant of the RS3200 TDS system, which does not include the security functions. The VIP manual outlines programming procedures used on these vehicles.

*4 RS3200 was launched prior to the 2001 MY Change Over. Please refer to the 2000 VIP Manual if necessary.

*5 While the outward appearances are the same, there are 2 different remotes of this style (not interchangeable). Check the FCC ID Number on the back of the remote to verify correct application:
- 1999 – 2002 4Runner – FCC ID: HYQ1512Y
- Sequoia / 2003 4Runner – FCC ID: HYQ12BAN

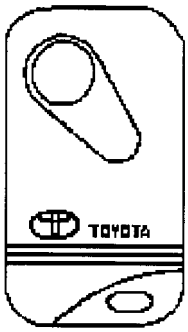
*6 RS3200 programming procedures were sent as a supplement to the 2000 VIP Manual. This information can now be found on the TIS system.

*7 The RS3200 system was only available on early production vehicles in the 2003 model year.

Wireless Transmitter Identification

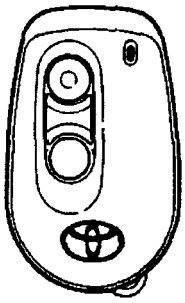
DEALER or PORT INSTALLED SYSTEMS

Figure 1.



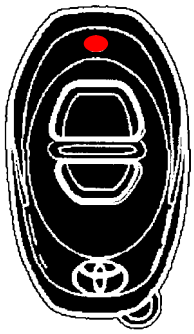
TVSS/TDSE
1990 – 1994

Figure 2.



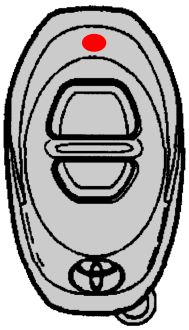
TVSS/TDSE
1995

Figure 3.



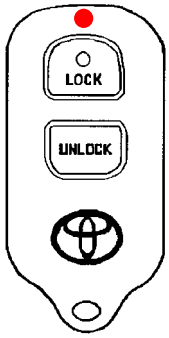
RS3000 (BLACK)
1996 – 1997

Figure 4.



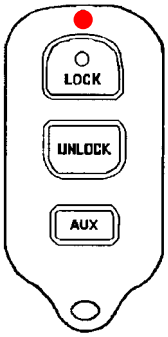
RS3000 (GRAY)
1998 – 2002

Figure 5.



RS3200*
2000 – 2003

Figure 6.



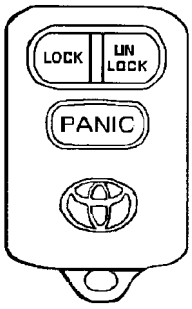
RS3200*
2000 – 2002

* Panic Button on Back Side

Wireless Transmitter Identification (Continued)

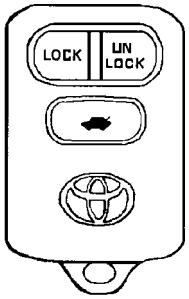
FACTORY INSTALLED or "ORIGINAL EQUIPMENT" SYSTEMS

Figure 7.



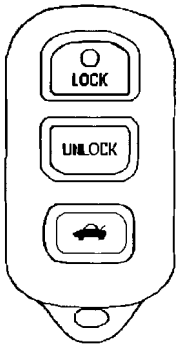
O.E. 3 Button
1997 – 1999

Figure 8.



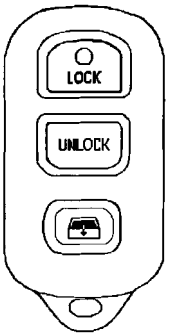
O.E. 3 Button
1995 – 1997

Figure 9.



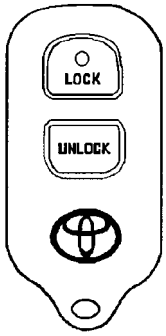
O.E. 4 Button*
1998 – 2003

Figure 10.



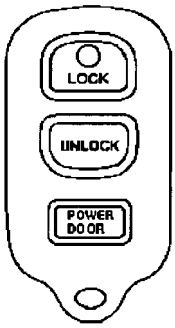
O.E. 4 Button*
1999 – 2003

Figure 11.



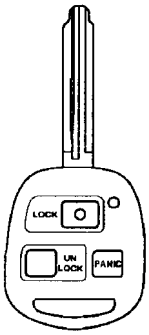
O.E. 3 Button*
1999 – 2003

Figure 12.



O.E. 4 Button*
1999 – 2003

Figure 13.



O.E. In–Key
1998 – 2003

* Panic Button on Back Side

TOYOTA

Technical Service BULLETIN

October 26, 2001

Title:

WIRELESS TRANSMITTER & PROGRAMMING GUIDE

Models:

All Applicable

TSB

ELECTRICAL

EL010-01

Introduction

Difficulties during Remote Keyless Entry Transmitter Programming can arise due to confusion between Toyota Factory Wireless systems and Toyota Port/Dealer installed systems. This bulletin will assist in identifying the system/correct remote transmitters for each vehicle, and provide the location of the most accurate programming procedure for each system.

Applicable Vehicles

- All applicable Toyota vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

System Identification

The following table contains all of the necessary information to correctly identify the type of system installed, and where to go to get programming procedures for each vehicle.

NOTE:

Should a vehicle having both VIP and Factory systems available (as identified in the following table) be brought in without any remotes (or one non–working remote), use the following tips to help determine which type of wireless system (O.E. or PIO/DIO) the vehicle has.

- **Look at the Trim Level of the vehicle. Higher–grade vehicles will tend to have O.E. systems, while entry–grade vehicles will tend to have VIP. For example, the 2001 Camry XLE has Factory RKE, but the LE and CE grades have VIP.**
- **Look for a "Status Monitor" with a glass breakage sensor and an LED externally installed into the dashboard or on the center console. Most VIP systems will have this.**
- **Locate the ECU (refer to the applicable vehicle VIP Manual installation instructions for location). Once located, refer to the part label.**
- **Attempt to perform the factory wireless programming procedure to get a response from the vehicle. Select the "confirmation mode" and see if any "Lock/Unlock" response is received, if so, the vehicle has a factory system.**

Application Chart

APPLICATION		DEALER/PORT INSTALLED		FACTORY INSTALLED	
VEHICLE	**YEAR**	**SYSTEM/REMOTE**	**PROGRAMMING**	**FACTORY REMOTE**	**PROGRAMMING**
Avalon	1995	TVSS / Fig. 2 *1	TVSS Owner's Guide	Fig. 8	TSB – EL003–99
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 1999	RS3000 / Fig. 4		Fig. 9 *2	RM 02 V2, BE–99
	2000 – 2001	RS3200 / Fig. 5	2000 VIP Manual *6		
	2002	N/A	N/A		
Camry	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996	RS3000 / Fig. 3	TSB – AX005–99		
	1997			Fig. 7	TSB – EL008–98
	1998 – 1999	RS3000 / Fig. 4			
	2000 – 2001	RS3200 / Fig. 5 or 6	2000 VIP Manual *6	Fig. 11	RM 01 V2, BE–86
	2002			Fig. 9 *2	RM 02 V2, 73–8
Celica	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 1999	RS3000 / Fig. 4			
	2000 – 2002	RS3200 / Fig. 5	2000 VIP Manual *6	Fig. 11	TSB – EL004–01
Corolla	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 2002	RS3000 / Fig. 4			
Cressida	1991 – 1992	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
ECHO	2000 – 2002	RS3200 / Fig. 5	2000 VIP Manual *6	Fig. 11	TSB – EL004–01
4Runner	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
	1999			Fig. 10 *5	RM 02 V2, BE–98
	2000 – 2002	RS3200 / Fig. 5	2000 VIP Manual *6		
Highlander	2001 – 2002	N/A	N/A	Fig. 11	TSB – EL004–01
Land Cruiser	1991 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998 – 2002	N/A	N/A	Fig. 13	RM 02 V1, DI–624
MR2	1991 – 1994	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	2001 – 2002	RS3200 *3 / Fig.5	2000 VIP Manual *6		

Application Chart (Continued)

APPLICATION		DEALER/PORT INSTALLED		FACTORY INSTALLED	
VEHICLE	**YEAR**	**SYSTEM/REMOTE**	**PROGRAMMING**	**FACTORY REMOTE**	**PROGRAMMING**
Paseo	1992 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
Previa	1991 – 1994	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
Prius	2001 – 2002	N/A	N/A	Fig. 11	TSB – EL004–01
RAV4	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99	N/A	N/A
	1998 – 2000	RS3000 / Fig. 4			
	2001 – 2002	RS3200 / Fig. 5	2000 VIP Manual *6	Fig. 11	TSB – EL004–01
Sequoia	2001 – 2002	N/A	N/A	Fig. 10 *5	RM 02 V2, BE–100
Sienna	1998	RS3000 / Fig. 4	TSB – AX005–99	Fig. 7	TSB – EL009–98
	1999	RS3000 / Fig. 4		Fig. 11 / Fig. 12	
	2000	RS3000 / Fig.4 *4			
	2001 – 2002	RS3200 / Fig. 5	2000 VIP Manual *6		RM 02 V2, BE–87
Solara	1999 – 2001	RS3000 / Fig. 4	TSB – AX005–99	Fig. 11	RM 02 V2, BE–87
	2002	N/A	N/A	Fig. 9 *2	
Supra	1991 – 1992	TDSE / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TDSE / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
T100	1993 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
Tacoma	1995	TVSS / Fig. 2 *1	TSB – AX005–99	N/A	N/A
	1996 – 1997	RS3000 / Fig. 3			
	1998 – 2001	RS3000 / Fig. 4			
	2002	RS3200 / Fig. 5	2000 VIP Manual *6		
Tercel	1991 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
	1996 – 1997	RS3000 / Fig. 3	TSB – AX005–99		
	1998	RS3000 / Fig. 4			
Truck	1990 – 1994	TVSS / Fig. 1 *1	TVSS Owner's Guide	N/A	N/A
	1995	TVSS / Fig. 2 *1			
Tundra	2000 – 2002	RS3000 / Fig. 4	TSB – AX005–99	N/A	N/A

Application Chart (Continued)

*1 Original style TVSS/TDSE system remotes are no longer available as replacement parts. Black RS3000 remotes (Figure 3) can be used with these systems.

*2 While the outward appearances are the same, there are 3 different remotes of this style (not interchangeable). Check the FCC ID Number on the back of the remote to verify correct application:
- Avalon 1998 – 1999 FCC ID: HYQ1512Y / 2000 – 2002 FCC ID: HYQ12BAN
- Camry/Solara 2002 FCC ID: GQ43VT14T

*3 The MR2 Spyder uses a variant of the RS3200 TDS system, which does not include the security functions. RS3200 programming procedures should be used for this vehicle.

*4 RS3200 was launched prior to the 2001 MY Change Over. Please refer to the 2000 VIP Manual if necessary.

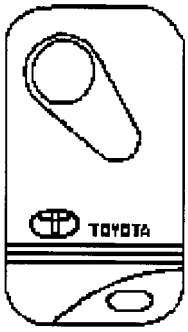
*5 The Sequoia and 4Runner remotes look the same but have different FCC ID Numbers (not interchangeable):
- 4Runner – FCC ID: HYQ1512Y
- Sequoia – FCC ID: HYQ12BAN

*6 RS 3200 programming procedures were sent as a supplement to the 2000 VIP Manual. If you require an additional copy of this information, it can be ordered from the Material Distribution Center (MDC) through your parts department: P/N 00107–00282–04.

Wireless Transmitter Identification

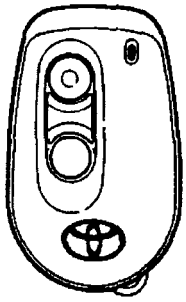
DEALER or PORT INSTALLED SYSTEMS

Figure 1.



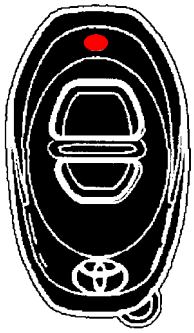
TVSS/TDSE
1990 – 1994

Figure 2.



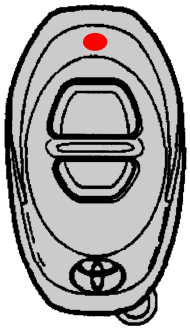
TVSS/TDSE
1995

Figure 3.



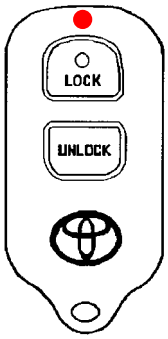
RS3000 (BLACK)
1996 – 1997

Figure 4.



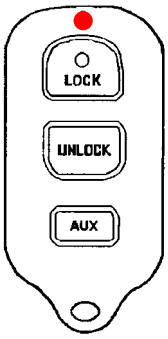
RS3000 (GRAY)
1998 – 2002

Figure 5.



RS3200
2000 – 2002

Figure 6.

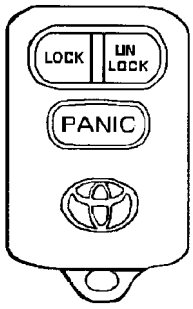


RS3200
2000 – 2002

Wireless Transmitter Identification (Continued)

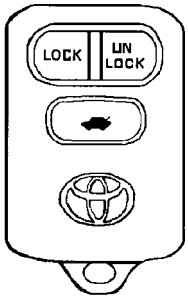
FACTORY INSTALLED or "ORIGINAL EQUIPMENT" SYSTEMS

Figure 7.



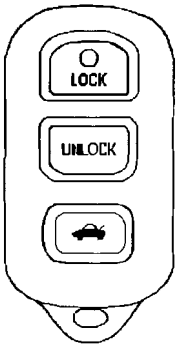
O.E. 3 Button
1997 – 1999

Figure 8.



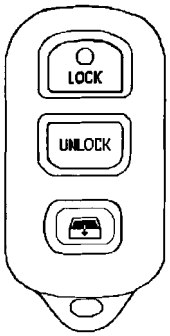
O.E. 3 Button
1995 – 1997

Figure 9.



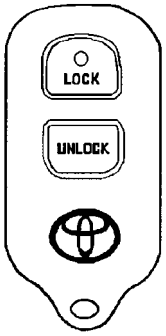
O.E. 4 Button*
2000 – 2002

Figure 10.



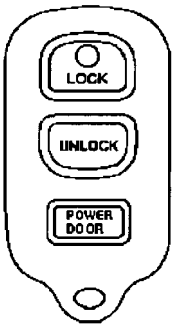
O.E. 4 Button*
1999 – 2002

Figure 11.



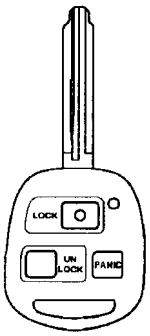
O.E. 3 Button*
2000 – 2002

Figure 12.



O.E. 4 Button*
1999 – 2002

Figure 13.



O.E. In–Key
1998 – 2002

* Panic Button on Back Side

TOYOTA

Technical Service BULLETIN

October 6, 2000

Title:

DAYTIME RUNNING LIGHT DISABLING PROCEDURE

Models:

All Models

TSB

Introduction

Some customers may request to have the Daytime Running Lights (DRL) on their Toyota vehicle disabled. These customers may live or work in military bases or in communities that have light–sensitive gates or guardhouses. This bulletin provides instructions for disabling the feature on the Toyota vehicles listed below. If the Daytime Running Lights (DRL) have been previously disabled, the information in this bulletin can be used to enable the feature at the request of the customer.

IMPORTANT:

Please be sure the customer is informed that when the Daytime Running Lights (DRL) are being disabled, although it is not required by the Federal Motor Vehicle Safety Standards for safety compliance, it has been listed as a safety feature in advertising brochures. In addition, on models equipped with the Twilight Sentinel feature, the headlights will be defaulted to a manual system and will no longer function automatically.

Applicable Vehicles

- **All Models** equipped with **Daytime Running Lights (DRL)** (see chart below).

Parts Information

TOOLS & MATERIALS	QUANTITY
Wire Harness Repair Kit	1

NOTE:

After referencing the chart, proceed to the repair procedure on the following pages.

Reference Chart

MODEL	MODEL YEAR	ECU	CONNECTOR	PIN#	EWD PG#
Avalon	1999	DRL Main Relay	D4	1	110
	2000	Body ECU	B5	6	99
Camry S/D*	1999	DRL Main Relay	D6	23	102
	2000			10	96
Camry Solara*	1999/2000			23	102/96
Celica*	2000	Body ECU	B6	17	75
Corolla*	1999/2000	DRL Main Relay	D3	23	84/72
ECHO	2000		D2	12	67
4Runner	2000		D8	2	99
Land Cruiser	1999/2000				90/88
MR2 Spyder	2000		D2	12	69
RAV4	1999/2000		D17	2	72/70
Sienna	1999/2000		D4		83/81
Tacoma	2000		D8		115
Tundra	2000		D7		95

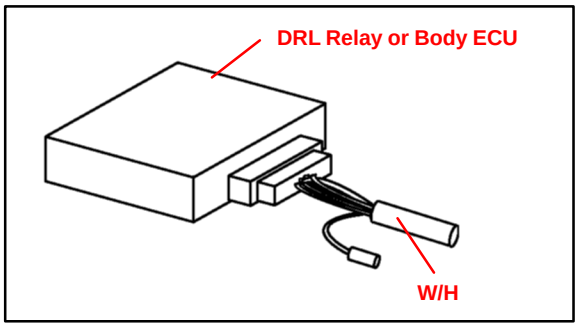
* Vehicles equipped with Twilight Sentinel.

Warranty Information

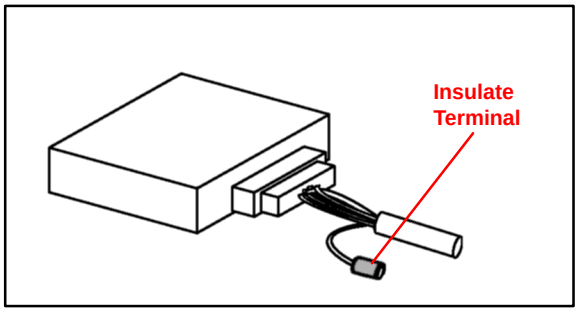
OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Repair Procedure

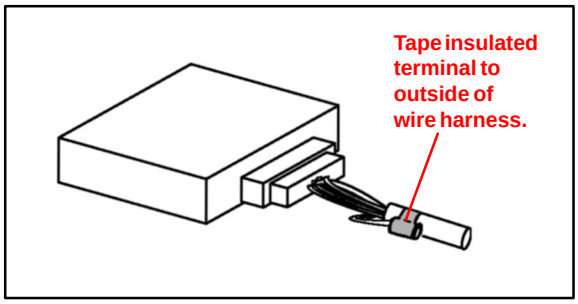
1. Disconnect the Battery.
2. Use the locking pick tool from the wire harness repair kit and back out the terminal from the appropriate connector for the DRL Relay or Body ECU. See the Reference Chart on Page 1 of this bulletin for pin and connector information.



3. Insulate the removed terminal using vinyl electrical tape.



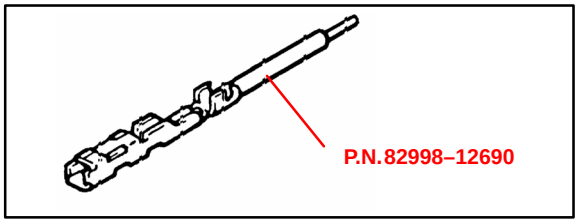
4. Secure the wire and terminal to the outside of the wire harness using vinyl electrical tape.



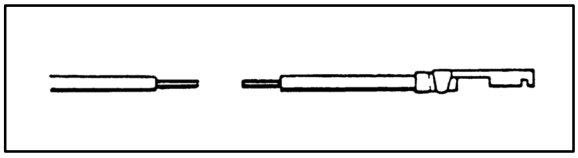
NOTE:

For the 2000 MY Avalon, proceed to Step 5. For all remaining models, proceed to Step 6.

5. For 2000 model year Avalon:
   A. Order a new terminal with lead that is the same size and type as the terminal previously removed from the connector. (PN 82998–12690)

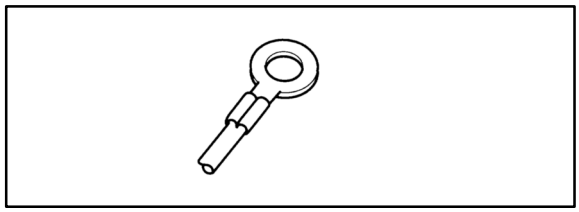


   B. Securely attach a 45 cm/ 18 in wire with an outside diameter of 2.0 mm or larger to the tail of the new terminal.



Repair Procedure

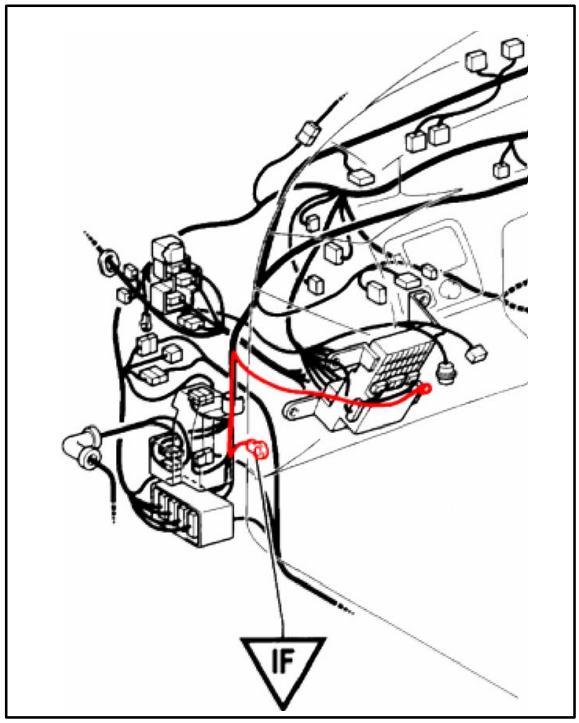
C. Securely attach an eyelet with a hole size of 7 mm to the end of the new wire.



D. Insert the new terminal with lead into the Body ECU Connector B5, previously vacated by the original terminal.

E. Properly attach and route the new wire to the exterior of the existing wire harness in a manner that will not allow it to become damaged or come into contact with any other circuits.

F. Securely attach the eyelet to the existing ground point located in the left kick panel area. (Ground Point IF)



6. Check that the Daytime Running Light (DRL) operation has been disabled.
7. Reassemble any interior panels that were removed to gain access to components, connectors, etc.

TOYOTA

Technical Service BULLETIN

July 21, 2000

Title:

A/C COMPRESSOR MAINTENANCE FOR STORED VEHICLES

Models:

All Models

TSB

Introduction

When a vehicle is stored for a long period (more than one month), the volume of oil in the A/C compressor may decrease due to oil flow into the condenser, pipes, etc.

If the A/C system is turned on at high engine RPM after a long storage period, A/C compressor damage may result.

To minimize the possibility of damage to the A/C compressor while storing a vehicle, perform the following recommended maintenance procedure at least once a month to lubricate the compressor.

Maintenance Procedure

Recommended Maintenance Procedure For A/C Compressor Lubrication:

1. Turn off A/C and blower switches prior to starting engine.
2. Start and warm–up engine until engine speed drops below 1,000 RPM.
3. Turn on the A/C system (including the rear A/C) using the following settings:
   - A/C switch: On
   - Blower Speed: High
   - Engine Speed: Below 1,000 RPM
4. Keep A/C on with engine idling for at least 30 seconds.
5. Turn off A/C system and stop engine.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

March 1, 2004

Title:

A/C COMPRESSOR INSTALLATION PROCEDURE

Models:

Applicable Models

TSB

Introduction

Use the following tip when installing an A/C compressor on the AZ or ZZ series engine to ensure proper belt alignment. Improper installation of the A/C compressor may result in abnormal belt noise or wear.

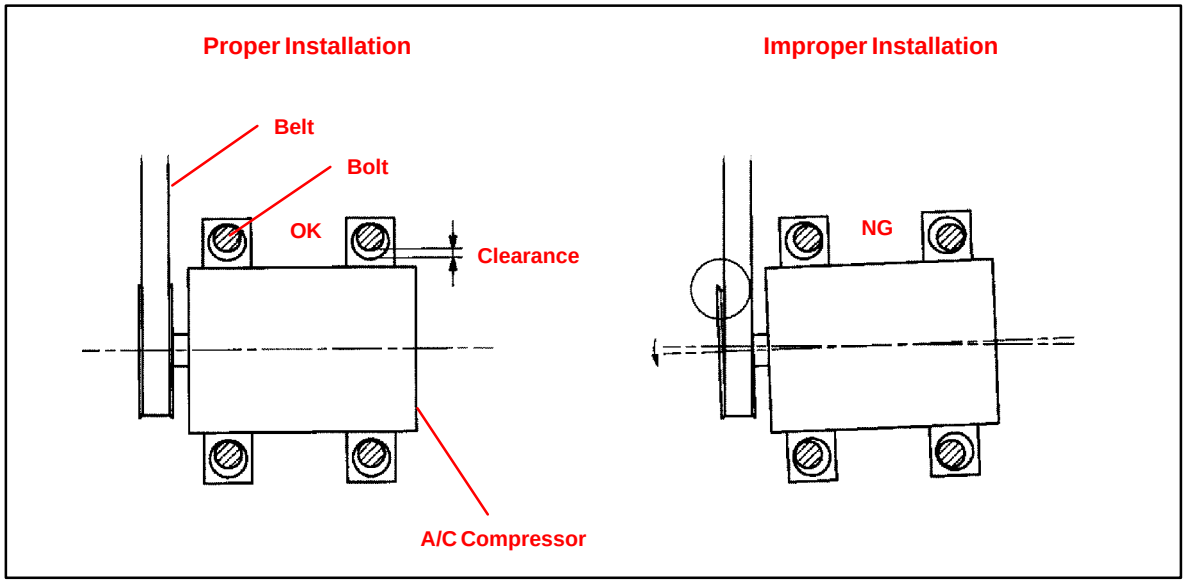
Applicable Vehicles

- **1998 – Current** model year **Corolla** vehicles.
- **2000 – Current** model year **Celica** vehicles.
- **2000 – Current** model year **MR2 Spyder** vehicles.
- **2001 – Current** model year **Highlander** vehicles **equipped with 4 cylinder engine.**
- **2001 – Current** model year **RAV4** vehicles.
- **2002 – Current** model year **Camry** vehicles **equipped with 4 cylinder engine.**
- **2002 – Current** model year **Solara** vehicles **equipped with 4 cylinder engine.**
- **2003 – Current** model year **Matrix** vehicles.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Installation Procedure



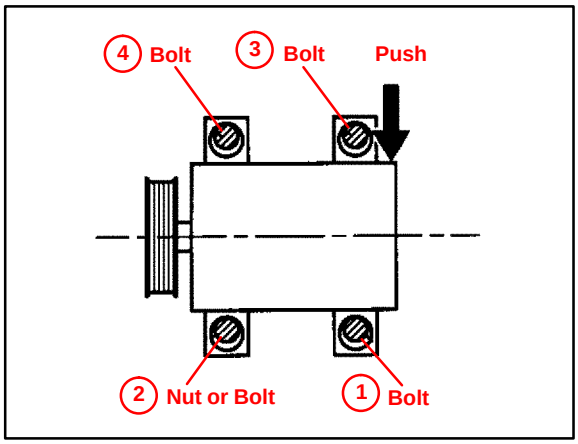
Installation Procedure (Continued)

1. AZ Series Engine: Install A/C Compressor

A. Loosely install the compressor (with the 3 bolts and nut or 4 bolts.)

Push down on the rear side of the compressor and tighten the bolts/nut in the order shown.

Torque: 24.5 N•m (250 kgf•cm, 18 ft•lbf)

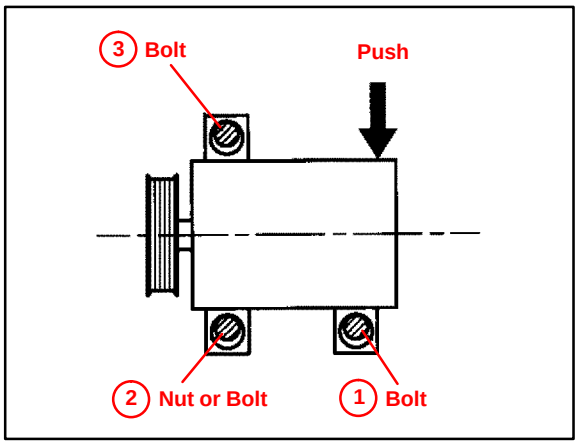


2. ZZ Series Engine: Install A/C Compressor

A. Loosely install the compressor (with the 2 bolts and nut or 3 bolts).

Push down on the rear side of the compressor and tighten the bolts/nut in the order shown.

Torque: 29 N•m (295 kgf•cm, 21 ft•lbf)



TOYOTA

Technical Service BULLETIN

March 17, 2000

Title:

TOYOTA "DINGHY" TOWING GUIDE

Models:

All Models

TSB

Introduction

The chart on the next page indicates which Toyota vehicles can be Dinghy towed (towed with four wheels on the ground) behind a Motorhome.

CAUTION:

Dinghy towing a vehicle behind a Motorhome requires special towing equipment and accessories. Please see your Motorhome Manufacturer / Service Outlet for recommended towing equipment.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Affected Vehicles

- **All Models**

YEAR	MODEL	DINGHY TOWABLE		SPEED/DISTANCE LIMITS
		M/T	A/T	
1995 – 2000	Avalon	Not Towable		–
1992 – 2000	Camry	Yes	No	None
1999 – 2000	Solara	Yes	No	None
1994 – 1999	Celica	Yes	No	None
2000	Celica GT	Yes	No	None
2000	Celica GT–S	Yes	–	None
		–	Yes	55 MPH / 200 Miles
1993 – 2000	Corolla	Yes	No	None
2000	ECHO	Yes	No	None
1992 – 2000	Land Cruiser	Not Towable		–
2000	MR2 Spyder	Yes	N/A	None
1996 – 1998	Paseo	Yes	No	None
1992 – 1997	Previa 2WD	Not Towable		–
1992 – 1997	Previa 4WD	Not Towable		–
1998 – 2000	Sienna	Not Towable		–
1994 – 1999	Supra	Not Towable		–
1996 – 2000	RAV4 2WD	Yes	No	None
1996 – 2000	RAV4 4WD	Yes	No	None
1995 – 1998	Tercel	Yes	No	None
1996 – 2000	4Runner 2WD	Not Towable		–
1996 – 2000	4Runner 4WD	Not Towable		–
1995 – 2000	Tacoma 2WD	Not Towable		–
1995 – 2000	Tacoma 4WD	Not Towable		–
1993 – 1999	T100 2WD	Not Towable		–
1993 – 1999	T100 4WD	Not Towable		–
2000	Tundra 2WD	Not Towable		–
2000	Tundra 4WD	Not Towable		–

NOTE:

After "Dinghy" Towing, or at the recommended distance limits, let the Engine idle for more than 3 minutes before operating the vehicle or resuming towing.

NOTE:

Vehicles that are Dinghy towable will not sustain internal damage to the transmission or transfer components, as long as speed/distance limits are observed. The transmission must be placed in the "neutral" position when Dinghy towing. Dinghy towing these vehicles does not eliminate the possibility of damage to other vehicle systems (Body, Chassis, Electrical Systems, etc.).

TOYOTA

Technical Service BULLETIN

March 9, 2001

Title:

RETRO-FIT INTERNAL TRUNK RELEASE KITS

Models:

All Applicable '90 – '00 Models

TSB

ACCESSORIES

AX001-01

Introduction

In order to respond to requests of our valued customers, we are offering Retro–Fit Internal Trunk Release Kits. These kits allow the trunk to be opened from the inside in case of entrapment.

Applicable Vehicles

MODEL	MODEL CODE	MODEL YEAR	# CLAMPS
Avalon	MCX10	1995 – 1999	4
	MCX20	2000	4
Camry	SXV10, MCV10, VCV10	1992 – 1996	4
	SXV20, MCV20	1997 – 2000	4
Celica (Coupe)	AT200, ST204	1994 – 1999	4
Corolla (Sedan)	AE10#	1993 – 1997	4
	ZZE110	1998 – 2000	5
ECHO	NCP12	2000	4
MR2	SW20, 21	1990 – 1995	2
Paseo	EL44	1992 – 1995	4
	EL54	1996 – 1999	4
Solara	SXV20, MCV20	1999 – 2000	4
Tercel	EL42	1991 – 1994	4
	EL53	1995 – 1999	4

Parts Information

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
–	64640–33030	Trunk Release
–	64610–17040	Trunk Release (MR2 Only)
–	90464–00551	Clamp
–	MDC 00107–00316–TR	Installation Instructions

Installation Procedure

Order the appropriate trunk release, at least as many clamps as listed above, and a set of installation instructions. Follow the installation procedure detailed in the installation instructions. Installation time is 0.7 hours.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

April 14, 2000

Title:

RS3000 TVIP AUTOMATIC DOOR LOCK FEATURE PROGRAMMING

Models:

All Models

TSB

Introduction

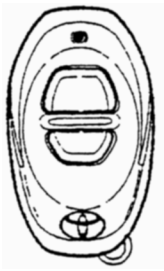
As a convenience feature, the RS3000 TVIP system is programmed to automatically lock all of the vehicle's doors (for vehicles equipped with power door locks) when the ignition key is turned to "ON" or "START", and unlock them when the key is turned back to "ACC" or "LOCK". The initial factory setting of this programmable feature is "ON". For some customers however, this feature is not desirable due to instances of passenger lockout when the driver enters the vehicle first and starts the ignition.

For vehicles equipped with RS3000 TVIP, this bulletin advises the dealers to communicate the following information to the customers at vehicle delivery:

1. Inform the customers of the RS3000 system's automatic (ignition controlled) door lock/unlock feature.
2. Inquire about the customers' preference for it to be set "ON" or "OFF".
3. Reprogram the feature's setting according to the customer's preference.

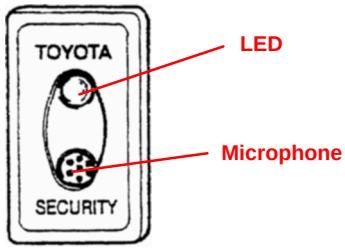
To change the feature's operation mode, follow the programming procedures on page 2.

Verification of the Dealer–Installed Option (DIO) or Port–Installed Option (PIO) RS3000 TVIP System can easily be performed by identifying the status monitor and remote transmitter.



Remote Control

- **The remote transmitter** has two buttons, Top and Bottom.



Status Monitor

- **The status monitor** has a Toyota label, LED, and microphone.

Applicable Vehicles

- **All models** equipped with DIO or PIO RS3000 TVIP.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Programming Procedure

AUTOMATIC (IGNITION–CONTROLLED) DOOR LOCKING/UNLOCKING FUNCTION

The factory setting for the Automatic Door Locking/Unlocking Function is “ON”.

To change this feature’s operation, follow the steps below:

1. Sit in the driver’s seat with driver’s door open.
2. Insert the key into the ignition switch, and turn it to “ON” position (not “ACC”) 5 times (ON > LOCK > ON > LOCK > ON > LOCK > ON > LOCK > ON) within a 10 second period.

System Response: The STATUS MONITOR’s LED turns on, and the PIEZO BUZZER sounds once.

> **NOTE:**
> **You must perform the next steps within 30 seconds.**

3. Select the customer’s preferred operating mode.

Mode	Programming Step	Programming Completion
AUTOMATIC DOOR LOCKING/UNLOCKING **“ON”**	Close the driver’s door.	Turn the ignition switch to the “LOCK” position. **System Response:** The PIEZO BUZZER sounds once, and the exterior lights flash once.
AUTOMATIC DOOR LOCKING/UNLOCKING **“OFF”**	Close the driver’s door, then open and close it one more time.	Turn the ignition switch to the “LOCK” position. **System Response:** The PIEZO BUZZER sounds twice, and the exterior lights flash twice.

TOYOTA

Technical Service BULLETIN

April 28, 2000

Title:

SQUEAK NOISE FROM FRONT OF VEHICLE

Models:

'00 MR2 Spyder

TSB

NVH

NV008–00

Introduction

Shorter front license plate bracket mounting bolts have been adopted to prevent the possibility of a squeak noise from the front of the vehicle.

Applicable Vehicles

- **2000** model year **MR2 Spyder**

Production Change Information

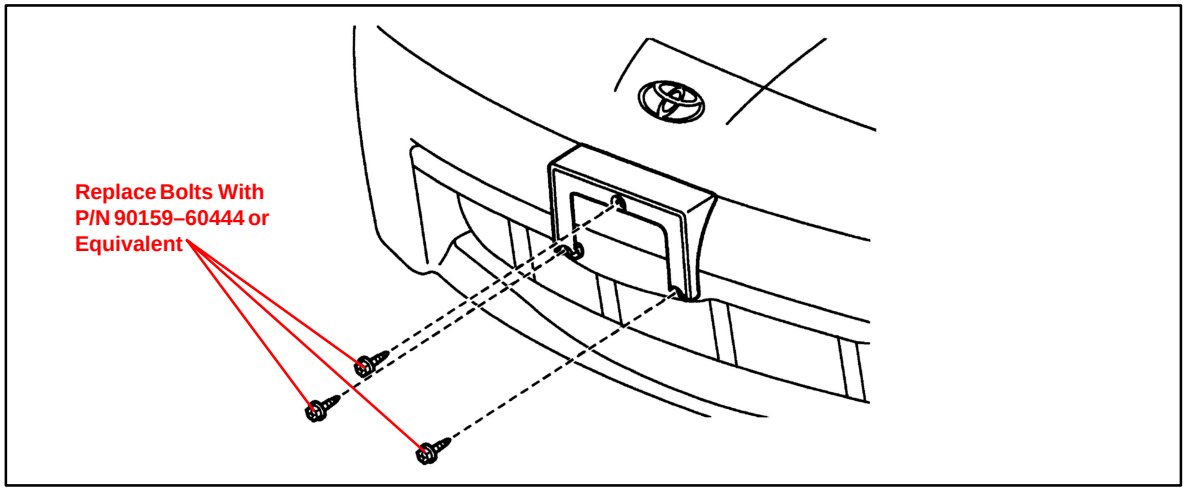
MODEL	STARTING VIN
2000 MR2 Spyder	JTDFR320*Y0005168

Parts Information

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME	QUANTITY
90159–60215	90159–60444	Bolt	3

Repair Procedure

Replace the front license plate bracket mounting bolts with P/N 90159–60444 or equivalent (M6 x 2.5 x 20 mm).



Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
BD0010	R & R Front License Plate Bracket Bolts	0.2	90159–60215	91	44

Applicable Warranty*:

This repair is covered under the Toyota Basic Warranty. This warranty is in effect for 36 months or 36,000 miles, whichever occurs first, from the vehicle's in–service date.

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

TOYOTA

Technical Service BULLETIN

June 2, 2000

Title:

SQUEAK & RATTLE SERVICE TIPS

Models:

'00 MR2 Spyder

TSB

NVH

NV011–00

Introduction

To reduce interior squeaks and rattles on the 2000 model year MR2 Spyder, material has been added between parts at several locations. The following repair procedures have been adopted.

Applicable Vehicles

- **2000** model year **MR2 Spyder**

Tools & Material

TOOLS & MATERIALS	PART NUMBER
Interior Noise Kit	08231–00801
High Performance Penetrating Lubricant (or equivalent)	00530–1PL00
Kent® Acrysol (or equivalent)	Kent® P/N 60170

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
BD0017	Push Instrument Panel Forward & Retighten Bolt	0.1	55311–17070–C0	91	44
EL0002	Add Felt to Passenger Airbag Brackets	0.2	55313–17010		
BD0018	Add EPT Sealer to Convertible Top	0.4	65911–17010		
BD0019	Apply Lubricant to Convertible Top B–Link	0.1	65950–17010		
BD0020	Bend Luggage Compartment Lid Striker	0.1	6441X–17XX0–C0		
BD0021	Add Felt to Luggage Compartment Box	0.2	64270–17210		
BD0022	Reposition Cup Holder Bracket	0.3	55604–17010–C0		
BD0023	Add EPT Sealer to Instrument Panel Lower Finish Panel	0.2	55046–17010–C0		
BD0024	Add EPT Sealer to Power Door Lock Connector	0.4	690X0–17130		

Applicable Warranty*:

This repair is covered under the Toyota Basic Warranty. This warranty is in effect for 36 months or 36,000 miles, whichever occurs first, from the vehicle's in–service date.

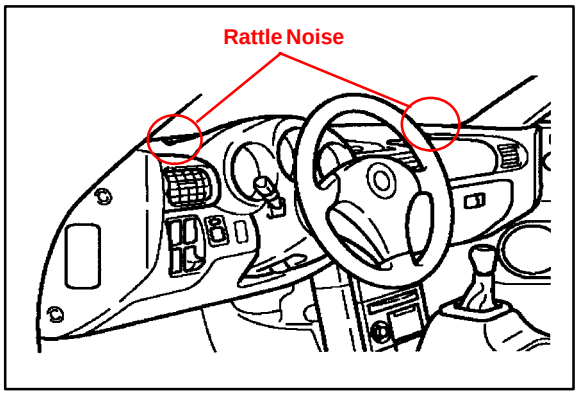
* Warranty application is limited to correction of a problem based upon a customer's specific complaint.

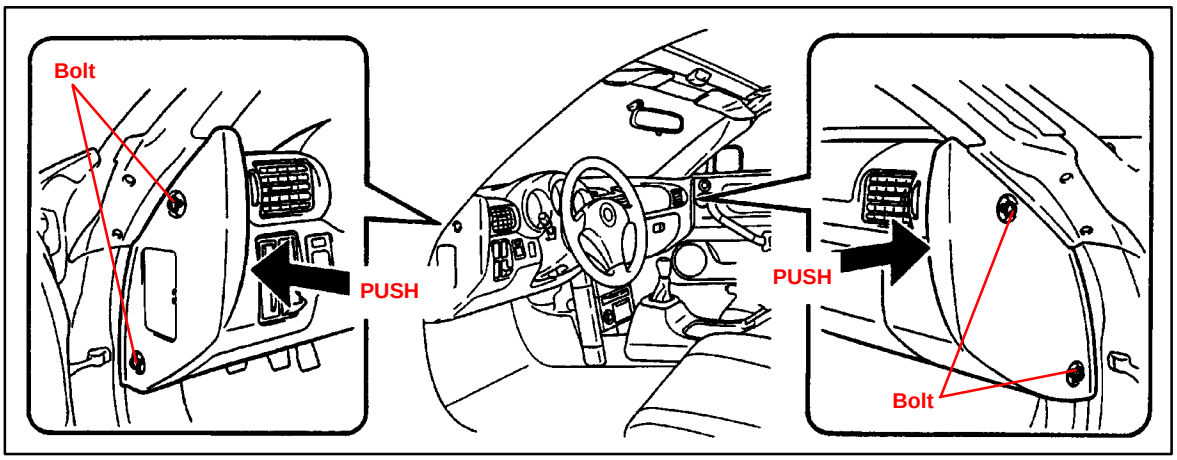
Repair Procedure

Instrument Panel Rattle Noise

To eliminate a rattle noise from the upper instrument panel area:

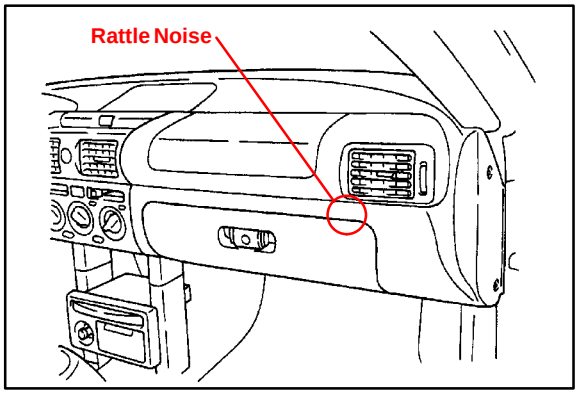
1. Loosen the two (2) bolts on each side of the instrument panel.
2. While another technician pushes forward on the instrument panel, retighten the bolts as shown below.





Passenger Airbag Cutoff Switch Rattle Noise

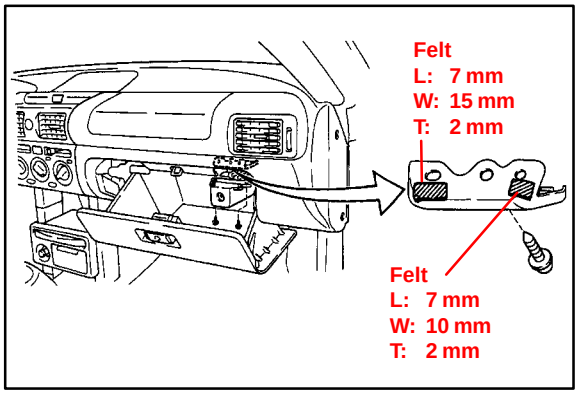
To eliminate a rattle noise from the airbag cutoff switch area:



1. Remove the two (2) bolts that hold the passenger airbag cutoff switch in place.
2. Cut two (2) pieces of felt in the following dimensions:

QTY	L	W	T
1	7 mm	15 mm	2 mm
1	7 mm	10 mm	2 mm

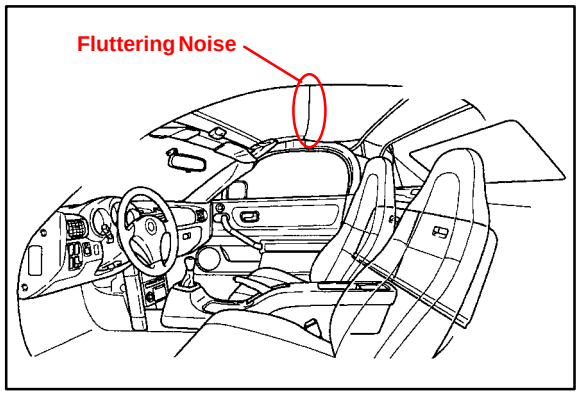
3. Fit felt pieces in the positions shown.
4. Reassemble in the reverse order of disassembly.



Repair Procedure (Continued)

Convertible Top Fluttering Noise

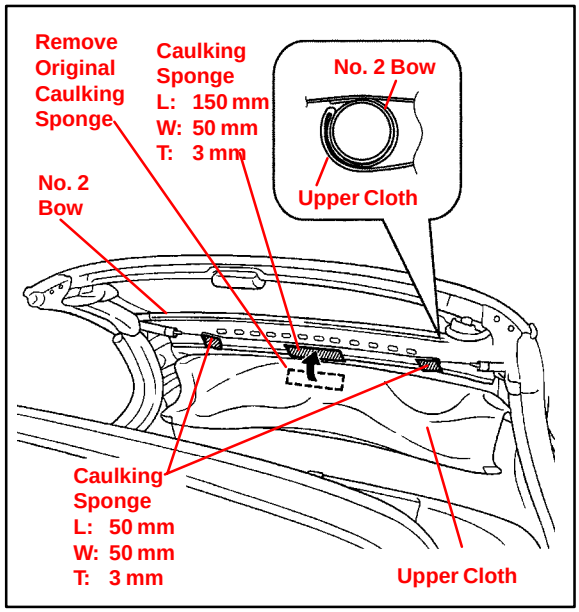
To eliminate a fluttering noise from the convertible top number 2 bow:



1. Remove the convertible top upper cloth (refer to the 2000 MR2 Spyder Repair Manual, pages BO–77 to BO–78).
2. Remove EPT Sealer (caulking sponge) from the center of the inner upper cloth (see illustration).
3. Clean area with Kent® Acrysol (or equivalent).
4. Cut three (3) pieces of EPT Sealer (caulking sponge) in the following dimensions:

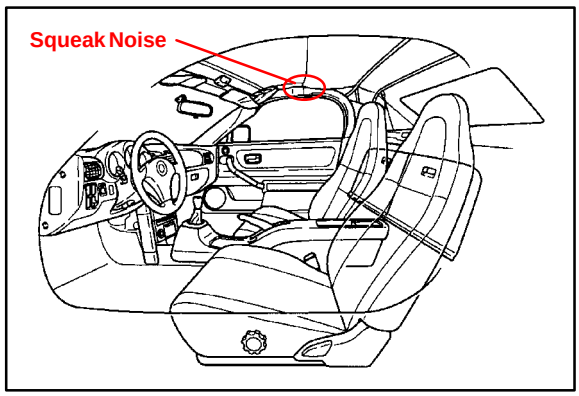
QTY	L	W	T
1	150 mm	50 mm	3 mm
2	50 mm	50 mm	3 mm

5. Install EPT Sealer (caulking sponge) in the positions shown.
6. Reassemble in the reverse order of disassembly.

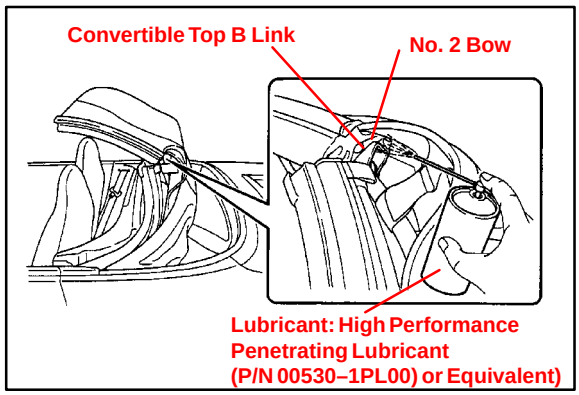


Convertible Top B Link Squeak Noise

To eliminate a squeak noise from the convertible top B link:



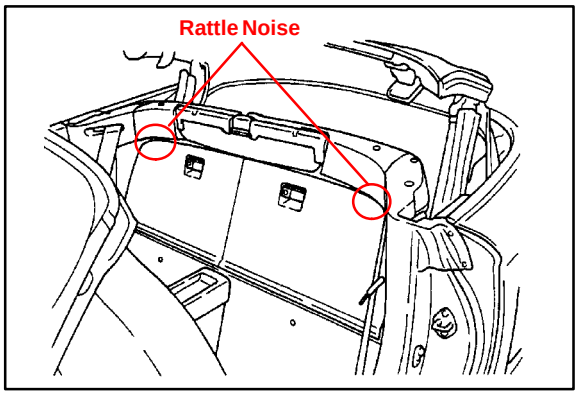
1. Open the convertible top to a half–open position.
2. Spray High Performance Penetrating Lubricant (P/N 00530–1PL00) or equivalent in the area shown, being careful to avoid overspray on interior components.
3. Wipe off excess lubricant.



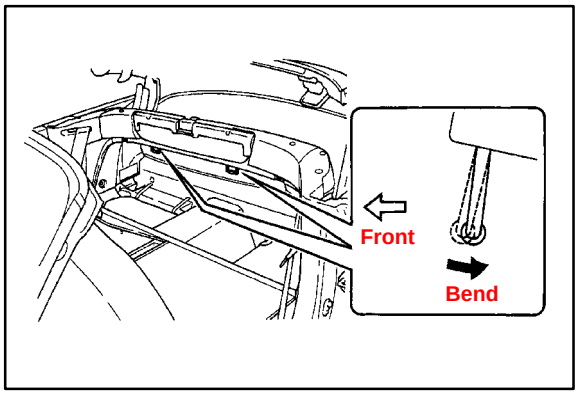
Repair Procedure (Continued)

Luggage Compartment Lid Rattle Noise

To eliminate a rattle noise from the luggage compartment lid:

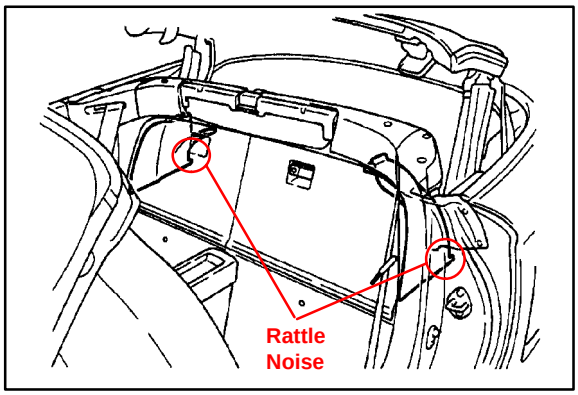


1. Bend the luggage compartment lid striker approximately 3 mm rearward as shown.



Luggage Compartment Lower Rear Separator Trim Cover Rattle Noise

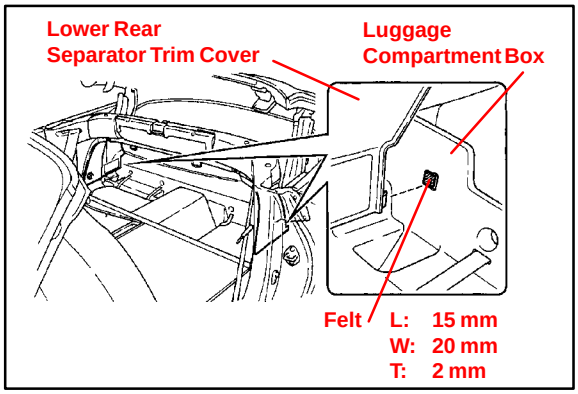
To eliminate a rattle noise from the luggage compartment lower rear separator trim cover:



1. Cut two (2) pieces of felt in the following dimensions:

QTY	L	W	T
2	15 mm	20 mm	2 mm

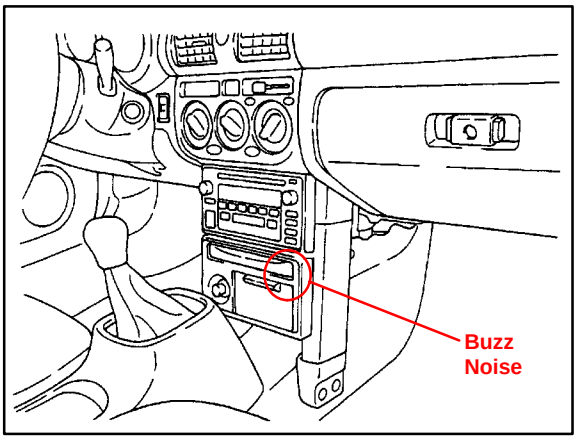
2. Install felt in the positions shown.



Repair Procedure (Continued)

Cup Holder Buzz Noise

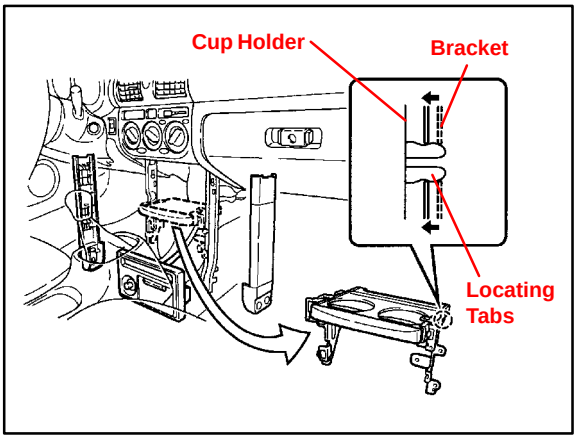
To eliminate a buzz noise from the cup holder area:



1. Remove cup holder assembly (refer to the 2000 MR2 Spyder Repair Manual, page BO–42).
2. Reposition cup holder brackets as shown.

NOTE:

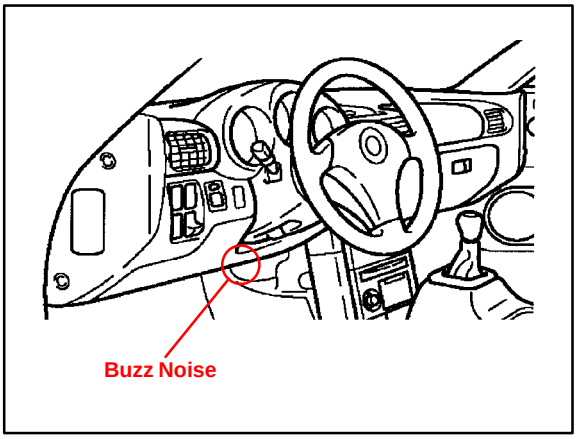
It may be necessary to spread the locating tabs slightly for tighter fit.



3. Reassemble in the reverse order of disassembly.

Instrument Panel Lower Finish Panel Buzz Noise

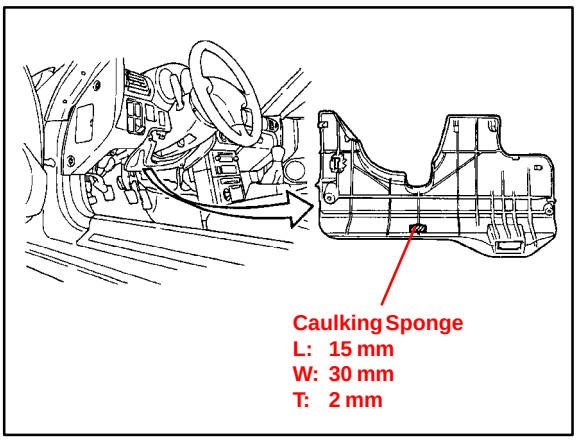
To eliminate a buzz noise from the No. 1 lower finish panel area:



1. Remove the No. 1 lower finish panel.
2. Cut a piece of EPT Sealer (caulking sponge) in the following dimensions:

QTY	L	W	T
1	15 mm	30 mm	2 mm

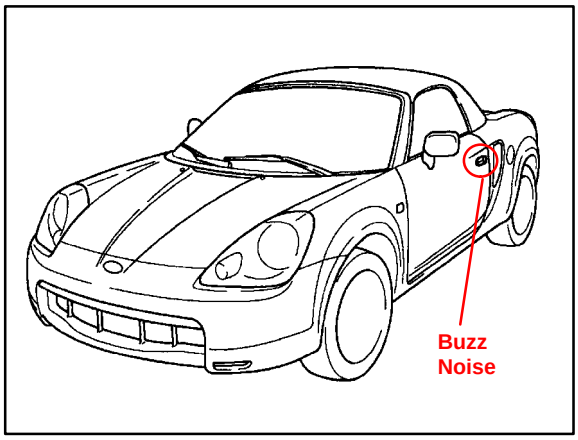
3. Install EPT Sealer (caulking sponge) in the position shown.
4. Reassemble in the reverse order of disassembly.



Repair Procedure (Continued)

Outside Door Handle Area Buzz Noise

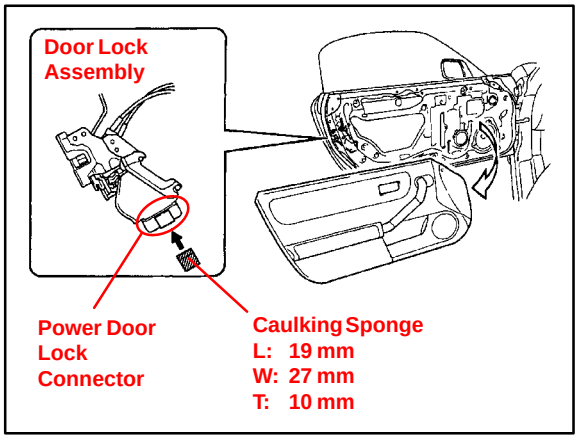
To eliminate a buzz noise near the outside door handle area:



1. Remove the door trim panel (refer to the 2000 MR2 Spyder Repair Manual, pages BO–12 to BO–13).
2. Cut a piece of EPT Sealer (caulking sponge) in the following dimensions:

QTY	L	W	T
1	19 mm	27 mm	10 mm

3. Install EPT Sealer (caulking sponge) on the power door lock connector in the position shown.
4. Reassemble in the reverse order of disassembly.



TOYOTA

Technical Service BULLETIN

September 15, 2000

Title:

SPECIAL SERVICE TOOLS

Models:

All '00 Models & '01 Prius

TSB

SS001–00

SPECIAL SERVICE TOOLS

Introduction

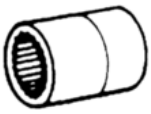
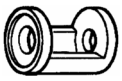
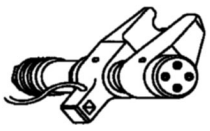
This TSB contains information regarding Special Service Tools (SSTs) distributed or added to the SST program during the 2000 model year as well as those regarding 2001 model year Prius. Both the Essential and Available SSTs are listed by tool number, tool name, and model application.

Special Service Tools can be ordered through the Toyota SST Program by calling 1–800–933–8335.

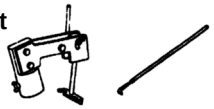
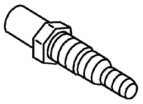
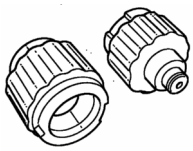
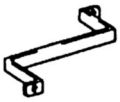
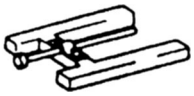
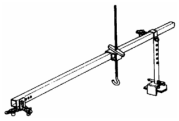
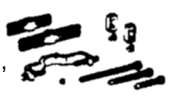
Applicable Vehicles

- **All 2000** model year **Toyota vehicles** and **2000** model year **Prius vehicles.**

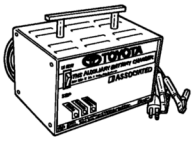
2000 MY Essential Special Service Tools

2000 MY ESSENTIAL SPECIAL SERVICE TOOLS		
TOOL NUMBER	**TOOL NAME**	**APPLICATION**
01002593–005	**12 Mega–Byte Program Card** For Diagnostic Tester 	All
09612–10022–02	**Hexagon Wrench** 	Celica/Sienna
09616–00010–02	**Steering Worm Bearing Adjusting Socket** 	Celica/Sienna
09922–10010–01	**Variable Open Wrench** 	Celica/Sienna
09023–12900–01	**Power Steering Hose Nut Wrench** 	ECHO
09202–00020–01	**Valve Spring Compressor Adapter** 	Celica
09520–01010–02	**Drive Shaft Remover Attachment** Includes: Hook and Silhouette Set 	RAV4
09628–00011–01	**Ball Joint Puller** Includes: Power Unit (09628–00030–01), Jaw (09628–00040–01) & Claw A (09628–00050–01) 	ECHO

2000 MY Essential Special Service Tools (Continued)

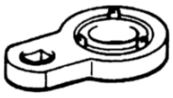
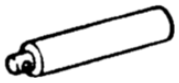
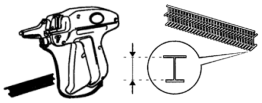
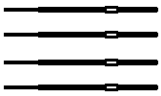
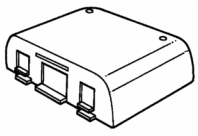
2000 MY ESSENTIAL SPECIAL SERVICE TOOLS		
TOOL NUMBER	**TOOL NAME**	**APPLICATION**
00002–TR815X–00	**Midtronics Battery Instructions Card** 	All
09670–00010–01	**Front Crossmember Guide Tool** 	ECHO
09248–77010–01	**Valve Clearance Adjusting Compressor Set** Includes: Valve Clearance Adjusting Compressor (09248–07010–01), Adjusting Shim Remover (09248–07020–01), & Hook and Silhouette Set 	Celica
00002–6872A–01	**EVAP System Tester** 	All
00002–6872A–ADP	**EVAP Brass Fitting** 	All
09710–04101–01	**Front Speed Sensor Installer** Includes: Hook and Silhouette Set 	MR2
09230–00050–01	**Cooling System/Reservoir Cap Pressure Test Adapter Kit** Includes: Hook & Silhouette Set (09231–10110–01) Reservoir Cap Pressure Test Adapter (09231–10120–01)Cooling System Pressure Test Adapter 	Celica/MR2
09737–00020–01	**Brake Booster Push Rod Wrench** Includes: Hooks & Decals 	Tundra
09737–00011–01	**Brake Booster Push Rod Gauge** Includes: Hooks & Decals 	Tundra
09950–50012–020	**Puller Set C Update Kit** Includes: Attachment (09957–04010–01), 30mm Claw (09954–05050–01), 100mm Claw (09954–05060–01), Inside & Outside Lid Labels, and SST Pins 	All
00002–0274	**Engine Support Bar** 	RAV4
2002784	**Scan Tool Operation Manual Contents** 	All
09950–40010–010	**Puller Set B Update Kit** Includes: Holder Bolts (09958–04011–01), 200mm Arm Set (09954–04040–01), Claw Set #3 (09955–04031–01), Claw Set #5 (09955–04051–01), Claw Set #7 (09955–04071–01), Inside & Outside Lid Labels, and SST Pins 	All

2000 MY Essential Special Service Tools

2000 MY ESSENTIAL SPECIAL SERVICE TOOLS		
TOOL NUMBER	**TOOL NAME**	**APPLICATION**
09727–30050–01	**Toe Control Link Replacer Kit** Includes: Toe Control Link Compressor Art (09727–00031), Toe Control Link Replacer Arm No. 1 (09711–40010) 09710–40010, Toe Control Link Replacer Arm No. 2 (09712–40010) 09710–40010, & Bolt Set (09727–00010) 	Prius*
09388–40010	**Input Shaft Oil Seal Replacer** 	Prius*
00002–03100–S(Small) 00002–03200–M(Medium) 00002–03300–L(Large)	**Safety Gloves** 	Prius*
00002–YA121–01	**Automatic Trickle Charger** 	Prius*

* Prius Dealers Only.

2000 MY Essential Special Service Tools

2000 MY ESSENTIAL SPECIAL SERVICE TOOLS		
TOOL NUMBER	**TOOL NAME**	**APPLICATION**
07112–76050	**Magnetic Clutch Stopper** 	ECHO
09612–20010	**Power Steering Oil Seal Puller** 	Celica
09930–00010	**Drive Shaft Nut Chisel** 	ECHO/Celica
09617–35020	**Power Steering Ring Nut Wrench** 	Celica
09951–07100–01	**Drive Handle** 	Sienna
0002–17750	**Seat Heater Attachment Kit** Includes: Seat Heater Attachment Tool (0002–17750), & Fasteners, Qty. 10,000 (0002–16500) 	All
00002–01780	**Seat Heater Attachment Tool Replacement Needles, Qty. 4** 	All
03001042–000	**Scan Tool Replacement Battery Pack** 	All

TOYOTA

Technical Service BULLETIN

March 1, 2002

Title:

DRIVE SHAFT NUT CHISEL

Models:

Applicable Camry, Celica, ECHO, Highlander, MR2 Spyder, Prius & RAV4

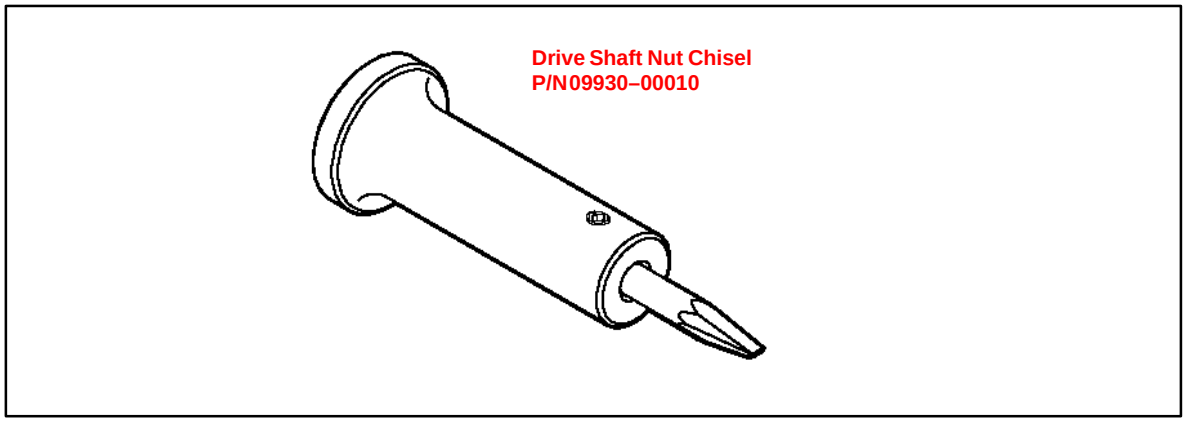
TSB

SS001-02

SPECIAL SERVICE TOOLS

Introduction

The function of the Drive Shaft Nut Chisel is to properly bend the detented portion of a locking nut out of the way of shaft threads for removal of the nut. This is important to eliminate the possibility of thread damage during nut removal. After nut installation, the tool can also be used to stake the locking nut.



Applicable Vehicles

- **2000 – 2002** model year **ECHO, Celica & MR2 Spyder** vehicles.
- **2001 – 2002** model year **Highlander, Prius & RAV4** vehicles.
- **2002** model year **Camry** vehicles.

Application Procedure

Procedures for this application will be listed in applicable Repair Manual sections.

Required Tools & Material

TOOLS & MATERIALS	PART NUMBER	QUANTITY
Drive Shaft Nut Chisel	09930–00010	1
Drive Shaft Nut Chisel Tip*	09930–00009	1

* The Drive Shaft Nut Chisel Tip can be serviced separately.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA

Technical Service BULLETIN

September 8, 2003

Title:

DIAGNOSTIC TESTER CONTROLLER AREA NETWORK (CAN) INTERFACE MODULE

Models:

All Models

TSB

SS001-03

SPECIAL SERVICE TOOLS

Introduction

Over the next four model years, all Toyota vehicles will begin using an all–new diagnostic communication protocol, Controller Area Network (CAN). CAN will be introduced on the 2004 Prius this fall. A CAN Interface Module has been distributed to all dealers as an essential Special Service Tool (SST) and will allow the Diagnostic Tester to communicate with CAN–equipped vehicles. Please use the following instructions to install the new CAN Interface Module as soon as it arrives at your dealership.

NOTE:

- **Version 10.2a or later Diagnostic Tester Software must be used to enable communication with CAN–equipped vehicles. Version 10.2a will be distributed to dealers via TIS before CAN–equipped vehicles arrive at dealers.**
- **There is no need to remove the CAN Interface Module when working with non–CAN systems or older software versions (Version 10.1a or earlier). The Diagnostic Tester will communicate with all DLC3/J1962 based systems with the CAN Interface Module installed.**

Applicable Vehicles

- **All Models**

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 10.2a Software (or later)* 	01002593-005	1

* Essential SSTs.

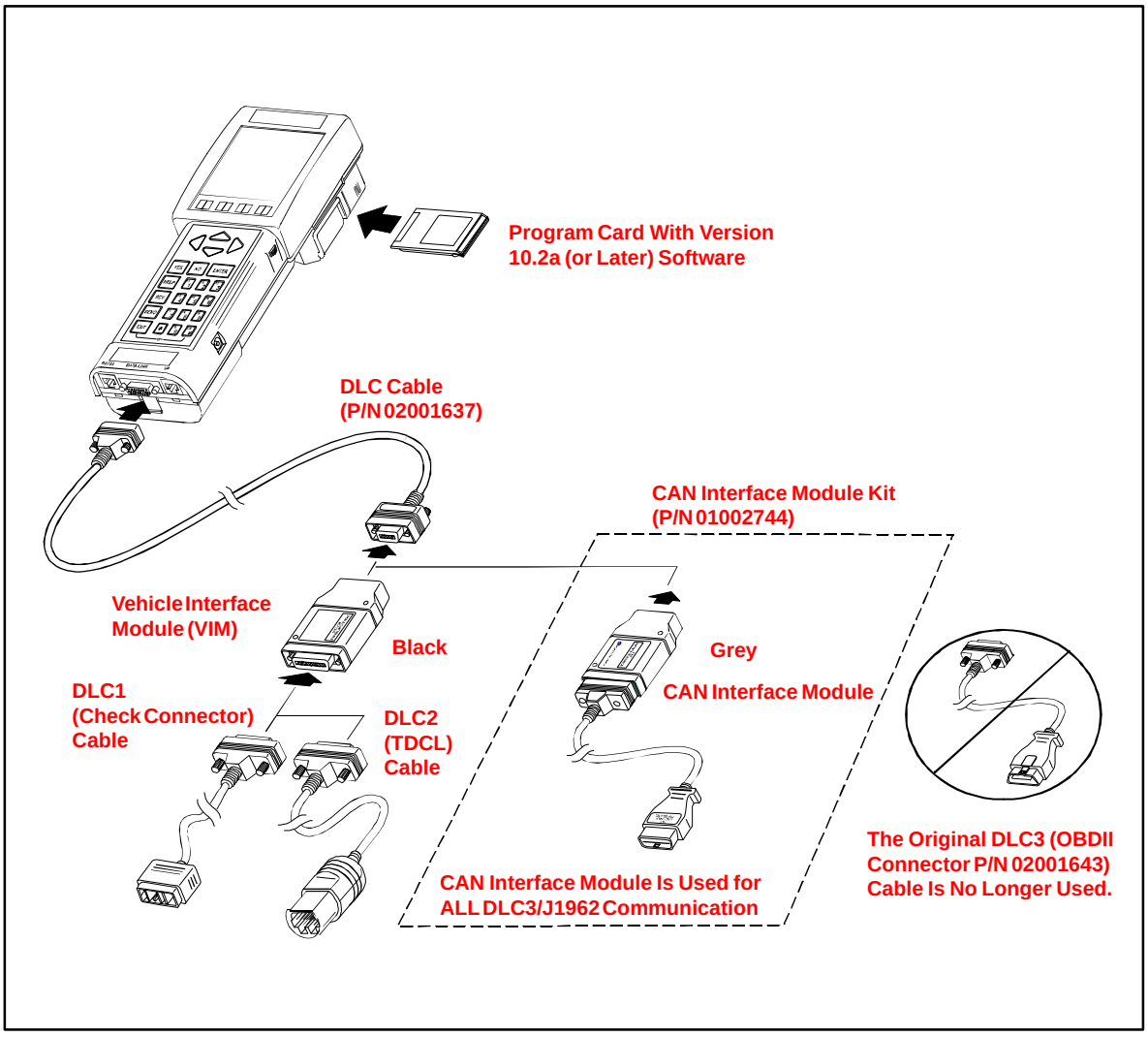
NOTE:

Additional Diagnostic Tester Kits, CAN Interface Modules, Program Cards or SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Installation Procedure



1. Remove the original DLC3 Cable and store it in the Diagnostic Tester storage case.
2. Connect the CAN Interface Module to the DLC Cable.
3. Use the Diagnostic Tester with the CAN Module installed for all DLC3/J1962 based vehicle communication.
4. If you experience problems with the Diagnostic Tester or CAN Interface Module, please contact Toyota Special Service Tool Customer Support at 1–800–933–8335.

NOTE:

- **There is no need to remove the CAN Interface Module when working with non–CAN systems or older software versions (Version 10.1a or earlier). The Diagnostic Tester will communicate with all DLC3/J1962 based systems with the CAN Interface Module installed.**
- **For DLC1 and DLC2 communication you must continue to use the Vehicle Interface Module (VIM).**

TOYOTA

Technical Service BULLETIN

June 7, 2002

Title:

MIDTRONICS BATTERY TESTER SOFTWARE UPDATE

Models:

All Models & Model Years Through Current

TSB

SS002-02

SPECIAL SERVICE TOOLS

Introduction

The internal software of the Midtronics Battery Tester can now be periodically updated to support future models. New updates will include new battery warranty codes and testing information.

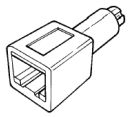
The Technical Information System (TIS) will be the primary distribution method for battery tester software updates. Utilizing the new Midtronics Update Wizard (MUW) and the new essential SST (Midtronics Battery Tester Adapter), you will be able to quickly and easily update your Midtronics Battery Tester.

This bulletin will show you how to use and install the Midtronics Update Wizard to update the Midtronics tester software.

Applicable Vehicles

- **All models and model years through current.**

Required Tools & Material

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Midtronics Battery Tester* 	00002–MP815–T	1
Midtronics Battery Tester Adapter* 	00002–DMPUC	1

* Essential SSTs.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Process Overview

The Midtronics Battery Tester Software Update is a 2-step process:

1. **Installing the Midtronics Update Wizard (MUW).**
   The Midtronics Update Wizard (MUW) is an application that only needs to be installed on the PC one time. This bulletin will provide the steps to install the MUW.
2. **Using the Midtronics Update Wizard (MUW).**
   The Midtronics Update Wizard (MUW) will be used with each battery tester software update. The Update Wizard will walk you through each step to connect the PC to the tester and perform the update.

Operation Procedure: Preparation

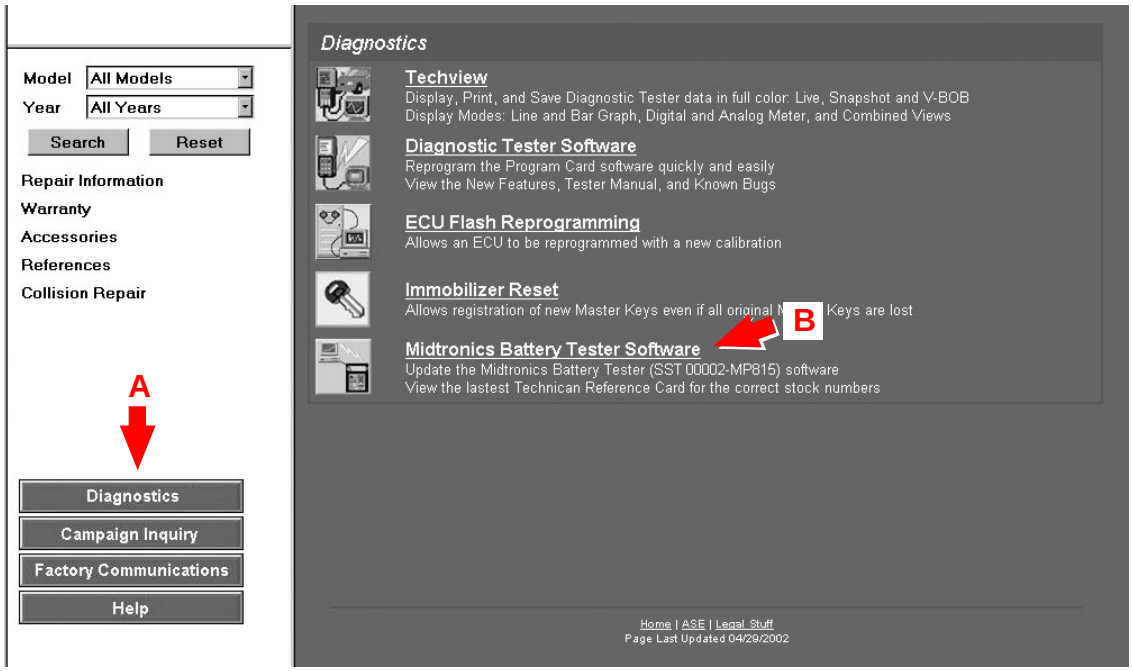
Before Installation or Use of the Midtronics Update Wizard (MUW):

Steps A and B are required to begin the update process. (Refer to Figure 1.)

A. Open TIS (Technical Information System) and go to the “Diagnostics” section.

B. Click on the text “Midtronics Battery Tester Software.”

FIGURE 1.



Operation Procedure

1. Installing the Midtronics Update Wizard (MUW).

NOTE:

The Midtronics Update Wizard only needs to be installed once and must be installed before the rest of the update process can take place. If this step is already complete, continue on to step 2.

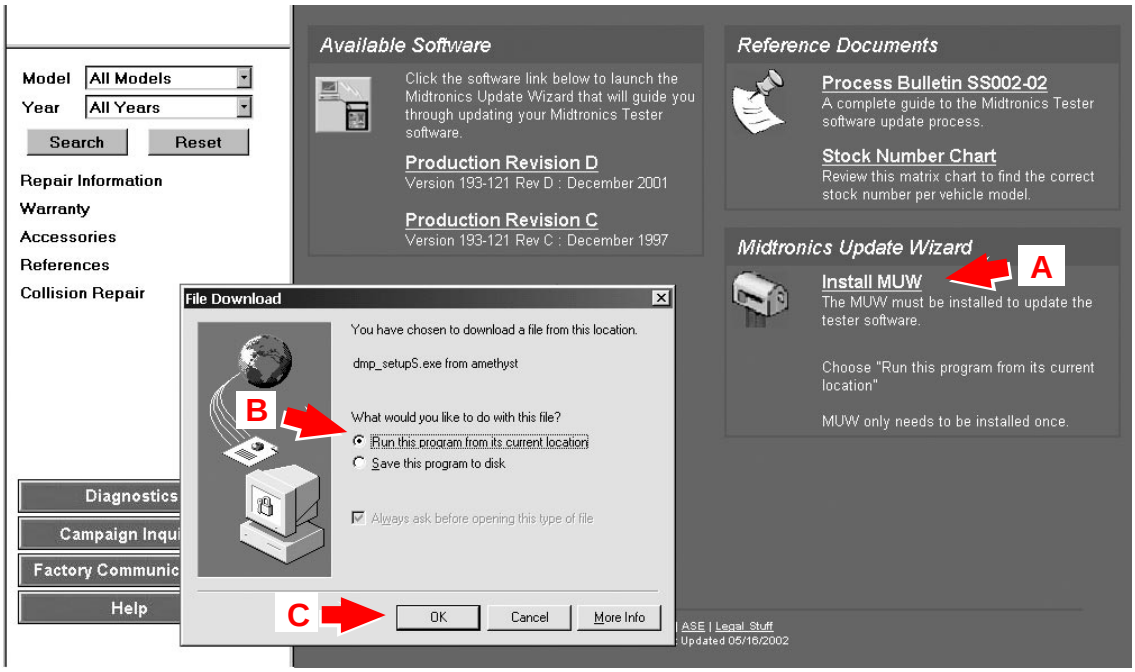
A. Click on the text “Install MUW.” (Figure 2.)

B. The file download window will appear. Click on “Run this program from it’s current location.”

C. Click the “OK” button.

D. Allow the Update Wizard to perform its self–installation. This will take only a few minutes.

FIGURE 2.



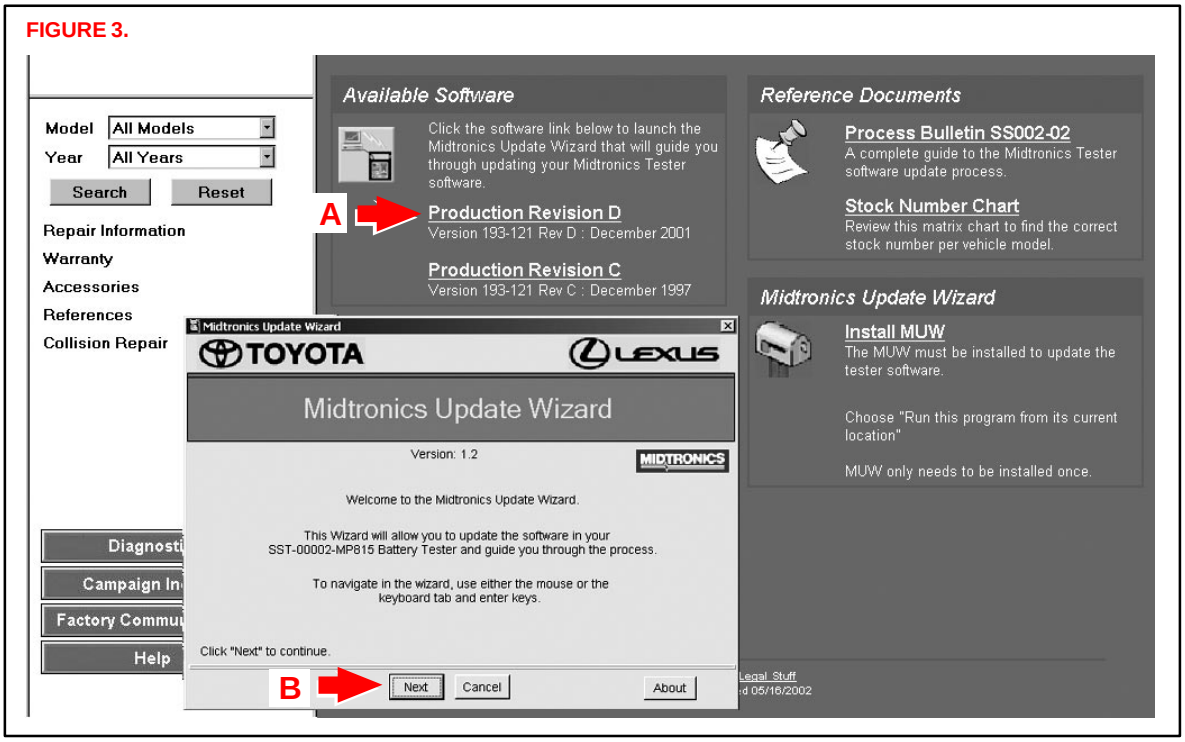
Operation Procedure (Continued)

2. Using the Midtronics Update Wizard (MUW).

A. Click on the latest version of production software. (Figure 3.) This will begin the software update process.

B. The next screen to appear will be the first screen of the software update. Click “Next” to continue.

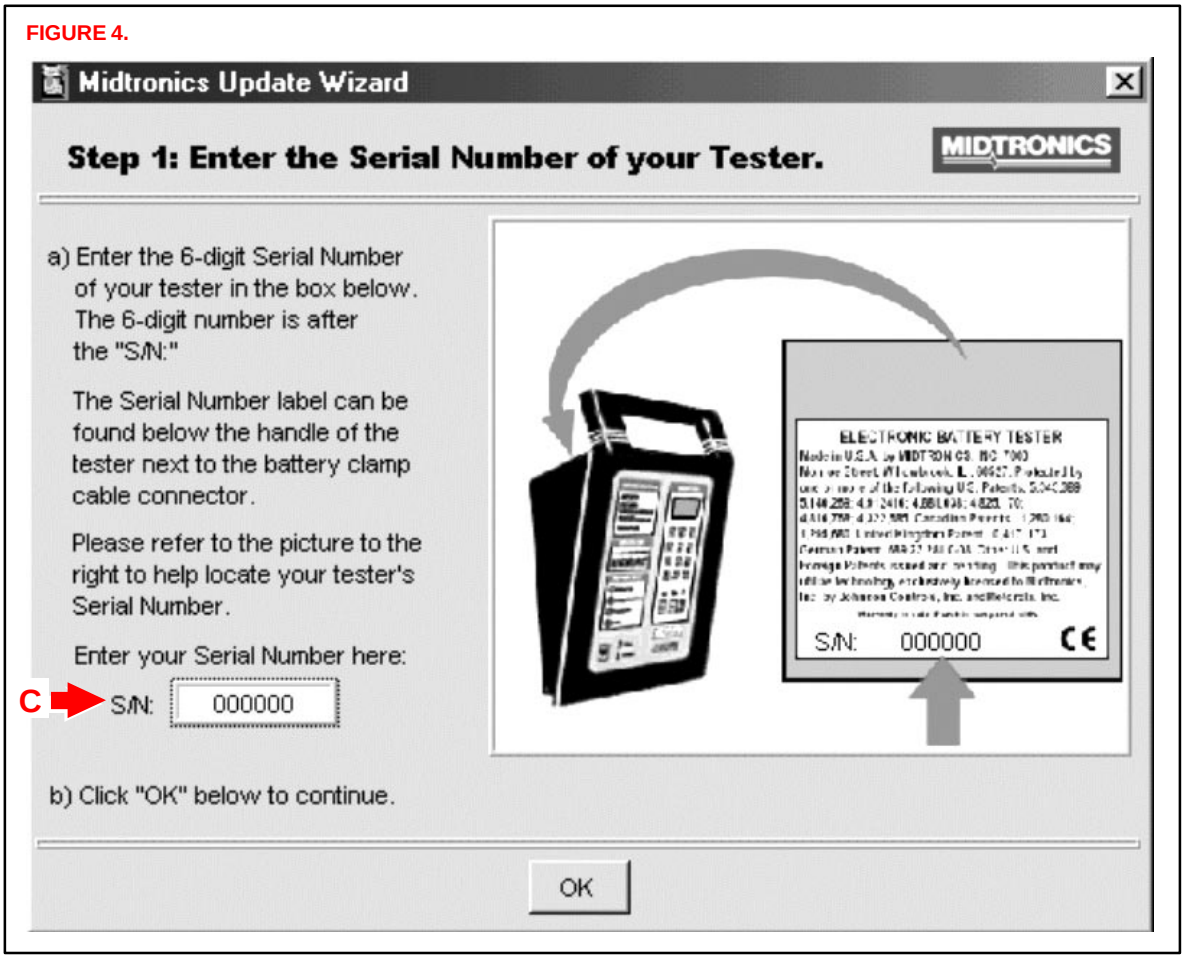
FIGURE 3.



Operation Procedure (Continued)

C. Enter the serial number of the battery tester then click “OK.” (Figure 4.)

FIGURE 4.



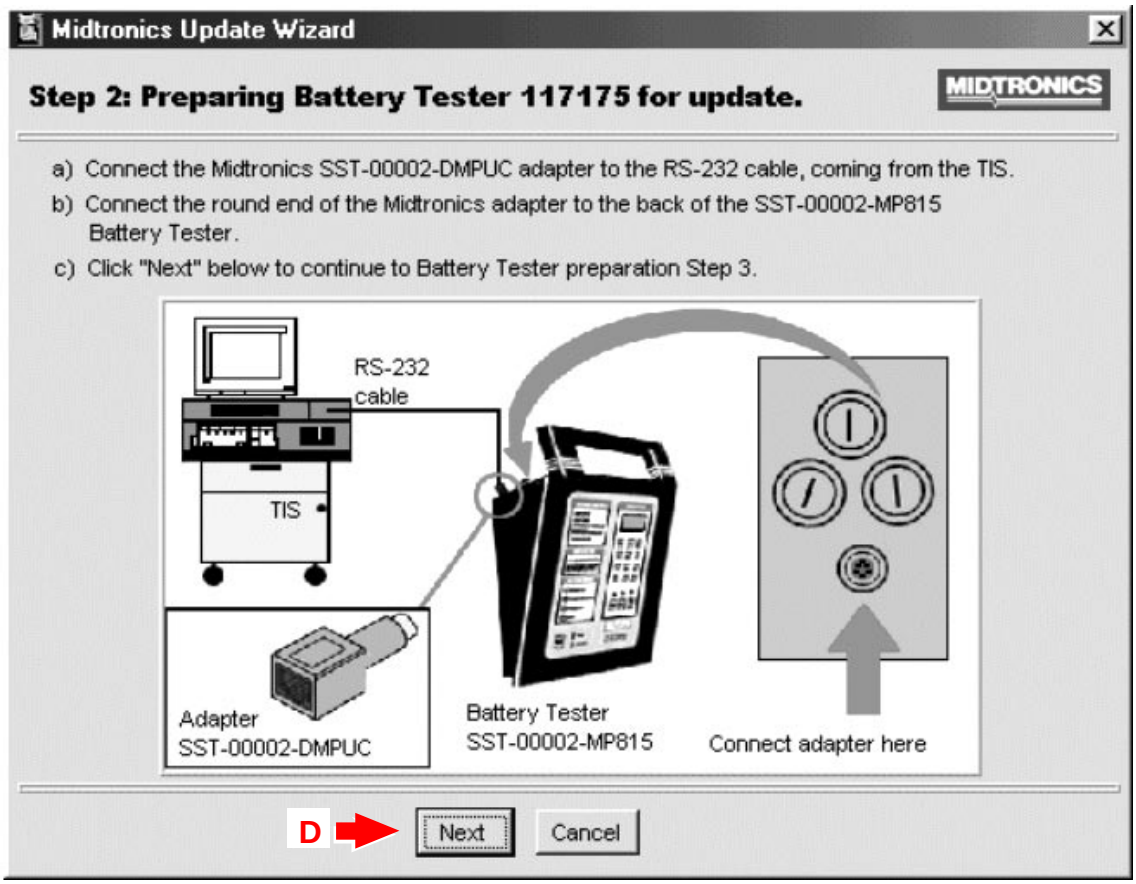
Operation Procedure (Continued)

D. Connect the Midtronics Battery Tester to TIS as instructed (Figure 5), then click "Next."

NOTE:

Connecting the Midtronics Battery Tester to the TIS station will require the use of SST 00002–DMPUC. This is an adapter that allows the TIS RS–232 cable to plug into the Battery Tester. (Figure 5.)

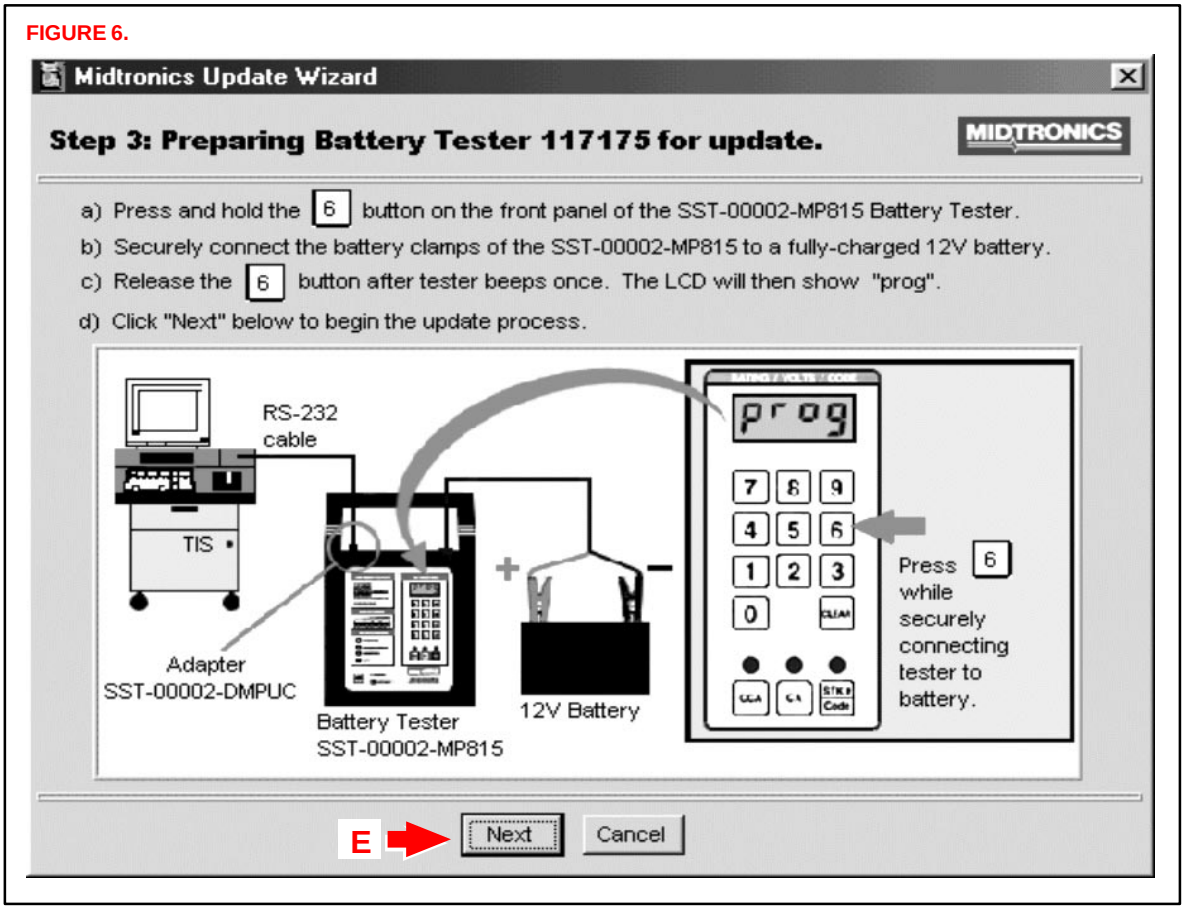
FIGURE 5.



Operation Procedure (Continued)

E. Follow the instructions to put the Midtronics Battery Tester into the correct mode (Figure 6), then click “Next.”

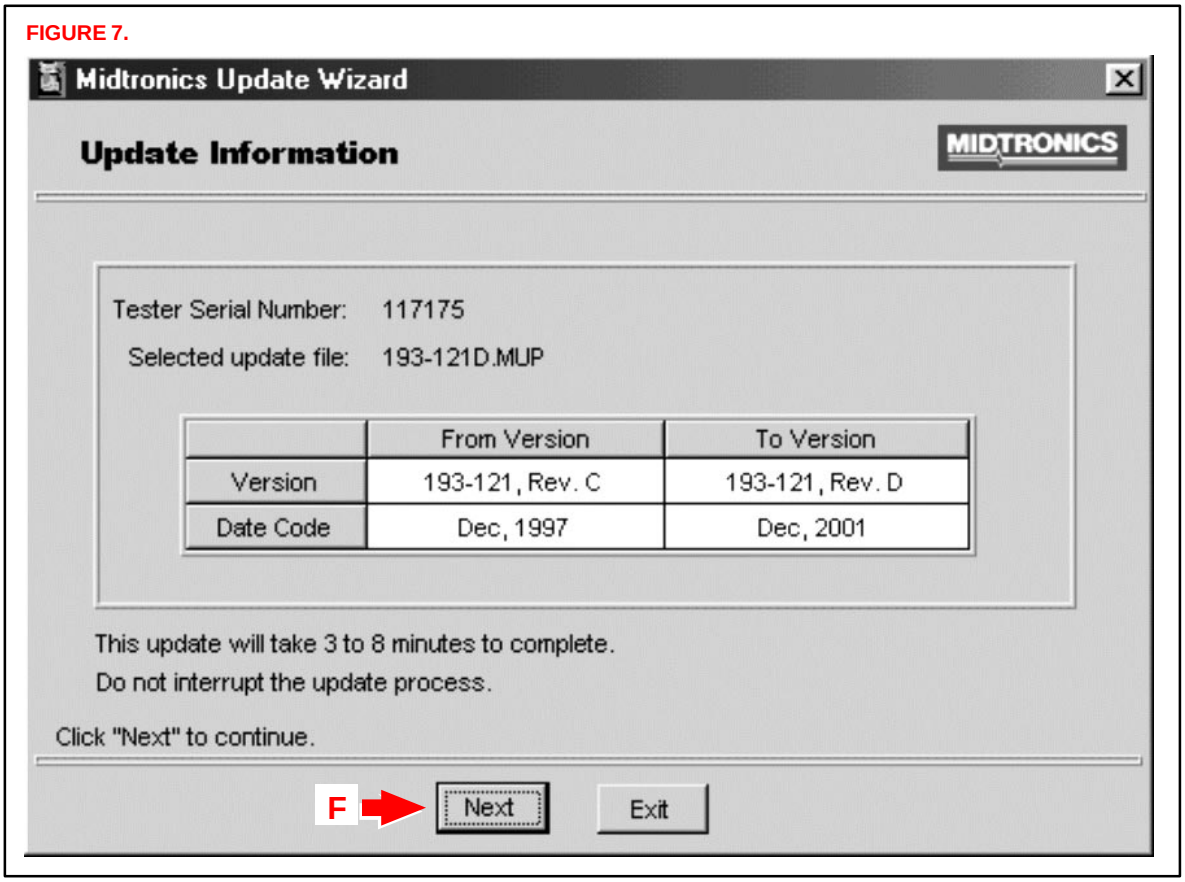
FIGURE 6.



Operation Procedure (Continued)

F. Confirm the software version and click “Next.” (Figure 7.)

FIGURE 7.



Figures 7–1 and 7–2 are confirmation dialogs that will pop up over the Update Information window (Figure 7) when:

- The update file is an older revision level than that found in the battery tester (Figure 7–1) or
- The update file is the same revision level as that found in the tester (Figure 7–2).

Click the “Yes” button to clear the pop–up dialog and continue with the update.

FIGURE 7–1.

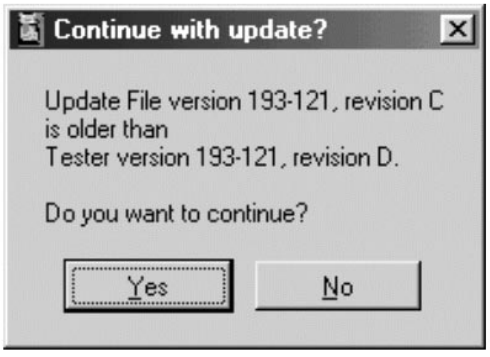
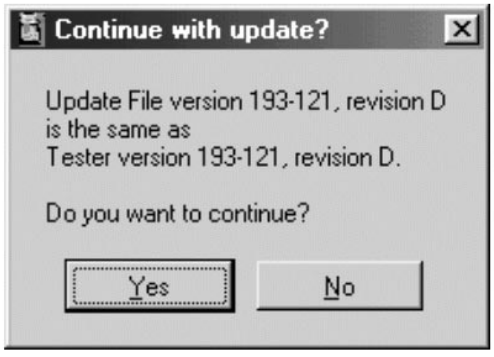


FIGURE 7–2.

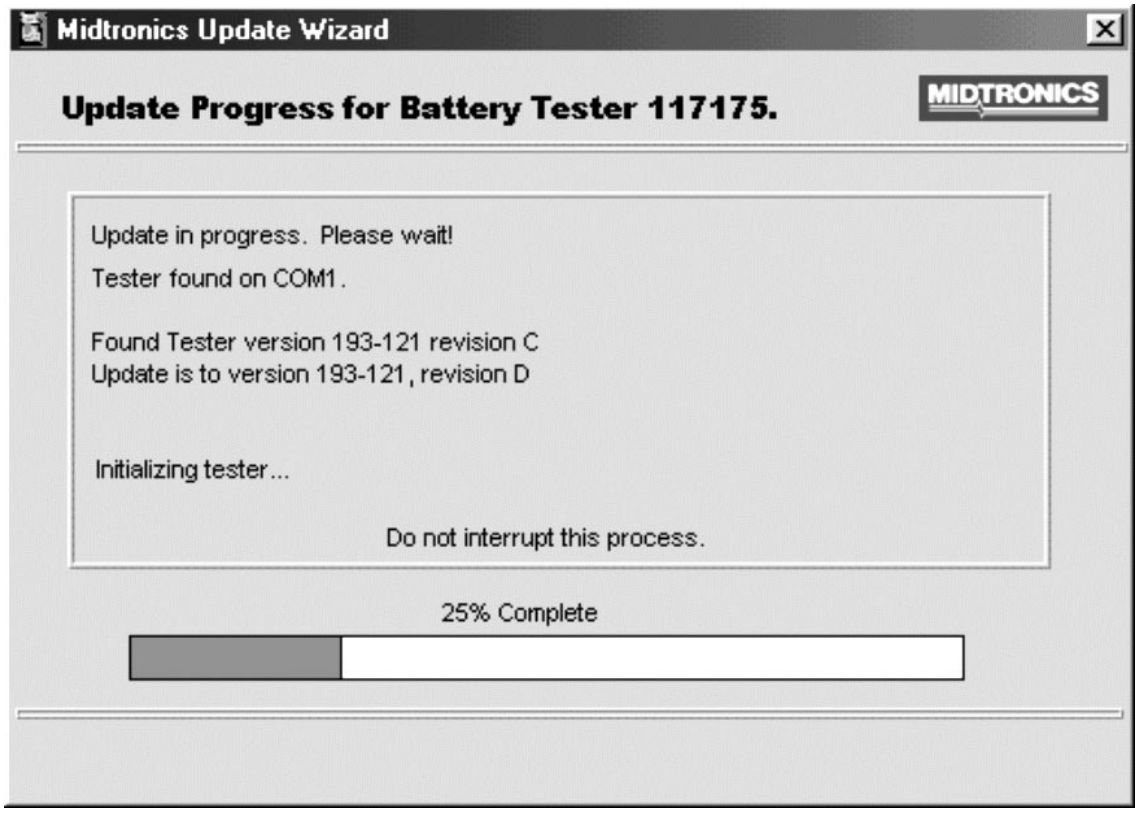


Operation Procedure (Continued)

G. The Midtronics Update Wizard (MUW) will now update the Midtronics Battery Tester software. (Figure 8.)

NOTE:
Do not interrupt this process (it will take approximately 5 minutes).

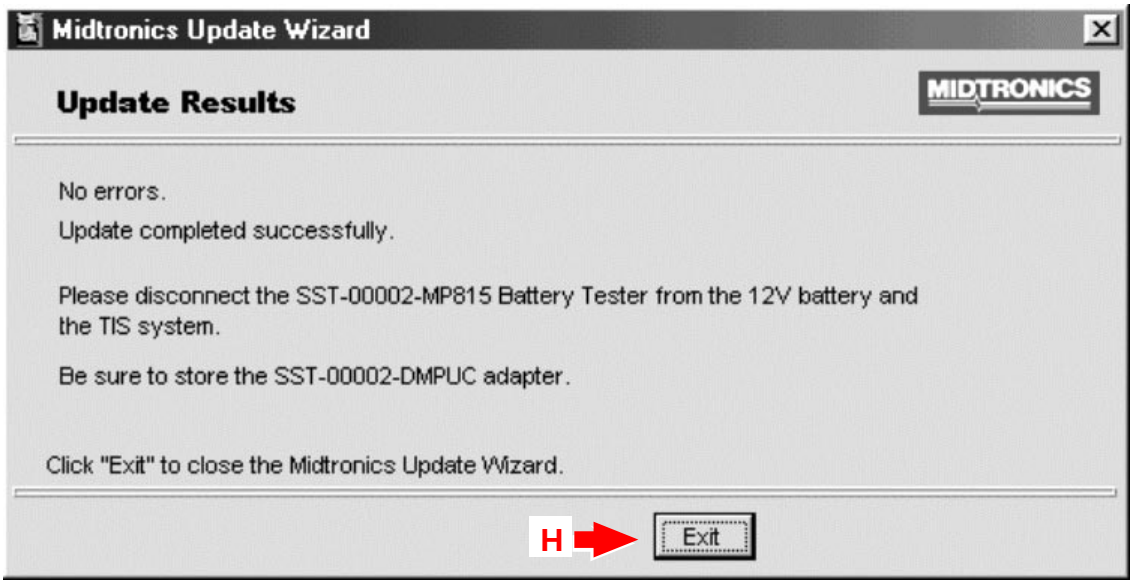
FIGURE 8.



Operation Procedure (Continued)

H. Upon successful completion, the Update Results screen will display “No errors” and the update is now complete. Click on the “Exit” button. (Figure 9.)

FIGURE 9.



Your Midtronics Battery Tester is now updated and ready for use.

NOTE:

BE SURE TO REGULARLY CHECK TIS FOR FUTURE UPDATES:

- **The Midtronics Battery Tester OE Stock Number Card will no longer be printed and shipped. It will be distributed through TIS from now on.**
- **Latest versions of Tester update software will be available on TIS.**

TOYOTA

Technical Service BULLETIN

October 6, 2000

Title:

EVAP SYSTEM PRESSURE TESTER IMPROVEMENT

Models:

All '00 Models

TSB

SS003–00

SPECIAL SERVICE TOOLS

Introduction

In an effort to expand the diagnostic capabilities of the EVAP System Pressure Tester and prevent inadvertent misuse of the tester pressure pump, the EVAP System Pressure Tester Kit, P/N 00002–6872A has been upgraded with the following components:

- New EVAP Lid Instructions
- Pump Outlet Hose Tie Wrap
- EVAP Brass Adapter

The information contained in this bulletin will provide you with a detailed outline for the procedures to upgrade the EVAP System Pressure Tester Kit.

Applicable Vehicles

- **2000** model year **Toyota vehicles, all models.**

Parts Information

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
N/A	00002–6872A–DEC	EVAP System Tester Kit Lid Instructions Decal
	00002–6872A–TIE	Pump Outlet Hose Tie Wrap
	00002–6872A–ADP	EVAP Brass Adapter

NOTE:

The upgraded EVAP components will be distributed to all Toyota dealers by OTC. Replacement EVAP System Tester parts may be ordered by calling OTC at: 1 (800) 933–8335.

Required Tools & Materials

TOOLS & MATERIALS	QUANTITY
Side Cutting Pliers	1

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Toyota Warranty*	–	–	–	–

***Applicable Warranty:**

With the LIFETIME MARATHON™ WARRANTY, all SPX OTC products and parts are warranted against defects in materials and workmanship for the life of the product or part. For service on this or any other Toyota SST, call 1 (800) 933–8335.

Part Upgrade Description

EVAP System Tester Kit Lid Instructions Decal

This decal will replace the existing decal that is located on the inside lid of the EVAP tester case. The revised decal will provide a new diagram with a clear layout for hooking up the new EVAP brass adapter as well as a revised diagram for hook–up of the gas cap tester.

Pump Outlet Hose Tie Wrap

The tie wrap will be used to secure the pump outlet hose that is located on the air pump of the EVAP System Tester Kit. The pump outlet hose must be secured with a tie wrap to discourage improper hose removal/attachment.

EVAP Brass Adapter

The new EVAP brass adapter will enable technicians to perform enhanced pinpoint testing. This brass adapter is a multi–sized hose fitting that can adapt to various sized hoses and will simply screw directly onto the threaded end of the tester hose.

Replacement Procedure

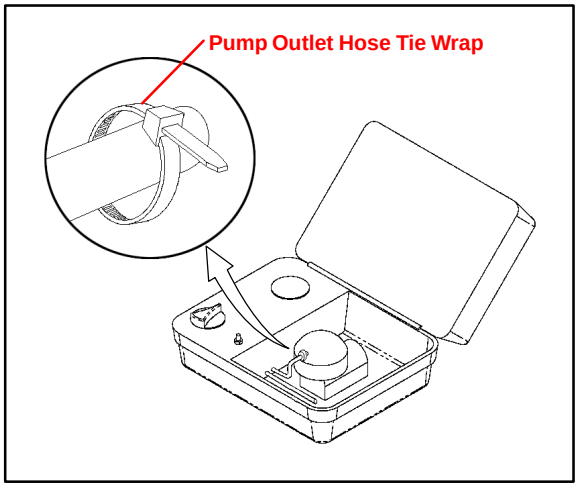
EVAP Lid Instructions

1. Remove the old EVAP System Tester Lid Instruction Decal completely.
2. Make sure that the application area is clean of debris and dry.
3. Place the new EVAP System Tester Lid Instruction Decal (P/N 00002–6872A–DEC) where the previous decal was located.

Pump Outlet Hose Tie Wrap Installation

1. Place the pump outlet hose tie wrap (P/N 00002–6872A–TIE) around the pump outlet hose.
2. Tighten the tie wrap until the hose is secure and cannot be removed.
3. Trim the excess tie wrap length using a pair of side cutting pliers.

NOTE:
The hose should not be removed for this tie wrap installation procedure.



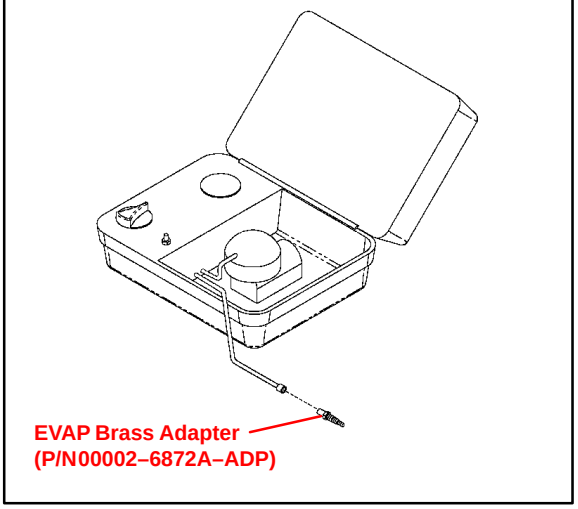
Component Application

EVAP Brass Adapter

Refer to diagram for proper hook–up of the EVAP brass adapter.

> **NOTE:**
> **The EVAP brass adapter was designed to plug into multi–sized hoses for pinpoint diagnosis.**

EVAP Brass Adapter Hook–Up

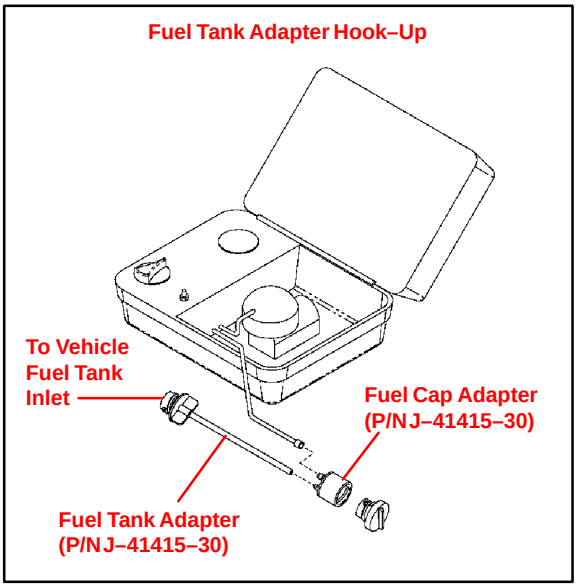


Fuel Tank Adapter

Refer to diagram for proper hook–up of the fuel tank adapter.

> **NOTE:**
> **Part number J–41415–30 includes both the fuel tank adapter and the fuel cap adapter.**

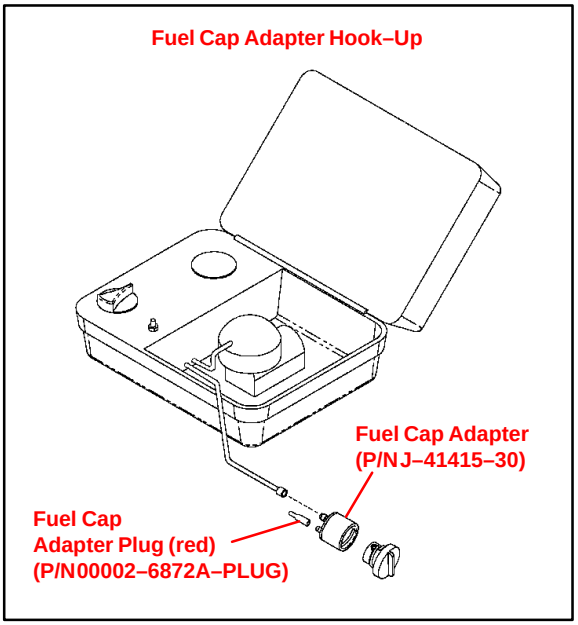
Fuel Tank Adapter Hook–Up



Fuel Cap Adapter

Refer to diagram for proper hook–up of the fuel cap adapter.

Fuel Cap Adapter Hook–Up



TOYOTA

Technical Service BULLETIN

August 30, 2002

Title:

IMMOBILIZER KEY CODE RESET

Models:

Applicable 4Runner, Camry, Highlander, Land Cruiser, MR2 Spyder, RAV4, Sequoia, & Solara

TSB

REVISED

SS003-01

SPECIAL SERVICE TOOLS

TSB REVISION NOTICE:

- **June 25, 2003: Preparation procedure on page 3 now applies to all model years of MR2 Spyder.**
- **January 20, 2003: Updated terminals in Figure 1 on page 3.**
- **August 30, 2002: The information contained in this TSB supercedes the original SS003–01. Previous TSBs should be discarded.**

Introduction

Immobilizer Reset is a new feature that allows the registration of a new Master Key even if all original Master Keys are lost. Once the Immobilizer system is reset, all previously registered keys will be erased.

Applicable Vehicles

MODEL YEAR	MODEL	ENGINE MODEL
2000 & Later	MR2 Spyder*	1ZZ
2001	RAV4*	1AZ
2001 & Later	4Runner	5VZ
	Highlander	2AZ
	Land Cruiser	2UZ
2001 & 2002	Sequoia	2UZ
2002 & Later	Camry	1MZ & 2AZ
	RAV4	1AZ
	Solara	2AZ

* Refer to special preparation procedure in this bulletin.

NOTE:

Refer to TIS (Technical Information System) for the most current applicable vehicle information.

Parts Information

PREVIOUS PART NUMBER	CURRENT PART NUMBER	PART NAME
N/A	Model Specific	Replacement Key (Master or Sub)

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Required SSTs

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.0a Software (or later)* 	01002593-005	1
Diagnostic Check Wire (or equivalent)	09843–18020	1

* Essential SSTs.

NOTE:
Additional Diagnostic Tester Kits, Program Cards or SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Function Description

The Immobilizer Reset function is a 5-step process:

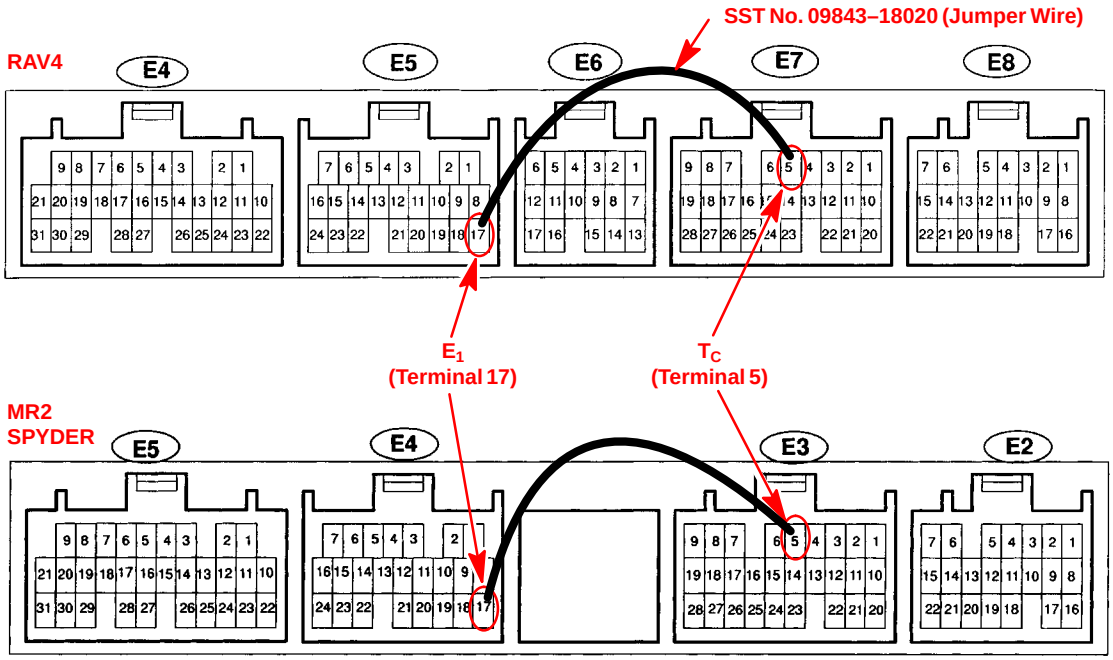
1. Using the Diagnostic Tester, retrieve a “Seed Number” through the **OBD/MOBD Immobilizer** function.
   - A “Seed Number” is a unique number provided by the Diagnostic Tester and validated by TIS (Technical Information System) in order to return a Passcode.
2. Using TIS (Technical Information System), select **Immobilizer Reset**, and complete the request form to retrieve a “Passcode Number.”
   - A “Passcode Number” is a unique number required by the Diagnostic Tester to reset the ECU allowing it to accept a new Master Key.
3. Enter the “Passcode Number” received from TIS into the Diagnostic Tester.
4. Confirm successful Immobilizer reset and new Master Key registration.
5. Register any additional customer keys.

Preparation: '00 & Later MY MR2 Spyder & '01 MY RAV4 Only

Before beginning the Key Code Reset function on 2000 and later model year MR2 Spyder and 2001 model year RAV4 vehicles, it is necessary to short terminals T_C to E_1 at the ECM connector, using SST No. 09843–18020. (Refer to Figure 1.)

With ECU connectors in place, back–probe and short terminals T_C to E_1 (pin 17 to pin 5).

FIGURE 1. ECM TERMINALS ON '00–'01 MY MR2 SPYDER & '01 MY RAV4



NOTE:

- **With the key ON and the engine OFF, the SRS, Cruise and ABS lights will flash on the instrument panel when terminals T_C to E_1 are shorted together correctly.**
- **Leave the SST No. 09843–18020 in place for the entire Key Code Reset procedure.**

Key Code Reset Procedure

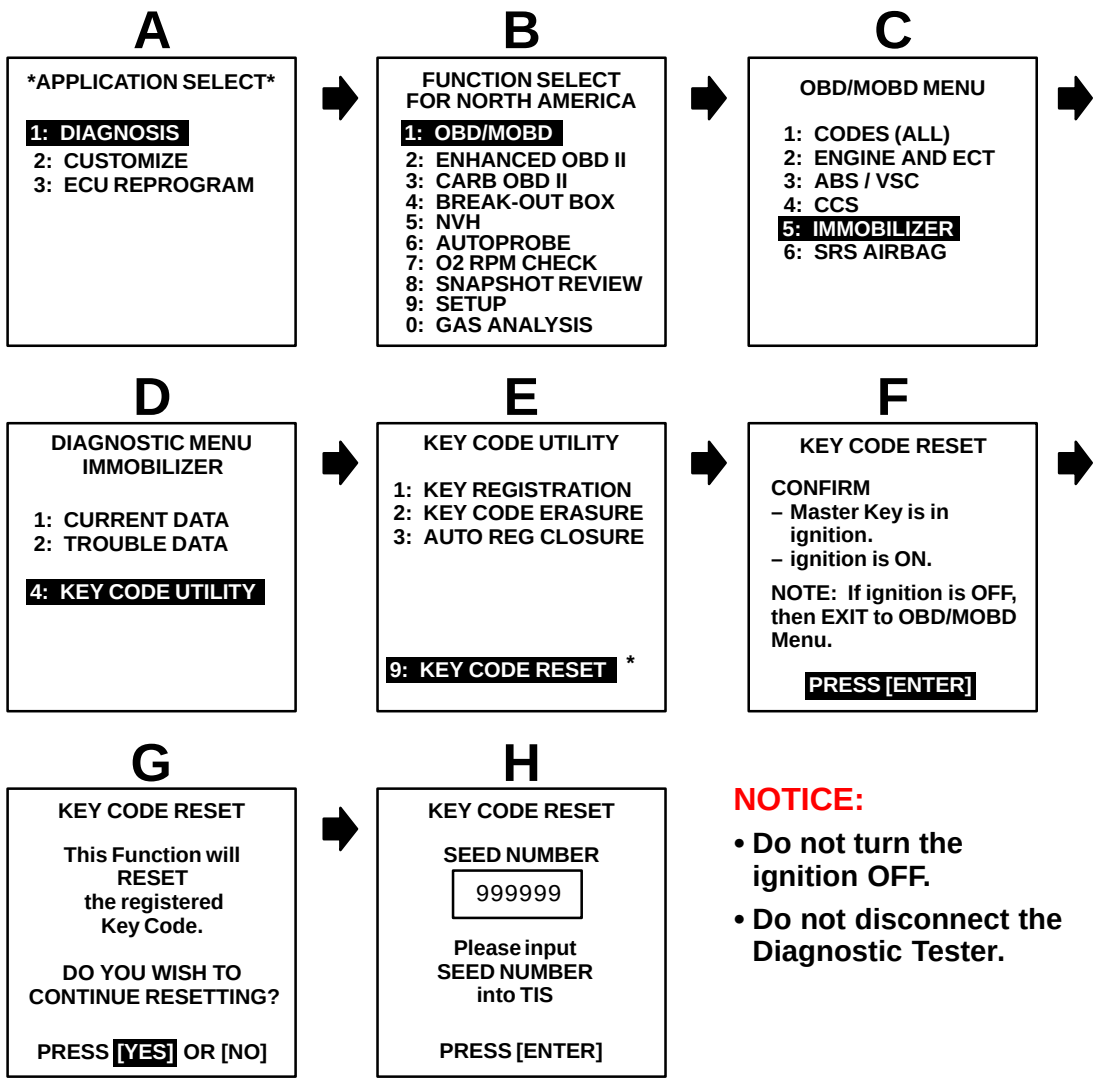
NOTE:

Ensure that the Diagnostic Tester is equipped with the latest version of software (9.01a or later).

Connect the Diagnostic Tester to DLC3 and turn the ignition ON.

1. Using the Diagnostic Tester, follow the screen flow in Figure 2 below to retrieve the "Seed Number." (**DO NOT DISCONNECT** the Diagnostic Tester from the vehicle during this process.)

FIGURE 2. DIAGNOSTIC TESTER SCREEN FLOW

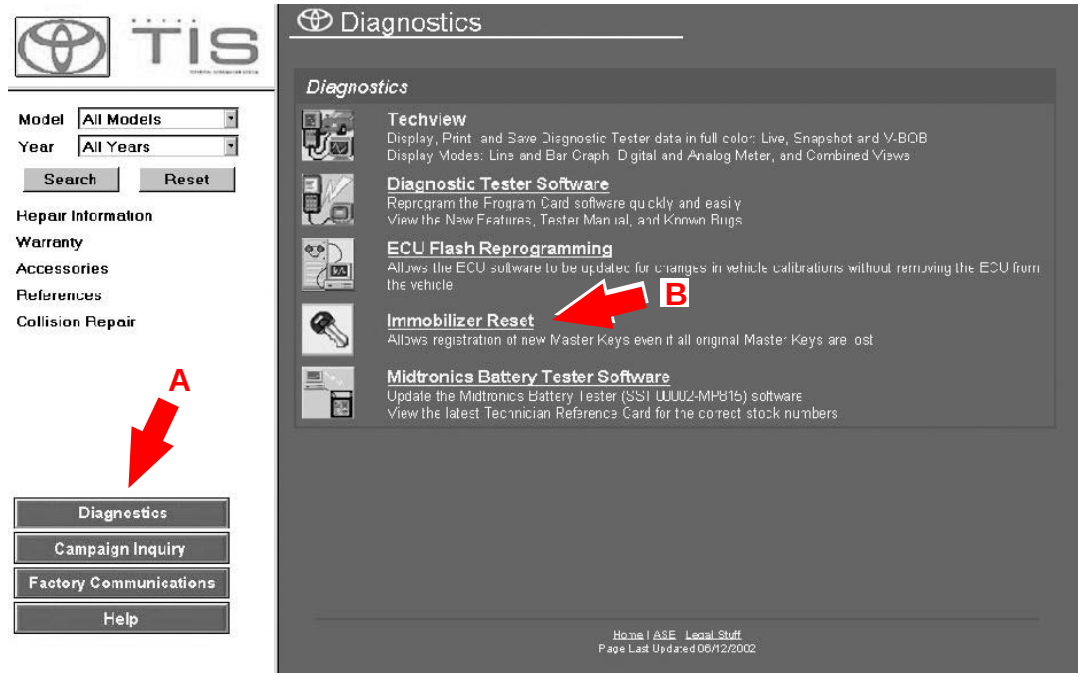


* Option "9: KEY CODE RESET" will not appear if your present vehicle does not support the key code reset functions.

Key Code Reset Procedure (Continued)

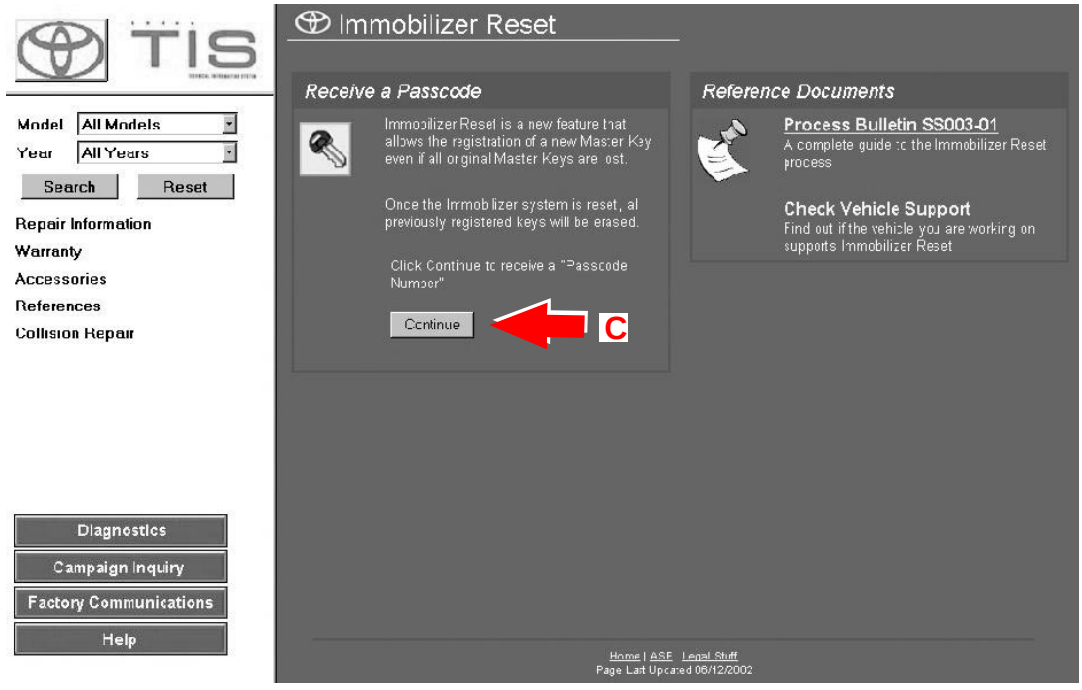
2. Using TIS (Technical Information System), select **Immobilizer Reset**, and complete the request form to retrieve a "Passcode Number."
   A. Click on **Diagnostics**.
   B. Click on **Immobilizer Reset**.

FIGURE 3. SELECTING IMMOBILIZER RESET ON TIS



C. Read the instructions on the screen and click on **Continue**. (See Figure 4 below.)

FIGURE 4. IMMOBILIZER RESET INSTRUCTIONS ON TIS

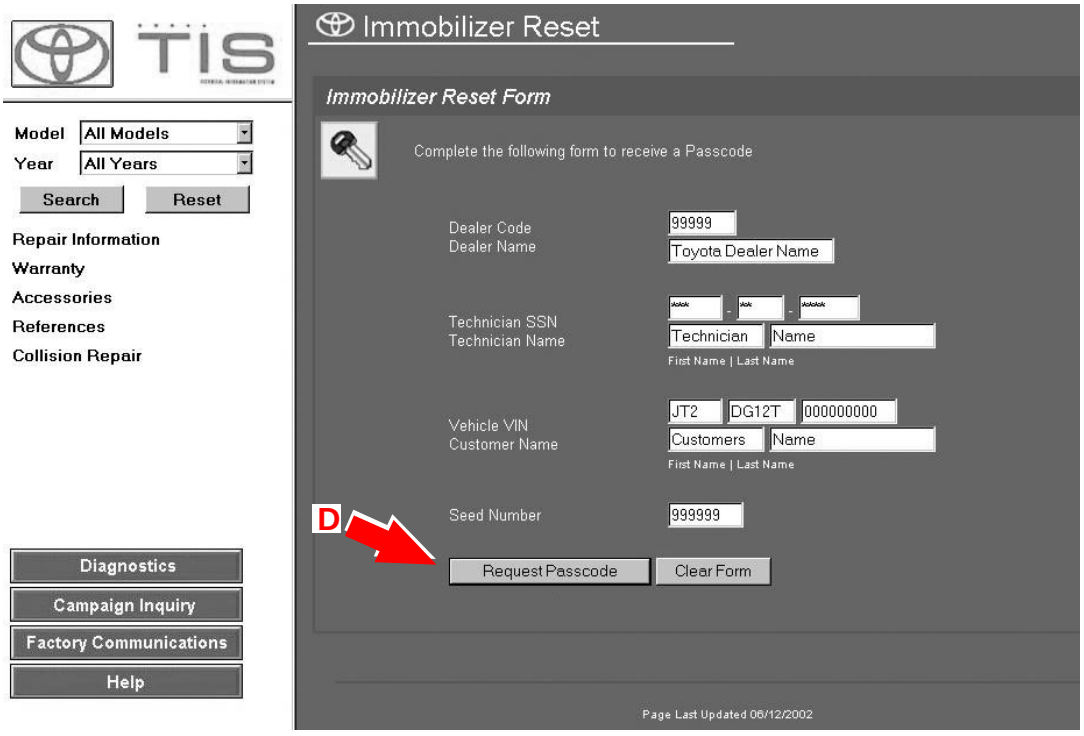


Key Code Reset Procedure (Continued)

D. Complete the request form and enter the "Seed Number" from the Diagnostic Tester. Click on **Request Passcode** (Figure 5).

NOTE: All fields must be completed.

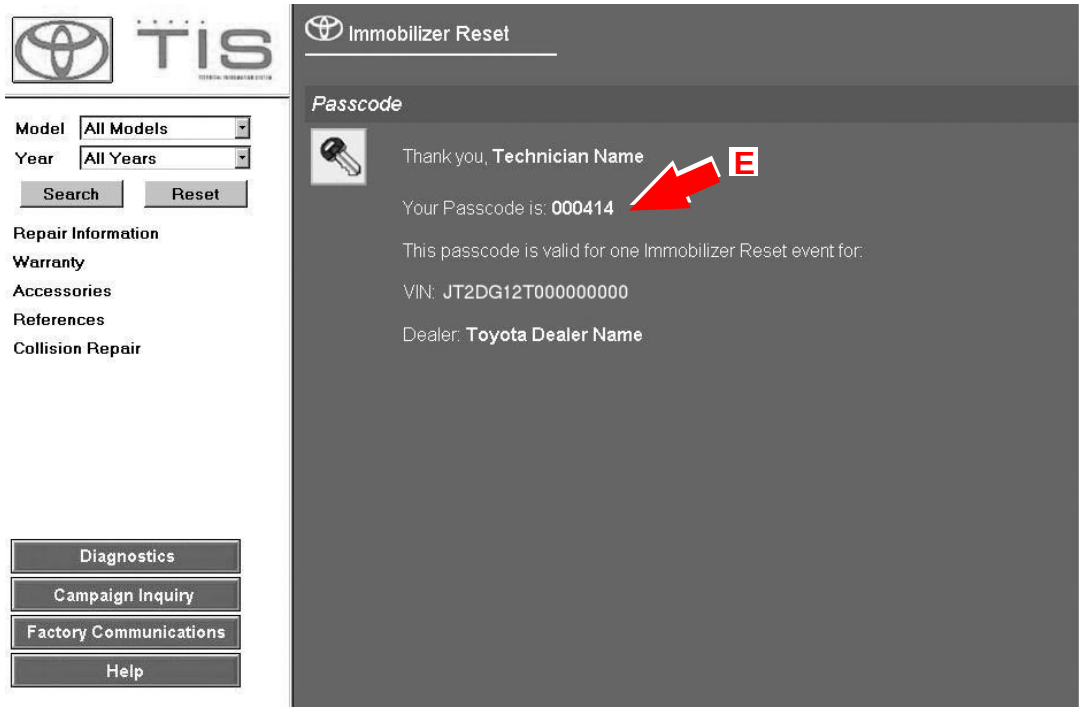
FIGURE 5. REQUEST FORM ON TIS



E. TIS will now return the Passcode that needs to be entered into the Diagnostic Tester.

NOTE: The Passcode given by TIS is only valid for one Immobilizer Reset Event.

FIGURE 6. RECEIVING PASSCODE FOR DIAGNOSTIC TESTER

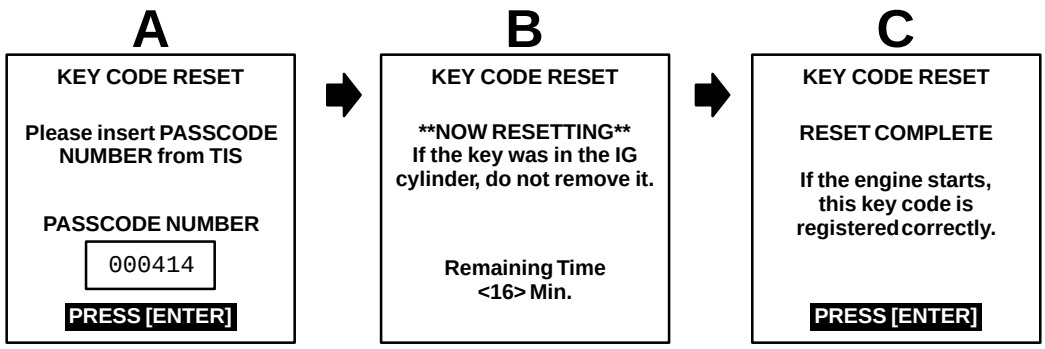


Key Code Reset Procedure (Continued)

3. Using the numbered keys (0–9) on the Diagnostic Tester, enter the "Passcode Number" received from TIS. Press **ENTER** to clear all registered key codes.

NOTE:
Key Code Reset takes approximately 16 minutes.

FIGURE 7. PASSCODE ENTRY SCREEN FLOW



4. Confirm successful Immobilizer reset and new Master Key registration by starting the vehicle.

NOTE:
If the vehicle starts, the new Master Key code is registered correctly.
If the vehicle does not start, perform the Immobilizer Reset function again.

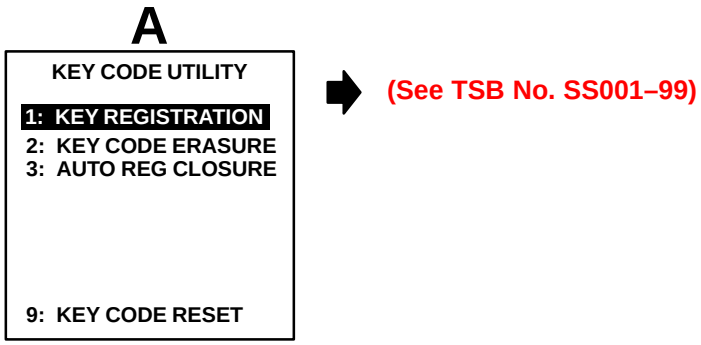
5. All previously registered key codes have been erased except the Master Key used during "Key Code Reset."

   Register any additional customer keys by using "Key Registration."

   Each key will start the engine if registered correctly.

   - Please refer to TSB No. SS001–99, *"Scantool Immobilizer Key Code Utility,"* for additional detail on this procedure.

FIGURE 8. KEY REGISTRATION



TOYOTA

Technical Service BULLETIN

December 8, 2000

Title:

DIAGNOSTIC TESTER COMMUNICATION ERROR WITH T.I.S.

Models:

All Models

TSB

SS004-00

SPECIAL SERVICE TOOLS

Introduction

Certain Diagnostic Testers (SST P/N 02002019) may experience a communication error with the Technical Information System (T.I.S.). To correct this condition, the tester manufacturer, Vetronix Corporation, will recall and update affected units. The following explains how to determine which Diagnostic Testers may exhibit this problem and outlines the procedure to return the tester for repair.

Applicable Diagnostic Testers

Diagnostic Testers within the serial number range below are known to experience these communication errors.

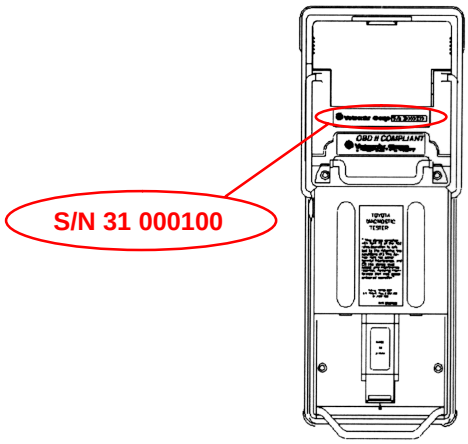
STARTING SERIAL NUMBER	ENDING SERIAL NUMBER
31 000000	31 000100

Repair Procedure

1. Determine the Diagnostic Tester serial number located on the back of the tester (see Figure 1).
2. If the serial number is within the range listed above, call Vetronix Toyota Customer Service at 1-800-321-4889, ext. 3123, to obtain a pre-paid shipping package for the Diagnostic Tester.
3. The shipping package will arrive within 2 business days. Secure the tester in the provided package following the enclosed shipping instructions.

   Diagnostic Testers are guaranteed to be returned within 3 business days from receipt at Vetronix (except over holidays).

Figure 1
Back View of Diagnostic Tester



NOTE:

This update will be performed free of charge.

Diagnostic Testers outside of the serial number range above are not affected and do not need this repair. If a Diagnostic Tester outside this range experiences a similar problem, please call Dealer Daily Support at 1-877-DL-DAILY or Vetronix Toyota Customer Service at 1-800-321-4889, ext. 3123.

Warranty Information

OP CODE	DESCRIPTION	TIME	OPN	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

TOYOTA
SCION
Technical Service BULLETIN
December 17, 2003

Title:

O2S TEST RESULTS (MODE 05)

Models:

All '96 – '03, '04 Corolla, ECHO, Matrix, Sienna & Scion xA & xB

TSB

SS002-03

SPECIAL SERVICE TOOLS

Introduction

This Service Bulletin contains Oxygen Sensor (O2S) Monitor threshold values for all models from 1996 to 2003 and some 2004 models. Starting in 2004, the O2S Monitor threshold values can be found in the repair manual. These values are used when analyzing the O2S test results to determine the O2S condition.

Applicable Vehicles

- **All 1996 – 2003** model year **Toyota** vehicles.
- **2004** model year **Corolla, ECHO, Matrix** and **Sienna** vehicles.
- **2004** model year **Scion xA** and **xB** vehicles.

Function Description

Checking O2S Test Results

To view O2S test results, the O2S Monitor must be completed and the test results must be checked within the same key cycle. If the ignition key is cycled OFF, the O2S test results will be set to the minimum or maximum limits, and all test results will be erased. The O2S test results are stored in the ECU (SAE term: Powertrain Control Module/PCM) when the monitor is completed. The test results are static and will not change once the monitor is complete.

The process for checking O2S test results is described in the following three basic steps:

1. Completing the O2S Readiness Monitor (page 2).
2. Accessing O2S Test Results (page 3).
3. Comparing O2S Test Results to Failure Thresholds (page 4).

Required SSTs

SPECIAL SERVICE TOOLS (SSTs)	PART NUMBER	QUANTITY
Toyota Diagnostic Tester Kit* (or any OBDII Scantool) 	01001271	1
12 Megabyte Diagnostic Tester Program Card with version 10.1a Software (or later)* 	01002593-005	1

* Essential SSTs.

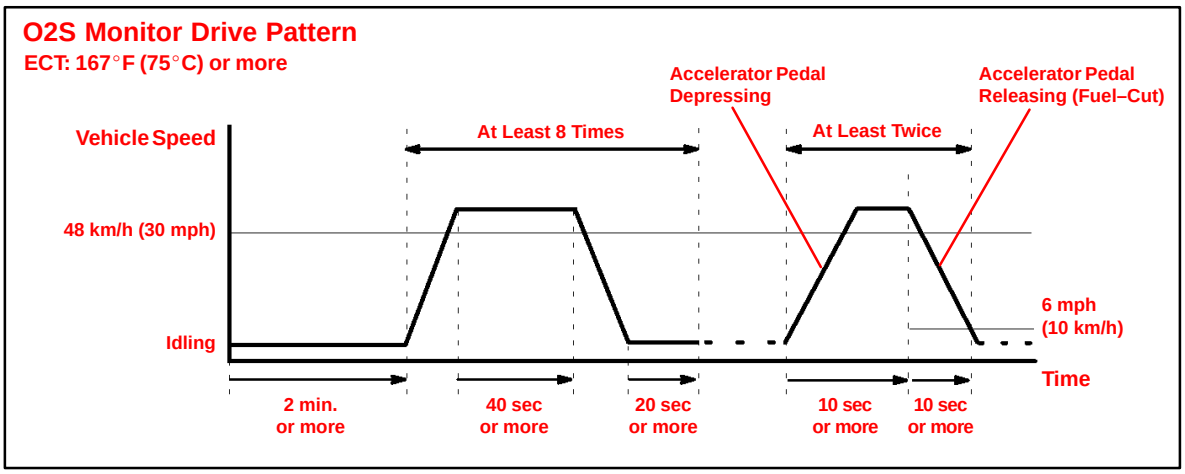
NOTE:
Additional Diagnostic Tester Kits, Program Cards or other SSTs may be ordered by calling SPX/OTC at 1-800-933-8335.

Warranty Information

OP CODE	DESCRIPTION	TIME	OFP	T1	T2
N/A	Not Applicable to Warranty	–	–	–	–

Completing O2S Readiness Monitor

1. Clear any stored Diagnostic Trouble Codes (DTCs) using the Toyota Diagnostic Tester.
2. Start the engine.
3. Perform the drive pattern below to run and complete the Oxygen Sensor (O2S) Monitor.



HINT:

The O2S Monitor is completed when the following conditions are met:

- **Two (2) minutes or more passed after the engine start.**
- **The Engine Coolant Temperature (ECT) is 167°F (75°C) or more.**
- **Cumulative running time at 30 mph (48 km/h) or more exceeds 6 minutes.**
- **Vehicle is in closed loop.**
- **The fuel–cut is operated for 8 seconds or more (for Rear O2S Monitor).**

A. Allow the engine to idle for two minutes.

B. Warm up the engine until the Engine Coolant Temperature (ECT) reaches 167°F (75°C).

C. Drive the vehicle over 30 mph (48 km/h) for more than 40 seconds.

D. Stop the vehicle and allow the engine to idle for more than 20 seconds.

E. Repeat steps C and D at least 8 times in one driving cycle. (Do not cycle the ignition key.)

In addition, perform the following steps for the Rear O2S Readiness Monitor:

A. Select second gear.

B. Allow the vehicle to run at 30 mph (48 km/h) or more.

C. Keep the accelerator pedal “off–idle” for more than 10 seconds.

D. Immediately after step C, release the accelerator pedal for at least 10 seconds without depressing the brake pedal (to execute the fuel–cut).

E. Decelerate the vehicle until the vehicle speed reaches less than 6 mph (10 km/h).

F. Repeat steps B – E at least twice in one driving cycle.

Accessing O2S Test Results

1. On the Diagnostic Tester* screen, select the following menus:
   - DIAGNOSTICS
   - CARB OBD II
   - O2S TEST RESULTS

   A list of the available oxygen sensors will be displayed.

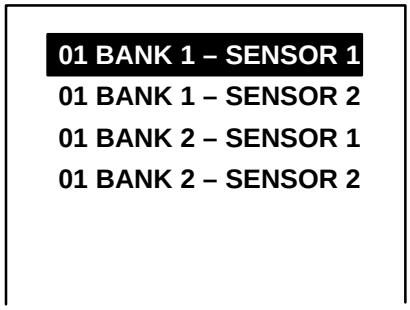
2. Select the desired oxygen sensor and press Enter.

NOTE:

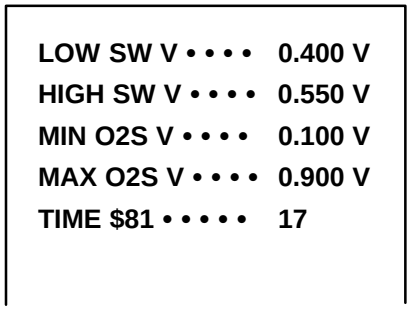
The monitor result of the A/F sensor will not be displayed. If you select "Bank 1–Sensor 1" or Bank 2–Sensor 1" for a vehicle equipped with an A/F sensor, the Diagnostic Tester will display "No parameter to display."

3. Compare the test results with the values listed in the Failure Threshold Chart.

O2S TEST RESULT Screen



TEST DATA Screen



* Although this procedure references the Toyota Diagnostic Tester, the O2S test results can be checked using a generic OBDII scantool. Refer to your OBDII scantool operator's manual for specific procedures.

Comparing O2S Test Results to Failure Thresholds

1. Determine the correct O2S Failure Threshold Chart for your vehicle by looking in the "O2S Application Table," pages 5 – 9 in this bulletin.
2. Select appropriate year, model, and engine for specified O2S Failure Threshold Chart.
3. Compare O2S test results with the specified O2S Failure Threshold Chart. It may be necessary to convert O2S test results to a specific measurement unit using the conversion factor that is supplied in the specified table. See example below:

Example:

A. The Diagnostic Tester displays "17" as a value of the "Time $81" (see illustration).

B. Find the Conversion Factor value of "Time $81" in the O2S Failure Threshold chart below. 0.3906 is specified for Time $81 in this chart.

C. Multiply "17" in step "A" by 0.3906 (Conversion Factor) in step "B." **17 x 0.3906 = 6.6 %**

D. If the answer is within the Standard Value of TEST LIMIT, the "Time $81" can be confirmed to be normal.

Example

LOW SW V • • • •	**0.400 V**
HIGH SW V • • • •	**0.550 V**
MIN O2S V • • • •	**0.035 V**
MAX O2S V • • • •	**0.835 V**
Time $81	**17**
Time $84	**84**
Time $85	**79**

NOTE:

- **"LOW SW V" indicates the O2S voltage when the O2S status changes from rich to lean.**
- **"HIGH SW V" indicates the O2S voltage when the O2S status changes from lean to rich.**
- **If the O2S voltage is lower than "LOW SW V," the O2S status is lean.**
- **If the O2S voltage is higher than "HIGH SW V," the O2S status is rich.**

Example of O2S Failure Threshold Chart:

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05V	Multiply 0.3906	%	Within 60%

NOTE:

Before the O2S Monitor completes or after the ignition switch is turned OFF, the Diagnostic Tester displays the viewable upper limit or a lower limit of the test value (example: 0 V, 1.275 V, 0 s [seconds], 10.2 s, 0 and 255).

O2S Application Table

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
1996	Avalon	1MZ–FE	All	50–State	1 (p. 10)
	Camry	5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
		1MZ–FE	All	50–State	
	Celica	7A–FE	All	50–State	1 (p. 10)
		5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
	Corolla	ALL	All	50–State	1 (p. 10)
	Land Cruiser	1FZ–FE	All	50–State	1 (p. 10)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	Previa	2TZ–FZE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	50–State	2 (p. 11)
	Supra	ALL	All	50–State	1 (p. 10)
	Tacoma	ALL	All	50–State	1 (p. 10)
	Tercel	5E–FE	All	50–State	1 (p. 10)
	T100	ALL	All	50–State	1 (p. 10)
	4Runner	ALL	All	50–State	1 (p. 10)
1997	Avalon	1MZ–FE	All	50–State	1 (p. 10)
	Camry	5S–FE	All	California	3 (p. 12)
			All	Federal	1 (p. 10)
		1MZ–FE	All	50–State	
	Celica	7A–FE	All	50–State	1 (p. 10)
		5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
	Corolla	ALL	All	50–State	1 (p. 10)
	Land Cruiser	1FZ–FE	All	50–State	1 (p. 10)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	Previa	2TZ–FZE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	50–State	2 (p. 11)
	Supra	ALL	All	50–State	1 (p. 10)
	Tacoma	2RZ–FE	All	50–State	1 (p. 10)
		3RZ–FE	A/T	50–State	
			M/T, 2WD	50–State	
			M/T, 4WD	50–State	2 (p. 11)
		5VZ–FE	All	50–State	
	Tercel	5E–FE	All	50–State	1 (p. 10)
	T100	3RZ–FE	All	50–State	1 (p. 10)
		5VZ–FE	All	50–State	2 (p. 11)
	4Runner	3RZ–FE	All	50–State	1 (p. 10)
		5VZ–FE	All	50–State	2 (p. 11)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
1998	Avalon	1MZ–FE	All	California	4 (p. 12)
			All	Federal	1 (p. 10)
	Camry	5S–FE	All	California	3 (p. 12)
			All	Federal	2 (p. 11)
		1MZ–FE	A/T	California	4 (p. 12)
				Federal	1 (p. 10)
			M/T	50–State	
	Celica	5S–FE	All	California	2 (p. 11)
			All	Federal	1 (p. 10)
	Corolla	1ZZ–FE	All	50–State	2 (p. 11)
	Land Cruiser	2UZ–FE	All	50–State	2 (p. 11)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	California	3 (p. 12)
			All	Federal	2 (p. 11)
	Sienna	1MZ–FE	All	50–State	1 (p. 10)
	Supra	2JZ–GE	All	50–State	2 (p. 11)
		2JZ–GTE	All	50–State	1 (p. 10)
	Tacoma	ALL	All	50–State	2 (p. 11)
	Tercel	5E–FE	All	50–State	1 (p. 10)
	T100	ALL	All	50–State	2 (p. 11)
	4Runner	ALL	All	50–State	2 (p. 11)
1999	Avalon	1MZ–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
	Camry CNG	5S–FNE	All	50–State	6 (p. 13)
	Celica	5S–FE	All	50–State	5 (p. 13)
	Corolla	1ZZ–FE	All	50–State	2 (p. 11)
	Land Cruiser	2UZ–FE	All	50–State	2 (p. 11)
	Paseo	5E–FE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	California	3 (p. 12)
			All	Federal	2 (p. 11)
	Sienna	1MZ–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
	Solara	5S–FE	All	California	3 (p. 12)
			All	Federal	5 (p. 13)
		1MZ–FE	A/T	California	4 (p. 12)
				Federal	5 (p. 13)
			M/T	50–State	
	Tacoma	ALL	All	50–State	2 (p. 11)
	Tercel	5E–FE	All	50–State	1 (p. 10)
	4Runner	3RZ–FE	All	50–State	2 (p. 11)
		5VZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
2000	Avalon	1MZ–FE	All	50–State	4 (p. 12)
	Camry CNG	5S–FNE	All	50–State	6 (p. 13)
	Celica	ALL	All	50–State	1 (p. 10)
	Corolla	1ZZ–FE	All	50–State	7 (p. 14)
	ECHO	1NZ–FE	All	50–State	1 (p. 10)
	Land Cruiser	2UZ–FE	All	50–State	2 (p. 11)
	MR2	1ZZ–FE	All	50–State	1 (p. 10)
	RAV4	3S–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
	Sienna	1MZ–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
	Solara	5S–FE	All	California	4 (p. 12)
			All	Federal	5 (p. 13)
		1MZ–FE	A/T	California	4 (p. 12)
				Federal	5 (p. 13)
			M/T	50–State	
	Tacoma	2RZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
		3RZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
		5VZ–FE	All	California	8 (p. 15)
			All	Federal	2 (p. 11)
	Tundra	2UZ–FE	All	50–State	2 (p. 11)
		5VZ–FE	All	California	8 (p. 15)
			All	Federal	2 (p. 11)
	4Runner	3RZ–FE	All	California	4 (p. 12)
			All	Federal	2 (p. 11)
		5VZ–FE	All	California	8 (p. 15)
			All	Federal	2 (p. 11)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
2001	Avalon	1MZ–FE	All	50–State	4 (p. 12)
	Camry CNG	5S–FNE	All	50–State	6 (p. 13)
	Celica	ALL	All	50–State	1 (p. 10)
	Corolla	1ZZ–FE	All	50–State	7 (p. 14)
	ECHO	1NZ–FE	All	50–State	1 (p. 10)
	Highlander	1MZ–FE	All	50–State	9 (p. 15)
		2AZ–FE	All	50–State	3 (p. 12)
	Land Cruiser	2UZ–FE	All	50–State	1 (p. 10)
	MR2	1ZZ–FE	All	50–State	1 (p. 10)
	Prius	1NZ–FXE	All	50–State	11 (p. 17)
	RAV4	1AZ–FE	All	50–State	4 (p. 12)
	Sequoia	2UZ–FE	All	50–State	1 (p. 10)
	Sienna	1MZ–FE	All	50–State	4 (p. 12)
	Solara	5S–FE	All	50–State	3 (p. 12)
		1MZ–FE	A/T	50–State	9 (p. 15)
			M/T	50–State	10 (p. 16)
	Tacoma	ALL	All	50–State	4 (p. 12)
	Tundra	2UZ–FE	All	50–State	1 (p. 10)
		5VZ–FE	All	50–State	4 (p. 12)
	4Runner	ALL	All	50–State	4 (p. 12)
2002	Avalon	1MZ–FE	All	50–State	4 (p. 12)
	Celica	1ZZ–FE	All	50–State	1 (p. 10)
		2ZZ–GE	All	50–State	13 (p. 19)
	Corolla	1ZZ–FE	All	50–State	7 (p. 14)
	ECHO	1NZ–FE	All	50–State	1 (p. 10)
	Highlander	1MZ–FE	All	50–State	4 (p. 12)
		2AZ–FE	All	50–State	3 (p. 12)
	Land Cruiser	2UZ–FE	All	50–State	14 (p. 20)
	MR2	1ZZ–FE	All	50–State	1 (p. 10)
	Prius	1NZ–FXE	All	50–State	15 (p. 21)
	RAV4	1AZ–FE	All	50–State	3 (p. 12)
	Sequoia	2UZ–FE	All	50–State	14 (p. 20)
	Sienna	1MZ–FE	All	50–State	4 (p. 12)
	Solara	2AZ–FE	All	50–State	12 (p. 18)
		1MZ–FE	A/T	50–State	9 (p. 15)
			M/T	50–State	5 (p. 13)
	Tacoma	ALL	All	50–State	12 (p. 18)
	Tundra	2UZ–FE	All	50–State	14 (p. 20)
		5VZ–FE	All	50–State	12 (p. 18)
	4Runner	ALL	All	50–State	12 (p. 18)

O2S Application Table (Continued)

MODEL YEAR	MODEL	ENGINE	DRIVE TRAIN	CERTIFICATION	SEE CHART NO. (TSB PAGE)
2003	Avalon	1MZ–FE	All	50–State	16 (p. 22)
	Camry	2AZ–FE	All	Federal	17 (p. 23)
			M/T	California	
			A/T	California	18 (p. 24)
		1MZ–FE	All	With VVT	19 (p. 25)
			All	Without VVT	20 (p. 26)
	Celica	1ZZ–FE	All	50–State	13 (p. 19)
		2ZZ–GE	All	50–State	21 (p. 27–28)
	Corolla	1ZZ–FE	All	50–State	22 (p. 29)
	ECHO	1NZ–FE	All	50–State	23 (p. 30–31)
	Highlander	1MZ–FE	All	50–State	16 (p. 22)
		2AZ–FE	All	50–State	12 (p. 18)
	Land Cruiser	2UZ–FE	All	50–State	24 (p. 32–33)
	Matrix	1ZZ–FE	All	50–State	22 (p. 29)
		2ZZ–GE	All	50–State	21 (p. 27–28)
	MR2	1ZZ–FE	All	50–State	13 (p. 19)
	Prius	1NZ–FXE	All	50–State	15 (p. 21)
	RAV4	1AZ–FE	All	50–State	25 (p. 34)
	Sequoia	2UZ–FE	All	50–State	24 (p. 32–33)
	Sienna	1MZ–FE	All	50–State	16 (p. 22)
	Solara	2AZ–FE	All	50–State	17 (p. 23)
		1MZ–FE	All	50–State	20 (p. 26)
	Tacoma	ALL	All	50–State	16 (p. 22)
	Tundra	2UZ–FE	All	50–State	24 (p. 32–33)
		5VZ–FE	All	50–State	16 (p. 22)
	4Runner	1GR–FE	All	50–State	12 (p. 18)
		2UZ–FE	All	50–State	26 (p. 35–36)
2004	Corolla	1ZZ–FE	All	50–State	27 (p. 37–38)
	ECHO	1NZ–FE	All	50–State	23 (p. 30–31)
	Matrix	1ZZ–FE	2WD	50–State	27 (p. 37–38)
			4WD	50–State	28 (p. 39–40)
		2ZZ–GE	All	50–State	29 (41–42)
	Sienna	3MZ–FE	All	50–State	30 (p. 43)
	Scion xA	1NZ–FE	All	50–State	23 (p. 30–31)
	Scion xB	1NZ–FE	All	50–State	23 (p. 30–31)

O2S Failure Threshold Charts

CHART 1:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1 second
Time $32	Time to change from Rich (≥0.55 V) to Lean (≥0.4 V)	N/A	Second	Between 0 and 1 second

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 2:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
$07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1.1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≥0.35 V)	N/A	Second	Between 0 and 1.1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 3:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor
Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

CHART 4:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor
Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 5:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1.1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 1.1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

CHART 6:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.55 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 1 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 7:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 8:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1 second
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.35 V)	N/A	Second	Between 0 and 1 second

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

CHART 9:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 10:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1.1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 1.1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 11:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.42 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.48 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.42 V) to Rich (≥0.48 V)	N/A	Second	Between 0 and 0.4 seconds
Time $32	Time to change from Rich (≥0.48 V) to Lean (≤0.42 V)	N/A	Second	Between 0 and 0.4 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 12:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≤0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 13:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 1 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 1 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 14:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 90%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 15:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.42 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.48 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.42 V) to Rich (≥0.48 V)	N/A	Second	Between 0 and 0.4 seconds
Time $32	Time to change from Rich (≥0.48 V) to Lean (≤0.42 V)	N/A	Second	Between 0 and 0.4 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 10 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 16:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 17:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 55%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 18:

Rear O2S (Bank 1 Sensor 2) Voltage Monitor

Related DTCs: P0136

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.2 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 3) Deterioration Monitor

Related DTCs: P0142

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $86	Average of the second impedance ratio between high–frequency and low–frequency	Multiply 0.0312	%	Between 0.7 and 1.35

If the average of the sensor impedance ratio is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 19:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 95%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 20:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.5 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 21:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.8 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.8 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 3.05 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 3.05 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 21 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.95 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.95 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 22:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.5 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 23:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 4.5 seconds
Time $34	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 4.5 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 23 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.9 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.9 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 24:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 24 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 90%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 25:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.6 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 26:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.55 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.4 V) to Rich (≥0.55 V)	N/A	Second	Between 0 and 0.9 seconds
Time $32	Time to change from Rich (≥0.55 V) to Lean (≤0.4 V)	N/A	Second	Between 0 and 0.9 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 2.8 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 26 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 0.75 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 27:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.45 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.45 V)	N/A	Second	Between 0 and 0.6 seconds
Time $32	Time to change from Rich (≥0.45 V) to Lean (≤0.35 V)	N/A	Second	Between 0 and 0.6 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 3 seconds
Time $34	Average Rich (≥0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 3 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 27 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 0.55 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 0.55 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 28:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Voltage Monitor

Related DTCs: P0130, P0150, P2195, P2196, P2197 and P2198

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.35 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.45 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Response Monitor

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $31	Time to change from Lean (≤0.35 V) to Rich (≥0.45 V)	N/A	Second	Between 0 and 0.6 seconds
Time $32	Time to change from Rich (≥0.45 V) to Lean (≤0.35 V)	N/A	Second	Between 0 and 0.6 seconds

If the time required to change is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 2 seconds
Time $34	Average Rich (≥0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 2 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 28 (Continued):

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.35 V) time of one waveform cycle	N/A	Second	Between 0 and 0.5 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≤0.45 V) time of one waveform cycle	N/A	Second	Between 0 and 0.5 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 29:

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Engine Idling

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $33	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 4 seconds
Time $34	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 4 seconds

If the sum of Time $33 and Time $34 is out of the standard value, the ECM interprets this as a malfunction.

Front O2S (Bank 1 Sensor 1 and Bank 2 Sensor 1) Frequency Monitor During Vehicle Running

Related DTCs: P0133 and P0153

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $35	Average Lean (≤0.4 V) time of one waveform cycle	N/A	Second	Between 0 and 1.08 seconds (varies depending on feedback compensation factor)
Time $36	Average Rich (≥0.55 V) time of one waveform cycle	N/A	Second	Between 0 and 1.08 seconds (varies depending on feedback compensation factor)

If the sum of Time $35 and Time $36 is out of the standard value, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 29 (Continued):

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.4 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 60%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.

O2S Failure Threshold Charts (Continued)

CHART 30:

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Voltage Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $07	The minimum voltage during O2S monitoring	N/A	V	Between 0 and 0.45 V
Time $08	The maximum voltage during O2S monitoring	N/A	V	Between 0.5 and 1.275 V

If the sensor voltage is out of the standard value, the ECM interprets this as a malfunction.

Rear O2S (Bank 1 Sensor 2 and Bank 2 Sensor 2) Element Monitor

Related DTCs: P0136 and P0156

TEST ID	DESCRIPTION OF TEST DATA	CONVERSION FACTOR	UNIT	STANDARD VALUE OF TEST LIMIT
Time $81	Percentage of monitoring time where Oxygen Sensor voltage is less than 0.05 V	Multiply 0.3906	%	Between 0 and 80%
Time $84	Percentage of monitoring time where Oxygen Sensor voltage is 0.70 V or more	Multiply 0.3906	%	Between 20 and 100%
Time $85	Maximum Rich (≥0.45 V) time	Multiply 0.2621	Second	Between 20 and 66.8 seconds

If all the values (Time $81, Time $84 and Time $85) are out of the standard values, the ECM interprets this as a malfunction.