

0895

**SUZUKI  
IMMOBILIZER  
CONTROL  
SYSTEM  
CARTRIDGE  
1.2**

**Operator's Manual**

**tech 1**®

## SOME THINGS YOU SHOULD KNOW



**WARNING:**

**EXHAUST GAS**

When performing any checks with the engine running in an enclosed space such as a garage, be sure there is proper ventilation. Never inhale exhaust gases; they contain carbon monoxide, a colorless, odorless extremely dangerous gas which can cause unconsciousness or death.



**WARNING:**

To help avoid personal injury always set the parking brake securely and block the drive wheels before performing any checks or repairs on the vehicle.

### DISCLAIMER

The **TECH 1** is designed for use by trained service personnel only. It has been developed for the sole purpose of diagnosing and repairing automotive electronic systems. Every attempt has been made to provide complete and accurate technical information based on factory service information available at the time of publication. However, the right is reserved to make changes at any time without notice.

### FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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## **1.0 SUZUKI IMMOBILIZER CONTROL SYSTEM CARTRIDGE 1.2 DESCRIPTION**

The Suzuki Immobilizer Control System Cartridge 1.2 is used with the **TECH 1** to enter the ignition key transponder code into the immobilizer control module, and the ECU code into the vehicle ECM (PCM) or Pump ECU (SOV). It can also be used with the **TECH 1** to clear transponder codes and view Immobilizer Control Module data.

A description of the operating modes is provided below.

### **MODE F0 ENTER TRANSPONDER CODE**

Mode F0 allows you to enter the transponder code into the Immobilizer Control Module. This mode is used when an ignition key has been lost, when a spare key is made, or when the Immobilizer Control Module has been replaced, etc.

### **MODE F1 RECORD ECU**

Mode F1 allows you to enter the ECU code into the ECM (PCM) or Pump ECU (SOV).

Mode F1 is used after the ECM (PCM), Fuel Injection Pump equipped with Pump ECU (SOV), or Immobilizer Control Module has been replaced.

### **MODE F2 CLEAR TRANSPONDER CODES**

Mode F2 is used to clear the stored transponder Codes from the Immobilizer Control Module.

### **MODE F3 DATA LIST**

Mode F3 displays the number of keys that are entered in the Immobilizer Control Module and the date the ECU code was recorded.

### **NOTES:**

**The password for the vehicle must be obtained from the Suzuki distributor and entered into the TECH 1 before the test modes can be used.**

Notes continued on following page.

Notes, continued.

In the Immobilizer Control System sections of the Service Manuals listed below, some of the commands differ from the corresponding Test Mode names that appear on the TECH 1.

- SE/SV/SZ/SY SERIES Supplementary Service Manual (99501-60G10)
- SV 420D Supplementary Service Manual (99501-78E00)
- SR410 Service Manual (99500-75F00)

The chart below shows terms used in the Service Manual and the corresponding terms used on the TECH 1 screens.

SERVICE MANUAL DESCRIPTION	TECH 1 SCREEN
CLEAR TP CODE	CLR. TRANS COD
ENT. TP CODE	ENT. TRANS COD
RECORD ECM/ICM	RECORD ECU

The Immobilizer programming functions are available for the following vehicles equipped with an Immobilizer Control System.

MODEL	ENGINE SIZE (L)	FUEL SYSTEM	ECM (PCM)/ PUMP ECU (SOV) MFG.	IMMOBILIZER CONTROL MODULE MFG.	NOTE
SE416	1.6	TBI	mitsubishi	mitsubishi	
SE416	1.6	SFI	mitsubishi	mitsubishi	
SV620	2.0	SFI	HITACHI	mitsubishi	
SY413/416	1.3/1.6	MFI	DENSO	TOHKAI RIKA	
SY418	1.8	SFI	HITACHI	TOHKAI RIKA	
SZ416	1.6	SFI	mitsubishi	mitsubishi	
SV420D	2.0	--	DENSO	mitsubishi	
SH410	1.0	MFI	mitsubishi	mitsubishi	
SF310/413/416	1.0/1.3/1.6	TBI	DENSO	TOHKAI RIKA	*
SV420G	2.0	SFI	HITACHI	mitsubishi	
SR SERIES	1.0/1.2	SFI	HITACHI	mitsubishi	
SQ416/420	1.6/2.0	SFI	mitsubishi	mitsubishi	
SQ625	2.5	SFI	HITACHI	mitsubishi	
SQ420WD	2.0	--	DENSO	mitsubishi	
SN413	1.3	SFI	DENSO	mitsubishi	
SY419	1.9	--	LUCAS	TOHKAI RIKA	**

\* For Hungarian-made vehicles.

\*\* For vehicles equipped with Pump ECU (SOV).

## KEY FUNCTIONS

**YES & NO** Answer questions asked on **TECH 1** display and select data parameters to monitor.

**EXIT** Return to previous step.

**↑ & ↓** Scroll through test mode selection menus.

**0 - 9** Enter information such as model year and password.

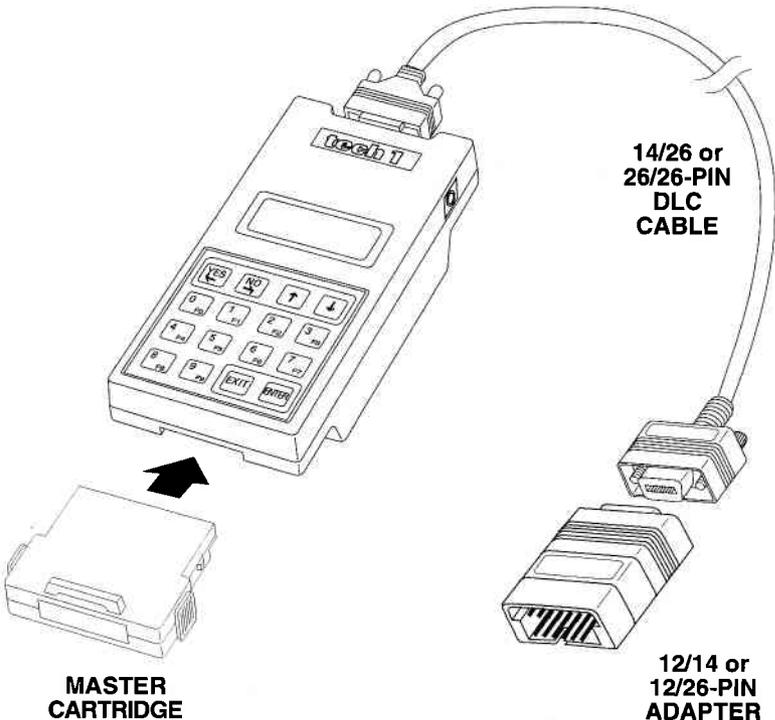
**F0 - F9** Select test mode.

## 2.0 GETTING STARTED

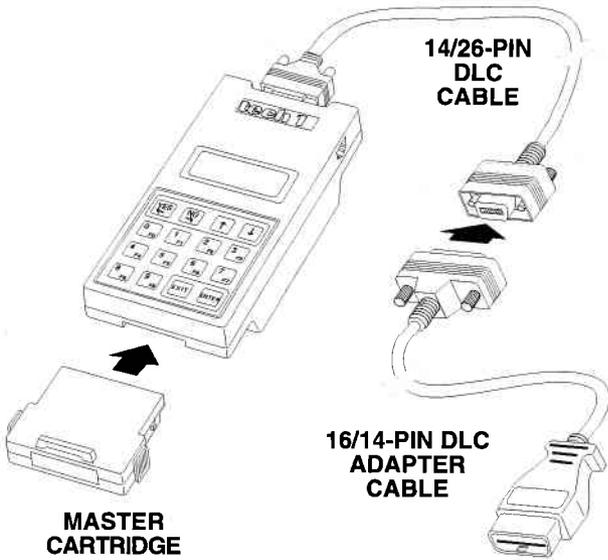
Before operating the Suzuki Immobilizer Control System Cartridge 1.2 with the **TECH 1**, the following steps must be performed:

1. The Suzuki Immobilizer Control System Cartridge 1.2 is a master program cartridge so insert it into the bottom slot of the **TECH 1**. Verify that no other master cartridge (e.g. SUZUKI 1995 ECM Cartridge) is installed in the top slot.
2. Make sure the vehicle ignition is OFF.
3. Locate the vehicle's serial Data Link Connector (DLC) and identify which type it is, 12-pin or 16-pin. The vehicle DLC is usually under the dash on the driver's side. Refer to the vehicle service manual if you are in doubt.
4. Connect the **TECH 1** cable to the top of the **TECH 1** as shown below.

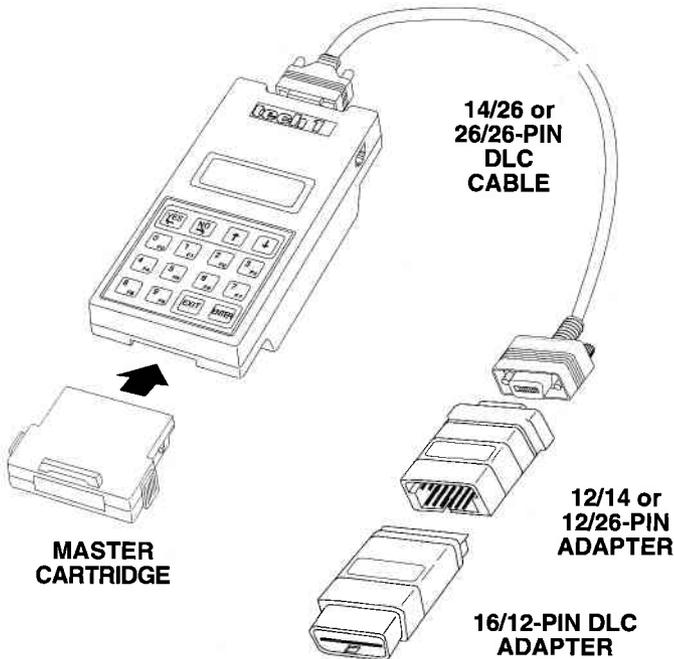
### WHEN THE VEHICLE USES A 12-PIN DLC



**WHEN THE VEHICLE USES A 16-PIN DLC**



**OR**



5. Plug the **TECH 1** cable into the vehicle 12-pin or 16-pin DLC.
6. Turn the ignition key to ON.
7. Verify that the **TECH 1** displays the screen below:

SUZUKI  
IMMOBI. SYSTEM  
1.2  
(ENTER)

8. If the display is correct, press **ENTER** . See Section 4.0 to select the system you are testing.
9. If the display is not correct, refer to Appendix A, If You're Having a Problem.

## **3.0 OPERATING PRECAUTIONS**

### **CONNECTING AND DISCONNECTING THE TECH 1 WHILE THE IGNITION KEY IS ON**

Due to the possibility of voltage spikes that could damage the ECU or **TECH 1**, you should not connect or disconnect the **TECH 1** while the ignition key is ON or while the engine is running.

### **REMOVING THE CARTRIDGE WHILE POWER IS APPLIED**

You should not remove or install master or auxiliary cartridges while the ignition key is ON, or while the engine is running. If you wish to change or add a cartridge:

1. Turn the ignition off.
2. Disconnect the power plug.
3. Install the cartridge.
4. Reconnect the power plug.

If the **TECH 1** does not appear to be functioning properly, perform the following steps to reset the **TECH 1**:

1. Turn the ignition off.
2. Disconnect the power plug.
3. Remove all cartridges from the tester.
4. Connect the power plug to the tester.
5. When "MASTER CARTRIDGE IS MISSING" is displayed, disconnect the power plug.
6. Install the cartridge.
7. Reconnect the power plug.

## 4.0 SELECTING THE SYSTEM

### SELECTING THE MANUFACTURER

The **TECH 1** will ask you to select the manufacturer of the Immobilizer Control Module. Press **F0** to select Tohkai Rika, or press **F1** to select Mitsubishi.

SEL IMMOBI CONT  
F0:TOHKAI RIKA  
F1:MITSUBISHI

### SELECTING 1.9L DIESEL ENGINE

If you selected F0: TOHKAI RIKA as the manufacturer, the **TECH 1** will ask you the following prompt:

1.9L  
DIESEL ENGINE?  
YES/NO

Press **YES** or **NO** to answer.

### ENTERING THE PASSWORD

After the Immobilizer Control Module manufacturer has been selected, the **TECH 1** asks you to input the password. Use the **0 - 9** keys on the tester keypad to enter the password, 0000 - 9999, then press **YES**.

INPUT PASSWORD  
X X X X  
(YES/NO)

The tester will inform you if the password you entered does not match the password in the vehicle Immobilizer Control Module. Confirm the password with the Suzuki distributor.

PASSWORD  
NOT MATCHED

If the password is correct the Select Mode menu is displayed. How to select and operate the test modes is explained in Section 5.0

## ACTIVE TECH 1 KEYS

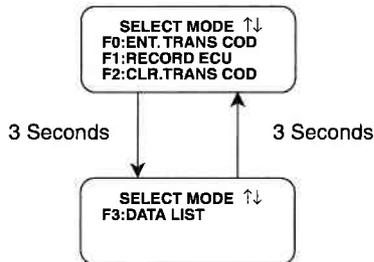
- F0 - F1** Select manufacturer.
- 0 - 9** Enter password.
- YES** Confirm password is entered; select Diesel Engine.
- NO** Decline Diesel Engine.
- EXIT** Return to Select Immobilizer Control Module Manufacturer menu.

## 5.0 SELECTING AND OPERATING THE TEST MODES

This section describes how to select and operate the test modes. Specific operating procedures for each test mode are provided on the following pages.

### SELECTING TEST MODES

The **TECH 1** makes selecting the test mode easy by displaying a list of tests (a test mode "menu"). The menu also displays which key is used to select each test mode. An example test mode menu is shown below.



To select a test mode, simply press the **TECH 1** key listed to the left of the test mode on the menu. Since there are up to four test modes, the keys **F0** - **F3** are used.

Up to three test modes are shown as soon as the password is entered. The tester automatically scrolls to the next display after three seconds. To stop the automatic scrolling, press the **↓** key. The menu may then be manually changed by pressing either the **↑** or **↓** key.

**Regardless of which test modes are displayed, any test mode can be selected at any time from the menu.**

ACTIVE TECH 1 KEYS	
<b>F0</b> - <b>F3</b>	Select Test mode.
<b>↑</b> <b>↓</b>	Manually control the menu display.
<b>↓</b>	Stop automatic menu scrolling.
<b>EXIT</b>	Return to Immobilizer Control Module Manufacturer menu.

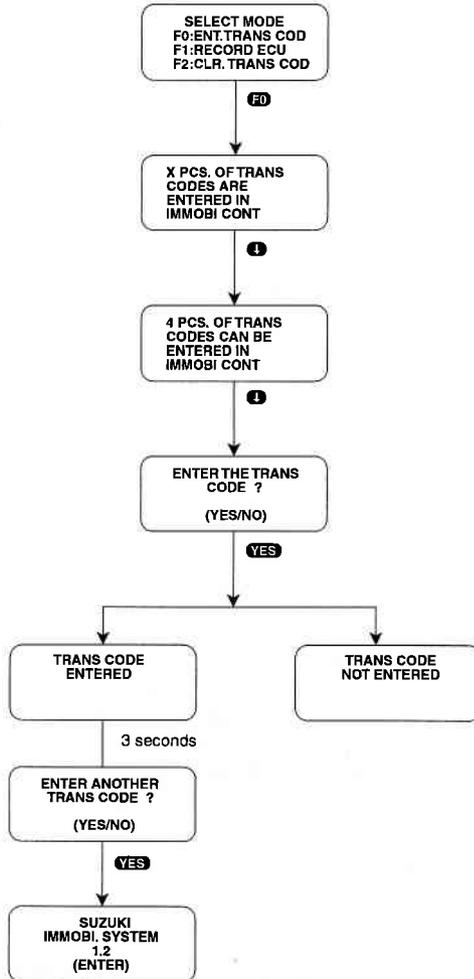
**MODE F0****ENTER TRANSPONDER CODE**

The Enter Transponder Code mode is for entering the ignition key transponder code into the Immobilizer Control Module. Up to four transponder codes can be entered into the Immobilizer Control Module.

**If four transponder codes are currently entered, the existing transponder codes registered in the Immobilizer Control Module must first be cleared by the TECH 1 before the new codes can be registered. Refer to Mode F2, Clear Transponder Code.**

**OPERATING PROCEDURE:**

1. Confirm that the ignition key to be recorded is in the ignition switch and the ignition switch is in the ON position.
2. Press **F0** to select ENT.TRANS COD from the Select Mode menu.
3. The **TECH 1** informs you how many transponder codes are currently entered in the Immobilizer Control Module. Press **↓** to continue.
4. The **TECH 1** informs you that a maximum of four transponder codes can be entered into the Immobilizer Control Module. Press **↓** to continue.
5. The **TECH 1** asks if you want to enter a transponder code. Press **YES** to enter a code, or press **NO** to return to the Select Mode menu.
6. If **YES** is pressed, the **TECH 1** enters the transponder code into the Immobilizer Control Module and informs you when it is entered. The **TECH 1** informs you if the code is not successfully entered, then returns to the Select Mode menu.
7. If the code is successfully entered, the **TECH 1** asks if you want to enter another transponder code. Press **YES** to enter another code, or press **NO** to return to the Select Mode menu. Remember, only four codes can be entered.
8. If you wish to enter another transponder code, remove the key in the ignition and insert the next key to be recorded, then repeat this procedure.

**ENTER TRANSPONDER CODE****MODE F0****ACTIVE TECH 1 KEYS**

- ↓** Continue to next display.
- YES** Enter transponder code.
- NO** Return to the Select Mode menu without entering a transponder code.
- EXIT** Return to the Select Mode menu without entering a transponder code.

The Record ECU mode is for recording the ECU code.

**OPERATING PROCEDURE:**

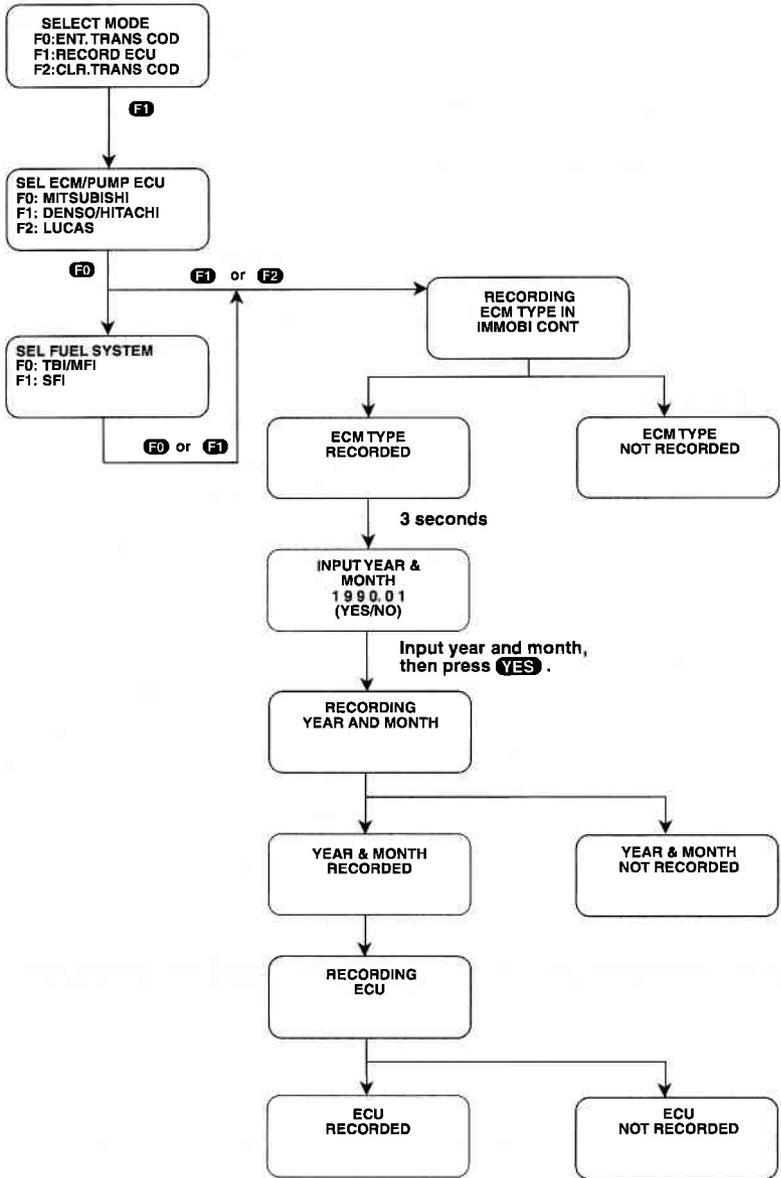
1. Press **F1** to select Record ECU from the Select Mode menu.
2. The **TECH 1** asks you to select the vehicle ECM/Pump ECU type. If the vehicle ECM/Pump ECU type is a DENSO/HITACHI, press **F1**, if a LUCAS, press **F2**.  
  
If the vehicle ECM/Pump ECU type is a Mitsubishi, press **F0**. The **TECH 1** will ask you to select the Fuel System type. For TBI or MFI systems press **F0**, for an SFI system press **F1**.
3. The **TECH 1** records the ECM/Pump ECU type and informs you when the recording is complete. If the ECM/Pump ECU type is not successfully recorded, the **TECH 1** informs you, then returns to the Select Mode menu.
4. After the ECM/Pump ECU type is recorded, the **TECH 1** asks you to input the current year and month when the ECU code is entered. Use the **0 - 9** keys on the **TECH 1** keypad to enter 4 digits for the year and 2 digits for the month, then press **YES**. The **TECH 1** will inform you when the data is recorded. If you make a mistake, press **NO** to input the year and month again.
5. Once the year and month have been recorded, the **TECH 1** stores the ECU code into the ECM/Pump ECU and informs you when it is completed. The tester automatically returns to the Select Mode menu.

The **TECH 1** informs you if the ECU code is not recorded or if the recorded information is wrong. Press **EXIT**, to return to the Select Mode menu and perform the Record ECU mode again.

**ACTIVE TECH 1 KEYS**

- |                   |   |
|-------------------|---|
| <b>F0, F1, F2</b> | Select ECM/Pump ECU manufacturer, and fuel system.                        |
| <b>YES / NO</b>   | Confirm year and month is entered or start entering year and month again. |
| <b>0 - 9</b>      | Enter year and month when ECU code is entered.                            |
| <b>EXIT</b>       | Return to the Select Mode menu.   |

# RECORD ECU      MODE F1



**MODE F2****CLEAR TRANSPONDER CODE**

The Clear Transponder Code mode is for clearing all transponder codes stored in the Immobilizer Control Module.

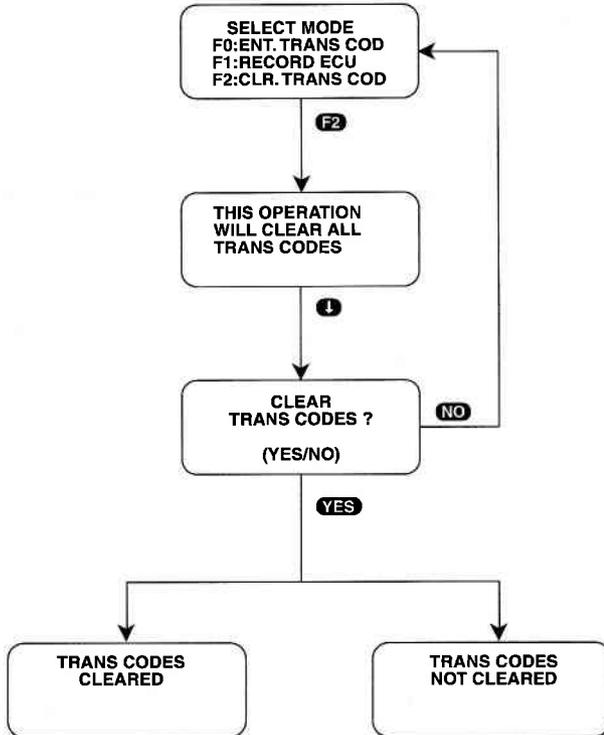
**OPERATING PROCEDURE:**

1. Press **F2** to select Clear Transponder Code from the Select Mode menu.
2. The **TECH 1** informs you that this procedure will clear all transponder codes. Press **↓** to continue with the code clearing.
3. The **TECH 1** asks if you want to clear the transponder codes. If you do not want to clear the codes, press **NO** to return to the Select Mode menu. Press **YES** to clear the codes.
4. The **TECH 1** informs you when the codes are cleared, then automatically returns to the Select Mode menu.

If the codes are not cleared, the **TECH 1** informs you, then automatically returns to the Select Mode menu.

**ACTIVE TECH 1 KEYS**

- |             |   |
|-------------|---|
| <b>↓</b>    | Continue to next display.   |
| <b>YES</b>  | Clear transponder code.   |
| <b>NO</b>   | Return to the Select Mode menu without clearing transponder code. |
| <b>EXIT</b> | Return to the Select Mode menu.                                   |

**CLEAR TRANSPONDER CODE****MODE F2**

**MODE F3****DATA LIST**

The Data List mode displays the number of Transponder codes stored in the Immobilizer Control Module and the date the ECU codes were stored.

**OPERATING PROCEDURE:**

1. Press **F3** to select Data List from the Select Mode menu.
2. The following screen is displayed. The data displayed is for illustration purposes only. The data actually displayed will probably be different.

TRANS CODES  
4 PCS.  
INPUT DATE  
1990.01

3. Press **EXIT** to return to the Select Mode menu.

**ACTIVE TECH 1 KEYS****EXIT**

Return to the Select Mode menu.

## 6.0 FINISHING UP

After using the Suzuki Immobilizer Control System Cartridge 1.2, a few simple steps will insure that you get the most life out of your diagnostic tool.

First, remove power to the **TECH 1** by disconnecting the serial data link cable from the serial data link connector. You may want to inspect the cable and connector for any damage or corrosion.

Next, unplug the cartridge and store it and the cable in the travelling case.

If the **TECH 1** should become dirty you may wipe it off with a clean cloth and mild detergent or hand soap. Avoid using harsh solvents such as petroleum based cleaning agents, Benzene, Trichloroethylene, etc. Although the **TECH 1** is water resistant it is not waterproof so be sure to thoroughly dry off the **TECH 1** prior to storage.

# **APPENDICES**

**A. IF YOU'RE HAVING A PROBLEM**

**B. GLOSSARY AND ABBREVIATIONS**

## A. IF YOU'RE HAVING A PROBLEM

Although the **TECH 1** was designed to give you years of trouble-free service, occasional problems may occur that require special attention. Some of these problems may be corrected with a few simple steps. Examples of most of the displays which you might see under abnormal conditions are shown. In addition, the most likely cause for the condition is given as well as other possible causes and recommendations on how to isolate or eliminate the problem. If the problem appears to be in the **TECH 1**, perform the Self-test (described in the **TECH 1** Operators Manual.)

1.



**Blank Screen**

### **MOST LIKELY CAUSE:**

- Ignition switch OFF.

### **OTHER POSSIBLE CAUSES:**

- Faulty cable.
- **TECH 1** power supply is malfunctioning.
- No power is applied to the **TECH 1**.

### **RECOMMENDATIONS:**

- Plug the **TECH 1** into another vehicle to verify proper operation.

2.



**MOST LIKELY CAUSE:**

- Two master cartridges are installed.

**OTHER POSSIBLE CAUSES:**

- Master cartridge is malfunctioning.
- **TECH 1** is malfunctioning.

**RECOMMENDATIONS:**

- Make sure that only one master cartridge is installed in the **TECH 1**.
- Remove all cartridges and see if "MASTER CARTRIDGE MISSING OR MALFUNCTIONING" message is displayed. If it is, try installing another master cartridge.

3.



**MOST LIKELY CAUSE:**

- Master cartridge is not installed.

**OTHER POSSIBLE CAUSES:**

- Dirty contacts on the master cartridge connector.
- Two master cartridges installed.

**RECOMMENDATIONS:**

- Verify that a master cartridge is installed.
- Clean contacts on master cartridge connector with alcohol.
- Try a different master cartridge.

4.

SUZUKI  
IMMOBI. SYSTEM  
1.2  
(ENTER)

**Keyboard or display locked up or program  
sporadically returns to first page**

**MOST LIKELY CAUSE:**

- DLC Cable or Adapter Cable loose or bad.

**OTHER POSSIBLE CAUSES:**

- Master Cartridge loose or dirty contacts.
- **TECH 1** malfunction.

**RECOMMENDATIONS:**

- Cycle power to the **TECH 1** (unplug & replug the DLC).
- Check **TECH 1** cartridge socket and cartridge edge connector.
- Check DLC Cable, DLC Adapter Cable and Vehicle DLC for wear or corrosion.

5.

POSSIBLE WRONG  
ECU SELECTED, NO  
DATA, CHECK LINK  
AND RESELECT

SERIAL DATA FAIL  
CHECK DATA LINK  
AND RESELECT  
(EXIT)

**TECH 1 is not receiving data**

**MOST LIKELY CAUSE:**

- ECU-DLC Adapter Cable problems.

**OTHER POSSIBLE CAUSES:**

- DLC Cable or DLC Adapter Cable loose or bad, or connector pins loose or corroded.
- Bad ECU.

**RECOMMENDATIONS:**

- Verify a good DLC Cable and DLC Adapter Cable connection.
- Cycle power to the **TECH 1**.
- Run the **TECH 1** Self-test.

## **B. GLOSSARY AND ABBREVIATIONS**

<b>CLR</b>	Clear
<b>COD</b>	Code
<b>DLC</b>	Data Link Connector
<b>ECU</b>	Electronic Control Unit
<b>ECM</b>	Engine Control Module
<b>ENT.</b>	Enter
<b>MFI</b>	Multiport Fuel Injection
<b>PCM</b>	Powertrain Control Module
<b>SDL</b>	Serial Data Link
<b>SFI</b>	Sequential Multiport Fuel Injection
<b>SOV</b>	Shut Off Valve
<b>SYS</b>	System
<b>TBI</b>	Throttle Body Fuel Injection
<b>TRANS</b>	Transponder