

0895

**SUZUKI 1996  
IMMOBILIZER  
CONTROL  
SYSTEM  
CARTRIDGE**

**Operator's Manual**

**For use with  
Cartridge Part Number  
02002103**

**tech 1**®

## SOME THINGS YOU SHOULD KNOW



**CAUTION:**

**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.



**CAUTION:**

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.

Copyright © 1995

Printed in USA 7/95

**TECH 1** is a registered trademark of Vetronix Corp. Manual No.08001553-005

# TABLE OF CONTENTS

SECTION	PAGE
1.0 Suzuki 1996 Immobilizer Control System	
Cartridge Description .....	1-1
2.0 Getting Started .....	2-1
3.0 Operating Precautions .....	3-1
4.0 Selecting the System .....	4-1
5.0 Selecting and Operating the Test Modes .....	5-1
Mode F0: Enter Transponder Code .....	5-2
Mode F1: Record ECM/ICM .....	5-4
Mode F2: Clear TP Code .....	5-6
Mode F3: Data List .....	5-8
6.0 Finishing Up .....	6-1
<b>Appendices</b>	
A. If You're Having A Problem .....	A-1
B. Glossary and Abbreviations .....	B-1

## 1.0 SUZUKI 1996 IMMOBILIZER CONTROL SYSTEM CARTRIDGE DESCRIPTION

The Suzuki 1996 Immobilizer Control System Cartridge is used with the **TECH 1** to enter the ignition key transponder (TP) code and the Engine Control Module (ECM)/Immobilizer Control Module (ICM) code into the vehicle ECM. Also, TP codes can be cleared and ICM data can be viewed.

A description of the operating modes is provided below.

### MODE F0 ENTER TP CODE

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

### MODE F1 RECORD ECM/ICM

Mode F1 is used after the ECM or ICM has been replaced.

### MODE F2 CLEAR TP CODES

Mode F2 is used to clear the current TP Codes from the ICM before new TP codes are recorded.

### MODE F3 DATA LIST

Mode F3 displays the number of keys that are entered in the ICM and the date the ECM/ICM code was recorded.

**NOTE: 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.**

The Immobilizer programming functions are available for the following vehicles.

MODEL	ENGINE SIZE	ENGINE TYPE	ECM MFG.	ICM MFG.
SE416	1.6L	TBI 2 Valve/Cyl.	MITSUBISHI	MITSUBISHI
SE416	1.6L	SFI 4 Valve/Cyl.	MITSUBISHI	MITSUBISHI
SV620	2.0L	SFI	HITACHI	MITSUBISHI
SY Series	1.3/1.6L	MF1	NIPPON DENSO	TOHKAI RIKA

## GENERAL TECH 1 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 1996 Immobilizer Control Systems Cartridge with the **TECH 1**, the following steps must be performed:

1. The Suzuki 1996 Immobilizer Control Systems Cartridge 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. It is usually under the dash on the driver's side. Refer to the vehicle service manual if you are in doubt.
4. Plug the **TECH 1** cable into the vehicle serial data link connector.
5. Turn the ignition key to ON.
6. Verify that the **TECH 1** displays the screen below:



SUZUKI 1996  
IMMOBI. SYSTEM  
SELECT  
MODEL YEAR: 1997

7. If the display is correct, press **6**. After the model year is selected, see to Section 4.0 to select the system you are testing.
8. 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, reset the **TECH 1** by:

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 (ICM). Press **F0** to select Tohkai Rika, or press **F1** to select Mitsubishi.

SELECT ICM MANUF  
F0:TOHKAI RIKA  
F1:MITSUBISHI

### ENTERING THE PASSWORD

After the ICM 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 ICM. 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

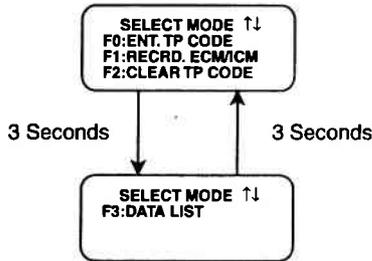
- |                       |   |
|-----------------------|---|
| <b>F0</b> - <b>F1</b> | Select manufacturer.                    |
| <b>0</b> - <b>9</b>   | Enter password.                         |
| <b>YES</b>            | Confirm password is entered.            |
| <b>EXIT</b>           | Return to Select ICM 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 - F3</b>	Select Test mode.
<b>↑ &amp; ↓</b>	Manually control the menu display.
<b>↓</b>	Stop automatic menu scrolling.
<b>EXIT</b>	Return to ICM Manufacturer menu.

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

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

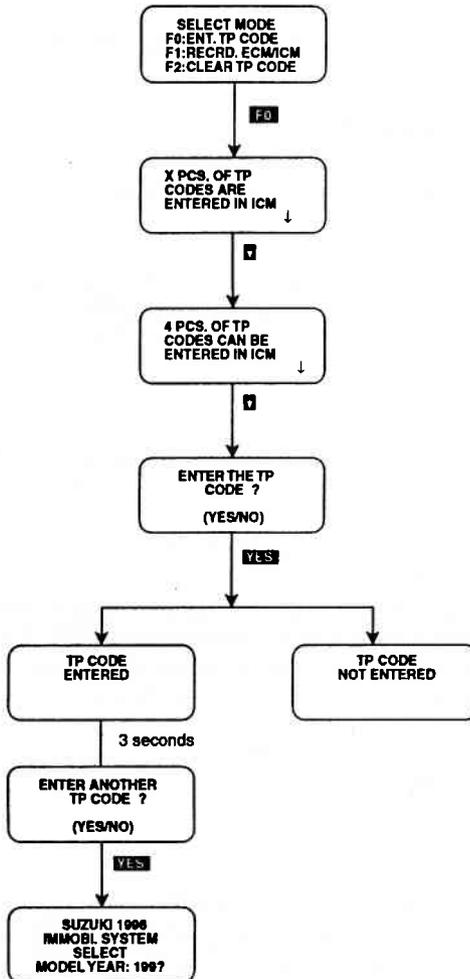
**If four TP codes are currently entered, the existing TP codes registered in the ICM must first be cleared by the TECH 1 before the new codes can be registered. Refer to Mode F2, Clear TP Code.**

**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. TP CODE from the Select Mode menu.
3. The **TECH 1** informs you how many TP codes are currently entered in the ICM. Press **↓** to continue.
4. The **TECH 1** informs you that a maximum of four TP codes can be entered into the ICM. Press **↓** to continue.
5. The **TECH 1** asks if you want to enter a TP 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 TP code into the ICM 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 TP 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 TP 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 TP code.

**NO**

Return to the Select Mode menu without entering a TP code.

**EXIT**

Return to the Select Mode menu without entering a TP code.

**MODE F1****RECORD ECM/ICM**

The Record ECM/ICM mode is for recording the Engine Control Module and Immobilizer Control Module data.

**OPERATING PROCEDURE:**

1. Press **F1** to select Record ECM/ICM from the Select Mode menu.
2. The **TECH 1** asks you to select the vehicle ECM type. If the vehicle ECM type is a Mitsubishi TBI, press **YES**. If the vehicle ECM type is not a Mitsubishi TBI, press **NO**.
3. The **TECH 1** records the ECM type and informs you when the recording is complete. If the ECM type is not successfully recorded, the **TECH 1** informs you, then returns to the Select Mode menu.
4. After the ECM type is recorded, the **TECH 1** asks you to input the current year and month when the ECM/ICM 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 ECM/ICM data into the ECM and informs you when it is completed. The tester automatically returns to the Select Mode menu.

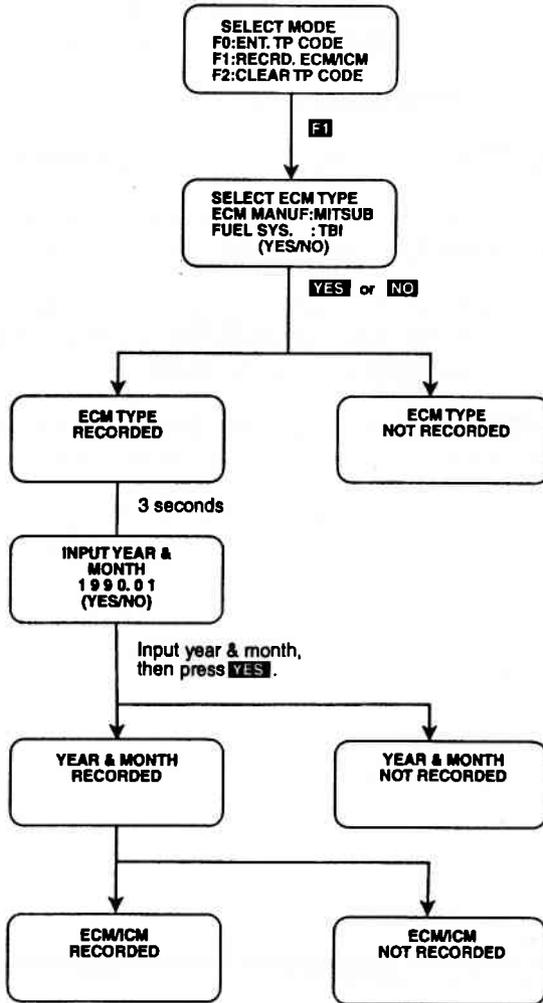
The **TECH 1** informs you if the ECM/ICM data is not recorded or if the recorded information is wrong. Press **EXIT**, to return to the Select Mode menu and perform the Record ECM/ICM mode again.

**ACTIVE TECH 1 KEYS**

**YES & NO** Select ECM manufacturer.  
Confirm year and month is entered or start entering year and month again.

**0 - 9** Enter year and month when ECM/ICM code is entered.

**EXIT** Return to the Select Mode menu.

**RECORD ECM/ICM****MODE F1**

**MODE F2****CLEAR TP CODE**

The Clear TP Code mode is for clearing the current transponder (TP) code stored in the Immobilizer Control Module (ICM).

**OPERATING PROCEDURE:**

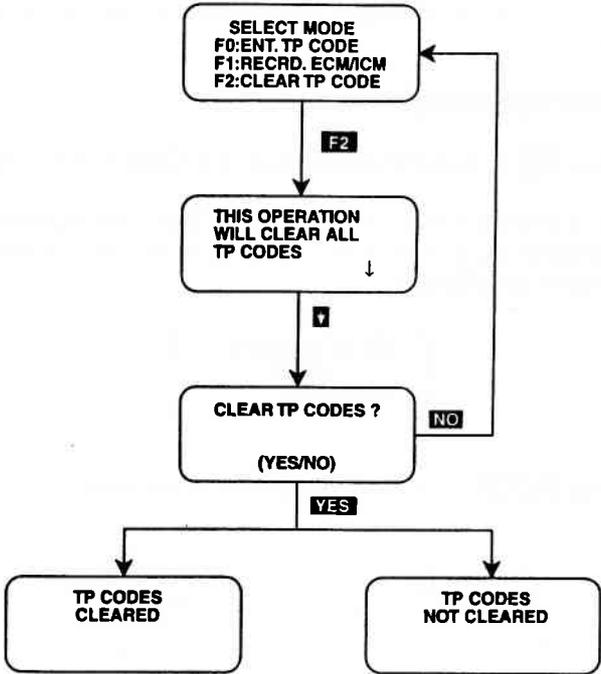
1. Press **F2** to select Clear TP Code from the Select Mode menu.
2. The **TECH 1** informs you that this procedure will clear all TP codes. Press **↓** to continue with the code clearing.
3. The **TECH 1** asks if you want to clear the TP codes. If you do not want to clear the codes, press **NO** to 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 TP code.
<b>NO</b>	Return to the Select Mode menu without clearing TP code.
<b>EXIT</b>	Return to the Select Mode menu.

**CLEAR TP CODE      MODE F2**



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

The Data List mode displays the number of Transponder (TP) codes stored in the ECM/ICM and the date the ECM/ICM 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.

NO. OF TP 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 1996 Immobilizer Control System Cartridge, 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**

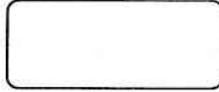
**A. IF YOU'RE HAVING A PROBLEM**

**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.

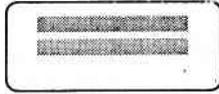
### **OTHER POSSIBLE CAUSES:**

- 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 1996  
IMMOB. SYSTEM  
SELECT  
MODEL YEAR: 1997

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

**MOST LIKELY CAUSE:**

- Serial data link 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 serial data link connector).
- Check **TECH 1** cartridge socket and cartridge edge connector.
- Check serial data link cable & connector 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-serial data link connector cable problems.

**OTHER POSSIBLE CAUSES:**

- Serial data link cable loose or bad or connector pins loose or corroded.
- Bad ECU.

**RECOMMENDATIONS:**

- Verify a good serial data link cable connection.
- Cycle power to the **TECH 1**.
- Run the **TECH 1** Self-test.

## **B. GLOSSARY AND ABBREVIATIONS**

<b>ECU</b>	Electronic Control Unit
<b>ECM</b>	Engine Control Module
<b>ENT.</b>	Enter
<b>ICM</b>	Immobilizer Control Module
<b>MFI</b>	Multiport Fuel Injection
<b>SDL</b>	Serial Data Link
<b>SFI</b>	Sequential Multiport Fuel Injection
<b>TBI</b>	Throttle Body Fuel Injection
<b>TP</b>	Transponder