ADVANCED
DIAGNOSTICS

AD100 OPERATING & APPLICATIONS MANUALS

OPM100

The AD100

SECTION

1

OPERATING MANUAL

OPERATING MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

PRECAUTIONS

A

1. The AD100 is an electronic piece of equipment, and although designed for hostile environments it should not be exposed to excessive sunlight, high temperatures or immersed in liquids.

2. Return unit to carrying case when not in use.

3. Observe normal health and safety precautions when using this equipment.

4. When performing road tests, use a second person to operate the AD100.

5. Keep clear of all moving objects when near engine compartment.

6. When connecting to vehicle connectors, probe from the back.

7. Ignition circuits generate high voltages, extra precautions and care should be observed when diagnosing these systems.

8. Incorrect connections may damage sensitive electronic devices fitted to the vehicle.

9. Switch off the vehicle ignition when making or breaking connections.

10. Keep the unit away from spark plugs and coil leads to avoid measurement errors.

11. DO NOT disconnect any wiring harnesses or electronic component while ignition is ON.

12. DO NOT disconnect battery while engine is running.

13. Before any work is carried out, consult the Vehicle Manufacturers recommended procedures to ensure any work is carried out in accordance with their instructions.

14. Before any work is carried out, consult the Vehicle Manufacturers warranty specifications to ensure any work is carried out in accordance with their instructions.

ADVANCED DIAGNOSTICS

INTRODUCTION

B

PRODUCT DESCRIPTION

The AD100 is an Advanced Serial Diagnostic system which has been designed and developed to offer the most advanced diagnostic capabilities.

The AD100 can be used as a hand held portable diagnostic system, and is equipped with 64MB of RAM which is used for the application data, and 4MB of Flash for the protocol handling system. In addition to this it has a RS232 interface connection for transferring application data from a PC and printing.

The unit has a 128x64 Dot Matrix Back Lit LCD TFT display along with membrane keypad.

The unit is capable of reading fault codes, clearing fault codes, displaying live data, performing special functions, and recording live data both statically and on the road.

The unit is powered from the vehicle battery, and connects to the serial diagnostic connector through a 25way D-Type cable system.

POWER CONNECTION

The unit is powered by the vehicles 12 volts battery which is connected to the diagnostic socket. If no power is available through the vehicle diagnostic socket then the adapter cable will have the vehicle battery connections.

VEHICLE CONNECTION

The master cable AD110 is used to connect the equipment to the various adapters available for the different vehicle connector types.

This system enables the equipment to be kept up to date with the various diagnostic connectors at a reasonable cost.

LCD BACKLIGHT

The LCD BACKLIGHT is automatically switched on when the unit has power. This cannot be switched off or adjusted. If the unit is not used for a period of time the LCD backlight will automatically switch off, and as soon as any key is pressed it will switch back on again.
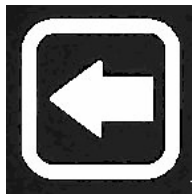
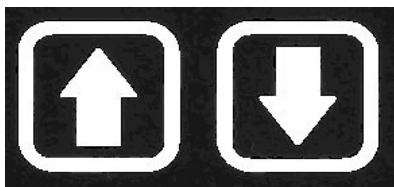# GENERAL OPERATION

C

KEYPAD OPERATION

Key is used for ENTER and CONTINUE operations

FIG 1

Key is used for EXIT and BACKWARDS selec-tion'stions.

FIG 2

Key' is used for UP and DOWN movement of selection.

FIG 3
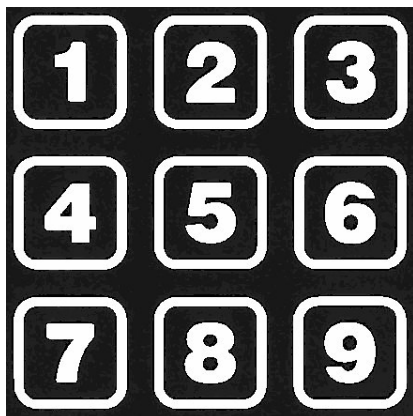
Number keys for entering codes and number selection.

FIG 4

ADVANCED
DIAGNOSTICS

GENERAL OPERATION

C

PASSWORD OPERATION

To stop unauthorised access the unit is fitted with a password system which is required to perform certain operations such as Immobiliser programming etc. Additionally the protection system is also used to protect unauthorised copying of update software. If there are any problems with password operation or with software updates, then the unit must be returned to Advanced Diagnostics.
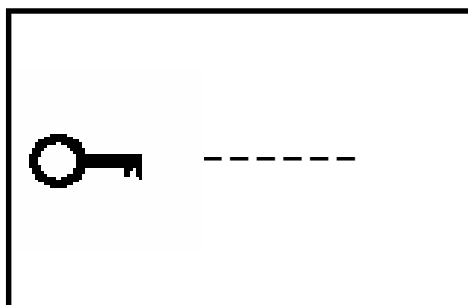
FIG 5

MASTER CABLE & ADAPTOR CABLE CONNECTIONS

The unit is supplied with a range of cables to cover various manufacturers. The smaller adaptor cables use the ADC100 Master Cable, which connects to the AD100. These adaptor cables can then be connected depending on which system is being tested.

FIG 6

ADVANCED DIAGNOSTICS
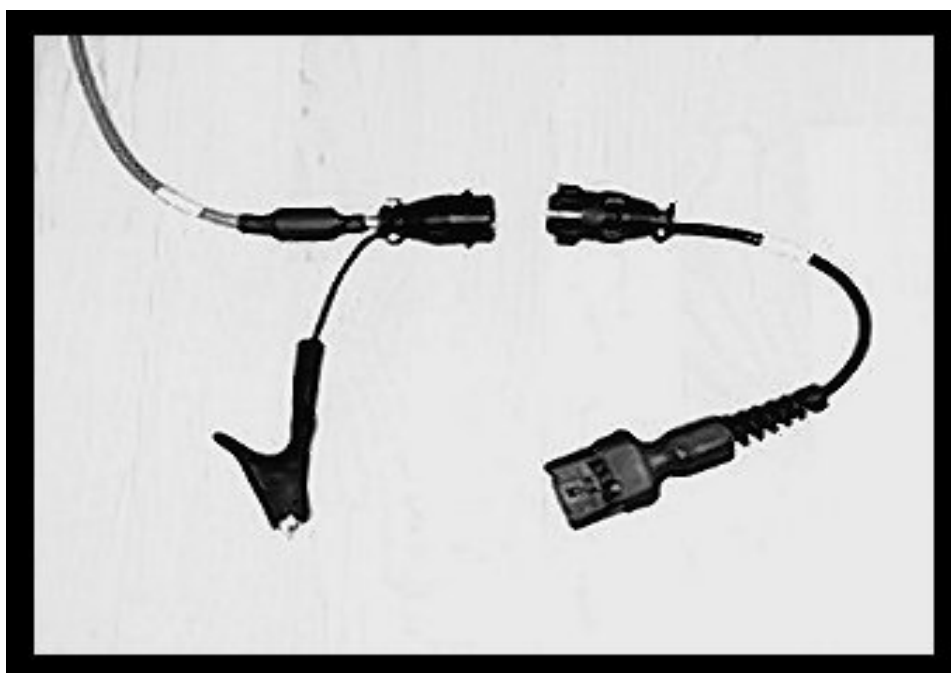
GENERAL OPERATION

C

INITIAL OPERATION

After the correct cables and adaptor has been connected to the vehicle the AD100 will power up and the intial screen will be the contrast adjust. The screen will cycle between dark and light, and will stop as soon as a key is pressed.

Use the **UP** and **DOWN** arrows to adjust the contrast, then press the **ENTER** key.

FIG 7

The following sceen will be displayed.

DIAGNOSTIC MENU

> FORD
  GM
  LDV
  ROVER
  VAG

PRESS ENTER KEY

FIG 8

Using the **UP** and **DOWN** arrows select the required manufacturer, and then press the **ENTER** key.

FAULT CODE OPERATION

D

READING FAULT CODES

```
DIAGNOSTIC MENU

   ECU IDENTIFICATION
   FAULT CODES
   LIVE DATA
   ACTUATORS
   SPECIAL FUNCTIONS
```

Using the **UP** and **DOWN** keys select the **FAULT CODES** selection.

Then press the **ENTER** key.

```
DIAGNOSTIC MENU

   READ FAULT CODES
   CLEAR FAULT CODES



   PRESS ENTER KEY
```

Using the **UP** and **DOWN** keys select the **READ FAULT CODES** selection.

Then press the **ENTER** key.

Depending on how many fault codes are set, will depend on how many screens are displayed, however two examples are shown below.

```
DISPLAY FAULT CODES

FAULT CODE :1176
KEY
SIGNAL TOO LOW
CURRENT FAULT

   PRESS ENTER KEY
```

```
DISPLAY FAULT CODES

FAULT CODE :1175
DOOR SWITCH FAULTY
INTERMITTENT



   PRESS ENTER KEY
```

NOTE : HISTORIC code means a fault code that did occure but has since cleared, a **CURRENT** code is one that is still present.

NOTE : THE FAULT CODES CAN EITHER BE CURRENT, HISTORIC OR INTERMITTENT, AND WILL INDICATE THESE STATES DEPEND-ING ON WHETHER THE FAULT IS STILL THERE.

ADVANCED DIAGNOSTICS

FAULT CODE OPERATION

D

READING FAULT CODES (Contd)

DISPLAY FAULT CODES

NO FAULTS FOUND

PRESS ENTER KEY

If there are no fault codes recorded, then the following screen will be displayed.

CLEARING FAULT CODES

Using the **UP** and **DOWN** keys select the **CLEAR FAULT CODES** selection.

DIAGNOSTIC MENU

READ FAULT CODES
CLEAR FAULT CODES

PRESS ENTER KEY

Then press the **ENTER** key.

CLEAR FAULT CODES

PROCEDURE COMPLETE

PRESS ENTER KEY

If all the fault codes have been cleared the screen will display **PROCEDURE COMPLETE.**

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

E

LIVE DATA

```
DIAGNOSTIC MENU

    ECU IDENTIFICATION
    FAULT CODES
    LIVE DATA
    ACTUATORS
    SPECIAL FUNCTIONS

    PRESS ENTER KEY
```

From the **DIAGNOSTIC MENU** select the **LIVE DATA** function.

```
LIVE DATA

IGN STAT      ON
PASS DOOR     OPEN
DRV DOOR      CLOSED
RRH DOOR      OPEN
TP KEY1       PROG
PLIP 1        PROG
```

Using the **UP** and **DOWN** arrows the additional **LIVE DATA** parameters will be displayed.

```
LIVE DATA

DOOR.CL.R     OFF
DOOR.OP.R     ON
ENG ECU       LOCKED
LO.SP.REL.    ON
HI.SP.REL     OFF
DR.BUT.IP     YES
PASS.BUTT.    PULLED
```

Additional parameters are shown on the screen below.

ADVANCED DIAGNOSTICS

ACTUATORS

F

ACTUATOR OPERATION

```
┌─────────────────────────────┐
│      DIAGNOSTIC MENU         │
│                              │
│    ECU IDENTIFICATION        │
│    FAULT CODES               │
│    LIVE DATA                 │
│    ACTUATORS                 │
│    SPECIAL FUNCTIONS         │
│      PRESS ENTER KEY         │
└─────────────────────────────┘
```

Select **ACTUATORS** from the main menu.

A list of actuators for the vehicle will be listed. Using the UP and DOWN arrows select the required actuator and press the **ENTER** key.

```
┌─────────────────────────────┐
│         ACTUATORS            │
│                              │
│ R.H.IND                      │
│ L.H.IND                      │
│ HAZ.W.LAM                    │
│ SCRN.WIP.SLOW                │
│ SCRN.WIP.FAST                │
│ BUZZER                       │
│ DE-ICING                     │
└─────────────────────────────┘
```

The **BUZZER** as an example will sound for a short period of time and then stop. Press the **BACK** arrow to exit the function.

```
┌─────────────────────────────┐
│          BUZZER             │
│                             │
│     ACTUATOR ON/OFF         │
│                             │
│   PLEASE CHECK OUTPUT       │
│                             │
│   PRESS BACK TO EXIT        │
└─────────────────────────────┘
```

NOTE : Other actuators will operate for various lengths of time before stopping.

NOTE : SOME ACTUATORS MAY BE LISTED WHICH ARE NOT AVAILABLE ON THE VEHICLE. (ie. STARTER RELAY)

ADVANCED DIAGNOSTICS

SPECIFICATION

G

DESCRIPTION	SPECIFICATION
OPERATING SUPPLY	12 VOLTS DC
DISPLAY	128 x 64 GRAPHIC DOT MATRIX LED BACKLIGHT
COMMUNICATION PORT	CAN, J1850, ISO9141, SCP, 5 VOLTS, CCD PROTOCOLS
REVERSE POLARITY PROTECTION	YES
SIZE	230 mm x 115 mm x 80 mm
WEIGHT	400 gms
MEMORY	512KB RAM 8MB FLASH 64KB ROM
STORAGE TEMPERATURE	0°C to +50°C
OPERATING TEMPERATURE	+5°C TO +40°C
CURRENT CONSUMPTION	200 mA
SERIAL PORT	RS232

2

CHRYSLER

JEEP

CHRYSLER/JEEP MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

APPLICATIONS

A

VEHICLE	TYPE	KEYS I_{LCO} J_{ET} STRATTEC	YEAR	SYSTEM	CABLE
CHRYLER /DODGE	300M	Y160-PT Y160C-PHT 690222	1999-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	300M	Y160-PT Y160C-PHT 690222	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	BREEZE	Y160-PT Y160C-PHT 690222	1999-2001	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	CARAVAN	Y160-PT Y160C-PHT 599455	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	CHEROKEE	Y160-PT Y160C-PHT 690504	1999-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	CHEROKEE	Y160-PT Y160C-PHT 690504	2001	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	CIRRUS	Y160-PT Y160C-PHT 690222	1999-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	CONCORDE	Y160-PT Y160C-PHT 690222	1998-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	CONCORDE	Y160-PT Y160C-PHT 690222	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	DAKOTA	Y160-PT Y160C-PHT 599455	2001-2004	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	DURANGO	Y160-PT Y160C-PHT 599455	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	GRAND CHEROKEE	Y160-PT Y160C-PHT 690504	1999-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	GRAND CHEROKEE	Y160-PT Y160C-PHT 690504	2001-2003	TYPE 2	ADC110 + ADC139

APPLICATIONS

A

VEHICLE	TYPE	YEAR	SYSTEM	CABLE
CHRYSLER /DODGE	INTREPID	1998-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	INTREPID	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	LIBERTY	2002-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	LHS	1999-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	LHS	2001	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	NEON	2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	NEON	2001-2004	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	PT CRUISER	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	RAM PICK UP	2002-2004	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	SEBRING 2DR HTP	2001-2003	SEBRING 2DR HTP	ADC110 + ADC138
CHRYSLER /DODGE	SEBRING 4DR HTP	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	SEBRING CONV	1998-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	SEBRING CONV	2001-2003	TYPE 2	ADC110 + ADC139

APPLICATIONS

A

VEHICLE	TYPE	YEAR	SYSTEM	CABLE
CHRYSLER /DODGE	STRATUS 2DR HTP	2001-2003	STRATUS 2DR HTP	ADC110 + ADC138
CHRYSLER /DODGE	STRATUS 4DR HTP	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	TOWN & COUNTRY	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	VOYAGER	2001-2003	TYPE 2	ADC110 + ADC139
CHRYSLER /DODGE	WRANGLER	1998-2000	TYPE 1 OR 2	ADC110 + ADC138 or ADC139
CHRYSLER /DODGE	WRANGLER	2001-2004	TYPE 2	ADC110 + ADC139

CAN-BUS SYSTEMS

VEHICLE	TYPE	YEAR	SYSTEM	CABLE
CHRICLE	PACIFICA	2004	STRATUS 2DR HTP	ADC110 + ADC138
CHRICLE	TOWN & COUNTRY	2004-2005	TYPE 2	ADC110 + ADC139
DODGE	CARAVAN	2004-2005	TYPE 2	ADC110 + ADC139
DODGE	DURANGO	2004		ADC110 ONLY

ADVANCED DIAGNOSTICS

GENERAL OPERATION

B

IMPORTANT NOTICE

There are some models that may use 2 different systems in the same model year. In many cases it is not possible to tell which system the vehicle you are working on may use until you hook up your T-Code and try each system.

You must switch adapters when trying a different System Type. If you try "Type 1" and the AD100 fails to communicate, then switch adapters and try "Type 2".

Remember to use the same adapter as the System "Type" you are selecting with the AD100.

ADVANCED
DIAGNOSTICS

GENERAL OPERATION

B

KEY TYPES

Chrysler, Dodge, Jeep & Plymouth
Interchangeable Keys

690504 Strattec	690223 Strattec	598495 Strattec	690222 Strattec	599455 Strattec	Y160-PT ILCO	Y160C-PHT JET

Chrysler & Dodge "Mitsubishi" Type Keys
Interchangeable Keys

690648-Strattec   690653-Strattec   690654-Strattec

SPECIAL FUNCTIONS

C

VEHICLE SELECTION

ACURA
CADILLAC
> CHRYSLER
> DODGE
FORD
HONDA

Select **CHRYSLER** or **DODGE** from the Vehicle Selection Menu using the **UP** and **DOWN** arrows.

Then press the **ENTER** key.

VEHICLE SELECTION

SEBRING 2DR HTP
TYPE 1
TYPE 2

Verify the System type from the model application guide.

VEHICLE SELECTION

STRATUS 2DR HTP
TYPE 1
TYPE 2

SWITCH IGNITION ON

PRESS ENTER KEY

Make sure the transponder key is in the ignition and turned to the "ON" position.

Press the **ENTER** button.

SPECIAL FUNCTIONS

C

ECU IDENTIFICATION

CHRYSLER 94-98

PRESS ENTER KEY

TYPE 1.

ECU IDENTIFICATION

CHRYSLER 98-03

PRESS ENTER KEY

TYPE 2.

DIAGNOSTIC MENU

ECU IDENTIFICATION
> SPECIAL FUNCTIONS

Select **SPECIAL FUNCTIONS** and press the **ENTER** button.

DIAGNOSTIC MENU

CLEAR KEYS
PROGRAM KEYS

"CLEAR KEYS" = Will erase all keys.
"PROGRAM KEYS" = Add Keys to car.

If you CLEAR keys - you will need to then
program any keys you want to start the car, including the one in the ignition.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS C

ERASING KEYS

DIAGNOSTIC MENU

> CLEAR KEYS
> PROGRAM KEYS

To erase all keys - Select CLEAR KEYS

If you CLEAR keys - you will need to then
program any keys you want to start the car, including the one in the ignition.

SECURITY CODE

- - - -

Enter the 4 number PIN Code for the vehicle you are working on.

The PIN Code is available from the dealer.

SECURITY CODE
1 2 3 4

IS CODE CORRECT

OK=ENTER   CLEAR=BACK

You will need to confirm the PIN Code. (The PIN Code pictured is just an example)

CLEAR KEYS

PROCEDURE COMPLETE

PRESS ENTER KEY

You will now need to program any keys you want to start the car, including the one in the ignition.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS C

ADDING KEYS

DIAGNOSTIC MENU

CLEAR KEYS
> PROGRAM KEYS

To Add keys - Select PROGRAM KEYS

PROGRAMMING KEYS

SWITCH IGNITION ON
WITH NEW KEY

PRESS ENTER KEY

Make sure the transponder key is in the ignition and turned to the "ON" position.

Press the Enter button.

SECURITY CODE

– – – –

Enter the 4 number PIN Code for the vehicle you are working on.

SECURITY CODE
1234

IS CODE CORRECT

OK=ENTER   CLEAR=BACK

You will need to confirm the PIN Code. (The PIN Code pictured is just an example)

PROGRAMMING KEYS

PROCEDUE COMPLETE

ENTER - PROG MORE KEYS
BACK - EXIT ROUTINE

You are done with the programming of the key in the ignition, press Enter to program more keys.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

C

CARAVAN / PACIFICA / TOWN & COUNTRY—ERASE KEYS

VEHICLE SELECTION

    CADILLAC
    CHRYSLER
    DODGE
    FORD
    GENERAL MOTORS
    ISUZU

VEHICLE SELECTION

    IMMOBILISER
    REMOTE

VEHICLE SELECTION

    SEBRING 2 DR HTP
    TYPE 1
    TYPE 2
    PACIFICA
    CHRYSLER CAN

    SWITCH IGNITION ON

PRESS ENTER KEY

IMPORTANT INFO ...

1. THE NON-REMOTE TRANSPONDER KEYS CAN BE PROGRAMMED AS A REPLACEMENT KEY.

2. ONLY NON-REMOTE TRANSPONDER KEYS WITH AN "S" STAMPED ON THE BLADE WILL WORK. THESE MODELS HAVE A NEW AND DIFFERENT TYPE OF TRANSPONDER CHIP.

3. THE REMOTE SECTION OF THE KEY IS PROGRAMMED AUTOMATICALLY AS THE TRANSPONDER SECTION IS PROGRAMMED.

NOTE : ERASING ALL KEYS MEANS THAT ANY EXISTING KEYS MUST BE PROGRAMMED AGAIN.

SPECIAL FUNCTIONS

C

CARAVAN / PACIFICA / TOWN & COUNTRY—ERASE KEYS

ECU IDENTIFICATION

PACIFICA / CARAVAN

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

DIAGNOSTIC MENU

CLEAR KEYS
PROGRAM KEYS

SECURITY CODE

_ _ _ _

SECURITY CODE

8 2 4 7

IS CODE CORRECT
OK=ENTER CLEAR=BACK

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

CARAVAN / PACIFICA / TOWN & COUNTRY—PROGRAM KEYS

VEHICLE SELECTION

CADILLAC
CHRYSLER
DODGE
FORD
GENERAL MOTORS
ISUZU

VEHICLE SELECTION

IMMOBILISER
REMOTE

VEHICLE SELECTION

SEBRING 2 DR HTP
TYPE 1
TYPE 2
PACIFICA
CHRYSLER CAN

NOTE : ERASING ALL KEYS MEANS THAT ANY EXISTING KEYS MUST BE PROGRAMMED AGAIN.

SWITCH IGNITION ON

PRESS ENTER KEY

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

CARAVAN / PACIFICA / TOWN & COUNTRY—PROGRAM KEYS

ECU IDENTIFICATION

PACIFICA / CARAVAN

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

DIAGNOSTIC MENU

CLEAR KEYS
PROGRAM KEYS

PROGRAMMING KEYS

SWITCH IGNITION ON
WITH NEW KEY

PRESS ENTER KEY

SECURITY CODE

_ _ _ _

SECURITY CODE

8 2 4 7

IS CODE CORRECT
OK=ENTER CLEAR=BACK

PROGRAMMING KEYS

KEY PROGRAMMED

ENTER—PROG.MORE KEYS
BACK—EXIT ROUTINE
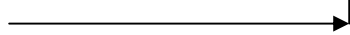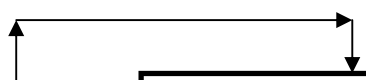
SPECIAL FUNCTIONS **C**

CAN BUS SYSTEM (DURANGO)—PROGRAM KEYS/ERASE KEYS

VEHICLE SELECTION

CADILLAC
CHRYSLER
DODGE
FORD
GENERAL MOTORS
ISUZU

VEHICLE SELECTION

IMMOBILISER
REMOTE

VEHICLE SELECTION

SEBRING 2 DR HTP
TYPE 1
TYPE 2
PACIFICA
CHRYSLER CAN

SWITCH IGNITION ON

PRESS ENTER KEY

IMPORTANT INFO ...

1. THERE ARE NO NON-REMOTE CONTROL KEYS THAT CAN BE PROGRAMMED AT THIS TIME.

2. THE SAME REMOTE CONTROL HEAD IS USED ON ALL MODELS.

3. A PIN CODE IS REQUIRED.

4. A SECOND PIN CODE IS REQUIRED FROM ADVANCED DIAGNOSTICS TO PROGRAM KEYS.

5. USE ORIGINAL KEYS AND REMOTE HEADS ONLY.

6. IF THE REMOTE IS PROGRAMMED MORE THAN 2 TIMES, DAMAGE CAN BE DONE TO THE REMOTE KEY HEAD.

SPECIAL FUNCTIONS

C

CAN BUS SYSTEM (DURANGO)—PROGRAM KEYS/ERASE KEYS

ECU IDENTIFICATION

CHRYSLER CAN

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
LIVE DATA
SPECIAL FUNCTIONS

DIAGNOSTIC MENU

RE-PROGRAM KEYS
PROGRAM NEW KEYS
ERASE KEYS
PROGRAM REMOTE

SECURITY CODE

_ _ _ _

SECURITY CODE

8 2 4 7

IS CODE CORRECT
OK=ENTER CLEAR=BACK

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

CAN BUS SYSTEM (DURANGO)—PROGRAM KEYS/ERASE KEYS

```
CHALLENGE CODE

  B6 37 8B 86

  B6 37 8B AD
```

PIN CODE FOR VEHICLE TO BE
OBTAINED FROM DEALER

```
RESPONSE CODE



 __ __ __ __

PRESS ENTER KEY
```

CHALLENGE CODE TO BE OBTAINED
FROM ADVANCED DIAGNOSTICS.

```
RESPONSE CODE


  82 47 55 6B


 IS CODE CORRECT
OK=ENTER  CLEAR=BACK
```

PROGRAM KEYS AND ERASE KEYS
FOLLOW THE SAME PROCEDURE.

```
PROGRAM KEYS

PROCEDURE COMPLETE



PRESS ENTER KEY
```

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS C

CAN BUS SYSTEM (DURANGO)—PROGRAM KEYS/ERASE KEYS

```
WARNING
FOLLOW NEXT SCREENS
QUICKLY & CAREFULLY

COMPLETE OPERATION
WITHIN 60 Sec.
AFTER HEARING THE CHIME

PRESS ENTER KEY
```

```
PROGRAMMING REMOTES

PRESS LOCK & UNLOCK
CHIME WILL BE HEARD
WHEN FOB IS PROGRAMMED

REPEAT FOR ALL FOBS

PRESS ENTER KEY
```

After the PIN CODE and CHALLENGE RESPONSE CODES have been ENTERED, this screen should be displayed.

Then

1. Sit in drivers seat, and make sure all doors are closed.
2. Put seat belt on, and make sure no one else is in the vehicle.
3. Once you enter remote control programming a CHIME will be heard.
4. Press the LOCK and UNLOCK buttons together for 1 second and then quickly press the UNLOCK button for 1 second.

Remember you have limited time for this.

Press **ENTER** when complete.

CAN BUS SYSTEM (DURANGO)—REMOTE PROGRAMMING

NOTE : The remote control programming procedure is the same as the key programming, until you reach the screen above then FOLLOW these instructions carefully.

SPECIAL FUNCTIONS

C

CARAVAN—PACIFICA—TOWN&COUNTRY REMOTE KEYS

3 BUTTON REMOTE
NO POWER
SLIDING DOORS

4 BUTTON REMOTE
PACIFICA

6 BUTTON REMOTE
WITH POWER
SLIDING DOORS

691718 STRATTEC
DODGE LOGO
S on BLADE

691729 STRATTEC
CHRYSLER LOGO
S on BLADE

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

CARAVAN—PACIFICA—TOWN&COUNTRY REMOTE KEYS

MODELS	YEARS	DEALER REMOTE	DEALER NON REMOTE
CARAVAN (No Power Doors)	2004-2005		
CARAVAN (with power Doors)	2004-2005		
PACIFICA	2004		
TOWN & COUNTRY (No power doors)	2004-2005		
TOWN & COUNTRY (Power doors)	2004-2005		

2004 DODGE DURANGO (CAN)

FACTORY REMOTE—DEALER PART

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS C

CHRYSLER REMOTE CONTROL SYSTEMS

MODELS	YEARS	REMOTE SYSTEM TYPE	AD100 ADAPTOR
300M	1999-2000	6	ADC138
	2001-2004	6	ADC138
CIRRUS	1998-2000	10	ADC139
CONCORDE	1998-2000	6	ADC138
	2001-2004	6	ADC138
LHS	1999-2000	6	ADC138
	2001	6	ADC138
PT CRUISER	2001-2004	1	ADC138
SEBRING CONVERTIBLE	1998-2000	4	ADC139
	2001-2004	6	ADC138
SEBRING 4 DOOR	2001-2004	6	ADC138
TOWN & COUNTRY	1998	9	ADC139
	1999-2000	9	ADC139
	2001-2003	3	ADC138
		3	ADC138

JEEP REMOTE CONTROL SYSTEMS

MODELS	YEARS	REMOTE SYSTEM TYPE	AD100 ADAPTOR
CHEROKEE	1998	11	ADC139
	199-2001	11	ADC139
GRAND CHEROKEE	1999-2004	2	ADC138
LIBERTY	2002-2004	3	ADC138

SPECIAL FUNCTIONS

C

DODGE REMOTE CONTROL SYSTEMS

MODELS	YEARS	REMOTESYSTEM TYPE	AD100 ADAPTOR
CARAVAN	1998	9	ADC139
	1999-2000	9	ADC139
	2001-2003	3	ADC138
		3	ADC138
DAKOTA	1998	5	ADC139
	1999-2000	5	ADC139
	2001-2004	7	ADC138
DURANGO	1998	5	ADC139
	1999-2000	5	ADC139
	2001-2003	7	ADC138
INTREPID	1999-2000	6	ADC138
	2001-2004	6	ADC138
NEON	2001-2004	1	ADC138
RAM PICK UP	1998	5	ADC139
	1999-2001	5	ADC139
	2002	5	ADC139
	2002	8	ADC138
	2003-2004	8	ADC138
STRATUS 4 DOOR	1998-2000	10	ADC139
	2001-2004	6	ADC138

PLYMOUTH REMOTE CONTROL SYSTEMS

MODELS	YEARS	REMOTE SYSTEM TYPE	AD100 ADAPTOR
BREEZE	1998-2000	10	ADC139
NEON	2000-2001	1	ADC138
VOYAGER	1998	9	ADC139
	1999-2000	9	ADC139

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 1 REMOTES

2000-2004
NEON

2001-2004
PT CRUISER

DIAGNOSTIC MENU
PROGRAM REMOTE TEST REMOTE

PROGRAMMING REMOTES
PRESS REMOTES
BACK TO EXIT

PROGRAMMING REMOTES
PROCEDURE COMPLETE
PRESS ENTER KEY

NOTES :

A chime is heard as you enter and leave programming mode.

A chime is heard when each remote is programmed.

All remotes must be programmed at the same time.

TEST REMOTE :

To check a remote is programmed select this function, and press the remote
button. If it is working a chime will be heard.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 2 REMOTES

1999-2004
JEEP
GRAND CHEROKEE

DIAGNOSTIC MENU

PROGRAM REMOTE

PROGRAM REMOTE

PROGRAM REMOTE NO. X

PROGRAM REMOTE

PRESS & RELEAS.REMOTE

PROGRAM REMOTE

PROCEDURE COMPLETE

PRESS ENTER KEY

NOTES :

There are 4 memory positions for the TYPE 2 Remote System. 1,2,3 & 4

Enter a number to fill a memory position for the remote you wish to program.

This will overwrite the memory location if a remote is already stored there.

You can program the same remote into all 4 positions to erase any previously stored remotes.

NOTES 2 :

To program the remote press the LOCK and UNLOCK buttons together and then quickly press the UNLOCK button.

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 3 REMOTES

2001-2003
CARAVAN

2002-2004
JEEP
LIBERTY

2001-2003
CARAVAN

DIAGNOSTIC MENU

PROGRAM REMOTE

PROGRAMMING REMOTES
PRESS LOCK & UNLOCK
TOGETHER FOR 1 Sec.
WITHIN 3 Secs. PRESS
EITHER KEY FOR 1 Sec
REPEAT FOR ALL FOBS
BACK TO EXIT

PROGRAMMING REMOTES

PROCEDURE COMPLETE

PRESS ENTER KEY

NOTES :

To program the remote press the LOCK and UNLOCK buttons together and then quickly press the UNLOCK button.

A chime is heard as a remote is programmed.

All remotes must be programmed at the same time.

Press the **BACK** key to **EXIT** programming

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 4 REMOTES

1998-2000
CHRYSLER
SEBRING
CONVERTIBLE

DIAGNOSTIC MENU
PROGRAM REMOTE

PROGRAM REMOTE
DO YOU WANT TO ERASE REMOTES
1 = YES   2 = NO

PROGRAM REMOTE
HOLD LOCK BUTTON & DECKLID BUTTON TOGETHER FOR 10 Sec

NOTES :

Press the LOCK & DECKLID buttons together and hold until the door locks cycle to the unlocked position. This takes about 10 to 20 seconds.

If the locks fail to cycle after 20 seconds, unplug your AD100 and start again. This is not uncommon.

Each remote must be programmed separately. You must unplug your AD100 and start again for each remote.

SPECIAL FUNCTIONS

REMOTE CONTROL PROGRAMMING

TYPE 5 REMOTES

1998 DODGE DURANGO

1998 DODGE DAKOTA

99-00 DODGE DURANGO

99-00 DODGE DAKOTA

99-00 DODGE RAM PICK UP

DIAGNOSTIC MENU

PROGRAM REMOTE
ERASE REMOTES

PROGRAM REMOTE

REMOTE 1 : 09A0A344
REMOTE 2 : FFFFFFFF
REMOTE 3 : FFFFFFFF
REMOTE 4 : FFFFFFFF

PRESS ENTER KEY

PROGRAM REMOTE

PRESS REMOTE

PRESS ENTER KEY

NOTES :

When you enter programming mode, a list of the current 4 remote memory positions will be displayed.

A position with all F's is unused and empty.

Press the LOCK and UNLOCK buttons together and then quickly press the UNLOCK button.

The door locks cycle when a remote is programmed.

The memory positions are displayed again after programming the remotes. The next memory position is now filled with the last remote programmed.

To program the next remote repeat the above procedure.

If all memory positions are FULL, you must erase all Remotes and then program the NEW ones.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 6 REMOTES

1999-2004 CHRYSLER 300M
1998-2004 CHRYSLER CONCORDE
1999-2001 CHRYSLER LHS
2001-2004 CHRYSLER SEBRING CONV
2001-2004 CHRYSLER SEBRING 4
DOOR
1999-2004 DODGE INTREPID
2001-2004 DODGE STRATUS 4 DOOR

2001-2004
PT CRUISER

DIAGNOSTIC MENU

PROGRAM REMOTE

PROGRAMMING REMOTES

PRESS LOCK & UNLOCK
TOGETHER FOR 1 Sec.
WITHIN 3 Secs. PRESS
EITHER KEY FOR 1 Sec
REPEAT FOR ALL FOBS
BACK TO EXIT

PROGRAMMING REMOTES

PROCEDURE COMPLETE

PRESS ENTER KEY

NOTES :

Press the UNLOCK and LOCK buttons together and then quickly press the UNLOCK button.

A chime is heard as you enter and leave programming mode.

A chime is heard as a remote is programmed.

All remotes must be programmed at the same time.

Press **BACK** to exit programming.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 7 REMOTES

2001-2004 DODGE DAKOTA
2001-2003 DODGE DURANGO

DIAGNOSTIC MENU

PROGRAM REMOTE

PROGRAM REMOTE

ENTER REMOTE NO. X

PROGRAM REMOTE

PRESS & RELEAS.REMOTE
AND THEN PRESS ENTER

PROCEDURE COMPLETE

PRESS ENTER KEY

NOTES :

There are 4 memory positions on the TYPE 7 system. 1,2,3 & 4

Enter the number to fill a memory position for the remote you would like to program.

This will overwrite the memory location if a remote is already programmed into it.

You can program the same remote into all 4 locations to erase any existing remotes.

To program the remote press the LOCK and UNLOCK buttons together. A short chime is heard after the remote is programmed.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 8 REMOTES

2002-2004 DODGE RAM PICK UP

DIAGNOSTIC MENU
PROGRAM REMOTE

PROGRAMMING REMOTES

PRESS LOCK & UNLOCK
TOGETHER FOR 1 Sec.
WITHIN 3 Secs. PRESS
EITHER KEY FOR 1 Sec
REPEAT FOR ALL FOBS
BACK TO EXIT

PROGRAMMING REMOTES

PROCEDURE COMPLETE

PRESS ENTER KEY

NOTES :

Press the UNLOCK and LOCK buttons together and then quickly press the UNLOCK button.

A chime is heard as you enter and leave programming mode.

A chime is heard as a remote is programmed.

All remotes must be programmed at the same time.

Press **BACK** to exit programming.

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 9 REMOTES

1998 CHRYSLER
TOWN & COUNTRY
1998 DODGE
CARAVAN
1998 PLYMOUTH
VOYAGER

1999-2000
CHRYSLER TOWN &
COUNTRY
1999-2000
DODGE CARAVAN
1999-2000
PLYMOUTH VOYAGER

DIAGNOSTIC MENU
PROGRAM REMOTE

PROGRAM REMOTE
WARNING
ALL REMOTES WILL BE ERASED
PRESS ENTER KEY

PROGRAMMING REMOTES
PRESS LOCK & UNLOCK TOGETHER FOR 1 Sec. WITHIN 3 Secs. PRESS EITHER KEY FOR 1 Sec REPEAT FOR ALL FOBS BACK TO EXIT

NOTES :

Wait for chime—2 –3 seconds to start programming remotes.

Press the LOCK and UNLOCK buttons together and then quickly press the UNLOCK button.

A chime is heard as you enter programming mode.

A chime is heard as you program remote

All remotes must be programmed at the same time.

Press **BACK** to exit programming mode.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 10 REMOTES

1998-2000
CHRYSLER CIRRUS
1998-2000
DODGE STRATUS (4dr)
1998-2000
PLYMOUTH BREEZE

DIAGNOSTIC MENU
PROGRAM REMOTE

PROGRAM REMOTE
DO YOU WANT TO ERASE REMOTES
1 = YES   2 = NO

PROGRAMMING REMOTES
PRESS LOCK & UNLOCK TOGETHER FOR 1 Sec. DO THIS TWICE
REPEAT FOR ALL FOBS BACK TO EXIT

NOTES :

To program remote :-

Press the LOCK and UNLOCK together for one second and then repeat again.

If you choose to erase remotes, you must go back and program any existing remotes. Do not erase again.

A chime is heard when you enter programming.

The door locks cycle if a remote has been programmed.

Each remote must be programmed separately.

Press **BACK** to exit programming.

SPECIAL FUNCTIONS

C

REMOTE CONTROL PROGRAMMING

TYPE 11 REMOTES

1998
JEEP CHEROKEE

1999-2001
JEEP CHEROKEE

DIAGNOSTIC MENU
PROGRAM REMOTE

PROGRAM REMOTE
ENTER REMOTE NO. X

PROGRAMMING REMOTES
PRESS UNLOCK BUTTON

DIAGNOSTIC MENU
PROGRAM REMOTE

NOTES :

There are 4 memory positions for the TYPE 11 remote system, 1,2,3 & 4

Enter the number to fill a memory position for the remote being programmed.

This will overwrite the memory location if a remote was already stored in it.

You can program the same remote into all 4 positions to erase any existing remote controls.

Press the UNLOCK button.

The programming window is very short, so be quick.

The door locks cycle after the remote is programmed.

The AD100 will return to the Program menu.

ADVANCED
DIAGNOSTICS

3

CITROEN

CITROEN MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

VEHICLE	YEAR	SYSTEM	CABLE
BERLINGO	1997 ON	IMMO 1	ADC110
BERLINGO	1997 ON	BSI	ADC110
DISPATCH	1997 ON	IMMO 1	ADC110
EVASION	1997 ON	IMMO 1	ADC110
SAXO	1997 ON	IMMO 1	ADC110
SYNERGIE	1997 ON	CPH	ADC110
XANTIA	1997 ON	CPH	ADC100 + ADC120
XSARA	1997 ON	BSI	ADC110
XSARA	1997 ON	CPH	ADC110
XSARA PI-CASSO	1997 ON	BSI	ADC110
C3	2002 ON	BSI	ADC110
C5	2002 ON	BSI	ADC110
C3 PLURIEL	2002 ON	BSI	ADC110

INTRODUCTION

The Citroen Immobiliser systems are made up of 3 different types. They all perform various functions, and it is important to understand the basic configuration and the types of systems fitted.

IMM– STANDARD IMMOBILISER

This system was the first transponder system fitted to the Citroen range of vehicles, after the keypad system was phased out. The system is a basic electronic control unit which consists of immobiliser unit and transponder aerial to pick up the transponder signal code.

This system is similar to the GM immobiliser system, and is programmed and diagnosed in much the same way.

CPH—PASSENGER COMPARTMENT PROTECTION CONTROL UNIT

The next generation of Immobiliser and alarm system produced was the CPH system which controls a number of additional components which further enhances the vehicle protection system. These include central door locking, ultrasonic sensors to name a few.

This system is programmed in much the same way, but offers additional functionality on live data and actuator functions.

Programming keys on CPH system does not erase the Plip.

BSI—BODY SYSTEMS INTERFACE

This is the latest system, the alarm and immobiliser have now been incorporated into the body control unit, which controls all body units, including wipers, indicators, lights, doors, windows, locks, boot, service interval, horn, etc.

Again the BSI because the immobiliser is part of a complicated system there are many more functions included on actuators, special functions and live data.

SPECIAL FUNCTIONS

PROGRAMMING KEYS—IMMOBILISER & CPH

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
LIVE DATA
ACTUATORS
SPECIAL FUNCTIONS

PRESS ENTER KEY

Select **SPECIAL FUNCTIONS** from the Diagnostic Menu using the **UP** and **DOWN** arrows.

Then press the **ENTER** key.

DIAGNOSTIC MENU

PROGRAM KEYS

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **PROGRAM KEYS** option

To enter the security code use the following procedure :-

SECURITY CODE

_ _ _ _

Press ↑   To Select Number & Letter

Press ← To Erase the previous selection

SECURITY CODE

X 4 Y T

**IS THIS CORRECT
OK=ENTER   CLEAR=BACK**

Press ↵   To ENTER selection.

Press ↵   To Finish PIN selection.

WARNING : WHEN PROGRAMMING KEYS, THE SYSTEM AUTOMATICALLY ERASES THE PLIP KEYS AT THE SAME TIME. BEFORE PROCEEDING WITH KEY PROGRAMMING, ENSURE YOU HAVE THE PLIP KEY PROGRAMMING PROCEDURE.

ADVANCED
DIAGNOSTICS

PROGRAMMING KEYS—IMMOBILISER & CPH

INCORRECT ACCESS CODE

PRESS ENTER KEY

If incorrect code is entered the screen will display as shown.

NOTE : If the code is entered 3 time incorrectly, then the ECU will lock access for 15 minutes.

**SWITCH IGNITION ON
IGNITION STATUS OFF**

Follow on screen instruction for programming the keys.

**SWITCH IGNITION OFF
IGNITION STATUS ON**

After switching IGNTION OFF remove the key and repeat procedure for additional keys.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

PROGRAMMING KEYS—BSi MODULE

```
DIAGNOSTIC MENU

    ECU IDENTIFICATION
    FAULT CODES
    LIVE DATA
    ACTUATORS
    SPECIAL FUNCTIONS

    PRESS ENTER KEY
```

```
DIAGNOSTIC MENU

    PROGRAM KEYS



    PRESS ENTER KEY
```

```
SECURITY CODE

    _ _ _ _
```

```
SECURITY CODE

    X 4 Y T

    IS THIS CORRECT
OK=ENTER   CLEAR=BACK
```

Select **SPECIAL FUNCTIONS** from the Diagnostic Menu using the **UP** and **DOWN** arrows.

Then press the **ENTER** key.

NOTE : ENSURE ALL DOORS ARE CLOSED WHEN KEY PROGRAMMING IS BEING PERFORMED.

Using the **UP** and **DOWN** keys select the **PROGRAM KEYS** option

To enter the security code use the following procedure :-

Press ↑ ↓ to select Number & Letter

Press ← To Erase the previous selection

Press 8   To ENTER selection.

Press 8   To Finish PIN selection.

NOTE : AFTER PROGRAMMING CLEAR FAULT CODES AND LOCK VEHICLE FOR 10 MINUTES BEFORE TRYING THE KEY OR PLIP.

WARNING : WHEN PROGRAMMING KEYS, THE SYSTEM AUTOMATICALLY ERASES THE PLIP KEYS AT THE SAME TIME. BEFORE PROCEEDING WITH KEY PROGRAMMING, ENSURE YOU HAVE THE PLIP KEY PROGRAMMING PROCEDURE.

PROGRAMMING KEYS—BSi MODULE

```
┌─────────────────────────────┐
│ TRYING TO COMMUNICATE       │
│                             │
│                             │
├─────────────────────────────┤
│      PRESS ENTER KEY        │
└─────────────────────────────┘
```

If Access code is correct, ENTER the number of keys to program.

NOTE : Max 4 keys can be added.

```
┌─────────────────────────────┐
│                             │
│    SWITCH IGNITION OFF      │
│    IGNITION STATUS ON       │
│                             │
│                             │
├─────────────────────────────┤
│      PRESS ENTER KEY        │
└─────────────────────────────┘
```

Follow on screen instruction for programming the keys.

```
┌─────────────────────────────┐
│    SWITCH IGNITION ON       │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│   PRESS BACK TO EXIT        │
│                             │
│    PRESS ENTER TO           │
│   PROGRAM NEXT KEY          │
│                             │
├─────────────────────────────┤
│      PRESS ENTER KEY        │
└─────────────────────────────┘
```

NOTE : AFTER PROGRAMMING CLEAR FAULT CODES AND LOCK VEHICLE FOR 10 MINUTES BEFORE TRYING THE KEY OR PLIP.

ADVANCED **DIAGNOSTICS**

TIPS & HINTS

PEUGEOT & CITROEN

VEHICLE	KEY TYPE	IDENT COLOUR	PART NO
SAXO	STANDARD	GREY	9926GY
XSARA	STANDARD GREY SERVICE KEY PLIP BLADE STANDARD KEY (MULTIPLEX)	BLACK BLACK BLACK	9926FF 9926JZ 9926FG 9926LE
XSARA PICASSO	STANDARD		9926LE
XANTIA	STANDARD PLIP BLADE	GREEN GREEN	9926HC 9926HA
C5	STANDARD		9926LE
SYNERGIE	STANDARD PLIP BLADE	BLACK BLACK	9926FF 9926FG
BERLINGO	STANDARD STANDARD (MULTIPLEX)	GREY	9926GY 9926LH
DISPATCH	STANDARD	BLACK	9926FF
RELAY	STANDARD		9926CF

TRANSPONDER KEYS
1. After Programming Keys on all vehicles, clear fault codes before trying each key. This enables the key programming system, and saves having to wait for 5 minutes for system to reset.
2. When programming keys on all Citroen and Peugeot vehicles ensure all doors and hatchback doors are closed.
3. If the battery is disconnected on a C5 vehicle, you must wait at least 2 minutes after re-connection before trying anything, as the immobiliser enters lockout for 2 minutes after battery disconnection.

PEUGEOT & CITROEN

When programming keys on Peugeot 206 with MUX (Multiplex and a comb's 2000 unit)- it is important to note that there are two different types of remote. Although both the keys look exactly the same (2 button- one large, one small) if you use the wrong remote you will be able to program the transponder but the remote will not work. The remotes are identified by whether the vehicle has front fog lights or not. With front fog lights part number 6554.K2
Without front fog lights part number 6554.K1

ADVANCED DIAGNOSTICS

SYSTEM IDENTIFICATION

106=CPH
206=Had BSI from the start but only had MUX from 51 Reg on (build code 9064 on) the design of the stalks gives it away, plip keys also different as it has a square appearance.
306=Never had MUX but late ones from approx V reg had HF plips and a CPH under the dash (passenger compartment protection unit) which worked locking and plips in one unit.
307=all BSI + MUX
406=had BSI + MUX from facelift (honey comb grill & boot and rear lights)
806=same as 306
807=All BSI + MUX
607=All BSI + MUX
Partner=Up to 2001 CPH, BSI from approx 2001 and has MUX like 406
Expert =All CPH
Boxer =All code1/2 (Fiat system)

Programming keys on BSI 2 may result in a vehicle that subsequently loses all electrical device operation (lights, wipers etc)- this is caused by the BSI unit waking up incorrectly after programming causing it to switch off all actuator outputs. Therefore once keys have been programmed on BSI2 equipped vehicles the system must been set to sleep (open drivers window, remove keys from ignition, shut drivers door and leave for 30 mins) and then woken using the sidelight switch only (lean in through the open drivers window and turn on sidelights.) All CPH systems, and some Imm 1/2, have connections to doors, boot and bonnet. Key programming may not be allowed if a door is open or "thought" to be open- therefore a faulty bonnet switch will cause a failed key programming session.

To minimise the possibility of the BSI unit corrupting it's own software after download/ programming or disconnection a certain procedure must be adopted to sleep and wake the BSI in the cleanest possible way. This will prevent the possibility of a complete dashboard or BSI derived electrical failure and also a current draw problem caused by failure to enter power save or sleep mode.
Switch off all electrical devices and put drivers window down. Make sure the AD100 is disconnected (a diagnostic session will keep the BSI unit awake) and make sure the bonnet is up, the key is out of the ignition and all of the doors are shut. Wait for 3 minutes. Disconnect the battery and wait for 30 seconds
Re-connect the battery, wait 10 seconds and without opening any doors turn on the sidelights through the drivers open window. (the "lights on" chime should sound)
Start the engine and check all systems are functioning.
Sudden voltage spikes (as with jump starting) can also corrupt the BSI unit.
Some 607 vehicles have two batteries (other one is in the boot under the R/H trim)

406 Interior fuse box Fuse 25 (immobiliser, gearbox, engine, interior light, clock) blows intermittently. This fuse covers immobiliser function so you will find that if it is blown the car will not start but once started the fuse can blow (or be removed) without the car stopping. Fault is caused by a water leak in through the aerial onto the interior light assembly.

BOXER EMERGENCY START

This emergency procedure enables you to start the engine <u>only if</u> the engine doesn't start because of an immobiliser problem.

If the procedure is interrupted, you must do it again. <u>That's why it is important to read and understand properly the procedure before practising it.</u>

This procedure must be done for each starting.

Procedure
1. Read the security code on the card
2. Switch off the ignition. Switch on the ignition
3. Press the accelerator pedal till the diagnostic light switch off (around 8 secs)
4. Release the accelerator pedal
5. Press the accelerator pedal as soon as the number of diagnostic light flashing equals the first number of the security code
6. Press the accelerator pedal till the diagnostic light switch off (around 4 secs)
7. Do stages 6 and 7 for each number of the security code
8. Once you have released the pedal accelerator for the last number if the light switch off or flash for 4 seconds, the procedure is a success and the engine can be started.

If the diagnostic light stays on , the procedure has failed and must be done again after a delay of 10 minutes. Start the procedure stage 2. If the procedure succeeds and the engine starts, it means that the problem is an immobiliser one.

PEUGEOT 607—BSI

To minimise the possibility of the BSI unit corrupting it's own software after download/programming or disconnection a certain procedure must be adopted to sleep and wake the BSI in the cleanest possible way. This will prevent the possibility of a complete dashboard or BSI derived electrical failure and also a current draw problem caused by failure to enter power save or sleep mode. Switch off all electrical devices and put drivers window down. Make sure the AD100 is disconnected (a diagnostic session will keep the BSI unit awake) and make sure the bonnet is up, the key is out of the ignition and all of the doors are shut. Wait for 3 minutes. Disconnect the battery and wait for 30 seconds Re-connect the battery, wait 10 seconds and without opening any doors turn on the sidelights through the drivers open window. (the "lights on" chime should sound). Start the engine and check all systems are functioning. Sudden voltage spikes (as with jump starting) can also corrupt the BSI unit. Some 607 vehicles have two batteries (other one is in the boot under the R/H rim)

GENERAL

Failure to program keys on CPH systems can be caused by corrosion to the large brown loom connector on the O/S inner wing or a melted pin in the large round connector situated on the n/s inner wing (below battery or air filter)

Saxo on CPH systems have a very slow learn time, after successfully programming keys, remove the AD100, turn the ignition off and leave the vehicle alone for 30 mins.

C5- if the battery has been disconnected or gone flat, after replacing/re-connecting the battery it will be necessary to leave the vehicle for approx 2 minutes before it can be started- during this time do not switch the ignition on.

All Saxo and Dispatch vehicles are CPH remotes and keys are therefore programmed separately.

If a pin code has been entered incorrectly three times the ignition must be left ON for 20 minutes and then OFF for 5 minutes before you try to program the keys again.

4

DAEWOO

DAEWOO MANUAL

CONTENTS

APPLICATIONS

MODEL	YEAR	CABLE
KALOS	ALL MODELS	ADC131(SWITCH 2)
TACUMA	ALL MODELS	ADC131(SWITCH 2)
LACETTI	ALL MODELS	ADC131(SWITCH 2)
REMAN	ALL MODELS	ADC131(SWITCH 2)
ESPERO	ALL MODELS	ADC131(SWITCH 2)
PRINCE	ALL MODELS	ADC131(SWITCH 2)
SUPER SALON	ALL MODELS	ADC131(SWITCH 2)
CIELO	ALL MODELS	ADC131(SWITCH 2)
PRINCE II	ALL MODELS	ADC131(SWITCH 2)
BROUGHAM II	ALL MODELS	ADC131(SWITCH 2)
LANOS	ALL MODELS	ADC131(SWITCH 2)
NUBIRA	ALL MODELS	ADC131(SWITCH 2)
NUBIRA 2000 MY	ALL MODELS	ADC128
LEGANZA 2000 MY	ALL MODELS	ADC128
LEGANZA	ALL MODELS	ADC131(SWITCH 2)
MATIZ	ALL MODELS	ADC131(SWITCH 1)
NUBIRA II	ALL MODELS	ADC131(SWITCH 2)
MAGNUS	ALL MODELS	ADC131(SWITCH 2)
LEZO	ALL MODELS	ADC131(SWITCH 2)
ZETA	ALL MODELS	ADC131(SWITCH 2)

The cable used for DAEWOO has a switch to select for either
MATIZ or ALL OTHER DAEWOO vehicles.

MATIZ = POSITION 1
ALL OTHER VEHICLES = POSITION 2

NOTE : If the vehicle is fitted with OBD 16 Pin connector then use
the ADC110 standard lead. These are only on 2000/2001/2002
model vehicles.

NOTE 2 : On a few vehicles dated 2000, a different protocol was
used, which meant a different cable is required. If no communi-
cation can be found on the NUBIRA or LEGANZA Model Year
2000, then ADC128 should be used, All later models use the
standard ADC110 OBD Cable.

ADVANCED
DIAGNOSTICS

GENERAL OPERATION

IMMOBILISER SYSTEM

INTRODUCTION
The immobiliser system provides theft protection using the ignition key and transponder device. An LED is used to indicate the immobiliser status. The immobiliser control unit communicates to the engine management unit when a valid key code is received and sends a security code to enable starting. If a valid key is used, the LED indicates the correct key status, if an incorrect key is used a fault code is set and the LED indicates an incorrect key status.

TRANSPONDER KEY
The transponder key consist of a 96bit crypto algorithm secret key code which is transmitted via an aerial mounted around the ignition key barrel.

CENTRAL LOCKING SYSTEM

INTRODUCTION

The remote keyless entry and anti-theft system fitted to the range of Daewoo vehicles performs the following functions :-
- Remote unlocking of doors
- Sense of vehicle break in via doors, boot or bonnet.
- Sounding of warning device
- Locking of doors if the vehicle door or boot has not been opened after 30 seconds of unlocking using the remote plip.
- Sense movement inside vehicle if ultrasonic sensors are fitted.

COMPONENTS
- Remote entry module receiver control unit
- Security LED
- Boot open switch
- Boot tamper switch
- Front Door tamper switches
- Door open switches
- Central locking control unit
- Sounder
- Bonnet open switch
- Ultrasonic options (Optional)

GENERAL OPERATION

The remote control units lock and unlock the vehicle doors using radio frequency technology to the control unit. The range of control is 5-10 metres. When the doors are locked the indicator lamps flash once, and when unlocked the lamps flash twice.

SECURITY INDICATOR

The security indicator mounted in the instrument panel indicates the state of the security system. When the lock button is pressed, the control system is armed and the LED flashes. The LED will now flash until the control unit is disarmed.

CONTROL MODULE

The control module is mounted in the instrument panel, and controls the whole system and has the ability for self diagnosis. If there is a fault in the system the indicators will flash twice when the vehicle is unlocked, with a 0.5 second delay between flashes. If the vehicle has had an intrusion then the indicators will flash twice but with a 1.5 second delay between flashes.

SPECIAL FUNCTIONS

KEY PROGRAMMING—ALL DAEWOO SYSTEMS (Except MATIZ)

DIAGNOSTIC MENU

ECU IDENTIFICATION
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **PROGRAM KEYS**
> KEY INFORMATION

PRESS ENTER KEY

Select PROGRAM KEYS.

SWITCH IGNITION ON

AND THEN PRESS ENTER

Switch IGNITION ON and press the ENTER key.

**PROGRAM KEYS
BACK TO EXIT
ENTER TO PROGRAM
NEXT KEY**

The key will be programmed.

Press **ENTER** to add another key or **BACK** to exit from programming mode.

**PROGRAM KEYS
PROCEDURE COMPLETE**

After pressing **BACK** , procedure complete will be displayed.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

KEY PROGRAMMING—(MATIZ)

```
DIAGNOSTIC MENU

> PROGRAM KEYS
>SHOW KEY INFO



PRESS ENTER KEY
```

NOTE : KEY PROGRAMMING ON MATIZ IS THE SAME AS THE OTHER DAEWOO VEHICLES, BUT OPERATION IS DONE MUCH SLOWER.

```
DIAGNOSTIC MENU

> PROGRAM KEYS
> KEY INFORMATION



PRESS ENTER KEY
```

On MATIZ information about the key in the IGNITION can also be displayed.

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

```
KEYCODE : A234029
A8500000




PRESS ENTER KEY
```

Select PROGRAM KEYS.

```
PROGRAM KEYS
BACK TO EXIT
ENTER TO PROGRAM
NEXT KEY
```

Switch IGNITION ON and press the **ENTER** key. the key will be programmed.

Press **ENTER** to add another key or BACK to exit from programming mode.

```
PROGRAM KEYS
INSERT NEXT KEY
SWITCH IGNITION ON
AND PRESS ENTER
```

NOTE : IF BACK IS PRESSED THE SCREEN WILL DISPLAY PROCEDURE COMPLETE.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

KEY PROGRAMMING—(MATIZ)

PLEASE WAIT
TRYING TO COMMUNICATE

KEYCODE : A23429

PRESS ENTER KEY

After programming the key will be programmed.

ADVANCED
DIAGNOSTICS

TIPS & HINTS

When you have programmed keys, and the vehicle will not start even though the programming was successful, follow these instructions :

- The learn time for the engine control unit is very slow on this car.
- You will have to program the keys and then leave the vehicle alone for at least 30 minutes without the ignition OFF.
- If still no success, then disconnect the battery for 10 minutes and then test keys.

When inserting a NEW unprogrammed key DO NOT try and start the car otherwise the Engine and Immobiliser ECU will lock. If this happens turn the ignition OFF and then back ON again to reset.

Musso diesel with a NEW unprogrammed key will start but WILL NOT rev.

ADVANCED DIAGNOSTICS

5

FIAT

ALFA

LANCIA

FIAT/ALFA/LANCIA MANUAL   *ADVANCED* DIAGNOSTICS

5

CONTENTS

PAGE

A

B

APPLICATIONS   71

SPECIAL FUNCTIONS   72

ADVANCED DIAGNOSTICS

APPLICATIONS

ALFA

VEHICLE	YEAR	SYS	KEY	PLIP	KEY	LIVE	FAULT	CABLE
147	ALL	CAN	Y	Y	Y		Y	ADC110-B
156	98MY ON	ISO	Y	Y	Y	Y	Y	ADC110-B
166	98MY ON	ISO	Y	Y	Y	Y	Y	ADC110-B

FIAT

VEHICLE	YEAR	SYS	KEY PROG	PLIP PROG	PLIP INFO	LIVE DATA	FAULT CODES	CABLE
SCUDO	ALL	ISO	Y	Y		Y	Y	ADC110-B
DOBLO	ALL	ISO	Y	Y	Y		Y	ADC110-B
DUCATO	98MY ON	ISO	Y	Y		Y	Y	ADC110-B
MULTIPLA	98MY ON	ISO	Y	Y		Y	Y	ADC110-B
PALIO	ALL	ISO	Y	Y	Y		Y	ADC110-B
PUNTO	NEW	CAN	Y	Y	Y		Y	ADC110-B
SEICENTO	99MY	ISO	Y	Y		Y	Y	ADC143
SEICENTO	99MY ON	ISO	Y	Y		Y	Y	ADC110-B
STILO	ALL	CAN	Y	Y	Y		Y	ADC110-B
ULYSSE	ALL	ISO	Y	Y		Y	Y	ADC110-B
PANDA	ALL	CAN	Y			Y	Y	ADC110-B
IDEA	ALL	CAN	Y	Y	Y		Y	ADC110-B

LANCIA

VEHICLE	YEAR	SYS	KEY PROG	PLIP PROG	ACTUA-TORS	FAULT CODES	CABLE
LYBRA	ALL	ISO	Y		Y	Y	ADC110-B
PHEDERA	ALL	ISO	Y		Y	Y	ADC110-B
THESIS	98MY	CAN	Y	Y	Y	Y	ADC110-B
Z	ALL	ISO	Y		Y	Y	ADC110-B

SPECIAL FUNCTIONS

CAN SYSTEM

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

From the main diagnostic menu select SPECIAL FUNCTIONS.

SPECIAL FUNCTIONS

PROGRAM KEYS
KEY INFORMATION
REMOTE INFORMATION
ACTUATORS

PRESS ENTER KEY

Select PROGRAM KEYS from the special functions menu.

PROGRAMMING KEYS

KEYS NOT AVAILABLE WILL BE DELETED!

PRESS ENTER KEY

NOTE : ANY KEYS NOT PROGRAMMED AT THIS POINT WILL BE DELETED PERMANENTLY. EVEN EXISTING KEYS !

SECURITY CODE

_ _ _ _ _

To enter the 5 digit security code use the numerical keypad keys.

PROGRAMMING KEYS

KEYS PROGRAMMED: 1

BACK TO EXIT
ENTER TO PROGRAMME
NEXT KEY

The number of existing keys programmed is displayed.

To exit press the **BACK** key on the AD100. Otherwise press **ENTER** to continue.

SPECIAL FUNCTIONS

CAN SYSTEM

PROGRAMMING KEYS	
REMOVE KEY INSERT NEXT KEY SWITCH IGNITION ON	REMOVE KEY from ignition then INSERT next key. Switch IGNITION ON.
PRESS ENTER KEY	Press **ENTER** to continue.

PROGRAMMING KEYS	
XX KEYS PROGRAMMED BACK TO EXIT ENTER TO PROGRAM REMOTES	The number of keys now programmed in is displayed. To continue and program in REMOTES press ENTER. Otherwise press BACK to exit.

PROGRAMMING REMOTES	
PRESS REMOTE AND HOLD **FOR 3 SECS** **PLEASE WAIT**	To program in remotes follow the on screen instructions from the PROGRAMMING KEYS screen.

PROGRAMMING REMOTES
PROGRAMMING REMOTE **BACK TO EXIT** **ENTER TO PROGRAM NEXT REMOTE**

SPECIAL FUNCTIONS

ISO SYSTEM

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

From the main diagnostic menu select SPECIAL FUNCTIONS.

SPECIAL FUNCTIONS

PROGRAM KEYS
LIVE DATA
ACTUATORS
KEY INFORMATION

PRESS ENTER KEY

Select PROGRAM KEYS from the special functions menu.

SECURITY CODE

_ _ _ _ _

To enter the 5 digit security code use the following procedure :-

Press ↑ To elect Number & Letter

Press ← To Erase the previous selection

SECURITY CODE

1 2 3 4 5

IS THIS CORRECT
OK = ENTER CLEAR =BACK

Press ↵ To **ENTER** selection.

Press ↵ To Finish PIN selection.

PROGRAMMING KEYS

KEYS NOT AVAILABLE WILL BE DELETED!

PRESS ENTER KEY

NOTE : ANY KEYS NOT PROGRAMMED AT THIS POINT WILL BE DELETED PERMANENTLY. EVEN EXISTING KEYS !

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

ISO SYSTEM

PROGRAMMING KEYS

KEY ERROR

PRESS ENTER KEY

Depending on the status of the key inserted the following messages will appear:

Press ENTER to continue.

OR

PROGRAMMING KEYS

KEYS PROGRAMMED: 1

BACK TO EXIT

ENTER TO PROGRAM NEXT KEY

Press **BACK** to EXIT otherwise **ENTER** to continue.

PROGRAMMING KEYS

REMOVE KEY

INSERT NEXT KEY
LEAVING IN STOP POSITION

PRESS ENTER KEY

If ENTER is pressed on either of the previous screens then this screen will be displayed indicating the key programming procedure.

SECURITY CODE

_ _ _ _ _

IMPORTANT NOTE : The PIN CODE for REMOTES is DIFFERENT from the PIN CODE for the KEYS.

PLEASE REQUEST ALARM CODE from DEALER when ordering the IMMOBILISER CODE.

SECURITY CODE

1 2 3 4 5

IS THIS CORRECT
OK = ENTER CLEAR =BACK

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

ISO SYSTEM

```
        KEY INFORMATION

KEYS PROGRAMMED:     2
KEY 1:         12345678
KEY 2:         12345678
KEY 3:         12345678
KEY 4:         12345678


       PRESS ENTER KEY
```

The key information screen is displayed. Press **ENTER** to continue.

ISO REMOTE PROGRAMMING

```
      PROGRAMMING REMOTES

       REMOTE INFORMATION

       REMOTES STORED : XX

          PRESS ENTER
```

```
      PROGRAMMING REMOTES

     PROGRAMMING REMOTE


        PRESS REMOTE
     AND HOLD FOR 3 SECS
```

```
      PROGRAMMING REMOTES


     PROGRAMMING REMOTE

        BACK TO EXIT

     ENTER TO PROGRAM
        NEXT REMOTE
```

ADVANCED DIAGNOSTICS

6

FORD

FORD MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

APM100

ADVANCED DIAGNOSTICS

APPLICATIONS

VEHICLE	TYPE	KEYS	YEAR	SYSTEM	CABLE
KA	PETROL	3 KEYS & 2 KEYS	96/97 97/98 97>	PATS 2 PETROL PATS 3 PETROL	ADC110 ADC110 ADC110
FIESTA/ COURIER	PETROL	3 KEYS & 2 KEYS	93 > 96 96/97 97/98 98 >	PATS 2 PETROL PATS 3 PETROL	ADC111 ADC110 ADC110 ADC110
FIESTA/ COURIER	DIESEL	3 KEYS & 2 KEYS	95 > 97 97 >	PATS 2 PATS 3	ADC111 ADC110
PUMA	PETROL	2 KEYS	1.7 ZETEC 1.4 ZETEC	PATS 3	ADC110
ESCORT/ ORION	PETROL	3 KEYS	93 > 97 97 >	PATS 1 PATS 2	ADC111 ADC110
ESCORT/ ORION	DIESEL	3 KEYS	94 > 96 96/97	PATS 2	ADC111 ADC110
FALCON	PETROL/ LPG	2 KEYS	ALL	PATS 2.5	ADC110
FOCUS	PETROL	2 KEYS	98 >	PATS 3	ADC110
FOCUS	DIESEL	2 KEYS	98 >	PATS 3	ADC110
MONDEO	PETROL (MANUAL)	3 KEYS & 2 KEYS	94 > 96 96/97 97/98 98 >	PATS 1 PATS 2 PATS 3	ADC111 ADC110 ADC110 ADC110
MONDEO	PETROL (AUTO)	3 KEYS & 2 KEYS	94 > 96 96/97 97 >	PATS 1 PATS 2 PATS 3	ADC111 ADC111 ADC110
MONDEO	DIESEL	3 KEYS & 2 KEYS	96/97 97/98 98 >	PATS 2 PATS 3	ADC110 ADC110 ADC110
COUGAR	PETROL	2 KEYS		PATS 3	ADC110
GRANADA/ SCORPIO	PETROL (MANUAL)	3 KEYS & 2 KEYS	> 97 97 >	PATS 2 PATS 3	ADC110 ADC110
GRANADA/ SCORPIO	PETROL (AUTO)	3 KEYS & 2 KEYS	> 97 97 >	PATS 2 PATS 3	ADC110 ADC110
GRANADA/ SCORPIO	DIESEL	3 KEYS & 2 KEYS	95/96 96/97 97 >	PATS 2 PATS 3	ADC110 ADC110 ADC110

APPLICATIONS

VEHICLE	TYPE	KEYS	YEAR	SYSTEM	CABLE
GALAXY	PETROL		> 97 97 > 00 00 >	PATS 2 PATS 3	ADC110
GALAXY	DIESEL		> 97 97 > 00 00 >	PATS 2 PATS 3	ADC110
WINDSTAR	ALL		> 97 97/98 98 >	PATS 2 PATS 3	ADC110
EXPLORER	ALL		97 >	PATS 3	ADC110
TRANSIT	PETROL		94 > 97 97 > 00 00 >	PATS 2 PATS 3	ADC110
TRANSIT	DIESEL		94/95 95/96 96/97 97 > 00 00 > TYPE 1 TYPE 2	PATS 2 PATS 3	ADC110
TRANSIT	EPIC		95 > 97 97 > 97.5 97.5 >	PATS 2 PATS3	ADC110
MAVERICK	PETROL		ALL	NATS	ADC110
MAVERICK	DIESEL		ALL	NATS	ADC110

SYSTEM	TYPE	KEYS	YEAR	VEHICLE	GENERAL
LDV	DIESEL	3 KEYS		CONVOY	BOSCH DIESEL DSM SYSTEM
LDV	EPIC	3 KEYS		CONVOY TURBO	LUCAS EPIC DIESEL SYSTEM
LDV	LPG	2 KEYS		CONVOY LPG/PETROL ENGINE	FORD EECV EFH SYSTEM

ADVANCED DIAGNOSTICS

GENERAL OPERATION

INTRODUCTION

The FORD PATS systems were introduced on Ford vehicles on 94.5 M.Y. vehicles , and was available from March 1994.

There have been many variations on the original system fitted. This system has a separate PATS Amplifier, however on subsequent systems the PATS module was incorporated into the Engine Management ECU.

SYSTEM OPERATION

The PATS system is a PASSIVE Anti-theft system which requires no special procedures for the driver to arm or disarm the system. The system is operated by a transponder fitted within the ignition key's body, which communicates with the PATS module ignition transceiver mounted around the lock barrel.

The easy method of identifying a PATS vehicle is if the key has a small imprint showing where the transponder is fitted. The code for the transponder is stored in memory within the PATS amplifier or the Engine Management ECU.

The PATS system reads the code when the ignition key is turned from position 0 to position 1. If the correct code is received then the engine will start.

When vehicles are fitted with Diesel Smart Modules or EPIC, the PATS code is stored in these systems as well, and requires clearing when new keys are programmed.

KEY OPERATION - UP TO 98 ¼ MY

Three keys are allocated to each vehicle, the first key which is inserted is known as the master and is usually identified by it's RED colour. The other keys that are used are known as slave keys and are usually BLACK with a RED insert. Up to 16 keys can be programmed into the PATS system.

GENERAL OPERATION

KEY OPERATION - 98¼ MY ONWARDS

The newer systems are only supplied with 2 keys. Both keys are required to program further slave keys. Up to a maximum of 8 keys can be programmed to this PATS system.

KEY PROGRAMMING - UP TO 98 ¼ MY

NOTE : Clear ALL Fault codes before programming.

A new master key can only be programmed using the FDS2000 or the AD100 systems. Further slaves can be added without any specialist equipment as follows :-

1. Insert master key, and turn to Position 2. PATS LED should illuminate.

2. Turn ignition from Position 2 to Position 0, and remove key. PATS LED will illuminate for 2 seconds. PATS system is now in programming mode for 10 seconds.

3. Insert the new slave key, and turn from Position 0 to Position 2. PATS LED will flash once if successful.

4. Repeat for all new slave keys.

KEY PROGRAMMING - 98¼ MY ONWARDS

NOTE : Clear ALL Fault codes before programming.

Master keys can only be programmed using the 2 PATS keys (A and B) the FDS2000 or the AD100 system.

NOTE : In some cases the vehicle doors must be closed to perform the re-programming sequence.

Further slaves can be added without any specialist equipment as follows :-
1. Insert key A, and turn to Position 2.
2. Turn back to Position 0, and remove key A.
3. Insert key B, and turn to Position 2.
4. Turn back to Position 0, and remove key B.
5. Insert the new slave key and turn to Position 2.
6. Remove new key. Key is now programmed.
7. Procedure can be repeated after 20 seconds, for up to 8 slave keys.

NOTE : If programming is unsuccessful, the PATS LED will flash when the key is inserted.

PATS LED INDICATOR

The LED indicator is used for the PATS system and also other Anti-theft systems fitted to the Ford vehicle range. When the ignition is switched ON, the PATS LED will illuminate for 3 seconds while it performs a self-test, after which it extuingishes. When the PATS system is armed and immobilised the vehicle, the PATS LED will flash quickly.

If there is a fault on the PATS system, and the engine can start, the PATS LED will illuminate for 60 seconds continuously, and then flash the PATS fault code 10 times. If the engine is unable to start and disabled by the PATS system, then the PATS LED will FLASH for 60 seconds and then flash the PATS fault code 10 times. PATS LED is mounted either in the front headlining or next to the heater controls/clock.

GENERAL OPERATION

PATS SYSTEM - PROBE ONLY

The PATS system fitted to the Probe is unlike the other systems. The main difference is the system cannot be diagnosed with the FDS2000 or the AD100. Additional keys and re-programming of new keys are performed in a different procedure as well.

PROGRAMMING NEW/ADDITIONAL KEYS (2 or more keys available)

1. Using one of the existing keys (This becomes KEY 1), insert into ignition switch.
 NOTE : When requested to turn the key ON or OFF, the time should not be less than 1 Second or more than 2 Seconds between operations. Unless stated otherwise.
2. Turn the Key to IGNITION ON and then OFF five times, stopping at the OFF position.
NOTE : PATS LED Should remain ON with the key in the OFF position.
3. Turn the IGNITION ON using KEY 1., within 15 seconds of step 2.
4.. Turn the IGNITION OFF and remove KEY 1.
5. Insert KEY 2 within 60 seconds of PATS LED illuminating.
6. Turn IGNITION ON and start engine with KEY 2. PATS LED will extinguish after 1-2 seconds and engine remain running if key is accepted.
7. Turn IGNITION OFF and remove KEY 2.
8. Insert KEY 3 within 15 seconds of removing KEY 2.
9. Turn IGNITION ON and start engine with KEY 3. PATS LED will extinguish after 1-2 seconds and engine remain running if key is accepted.
10. Turn IGNITION OFF and remove KEY 3. Repeat as necessary for additional keys.

PROGRAMMING NEW/ADDITIONAL KEYS (No keys available)

Programming new key(s) when no keys are available can only be completed by a FORD dealer.

SPECIAL FUNCTIONS

CLEARING/PROGRAMMING PATS 1 & 2 SYSTEM (PETROL)

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the
SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **CLEAR PATS 1 SYSTEM**
KEYS PROGRAMMED

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **CLEAR PATS SYSTEM.**

CLEAR PATS 1 SYSTEM

SWITCH IGNITION ON
IGNITION STATUS OFF

Follow the screen instructions to clear the PATS system.

CLEAR PATS 1 KEY

TIME ELAPSED   0:50
TIME REQUIRED   8:00

WAITING TO CLEAR
BACK TO ABORT

The AD100 will now start to clear the PATS system key codes from memory.

NOTE : If WAITING TO CLEAR is not displayed this indicates the incorrect system has been selected.

CLEAR PATS 2 SYSTEM

ALL KEYS CLEARED

KEYS PROGRAMMED : 1

PRESS ENTER KEY

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

CLEARING/PROGRAMMING PATS 1 & 2 SYSTEM (PETROL)

```
       PROGRAM KEYS

       3 KEYS REQUIRED


      PRESS ENTER KEY
```

If successful the AD100 will display all keys cleared and how many keys are programmed.

The key in the ignition is now programmed as the master key.

After Master key has been programmed additional keys can be added in the normal manual procedure as described in the previous section

SPECIAL FUNCTIONS

CLEARING/PROGRAMMING PATS 1 & 2 SYSTEM (DIESEL)

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **SPECIAL FUNCTIONS.**

DIAGNOSTIC MENU

> **CLEAR PATS 2 SYSTEM**
  KEYS PROGRAMMED

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **CLEAR PATS SYSTEM.**

CLEAR PATS 2 SYSTEM

SWITCH IGNITION ON
IGNITION STATUS OFF

Follow the screen instructions to clear the PATS system.

CLEAR PATS 2 KEY

TIME ELAPSED   0:50
TIME REQUIRED   8:00

WAITING TO CLEAR
BACK TO ABORT

The AD100 will now start to clear the PATS system key codes from memory.

NOTE : If WAITING TO CLEAR is not displayed this indicates the incorrect system has been selected.

CLEAR DSM KEY

TIME ELAPSED   0:50
TIME REQUIRED   15:00

WAITING TO CLEAR
BACK TO ABORT

SPECIAL FUNCTIONS

CLEARING/PROGRAMMING PATS 1 & 2 SYSTEM (DIESEL)

```
CLEAR PATS 2 SYSTEM

ALL KEYS CLEARED

KEYS PROGRAMMED : 1
```
PRESS ENTER KEY

```
PROGRAM KEYS

3 KEYS REQUIRED
```
PRESS ENTER KEY

After Clearing the PATS module, the AD100 will automatically switch over to clearing the DSM (Diesel Smart Module) which takes 15 minutes.

NOTE : If CONDITIONS INCORRECT are displayed then check the connection to the diesel pump, and clean the connections.

NOTE : If the time continues after 15 minutes and does not clear, then check to ensure the system selected is correct.

NOTE : If WAITING TO CLEAR is not displayed this indicates the incorrect system has been selected.

If successful the AD100 will display all keys cleared and how many keys are programmed.

The key in the ignition is now programmed as the master key.

After Master key has been programmed additional keys can be added in the normal manual procedure as described in the previous section

SPECIAL FUNCTIONS

CLEARING PATS 3 SYSTEM (PETROL & DIESEL ENGINES)

```
    CLEAR PATS 3 SYSTEM
  MIN KEYS REQUIRED : 2
        TIMED ACCESS
  CLEAR TIME  10:00
    KEYS PROGRAMMED : 2


       PRESS ENTER KEY
```

```
    CLEAR PATS 3 KEY
  GAINING ACCESS
  TIME ELAPSED     0:50
  TIME REQUIRED    10:00
     ACCESS STATUS
      IN PROGRESS
      BACK TO ABORT
```

Follow the screen instructions to clear the PATS system.

The AD100 will now start to clear the PATS
system key codes from memory.

NOTE : If ACCESS STATUS IN PRO-GRESS is not displayed this indicates the incorrect system has been selected.

After clearing, the PATS system will automatically read the key in the ignition.

Follow on screen instruction to program the keys.

After programming, disconnect AD100 leave vehicle for 1 minute and then insert both keys and switch IGNITION ON to exit programming mode.

After 2 minutes try starting with both keys.

NOTE : If an error is made, leave the ignition on for 20 seconds, and then insert both keys and turn ignition ON. Then try starting again.

NOTE : If the Diagnostic session is called before the other systems are not allowed to settle, ie. The dashboard to finish all the relevant checks are made the counter will show 0.00 and access denied or coded access.

SPECIAL FUNCTIONS

C

CLEARING PATS SYSTEM (FALCON)

DIAGNOSTIC MENU
> **B.E.M.**   P.C.M.
PRESS ENTER KEY

NOTE : Minimum 2 keys required.

NOTE : Ensure all vehicle doors remain closed at all times.

Connect AD100 to vehicle diagnostic connector, select Ford Falcon.

FALCON B.E.M. PATS
PRESS ENTER KEY

Select BEM first and press ENTER.

DO NOT TURN IGNITION ON when screen requests to.

Press ENTER and continue.

DIAGNOSTIC MENU
SPECIAL FUNCTIONS
PRESS ENTER KEY

Select SPECIAL FUNCTIONS and press ENTER.

Select CLEAR PATS 3 SYSTEM and press ENTER key.

DIAGNOSTIC MENU
> **CLEAR PATS 3 SYSTEM**   PARAMETER RESET
PRESS ENTER KEY

NOTE : Doors locks will automatically lock.

Within 5 seconds insert the first key to be programmed and turn the IGNITION ON.

The door locks will UNLOCK and LOCK. Remove the first key from the ignition.

DIAGNOSTIC MENU
B.E.M. > **P.C.M.**
PRESS ENTER KEY

Within 5 seconds insert the second key to be programmed and turn the IGNITION ON.

The doors will UNLOCK and LOCK. Remove second key from ignition.

SPECIAL FUNCTIONS

CLEARING PATS SYSTEM (FALCON)

```
FALCON P.C.M. PATS




        PRESS ENTER KEY
```

Wait for door locks to cycle and then press ENTER key.

Disconnect AD100 from vehicle.
Wait 30 seconds after disconnecting AD100

```
     DIAGNOSTIC MENU

 SPECIAL FUNCTIONS




        PRESS ENTER KEY
```

Insert one of the keys into the ignition and turn IGNITION ON.

Wait a further 30 seconds and the connect AD100 to vehicle again.

Continue to the same screen as previously but select P.C.M. And press ENTER.

```
     DIAGNOSTIC MENU

   CLEAR PATS 3 SYSTEM
 >PARAMETER RESET




        PRESS ENTER KEY
```

Screen will display PCM PATS system.

Select SEPCIAL FUNCTIONS and Press enter key. Select PARAMETER RESET and press enter key.

Follow on screen instructions, as the system will take the require Ford Timed access security wait time.

At the end of the time, the doors will cycle from LOCKED to UNLOCKED.

Disconnect AD100.
Switch Ignition to the OFF position, and then switch IGNITION to the ON position with the same key.

The door locks will again cycle from LOCKED to UNLOCKED.

SPECIAL FUNCTIONS

CHECKING KEYS PROGRAMMED

DIAGNOSTIC MENU

CLEAR PATS 1 SYSTEM
> **KEYS PROGRAMMED**

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **KEYS PROGRAMMED.**

KEYS PROGRAMMED 3

PRESS ENTER KEY

The number of keys stored in the Immobiliser ECU will be displayed.

PATS SYSTEM CLEARING TIMES

SYSTEM	CLEAR TIME
PATS 1	8:00 MINUTES
PATS 2	8:00 MINUTES
PATS 2 DSM/EPIC	23:00 MINUTES
PATS 3	10:00 MINUTES
PATS 3 DSM/EPIC	10:00 MINUTES

SPECIAL FUNCTIONS

ADD KEY FUNCTION

```
       DIAGNOSTIC MENU

    CLEAR PATS 1 SYSTEM
    KEYS PROGRAMMED
  > ADD KEY


       PRESS ENTER KEY
```

```
    CLEAR PATS 3 KEY
  GAINING ACCESS
 TIME ELAPSED      0:50
 TIME REQUIRED    10:00
    ACCESS STATUS
     IN PROGRESS
    BACK TO ABORT
```

NOTE : On some vehicles a function is available to add a key without deleting the old keys. This takes the normal 10 minutes security access time.

Using the UP and DOWN keys select the ADD KEY FUNCTION.

After 10 minutes, security access is gained and the key in the ignition will be added.

NOTE : Do not start the car after procedure.

Remove key, disconnect AD100 from vehicle and wait 2 minutes.

Insert key to ignition ON and the remove key from ignition.

Test key for starting.

If this procedure is not followed then a further security access time of 10 minutes will be required.

NOTE : Some vehicles, especially fleets and hire companies have this feature disabled, and the normal clear down procedure will be required.

SPECIAL FUNCTIONS

FORD CODED ACCESS

<u>UK ONLY PROCEDURE</u>

When connected to a coded access vehicle with AD100 and **Special Functions** selected, the following options will be displayed:

> CLEAR PATS
> ADD KEY (One code allows one key to be programmed. To add more than one key the procedure must be repeated and another code applied for, and charged)

When either option is selected the AD100 will display a 10 digit 'Out Code '
> example : 1267845682

Type the following text message:
> ask ford ********** (Replace * with the 10 digit Out Code)

<div align="center">Send text to 60999</div>

Within 30 minutes you will receive two text messages as follows:

> Text 1 - In Code eg 4257845672
> Text 2 – Confirmation of the service (necessary for this type of service)

Enter this 'In Code' on the AD100 and press ENTER

If successful the message 'Access Gained' will be displayed on the tester, then continue to follow the instructions displayed on the AD100.

Important

DO NOT disconnect AD100 during this procedure, otherwise another code will be required ie another £10.

If an incorrect transponder is used during the ADD KEY function, another code will be required ie another £10.

Notes

Each In Code that you receive back will be charged on your mobile telephone statement at a charge of £10 (made up of the two text messages detailed above).

A text reply will be sent within 30 minutes.

The text conversion service will be available from 8.00 am to 4.30pm Mon to Thurs and 8.00am to 2.00pm Friday. No conversions by phone, whatever the circumstances.
<div align="center"><u>NO EXCEPTIONS.</u></div>

TIPS & HINTS

GENERAL

If communication is made with the vehicle, and then no communication is experienced later or the communication is random, check battery voltage and ensure it is at least 12.2 volts. This is particularly important on the SCP vehicles, and all Transit models.

A new function has been introduced on the WDS which enables the dealer to disable the additional key function. This is mainly used on fleet vehicles and hire companies to stop unauthorized key's being added. If a system will not accept additional keys, it may be because this has been enabled.

When Programming on SCP Systems, turn IGNITION ON before connecting AD100 or ADC110-B to Diagnostic socket, then wait for the dashboard lights to settle, then connect AD100.

Intermittent start accompanied by fault code 12- replace faulty aerial pick up

Fleet mode (unable to add a key) can be removed by clearing the PATS and DSM (diesel only) and reprogramming all keys.

If an incorrect key is used to try and start the engine, the correct key must be inserted and left in the IGN position for at least 20 seconds, then switched OFF then back ON before the vehicle starts.

Fault Code 0 is an ECU trouble code, if this is set and cannot be cleared, then there is a problem with the ECU. Normally the only way to fix this is to return the ECU for testing or replace it.

Fault Code 1000 is an ECU trouble codes. This code can be set automatically if the vehicle has not been driven. The code refers to the OBD drive cycle. In some instances it is not possible to program new keys if this code is set. Please follow the following instructions if the code cannot be cleared or the keys cannot be programmed.

The OBD drive cycle code 1000 is the monitor code which monitors a number of the OBD parameters. This code can be cleared by driving the vehicle or running the engine for around 5 minutes at a steady RPM and acceleration cycles. The smoother the driving condition the quicker the code will be cleared.

TIPS & HINTS

D

6

Example Code : 31
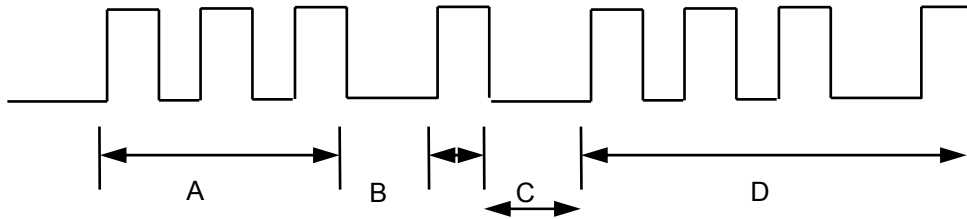
The PATS system has it's own self diagnosis test procedure which flashes codes. The PATS LED will flash quickly for 1 minute, and then start flashing the fault code as follows:-

A = 3 Flashes B = 1 Flash C = Three seconds delay
D = Repeat of code for 10 times

Code 11 Transceiver not connected
Code 12 Transceiver
Code 13 No key data received
Code 14 Part of the transponder code received
Code 15 Wrong transponder key
Code 21 Less than the minimum keys required programmed
Code 22 Failed diesel pump control unit identification
Code 23 The response code between pump control unit & powertrain

LED = Always ON or OFF
Check the fuse 15 (5 amp)

If no keys are available, then the ECU can be disconnected for 30-45 minutes, which will also reset the system.

NOTE : If there are no fault codes, **DO NOT** clear fault codes as this can cause fault 1000 to be enabled.

Ford Escort, no communication with AD100, switched Ignition OFF and ON very quickly, and communication gained. Conclusion was bad connection on ignition switch.

DO NOT insert a blue chip transponder key into a red key system.

TIPS & HINTS

FORD VEHICLE MODEL YEAR IDENTIFICATION

REG LETTER	YEAR	YEAR	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
V/W	1980	A	B	R	A	G	C	K	D	E	L	Y	S	T
W/X	1981	B	J	U	M	P	B	R	A	G	C	K	D	E
X/Y	1982	C	L	Y	S	T	J	U	M	P	B	R	A	G
Y/A	1983	D	C	K	D	E	L	Y	S	T	J	U	M	P
A/B	1984	E	B	R	A	G	C	K	D	E	L	Y	S	T
B/C	1985	F	J	U	M	P	B	R	A	G	C	K	D	E
C/D	1986	G	L	Y	S	T	J	U	M	P	B	R	A	G
D/E	1987	H	C	K	D	E	L	Y	S	T	J	U	M	P
E/F	1988	J	B	R	A	G	C	K	D	E	L	Y	S	T
F/G	1989	K	J	U	M	P	B	R	A	G	C	K	D	E
G/H	1990	L	L	Y	S	T	J	U	M	P	B	R	A	G
H/J	1991	M	C	K	D	E	L	Y	S	T	J	U	M	P
J/K	1992	N	B	R	A	G	C	K	D	E	L	Y	S	T
K/L	1993	P	J	U	M	P	B	R	A	G	C	K	D	E
L/M	1994	R	L	Y	S	T	J	U	M	P	B	R	A	G
M/N	1995	S	C	K	D	E	L	Y	S	T	J	U	M	P
N/P	1996	T	B	R	A	G	C	K	D	E	L	Y	S	T
P/R	1997	V	J	U	M	P	B	R	A	G	C	K	D	E
R/S	1998	W	L	Y	S	T	J	U	M	P	B	R	A	G
S/T	1999	Y	C	K	D	E	L	Y	S	T	J	U	M	P

VIN EXAMPLE : WFY AXX GB GB   N   A   56789
PRODUCTION YEAR : 1992
PRODUCTION MONTH : MARCH

7

FORD USA

LINCOLN

MERCURY

FORD USA/LINCOLN/MERCURY MANUAL   *ADVANCED* DIAGNOSTICS

CONTENTS

7

APPLICATIONS

FORD

VEHICLE	YEARS	SYSTEM
CONTOUR V6	1997-98(a)	PATS 1
CONTOUR V6	1999-00	PCM
CROWN VICTORIA	1998-2002	PATS 2
CROWN VICTORIA	2003	PCM
ESCAPE	2001-03	PCM
EXCURSION	2000-03	PATS 2
EXPEDITION	1997-98	PATS 1
EXPEDITION	1999-02	HEC
EXPEDITION	2003	PCM
EXPLORER	1998-07-00	PATS 2
EXPLORER	07/00-2003	PCM
FOCUS	2003 (PZEZ 2.3 LITRE)	CAN BUS S/W REQUIRED
FOCUS	2000-03	PCM
F150/F250	1999-03	HEC
MUSTANG	1996-97	PATS 1
MUSTANG	1998	PATS 2
MUSTANG	1999-03	HEC
RANGER V6	1999-00	PATS 2
RANGER V6	2001-03	PCM
TAURUS	1996-97	PATS 1
TAURUS	1998-99	PATS 2
TAURUS	2000-03	PCM
THUNDERBIRD	2002	ICM OR VIC
THUNDERBIRD	2003	ICM OR VIC
WINDSTAR	1999-00	ICM
WINDSTAR	2001-03	PCM

APPLICATIONS

LINCOLN

VEHICLE	YEARS	SYSTEM
AVIATOR	2003	PCM
BLACKWOOD	2002	HEC
CONTINENTAL	1998-02	VIC
LS	2000-02	ICM OR VIC
LS	2003	ICM OR VIC
MARK VIIII	1997-98	SCIL
NAVIGATOR	1997-98	PATS 1
NAVIGATOR	1999-02	HEC
NAVIGATOR	2003	PCM
TOWN CAR	1998-02	HEC
TOWN CAR	2003	PCM

MERCURY

VEHICLE	YEARS	SYSTEM
COUGAR	1999-2002	PCM
MYSTIQUE (V6)	1997-98(a)	PATS 1
MYSTIQUE (V6)	1999-2000	PCM
GRAND MARQUIS	1998-2002	PATS 2
GRAND MARQUIS	2003	PCM
MARAUDER	2003	PCM
MOUNTAINEER	1998-07/00	PATS 2
MOUNTAINEER	07/00-2003	PCM
SABLE	1996-1997	PATS 1
SABLE	1998-1999	PATS 2
SABLE	2000-2003	PCM

MAZDA

VEHICLE	YEARS	SYSTEM
"B" SERIES P/U (V6 ENGINE)	1999-00	PATS 2
"B" SERIES P/U (V6 ENGINE)	2001-03	PCM
TRIBUTE	2001-03	PCM

SPECIAL FUNCTIONS

CLEARING/PROGRAMMING

VEHICLE SELECTION

CADILLAC
CHRYSLER
DODGE
FORD
GENERAL MOTORS
ISUZU

Make sure the new key is in the ignition and turned to the ON position.

Then Press the ENTER key.

VEHICLE SELECTION

PATS 1
PATS 2
PCM
HEC
VIC
ICM

Verify the system type from the model application guide.

SWITCH IGNITION ON

PRESS ENTER KEY

Key and Ignition should already be turned ON.

PLEASE WAIT
TRYING TO COMMUNICATE

Follow the on screen prompts

ECU IDENTIFICATION

PATS 3 SCP

PRESS ENTER KEY

The ECU Identification is displayed.

Press the ENTER key.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

CLEARING/PROGRAMMING

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

ECU IDENTIFICATION = Displays the ECU iD

FAULT CODES = To check and clear faults

SPECIAL FUNCTIONS = Program Keys

DIAGNOSTIC MENU

>CLEAR PATS 3
KEYS PROGRAMMED
ADD KEY

Make your selection and press the ENTER key.

CLEAR PATS 3 = To erase all keys
KEYS PROGRAMMED = Check keys
ADD KEY = To program additional key

Make your selection and press Enter.

CLEAR PATS 3 KEY
GAINING ACCESS
TIME REQUIRED : 10:00
TIME ELAPSED : 0:00
ACCESS STATUS
IN PROGRESS
BACK TO ABORT

There is a convenient in built timer to keep you informed on the Access time that is required on Ford vehicles to program keys.

NOTE
ADD KEY NOT POSSIBLE ON HEC, VIC & ICM systems

PROGRAM KEYS

DISCONNECT TESTER
FROM VEHICLE

CYCLE KEYS
TO PROGRAM

Follow on screen prompts.

Remove the key that is in the ignition and turn ON the second key for 5 seconds and remove. Re-insert the first key and turn on for 5 seconds and remove.

DIAGNOSTIC MENU

CLEAR PATS 3
KEYS PROGRAMMED
>ADD KEY

Wait for a few seconds and test the keys

ADD KEY FUNCTION
CLEAR PATS 3 = To erase all keys
KEYS PROGRAMMED = Check keys
ADD KEY = To program additional key

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

CLEARING/PROGRAMMING

```
MIN KEYS REQUIRED : 2
      TIMED ACCESS

   CLEAR TIME  10:00
KEYS PROGRAMMED : 2


   PRESS ENTER KEY
```

Programming keys :

When adding a key you only need 1 key to cycle in the ignition after the 10 minute wait. You must go through the clear time wait.

```
   CLEAR PATS 3 KEY
    GAINING ACCESS
TIME REQUIRED : 10:00
 TIME ELAPSED : 0:00
    ACCESS STATUS
    IN PROGRESS
   BACK TO ABORT
```

Disregard that the screen displays that 2 keys are required.

There is a convenient in built timer to keep you informed on the Access time that is required on Ford vehicles to program keys.

```
    PROGRAM KEYS

DISCONNECT TESTER
  FROM VEHICLE

   CYCLE KEYS
   TO PROGRAM
```

Follow on screen prompts.

Remove the key that is in the ignition after the clear time has expired and the key is programmed.

```
   DIAGNOSTIC MENU

 ECU IDENTIFICATION
>FAULT CODES
 SPECIAL FUNCTIONS
```

Wait a few seconds and test the key.

To check and clear faults, select FAULT CODES.

To check for faults, select READ FAULT CODES.

```
   DIAGNOSTIC MENU


>READ FAULT CODES
 CLEAR FAULT CODES
```

If you clear fault codes successfully the screen will show procedure complete.

ADVANCED
DIAGNOSTICS

8

GM/OPEL

GM HOLDEN

VAUXHALL

CONTENTS

8

APPLICATIONS

OPEL/GENERAL MOTORS/VAUXHALL

VEHICLE	YEAR	CABLE
AGILA	**ALL MODELS**	**ADC110**
ASTRA - F	95	ADC113
ASTRA - F	96	ADC110/ADC110
ASTRA - G	98+	ADC110
CALIBRA	95	ADC113/ADC110
CALIBRA	96	ADC113/ADC110
CAVALIER	95	ADC113
CAVALIER	96	ADC113/ADC110
CORSA - B	95	ADC110
CORSA - B	96	ADC110
CORSA - C	ALL MODELS	ADC110
FRONTERA	> 98	ADC110
FRONTERA	98+	ADC110
MONTERAY	96	ADC110
MONTERAY	97	ADC110
MONTERAY	98+	ADC110
OMEGA - B	94/95	ADC113
OMEGA - B	96+	ADC110
OMEGA –B	98 +	ADC110
OMEGA –B	2000 +	ADC110
SINTRA	97+	ADC110
TIGRA	95	ADC113/ADC110
TIGRA	96+	ADC110
VECTRA	96+	ADC110
VECTRA	2000 +	ADC110
VX220	ALL MODELS	ADC110
ZAFIRA	99+	ADC110

ADVANCED DIAGNOSTICS

APPLICATIONS

GM HOLDEN

VEHICLE	YEAR	CABLE
VR COMMODORE	ALL MODELS	ADC128
VS COMMODORE	ALL MODELS	ADC128
VT COMMODORE	ALL MODELS	ADC128
VX COMMODORE	ALL MODELS	ADC128
BARINA-B	ALL MODELS	ADC110
BARINA-C	ALL MODELS	ADC110
JACKAROO	ALL MODELS	ADC110
MONARO	ALL MODELS	ADC128
RODEO	2001 >	ADC128
VU UTE	ALL MODELS	ADC128
WH STATESMAN	ALL MODELS	ADC128
WH CAPRICE	ALL MODELS	ADC128

ISUZU

VEHICLE	YEAR	CABLE
TROOPER	ALL MODELS	ADC110

GENERAL OPERATION

INTRODUCTION

The General Motors Immobiliser is used in conjunction with the vehicle engine management electronics to immobilise the vehicle. The first systems were fitted to Petrol vehicles and subsequently fitted to Diesel vehicles from 95½ Model Year.

The immobiliser system is independent, and can be diagnosed separately . The system is also operated independently from the central locking system, and it's main function is to inhibit starting.

Immobiliser Control Unit

The immobilisers function is to transmit the start signal to the engine management ECU after it has read the key fob code. If the code is recognised the immobiliser sends the signal and the ECU compares the code with what is programmed. If the signal is incorrect the engine which is allowed to start initially is then switched OFF. If there is a malfunction then the engine check light mounted in the instrument panel will flash.

The system uses what is called an IMO (Immobiliser Signal Code) signal to talk to the electronic engine management system, or for Diesel vehicles the Fuel Cut-off Solenoid.

The control unit can only be re-programmed if the necessary security code is entered, which is found on the customer vehicle information card (CAR PASS).

NOTE : If a new immobiliser ECU is fitted to the vehicle, then the code that is entered will be stored in the memory for any future programming requirements.

If a different code is used to that on the CAR PASS, please ensure this is written down and passed to the customer for safe keeping.
It is not possible to change this code once programmed.

Transponder (Mounted in key fob)

The key fob contains a small electronic circuit (Transponder) which is powered when in close proximity to the control unit using cordless voltage power. Each transponder has a different code for security.

GENERAL OPERATION

CAR PASS

The information that is stored in the control unit includes Security Code, Engine type and transponder code. The security code cannot be erased or overwritten using the TECH 1, TECH 2 or the AD100.

The security code consists of a 4-digit number and can be found on the car pass. If a new control unit is fitted, the new unit is not programmed with a code, and must be programmed using the TECH or AD100 units. However, the security code can only be programmed once and cannot be erased or overwritten.

If the customer has lost the car pass with security details, then the vehicle must be returned to the VM for re-programming.

```
VIN             X382787CWDKJW
Security Code    4874
Engine Type No   X16SZ
Key No.          4386413
Radio Code       1234
CD Changer Code 1234
```

SPECIAL FUNCTIONS

.CLEARING KEYS

```
DIAGNOSTIC MENU

    ECU IDENTIFICATION
    FAULT CODES
    LIVE DATA
    ACTUATORS
    SPECIAL FUNCTIONS
    PRESS ENTER KEY
```

Select **SPECIAL FUNCTIONS** from the Diagnostic Menu using the **UP** and **DOWN** arrows.

Then press the **ENTER** key.

```
DIAGNOSTIC MENU

> CLEAR KEYS
  PROGRAM KEYS




    PRESS ENTER KEY
```

Using the **UP** and **DOWN** keys select the **CLEAR KEYS** option

Please follow the instructions on the screen.

```
SWITCH IGNITION OFF
IGNITION STATUS ON
```

Enter the security code from the Security Pass as outlined in the General Operation section.

```
SECURITY CODE

    _ _ _ _
```

If code is correct press the **ENTER** key.

```
SECURITY CODE

    1 2 3 4

IS THIS CORRECT
OK = ENTER  CLEAR =BACK
```

If code is entered incorrectly then press the **BACK** key to reset the code.

```
ACCESS GAINED
```

If the code is correct, the AD100 will display **ACCESS GAINED**.

SPECIAL FUNCTIONS

.CLEARING KEYS

```
ERASING KEYS

KEYS ERASED
```
PRESS ENTER KEY

If the code is correct, the AD100 will display **ACCESS GAINED**.

It will then automatically erase all the keys and display the message **KEYS ERASED** if successful.

PROGRAMMING KEYS

DIAGNOSTIC MENU
```
  CLEAR KEYS
> PROGRAM KEYS
```
PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **PROGRAM KEYS** option

KEYS PROGRAMMED 0

If the clearing key function was successful the AD100 should indicate that there are no keys programmed.

Press the **ENTER** key.

**SWITCH IGNITION OFF
IGNITION STATUS ON**

Follow the screen instructions.

SECURITY CODE

_ _ _ _

Enter the security code from the Security Pass as outlined in the General Operation section.

SPECIAL FUNCTIONS

```
SECURITY CODE

   1 2 3 4

IS THIS CORRECT
OK = ENTER  CLEAR =BACK
```

If code is correct press the **ENTER** key.

If code is entered incorrectly then press the **BACK** key to reset the code.

```
ACCESS GAINED
```

If the code is correct, the AD100 will display **ACCESS GAINED**.

```
SWITCH IGNITION OFF
IGNITION STATUS ON
```

Follow the screen instructions.

```
KEYS PROGRAMMED

KEYS PROGRAMMED : 1

PRESS ENTER KEY
```

The AD100 should now indicate that the key is programmed, and how many there are.

Press the **ENTER** key and repeat the sequence for up to 5 keys.

To check the programming status, use the **LIVE DATA** function.

PROGRAMMING PLIPS

```
> CLEAR PLIPS
  PROGRAM PLIP

PRESS ENTER KEY
```

SPECIAL FUNCTIONS

DIAGNOSTIC MENU

CLEAR PLIPS

SWITCH IGNITION ON

PRESS ENTER KEY

DIAGNOSTIC MENU

ERASING PLIP
PROCEDURE COMPLETE

PRESS ENTER KEY

PROGRAMMING PLIPS

CLEAR PLIPS
> **PROGRAM PLIP**

PRESS ENTER KEY

After selecting PLIP functions select **SPECIAL FUNCTIONS** and follow on screen instructions.

SWITCH IGNITION ON

PRESS ENTER KEY

After selection, new PLIP key should be pressed until screen indicates PLIP is programmed.

PROGRAMMING PLIP

PRESS PLIP

PRESS ENTER KEY

Programming can be checked by operation and accessing the LIVE DATA function.

```
┌─────────────────────────┐
│                         │
│                         │
│   PLIP PROGRAMMED       │
│                         │
│                         │
├─────────────────────────┤
│     PRESS ENTER KEY     │
└─────────────────────────┘
```

PLIP KEY SYSTEMS

TYPE 1.
Teardrop shaped plip, separate from key. First System.

TYPE 2.
Type used on early systems, with integrated remote key head.

TYPE 3.
Type used on AstraG vehicles.

TYPE 4.
Type used on VectraB vehicles, and requires PIN CODE]

TYPE 5.(ATW)
Type with Alarm system fitted (V6 etc)

TYPE 6
Type used on Astra & Zafira with ATW and Ultrasonics mounted on the B-post.

TYPE 7
Type used on Astra & Zafira with ATW and Ultrasonics mounted on the Middle courtesy light.

CORSA-C

NOTE : ENSURE THE CORRECT PLIP PART NUMBER IS USED AS THE INCORRECT TYPE CANNOT BE PROGRAMMED.

PLEASE SEE TIPS AND HINTS FOR FURTHER INFORMATION

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

PIN CODE READING

```
CLEAR KEYS
PROGRAM KEYS
READ PINCODE


PRESS ENTER KEY
```

Select the READ PIN CODE option for the Special Functions menu.

Before reading the pin code the Immobiliser ECU requires resetting.

The procedure for this is to disconnect the connector from the immobiliser and then re-connect.

Remove the plastic cover from the underneath of the steering wheel column. Disconnect the connector and then re-connect.

IF YOU DO NOT RESET THE IMMOBILISER THE ECU WILL LOCK AND THIS FUNCTION WILL NOT READ THE PIN CODE.


```
RESET IMMOBILISER

REMOVE IMMO. FUSE
OR
DISCONNECT IMMO.UNIT
FROM THE VEHICLE

PRESS ENTER KEY
```

Follow on screen instructions to read the pin code.

```
PIN CODE

1 2 3 4



PRESS ENTER KEY
```

IMPORTANT NOTE : IF AN INCORRECT PIN CODE WAS THE LAST PIN CODE TO BE USED ON THE VEHICLE THEN THIS FUNCTION WILL NOT WORK.

TIPS & HINTS

GENERAL MOTORS

1. Check the vehicle battery, to ensure the voltage is at least 12 volts.
2. V registration Vectra, use ASTRA-G 98 vehicle selection.

CONNECTOR'S

On some Calibra's the 10 Pin connector mounted in the R/H engine bulkhead is prone to water ingress, and can cause bad connections. In some cases there was nothing that could be done, until the connector had been replaced.

PLIP KEYS

VEHICLES	VIN NUMBERS	PART NUMBERS
CORSA		9115104 CODE GJ
ASTRAIV		9192450 without ATWS 9153235 with ATWS
VECTRA	To VIN V7999999 To VIN V7999999 From VIN W>	9194590 without ATWS 90508961 with ATWS 24424724 without ATWS 9153226 with ATWS
OMEGA	To 97 From VIN W1000001 to W11109513 From VIN W11109514 From VIN W1000001 to X1999999	90512398 9194590 without ATWS 90508961 with ATWS 9153230 without ATWS 24424724 without ATWS 9153226 with ATWS
OMEGA Saloon	From VIN Y1000001	9146043 with ATWS
OMEGA Estate	From VIN Y1000001	9153235 with ATWS

NOTE : ATWS = Anti Theft Warning System

9

HONDA

ACURA

HONDA / ACURA MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

APPLICATIONS

HONDA

VEHICLE	YEAR	SYSTEM	CABLE
CIVIC/ACCORD * 1	>99	TYPE 5	ADC110, ADC134 & ADC140
CIVIC/ACCORD * 2	>99	TYPE 6	ADC110, ADC134 & ADC140
CIVIC/ACCORD * 1	>99	TYPE 5	ADC134 & ADC141
CIVIC/ACCORD * 2	>99	TYPE 6	ADC134 & ADC141
ACCORD	98-02	TYPE 2C	ADC110 & ADC134
ACCORD	98-02	TYPE 2A	ADC110 & ADC134
ACCORD	2003	TYPE 4	ADC110 & ADC134
CIVIC	01-02	TYPE 3	ADC110 & ADC134
CIVIC	2003	TYPE 3	ADC110 & ADC134
CR-V	02-03	TYPE 3	ADC110 & ADC134
ELEMENT	2003	TYPE 3	ADC110 & ADC134
INSIGHT	00-03	TYPE 2A	ADC110 & ADC134
ODYSSEY	98-03	TYPE 2A	ADC110 & ADC134
PILOT	2003	TYPE 2B	ADC110 & ADC134
S2000	00-03	TYPE 2A	ADC110 & ADC134
PRELUDE	97-02	TYPE 1A	ADC110 & ADC134
FR-V	ALL	TYPE 3	ADC110 & ADC134
HRV	ALL	TYPE 2A	ADC110 & ADC134
JAZZ	ALL	TYPE 3	ADC110 & ADC134

*1 USES OLD 5 or 3 PIN ADAPTOR CABLE—BLACK KEY SYSTEM
*2 USES OLD 5 or 3 PIN ADAPTOR CABLE— RED MASTER KEY SYSTEM

9

ADVANCED DIAGNOSTICS

APPLICATIONS

ACURA

VEHICLE	YEAR	SYSTEM	CABLE
NSX	97-03	TYPE 1A	ADC110 & ADC134
RL	00-03	TYPE 1B	ADC110 & ADC134
RL	96-99	TYPE 1C	ADC110 & ADC134
CL	99-03	TYPE 2A	ADC110 & ADC134
INTEGRA	00-01	TYPE 2A	ADC110 & ADC134
MDX	01-03	TYPE 2B	ADC110 & ADC134
RSX	02-03	TYPE 3	ADC110 & ADC134
TL	99-03	TYPE 2A	ADC110 & ADC134
TSX	2004	TYPE 4	ADC110 & ADC134

*1 USES OLD 5 or 3 PIN ADAPTOR CABLE—BLACK KEY SYSTEM
*2 USES OLD 5 or 3 PIN ADAPTOR CABLE— RED MASTER KEY SYSTEM

GENERAL OPERATION

SYSTEM DESCRIPTIONS

Introduction

An immobiliser system was fitted as standard equipment on this range of Honda vehicles, which prevents the vehicle from starting unless a programmed key is used. There are 4 types of immobiliser system used, which vary slightly in operation.

The 4 systems consist of:-

	TYPE 1 (a & b)	TYPE 2 (a,b & c)	TYPE 3	TYPE 4	TYPE 5	TYPE 6
Immobiliser Keys						
Master (Original) Key (2 off) - Programmed	✓	✓	✓	✓	✓	✓
Valet Key (1 off) - Programmed	✓	✓	✓	✓	✓	✓
Learning Key (1 off)	✓	-	-	-	✓	✓
Immobiliser System Indicator	✓	✓	✓	✓	✓	✓
Immobiliser Receiver	✓	✓	-	-	✓	✓
Immobiliser Control Unit	✓	-	-	-	✓	✓
Immobiliser Control Unit-Receiver	-	-	✓	✓	-	-
Electronic Control Unit (ECU)	✓	✓	✓	✓	✓	✓

Note: Type 2 immobiliser system covers 2 different versions (a & b). The differences between version 'a & b' are not apparent to the technician, however the correct application must be selected from the 'Vehicle selection' menu.
Where 'Type 2' is referred to within this manual, it is applicable to both versions (a & b), unless otherwise stated.

System Keys - (All types)
Both master and valet keys are programmed keys, which means they have a transponder embedded in their grips that provides an ID (identification) code when inserted in the ignition switch. This ID code is used by the immobiliser system to determine whether to start the engine.
Note: The master key is also referred to as the original key.

GENERAL OPERATION

Type 1

In addition to the master and valet keys this system includes a learning key which has a unique ID code that is matched to a particular vehicle's immobiliser control unit. It allows the immobiliser control unit to be re-programmed to either add additional programmed keys and/or delete ID codes of lost keys.

Important Note: The learning key will not start the engine and may damage the immobiliser control unit if attempted.

Type 4

Unlike the other master and valet keys, those used on type 4 immobiliser system contain electronic circuitry that produce a 'rolling-type' code (determined by the control unit-receiver) when the key is inserted into the ignition switch. On LX and EX vehicle models the master keys also include a battery operated remote transmitter allowing the vehicle to be locked/unlocked. Both master and valet keys are sidewinder-type and can be identified by a 'V' stamped on the shank.

Immobiliser System Indicator - (All Types)

The immobiliser system indicator is a 'key' symbol that is located on the instrument panel, whose location varies dependant on vehicle. The 'key' symbol will illuminate when an ignition key is inserted, as follows:

Key Type	Ignition Key Position	Indicator Lamp
Programmed key (Master or Valet)	Turn to ON (II)	Illuminates for 2 seconds
	Turn to LOCK (0) & remove key	Flashes for 5 seconds & goes off
Non-Programmed Key	Turn to ON (II)	Illuminates for 2 seconds & then flashes. It will continue to flash until the key is removed. Note: TYPE 1 The engine will not crank. TYPE 2,3,4 Engine Cranks but will not start.

Immobiliser Receiver - (Type 1 & 2)

The receiver is an electrical coil embedded within the ignition switch bezel. Power is provided by the immobiliser control unit (Type 1) or the ECU (Type 2) and when a programmed key is inserted into the ignition switch the transponder is energised by electromagnetic induction. Once energised the transponder transmits its ID code to the receiver, which is then transmitted to the control unit (Type 1) or the ECM (Type 2).

Note: The immobiliser receiver does not need re-programming when replaced.

Immobiliser Control Unit - (Type 1)

Location: Below the dashboard on the left side of the steering column.
Once the transponder ID code is received from the immobiliser receiver, it is checked against codes stored within its memory (maximum of 5).

Code Accepted: Power provided to the starter cut relay.
    A unique serial code is transmitted to the ECU

Code Not Accepted: No Power is provided to the starter cut relay
    Unique serial code is not transmitted to the ECU.

Immobiliser Control Unit-Receiver - (Type 3 & 4)

These types of system use a combined immobiliser control unit-receiver, which is located around the ignition switch. When a programmed key is inserted into the ignition switch the transponder is energised by electromagnetic induction and transmits its ID code to the control unit-receiver, where it is checked against codes stored within its memory (maximum of 5).

Code Accepted: A unique serial code is transmitted to the ECU.
Code Not Accepted: Unique serial code is not transmitted to the ECU.

Engine Control Module (ECU) - (All types)

Type 1,3 & 4
When the ECU receives the unique serial code, it communicates back to the immobiliser control unit by transmitting back its own unique serial code. If both unique codes are mutually accepted, the ECU energises both the fuel supply and ignition system, thus allowing the engine to start.

Type 2
This type of system receives the transponder ID code directly from the immobiliser receiver and checks it against codes stored within its memory (maximum of 5).

Code Accepted: Fuel system energised, engine starts.
Code Not Accepted: Fuel system not energised, engine will not start.

SPECIAL FUNCTIONS

TYPE 1 IMMOBILISER SYSTEM

The following procedure is used for:
- Programming additional keys
  Note: If all keys, master key or learning key are lost then a replacement immobiliser control unit set is required.
- Rewriting/Replacing Immobiliser control unit
- Matching the Immobiliser control unit and ECU.

VEHICLE SELECTION MENU

HONDA

PRESS ENTER KEY

At the VEHICLE SELECTION menu select the required vehicle and press the **ENTER** key.

VEHICLE SELECTION MENU

TYPE 1
TYPE 2A
TYPE 2B
TYPE 3
TYPE 4

PRESS ENTER KEY

Select the immobiliser system type from the application list and press the **ENTER** key.

TURN IGNITION ON

PRESS ENTER KEY

Turn Ignition ON and press the **ENTER** key.

PLEASE WAIT
TRYING TO COMMUNICATE

The AD100 will now attempt to communicate with the ECU.

ECU IDENTIFICATION

HONDA IMMO. USA-1

PRESS ENTER KEY

If communication is successful the system information will be displayed as shown.

Press the **ENTER** key.

SPECIAL FUNCTIONS

DIAGNOSTIC MENU

ECU IDENTIFICATION
SPECIAL FUNCTIONS

Select SPECIAL FUNCTIONS and press the **ENTER** key.

DIAGNOSTIC MENU

PROGRAM KEYS
KEY INFORMATION

Select PROGRAM KEYS and press the **ENTER** key.

REWRITE IMMOBILISER

NO OF ORIGINAL KEYS:
INCLUDE RED
LEARNING KEY

Enter number of original (master) keys

NOTE : Please use RED learning key supplied with IMMO box as one original key.

REWRITE IMMOBILISER

NUMBER OF NEW KEYS:

Enter number of new keys to be programmed and press **ENTER**.

SWITCH IGNITION OFF

Note: Enter '0' to either rewrite/ replace the immobiliser control unit or matching the ECM without programming any additional keys.

PROGRAM KEYS

SWITCH IGNITION ON WITH RED KEY

PROGRAM KEYS

SWITCH IGNITION OFF
WITHIN 17 SEC
RED KEY

PROGRAM KEYS

SWITCH IGNITION ON
WITHIN 20 SEC
WITH ORIGINAL KEY

C

PROGRAM KEYS

SWITCH IGNITION OFF
WITHIN 17 SEC
ORIGINAL KEY

If you entered more than '0' when prompted to 'enter number of new keys' you will be asked to perform steps A & B.

IF PROGRAMMING ADDITIONAL KEYS FOLLOW STEPS A & B

STEP A

PROGRAM KEYS

SWITCH IGNITION ON
WITH NEW KEY
WITHIN 20 SEC

Steps A & B will be repeated for the number of new keys that are being programmed.
Remember to use each new key when prompted.

STEP B

PROGRAM KEYS

SWITCH IGNITION OFF
WITHIN 17 SEC
RED KEY

PROGRAM KEYS

SWITCH IGNITION ON
WITHIN 20 SEC
WITH RED KEY

WAIT FOR 10 SEC

IS IMMO. LIGHT OUT
   1.   YES
   2.   NO

Check immobiliser light on the instrument panel. Select 'YES or NO' and press **ENTER**.

SWITCH IGNITION OFF

Entering 'NO' will direct you back to the DIAGNOSTIC MENU.

SWITCH IGNITION ON
WITH ORIGINAL KEY

SWITCH IGNITION OFF

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

PROGRAMMING ADDITIONAL KEYS
FOLLOW STEPS C & D

STEP C

SWITCH IGNITION ON WITH NEW KEY

If you entered more than '0' when prompted to 'enter number of new keys' you will be asked to perform steps C & D.

STEP D

SWITCH IGNITION OFF

Steps C & D will be repeated for the number of new keys that are being programmed.

SWITCH IGNITION ON WITH ORIGINAL KEY

Remember to use each new key when prompted.

SWITCH IGNITION OFF

SWITCH IGNITION ON WITH ORIGINAL KEY

Procedure Complete

DIAGNOSTIC MENU
ECU IDENTIFICATION **SPECIAL FUNCTIONS**

TYPE 2 (a & b), 3 & 4 IMMOBILISER SYSTEMS

The following procedure is used for:
- Programming additional keys
  Note: If all keys, master key or learning key are lost then a replacement immobiliser control unit set is required.
- Rewriting/Replacing Immobiliser control unit
- Matching the Immobiliser control unit and ECU.

9

VEHICLE SELECTION MENU
HONDA
PRESS ENTER KEY

At the VEHICLE SELECTION menu select the required vehicle and press the **ENTER** key.

VEHICLE SELECTION MENU
TYPE 1 **TYPE 2A** **TYPE 2B** **TYPE 3** **TYPE 4**
PRESS ENTER KEY

Select the immobiliser system type from the application list and press the **ENTER** key.

TURN IGNITION ON
PRESS ENTER KEY

Turn Ignition ON and press the **ENTER** key.

The AD100 will now attempt to communicate with the ECU.

PLEASE WAIT **TRYING TO COMMUNICATE**

ECU IDENTIFICATION
HONDA IMMO. USA-??
PRESS ENTER KEY

If communication is successful the system information will be displayed as shown. Press the **ENTER** key.

Note: ECU Identification will be either USA-2a, 2b, 3 or 4.

DIAGNOSTIC MENU
ECU IDENTIFICATION **SPECIAL FUNCTIONS**

Select SPECIAL FUNCTIONS and press the **ENTER** key.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

DIAGNOSTIC MENU

PROGRAM KEYS
KEY INFORMATION

Select PROGRAM KEYS and press the **ENTER** key.

PROGRAM KEYS

TOTAL KEYS REQUIRED:

Enter number of new keys to be programmed and press **ENTER**.

Note: Enter '0' to either rewrite/ replace the immobiliser control unit or matching the ECM without programming any additional keys.

PROGRAM KEYS

SWITCH IGNITION OFF

PROGRAM KEYS

SWITCH IGNITION ON
WITH SAME KEY

PROGRAM KEYS

SWITCH IGNITION OFF
WITHIN 17 SEC

PROGRAMMING ADDITIONAL KEYS
FOLLOW STEPS A & B
STEP A

If you entered more than '0' when prompted 'TOTAL KEYS REQUIRED' you will be asked to perform steps A & B.

PROGRAM KEYS

SWITCH IGNITION ON
WITHIN 20 SEC
WITH NEXT KEY

Steps A & B will be repeated for the number of new keys that are being programmed.
Remember to use each new key when prompted.

STEP B

PROGRAM KEYS

SWITCH IGNITION OFF
WITHIN 17 SEC

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

C

PROGRAM KEYS

SWITCH IGNITION ON
WITH SAME KEY
WITHIN 17 SEC

WAIT FOR 10 SEC

IS IMMO. LIGHT OUT
  1.   YES
  2.   NO

SWITCH IGNITION OFF

SWITCH IGNITION ON

KEY INFORMATION

SYSTEM: 1
KEYS STORED: ??
TYPE: ??

Check immobiliser light on the instrument panel. Select 'YES or NO' and press **ENTER**.

Entering 'NO' will direct you back to the 'DIAGNOSTIC MENU'.

Procedure Complete

System: 1 indicates immobiliser system ok.

Keys Stored: Indicates number of keys programmed.

Type: 1, 2 or 3 dependant on transponder.

ADVANCED DIAGNOSTICS

TIPS & HINTS

The procedure for coding keys on the AD100 is merely a text walk-through (wait 17 secs, turn key off etc)- it is completely unaffected by the transponder type or indeed whether a transponder is fitted in the key or not. This is the reason for the immobiliser light continuing to flash after the keys have been programmed. The question "is the warning light off" during the programming procedure is a response to procedure rather than an actual consequence of correct programming.

ADVANCED
DIAGNOSTICS

10

HYUNDAI

HYUNDAI MANUAL

ADVANCED **DIAGNOSTICS**

CONTENTS

10

APM116

ADVANCED **DIAGNOSTICS**

MODEL	CABLE
ATOS	ADC110
ACCENT	ADC110
EXCEL	ADC110
S COUPE	ADC110
MATRIX	ADC110
ELANTRA	ADC110
HD COUPE	ADC110
SONATA	ADC110
XG	ADC110
MARCIA	ADC110
CENTENNIAL	ADC110
GRANDEUR	ADC110
H-100	ADC110
H-100 TRUCK	ADC110
H-1	ADC110
H-1 TRUCK	ADC110
SANTA FE	ADC110
TRAJET XG	ADC110
TAXI	ADC110
TERRACAN	ADC110
GALLOPER	ADC110
SANTAMO	ADC110

ADVANCED DIAGNOSTICS

GENERAL OPERATION

INTRODUCTION

The Hyundai Immobiliser system called the SMARTRA manufactured by Bosch consists of the SMARTRA ECU which has its own CPU which controls the vehicles immobiliser in conjunction with the engine management ECU.

There are 3 basic systems used on the range of vehicles :-

SYSTEM 1

BLACK key system—TEXTON Read only key head

Minimum keys required for programming 1.

Maximum keys programmed 5.

SYSTEM 2

BLUE key system—ENCRYPT key system

Minimum keys required for programming 1.

Maximum keys programmed 4.

SYSTEM 3

GREEN key system—SHINCHANG ENCRYPT

Minimum keys required for programming 1.

Maximum keys programmed 4.

PIN CODE ENTRY

On earlier vehicles the pin code is a 4 digit code, which is standard and set to 2345.

On later systems the pin code is a 6 digit code, and available from the dealer.

KEY PROGRAMMING (WITH MASTER KEY)

Elantra, Lantra, Coupe, S Coupe, Sonata, Sonica, Accent	1996 +
Atos, Starex	1998 +
Galloper	1999 +

Procedure

1. Insert Master Key in ignition.
2. Switch Ignition OFF to ON 5 times.
3. Remove Master key.
4. Insert NEW key into IGNITION and TURN IGNITION ON.
5. Turn ignition OFF and remove key.
6. Repeat 4 to 5 for all additional keys and any existing keys.

NOTE : IF AN EXISTING KEY IS NOT REGISTERED AT THIS STAGE THEN IT WILL BE DELETED FROM THE SYSTEM.

NOTE 2 : THE PROCEDURE FROM 3 TO 5 MUST BE COMPLETED WITHIN 15 SECONDS.

SPECIAL FUNCTIONS

KEY PROGRAMMING—SYSTEM 1

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **PROGRAM KEYS**
> CLEAR KEYS
> KEYS PROGRAMMED

PRESS ENTER KEY

Select PROGRAM KEYS.

SECURITY CODE

_ _ _ _

Enter security code.

NOTE : This code is normally 2345

NOTE 2 : If this is incorrect then the dealer who supplied the vehicle may have changed it. If this is so, please contact the dealer.

SECURITY CODE

2 3 4 5

IS THIS CORRECT
OK = ENTER CLEAR =BACK

If key programming is successful, then procedure complete is displayed.

PROCEDURE COMPLETE

NOTE : REPEAT PROCEDURE FOR ALL ADDITIONAL KEYS REQUIRED.

SPECIAL FUNCTIONS

KEY CLEARING—SYSTEM 1

DIAGNOSTIC MENU

> PROGRAM KEYS
> **CLEAR KEYS**
> KEYS PROGRAMMED

PRESS ENTER KEY

Select CLEAR KEYS from SPECIAL FUNCTIONS menu.

SECURITY CODE

_ _ _ _

Enter security code.

NOTE : This code is normally 2345

NOTE 2 : If this is incorrect then the dealer who supplied the vehicle may have changed it. If this is so, please contact the dealer.

SECURITY CODE

2 3 4 5

IS THIS CORRECT
OK = ENTER CLEAR =BACK

PROCEDURE COMPLETE

When all keys are cleared PROCEDURE COMPLETE will be displayed.

SPECIAL FUNCTIONS

KEY PROGRAMMING—SYSTEM 2

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **PROGRAM KEYS**
> KEYS PROGRAMMED
> LIMP HOME MODE

PRESS ENTER KEY

Select PROGRAM KEYS.

SECURITY CODE

_ _ _ _ _ _

Enter 6 digit security code.

SECURITY CODE

1 2 3 4 5 6

IS THIS CORRECT
OK = ENTER CLEAR =BACK

NOTE : The 6 digit code is available from the vehicle dealer.

SWITCH IGNITION ON

AND THEN PRESS ENTER

Switch IGNITION ON and press the ENTER key.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

KEY PROGRAMMING—SYSTEM 2

```
PROGRAM KEYS
INSERT NEXT KEY
& THEN PRESS ENTER
```

The key in the ignition will be added to the system.

To program additional keys press the **ENTER** key, or **BACK** to exit programming.

```
PROGRAM KEYS

PROCEDURE COMPLETE
```

If **ENTER** is pressed then additional keys can be programmed.

Repeat for all additional keys.

If BACK is pressed then and all keys have been programmed the PROCEDURE COMPLETE is displayed.

LIMP HOME MODE—SYSTEM 2

```
DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS


PRESS ENTER KEY
```

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

```
DIAGNOSTIC MENU

> PROGRAM KEYS
> CLEAR KEYS
> LIMP HOME MODE


PRESS ENTER KEY
```

Select LIMP HOME MODE.

Insert security code 2345 and this will enable one start to get the vehicle to a dealer or workshop if further testing is required.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

SYSTEM 1—ECU CODING/PIN CODE READ & WRITE

Process for coding Hyundai SYSTEM 1 keys is as follows.

Procedure

1 – First thing to do after communications are established is read the pin code and make sure this matches the last 5 digits of the chassis number

2 – If the pin code and chassis number match you can program keys normally entering the pin code

3 – If pin code and chassis number are different then the pin code need to be changed.

4 – Vehicle must be neutralized before pin change can occur. Select NEUTRALIZE and let this run through. After the Complete message is displayed wait 2 minutes before attempting to change the pin code.

5 – To change pin code follow instructions, when code is changed you should hear horn sound

6 - After code is changed program keys as before, entering pin code when prompted.

TIPS & HINTS

When programming keys, please note the following:

The transponder aerial has a resistance of 21.5 Ohms

The immobiliser control unit does not return any information to the tester about the key programming procedure, therefore it is possible to input an incorrect security code and continue through the pro-gramming procedure.

When programming a key, the horn will sound for 0.2 second to sig-nify the key programming action.

Once the first key has been programmed you should turn the ignition on with a second key and wait for 10 seconds, the horn should again sound- if it doesn't, switch on the HRW (Heated Rear Window Switch) to complete the programming phase.

NOTE :-2 keys must be programmed to close the procedure.

11

JAGUAR

JAGUAR MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

ADVANCED DIAGNOSTICS

APPLICATIONS

VEHICLE	TYPE	KEYS	CABLE
XJ	PETROL	2 KEYS	ADC110
XK	PETROL	2 KEYS	ADC110
X-TYPE	PETROL	2 KEYS	ADC110
S-TYPE	PETROL	2 KEYS	ADC110

ADVANCED
DIAGNOSTICS

SYSTEM OPERATION

The PATS system is a PASSIVE Anti-theft system which requires no special procedures for the driver to arm or disarm the system. The system is operated by a transponder fitted within the ignition key's body, which communicates with the PATS module transceiver mounted around the lock barrel.

The easy method of identifying a PATS vehicle is if the key has a small imprint showing where the transponder is fitted. The code for the transponder is stored in memory within the PATS amplifier or the Engine Management ECU, Dash panel or Drive Train ECU.

The PATS system reads the code when the ignition key is turned from position 0 to position 1. If the correct code is received then the engine will start.

KEY PROGRAMMING

NOTE : Clear ALL Fault codes before programming.

Master keys can only be programmed using the 2 PATS keys (A and B) the WDS or the AD100 system.

NOTE : In some cases the vehicle doors must be closed to perform the re-programming sequence.

Further slaves can be added without any specialist equipment as follows :-

1. Insert key A, and turn to Position 2.
2. Turn back to Position 0, and remove key A.
3. Insert key B, and turn to Position 2.
4. Turn back to Position 0, and remove key B.
5. Insert the new slave key and turn to Position 2.
6. Remove new key. Key is now programmed.
7. Procedure can be repeated after 20 seconds, for up to 8 slave keys.

NOTE : If programming is unsuccessful, the PATS LED will flash when the key is inserted.

SPECIAL FUNCTIONS

C

CLEARING PATS 3 SYSTEM

```
CLEAR PATS 3 SYSTEM
MIN KEYS REQUIRED : 2
    TIMED ACCESS
   CLEAR TIME  10:00
KEYS PROGRAMMED : 2


   PRESS ENTER KEY
```

Follow the screen instructions to clear the PATS system.

```
CLEAR PATS 3 KEY
   GAINING ACCESS
TIME ELAPSED      0:50
TIME REQUIRED    10:00
   ACCESS STATUS
    IN PROGRESS
   BACK TO ABORT
```

The AD100 will now start to clear the PATS system key codes from memory.

After clearing, the PATS system will automatically read the key in the ignition.

Follow the instructions to program the second key. Once ENTER has been pressed, you have 5 seconds to insert the second key.

SYSTEM	CLEAR TIME
PATS 3	10:00 MINUTES

12

KIA

KIA MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

12

APM117

ADVANCED DIAGNOSTICS

MODEL	CABLE
PRIDE	ADC110
VISTO	ADC110
AVELLA	ADC110
RIO	ADC110
SEPHIA	ADC110
SHUMA	ADC110
CARENS	ADC110
SPORTAGE	ADC110
CLARUS	ADC110
OPTIMA/MAGENTIS	ADC110
ELAN	ADC110
POTENTIA	ADC110
ENTERPRISE	ADC110
CARNIVAL/SEDONA	ADC110
RETONA	ADC110
JOICE	ADC110
TOWNER	ADC110
PREGIO	ADC110
FRONTIER	ADC110

ADVANCED DIAGNOSTICS

GENERAL OPERATION

INTRODUCTION

The Kia Immobiliser system called the SMARTRA manufactured by Bosch consists of the SMARTRA ECU which has its own CPU which controls the vehicles immobiliser in conjunction with the engine management ECU.

There are 3 basic systems used on the range of vehicles :-

SYSTEM 1

BLACK key system—TEXTON Read only key head

Minimum keys required for programming 1.

Maximum keys programmed 5.

SYSTEM 2

BLUE key system—ENCRYPT key system

Minimum keys required for programming 1.

Maximum keys programmed 4.

SYSTEM 3

GREEN key system—SHINCHANG ENCRYPT

Minimum keys required for programming 1.

Maximum keys programmed 4.

PIN CODE ENTRY

On earlier vehicles the pin code is a 4 digit code, which is standard and set to 2345.

On later systems the pin code is a 7 digit code, and available from the dealer.

SPECIAL FUNCTIONS

KEY PROGRAMMING—SYSTEM 1

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **PROGRAM KEYS**
> CLEAR KEYS
> KEYS PROGRAMMED

PRESS ENTER KEY

Select PROGRAM KEYS.

SECURITY CODE

_ _ _ _

Enter security code.

NOTE : This code is normally 2345

NOTE 2 : If this is incorrect then the dealer who supplied the vehicle may have changed it. If this is so, please contact the dealer.

SECURITY CODE

2 3 4 5

IS THIS CORRECT
OK = ENTER CLEAR =BACK

If key programming is successful, then procedure complete is displayed.

PROCEDURE COMPLETE

NOTE : REPEAT PROCEDURE FOR ALL ADDITIONAL KEYS REQUIRED.

SPECIAL FUNCTIONS

KEY CLEARING—SYSTEM 1

```
DIAGNOSTIC MENU

> PROGRAM KEYS
> CLEAR KEYS
> KEYS PROGRAMMED


PRESS ENTER KEY
```

Select CLEAR KEYS from SPECIAL FUNCTIONS menu.

```
SECURITY CODE

_ _ _ _
```

Enter security code.

NOTE : This code is normally 2345

NOTE 2 : If this is incorrect then the dealer who supplied the vehicle may have changed it. If this is so, please contact the dealer.

```
SECURITY CODE

2 3 4 5

IS THIS CORRECT
OK = ENTER  CLEAR =BACK
```

```
PROCEDURE COMPLETE
```

When all keys are cleared PROCEDURE COMPLETE will be displayed.

SPECIAL FUNCTIONS

KEY PROGRAMMING—SYSTEM 2

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **PROGRAM KEYS**
> KEYS PROGRAMMED
> LIMP HOME MODE

PRESS ENTER KEY

Select PROGRAM KEYS.

SECURITY CODE

_ _ _ _ _ _

Enter 6 digit security code.

SECURITY CODE

1 2 3 4 5 6

IS THIS CORRECT
OK = ENTER CLEAR =BACK

NOTE : The 6 digit code is available from the vehicle dealer.

SWITCH IGNITION ON

AND THEN PRESS ENTER

Switch IGNITION ON and press the **ENTER** key.

SPECIAL FUNCTIONS

KEY PROGRAMMING—SYSTEM 2

```
PROGRAM KEYS
INSERT NEXT KEY
& THEN PRESS ENTER
```

The key in the ignition will be added to the system.

To program additional keys press the **ENTER** key, or **BACK** to exit programming.

```
PROGRAM KEYS

PROCEDURE COMPLETE
```

If ENTER is pressed then additional keys can be programmed.

Repeat for all additional keys.

If **BACK** is pressed then and all keys have been programmed the PROCEDURE COMPLETE is displayed.

LIMP HOME MODE—SYSTEM 2

```
DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS


PRESS ENTER KEY
```

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

```
DIAGNOSTIC MENU

> PROGRAM KEYS
> CLEAR KEYS
> LIMP HOME MODE


PRESS ENTER KEY
```

Select LIMP HOME MODE.

Insert security code 2345 and this will enable one start to get the vehicle to a dealer or workshop if further testing is required.

SPECIAL FUNCTIONS

SYSTEM 1—ECU CODING/PIN CODE READ & WRITE

Process for coding Kia SYSTEM 1 keys is as follows.

Procedure

1 – First thing to do after communications are established is read the pin code and make sure this matches the last 5 digits of the chassis number

2 – If the pin code and chassis number match you can program keys normally entering the pin code

3 – If pin code and chassis number are different then the pin code need to be changed.

4 – Vehicle must be neutralized before pin change can occur. Select NEUTRALIZE and let this run through. After the Complete message is displayed wait 2 minutes before attempting to change the pin code.

5 – To change pin code follow instructions, when code is changed you should hear horn sound

6 - After code is changed program keys as before, entering pin code when prompted.

ADVANCED
DIAGNOSTICS

TIPS & HINTS

When programming keys, please note the following:

The transponder aerial has a resistance of 21.5 Ohms

The immobiliser control unit does not return any information to the tester about the key programming procedure, therefore it is possible to input an incorrect security code and continue through the programming procedure.

When programming a key, the horn will sound for 0.2 second to signify the key programming action.

Once the first key has been programmed you should turn the ignition on with a second key and wait for 10 seconds, the horn should again sound- if it doesn't, switch on the HRW (Heated Rear Window Switch) to complete the programming phase.

NOTE :-2 keys must be programmed to close the procedure.

13

LAND ROVER

LAND ROVER MANUAL

ADVANCED DIAGNOSTICS

13

APPLICATIONS

VEHICLE	SYSTEM	YEAR	CABLE
CLASSIC RANGE ROVER	10AS	95	ADC110
DEFENDER	10AS	95	ADC110
DISCOVERY (OLD)	10AS	95	ADC110
FREELANDER	27VT	95	ADC110

NOTE : THE SYSTEMS ABOVE USE THE REMOTE PLIP UNIT AS PICTURED BELOW.

ANY OTHER REMOTE PLIPS ARE NOT PROGRAMMABLE WITH THIS SOFTWARE

PLIP KEY FOR USE WITH 5AS, 10AS AND 27VT SYSTEMS

ADVANCED DIAGNOSTICS

GENERAL OPERATION

SYSTEM DESCRIPTION (10AS ALARM SYSTEM)

INTRODUCTION

The 10AS Alarm system was fitted as standard equipment on Model Year 96 onwards across a number of Land Rover vehicles. The system consists of a number of components as follows :-

- ECU Alarm Unit
- Plip Key
- Passive Immobiliser Coil (Optional)
- Alarm sensor (Optional)
- Central Door Locking Actuators
- Bonnet Switch (Optional)
- Driver's Door Key Switch
- Door Switches
- Boot Door Switch
- Hazard Lights
- Battery Backed up Alarm Sounder (Optional)
- Alarm Sounder and Relay (Optional)
- Alarm LED and Engine Immobiliser Lamp (Instrument Cluster)
- Engine Immobiliser ECU

The 10AS offers a number of protection functions including Perimetric protection, Engine immobilisation (Crank Inhibit), Engine Immobilisation (ECU Inhibit) and ultrasonic protection within the vehicle passenger compartment.

Central locking is also controlled by the 10AS Alarm system. The vehicle can be locked using the key, Door Locking button or Plip key. The vehicle can only be unlocked using the Plip key or the emergency access code (EKA).

PERIMETRIC PROTECTION

This part of the system is enabled whenever the vehicle is manually locked using the drivers door key.

VOLUMETRIC PROTECTION

This part of the system is only activated using the Plip Key, which enables protection for the bonnet, boot and ignition switch. Also the internal Alarm sensor is activated.

ALARM SOUNDER

If the vehicle is detected as having an unauthorized access, the alarm sounder and hazard lights will start for around 30 seconds. The alarm must be triggered again before the sounder and hazards will start. There are two sounders used, normal sounder and battery back up sounder.

The battery backed up sounder is charged via the ignition feed, and if disconnected or wires cut it will operate for approximately 3 minutes. To disconnect the battery backed up sounder follow the following procedure :-

1. Turn Ignition ON, Turn Ignition OFF
2. Disconnect Sounder within 15 seconds
3. If Triggered, Re-connect.
4. Disarm Alarm system
5. Turn Ignition on and repeat steps above.

INERTIA SWITCH
The inertia switch has been incorporated into the alarm system to activate the central locking mechanism's if the vehicle is involved in an accident.

ENGINE IMMOBILISER (Optional)
When the alarm system is armed, the Passive Immobilisation function is enabled. Two types of immobilisation are used :-

1. Electronic Engine Immobiliser (Used on MFI-T16 and 300TDi with EDC engines)

This system is controlled by the Engine Management ECU and the Alarm ECU. When the vehicle is immobilised, the alarm ECU sends a signal to the EMS ECU which prevents starting, and until it receives a de-immobilise signal it will not start.

2. Remote Smart Spider (Used on MFI-T16 and 300TDi without EDC engines)

This system is controlled by the alarm ECU and the Engine immobilisation ECU (Spider).
The alarm ECU sends a signal to the spider ECU to disable vehicle start, which it then interrupts the starter circuit, fuel pump circuit and ignition coil (If fitted) or the fuel pump shut off solenoid in the case for the 300TDi engine (without EGR).

NOTE : The vehicle can only be started using the Plip key or the EKA code.

PASSIVE IMMOBILISER
The immobiliser system will be enabled when the following conditions apply :-

- 30 seconds after ignition is switch off and drivers door has been opened.
- 5 minutes after ignition is switched off.
- 5 minutes after disarming the alarm system.

PASSIVE IMMOBILISER COIL
A coil is mounted in the steering column which sends a magnetic field which is picked up by the plip key, and if received, it sends a signal to the alarm ECU to mobilise the vehicle.

GENERAL OPERATION

VEHICLE STATUS INDICATION

The vehicle status is indicated by the Alarm LED as follows :-

- Slow flash - Immobilised or Armed and Immobilised
- Rapid Flash - Internal sensor system armed
- Intermittent Rapid Flash - Doors, Boot and Bonnet armed
- No flash for 10 seconds - Miss lock
- Continuous - Drivers door open or ignition on and system immobilised

PLIP KEY RESYNCHRONISATION
Procedure.
1. Unlock the drivers door using the key.
2. Ensure all doors, bonnet and boot are shut, and if Central Locking is fitted, make sure both front doors are unlocked.
3. Press the Plip key (Lock button) four times quickly, until the vehicle locks are enabled.

PLIP KEY LOW BATTERY WARNING
When the Plip key battery is low, the alarm unit will enter low battery mode. The alarm LED will flash to indicate low battery, and also the hazard lights will not flash when the alarm is disarmed.

POWER UP MODE
The alarm will always power back up in the mode it was disabled. So if the battery is disconnected and the alarm is activated, then it will remember and when re-connected will enter the same state.

EMERGENCY ACCESS CODE

If the Plip key is lost or does not function, the emergency access code can be used to override the system as follows :-

1. Using the code turn the key to the unlock the number of times of the first digit.
2. Now turn the key to the lock position the number of times of the second digit.
3. Repeat for the last two digits.

After the code has been entered, turn the key to the unlock position, and check to see whether the Alarm LED has stopped flashing, and the engine will start.

If the wrong code has been entered and warning sound will be heard. After 3 wrong attempts a period of 30 minutes must pass before the next attempt is made. If a mistake is made part way through, hold the key in the lock position for at least 5 seconds and then begin the code entry again.

13

ADVANCED DIAGNOSTICS

SYSTEM DESCRIPTION (27VT (BCM) SECURITY SYSTEM)

INTRODUCTION

The 27VT and BCM (Body Control Module) is a sophisticated alarm system and central locking control, which has a number of associated components that make up the system, which includes :-

- Remote Handset (Plip Key)
- RF Receiver
- Passive Coil
- Volumetric sensor
- Door Lock actuators
- Drivers door key barrel
- Central door key barrel
- Central Door Locking switch (CDL)
- Door switches
- Tail door switch
- Bonnet switch
- Horn
- Alarm LED
- Starter Relay
- Inertia switch
- Engine Immobilisation

CENTRAL LOCKING

The vehicle can be locked in three ways, Central Door locking switch (CDL), vehicle key or remote Plip key. The CDL switch is located inside the vehicle, normally in the centre console. This allows the locks to be operated without arming the alarm system. If the inertia switch is operated, then the CDL is overridden and the locks are opened automatically.

The vehicle can be CDL locked by using the key in the drivers door. Turning the key anti-clockwise will lock all the doors, turning the key a second time will super lock the doors (Note second turn must be within 1 second of the first turn).

If the vehicle has an alarm and is CDL locked or super locked, turning the key clockwise will only mechanically unlock the drivers door. The system then enters EKA access mode.

If the vehicle has no alarm system, then turning the key clockwise once will open all doors. If the vehicle is super locked then the drivers door will open, and a second turn of the key will open the other remaining doors. If the remote control unit is used to unlock the vehicle, pressing the unlock button once will unlock the drivers door only, pressing the button for the second time all other doors will unlock.

GENERAL OPERATION

B

INERTIA SWITCH
The inertia switch is located within the engine bay, on the bulkhead. If the ignition is ON and the alarm disarmed, then if the switch is operated then all the doors will be unlocked.
Further locking of all doors is disabled until the ignition is switched off and the drivers door opened and closed or the drivers door opened and closed and the switch is manually reset by pressing the button.

ALARM/IMMOBILISATION—KEY OPERATION
The alarm system can be armed and disarmed with an EKA code, which can be used if the Plip key is lost or becomes faulty. The system has a number of components which control different alarm functions. These include Volumetric which monitors movement within the passenger compartments, in case of possible intrusion. The second is perimetric sensing which uses switches on all doors, bonnet, roof and tail door.

Arming and disarming using the vehicle key will be ignored if the ignition is already in the ON state. In certain countries the alarm is programmed not to arm under any circumstance, and the key only unlocks the mechanical lock.

The alarm can be fully armed by turning the key anticlockwise once with all doors closed. The hazard warning lights should flash 3 times. The alarm LED will flash very fast for 10 seconds and then slowly. If the key is turned for a second time within 1 second of the first turn the system will be super locked, and the alarm LED will flash for 10 seconds and then flash slowly.

To disarm the system with the key, the EKA code must be entered using the sequence described later in this section.

ALARM/IMMOBILISATION—REMOTE PLIP KEY
The vehicle can be fully armed and disarmed using the plip key. If the vehicle is locked using the plip key lock button, the system is super locked and the alarm LED and hazard lights will flash as described above.

BATTERY BACKED UP SOUNDER (BBUS)
This system is not fitted to all vehicles, but when fitted is mounted above the wheel arch liner on the drivers side. If the system is tampered with the BBUS will sound, and will only stop if the power is re-connected and the system armed and disarmed. It also sounds when the system is miss-locked. The battery life of the unit is around 3 years.

EMERGENCY ACCESS CODE (EKA)
The EKA code allows arming and disarming of the alarm system when the remote key fob(Plip) is lost or broken. If the vehicle is opened without using the EKA code, then the alarm system enters the following states :-

ADVANCED
DIAGNOSTICS

- Drivers door is unlocked, other doors remain locked.
- Alarm LED flashes slowly
- Perimetric protection is de-activated
- Volumetric protection is de-activated
- Engine and crank functions remain disabled.

The EKA code is a four number code, and each number can be up to 15. This code is entered by turning the drivers door lock to the numbers of the code.

Procedure for 5-2-9-14

1. Turn the key to the unlock position and wait for 6 MINUTES before proceeding.
2. Turn the key to the unlock position 5 times.
3. Turn the key to the lock position 2 times.
4. Turn the key to the unlock position 9 times.
5. Turn the key to the lock position 14 times.
6. Finally turn the key to the unlock position once only.

If entered correctly the alarm system will unlock all the doors, fully disarm all systems and allow the vehicle to be started.

If the code is entered incorrect 3 times the system will lock out any further attempts for 30 minutes. If a code is entered incorrectly, then the system can be reset by opening and closing the drivers door, or turning the ignition on and off.

REMOTE HANDSET (PLIP KEY)

Two plip keys are supplied with the vehicle from new, and if the battery is replaced or the vehicle battery is removed the plip keys will require synchronisation. This is achieved by switching on the ignition, which enables the alarm system to send a re-synchronisation code to the handset automatically. Alternatively it can also be achieved by pressing either handset button 5 times quickly with the ignition OFF.

If the plip key battery is low, then when the signal is sent from the plip key the alarm will send a signal which sounds a buzzer for 10 seconds and the alarm LED flashes for 10 seconds to notify the owner.

ENGINE IMMOBILISATION

The engine immobiliser feature disables the starter relay and also the enable code sent to the MEMS engine management ECU. The passive immobilisation occurs when 5 seconds after the ignition is turned off and the drivers door opened. If ignition is just turned off then it will immobilise after 5 minutes. Re-immobilisation will occur if the plip key unlock button is pressed or the key is inserted and ignition turned on with the Plip key within 70 mm of the ignition lock. If 2 hand sets are in close proximity it will no re-immobilise because of interference.

13

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

PROGRAMMING REMOTE PLIP KEYS (27VT)

VEHICLE SELECTION MENU

FREELANDER
DISCOVERY
RANGE ROVER CLASSIC
DEFENDER

PRESS ENTER KEY

At the VEHICLE SELECTION menu select the required vehicle.

Then press the **ENTER** key.

TURN IGNITION ON

PRESS ENTER KEY

Turn Ignition ON and press the ENTER key.

**PLEASE WAIT
TRYING TO COMMUNICATE**

The AD100 will now attempt to communicate with the ECU.

ECU IDENTIFICATION

PRODUCT CODE : 27
DIAG.VERS.:11
SOFTWARE VERSION:15
HARDW.VERS:382
ECU NO.: 064112

PRESS ENTER KEY

If communication is successful the system information will be displayed as shown.

DIAGNOSTIC MENU

ECU IDENTIFICATION
SPECIAL FUNCTIONS

Select **SPECIAL FUNCTIONS.**

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

PROGRAMMING REMOTE PLIP KEYS (27VT)

```
DIAGNOSTIC MENU
    PROGRAM PLIP
    READ EKA CODE
```

Select PROGRAM PLIP and press enter button.

```
    PROGRAM PLIP

  PRESS PLIP UNLOCK
   AT LEAST 8 TIMES
  UNTIL HORN SOUNDS
   OR LIGHTS FLASH
```

Press the unlock button on the PLIP key quickly up to 8 times, or until horn sounds.

```
 KEYS PROGRAMMED : 1
  PRESS BACK TO EXIT
ENTER—PROG MORE KEYS
```

If key has been programmed success-fully the screen opposite should display how many PLIP keys have been pro-grammed. Repeat for up to 4 Plip keys by pressing ENTER or BACK to exit.

READING EKA CODE

```
DIAGNOSTIC MENU
    PROGRAM PLIP
    READ EKA CODE
```

Select READ EKA CODE from menu and press ENTER

EKA should be displayed.

```
   READ EKA CODE
UNLOCK 6 TURNS
LOCK    1 TURNS
UNLOCK 11 TURNS
LOCK    11 TURNS

  PRESS ENTER KEY
```

NOTE : The turn numbers can go as high as 15.

ADVANCED DIAGNOSTICS

C

PROGRAMMING REMOTE PLIP KEYS (10AS)

VEHICLE SELECTION MENU

FREELANDER
DISCOVERY
RANGE ROVER CLASSIC
DEFENDER

PRESS ENTER KEY

At the VEHICLE SELECTION menu select the required vehicle.

Then press the **ENTER** key.

TURN IGNITION ON

PRESS ENTER KEY

Turn Ignition ON and press the ENTER key.

**PLEASE WAIT
TRYING TO COMMUNICATE**

The AD100 will now attempt to communicate with the ECU.

ECU IDENTIFICATION

LUCAS 10AS

PRESS ENTER KEY

If communication is successful the system information will be displayed as shown.

DIAGNOSTIC MENU

ECU IDENTIFICATION
SPECIAL FUNCTIONS

Select **SPECIAL FUNCTIONS.**

DIAGNOSTIC MENU
PROGRAM PLIP
READ EKA CODE

Select PROGRAM PLIP and press enter button.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

PROGRAMMING REMOTE PLIP KEYS (10AS)

> **PROGRAM PLIP**
>
> **PRESS PLIP UNLOCK
> AT LEAST 8 TIMES
> UNTIL HORN SOUNDS
> OR LIGHTS FLASH**

> **TO RE-SYNCHRONISE
> PLIPS PRESS THE UNLOCK
> BUTTON 4 TIMES**

Press the unlock button on the PLIP key quickly up to 8 times, or until alarm/ horn sounds or lights flash.

Repeat for up to 4 Plip keys by pressing ENTER or BACK to exit.

As a reminder, if the Plip keys are not synchronised, then please synchronise all keys as previously explained.

13

NOTE : Exit from MENU and disconnect AD100 before testing PLIP keys.

ADVANCED
DIAGNOSTICS

14

MAZDA

MAZDA MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

14

ADVANCED DIAGNOSTICS

APPLICATIONS

VEHICLE	YEAR	KEY PROG	TYPE
626	ALL	Y	LUCAS
XEDOS	ALL	Y	LUCAS
DEMIO	ALL	Y	LUCAS

SPECIAL FUNCTIONS

MAZDA CODE CONVERTER

VEHICEL SELECTION

LEXUS
MAZDA
MITSUBISHI
NISSAN

PRESS ENTER KEY

From the VEHICLE SELECTION MENU select MAZDA.

DIAGNOSTIC MENU

> PATS 2
> P.C.M
> MAZDA PIN CODE

PRESS ENTER KEY

Select MAZDA PIN CODE

MAZDA CODE CONVERTER

PRESS ENTER KEY

Press **ENTER** Key

SERIAL CODE

_ _ _ _ _ _ _ _ _ _

**IS CODE CORRECT
OK=ENTER CLEAR=BACK**

Enter serial number from LUCAS Immobiliser mounted at the back of the IGNITION KEY assembly.

Code can be found on the label.

NOTE : ONLY LUCAS IMMOBILISERS WILL WORK CORRECTLY.

MAZDA MECS

PLEASE WAIT

Please WAIT for the code to be calculated.

NOTE : THIS WILL TAKE 10 MINUTES !

SPECIAL FUNCTIONS

MAZDA CODE CONVERTER

```
┌─────────────────────────────┐
│        MAZDA MECS           │
│                             │
│         SER No.             │
│       603-611-2057          │
│     PINCODE : 7355-4316     │
│                             │
├─────────────────────────────┤
│      PRESS ENTER KEY        │
└─────────────────────────────┘
```

The screen will then displayed the converted pin code.

KEY PROGRAMMING PROCEDURE

PROCEDURE FOR WHEN THERE ARE NO KEYS OR ONLY 1 PREPROGRAMMED KEY AND YOU NEED TO PROGRAM MORE KEYS

IMPORTANT : You must have at least 2 keys to perform this procedure. If there are no pre-programmed keys, you will have to provide 2 new keys. If there is only one pre-programmed key, you will have to provide at least one more.

IMPORTANT : YOU MUST USE A FACTORY KEY TO PROGRAM, YOU CANNOT USE AFTERMARKET KEYS FOR THIS PROCEDURE.

1. Cut the mechanical cuts on each new transponder key.
2. Insert the first key and turn the ignition ON and then back to the OFF position 5 times. You must NOT leave the ignition in the ON position for more than 1 second.
3. Turn the key back to ON position and watch the flashing security light on the Dashboard. The light should flash rapidly, 300 mS ON and 300mS OFF.
4. Within 20 seconds, turn the key to the LOCK position for 5 minutes. After 5 minutes the security light should decrease in flashing to 1.2 seconds between flashes.
5. Within 20 seconds, enter the CODEWORD(Password). NOTE : SEE HOW TO ENTER CODEWORD ON PAGE 2.5
6. When you have entered the codeword, the security light should remain ON and not flash.
7. The car should now start. Start the car and the security light should stay lit for between 1 and 2 seconds.
8. Within 20 seconds, remove the first key and insert the second key and start the car. The security light should stay lit for between 1 to 2 seconds.
9. Stop if you have no more keys, and wait 30 seconds for the car to exit programming mode.

SPECIAL FUNCTIONS

PROGRAMMING PROCEDURE

PROCEDURE FOR WHEN THERE ARE 2 OR MORE PREPROGRAMMED KEYS

1. Cut the mechanical cuts on each new transponder key.
2. Insert the first key and turn the ignition ON and then back to the OFF position 5 times. You must NOT leave the ignition in the ON position for more than 1 second.
3. Turn the first pre-programmed key back to the ON position, the security light should stay ON.
4. Turn the first key back to the LOCK position.
5. Insert the second pre-programmed key and start the car. The security light should stay lit for between 1 and 2 seconds. Turn back to the LOCK position and remove key.
6. Insert the first pre-programmed key and start the car. The security light should stay lit for between 1 and 2 seconds. Turn back to the LOCK position and remove key.
7. Insert the next pre-programmed key or a new key and start the car. The security light should stay lit for between 1 and 2 seconds. Turn back to the LOCK position and remove key. Repeat for any further additional keys, up to 8 maximum in total.
8. Stop if you have no more keys, and wait 30 seconds for the car to exit programming mode.

HOW TO ENTER THE CODEWORD (PASSWORD)

The Codeword can be obtained by inserting the serial number from the Immobiliser ECU into the Mazda Code program on the AD100. The codeword is 8 digits. (For this procedure we will use : 23234223)

1. Before you start, the security light on the dash should be flashing on and off for 1.2 seconds each for ON and OFF.
2. Turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 2 times while the light is not illuminated and turn the key to the lock position.
3. Within 30 seconds of turning the key to the LOCK position, turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 3 times while the light is not illuminated and turn the key to the lock position.

4   Within 30 seconds of turning the key to the LOCK position, turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 2 times while the light is not illuminated and turn the key to the lock position.

5   Within 30 seconds of turning the key to the LOCK position, turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 3 times while the light is not illuminated and turn the key to the lock position.

6   Within 30 seconds of turning the key to the LOCK position, turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 4 times while the light is not illuminated and turn the key to the lock position.

7   Within 30 seconds of turning the key to the LOCK position, turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 2 times while the light is not illuminated and turn the key to the lock position.

8   Within 30 seconds of turning the key to the LOCK position, turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 2 times while the light is not illuminated and turn the key to the lock position.

9   Within 30 seconds of turning the key to the LOCK position, turn the ignition key to the ON position while the security light is not illuminated. Count the illumination flashes 3 times while the light is not illuminated and turn the key to the lock position.

10   If you have entered the code correctly the security light will stop flashing and stay illuminated. If a mistake has been made, wait 45 seconds and try again.

NOTE 1 : The ignition key should not be turned ON twice within one non illumination cycle.
NOTE 2 : The ignition key should not be turned ON during an illumination cycle.
NOTE 3 : The ignition key should not be turned to LOCK twice within one illumination cycle.

14

ADVANCED DIAGNOSTICS

15

MITSUBISHI

MITSUBISHI MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

ADVANCED DIAGNOSTICS

VEHICLE	YEAR	CABLE
3000GT	**ALL MODELS**	**ADC129**
CHALLENGER	ALL MODELS	**ADC129**
COLT	ALL MODELS	**ADC129**
EXPRESS VAN	ALL MODELS	**ADC129**
GALANT WAGON	ALL MODELS	**ADC129**
LANCER	ALL MODELS	**ADC129**
LANCER WAGON	ALL MODELS	**ADC129**
MAGNA	ALL MODELS	**ADC129**
NIMBUS	95	**ADC129**
NIMBUS	99	**ADC129**
PAJERO	97	**ADC129**
PAJERO	2000	**ADC129**
PAJERO IO	ALL MODELS	**ADC129**
TRITON	ALL MODELS	**ADC129**
VERADA	ALL MODELS	**ADC129**
CARISMA	ALL MODELS	**ADC129**
ECLIPSE	ALL MODELS	**ADC129**
GALANT 94	94	**ADC129**
GALANT 96	96	**ADC129**
GALANT 00	00	**ADC129**
L400	ALL MODELS	**ADC129**
PININ	ALL MODELS	**ADC129**
SHOGUN 97	97	**ADC129**
SHOGUN 00	00	**ADC129**
SHOGUN SPORT	ALL MODELS	**ADC129**
SIGMA	ALL MODELS	**ADC129**
SPACESTAR	ALL MODELS	**ADC129**
SPACEWAGON 95	95	**ADC129**
SPACEWAGON 99	99	**ADC129**

15

ADVANCED DIAGNOSTICS

GENERAL OPERATION

INTRODUCTION

The Mitsubishi Anti Theft system can be coded for up to 8 keys into the system memory. When new keys are added all existing keys are deleted from the memory, so it is important to ensure all keys are with the vehicle at the time of programming.

The system is made up of Ignition switch, key antenna, mounted around the ignition switch and immobiliser ECU.

When programming new keys into the system, it is important to check that no fault codes are set, and to make sure any which are set, are erased or fixed as required.

Once key programming has been performed, then any fault codes set must be erased.

On later systems the immobiliser ECU is linked with the Engine Management ECU and if this is replaced then the Immobiliser ECU and key antenna should be replaced.

SPECIAL FUNCTIONS

KEY PROGRAMMING—ALL SYSTEMS

```
┌─────────────────────────────────┐
│      DIAGNOSTIC MENU            │
├─────────────────────────────────┤
│  ECU IDENTIFICATION            │
│  FAULT CODES                   │
│  SPECIAL FUNCTIONS             │
│                                 │
├─────────────────────────────────┤
│      PRESS ENTER KEY           │
└─────────────────────────────────┘
```

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

```
┌─────────────────────────────────┐
│      DIAGNOSTIC MENU            │
├─────────────────────────────────┤
│  > PROGRAM KEYS                │
│                                 │
│                                 │
├─────────────────────────────────┤
│      PRESS ENTER KEY           │
└─────────────────────────────────┘
```

Select PROGRAM KEYS.

NOTE : The AD100 will automatically input the correct Pin code into the system. If it is wrong INCORRECT ACCESS CODE will be displayed.

```
┌─────────────────────────────────┐
│                                 │
│      BACK TO EXIT              │
│                                 │
│      ENTER TO                  │
│  PROGRAM NEXT KEY              │
│                                 │
└─────────────────────────────────┘
```

NOTE : If the system has been accessed incorrectly by another piece of equipment then a security wait time of 16 minutes is required before attempting to program keys.

```
┌─────────────────────────────────┐
│                                 │
│   INSERT NEXT KEY              │
│  SWITCH IGNITION ON            │
│   AND PRESS ENTER              │
│   WITHIN 5 SECONDS             │
│                                 │
└─────────────────────────────────┘
```

If further keys are required then press the **ENTER** key.

Repeat this procedure for all additional keys.

NOTE : ALL existing keys are erased when programming is completed. Ensure all keys are with the vehicle before programming.

ADVANCED DIAGNOSTICS

TIPS & HINTS

WARNINGS

1. DO NOT INSERT UNPROGRAMMED KEY INTO IGNITION AND SWITCH OFF, UNTIL PROGRAMMING IS COMPLETE. OTHERWISE THE SYSTEM WILL ENTER THEFT MODE. TO OVERCOME THEFT MODE LEAVE THE IGNTION ON FOR 25 MINUTES AND THEN PROGRAM KEY.

2. IF AN ERROR IS RECEIVED WHEN PROGRAMMING KEYS, CHECK THE CORRECT CABLE IS BEING USED, ADC129.

3. ATTEMPTING TO PROGRAM AN ALREADY PROGRAMMED KEY WILL CAUSE AN "ERROR" MESSAGE

ADVANCED DIAGNOSTICS

16

NISSAN

NISSAN MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

16

ADVANCED DIAGNOSTICS

VEHICLE	ENG TYPE	MODEL YEAR	SYSTEM	CABLE
ALMERA	PETROL	>2000	NATS 2,3 & 4	ADC133 + ADC136
ALMERA	PETROL	2000>	NATS 5	ADC110
ALMERA	ALL	2000 MY	NATS RED CHIP (OBD)	ADC133 + ADC135
ALMERA	DIESEL	>2000	NATS 2,3 & 4	ADC133 + ADC136
ALMERA	DIESEL	2000>	NATS 5	ADC110
ALMERA TINO	PETROL	ALL MODELS	NATS 5	ADC110
ALMERA TINO	DIESEL	ALL MODELS	NATS 5	ADC110
CABSTAR	PETROL	ALL MODELS	NATS 2	ADC133 + ADC136
CABSTAR	DIESEL	ALL MODELS	NATS 2	ADC133 + ADC136
D22	PETROL	ALL MODELS	NATS 2	ADC133 + ADC136
D22	DIESEL	ALL MODELS	NATS 2	ADC133 + ADC136
MICRA	PETROL	>2000	NATS 2,3 & 4	ADC133 + ADC136
MICRA	PETROL	2000>	NATS 5	ADC110
PATROL	PETROL	ALL MODELS	NATS 2	ADC133 + ADC136
PATROL	DIESEL	ALL MODELS	NATS 2	ADC133 + ADC136
PRIMERA	PETROL	>2000	NATS 2,3 & 4	ADC133 + ADC136
PRIMERA	DIESEL	>2000	NATS 2,3 & 4	ADC133 + ADC136
PRIMERA	ALL	2000 MY	NATS RED CHIP (OBD)	ADC133 + ADC135
PRIMERA	PETROL	2000>	NATS 5	ADC110
PRIMERA	DIESEL	2000>	NATS 5	ADC110
SERENA	PETROL	ALL MODELS	NATS 2	ADC133 + ADC136
SERENA	DIESEL	ALL MODELS	NATS 2	ADC133 + ADC136
SKYLINE	PETROL	ALL MODELS	NATS 5	ADC110
SKYLINE	DIESEL	ALL MODELS	NATS 5	ADC110
TERRANO II	PETROL	>2000	NATS 2	ADC133 + ADC136
TERRANO II	PETROL	2001>	NATS 5	ADC110
TERRANO II	DIESEL	>2000	NATS 2	ADC133 + ADC136
TERRANO II	DIESEL	20011>	NATS 5	ADC110
VANETTE	PETROL	ALL MODELS	NATS 2	ADC133 + ADC136
VANETTE	DIESEL	ALL MODELS	NATS 2	ADC133 + ADC136
X-TRAIL SPORT	PETROL	ALL MODELS	NATS 5	ADC110
200SX	PETROL	ALL MODELS	NATS 2	ADC133 + ADC136
200SX	DIESEL	ALL MODELS	NATS 2	ADC133 + ADC136

16

ADVANCED DIAGNOSTICS

INTRODUCTION

The Nissan Anti Theft System (NATS) was introduced initially around 1995 with a basic immobiliser, which did not use key transponders. This system was known as NATS 1. Subsequently NATS 2 was introduced which uses the transponder technology.

Further iterations of the NATS system have been introduced, up to the latest system NATS 5. The earlier systems use a security timed access, similar to Ford systems, which require a period of time before the keys can be programmed.

The latest system NATS 5 uses a pin code, as with GM and VAG systems. This system was fitted on vehicles from 2001 MY onwards.

NATS IGNITION KEY

This uses standard transponder technology, and have both RED and BLUE chips to identify non crypto and crypto type transponders. The BLUE chip types are fitted on the latest NATS 5 system.

When programming keys, on NATS systems up to NATS 4, all keys stored in memory will be deleted, however on NATS 5 additional keys can be added. Up to 5 keys can be programmed into NATS 5 systems, and 4 keys into NATS 2,3 & 4 systems.

NATS IMMOBILISER UNIT

The NATS immobiliser unit, is normally mounted next to the ignition switch or behind the fascia area. The unit is sometimes also fitted with a dongle unit, and is fitted on right hand drive European vehicles for extra security.

The NATS immobiliser controls signals to the Engine Control Module (ECM) which inhibit starting.

On later systems there is also an input from the Audio system, which if disconnected inhibits the starting of the vehicle.

NATS SECURITY INDICATOR

The security LED is normally mounted in the dashboard area and indicates the status of the system.

When a problem is detected, the LED will indicate the fault as listed in the following table when the IGN is ON or in accessory position.

ADVANCED
DIAGNOSTICS

NATS LED FUNCTION TABLE

CONDITION	WITH DONGLE		WITHOUT DONGLE	
	ENGINE CHECK LIGHT	NATS LED	ENGINE CHECK LIGHT	NATS LED
NATS FAULT (NO DONGLE FAULT)		6FLASHES& ON AFTER IGN IS SWITCHED ON		LED ON
NATS FAULT (DONGLE FAULT)		REMAINS ON FOR 15 MINUTES AFTER IGN IS SWITCHED ON		
NATS FAULT AND ENGINE COMPONENT FAULT	LED ON	6FLASHES & ON AFTER IGN IS SWITCHED ON	LED ON	LED ON
ENGINE FAULT	LED ON		LED ON	
AFTER NATS PROGRA,MMING		6 FLASHES		

IMMU	ECM received a signal from IMMU, indicating that IMMU is malfunctioning.
ECM	Control unit is faulty
CHAIN OF ECM-IMMU	Communication between ECM and IMMU
DIFFERENCE OF KEY	IMMU can receive the Key ID signal but ID verification between Key ID and IMMU is incorrect.
CHAIN OF IMMU KEY	IMMU cannot receive key ID & Dongle unit is malfunctioning (IF FITTED)
ID DISCORD, IMM-ECM	The result of ID verification between IMMU and ECM is no good. System programming is required.
ELECTRONIC NOISE	Electronic interference in NATS communication lines during communication.
DON'T ERASE BEFORE CHECKING ENG DIAG	Engine trouble code from Engine diagnostics detected.
LOCK MODE	When the starting operation is carried out 5 or more times consecutively, if an unregistered key is used or ECM or IMMU is faulty then the NATS system shifts to mode 1 to stop engine from starting.
ECM INT CIRC-IMMU	The malfunction of ECM internal circuit of IMMU communication line is detected.

16

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

KEY PROGRAMMING—NATS 2,3 & 4 (PETROL)

```
DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS


PRESS ENTER KEY
```

```
DIAGNOSTIC MENU

> PROGRAM KEYS




PRESS ENTER KEY
```

```
CLEAR NATS SYSTEM

PLEASE WAIT
```

```
DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY
```

```
DIAGNOSTIC MENU

> PROGRAM KEYS




PRESS ENTER KEY
```

```
CLEAR NATS SYSTEM

PLEASE WAIT
```

Select **SPECIAL FUNCTIONS** from menu.

Select **PROGRAM KEYS**

The System takes approximately 16 minutes to clear.

After clearing, the key in the IGNITION will be registered. Remove the key from ignition and insert next key.

Turn ignition ON for 5 seconds. Then turn off and remove key.

Repeat for up to 5 keys.

After the final key been registered, use one of the keys to start the engine, this returns the system to normal operation

Check NATS indicator to ensure the procedure is complete.

NOTE : IF ANY FAULT CODES ARE PRESENT, EVEN A FAULTY FUSE THEN KEY PROGRAMMING CANNOT BE COMPLETED.

Select **SPECIAL FUNCTIONS** from menu.
Select **PROGRAM KEYS**

After clearing, the key in the IGNITION will be registered. Remove the key from ignition and insert next key.

Turn ignition ON for 5 seconds. Then turn off and remove key.

Repeat for up to 5 keys.

After the final key been registered, use one of the keys to start the engine, this returns the system to normal operation.
Check NATS indicator to ensure the procedure is complete.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

KEY PROGRAMMING—NATS 5

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

Select **SPECIAL FUNCTIONS** from menu.

DIAGNOSTIC MENU

PROGRAM KEYS

PRESS ENTER KEY

Select **PROGRAM KEYS** from selection.

Enter the 4 digit security code. Then follow on screen instructions. The key in the ignition will be registered first, then program additional keys as follows :-

SECURITY CODE

1 2 3 4

IS THIS CORRECT
OK=ENTER CLEAR=BACK

Turn ignition ON for 5 seconds. Then turn off and remove key.

Repeat for up to 5 keys.

After the final key been registered, use one of the keys to start the engine, this returns the system to normal operation

Check NATS indicator to ensure the procedure is complete.

ADVANCED DIAGNOSTICS

17

PEUGEOT

CONTENTS

17

APPLICATIONS

A

VEHICLE	YEAR	SYSTEM	CABLE
106	1997 ON	IMMO 1	ADC110
206	1997 ON	CPH	ADC110
206	1997 ON	BSI	ADC110
306	1997 ON	IMMO 1	ADC110
306	1997 ON	CPH	ADC110
307	2001 ON	BSI	ADC110
406	97-99	IMMO1	ADC100 + ADC120
NEW 406	99 ON	BSI	ADC110
406 COUPE	97 ON	CPH	ADC110
607	2001 ON	BSI	ADC110
806	1997 ON	CPH	ADC110
EXPERT	1997 ON	CPH	ADC110
PARTNER	1997 ON	IMMO 1	ADC110
PARTNER	1997 ON	BSI	ADC110
RANCH	1997 ON	IMMO 1	ADC110

ADVANCED DIAGNOSTICS

GENERAL OPERATION

INTRODUCTION

The Peugeot Immobiliser systems are made up of 3 different types. They all perform various functions, and it is important to understand the basic configuration and the types of systems fitted.

IMM– STANDARD IMMOBILISER

This system was the first transponder system fitted to the Peugeot range of vehicles, after the keypad system was phased out. The system is a basic electronic control unit which consists of immobiliser unit, and transponder aerial to pick up the transponder signal code.

This system is similar to the GM immobiliser system, and is programmed and diagnosed in much the same way.

CPH—PASSENGER COMPARTMENT PROTECTION CONTROL UNIT

The next generation of Immobiliser and alarm system produced was the CPH system which controls a number of additional components which further enhances the vehicle protection system. These include central door locking, ultrasonic sensors to name a few.

This system is programmed in much the same way, but offers additional functionality on live data and actuators functions.

BSI—BODY SYSTEMS INTERFACE

This is the latest system, and the alarm and immobiliser have now been incorporated into the body control unit, which controls all body units, including wipers, indicators, lights, doors, windows, locks, boot, service interval, horn, etc.

Again, with all the BSI because the immobiliser is part of a complicated system there are many more functions included, on actuators, special functions and live data.

SPECIAL FUNCTIONS

PROGRAMMING KEYS—IMMOBILISER 1 SYSTEM

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
LIVE DATA
ACTUATORS
SPECIAL FUNCTIONS

PRESS ENTER KEY

Select **SPECIAL FUNCTIONS** from the Diagnostic Menu using the **UP** and **DOWN** arrows.

Then press the **ENTER** key.

DIAGNOSTIC MENU

PROGRAM KEYS

PRESS ENTER KEY

NOTE : ENSURE ALL DOORS ALL CLOSED WHEN KEY PROGRAMMING IS BEING PERFORMED.

Using the **UP** and **DOWn** keys select the **PROGRAM KEYS** option

SECURITY CODE

_ _ _ _

To enter the security code use the following procedure :-

Press ↑ ↓ To select Number & Letter

SECURITY CODE

X 4 Y T

IS THIS CORRECT
OK=ENTER   CLEAR=BACK

Press ← To Erase the previous selection

Press ↵ To ENTER selection.

Press ↵ To Finish PIN selection.

INCORRECT ACCESS CODE

PRESS ENTER KEY

If incorrect code is entered the screen will display as shown.

NOTE : If the code is entered 3 time incorrectly, then the ECU will lock access for 15 minutes.

WARNING : WHEN PROGRAMMING KEYS, THE SYSTEM AUTOMATICALLY ERASES THE PLIP KEYS AT THE SAME TIME. BEFORE PROCEEDING WITH KEY PROGRAMMING, ENSURE YOU HAVE THE PLIP KEY PROGRAMMING PROCEDURE.

PROGRAMMING KEYS

TOTAL KEYS REQUIRED : 2

PRESS ENTER KEY

If Access code is correct, ENTER the number of keys to program.

NOTE : Max 4 keys can be added.

**SWITCH IGNITION ON
IGNITION STATUS OFF**

Follow on screen instruction for programming the keys.

**SWITCH IGNITION OFF
IGNITION STATUS ON**

After switching IGNTION OFF remove the key and repeat procedure for additional keys.

PROGRAMMING KEYS—BSi MODULE

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
LIVE DATA
ACTUATORS
SPECIAL FUNCTIONS

PRESS ENTER KEY

Select **SPECIAL FUNCTIONS** from the Diagnostic Menu using the **UP** and **DOWN** arrows.

Then press the **ENTER** key.

NOTE : ENSURE ALL DOORS ALL CLOSED WHEN KEY PROGRAMMING IS BEING PERFORMED.

DIAGNOSTIC MENU

PROGRAM KEYS

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **PROGRAM KEYS** option

17

ADVANCED DIAGNOSTICS

C

```
┌─────────────────────────┐
│     SECURITY CODE       │
│                         │
│        _ _ _ _          │
└─────────────────────────┘
```

To enter the security code use the following procedure :-

Press ↑ ↓ to select Number & Letter

```
┌─────────────────────────┐
│     SECURITY CODE       │
│                         │
│         X 4 Y T         │
│                         │
│      IS THIS CORRECT    │
│  OK=ENTER   CLEAR=BACK  │
└─────────────────────────┘
```

Press ← To Erase the previous selection

Press ↵ To ENTER selection.

Press ↵ To Finish PIN selection.

NOTE : AFTER PROGRAMMING CLEAR FAULT CODES AND LOCK VEHICLE FOR 10 MINUTES BEFORE TRYING THE KEY OR PLIP.

WARNING : WHEN PROGRAMMING KEYS, THE SYSTEM AUTOMATICALLY ERASES THE PLIP KEYS AT THE SAME TIME. BEFORE PROCEEDING WITH KEY PROGRAMMING, ENSURE YOU HAVE THE PLIP KEY PROGRAMMING PROCEDURE.

```
┌─────────────────────────┐
│ TRYING TO COMMUNICATE   │
│                         │
│                         │
│                         │
├─────────────────────────┤
│    PRESS ENTER KEY      │
└─────────────────────────┘
```

If Access code is correct, ENTER the number of keys to program.

NOTE : Max 4 keys can be added.

```
┌─────────────────────────┐
│   SWITCH IGNITION OFF   │
│   IGNITION STATUS ON    │
│                         │
│                         │
├─────────────────────────┤
│    PRESS ENTER KEY      │
└─────────────────────────┘
```

Follow on screen instruction for programming the keys.

```
┌─────────────────────────┐
│      ERASING KEYS       │
│                         │
│    PROGRAMMING KEYS     │
└─────────────────────────┘
```

SWITCH IGNITION ON

SWITCH IGNITION OFF

REMOVE KEY FROM IGNITION

INSERT NEXT KEY

SWITCH IGNITION ON
IGNITION STATUS OFF

NOTE : AFTER PROGRAMMING CLEAR FAULT CODES AND LOCK VEHICLE FOR 10 MINUTES BEFORE TRYING THE KEY OR PLIP.

TRYING TO COMMUNICATE

PRESS ENTER KEY

PRESS BACK TO EXIT

PRESS ENTER TO PROGRAM NEXT KEY

PRESS ENTER KEY

18

PROTON

PROTON MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

18

APM123

ADVANCED DIAGNOSTICS

APPLICATIONS

VEHICLE	YEAR	KEY PROG	TYPE	CABLE
ISWARA	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
PUTRA	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
PERDANA	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
WAJA	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
JUMPUCK GLSi	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
JUMPBUCK GLi	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
SATRIA GTi	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
SATRIA XLs	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
SATRIA GLi	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
PERSONA	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
GEN 2	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
WIRA	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
SATRIA SPORT	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129
IMPIAN	ALL	Y	TYPE 1,2 or 3	ADC110 or ADC129

ADVANCED DIAGNOSTICS

GENERAL OPERATION

INTRODUCTION

There are 3 different immobiliser systems fitted to the Proton vehicle range as follows :-

NOTE : Always make sure that you are fully aware of the difference between Type 2 BLUE keys and Type 3 BLUE keys before programming.

NOTE : When programming Impian keys, the alarm will need programming as well, details below.

IMPIAN/JUMBUCK Alarm Fob reprogramming

1. Alram system must be disarmed before procedure using the reset switch or ignition key.
2. Turn ignition ON and PRESS & HOLD the alarm reset switch.
3. Turn ignition OFF and remove the key from ignition.
4. Turn ignition ON.
5. Release the ALARM switch, and press ONCE.
6. The alarm LED should flash 2 times during coding.
7. With ignition ON press the LOCK button on the alarm remote control.
8. The alarm should beep once if programmed.
9. Repeat for additional remote controls.
10. Switch ignition OFF.

NOTE : All existing remote controls will be erased.

FUNCTIONS AVAILABLE

ECU IDENTIFICATION
FAULT CODE READING
FAULT CODE CLEARING
PROGRAM KEYS

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

KEY PROGRAMMING—TYPE 1 & TYPE 2

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **PROGRAM KEYS**

PRESS ENTER KEY

Select PROGRAM KEYS.

NOTE : If the system has been accessed incorrectly by another piece of equipment then a security wait time of 16 minutes is required before attempting to program keys.

BACK TO EXIT

**ENTER TO
PROGRAM NEXT KEY**

If further keys are required then press the ENTER key.

Repeat this procedure for all additional keys.

**INSERT NEXT KEY
SWITCH IGNITION ON
AND PRESS ENTER
WITHIN 5 SECONDS**

NOTE : ALL existing keys are erased when programming is completed. Ensure all keys are with the vehicle before programming.

KEY PROGRAMMING— TYPE 3

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select the SPECIAL FUNCTIONS.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

DIAGNOSTIC MENU

> **PROGRAM KEYS**

PRESS ENTER KEY

Select PROGRAM KEYS.

BACK TO EXIT

**ENTER TO
PROGRAM NEXT KEY**

If further keys are required then press the **ENTER** key.

**REMOVE KEY FROM
IGNITION**

**INSERT NEXT KEY
PRESS ENTER**

IF ENTER IS PRESS THEN THIS SCREEN WILL APPEAR.

Repeat this procedure for all additional keys.

PROGRAM KEYS

PROCEDURE COMPLETE

PRESS ENTER

IF BACK IS PRESSED THEN THIS SCREEN WILL APPEAR

ADVANCED DIAGNOSTICS

19

RENAULT

RENAULT MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

VEHICLE	MODEL YEAR	CABLE
CLIO II	ALL MODELS	ADC110
KANGOO II	ALL MODELS	ADC110
MEGANE	99 >ON	ADC110
MEGANE SCENIC	99 > ON	ADC110
LAGUNA II	ALL MODELS	ADC110
TRAFFIC II	ALL MODELS	ADC110

KANGOO II SYSTEM IDENTIFICATION

NORMAL KANGOO

KANGOO II

GENERAL OPERATION

B

INTRODUCTION

The Renault Immobiliser system uses either Infra Red or Radio Frequency for Plip key operation and transponder key technology for key entry and starting. The Infra Red and RF systems uses a rolling code system to ensure the vehicle system cannot be breached.

Activation of the Immobiliser system is indicated by the LED indicator in the Instrument cluster. If there is a fault in the system, an emergency access code can be used to disable the system using the central door locking button or key and the LED to enter the code.

On petrol vehicles the immobiliser is carried out by the Fuel Injection system and on Diesel systems it is carried out by the coded solenoid valve.

The immobiliser system automatically sets itself after 10 minutes if both doors are closed, this can be 30 minutes in other countries. If the ignition is switched OFF and one of the front doors is opened, then the immobiliser sets itself after 1 minute, in other countries it can be 10 minutes.

To disarm the system the doors must be locked and unlocked using the plip key functions. Only 2 plips can be operated on this system.

The immobiliser key system operates independently of the Plip system. When the key is turned to the Ignition OFF position the immobiliser activates after 10 seconds. This system used 2 special matched keys with coded transponders.

The system comprises of Receiver aerial around the ignition lock, a decoder unit located under the dashboard, which sends the decoding signal to the Fuel Injection computer or coded solenoid valve, and the RED warning light.

Key programming and Plip programming can be performed using the AD100 and if the relevant security code for the vehicle is available. The security code is normally displayed in the front of the service book, if not, it can only be obtained from a Renault dealer.

ADVANCED DIAGNOSTICS

GENERAL OPERATION

Decoder Unit (BII)

This system is similar to many other immobiliser systems as it uses a transponder within the head of the key to send its code to the immobiliser when interrogated via the immobiliser ignition key barrel antenna. The code from the key is transferred to the Decoder Unit which has the following functions:

- Decoding the key transponder signal, via the antenna coil
- Management of the engine immobiliser system by sending the received code to either the EMS-ECM (Petrol engine) or the Coded Solenoid Valve (Fuel Cut-off valve for diesel engines) to authorize the vehicle to be started
- Control of the immobiliser LED
- Central door locking functions (if fitted)
- Courtesy light control (part of central locking if fitted)

Multi Timer Unit (BMT)

The Multi Timer Unit has the same immobiliser function as the Decoder Unit above using an ignition key with a transponder and an ignition key barrel antenna. The Multi Timer Unit has the following functions (amongst others):

- Decoding the key transponder signal, via the antenna coil
- Management of the engine immobiliser system by sending the received code to either the EMS-ECM (Petrol engine) or the Coded Solenoid Valve (Fuel Cut-off valve for diesel engines) to authorize the vehicle to be started
- Control of the immobiliser LED
- Central door locking functions (if fitted)
- Courtesy light control (part of central locking if fitted)

Type 'I' Key Recognition Optional IR Rolling Code - Petrol/Diesel

This system can be used with or without an Infrared Remote Control, which would require a separate control unit.

Type 'J' Coded Card instead of Key

This system is an immobiliser only, a separate system must be used to operate the central locking, however, a Coded Card may contain a remote control transmitter for gaining entry to the vehicle.

ADVANCED DIAGNOSTICS

Coded Card

The coded card system was introduced for the latest Laguna models and eliminates the use of 'ignition keys' and, optionally, 'door locking keys'. Instead of a key the driver has a coded card that, optionally, unlocks the door and after insertion into a card reader, sets self-retaining relays to supply the various systems/circuit in the vehicle (equivalent to the ignition switch), deactivates the immobiliser to allow the vehicle to be started and unlocks the electric steering lock. The code is a random rolling code to reduce the chances of simulation.

The engine is started via an engine start/stop push switch, which when pushed will energize the starter. If pressed again the switch will stop the engine and removing the card will break the retaining circuit to the main relay and the vehicle will shut down all systems and circuits except any required to remain on, e.g. lighting circuits, hazard lights etc. The following are the immobiliser functions:

- Decodes the signal from the card via the card reader
- Sends a signal to the electric steering column lock
- Communicates with the EMS-ECM
- Controls the immobiliser LED and the card reader light
- Communicates with the immobiliser

This system uses a multiplexing system to send data to peripheral devices, namely the electric steering lock, diagnostic socket, EMS-ECM and the LED in the instrument pack.

All Systems

- Each system has a visual indication of the immobiliser status but whether or not it has a separate red LED to that of the EMS-ECM is dependent upon the system. If it shares an LED with the EMS-ECM this will flash regularly when the immobiliser is active and is also used to indicate acceptance of the security code numbers manually entered using the door locking button. In general the following functions are indicated by the LED:
  - Activation of the immobiliser
  - Non recognition of the Coded Card or Coded Keys
  - System fault
  - Fault with the EMS-ECM immobiliser function
  - Fault with the Electric Steering Lock (Coded Card only)
  - Signal of entry into door locking remote control resynchronization mode (Decoder/Multi Timer systems only)
  - If a fault with the EMS-ECM immobiliser circuit occurs whilst the vehicle is in motion the immobiliser LED will flash during deceleration and when at idle spd.

GENERAL OPERATION

B

Model	Year	Immobiliser Type	Version
Kangoo	10/97	D	V2
	10/97	F	V2
	10/97	H	V2
Master (XD0)	10/97	D	V2
	10/97	F	V2
	10/97	H	V2
Clio I	07/94	A	V1
	04/95	C	V1
	04/95	D	V1 & V2
	12/95	F	V2
	12/96	E	V2
Clio II	03/98	H	V2
	06/01	J	V3
Safrane	01/93	A	V1
	05/93	B	V1
	02/95	C	V1
	10/95	E	V2
	09/96	G	V2
	01/97	H	V2
Laguna I	02/94	A	V1
	07/94	B	V1
	01/95	C	V1
	11/95	D	V1 & V2
	09/95	E	V2
	11/95	F	V2
	01/97	H	V2
Laguna II	01/00	J	V3
Express	04/95	C	V1
	01/96	E	V2
Megane	11/95	C	V1
	11/95	D	V2
	01/96	E	V2
	01/96	F	V2
	09/98	I	V2
Espace (J63)	04/95	C	V1
	09/95	E	V2
Espace (JE0)	09/96	G	V2
	01/97	H	V2
Trafic I	10/95	C	V1
	01/96	E	V2
Trafic II	06/01	J	V3
Twingo	01/95	C	V1
	01/95	D	V2
	12/99	H	V2
R19	05/93	A	V1
	03/95	C	V1
R21	01/92	A	V1

19

ADVANCED DIAGNOSTICS

GENERAL OPERATION

All systems have the same end function, immobilizing the vehicle until the correct code is presented to the immobiliser unit.

Type 'A' Infrared Remote Control Fixed Code - Petrol

This system uses a combined immobiliser and central door locking control unit with a remote infrared transmitter contained in the plastic keyhead. The transmitted code is fixed and when received by the control unit receiver it will generate a door open signal and simultaneously pass the code to the EMS-ECM. The EMS-ECM compares the received code against a stored code and if verified it will allow the engine to be started. This type is for petrol only vehicles and will allow up to seven keys to be used.

Type 'B' Infrared Remote Control Fixed Code - Diesel

This system uses a combined immobiliser and central door locking control unit with a remote infrared transmitter contained in the plastic keyhead. The transmitted code is fixed and when received by the control unit receiver it will generate a door open signal and simultaneously pass the code to the Coded Solenoid Valve. The Coded Solenoid Valve compares the received code against a stored code and if verified it will allow the fuel to the engine. This type is for diesel only vehicles and will allow up to four keys to be used.

Type 'C' Infrared Remote Control Rolling Code - Petrol

This system uses a combined immobiliser and central door locking control unit with a remote infrared transmitter contained in the plastic keyhead. The transmitted code is rolling to reduce the chances of the code being captured and used to enter the vehicle. The code when received by the control unit receiver it will generate a door open signal and simultaneously pass the code to the EMS-ECM. The EMS-ECM compares the received code against a stored code and if verified it will allow the fuel to the engine. This type is for petrol only vehicles and will allow up to seven keys to be used.

Type 'D' Key Recognition - No Infrared Remote - Petrol

This system uses key recognition only with no remote control of entry. A transponder in the keyhead reacts to a transmitted signal from a coil wrapped around the ignition key barrel. If the transponder code is the same as the stored code the EMS-ECM receives a signal to allow the engine to run. This type is for petrol only vehicles and will allow up to seven keys to be used.

Type 'E' Infrared Remote Control Rolling Code - Diesel

This system uses a combined immobiliser and central door locking control unit with a remote infrared transmitter contained in the plastic keyhead. The transmitted code is rolling to reduce the chances of the code being captured and used to enter the vehicle. The code when received by the control unit receiver it will generate a door open signal and simultaneously pass the code to the Coded Solenoid Valve. The Coded Solenoid Valve compares the received code against a stored code and if verified it will allow the fuel to the engine. This type is for diesel only vehicles and will allow up to four or seven keys to be used dependent upon the type of shielding on the Coded Solenoid Valve.

Type 'F' Key Recognition - No Infrared Remote - Diesel

This system uses key recognition only with no remote control of entry. A transponder in the keyhead reacts to a transmitted signal from a coil wrapped around the ignition key barrel. If the transponder code is the same as the stored code the Coded Solenoid Valve receives a signal to allow the engine to run. This type is for diesel only vehicles and will allow up to four or seven keys to be used depending upon the type of shielding on the Coded Solenoid Valve.

Type 'G' Key Recognition + IR Rolling Code - 2 ECMs - Petrol/Diesel

This system has both Infrared Remote Control and Key Recognition but have a separate control for each function. There is no interaction between the two controllers except that they share common 'K' & 'L' diagnostic lines to the DLC and the Electric Door Button has an input to both to allow the code to be entered manually. This systems appears in both petrol and diesel vehicles and up to seven keys can be used.

Type 'H' Key Recognition + IR Rolling Code - 2 ECMs - Petrol/Diesel

Types 'H' and 'G' are exactly similar in their functionality but Type 'H' has a single integrated control unit.

19

SPECIAL FUNCTIONS

KEY PROGRAMMING—ALL SYSTEMS

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

From the main DIAGNOSTIC MENU select SPECIAL FUNCTIONS.

DIAGNOSTIC MENU

> **PROGRAM KEYS**

PRESS ENTER KEY

Select PROGRAM KEYS.

SWITCH IGNITION OFF

To enter the security code use the following procedure :-

SECURITY CODE

_ _ _ _ _ _ _ _ _ _ _ _

Press ↑ ↓ . to select Number & Letter

Press ← To Erase the previous selection

SWITCH IGNITION ON

Press ↵ To ENTER selection.

Press ↵ To Finish PIN selection.

BACK TO EXIT

ENTER TO PROGRAMME NEXT KEY

NOTE : RENAULT MEGANE USES 8 DIGIT SECURITY CODE, OTHER VEHICLES USE 12 DIGIT.

If only one key is required press the BACK key.

INSERT NEXT KEY

THEN PRESS ENTER

Further keys can be added by pressing the ENTER key.

PROCEDURE COMPLETE

Follow on screen instructions and repeat for up to 4 keys.

19

20

ROVER

ROVER MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

APM103

ADVANCED DIAGNOSTICS

APPLICATIONS

A

VEHICLE	SYSTEM	YEAR	CABLE
MINI	5AS	95 ON	ADC100 + ADC120/
100	5AS	95 ON	ADC100 + ADC120/
200	5AS	95 ON	ADC100 + ADC120/
400	5AS	95 ON	ADC100 + ADC120
MG-F	5AS	95 ON	ADC100 + ADC120
25	5AS	95 ON	ADC100 + ADC120
45	5AS	95 ON	ADC100 + ADC120
MEMS 1.6	MEMS	95 ON	ADC125 + ADC100
MEMS 1.9	MEMS	95 ON	ADC100 +ADC124 or ADC110
MEMS 2J	MEMS	95 ON	ADC110

NOTE : THE SYSTEMS ABOVE USE THE REMOTE PLIP UNIT AS PICTURED BELOW.

ANY OTHER REMOTE PLIPS ARE NOT PROGRAMMABLE WITH THIS SOFTWARE

PLIP KEY FOR USE WITH 5AS, 10AS AND 27VT SYSTEMS

ADVANCED DIAGNOSTICS

GENERAL OPERATION

SYSTEM DESCRIPTION (5AS ALARM SYSTEM)

INTRODUCTION

There are a number of different systems fitted across the Rover vehicle range, which vary slightly. The systems can only be enabled and disabled using the Key Fob (PLIP). If the car is locked with the mechanical key only, then the alarm is not enabled.

There are three ways the alarm works, one is to enable an ultrasonic alarm, the second Perimetric protection and the other engine immobilisation. In addition to this it also operates the central locking.

When the system is armed or disarmed the hazard lights will flash depending on which operation is performed. If the doors lock but the hazard lights do not flash, then it is possible that one of the doors, boot or bonnet is partially open.

PLIP KEY

This is a radio transmitter which has two buttons, one to arm the system and one to disarm. When the system is armed the ALARM LED indicator will flash quickly for 10 seconds, and then flash at a slower frequency.

The radio code signal is changed each time the PLIP key is used, and the code is changed both in the handset and also the ECU on the vehicle. If this sequence is broken, then the PLIP key can be re-enabled as follows :-

Procedure.
1.   Unlock the drivers door using the key.
2.   Ensure all doors, bonnet and boot are shut, and if Central Locking is fitted, make sure both front doors are unlocked.
3.   Press the PLIP key (Lock button) four times quickly, until the vehicle locks are enabled.

ENGINE IMMOBILISATION

The engine is set as soon as the Perimetric alarm is enabled, which inhibits the engine electrical circuits. Immobilization can only be removed using the PLIP key or using the emergency access code (EKA). If the car is not locked using the PLIP key, the immobiliser will be activated 20 seconds after the ignition is switched off, and the drivers door opened. The engine can be re-immobilized by pressing the unlock button on the PLIP key.

PLIP KEY BATTERY REPLACEMENT

Ensure the vehicle is unlocked before the following procedure is followed.

The battery in the Plip key should last for around 3 years, depending on usage. To change the battery, split the Plip key in half and remove the battery, taking care not to touch the clip or any of the components.

Press and hold each of the Plip key buttons for 5 seconds, to discharge any residual voltage in the circuits.

Replace the battery, ensuring the side marked with '+' is facing the clip. Once replaced, snap together both halves of the Plip key. Follow the procedure on the previous page to re-initiate the plip key.

PERIMETRIC SYSTEM

If the alarm is activated, then the horn will sound for approximately 30 seconds if any of the following are detected :-

•   Boot is opened
•   Bonnet release is opened
•   Ignition is switched to the ON position
•   Drivers door button is raised (Only on Central Locking Systems)
•   Drivers door is unlocked (Using Key)

Once alarm is activated, it can only be turned off by disarming the alarm. If it is not disarmed the ECU stores a fault. Then if the alarm is disarmed later, the alarm LED will flash rapidly until the ignition is turned on or the alarm is re-armed.

TAMPER PROTECTION

The system is fitted with tamperproof protection on vehicles with Central Locking. This enables the alarm if the drivers door button or the actuator switch wires are tampered with.

VEHICLE BATTERY

Ensure the Alarm is disabled before removing the vehicle battery, otherwise the alarm will sound on re-connection.

ADVANCED
DIAGNOSTICS

GENERAL OPERATION

ENGINE IMMOBILISATION OVERRIDE

If the Plip key is lost or does not function, the emergency access code (EKA) can be used to override the system as follows :-

1. Insert the key into the drivers lock, and turn to the lock position.

2. Hold the key in this position for 5 seconds.

3. Now using the code turn the key to the unlock the number of times of the first digit.

4. Now turn the key to the lock position the number of times of the second digit.

5. Repeat for the last two digits.

6. After the code has been entered, turn the key to the unlock position, and check to see whether the Alarm LED has stopped flashing, and the engine will start.

If an error is made, open and close the door and repeat the sequence. If 3 unsuccessful attempts are made, the system will lock out for 10 minutes, before another attempt can be made.

ADVANCED
DIAGNOSTICS

SPECIAL FUNCTIONS

C

PROGRAMMING REMOTE PLIP KEYS

VEHICLE SELECTION MENU

MINI
ROVER 100
ROVER 200
ROVER 400
ROVER MG-F

PRESS ENTER KEY

At the VEHICLE SELECTION menu select the required vehicle.

Then press the **ENTER** key.

DIAGNOSTIC MENU

PLIP KEY FUNCTIONS
EKA FUNCTION

PRESS ENTER KEY

Select the function required.

The AD100 will now attempt to communicate with the ECU.

**PLEASE WAIT
TRYING TO COMMUNICATE**

ECU IDENTIFICATION

LUCAS 5AS

PRESS ENTER KEY

If communication is successful the system being tested will be displayed as shown.

DIAGNOSTIC MENU

ECU IDENTIFICATION
SPECIAL FUNCTIONS

PRESS ENTER KEY

Select SPECIAL FUNCTIONS.

ADVANCED DIAGNOSTICS

DIAGNOSTIC MENU

PROGRAM PLIP KEY

PRESS ENTER KEY

Select PROGRAM PLIP KEY.

PRESS PLIP LOCK
AT LEAST 8 TIMES
UNTIL HORN SOUNDS.

PRESS ENTER KEY

Press either button on the Plip key very quickly up to 8 times until the horn sounds, which indicates it has been successfully programmed. Repeat up to 4 plip keys.

READING EKA CODE

DIAGNOSTIC MENU

PLIP KEY FUNCTIONS
EKA FUNCTIONS

PRESS ENTER KEY

Select the EKA function.

The display should show the EKA code and the sequence required to input the code.

NOTE : EKA numbers can go up to 15.

TURN IGNITION ON

PRESS ENTER KEY

READ EKA CODE
UNLOCK 6 TURNS
LOCK   1 TURNS
UNLOCK 11 TURNS
LOCK   11 TURNS

PRESS ENTER KEY

To program a new EKA code select special functions from the menu and press ENTER.

SPECIAL FUNCTIONS

PROGRAMMING EKA CODE

DIAGNOSTIC MENU

READ EKA CODE
SPECIAL FUNCTIONS

PRESS ENTER KEY

To program a new EKA code select special functions from the menu and press **ENTER**.

DIAGNOSTIC MENU

WRITE EKA CODE

PRESS ENTER KEY

Select write EKA code.

SECURITY CODE

_ _ _ _

Insert new EKA code. Please make a note of this and advise the customer.

SECURITY CODE

1 2 3 4

IS THIS CORRECT
OK=ENTER CLEAR=BACK

If correct press enter to proceed.

DISCONNECT AD100
FROM VEHICLE

After the code has been programmed, disconnect the AD100 and then reconnect to check the code has been written correctly.

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

RE-CODE ECU's (MEMS 1.6, 1.9 & 2J)

VEHICLE SELECTION MENU

IMMOBILISER
EMS

PRESS ENTER KEY

At the VEHICLE SELECTION menu select the required system.

Then press the **ENTER** key.

VEHICLE SELECTION MENU

MEMS 1.6
MEMS 1.9
MEMS 2J

PRESS ENTER KEY

Select the required EMS system

VEHICLE SELECTION MENU

RE-CODE ECU

PRESS ENTER KEY

Select RE-CODE ECU

TURN IGNITION ON

PRESS ENTER KEY

Turn Ignition ON and press the **ENTER** key.

**PLEASE WAIT
TRYING TO COMMUNICATE**

PROCEDURE COMPLETE

PRESS ENTER KEY

If re-coding is successful, the AD100 should indicate procedure complete.

Disconnect tester and start vehicle,

20

TIPS & HINTS

GENERAL

1. If the Plip key does not operate, it could be one of the following causes :-
    *   Bad connection at 5AS ECU plug.
    *   Plip Key inoperative or ECU de-programmed.
    *   System in lock out due to other radio interference.

2. Alarm LED not working, this could be the failure of LED unit, as this is common on Rover 800 vehicles. Replace LED unit.

3. On Rover 416 Automatic Honda PGMFI engine, if the unlock button is pressed on the Plip key while the ignition is switched ON, vehicle will not start. The Alarm bleeper will sound. To re-immobilise turn ignition off and re-start the vehicle.

4. Radio Frequency Colour coding

Frequency	Colour (ECU/Handset)	Countries
433.92 MHz	Blue/Black	UK/Ireland
224.5 MHz	Yellow/Yellow	France
433.92 MHz	Blue/Purple	Germany
433.92 MHz	Blue/Blue	Europe (except France, Germany, Switzerland, Italy & Denmark)
433.92 MHz	White/Blue	Switzerland & Denmark
315.0 MHz	Green/Green	ROW, Italy & Australia
315.0 MHz	Orange/Green	Gulf & Japan

ECU IDENTIFICATION

MEMS 1.6

ECU IDENTIFICATION (Contd)

MEMS 1.9
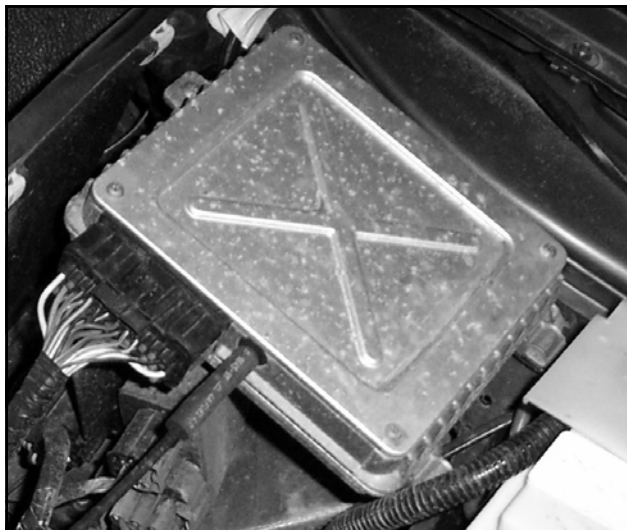
MEMS 2J
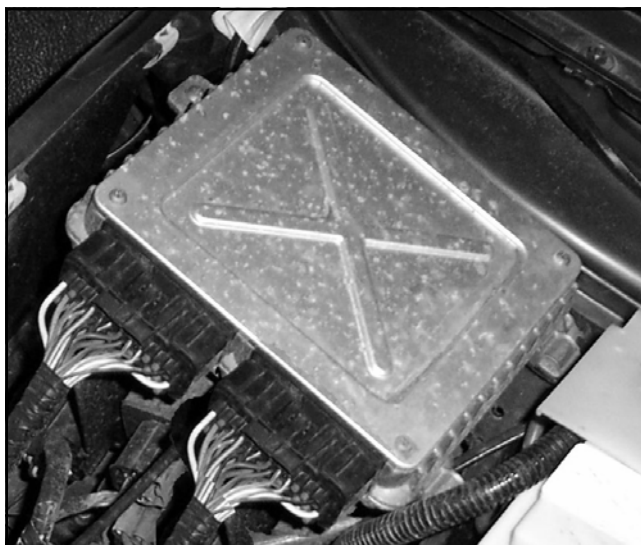
NOTE :- HAS 2 MAIN CONNECTORS

21

SUBARU

SUBARU MANUAL

CONTENTS

APPLICATIONS

VEHICLE	MODEL YEAR	PIN CODE REQUIRED	SYSTEM	CABLE
BAJA SPORTS	ALL	N	OBD ONLY	AD110B
BAJA TURBO	ALL			AD110B
FORESTER X, XT, XS	96-03 MY	N	OBD ONLY	AD110B
IMPREZA SEDAN	96-03 MY	N	OBD ONLY	AD110B
IMPREZA SPORTS WAGON	96-03	N	OBD ONLY	AD110B
LEGACY WAGON	96-03 MY	N	OBD ONLY	AD110B
LEGACY SEDAN	96-03 MY	N	OBD ONLY	AD110B
OUTBACK	ALL	N	OBD ONLY	AD110B
OUTBACK SPORT	ALL	N	OBD ONLY	AD110B
OUTBACK WAGON	ALL	N	OBD ONLY	AD110B
OUTBACK SEDAN	ALL	N	OBD ONLY	AD110B

ADVANCED DIAGNOSTICS

GENERAL OPERATION

INTRODUCTION

There are two types of systems fitted to Subaru vehicles that can generally be identified by the model year, however this is not always the case.
Detailed below is a guide to help you determine which system is fitted.

- > 2000
This system can normally be identified by having a keypad in the glovebox.

These vehicles can also be fitted with a Sigma alarm that have a separate remote control.

AD100 cannot be used to program these remote controls. Programming of the remotes can only be performed using the AD15 Sigma alarm programmer, available from your local distributor.

2000 - >
This system has no keypad or separate remote control. The key is now integrated with the alarm/central locking remote control in the head of the key.

The remote control is programmed as part of the key programming sequence with AD100.

Notes:

1. On vehicles around 2000, both systems might have to be tried to determine the correct system even if the system physically represents the system described above.
2. When programming keys with AD100 the alarm must be disarmed.
3. Only **Genuine** Subaru transponders must be used when programming keys.

FUNCTIONS AVAILABLE
ECU IDENTIFICATION
PROGRAM KEYS

GENERAL OPERATION

General Subaru Immobiliser info.

Immobiliser operation

With the vehicle stopped and the ignition off, there is a red LED on the dashboard which flashes as an anti theft deterrent with a 0.2 second on time and a 2 second off time. This indicates the vehicle is in an immobilised state. If you insert the ignition key and start the engine, the LED will remain off, indicating no faults are found.

If an attempt is made to start the engine with an incorrect non programmed key, the engine will start but stop after 2 seconds and the check engine light will flash- engine cannot be subsequently restarted. If the read only memory plugs (on early vehicles) are connected, the engine control unit will show code 53- using the correct transponder will allow the vehicle to be started and the engine warning light will remain on (because code 53 is stored) until the read memory plugs are disconnected.

The ignition key utilises a transponder chip which has no battery inside, when the key is turned on an engine request signal is sent from the engine ECU to the immobiliser ECU. The immobiliser control unit energises the antenna and amplifier situated around the ignition key barrel. The antenna sends a frequency signal of 125 KHz to the transponder chip which replies with an ID code. This code is then sent to the immobiliser ECU which sends it back to the engine ECU and a conformation signal, if this signal code is the same as is stored within the engine ECU then the engine function is enabled. All this process takes less than 100 milliseconds. When the ignition is switched off, the rolling code will be updated to a random value and the engine ECU will send this new code via it's communication line to the immobiliser ECU. In this way, the engine control unit is ready to receive the correct code next time the Immobiliser sends it.

If a new Engine or Immobiliser control unit is fitted or if the keys are replaced, the system must be initialised using the AD100 and appropriate software. Up to four keys may be programmed using the AD100 and code 53 is "incorrect transponder code detected"

Specifications

Rolling code. Input of 10 incorrect codes will cause the control unit to shut down for 10 seconds. A combination scan of all available codes will take approx 432 hours

Antenna uses inductive energy transmission (passive transponder)

Maximum code pick up distance from key approx 3cm

Response time less than 100ms

System current draw 15ma (shut down state)

                          30ma during code transmission

Power supply   6 - 16v d.c.

Engine control unit EGI situated lower steering column

Antenna frequency 125 KHz

Immobiliser control unit Siemens SWK4690 situated lower steering column or passenger floor.

NOTE:
1. THE ALARM SYSTEM MUST BE DISSARMED PRIOR TO PROGRAMMING
2. ONLY GENUINE SUBARU TRANSPONDERS MUST BE USED WHEN PROGRAM-MING KEYS.

VEHICLE SELECTION MENU
SUBARU
PRESS ENTER KEY

At the VEHICLE SELECTION menu select the required vehicle and press the **ENTER** key.

- > 2000
2000 - >

Select the vehicle model year and press the **ENTER** key.
Note: On vehicles around 2000, both systems might have to be tried to determine the correct system.

TURN IGNITION ON
PRESS ENTER KEY

Turn Ignition ON and press the **ENTER** key.

PLEASE WAIT
TRYING TO COMMUNICATE

The AD100 will now attempt to communicate with the ECU.

SUBARU
IMMOBILISER
PRESS ENTER KEY

If communication is successful the system information will be displayed as shown.

DIAGNOSTIC MENU
ECU IDENTIFICATION
SPECIAL FUNCTIONS

Press the **ENTER** key.

Select SPECIAL FUNCTIONS and press the **ENTER** key.

DIAGNOSTIC MENU
PROGRAM KEYS

Select PROGRAM KEYS and press the **ENTER** key.

PROGRAM KEYS
PLEASE INSERT FIRST KEY
PRESS ENTER KEY

Please insert first key to be programmed and press the **ENTER** key.

ADVANCED DIAGNOSTICS

21

C

```
 PROGRAM KEYS
┌─────────────────────────┐
│                         │
│      PLEASE WAIT        │
│  SECURITY CODE 1 SENT   │
│                         │
└─────────────────────────┘
```

```
 PROGRAM KEYS
┌─────────────────────────┐
│                         │
│      PLEASE WAIT        │
│  SECURITY CODE 2 SENT   │
│                         │
└─────────────────────────┘
```

```
 PROGRAM KEYS
┌─────────────────────────┐
│                         │
│      PLEASE WAIT        │
│      ERASING KEYS       │
│                         │
└─────────────────────────┘
```

```
 PROGRAM KEYS
┌─────────────────────────┐
│                         │
│      PLEASE WAIT        │
│     STORING KEY 1       │
│                         │
└─────────────────────────┘
```

Note: If no more keys are required to be programmed press **BACK**. If more keys are to be programmed press **ENTER** and follow the on screen instructions.

A Maximum of 4 keys can be programmed

```
 PROGRAM KEYS
┌─────────────────────────┐
│                         │
│   WOULD YOU LIKE TO     │
│   PROGRAM KEY NO 2      │
│                         │
│ OK=ENTER    CLEAR=BACK  │
└─────────────────────────┘
```

```
 PROGRAM KEYS
┌─────────────────────────┐
│                         │
│    REGISTERING KEY/S    │
│                         │
│                         │
└─────────────────────────┘
```

```
 PROGRAM KEYS
┌─────────────────────────┐
│                         │
│   KEY REGISTRATION      │
│      COMPLETE           │
│                         │
│   PRESS ENTER KEY       │
└─────────────────────────┘
```

Procedure complete

21

ADVANCED DIAGNOSTICS

22

SUZUKI

SUZUKI MANUAL

ADVANCED DIAGNOSTICS

CONTENTS

PAGE

22

APM115

ADVANCED DIAGNOSTICS

APPLICATIONS

VEHICLE	AIMODEL YEAR	CABLE
WAGON-R	ALL MODELS	ADC110
VITARA	ALL MODELS	ADC128
GRAND VITARA	ALL MODELS	ADC128
ALTO	ALL MODELS	ADC128
SWIFT	ALL MODELS	ADC128 0r ADC131-B
BALENO	ALL MODELS	ADC128 0r ADC131-B
IGNIS	ALL MODELS	ADC128
LIANA	ALL MODELS	ADC128
CARRY 1.3	ALL MODELS	ADC128
X-90	ALL MODELS	ADC128
SAMURAI	ALL MODELS	ADC128
JIMNY	ALL MODELS	ADC128
GRAND VITARA(SQ)	ALL MODELS	ADC128
GRAND VITARA(XL-7)	ALL MODELS	ADC128

22

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

KEY PROGRAMMING—ALL SYSTEMS

```
DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY
```

Select **SPECIAL FUNCTIONS** from menu.

Select **PROGRAM KEYS**

```
DIAGNOSTIC MENU

> PROGRAM KEYS

PRESS ENTER KEY
```

The AD100 will automatically enter the security pin code and program the key in the ignition.

NOTE : If CODE   ERROR is displayed then the access code is incorrect.

```
SWITCH IGNITION OFF
SWITCH IGNITION ON
```

NOTE : Further keys can be added by repeating the above procedure by selecting PROGRAM KEYS.

KEY PROGRAMMING—WAGON-R ONLY

```
DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY
```

Select **SPECIAL FUNCTIONS** from menu.

```
DIAGNOSTIC MENU

> PROGRAM KEYS

PRESS ENTER KEY
```

Select **PROGRAM KEYS**

22

ADVANCED DIAGNOSTICS

B

```
┌─────────────────────────────┐
│                             │
│   SWITCH IGNITION OFF       │
│                             │
│   PRESS ENTER               │
│                             │
└─────────────────────────────┘
```

The AD100 will automatically enter the security pin code.

NOTE : If CODE ERROR is displayed then the access code is incorrect.

```
┌─────────────────────────────┐
│                             │
│                             │
│     · · · · · · · ·         │
│                             │
│                             │
│                             │
└─────────────────────────────┘
```

A series of dots will be displayed while the AD100 programs the key.

After the key is programmed the complete screen will be displayed.

```
┌─────────────────────────────┐
│                             │
│   PROCEDURE COMPLETE        │
│                             │
│                             │
└─────────────────────────────┘
```

NOTE : Further keys can be added by repeating the above procedure by selecting PROGRAM KEYS.

22

23

TOYOTA

LEXUS

TOYOTA & LEXUS MANUAL

ADVANCED
DIAGNOSTICS

CONTENTS

APPLICATIONS

MODEL	YEAR	SYST TYPE	Reset Imm System	Add or Rewrite Keys	Add or Rewrite Wireless	Live Data Feed	Fault Codes
4Runner	2001	1	Y	On Board	On Board	n/a	Y
	2002	1	Y	On Board	On Board	n/a	Y
	2003	2	Y	Y	On Board	Yes	Y
	2004	2	Y	Y	On Board	Yes	Y
Camry	2002	1	Y	On Board	On Board	n/a	Y
	2003	1 or 2	Y	On Board	On Board	n/a	Y
	2004	2	Y	Y	On Board	Yes	Y
Higlander	2001	1	V6	On Board	On Board	n/a	Y
	2002	1	V6	On Board	On Board	n/a	Y
	2003	1	V6	On Board	On Board	n/a	Y
	2004	1	Y	On Board	On Board	n/a	Y
Land-Cruiser	2001	1	Y	On Board	On Board	n/a	Y
	2002	1	Y	On Board	On Board	n/a	Y
	2003	2	Y	Y	Y	Yes	Y
	2004	2	Y	Y	Y	Yes	Y
MR2	2002	1	Y	On Board	On Board	n/a	Y
	2003	1	Y	On Board	On Board	n/a	Y
	2004	1	Y	On Board	On Board	n/a	Y
Prius	2004	2	Y	On Board	On Board	Yes	Y
RAV4	2002	1	Y	On Board	On Board	n/a	Y
	2003	1	Y	On Board	On Board	n/a	Y
	2004	1	Y	On Board	On Board	n/a	Y
Sequoia	2001	1	Y	On Board	On Board	n/a	Y
	2002	1	Y	On Board	On Board	n/a	Y
Sienna	2004	2	Y	Y	On Board	Yes	Y
Solara	2002	1	V6	On Board	On Board	n/a	Y
	2003	1	V6	On Board	On Board	n/a	Y
	2004	2	Y	On Board	On Board	n/a	Y

ADVANCED DIAGNOSTICS

APPLICATIONS

MODEL	YEAR	SYS-TEM TYPE	Reset Imm System	Add or Rewrite Keys	Add or Rewrite Wireless	Live Data Feed	Read & Clear Faults
ES300	2002	1	Y	On Board	On Board	n/a	Y
ES300	2003	1	Y	On Board	On Board	n/a	Y
GS300 IS300	2002	1	Y	On Board	On Board	n/a	Y
GS300 IS300	2003	1	Y	On Board	On Board	n/a	Y
GS300 IS300	2004	1	Y	On Board	On Board	n/a	Y
GS430	2001	1	Y	On Board	On Board	n/a	Y
GS430	2002	1	Y	On Board	On Board	n/a	Y
GS430	2003	1	Y	On Board	On Board	n/a	Y
GS430	2004	1	Y	On Board	On Board	n/a	Y
LX470	2001	1	Y	On Board	On Board	n/a	Y
LX470	2002	1	Y	On Board	On Board	n/a	Y
LX470	2003	2	Y	Y	Y	Yes	Y
LX470	2004	2	Y	Y	Y	Yes	Y

23

GENERAL OPERATION

TOYOTA & LEXUS IMMOBILISER

MANUAL KEY REGISTRATION

The following list provides information about which models have the manual key registration, which is used when the Master key is available. These vehicles CANNOT be used with the AD100 or TCODE software to RESET the ECU.

The following European <u>models codes</u> have immobilisers that are capable of <u>manual</u> key registration:

Avensis   AT220 AT221 AZT220 ST220 CT220 CDT220
ZZT220   ZZT221

Camry   SXV20 MCV20

Celica   ZZT230 ZZT231

Corolla   CDE110 ZZE111 ZZE112 AE111 AE112 AE115
WZE110   EE111 AE111 AE115 CE110

Land Cruiser   KDJ90 KDJ95 UZJ100 FZJ105 HDJ100 HZJ105 VZJ90
VZJ95 KZJ90 KZJ95

MR2   ZZW30

Picnic   SXM10 CXM10

Previa   ACR30

Prius   NHW11

RAV4   ACA20 ACA21 ZCA25 ZCA26

Yaris   SCP10 NCP10 NCP11 NCP12 NCP20 NCP21 NCP22

Lexus IS200   GXE10

TOYOTA IMMOBILISER

RESET IMMOBILISER : (TYPE 1 & 2 IMMOBILISER)

This function allows you to erase all keys and to Auto Learn the new key in the ignition lock at the time. This function is used when the customer has lost all their keys.

PROGRAM KEYS : (TYPE 2 IMMOBILISER)

This function allows you to add a Master or Valet key to the cars immobiliser system as long as you have an existing pre– programmed Master Key to start with. The vehicles immobiliser system can tell the difference between the transponder chip in the key for Master or Valet.

ADD MASTER KEY : (TYPE 1 IMMOBILISER)

This function allows you to add a Master Key to the cars immobiliser system as long as you have an existing pre–programmed Master key to start with. The vehicles immobiliser system cannot tell the difference between the transponder chip in the key. So it is possible to program a Valet as a master into the immobiliser system.

ADD VALET KEY : (TYPE 1 IMMOBILISER)

This function allows you to add a Valet key to the cars immobiliser system as long as you have an existing pre-programmed Master key to start with. The vehicles immobiliser system cannot tell the difference between the transponder chip in the key. So it is possible to program a Master as a Valet into the immobiliser system.

ERASE KEYS : (TYPE 1 & 2 IMMOBILISER)

This function allows you to erase all keys except the key in the ignition lock at the time.

23

LEXUS IMMOBILISER

RESET IMMOBILISER : (TYPE 1 & 2 IMMOBILISER)

This function allows you to erase all keys and to Auto Learn the new key in the ignition lock at the time. This function is used when the customer has lost all their keys.

PROGRAM KEYS : (TYPE 2 IMMOBILISER)

This function allows you to add a Master or Valet key to the cars immobiliser system as long as you have an existing pre– programmed Master Key to start with. The vehicles immobiliser system can tell the difference between the transponder chip in the key for Master or Valet.

ADD MASTER KEY : (TYPE 1 IMMOBILISER)

This function allows you to add a Master Key to the cars immobiliser system as long as you have an existing pre–programmed Master key to start with. The vehicles immobiliser system cannot tell the difference between the transponder chip in the key. So it is possible to program a Valet as a master into the immobiliser system.

ADD VALET KEY : (TYPE 1 IMMOBILISER)

This function allows you to add a Valet key to the cars immobiliser system as long as you have an existing pre-programmed Master key to start with. The vehicles immobiliser system cannot tell the difference between the transponder chip in the key. So it is possible to program a Master as a Valet into the immobiliser system.

ERASE KEYS : (TYPE 1 & 2 IMMOBILISER)

This function allows you to erase all keys except the key in the ignition lock at the time.

ADD REMOTE : This function allows you to add the wireless remote key functions from the head of the Lexus Key.
ERASE REMOTE : This function allows you to erase all other wireless remote keys and keep the remote in the ignition lock at the time.

23

TOYOTA IMMOBILISER—TYPE 1

COMPATIBLE TRANSPONDER KEYS FOR THESE MODEL'S

TOYOTA MASTER KEYS			
MODEL	YEARS	FACTORY PART	NOTES
4 Runner	01-02		
Camry	2002		
Highlander	01-03		
Land Cruiser	01-02		No Remote
Land Cruiser	01-02		Remote
Sequoia	01-02		
Solara	02-03		

TOYOTA IMMOBILISER—TYPE 2

COMPATIBLE TRANSPONDER KEYS FOR THESE MODEL'S

Type 2 factory keys have a small dot stamped on the blade.

Type 2 factory keys have a small dot stamped on the blade

TOYOTA FACTORY MASTER KEYS			
MODEL	YEARS	FACTORY PART	NOTES
4 Runner	2004		
Highlander	2004		
Land Cruiser	03-04		REMOTE
Sequoia	2004		
Solara	2004		

NOTE : IF YOU ARE USING THE WRONG TYPE OF KEY, THE PROCEDURES WILL NOT WORK.

NO AFTERMARKET KEYS WILL WORK FOR THESE MODEL TYPES.
<u>PLEASE USE ORIGINAL KEYS ONLY</u>

23

ADVANCED DIAGNOSTICS

GENERAL OPERATION

TOYOTA IMMOBILISER—REMOTES—TYPE 2

COMPATIBLE TRANSPONDER KEYS FOR THESE MODEL'S

TOYOTA FACTORY REMOTE MASTER KEYS			
MODEL	YEARS	FACTORY PART	NOTES
Prius	2004		Smart Access System

Procedure
1. Open the driver's door.
2. Within 5 seconds, put the remote into the remote opening and remove 2 times
3. Close the drivers door and open again 2 times
4. Put the remote in the remote opening and remove
5. Close the drivers door and open again 2 times
6. Out the remote in the remote opening and close ALL doors.
7. Turn the Power switch on for 1 second and then off.
8. Remove remote from remote opening.
9. The power door locks should now cycle 1 time.
10. Press the unlock and lock buttons at the same time for 1 second and then quickly press the unlock button for 1 second.
11. If the remote has been accepted the door locks should cycle once. If failed the door locks will cycle 2 times.
12. Open drivers door to end procedure.

NOTE : IF YOU ARE USING THE WRONG TYPE OF KEY, THE PROCEDURES WILL NOT WORK.
NO AFTERMARKET KEYS WILL WORK FOR THESE MODEL TYPES.

PLEASE USE ORIGINAL KEYS ONLY

GENERAL OPERATION

TOYOTA IMMOBILISER— REMOTES—TYPE 2				
MODEL	**YEARS**	**ADD REMOTE**	**ERASE REMOTE**	**SYSTEM**
Land Cruiser	2001-2002	On Board Programming	On Board Programming	Not Applicable
Land Cruiser	2003-2004	AD100	AD100	2

ADD REMOTE
Procedure
1. Make sure no keys are in the ignition lock and the drivers door is open and unlocked.
2. Put the key in the ignition and remove it.
3. Press the lock button for 1 second, press the unlock button for 1 second and repeat 5 times.
4. Close the drivers door and open it.
5. Press the lock button for 1 second, press the unlock button for 1 second and repeat 5 times.
6. Put the key in the ignition.
7. Turn ignition ON for 1 second and then off and remove key.
8. The power door locks should cycle once.
9. Press the unlock button for 2 seconds.
10. If the remote is programmed the doors will cycle once. If failed the doors will cycle 2 times.
11. Open drivers door to end procedure.

ERASE REMOTE
Procedure
1. Make sure no keys are in the ignition lock and the drivers door is open and unlocked.
2. Put the key in the ignition and remove it.
3. Press the lock button for 1 second, press the unlock button for 1 second and repeat 5 times.
4. Close the drivers door and open it.
5. Press the lock button for 1 second, press the unlock button for 1 second and repeat 5 times.
6. Put the key in the ignition.
7. Turn ignition ON for 1 second and then off for 1 second then on for 1 second and remove key.
8. The power door locks should cycle 2 times.
9. Press the lock and unlock button for 2 seconds, then press the unlock for 1 second.
10. If the remote is programmed the doors will cycle once. If failed the doors will cycle 2 times.
11. Open drivers door to end procedure.

GENERAL OPERATION

LEXUS IMMOBILISER—TYPE 1

COMPATIBLE TRANSPONDER KEYS FOR THESE MODEL'S

Master

REMOTE MASTER KEYS			
MODEL	**YEARS**	**PART No**	**NOTES**
ES300	02-03		
GS300	02-04		
GS430	01-04		
LX470	01-02		
IS300	02-04		
IS300	02-04		SEDAN
IS300	02-04		Sort Cross

Master

FACTORY PART :

Valet

FACTORY PART :

FACTORY PART :

ADVANCED DIAGNOSTICS

LEXUS IMMOBILISER—TYPE 2

COMPATIBLE TRANSPONDER KEYS FOR THESE MODELS

REMOTE MASTER KEYS			
MODEL	YEARS	PART No	NOTES
ES330	2004		
GX470	03-04		
LS430	01-04		No Smart Access
LX470	03-04		
RX330	2004		W.pwr Hatch
RX330	2004		No pwr Hatch
SC430	02-04		

VALET KEYS		
MODEL	YEARS	PART No
ES330	2004	
GX470	03-04	
LS430	01-04	
LX470	03-04	
RX330	2004	
SC430	02-04	

Valet

FACTORY PART :

NOTE : IF YOU ARE USING THE WRONG TYPE OF KEY, THE PROCEDURES WILL NOT WORK.

NO AFTERMARKET KEYS WILL WORK FOR THESE MODEL TYPES.

<u>PLEASE USE ORIGINAL KEYS ONLY</u>

23

ADVANCED DIAGNOSTICS

LEXUS IMMOBILISER—TYPE 2

COMPATIBLE TRANSPONDER KEYS FOR THESE MODELS

NOTE PROGRAMMING THIS TYPE OF KEY HEAD WILL ONLY START THE VEHICLE.

YOU WILL **NOT** BE ABLE TO PROGRAM THE REMOTE BUT-TONS.

REMOTE KEYS				
MODEL	YEARS	TYPE	PART No	NOTES
LS430	2004	MASTER		With opt smart access
LS430	2004	VALET		With opt smart access

NOTE : IF YOU ARE USING THE WRONG TYPE OF KEY, THE PROCEDURES WILL NOT WORK.

NO AFTERMARKET KEYS WILL WORK FOR THESE MODEL TYPES.

PLEASE USE ORIGINAL KEYS ONLY

23

LEXUS IMMOBILISER—REMOTE CONTROLS

MODELS	YEAR	ADD REMOTE	ERASE REMOTE	SYSTEM TYPE
ES300	2002-2004	On Board	On Board	N/A
ES330	2004	On Board	On Board	N/A
GS300	2002-2004	AD100	AD100	3
GS430	2001-2004	AD100	AD100	3
GX470	2003-2004	AD100	AD100	2
IS300	2002-2004	AD100	AD100	3
LS430	2001-2003	AD100	AD100	1
LS430	2004(a)	AD100	AD100	1
LS430	2004(b)	Not supported on smart access at this time		
LX470	2001-2002	On Board	On Board	N/A
LX470	2003-2004	AD100	AD100	2
RX330	2004	AD100	AD100	2
SC430	2002-2004	AD100	AD100	1
(a) For LS430 models WITHOUT the Smart Access System				
(b) For LS430 models WITH the Smart Access System				

ADVANCED DIAGNOSTICS

GENERAL OPERATION

LEXUS IMMOBILISER—REMOTE CONTROL(On board)

ADD REMOTE

Procedure
1. Make sure no keys are in the ignition lock and the drivers door is open and unlocked.
2. Within 4-5 seconds put the key in the ignition and remove 2 times.
3. Close the drivers door and open 2 times.
4. Put the key in the ignition and remove.
5. Close the drivers door and open 2 times.
6. Put the key in the ignition and close all doors.
7. Turn the ignition ON for 1 second then OFF.
8. Remove the key from the ignition.
9. The power locks should now cycle once.
10. Press the unlock and lock buttons at the same time for 1 second and then quickly press the unlock and lock buttons for 1 second again.
11. If the remote is programmed the doors will cycle once. If failed the doors will cycle 2 times.
12. Open drivers door to end procedure.

ERASE REMOTE

Procedure
1. Make sure no keys are in the ignition lock and the drivers door is open and unlocked.
2. Within 4-5 seconds put the key in the ignition and remove 2 times.
3. Close the drivers door and open 2 times.
4. Put the key in the ignition and remove.
5. Close the drivers door and open 2 times.
6. Put the key in the ignition and close all doors.
7. Turn the ignition ON for 1 second then OFF, then back onto ON for 1 second and then OFF.
8. Remove the key from the ignition.
9. The power locks should now cycle 2 times
10. Press the unlock and lock buttons at the same time for 1 second and then quickly press the unlock and lock buttons for 1 second.
11. If the remote is programmed the doors will cycle once. If failed the doors will cycle 2 times.
12. Open drivers door to end procedure.

SECURITY LIGHTS

LX470

LX470 &
LAND CRUISER

ES330

GS430

GX470

SC430

LS430

MR2

23

ADVANCED
DIAGNOSTICS
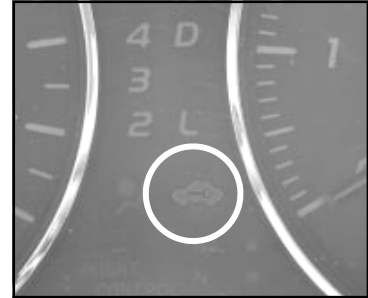
RESET IMMOBILISER

```
        DIAGNOSTIC MENU

     RESET IMMOBILISER
     ADD MASTER KEY
     ADD VALET KEY
     ERASE KEYS
```

```
     RESET IMMOBILISER

        GAINING ACCESS

   TIME REQUIRED    16:00
   TIME ELAPSED     0:28
```

```
     RESET IMMOBILISER

     PROCEDURE COMPLETE


        PRESS ENTER KEY
```

ADD MASTER KEY

```
        DIAGNOSTIC MENU

     RESET IMMOBILISER
     ADD MASTER KEY
     ADD VALET KEY
     ERASE KEYS
```

```
        ADD MASTER KEY

          WARNING
   FOLLOW NEXT SCREENS
   QUICKLY & CAREFULLY

        PRESS ENTER KEY
```

NOTE : This will cause ALL keys to be erased and the immobiliser to RESET itself.

Do NOT be impatient. Some vehicles go past 16 minutes.

If the timer goes past 35 Minutes, stop disconnect the AD100 and wait 20 seconds and try again.

NOTE 1 : Remove the master key and disconnect the AD100.

Depending on the system fitted it will now be in 2 possible modes ..
1. The vehicle has learned the key that was in the ignition and has closed the learning cycle automatically. This happens on some Camry and Land Cruiser models.
2. The vehicle is now in Auto Learn Mode. Auto Learn mode is indicated by the steady illumination of security Light.

NOTE 2 : If the security light is out, the Auto learn mode is closed and additional keys can be programmed with AD100.
If the security light is ON steady then Auto learn is enabled and keys can now be programmed.

Insert key (DO NOT TURN ON), wait for 4 seconds and remove key. Repeat for all keys to be programmed. The last key programmed will automatically be set as the VALET key.

To exit programming press the BRAKE pedal fast 6 times, with the Master key inserted.

23

```
        ADD MASTER KEY


     SWITCH IGNITION OFF
    REMOVE MASTER KEY-
         WITHIN 20 sec
   AND THEN PRESS ENTER
     TIME ELAPSED : 1 S
```

Read carefully and follow the screen prompts.

```
        ADD MASTER KEY


   INSERT NEW MASTER KEY
        WITHIN 10 Sec
     LEAVE IGNITION OFF
   AND THEN PRESS ENTER
     TIME ELAPSED : 0S
```

Read carefully and follow the screen prompts.

```
        ADD MASTER KEY



     TIME ELAPSED : 2 S
```

This usually takes about 60 seconds. If the timer goes past 120 seconds, stop. The key is now likely programmed. Disconnect AD100 and test key.

ADD MASTER KEY

```
        ADD MASTER KEY

    PROCEDURE COMPLETE

    TIME ELAPSED : 59 S

     PRESS ENTER KEY
```

NOTE : If you get an error message screen, disconnect the AD100 and remove the key. Wait 20 seconds and start again. On this type, each key must be added separately. Disconnect the AD100 from the vehicle and remove the key. Wait 20 seconds., and then ADD the next key.

ADD VALET KEY

```
      DIAGNOSTIC MENU

    RESET IMMOBILISER
    ADD MASTER KEY
    ADD VALET KEY
    ERASE KEYS
```

23

```
ADD VALET KEY

WARNING
FOLLOW NEXT SCREENS
QUICKLY & CAREFULLY

PRESS ENTER KEY
```

Read carefully and follow the screen prompts.

```
ADD VALET KEY

SWITCH IGNITION OFF
REMOVE MASTER KEY-
WITHIN 20 sec
AND THEN PRESS ENTER
TIME ELAPSED : 1 S
```

Read carefully and follow the screen prompts.

```
ADD MASTER KEY

INSERT NEW VALET KEY
WITHIN 10 Sec
LEAVE IGNITION OFF
AND THEN PRESS ENTER
TIME ELAPSED : 0S
```

```
ADD VALET KEY

TIME ELAPSED : 2 S
```

This usually takes about 60 seconds. If the timer goes past 120 seconds, stop. The key is now likely programmed. Disconnect AD100 and test key.

```
ADD VALET KEY

PROCEDURE COMPLETE

TIME ELAPSED : 59 S

PRESS ENTER KEY
```

NOTE : If you get an error message screen, disconnect the AD100 and remove the key. Wait 20 seconds and start again. On this type, each key must be added separately. Disconnect the AD100 from the vehicle and remove the key. Wait 20 seconds and then ADD the next key.

23

SPECIAL FUNCTIONS

ERASE KEYS

DIAGNOSTIC MENU

RESET IMMOBILISER
ADD MASTER KEY
ADD VALET KEY
ERASE KEYS

ERASE KEYS

WARNING
FOLLOW NEXT SCREENS
QUICKLY & CAREFULLY

PRESS ENTER KEY

ERASE KEYS

SWITCH IGNITION OFF
REMOVE MASTER KEY-
WITHIN 20 sec

TIME ELAPSED : 1 S

ERASE KEYS

INSERT MASTER KEY
SWITCH IGNITION ON

PRESS ENTER KEY

PLEASE WAIT
TRYING TO COMMUNICATE

23

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

ADD REMOTE CONTROL

DIAGNOSTIC MENU

PROGRAM REMOTE
ERASE REMOTES

PROGRAM REMOTE

SWITCH IGNITION ON
UNLOC.DRV.DOOR
OPEN DRIV.DOOR

PRESS ENTER KEY

PROGRAM REMOTE

FOLLOW NEXT SCREENS
QUICKLY & CAREFULLY
COMPLETE OPERATION
WITHIN 30 Sec
AFTER PRESSING ENTER

PROGRAM REMOTE

PRESS LOCK & UNLOCK
TOGETHER FOR 1 Sec
WITHIN 3 Sec PRESS
EITHER KEY FOR 1 Sec
TIME ELAPSED : 0 S

Press lock and unlock buttons together for 1 second and quickly press either lock or unlock button for 1 second. You must do this very fast.

PROGRAM REMOTE

PROCEDURE COMPLETE

PRESS ENTER KEY

23

ADVANCED DIAGNOSTICS

SPECIAL FUNCTIONS

ERASE REMOTE CONTROL

DIAGNOSTIC MENU

PROGRAM REMOTE
ERASE REMOTES

ERASE REMOTE

SWITCH IGNITION ON
UNLOC.DRV.DOOR
OPEN DRIV.DOOR

PRESS ENTER KEY

ERASE REMOTES

FOLLOW NEXT SCREENS
QUICKLY & CAREFULLY
COMPLETE OPERATION
WITHIN 30 Sec
AFTER PRESSING ENTER

Press lock and unlock buttons together for 1 second and quickly press either lock or unlock button for 1 second. You must do this very fast.

PROGRAM REMOTE

PRESS LOCK & UNLOCK
TOGETHER FOR 1 Sec
WITHIN 3 Sec PRESS
EITHER KEY FOR 1 Sec
TIME ELAPSED : 0 S

All remotes are now erased.

ERASE REMOTES

PROCEDURE COMPLETE

PRESS ENTER KEY

ADVANCED
DIAGNOSTICS

FAULT CODES

LIST OF KNOWN FAULT CODES

B1242—WIRELESS DOOR LOCK TUNER CIRCUIT MALFUNCTION
B2780—PUSH SWITCH/KEY UNLOCK WARNING SWITCH MALFUNCTION
B2784—ANTENNA COIL OPEN CIRCUIT
B2793—TRANSPONDER CHIP MALFUNCTION
B2794—UNMATCHED ENCRYPTION CODE
B2795—UNMATCHED KEY CODE
B2796—NO COMMUNICATION IN IMMOBILISER SYSTEM
B2797—COMMUNICATION MALFUNCTION NO 1
B2798—COMMUNICATION MALFUNCTION NO 2
B2799—ENGINE IMMOBILISER SYSTEM MALFUNCTION

TROUBLESHOOTING

TROUBLESHOOTING—TOYOTA & LEXUS

1) The Security light can be in 2 different shapes, small RED circle next to the word security, or a RED light in the shape of a car.
2) Make sure you are using the correct key.
3) Learned Immobiliser Keys :

Valet Key—when first inserted into the ignition lock the security light will stay on for 2 seconds and then stay off.

Master Key—when inserted into the ignition the security light will NOT light up.

4) Un-learned immobiliser Keys

The security light will continue to flash with the key inserted in the ignition.

5) Some Master Keys are seen as Valet Keys. It is not uncommon for a pre-existing Master Key to be seen by the vehicle immobiliser system as a Valet Key. This is a problem if you are trying to add more keys and do not have a key recognised as a Master Key. In this case an immobiliser reset will be required.

ADVANCED DIAGNOSTICS

23

24

VW
AUDI
SEAT
SKODA

VW-AUDI-SEAT-SKODA MANUAL ADVANCED DIAGNOSTICS

CONTENTS

A

VEHICLE	IMM	IMM + INSTR	YEAR	CABLE
AUDI				
A3/A4	Y	Y	ALL MODELS	ADC110
A6	Y		< 96	ADC112
A6		Y	> 96	ADC110
A8	Y		< 96	ADC112
A8		Y	> 96	ADC110
COUPE	Y		< 97	ADC112
80/90	Y		< 97	ADC112
TT		Y	ALL MODELS	ADC110
SEAT				
ALHAMBRA	Y		ALL MODELS	ADC110
AROSA		Y	ALL MODELS	ADC110
ALTEA	Y		ALL MODELS	ADC110
CORDOBA	Y		ALL MODELS	ADC110
IBIZA	Y	Y	ALL MODELS	ADC110
INCA	Y		ALL MODELS	ADC110
LEON	Y		ALL MODELS	ADC110
TOLEDO	Y	Y	< 97	ADC112
TOLEDO	Y	Y	> 98	ADC110
SKODA				
OCTAVIA		Y	ALL MODELS	ADC110
FABIA	Y		ALL MODELS	ADC110
FELICIA		Y	ALL MODELS	ADC110
SUPERB	Y		ALL MODELS	ADC110
VW				
BORA	Y		ALL MODELS	ADC110
LUPO	Y		ALL MODELS	ADC110
CADDY	Y		ALL MODELS	ADC110
GOLF	Y		< 95	ADC112
GOLF		Y	> 95	ADC110
PASSAT		Y	ALL MODELS	ADC110
NEW BEETLE		Y	ALL MODELS	ADC110
PHAETON		Y	ALL MODELS	ADC110
POLO	Y	Y	ALL MODELS	ADC110
SHARAN	Y		ALL MODELS	ADC110
TRANSPORTER	Y	Y	ALL MODELS	ADC110
TOURAN		Y	ALL MODELS	ADC110
VENTO	Y		ALL MODELS	ADC110

24

ADVANCED DIAGNOSTICS

GENERAL OPERATION

SYSTEM DESCRIPTION

The VAG group immobiliser system consists of an immobiliser ECU which controls the recognition of keys and the Engine Management ECU system.

The Immobiliser ECU enables up to 8 keys to be programmed and are recognised via the transponder aerial mounted around the Ignition lock.

If the keys are lost or a replacement Engine Management ECU is fitted then the transponder keys will need programming so that the ECU memories recognise the codes.

PASS CODE

The pass codes are now being refused by VW and AUDI dealers which is causing major issues for customers and other diagnostic users. If you do get a 7 digit code, this can be converted using the FREE 7 to 4 digit converter on our web site.

If you have Pin code extraction software, you may also be able to read the 4 digit code from the ECU memory, and further work and development on this is on an ongoing basis.

SYSTEM IDENTIFICATION

To identify the correct system, check to see whether the Dashboard has the following symbol when the ignition is on :

 SYSTEM 1 : DOES NOT HAVE THE SYMBOL

 SYSTEM 2 : DOES HAVE THIS SYMBOL

FAULT CODE OPERATION

READING FAULT CODES

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **FAULT CODES** selection. Then press the **ENTER** key.

DIAGNOSTIC MENU

READ FAULT CODES
CLEAR FAULT CODES

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **READ FAULT CODES** selection. Then press the **ENTER** key.

Depending on how many fault codes are set, will depend on how many screens are displayed, however two examples are shown below.

DISPLAY FAULT CODES

FAULT CODE :1176
KEY
SIGNAL TOO LOW
CURRENT FAULT

PRESS ENTER KEY

DISPLAY FAULT CODES

FAULT CODE :1176
KEY
SIGNAL TOO LOW
HISTORIC FAULT

PRESS ENTER KEY

CLEARING FAULT CODES

DISPLAY FAULT CODES

NO FAULTS FOUND

PRESS ENTER KEY

24

ADVANCED DIAGNOSTICS

FAULT CODE OPERATION

DIAGNOSTIC MENU

READ FAULT CODES
CLEAR FAULT CODES

PRESS ENTER KEY

Using the **UP** and **DOWN** keys select the **CLEAR FAULT CODES** selection.

Then press the **ENTER** key.

CLEAR FAULT CODES

PROCEDURE COMPLETE

PRESS ENTER KEY

If all the fault codes have been cleared the screen will display **PROCEDURE COMPLETE.**

24

ADVANCED
DIAGNOSTICS

PROGRAMMING KEYS

```
ECU IDENTIFICATION


  SYSTEM 1
> SYSTEM 2



PRESS ENTER KEY
```

Using the **UP** and **DOWN** arrows select the correct vehicle system as outlined in the previous section.

Then press the **ENTER** key.

```


PLEASE WAIT
TRYING TO COMMUNICATE



```

The AD100 will try to establish communications with the Immobiliser ECU.

If it is unsuccessful try the other system as outlined in the previous section.

```
ECU IDENTIFICATION


IMMO-IDENTNR
: VWZ720W049
5589


PRESS ENTER KEY
```

If successful the ECU identification will be displayed. An example is shown.

NOTE : This is the 14 digit code required by VAG to obtain the 4 digit security access code if not available.

```
DIAGNOSTIC MENU


ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS


PRESS ENTER KEY
```

Select **SPECIAL FUNCTIONS** from the Diagnostic Menu using the **UP** and **DOWN** arrows.

Then press the **ENTER** key.

```
DIAGNOSTIC MENU



PROGRAM KEYS



```

Press the **ENTER** key

24

ADVANCED DIAGNOSTICS

```
┌─────────────────────────────┐
│                             │
│       SECURITY CODE         │
│                             │
│          _ _ _ _            │
│                             │
└─────────────────────────────┘
```

Enter the 4 digit security code.

NOTE : You are allowed 3 attempts to enter the correct code. If the code is entered incorrectly 3 times the ECU will lock out communication for 35 minutes. To reset the ECU the ignition must be left on for 35 minutes without any interruptions.

```
┌─────────────────────────────┐
│                             │
│       SECURITY CODE         │
│                             │
│          1 2 3 4            │
│                             │
│       IS THIS CORRECT       │
└─────────────────────────────┘
```

If code is correct press the **ENTER** key. If code is entered incorrectly then press the **BACK** key to reset the code.

```
┌─────────────────────────────┐
│                             │
│                             │
│       PLEASE WAIT           │
│   TRYING TO COMMUNICATE     │
│                             │
│                             │
└─────────────────────────────┘
```

The AD100 will now establish communication again to check whether the code is correct.

```
┌─────────────────────────────┐
│                             │
│  KEYS PROGRAMMED : 3        │
│                             │
│  TOTAL KEYS REQUIRED :      │
│                             │
│                             │
└─────────────────────────────┘
```

If the code is correct the AD100 will display how many keys are programmed into the system.

```
┌─────────────────────────────┐
│                             │
│  PROGRAMMING KEYS           │
│                             │
│  TOTAL KEYS REQUIRED : 3    │
│                             │
│                             │
│█████ PRESS ENTER KEY ███████│
└─────────────────────────────┘
```

Enter the required number of keys to be programmed.

NOTE : All programmed keys will be erased, so any existing keys available will need to be re-programmed.

```
┌─────────────────────────────┐
│                             │
│  PLEASE PROGRAM ADDI-       │
│       TIONAL KEYS           │
│                             │
│█████ PRESS ENTER KEY ███████│
└─────────────────────────────┘
```

Press the **ENTER** key.

The AD100 will now enable programming of existing and new keys.

PROGRAMMING ADDITIONAL KEYS (Contd)

Procedure
1. The Key already in the ignition will now be programmed, ie. Key 1
2. Remove Key 1.
3. Insert Key 2 and turn ignition on. for 2 seconds. Then remove key
4. Insert Key 3 and turn ignition on. for 2 seconds. Then remove key
5. Repeat for all keys.
6. Try all the keys to ensure they work.
7. Check for any fault codes that may have been set, and clear the memory.

    NOTE : The maximum number of keys that can be programmed is 8.

PIN CODE READING

Pin code reading is possible only on certain vehicles, and will depend on what dashboard components are fitted.

NOTE : The Pin code reading will not work on any System 1 vehicles.

A guide to the vehicle list that we have had success on is shown below, but we cannot guarantee success on all vehicles as many vehicle vary depending on country of manufacture and specification.

VW	MODELYEAR
Passat	97-01
Golf	97-01
Beetle	99
Bora	97-01
SEAT	
Cordoba	97-01
SKODA	
Octavia	97-01
AUDI	
A3	97-01
A4	97-01
A6	97-01
A8	97-01

Any Audi dash panel with a 14 digit immobiliser number that starts "AUZ7Z" reads the PIN code with AD100 no problem

SPECIAL FUNCTIONS

ECU CODING

VEHICLE SELECTION

> PROGRAM ECU

PRESS ENTER KEY

Select PROGRAM ECU from the vehicle selection menu.

VEHICLE SELECTION

> SYSTEM 1
> SYSTEM 2

PRESS ENTER KEY

Select the required system.

**PLEASE WAIT
TRYING TO COMMUNICATE**

DIAGNOSTIC MENU

ECU IDENTIFICATION
FAULT CODES
SPECIAL FUNCTIONS

PRESS ENTER KEY

ECU IDENTIFICATION

> PROGRAM ECU

PRESS ENTER KEY

SECURITY CODE

1 2 3 4

IS THIS CORRECT
OK=ENTER CLEAR=BACK

You will be asked to enter the 4 digit security code to enable Program ECU.

SYSTEM 1

Goes straight into learning process as no vehicle selection needed. User will see text "READING ECU DATA" and "SAVING ECU DATA" FLASH on screen as process is carried out. If successful this screen is displayed.

RECODE ECU/IMMO
SUCCESSFUL

PLEASE TURN OFF
IGNITION FOR 15 SECS

PRESS ENTER KEY

RECODE ECU/IMMO
FAILED

PRESS ENTER KEY

If not successful screen displayed is shown.

RECODE ECU/IMMO
VEHICLE SELECTION
1:AUDI
2: VW
3: SEAT
4: SKODA
PRESS BACK TO EXIT

PRESS ENTER KEY

If selection is not equal to AUDI then coding routine is executed as with System 1.

RECODE ECU/IMMO
SUCCESSFUL

PLEASE TURN OFF
IGNITION FOR 15 SECS

PRESS ENTER KEY

RECODE ECU/IMMO
FAILED

PRESS ENTER KEY

If not successful screen displayed is shown.

24

ADVANCED DIAGNOSTICS

TIPS & HINTS

VW-AUDI-SEAT-SKODA

1. When reading Pin codes from vehicle memory, if loss of communications is experienced, try reading fault codes, then clearing fault codes then read the pin code.
2. If when programming keys, the AD100 displays the following :—

KEYS PROGRAMMED : 136

This means the incorrect PIN CODE has been entered.

KEYS PROGRAMMED : 0

This means that the PIN CODE has been entered incorrectly more than three times, and the system will need resetting by leaving the ignition ON for 35 minutes.

EMERGENCY START

1. Switch IGNITION ON and turn the clock set button to the right and at the same time press and hold the trip reset button for 1 second.
2. "0000" appears on the display, press the trip button to input the first digit of the pin code. Turn the clock set button to the right to move to the next digit. Repeat for all 4 digits.
3. Then with the correct pin code entered turn the clock set button to the right and press the trip reset button for 1 second.
4. The Immobiliser light will stay on, and the car can run for 45 minutes.

VW-AUDI-SEAT-SKODA

Damage to AD100

Some cases of internal damage to the AD100 have been traced to a radio wiring fault on VAG vehicles.

VAG cars from 1997 onwards have the ability to code/fault code read the radio and therefore the diagnostic wire or K line that is used to connect all of the control units on the car (including the immobiliser) goes to the radio. If an aftermarket radio has been fitted, it is possible that this K line may have inadvertently been shorted to 12v by the after-market adapter harness. This will not cause any running faults etc with the vehicle, but when you come along and plug in your AD100 it will fail to communicate and can end up permanently damaged.

To test for this problem on vehicles later than 1996, either use a multimeter carry out the following:

Measure the voltage on pin 7 relative to earth with the ignition and radio on, if it's below 9 volts then you are OK to connect the AD100, if it is 12 volts you will need to wire a bulb up between earth and pin 7. If the bulb does not illuminate it is OK to proceed with the AD100, however if it illuminates then you have a wiring fault to the radio DO NOT CONNECT THE AD 100!!!!

4 - Ground / Masse
7 - K-Line
15 - L-Line
16 - +12 (Vbatt)
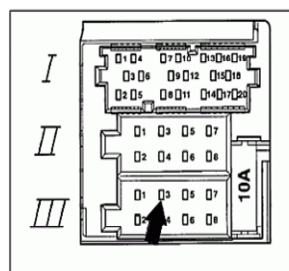
Service

- Prior to connecting a VAG 1551/1552 scan tool to a vehicle, check the vehicle radio.

If the radio is not the correct radio for the vehicle:

◄ - Remove the radio and make sure that the (DLC) K wire (location 3) -arrow- in the radio wiring harness Black 8 Pin multi-connector *III* -T8 has been removed from the connector and taped back to the harness.

24