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SAAB

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APPLICATIONS

A

MODEL	TYPE	MODEL YEAR	CABLE
SAAB 9-3	2.0 (B2041)	1998—2000	ADC110-B
SAAB 9-3	2.0T (B204E) 2.0T (B204L) 2.0T (B204R) 2.0T (B205E)	1998-2003	ADC110-B
SAAB 9-3	2.2 TiD (D223L)	1998-2002	ADC110-B
SAAB 9-3	2.3 (B2341) 2.3 (B235R)	1998-2001	ADC110-B
SAAB 9-3 SPORT	CHASSIS TYPE 9440 (Smart Key)	2003 >	ADC110B + ADC147
SAAB 9-5	2.0 Turbo (B205E) 2.0 Turbo (B205F)	1997-2004	ADC110-B
SAAB 9-5	2.3 AERO (B255R)	1999-2003	ADC110-B
SAAB 9-5	2.3 Turbo (B308E)	1997-2004	ADC110-B
SAAB 9-5	3.0 (B308E)	1998-2003	ADC110-B
SAAB 9-5 SPORT	CHASSIS TYPE 9600 (Smart Key)	2003 >	ADC110-B + ADC147

SYSTEM INFORMATION

Saab has two types of immobiliser systems fitted, which can be differentiated by the type of ignition key used. One type uses a key with a blade and the other uses a smart key without a blade.

TWICE unit control of immobiliser (Blade Type Ignition Key):

The car is fitted as standard with a system which prevents the car being started without the correct key. For this, a transponder is incorporated in the key with a unique code for that transponder. On the ignition switch is a receiver that receives the identification code from the transponder and passes this to TWICE. TWICE has been programmed to recognize the car's transponders and if the key in the ignition switch is correct, the car can be started. The TWICE, MIU and engine control modules should be programmed to recognize each other. When changing one component in the immobilizer chain, the control modules must be co programmed.

TWICE stands for Theft Warning Integrated Central Electronics. The TWICE control module is located under the left-hand front seat, screwed to the floor and connected to the wiring harness with a 70-pin connector.

TWICE controls the following functions, and TWICE checks the circuits for the rear lights and brake lights.

- Lamp check
- Seat belt warning
- Heated rear seat
- Electrically adjustable passenger seat
- Central locking system
- Immobilizer
- Anti-theft alarm

Rear lights TWICE acts as a filament monitor for the rear lights. On a break in a circuit, SID can read an error message on the bus sent out by the TWICE. The message activates an information text on the display or an audible warning. TWICE checks whether voltage is present at the rear light inputs; this information is available on the bus. The information is used by DICE.

Brake lights TWICE acts as a filament monitor for the brake lights. On a break in a circuit, SID can read an error message on the bus sent out by TWICE. The message activates an information text on the display or an audible warning. TWICE checks whether voltage is present at the brake light inputs; this information is available on the bus. The information is used by SID.

Seat belt warning The seat-belt warning lamp lights up when the ignition is turned ON unless the belt tongue is in the seat-belt buckle. The lamp goes out when the belt is buckled. On certain markets there is also an audible warning which is activated if any passenger has not fastened their seat belt when the ignition is ON. The audible warning is active for 6 seconds when the ignition is turned ON or until all seat belts are fastened. The passenger seat is fitted with a sensor which detects when the seat is occupied. The resistance of the sensor varies according to the load on the seat.

Heated rear seat The car can be factory-fitted with heated rear seats, two heating pads are then mounted in the outer two seats. TWICE controls the connection time for the heating as a function of the outdoor temperature.

System Information (Cont'd)

Electrically adjustable passenger seat TWICE controls a relay which is connected in series to the electrically adjustable passenger seat. When the relay is activated, the seat can be operated.

Operation is possible with the ignition ON or OFF with any of the front doors open. With the door open and the ignition OFF, the function is turned off after 20 minutes. Operation is possible for up to 30 seconds after the driver or passenger door has been closed and also after turning off the ignition. Operation is not possible with the ignition in the ST position.

Central locking system

The car is fitted with a central locking system as standard, in which TWICE controls the central locking system motors. The central locking system can be operated with a remote control unit, a key in the driver or passenger door or with a switch in the centre console.

There are three buttons on the car key: lock, unlock and unlock boot lid/tailgate. The central locking system has three positions: UNLOCKED, LOCKED and THEFT PREVENTION LOCKED. The latter means that the car CANNOT be unlocked from inside the passenger compartment. The theft security locking function is market-dependent.



SAAB TWICE MODULE AND KEY



TWICE MODULE LOCATION

GENERAL OPERATION

B

Column Integration Module (CIM) (Smart Type Ignition Key)

For this, a transponder is incorporated in the key with a unique code for that transponder. Inserting the key closes a contact which in turn sends a signal (via a cable) to wake up the CIM. On the ignition switch is a receiver that then receives the identification code from the transponder and passes this to the CIM. The CIM also checks other modules including the instrument cluster, body control module and passenger door control module for correct ID's. If the key is confirmed as OK and the correct IDs are received from other modules checked by the CIM, then the CIM will send a signal to cancel the fuel shut-off and allow the vehicle to start.

If either the CIM or one of the other modules is removed, it must be 'Divorced' from the vehicle. The existing keys can be re-programmed to a new CIM unit but not a USED CIM from another vehicle. When fitting a new CIM, it must be programmed to the vehicle and all keys re-programmed into it. If any of the other modules are fitted, they do not require programming to the vehicle. The ID numbers of these control units are automatically learnt. After they are 'learnt', the control unit is locked to that vehicle by being programmed with the vehicles pin code. If this has not happened then the message 'ECU not programmed' will be displayed on the Saab Information Display

Anti-theft alarm

The car can be factory-fitted with an anti-theft alarm, of which there are two variants:

Variant 1 consists of; door switches, bonnet switch, luggage compartment switch and glass breakage sensor.

Variant 2; as above plus a tilt sensor, which trips the alarm if an attempt is made to steal the wheels.

The anti-theft alarm has a piezoelectric siren. The siren has an integral battery to ensure that an alarm can be given even if the power from the car's ordinary battery (car battery) is interrupted. The siren is located at the front of the left wheel housing. The behaviour of the alarm when tripped is market-dependent and programmable.

P-bus and I-bus

All Saab 9-3 from M01 are equipped with the Trionic T7 engine management system. The bus system is therefore almost identical to the one fitted on the 9-5.

The bus system on diesel cars with EDC15 and diesel pump is unchanged from M98 1/2 and on cars with PSG 16 from M01 1/2. The two diesel engine systems EDC/diesel pump and PSG 16 are not connected to the bus. However, these systems require considerably faster communication to avoid any noticeable delays, e.g. when EDC or PSG requests a certain amount of fuel for injection. Therefore, they are connected through a separate buss called the P-bus (Powertrain Bus). The P-bus has a data transfer rate ten times higher than that of the I-bus. The P-bus is also connected to the MIU (Main Instrument Unit). The MIU ensures that the information that is available on one bus is also available on the other.

Keys Programmed

The current key number can be displayed on the SID (SAAB information display) if the boot release button on the remote is pressed with the ignition on.

SPECIAL FUNCTIONS



KEY PROGRAMMING (ADDING KEYS & REMOTES) NON CAN SYSTEMS

VEHICLE SELECTION

ROVER
SAAB
SUBARU
SUZUKI
TOYOTA
VAG GROUP

This procedure is for ADDING keys, when an existing key is already programmed and in working order.

Select the SAAB selection from the main Vehicle Diagnostic Menu.

PRESS ENTER KEY

VEHICLE SELECTION

>93
93 SPORT (CAN)
95
95 SPORT (CAN)

Select the required vehicle.

PRESS ENTER KEY

SWITCH IGNITION ON

Switch IGNITION ON and then press the ENTER button.

PLEASE WAIT TRYING TO COMMUNICATE will be displayed for a few seconds.

PRESS ENTER KEY

ECU IDENTIFICATION

SAAB REF: 12759474
SYS: TWICE
DIAG: 1D:010

After communication the ECU identification will be displayed. An example is shown.

Press the ENTER button to continue to the Diagnostic Menu.

PRESS ENTER KEY

SPECIAL FUNCTIONS

C

KEY PROGRAMMING (ADDING KEYS & REMOTES)

DIAGNOSTIC MENU

> DISPLAY FAULT CODES
CLEAR FAULT CODES

PRESS ENTER KEY

FAULT CODES

To read and clear fault codes, select the required function and follow on screen instructions

LIVE DATA

VEH SPEED	0.0 Kmh
EXT TEMP	10.0 °C
IGN 15	ON
DOOR DRIVER	OPEN
PASSENGER DR	CLOSED
RR DOOR	CLOSED

LIVE DATA

Select LIVE DATA to display useful information about the state of the vehicle.

To see more items, use the UP and DOWN buttons.

ACTUATORS

LOCKING OF LOCKS
ALL DOORS THEFT
DRIVER DOOR UNLOCK
PASS DOOR UNLOCK
REAR DOORS UNLOCK
TRUNK OPENING

ACTUATORS

Select ACTUATORS to operate specific components on the vehicle.

DIAGNOSTIC MENU

KEY PROGRAMMING
SPARE PART PROG
PROGRAM IMMOBILISER

PRESS ENTER KEY

SPECIAL FUNCTIONS

To Program new keys and remotes or to Program a NEW TWICE module select SPECIAL FUNCTIONS.

SPECIAL FUNCTIONS

C

KEY PROGRAMMING (ADDING KEYS & REMOTES)

DIAGNOSTIC MENU

KEY PROGRAMMING
SPARE PART PROG
PROGRAM IMMOBILISER

PRESS ENTER KEY

KEY PROGRAMMING

Select KEY PROGRAMMING from MENU.

KEY
IGNITION ON

Switch IGNITION ON and press the ENTER button.

PRESS ENTER KEY

PROGRAMMING KEYS
1 WATCH THE 'FASTEN SEATBELT' LAMP.
2 PRESS UNLOCK MORE THAN 8 TIMES.
3 REPLACE AND REPEAT WITH NEXT KEY.

Press the remote unlock button more than 8 times until the FASTEN SEATBELT LAMP (see picture below) flashes briefly. Repeat for all remotes.

PRESS ENTER KEY



The FASTEN SEATBELT LAMP warning light flashes once when the remote is programmed.

PROCEDURE COMPLETE

Erase all DTC's in the fault memory of the TWICE after programming.

PRESS ENTER KEY

SPECIAL FUNCTIONS



KEY PROGRAMMING (TWICE MODULE PROGRAMMING)

DIAGNOSTIC MENU

KEY PROGRAMMING
SPARE PART PROG
PROGRAM IMMOBILISER

PRESS ENTER KEY

MARKET OPTIONS

EU
LA
US/CA
ME/AU/PA
JP

ALARM OPTIONS

WITHOUT ALARM
GLASS BREAK SENSOR
GLASS & TILT SNR

WHEEL POSITION

LEFT HAND DRIVE
RIGHT HAND DRIVE

REAR HEATED SEAT

WITHOUT
WITH

SPARE PART PROGRAMMING

Use this selection to first program the new TWICE module into the vehicle.

Select the required territory from the list to program the TWICE Unit.

Please check and make sure you select the correct Territory.

EU = EUROPE
LA = LATIN AMERICA
US/CA = UNITED STATES & CANADA
ME/AU/PA = AUSTRALIA
MIDDLE EAST
ASIA PACIFIC REGION
JP = JAPAN

Select the required ALARM type, if you not sure check the specification of the vehicle with the owner.

Select and PRESS the ENTER button.

Select the WHEEL POSITION for LHD or RHD.

Select and PRESS the ENTER button.

Select whether the vehicle has a REAR HEATED SEAT.

Select and PRESS the ENTER button.

SPECIAL FUNCTIONS



KEY PROGRAMMING (TWICE MODULE PROGRAMMING)

POWER SEAT

WITHOUT
WITH

SPARE PART PROGRAMMING (Cont'd)

Select whether the vehicle has a POWER SEAT.

Select and PRESS the ENTER button.

BODY STYLE

3d
5d
CABRIOLET

Select what body style the vehicle has.

Select and PRESS the ENTER button.

ENGINE TYPE

PETROL
DIESEL

Select what ENGINE TYPE the vehicle has.

Select and PRESS the ENTER button

ARE YOU SURE
YES = ENTER NO=BACK

Once all the options have been chosen, select YES or NO.

PLEASE MAKE SURE YOU HAVE SELECTED THE CORRECT OPTIONS, OTHERWISE THE VEHICLE MAY NOT FUNCTION CORRECTLY.

PROCEDURE COMPLETE

Erase all DTC's in the fault memory of the TWICE after programming.

PRESS ENTER KEY

SPECIAL FUNCTIONS

C

KEY PROGRAMMING (ECU MATCHING)

DIAGNOSTIC MENU

KEY PROGRAMMING
SPARE PART PROG
PROGRAM IMMOBILISER

PRESS ENTER KEY

PROGRAM IMMOBILISER

Use this function to match the IMMOBILISER to the ENGINE MANAGEMENT system.

ENGINE TYPE

TRIONIC 7
TRIONIC 5
MOTRONIC 2.10
EDC 15/PSC 16

Select the required ECU system, and press the ENTER button.

ARE YOU SURE

YES = ENTER NO=BACK

Confirm procedure by selecting YES or NO.

PROCEDURE COMPLETE

If successful PROCEDURE COMPLETE will be displayed.

Erase all DTC's in the fault memory of the TWICE after programming.

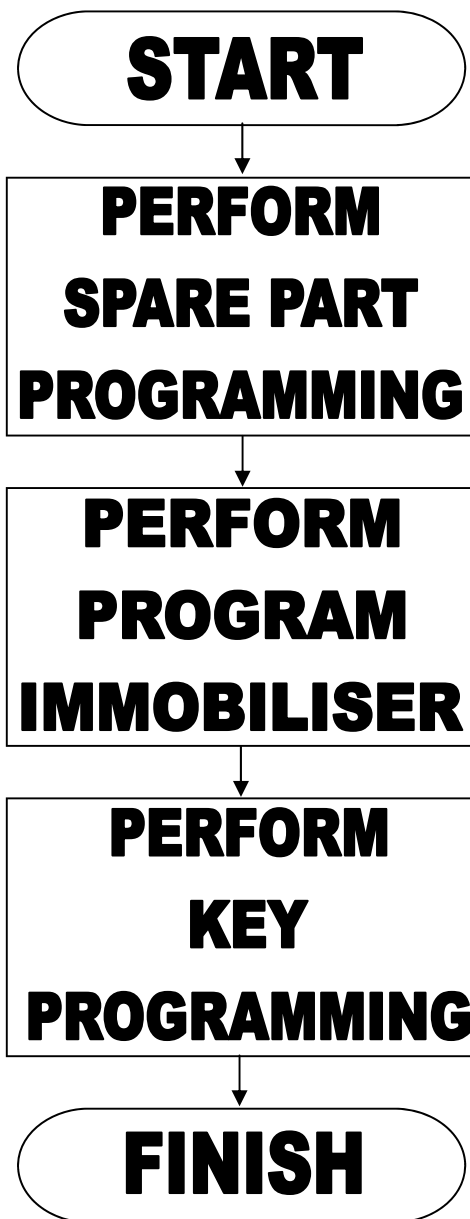
PRESS ENTER KEY

SPECIAL FUNCTIONS

C

TWICE MODULE PROGRAMMING

When the TWICE module is replaced, the procedure of functions that are required needs to be perform in the following order.



SPECIAL FUNCTIONS



KEY PROGRAMMING (ADDING KEYS & REMOTES) CAN SYSTEMS

VEHICLE SELECTION

ROVER
SAAB
SUBARU
SUZUKI
TOYOTA
VAG GROUP

PRESS ENTER KEY

This procedure is for **ADDING** keys, when an existing key is already programmed and in working order.

The remote is programmed at the same time as the key.

Only new keys can be programmed ie NOT a key from another vehicle.

Select the SAAB selection from the main Vehicle Diagnostic Menu.

VEHICLE SELECTION

93
>93 SPORT (CAN)
95
95 SPORT (CAN)

PRESS ENTER KEY

Select the required vehicle.

SWITCH IGNITION ON

PRESS ENTER KEY

Switch IGNITION ON and then press the ENTER button.

PLEASE WAIT TRYING TO COMMUNICATE will be displayed for a few seconds.

ECU IDENTIFICATION

TURN IGN TO LOCK

PRESS ENTER KEY

Turn the ignition key to the 'LOCK' position.

ECU IDENTIFICATION

SAAB DIAG: 0306
VIN: XXXXXXXXXXXXXXXXXXXX
ID: 1:91FA
ID: B:D7F5

PRESS ENTER KEY

After communication the ECU identification will be displayed. An example is shown.

Press the ENTER button to continue to the Diagnostic Menu.

SPECIAL FUNCTIONS

C

KEY PROGRAMMING (ADDING KEYS & REMOTES) CAN SYSTEMS

DIAGNOSTIC MENU

ECU IDENTIFICATION
> **ACTUATORS**
SPECIAL FUNCTIONS

PRESS ENTER KEY

Main Diagnostic Menu

ACTUATORS

FORCE UNLOCK ON
FORCE UNLOCK OFF
FORCE UNLOCK EXIT

ACTUATORS

Select **ACTUATORS** to operate specific components on the vehicle.

In certain circumstances eg the vehicle battery failing, the ignition key can be locked in the ignition lock. The Force **UNLOCK** function allows the ignition key to be removed. Once this is done then the normal procedure for programming keys can be followed.

PLEASE CHECK OPERAT.

PRESS ENTER KEY

DIAGNOSTIC MENU

ECU IDENTIFICATION
ACTUATORS
> **SPECIAL FUNCTIONS**

PRESS ENTER KEY

SPECIAL FUNCTIONS

Select **SPECIAL FUNCTIONS** to enter the **KEY PROGRAMMING** mode.

DIAGNOSTIC MENU

> **KEY PROGRAMMING**

IMPORTANT

All existing keys must be programmed at the same time.

Any keys not programmed will be deleted. A maximum of 5 keys can be programmed.

SPECIAL FUNCTIONS



KEY PROGRAMMING (ADDING KEYS & REMOTES) CAN SYSTEMS

DIAGNOSTIC MENU

INSERT PROGRAMMED KEY
TURN IGN TO LOCK

PRESS ENTER KEY

Insert a programmed key into the ignition and turn to the LOCK position.

VIN SECURITY CODE

PLEASE SELECT CODE
ENTRY METHOD

1. UP DOWN ARROWS
2. PHONE STYLE KEYPAD

Select the method you wish to use to enter the pin code.

VIN SECURITY CODE

IS CODE CORRECT
OK=ENTER CLEAR=BACK

To obtain a Pin Code you must use the Pin Code service on the Advanced Diagnostics website.

Enter the details as requested on the website form (see below).

The VIN number can be obtained from the ECU identification screen.

SAAB PIN CODE

AD Forum Username:
AD Forum Password:
Tester Serial Number:
Tester Passcode:
SAAB VIN:

When you have entered the detail and clicked CHECK, the pin code will be calculated and displayed on the website.

Enter the pin code into the tester by which entry method you selected.

SPECIAL FUNCTIONS

C

KEY PROGRAMMING (ADDING KEYS & REMOTES) CAN SYSTEMS

VIN SECURITY CODE
UPCK
IS CODE CORRECT
OK=ENTER CLEAR=BACK

Confirm pin code is correct.

BACK' TO EXIT
ENTER' TO PROGRAM
NEXT KEY

If no more keys require programming then press **BACK**.
If more keys are to be programmed then press **ENTER**.

REMOVE KEY FROM IGN.
THEN INSERT NEXT KEY

Remove the existing key and insert the next key to be programmed.

PRESS ENTER KEY

REMOVE KEY
INSERT SAME KEY
TURN TO ON

Remove the key from the ignition completely, then re-insert the same key and turn to the **ON** position.
A maximum of 5 keys can be programmed.

PRESS ENTER KEY

PROCEDURE COMPLETE

Note: The Saab Information Display has an LED that indicates the alarm and immobilisation status. If the key is approved when the key is inserted, then the LED will make 4 double flashes in 3 seconds. Additionally, when the key is removed the LED will make 4 double flashes in 3 seconds to indicate the vehicle is immobilised.

PRESS ENTER KEY