

Universal RENAULT injection ECU decoding tool

1. Introduction

Have you ever seen where fuel injection ECU (Electronic Control Unit) on the Renault car is located? Yes, it is located in most vulnerable place in the engine compartment. In most cases even after medium-strength impact it became unusable because of mechanical damage and must be replaced. However from year 1994 most Renault cars are equipped with engine immobilizer system and it makes replacement of injection computer more complicated. There is no problem if replacement ECU is bought from Renault service dealer - it is sold with no immobilizer code stored, but replacing computer with used one is impossible because of mismatch of unlocking codes.

And that was why an idea to create universal Renault ECU decoder revealed. Now if you have this tool you can take used injection computer and make it not coded as it was bought from Renault stores. Decoder has several modes of operation and covers all known petrol and diesel injection systems, introduced in range of year 1994-2001 *without intervention in to the ECU* (diesel coded anti-start valve as well). Systems, this tool was tested with, are listed below:

<i>Petrol</i>	<i>Diesel</i>
SIEMENS FENIX3B	BOSCH MSA15.5 (DTI)
SIEMENS FENIX5	BOSCH EDC15C3 (DCI)
SIEMENS SIRIUS32	LUCAS DCU3R (1.9D)
SAGEM SAFIR (55pin)	Coded fuel cut-off valve (1.9D DDS)
SAGEM SAFIR2 (35pin)	
BOSCH MOTRONIC MP7.0	
MAGNETI MARELLI IAW 06R	
MAGNETI MARELLI IAW 8R.30	

Most of engine control unit mentioned above can operate without immobilizer at all after decoding.

ECUs, that cannot operate without immobilizer code stored in memory:

some of **FENIX5** for LAGUNA/SAFRANE 2.0l 16V,

all of **SIRIUS32** except for KANGOO 1.4l 16V,

LUCAS DCU3R, Bosch MSA15.5 and EDC15C3;

It means that **after decoding procedure on one of those ECU is done, you must to have immobilizer system properly operating (matching key), to make the engine start.** Immobilizer signal emulator can also be used.

Operation

Front view of decoder:

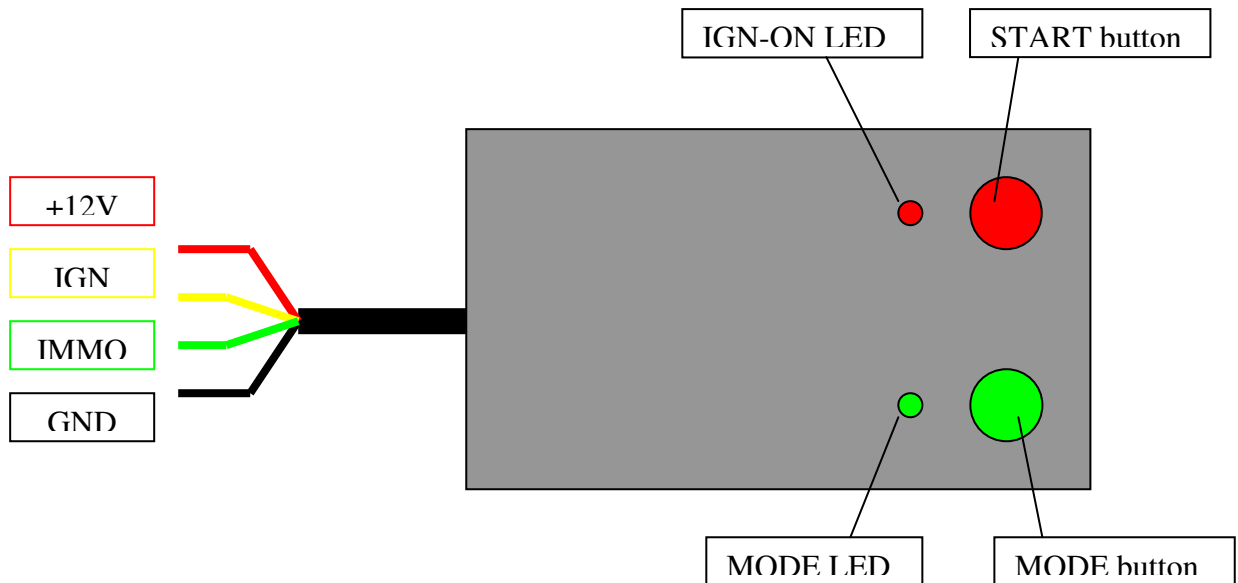


Figure 1. Front view.

MODE button is used to switch between operation modes. Mode can be changed only before pressing red START button. When decoding is in progress, MODE button becomes inactive.

There are 4 operation modes:

<i>Mode</i>	<i>“MODE” LED</i>
Standard	OFF
Advanced 1	ON
Advanced 2	Slow blinking
Semi-Auto (for TYPE1 immo)	Fast blinking

All you have to do is connect decoder to the ECU you want to decode, according to connection diagram, select desired mode of operation and press red START button. Which mode is to be selected depend on engine immobilizer type and several other factors, described below. Connect ground, battery +12V, MIL lamp and relay (if required). Use any 12V lamp (up to 3W), any relay with 12V coil and 12-14V power supply (over-current protection would be an advantage). Lamp must blink after applying +12V IGN. If lamp goes on and does not blink, ECU is already not coded or there is mistake in connection.

Connect decoder box as follows: red wire to ECU's +12V BAT, black wire to GND, yellow wire to ECU's +12V IGN (decoder switches +12V on and off by itself) and green wire to ECU's immobilizer input.

1.1. Immobilizer system overview

Renault immobilizer systems are divided into three types – TYPE1, TYPE2 and TYPE3. This tool is able to decode ECUs with TYPE1 and TYPE2 immobilizer. Engine ECU from the TYPE2 system is decoded automatically with this tool; therefore TYPE1 ECU decoding is semi-automatic. It is very easy to find out what type of immobilizer is used with ECU you want to decode: **if after ignition-on malfunction indicator lamp (MIL) illuminates for 2 seconds then starts to flash, this is TYPE2 immobilizer system; if after ignition-on malfunction indicator lamp (MIL) flashes immediately, this is TYPE1 immobilizer system.**

<i>Immobilizer type</i>	<i>Prod. date</i>	<i>ECU ↔IMMO</i>	<i>ECU types</i>
TYPE1	-01.96	Wire	Fenix3B, some of Fenix5 (produced up to beginning of the year 1996)
TYPE2	02.96-2001	Wire	Fenix5, SIRIUS32, IAW 06R, MSA15.5, EDC15C3(-2001), SAFIR, SAFIR2, Lucas DCU3R, etc
TYPE3	2001-	CAN bus	SIRIUS34, SIRIUS35, S2000, EDC15(2001-)

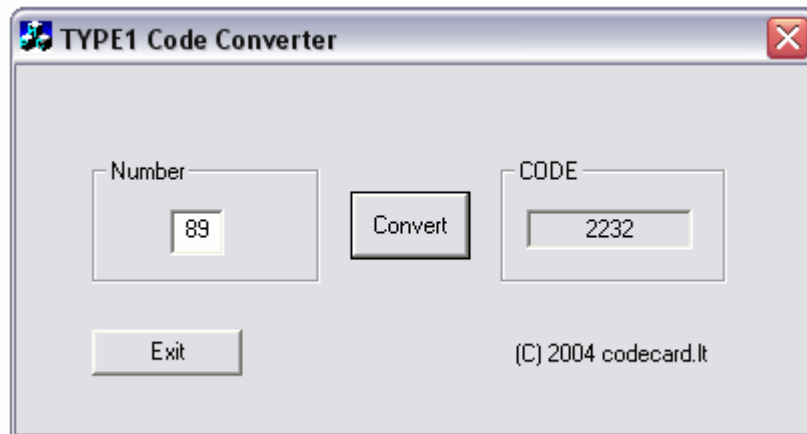
1.2. Decoding TYPE2 immobilizer system engine ECU

Decoding process is fully automated. On SIEMENS FENIX5 select *Standard* type of operation (green LED off). Other systems may require *Advanced1* or *Advanced2* mode (especially engine control systems, where ignition-on signal to ECU is passed via fuel pump relay coil, e.g. SAFIR2). Decoding in *Standard* mode takes about 1h 50min, in *Advanced 1* – 4h, in *Advanced 2* – more than 5h. In most cases 1h 50min is enough to make ECU not coded. Ignition is switched from off to on by decoding tool; red LED indicates ignition on. After decoding, ignition is switched off and green led is lit permanently.

After decoding, ECU is “virgin” and can be used on another car. If immobilizer system is ok (valid key), ECU retains new code from immobilizer control unit after ignition on. Most of decoded ECU can operate without immobilizer code stored (Fenix5, diesel coded solenoid valve, some of SIRIUS32, ...), other require immobilizer code to be stored.

1.3. Decoding TYPE1 immobilizer system engine ECU

Select *Semi-Auto* operation mode (fast green LED blinking). Press START button. After every ignition-on, MIL immediately starts to blink fast. Watch the ECU MIL lamp and count number of ignition-on (start counting from 1). Note number of ignition-on cycles when MIL stops blinking for a while. Use *Immo1.exe* to convert this number to security code. For ex.: MIL stopped blinking on 89-th ignition-on: program calculates code 2232.



ECU is not decoded after this procedure; you only found out its security code! Count number can be in range 1-255. In worst case when MIL stops to blink on 255-th ignition-on, counting takes about 8 minutes.

Put ECU back to car and turn key to ignition-on. Injection fault lamp flashes quickly.

1. Depress and keep depressed accelerator pedal fully – injection fault lamp extinguishes. To enter security code use trip computer button on the end of wiper control stalk. This button is called ADAC button.

2. Press the button same number of times as the first figure of the code (injection fault lamp illuminates each time the switch is pressed).

3. Release the accelerator pedal: injection fault lamp flashes.

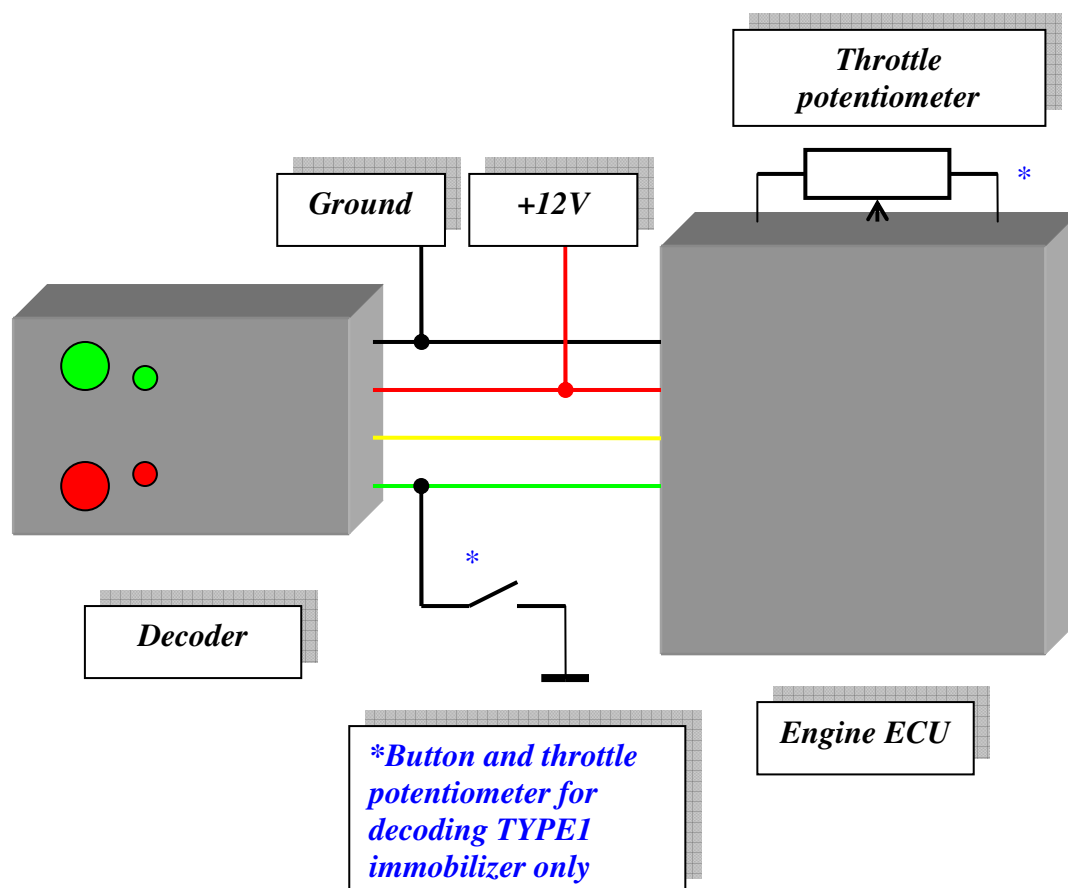
Repeat operations 1, 2 and 3 to enter in succession the three other digits of the code. When the code has been entered the injection fault lamp should be illuminated continuously for 2sec and then must to extinguish. ECU is no longer protected by immobilizer and is ready to retain new code. If injection fault lamp flashes, the code is incorrect. Switch off the ignition, switch it on again and repeat procedure for entering code. Three attempts to enter incorrect code locks ECU for 15min. It does not accept any codes during this “penalty” time. Turn ignition ON and wait 15mins.

Procedure for code entering can be performed without car as well. Accelerator pedal depressing-releasing can be simulated using throttle position potentiometer connected to the ECU, button must be connected between ground wire and immobilizer line (see wiring drawings).

2. Wiring drawings

Task of this chapter is to explain how to connect decoder box to engine control unit, you want to decode.

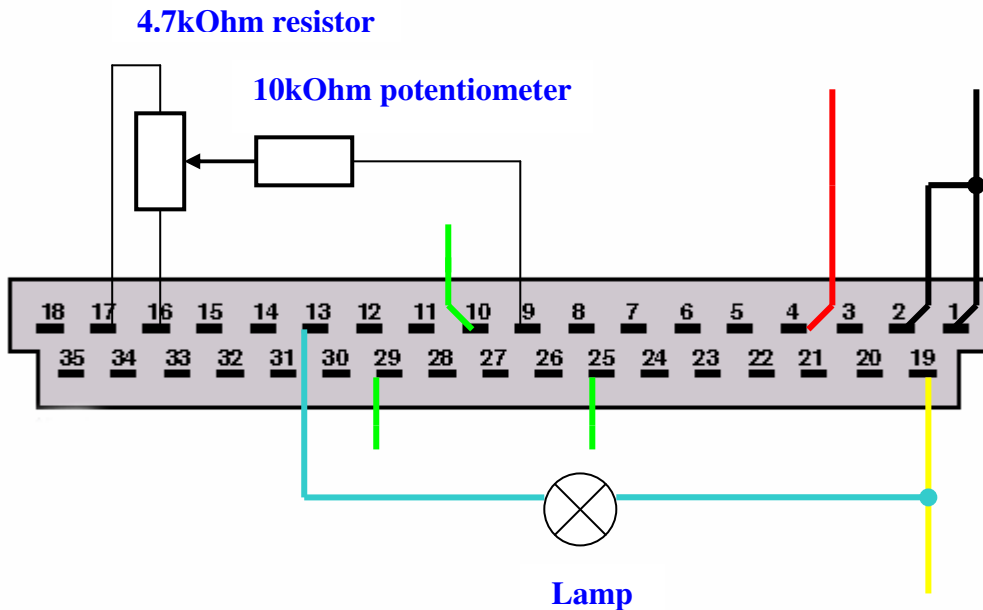
2.1. General



2.2. SIEMENS FENIX 3B

Siemens Fenix3B ECU with 35pin connector. It is used on LAGUNA, SAFRANE, R19, ESPACE, CLIO and on the others up to year 1996.

It is impossible to decode Fenix3B from 1.4l '95-'96 Megane in this way, because it uses TYPE2 immobilizer! (See chapter 1.1-*Immobilizer system overview* and chapter 4.-*ECU decoding by direct memory programming*).

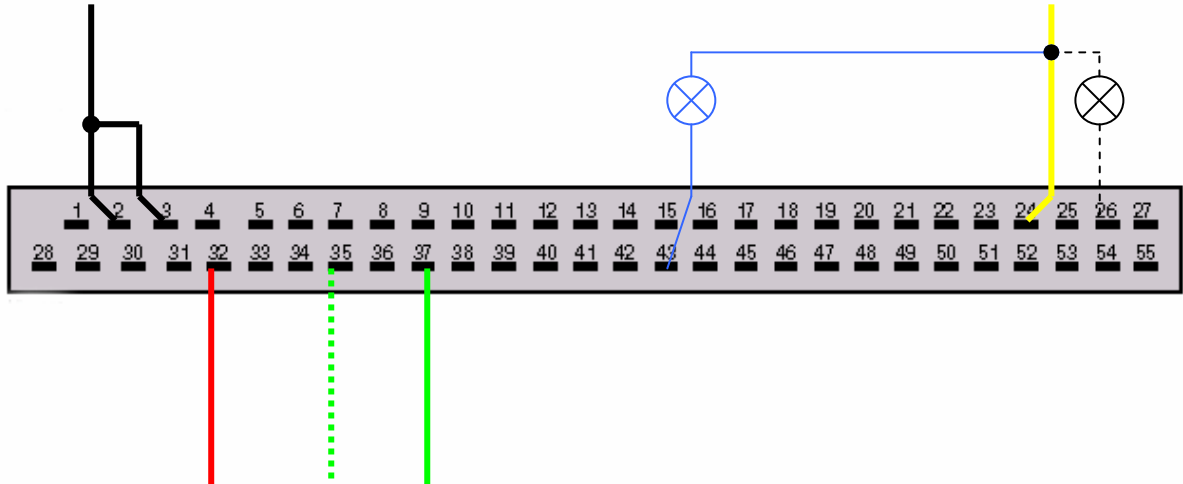


<i>Pin</i>	<i>Description</i>
1, 2	Ground
4	+12V Before Ignition (30)
19	+12V After Ignition (15)
13	Fault lamp (MIL)
9, 16, 17	Throttle potentiometer
10	Immobilizer line for LAGUNA 1.8l*
25	Immobilizer line for LAGUNA 2.0l*
25	Immobilizer line for 3.0l ECU*
25	Immobilizer line for all SAFRANE engines*
29	Immobilizer line for all ESPACE engines*

* Connect button and decoder's green wire to corresponding pin according to engine type

2.3. SIEMENS FENIX5

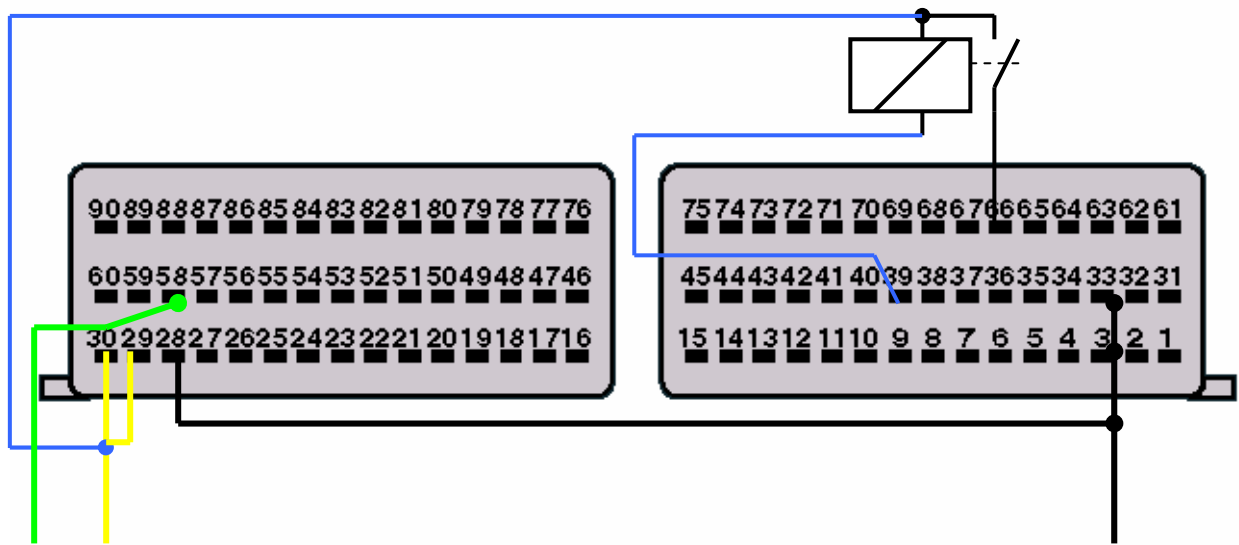
Siemens Fenix5 is rubber compound filled ECU with 55pin connector.



<i>Pin</i>	<i>Description</i>
2, 3	Ground
32	+12V Before Ignition (30)
24	+12V After Ignition (15)
43 – 1.4 and 1.6l; 26 – 1.8, 2.0 and 3.0l	Fault lamp
37 – 1.4 and 1,6l; 35 - 1.8, 2.0 and 3.0l	Immobilizer line

Select *Standard* decoding type.

2.4. SIEMENS SIRIUS32



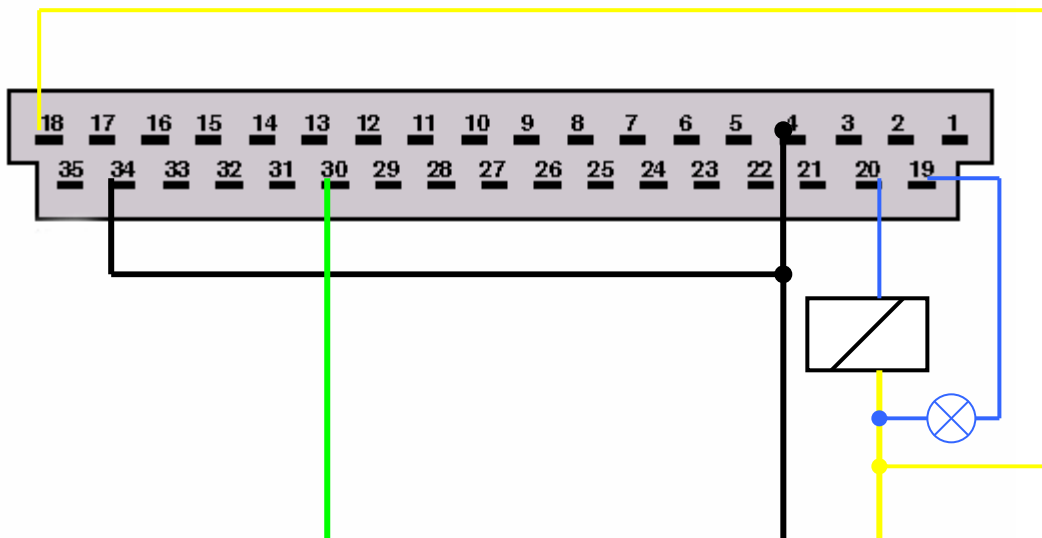
<i>Pin</i>	<i>Description</i>
3, 28, 33	Ground
29, 30	+12V After Ignition (15)
39	Main relay control
66	Feed from main relay
58	Immobilizer line

Select *Advanced1* decoding type.

2.5. SAGEM SAFIR2 (35 pin)

Sagem SAFIR2 is rubber compound filled ECU with 35pin connector.

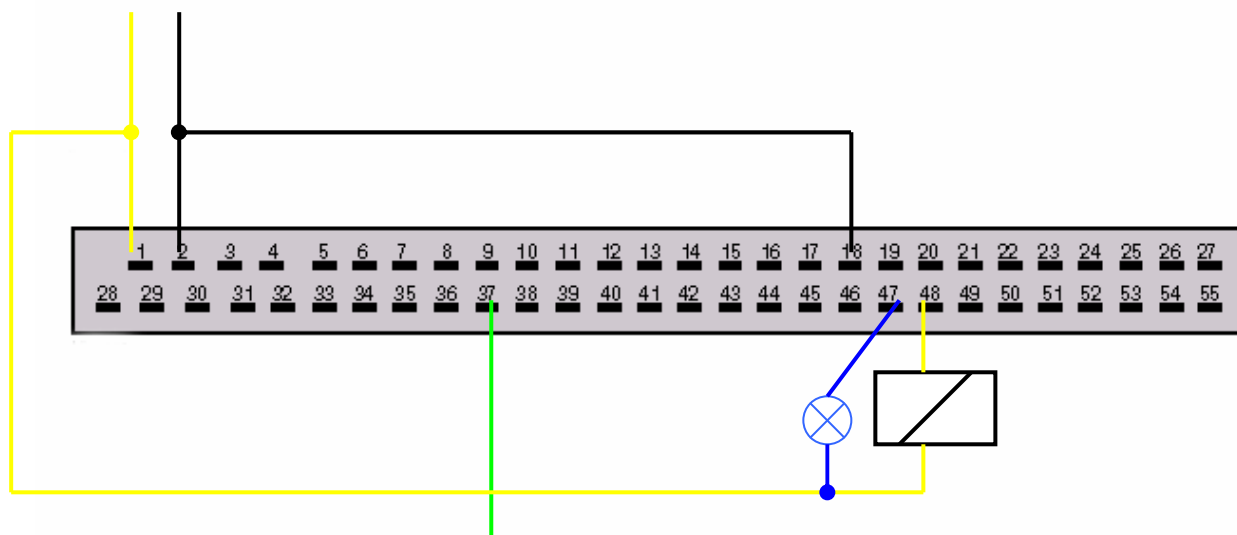
Connect only three wires to decoder box: ground, immobilizer line and switched +12V. Connect decoder's red wire to constant +12V. Information about Ignition-ON is supplied to SAFIR2 via relay coil. Use any relay (automotive or not) with 12V coil. Select **Advanced1** decoding type.



<i>Pin</i>	<i>Description</i>
4, 34	Ground
18, through relay coil to pin 20	+12V After Ignition (15)
19	Fault lamp
30	Immobilizer line

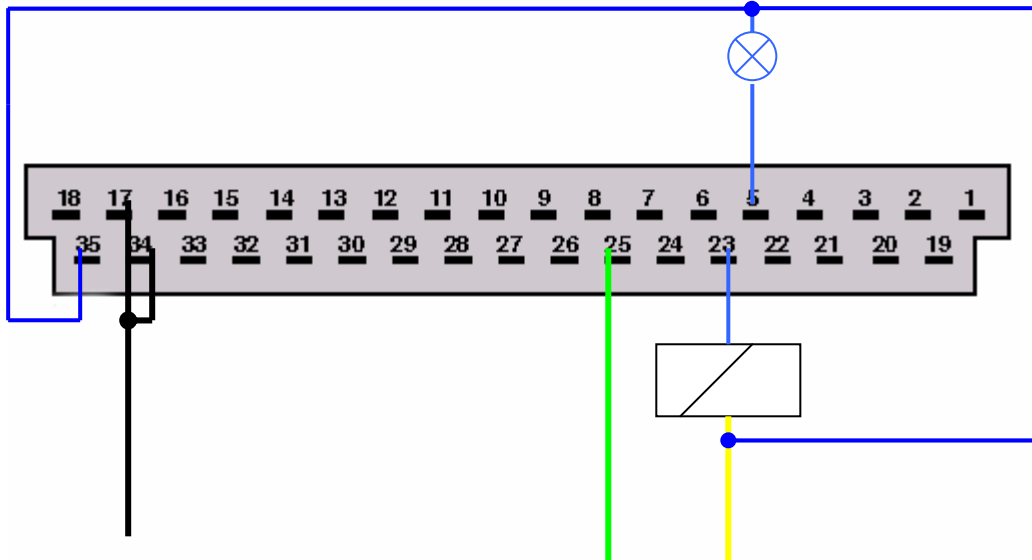
2.6. SAGEM SAFIR (55 pin)

Connect only three wires to decoder box: ground, immobilizer line and switched +12V. Connect decoder's red wire to constant +12V. Information about Ignition-ON is supplied to SAFIR via relay coil. Use any relay (automotive or not) with 12V coil. Select *Advanced1* decoding type.



<i>Pin</i>	<i>Description</i>
2, 18	Ground
1; through relay coil to pin 48	+12V After Ignition (15)
TWINGO-43, CLIO-47 (check by blinking)	Fault lamp
37	Immobilizer line

2.7. MAGNETI MARELLI IAW 06R (TWINGO 1.2i SPI)

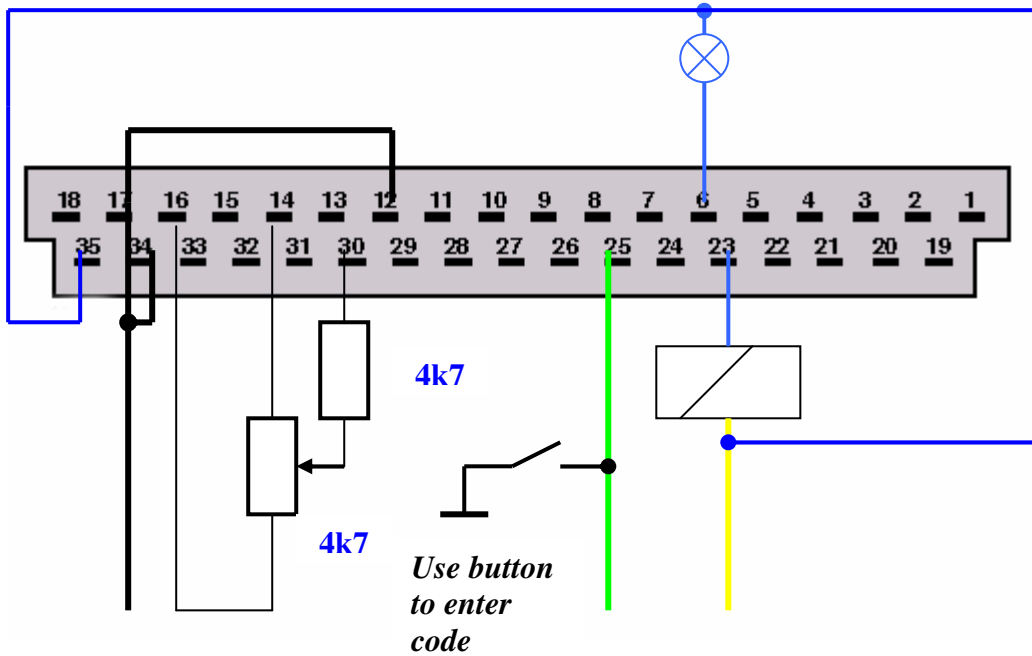


<i>Pin</i>	<i>Description</i>
17, 34	Ground
Through relay coil to pin 23, pin 35	+12V After Ignition (15)
5	Fault lamp
25	Immobilizer line

Select *Advanced2* decoding type.

2.8. MAGNETI MARELLI IAW 8R.30 (R19, Clio)

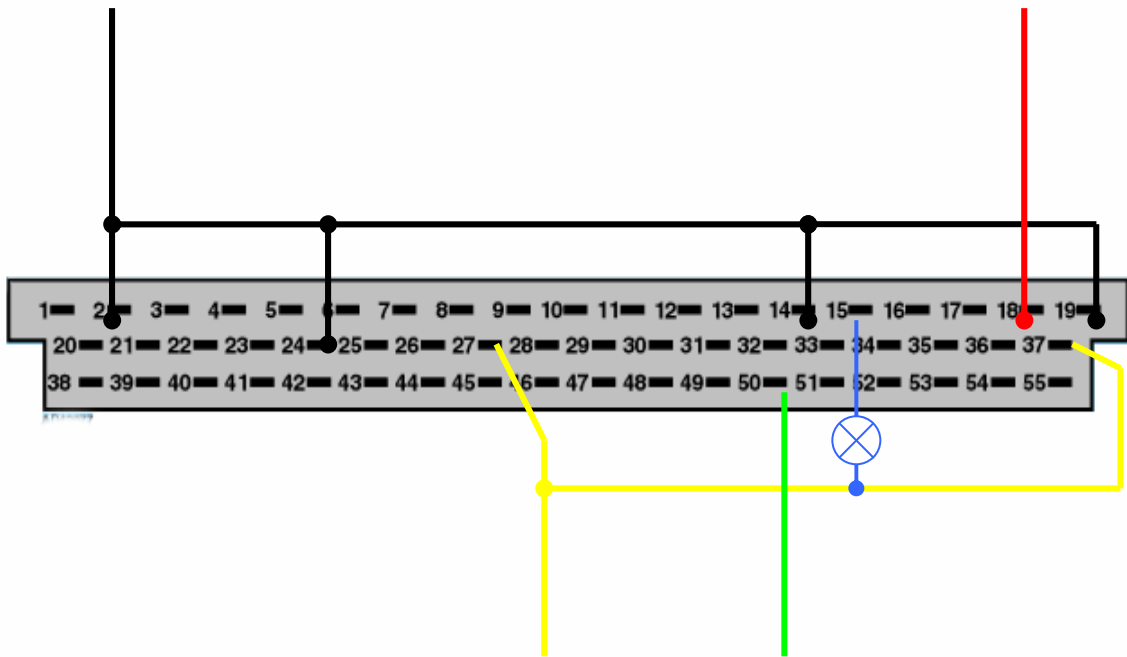
(See section “Decoding TYPE1 immobilizer system engine ECU”)



<i>Pin</i>	<i>Description</i>
12, 17, 34	Ground
Through relay coil to pin 23, pin 35	+12V After Ignition (15)
6	Fault lamp
25	Immobilizer line
14, 16, 30	Throttle potentiometer

2.9. BOSCH MOTRONIC MP7.0

This ECU is used with 3.0l 24V engines

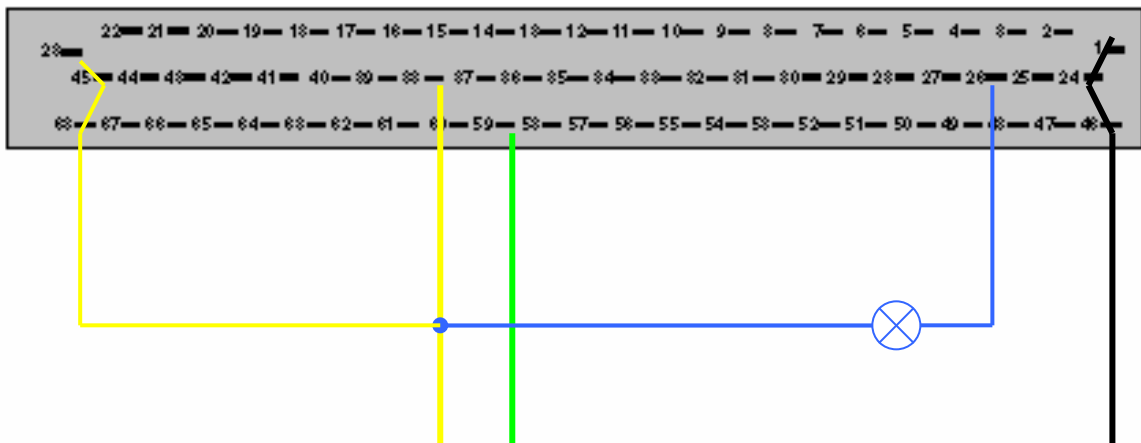


<i>Pin</i>	<i>Description</i>
2, 14, 19, 24	Ground
18	+12V Before Ignition (30)
27, 37	+12V After Ignition (15)
15	Fault lamp
50	Immobilizer line

Select *Advanced1* decoding type.

2.10. *BOSCH MSA15.5*

Used with 1.9DTI engines.



<i>Pin</i>	<i>Description</i>
1, 24, 46	Ground
38, 23, 45, 68	+12V After Ignition (15)
26	Fault lamp
59	Immobilizer line

Select *Advanced1* decoding type.

2.11. Coded diesel fuel cut-off valve DDE (integrated into diesel pump). Both BOSCH and LUCAS pump is supported.

Disconnect connector with 3 wires from diesel pump and connect decoder box as follows (pin numbers):

<i>Pin</i>	<i>Description</i>
3	Ground
2	+12V After Ignition (15)
1	Immobilizer line

If after applying +12V cut-off valve inside pump is actuated for 1sec then released – valve is coded, if remains actuated – not coded. If valve is not coded, it can be learned with another code.

Select *Advanced2* decoding type.

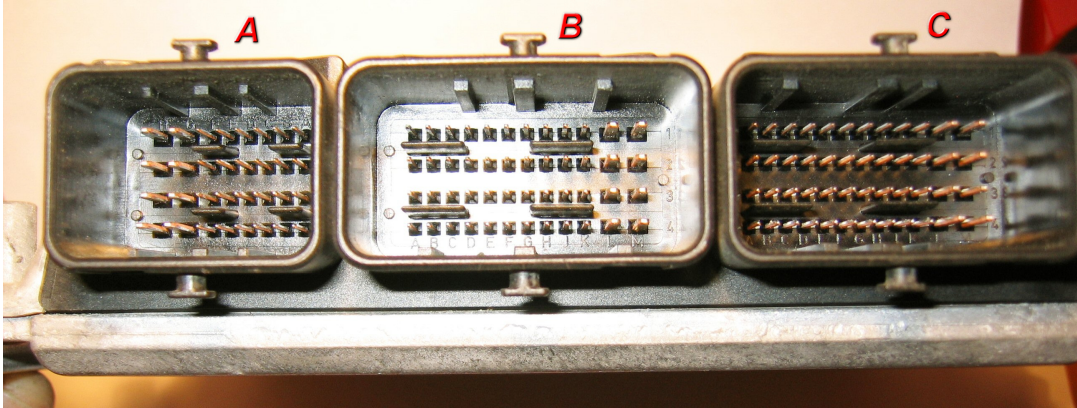
2.12. LUCAS DCU3R (ClioII, Kangoo 1.9D)

<i>Pin</i>	<i>Description</i>
78, 79	Ground
76, 77, 81	+12V After Ignition (15)
20	Immobilizer line

Select *Advanced2* decoding type.

2.13. Bosch EDC15C3 (1.9DCI -> 2001). Works on ECUs, used up to year 2001 only!

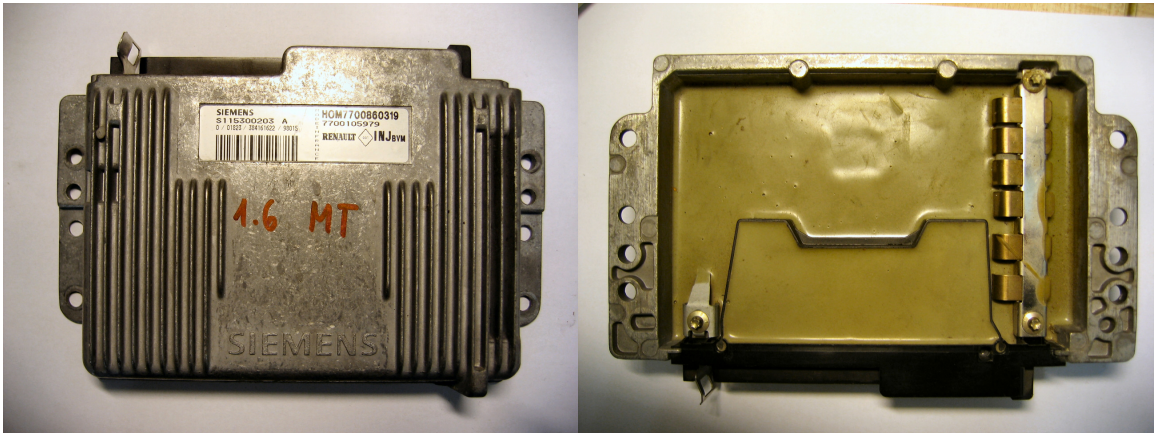
Does not work without correct immobilizer signal. Immobilizer signal emulator can be used.



<i>Pin</i>	<i>Description</i>
Conn. B/pin M4	Ground
Conn. B/pin E3; Conn. B/pin M2	+12V After Ignition (15)
Conn. A/pin G2	Immobilizer line

3. Pictures of Engine Control Units (ECU)

These pictures will help to define what type of ECU you are trying to decode.



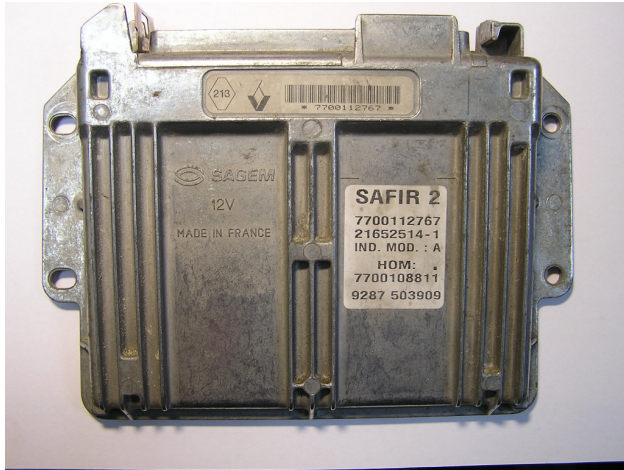
FENIX5



FENIX3B



SIRIUS 32



SAFIR 2 (35pin)



Bosch EDC15C3



Magnet Marelli IAW 8R.30



Lucas DCU3R



BOSCH MSA15.5

It is possible to identify ECU by RENAULT manufacturing number (on the picture) - type this number in the "Google" search line.



4. ECU decoding by direct memory programming.

In some cases is possible to clear previously stored immobilizer code by modifying EEPROM memory of ECU. Suitable serial EEPROM, FLASH and Motorola MC68HC11 MCU programmer is required (not included).

4.1. SIEMENS *FENIX3B*

Read internal EEPROM memory of MOTOROLA MC68HCP11E1 microcontroller. Bridge MCU pins 1, 2 and 3. Pin 17 is /RESET, 20 – RXD, 21 – TXD, 26 - +5V. File size is 512 bytes. After clearing old code, car starts without immobilizer.

TYPE1 immobilizer: Immobilizer code is located at address 0009, inverted code is at address 000A. Replace immobilizer code value by 00 and inverted code by FF. Fill whole line 0010 with FF (if there is any data, different than FF).

FENIX3B(Type1)_Coded:

```
00000000 | 7E FF B9 FF FF FF FF FF FF CF 30 FF FF FF FF FF | ~ .....0.....
00000010 | FF 01 FE FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000020 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000030 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000040 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000050 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
```

FENIX3B(Type1)_Cleared:

```
00000000 | 7E FF B9 FF FF FF FF FF FF 00 FF FF FF FF FF FF | ~ .....
00000010 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000020 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000030 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000040 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000050 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
```

TYPE2 immobilizer: Immobilizer code is two-byte long and is located at addresses 000B-000C, inverted code is at address 000D-000E. Replace immobilizer code value by 00 00 and inverted code by FF FF. Fill whole line 0010 with FF (if there is any data, different than FF).

FENIX3B(Type2)_Coded:

```
00000000 | 7E FF B9 FF FF FF FF FF FF 00 FF 13 B7 EC 48 FF | ~ .....H.
00000010 | FF 11 EE FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000020 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000030 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
```

FENIX3B(Type2)_Cleared:

```
00000000 | 7E FF B9 FF FF FF FF FF FF 00 FF 00 00 FF FF FF | ~ .....
00000010 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000020 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000030 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
```

4.2. SIEMENS SIRIUS32

Connect SIRIUS32 to the power supply before desoldering out the Flash memory (AM29F200). Apply +12V after ignition, turn it off and wait while ECU releases main relay (if you doing this in the car, immobilizer line must be cut, because for proper data arrangement in the Flash, immobilizer signal must NOT PRESENT!) Now you can take out Flash memory and continue this work. Immobilizer code and trouble codes are stored in the memory space 4000-7FFF (in the 8 bit view). You will find several data blocks separated with FFs in this address range (like in picture below). Ever block has four leading bytes (highlighted in the picture). Find and fill these bytes with “FF”.

000063D0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000063E0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000063F0	FF FF FF FF FF FF FF FF FF FF FF FF B5 A6 64 C7 FF	......d.
00006400	CC 70 00 00 00 00 00 00 00 00 00 00 00 00 00	.p.....
00006410	00 00 00 00 00 00 19 09 33 1B D5 98 06 07 00 10	.....3.....
00006420	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006430	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006440	00 00 00 00 0F 0F 00 00 00 00 00 00 00 00 70 F0	.....p.
00006450	00 00 00 00 8E 16 72 7E 01 00 00 80 00 00 00 00	.....r~.....
00006460	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006470	00 00 00 00 00 00 00 00 00 00 00 00 FF FF FF FF	.....
00006480	FF FF FF FF FF FF 00 80 DF 8F 8C C6 F0 F0 89 B9	.....
00006490	00 00 CC 70 00 00 69 F9 00 00 00 00 00 00 00	..p.i.....
000064A0	00 00 00 00 00 00 00 00 00 00 68 3C 50 30 70 00	.....h<P0p.
000064B0	50 00 10 10 10 00 FF FF FF FF FF FF FF DC 60	P.....`
000064C0	00 00 00 00 00 00 00 00 94 AE 22 68 E7 33 EC 95	....."h.3..
000064D0	3E 2E 00 00 00 00 90 7C 10 BC 00 00 00 00 00	>.....|.....
000064E0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000064F0	00 00 70 94 24 80 00 10 20 00 00 00 40 00 00	..p.\$... ..@..
00006500	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006510	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006520	80 72 7F 8D 74 B1 00 00 00 00 00 00 94 35 B0 28	.r..t.....5.(
00006530	08 10 10 14 01 88 00 90 00 00 00 00 00 00 00	.....
00006540	00 10 50 58 00 00 58 E8 20 54 2F 2F B0 E4 C8 C8	..PX..X. T//....
00006550	58 34 00 00 00 00 00 00 00 00 00 00 00 00 00	X4.....
00006560	00 00 49 84 10 08 10 08 13 04 1D C2 79 82 E1 70	..I.....y..p
00006570	EE 77 00 88 10 08 04 24 04 24 30 20 00 00 00	.w.....\$. \$0
00006580	00 00 88 00 00 00 FF FF EF FF FF FF EF FF FF FF	.....
00006590	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....

.....

000067D0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000067E0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000067F0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....d.
00006800	DC 70 00 00 00 00 00 00 00 00 00 00 00 00	.p.....
00006810	00 00 00 00 00 00 19 09 33 1B D5 98 06 07 00 10	.....3.....
00006820	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006830	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006840	00 00 00 00 0F 0F 00 00 00 00 00 00 00 00 70 F0	.....p.
00006850	00 00 00 00 00 8E 16 72 7E 01 00 00 80 00 00 00	.....r~.....
00006860	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006870	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006880	FF FF FF FF FF FF 00 80 DF 8F 8C C6 F0 F0 99 B9	.....
00006890	00 00 DC 70 00 00 69 F9 00 00 00 00 00 00 00	...p..i.....
000068A0	00 00 00 00 00 00 00 00 00 00 68 3C 50 30 70 00	.....h<P0p.
000068B0	50 00 10 10 10 00 FF FF FF FF FF FF FF CC 70	P.....p
000068C0	00 00 00 00 00 00 00 00 94 AE 22 68 E7 33 EC 95	....."h.3..
000068D0	3E 2E 00 00 00 00 90 7C 10 BC 00 00 00 00 00	>.....|.....
000068E0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000068F0	00 00 70 94 24 80 00 10 20 00 00 00 40 00 00	..p.\$... ..@..
00006900	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006910	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00006920	80 72 7F 8D 04 D1 00 00 00 00 00 00 94 35 B0 28	.r.....5.(
00006930	08 10 10 14 01 88 00 90 00 00 00 00 00 00 00	.....
00006940	00 10 50 58 00 00 58 E8 20 54 2F 2F B0 E4 C8 C8	..PX..X. T//....
00006950	58 34 00 00 00 00 00 00 00 00 00 00 00 00 00	X4.....
00006960	00 00 49 84 10 08 10 08 13 04 1D C2 79 82 E1 70	..I.....y..p
00006970	EE 77 00 88 10 08 04 24 04 24 00 30 00 00 00	.w.....\$.\$.0....
00006980	00 00 02 E1 00 00 FF FF EF FF FF FF EF FF FF FF	.....
00006990	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....

At the bottom of one of blocks find bytes “33 33” and fill them with “00 00”. And that’s all – it is not coded.

P.S. If you can’t find bytes “33 33” that means that you didn’t applied power supply to SIRIUS32 before taking out flash. Solder it back to the board, supply it for a while and take it out again.

000077D0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000077E0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000077F0	FF FF FF FF FF FF FF FF FF FF FF FF FF 85 A6 64 C7	.....d.
00007800	FC 70 00 00 00 00 00 00 00 00 00 00 00 00 00	.p.....
00007810	00 00 00 00 00 00 00 09 19 33 1B D5 98 06 07 00 10	.....3.....
00007820	00 00 00 00 00 00 FF FF 00 00 00 00 00 00 00	.....
00007830	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00007840	00 00 00 00 0F 0F 00 00 00 00 0F 0F 00 00 70 F0	.....p.
00007850	00 00 00 00 00 8E 16 72 7E 01 00 00 80 00 00 00	.....r~.....
00007860	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00007870	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00007880	FF FF FF FF FF FF 00 80 DF 8F 8C C6 F0 F0 B9 A9	.....
00007890	00 00 FC 70 00 00 69 F9 00 00 00 00 00 00 00	...p..i.....
000078A0	00 00 00 00 00 00 00 00 00 00 68 3C 50 30 70 00	.....h<P0p.
000078B0	50 00 10 10 10 00 FF FF FF FF FF FF FF EC 70	P.....p
000078C0	00 00 00 00 00 00 00 00 94 AE 22 68 E7 33 EC 95	....."h.3..
000078D0	3E 2E 00 00 00 00 90 7C 10 BC 00 00 00 00 00	>.....|.....
000078E0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000078F0	00 00 70 9C 24 80 00 10 22 02 00 00 40 01 00	..p.\$...".....@..
00007900	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00007910	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00007920	80 72 7F 8D 14 D1 00 00 04 00 00 00 94 35 B0 28	.r.....5.(
00007930	08 18 20 0C 00 08 00 10 00 00 00 00 00 00 00	.....
00007940	00 10 50 58 00 00 58 E8 20 54 2F 2F B0 E4 C8 C8	..PX..X. T//....
00007950	58 34 00 00 00 00 00 00 00 00 00 00 00 00 00	X4.....
00007960	00 00 49 84 10 08 10 08 13 04 1D C2 79 82 E1 70	..I.....y..p
00007970	EE 77 00 88 10 08 04 24 04 24 10 20 00 00 00	.w.....\$.\$.
00007980	00 00 53 8E 33 33 FF FF 0F 0F FF FF 0F 0F FF FF	..S.33.....
00007990	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....

4.3. BOSCH *MSA15.5*

Find, desolder and read out 24C02 serial EEPROM (marked as B58283 or 24C02) on opposite side of printed circuit board. In the file of 24C02 find two times repeated immobilizer code. It is easy to find: find two bytes and check if next two bytes are their inverted code. In the examples below immobilizer code is marked with green, its inversion (NOT) is marked with yellow. If you want to make it not coded, fill green zone with “00 00” and yellow zone with “FF FF”. Exactly the same bytes are corrected after decoding with decoding tool. Location of immo code may be different from file to file. After making it as “not coded”, the engine cannot be started if no valid immobilizer signal present (check-engine lamp is still flashing).

00000000	37 37 32 2E 31 31 AA AA 37 37 32 2E 31 31 55 55	Z72.11..772.11UU
00000010	AA 55 AA 55 AA 55 AA 55 01 C2 0E 9C 00 00 00 00	.U.U.U.U.....
00000020	00 00 00 00 00 00 00 00 F9 9F FC 57 00 00 00 00	.....W....
00000030	28 00 23 48 00 00 00 00 00 8D FC C8 00 00 5C 11	(.#H.....\.
00000040	A3 EE 00 00 00 01 00 00 01 00 00 00 81 7E 12 C6~..
00000050	FA C8 00 00 5C 11 A3 EE 00 00 00 01 00 00 01 00\.....
00000060	00 00 81 7E 12 C6 FF 01 00 00 00 00 00 00 00 00~.....
00000070	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000080	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000090	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000A0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000B0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000C0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000D0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000E0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
000000F0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....

4.4. BOSCH *EDC15C3*

Find 8-pin EEPROM memory 95P08, marked as 5P08. Desolder and read it. Immobilizer code is located at addresses 003C-0047.

```
EDC15C3_Coded
00000000 FF FF AA AA FF 14 13 30 38 34 2E 31 31 FF FF 2B .....084.11..+
00000010 14 13 30 38 34 2E 31 31 FF FF FF FF FF FF FF FF ..084.11.....
00000020 FF FF FF FF FF FF 31 30 33 37 33 35 33 31 31 31 .....1037353111
00000030 FF FF FF FF FF FF 20 00 04 6A FF AA FO OD A5 58 .....j...X
00000040 5A A7 0F F2 5A A7 A5 58 01 54 AB FF 08 5D A2 00 Z...Z...X.T...]..
00000050 55 AA 00 55 AA 02 57 A8 00 55 AA FF FF FF FF FF U..U..W..U.....
00000060 00 00 06 54 02 02 00 01 28 01 00 F9 00 93 3F 00 ...T....(.....?.
00000070 00 00 F9 00 93 3F 00 00 30 44 08 08 00 01 28 01 .....?.0D....(.
00000080 00 0C 42 42 9E 00 00 00 0C 42 42 9E 00 00 0B 44 ..BB....BB....D
00000090 01 01 00 01 28 01 00 00 38 00 3F 00 00 00 00 38 ....(...8?...8
000000A0 00 3F 00 00 0A 44 01 01 00 01 28 01 00 00 00 3F .?...D....(....?
000000B0 00 00 00 00 00 00 3F 00 00 00 2F 54 08 08 00 01 .....?.../T....
000000C0 28 01 00 00 00 9E 42 00 00 00 00 00 9E 42 00 00 (...B.....B..
000000D0 37 44 01 01 00 01 28 01 00 00 3C 00 3F 00 00 00 7D....(...<?...
000000E0 00 3C 00 3F 00 00 0D 44 02 02 00 01 28 01 00 F8 .<?...D....(...
000000F0 3C 95 93 00 00 00 F8 3C 95 93 00 00 11 44 01 01 <.....<.....D..
```

Modify file as in example below – immobilizer code will be cleared. ECU now is ready to store new code on first ignition-on, but engine will not start without correct immobilizer signal on input.

```
EDC15C3_Cleared
00000000 FF FF AA AA FF 14 13 30 38 34 2E 31 31 FF FF 2B .....084.11..+
00000010 14 13 30 38 34 2E 31 31 FF FF FF FF FF FF FF FF ..084.11.....
00000020 FF FF FF FF FF FF 31 30 33 37 33 35 33 31 31 31 .....1037353111
00000030 FF FF FF FF FF FF 20 00 04 6A FF AA 00 00 55 55 .....j...U
00000040 AA AA FF FF AA AA 55 55 01 54 AB FF 08 5D A2 00 .....U.T...]..
00000050 55 AA 00 55 AA 02 57 A8 00 55 AA FF FF FF FF FF U..U..W..U.....
00000060 00 00 06 54 02 02 00 01 28 01 00 F9 00 93 3F 00 ...T....(.....?.
00000070 00 00 F9 00 93 3F 00 00 30 44 08 08 00 01 28 01 .....?.0D....(.
00000080 00 0C 42 42 9E 00 00 00 0C 42 42 9E 00 00 0B 44 ..BB....BB....D
00000090 01 01 00 01 28 01 00 00 38 00 3F 00 00 00 00 38 ....(...8?...8
000000A0 00 3F 00 00 0A 44 01 01 00 01 28 01 00 00 00 3F .?...D....(....?
000000B0 00 00 00 00 00 00 3F 00 00 00 2F 54 08 08 00 01 .....?.../T....
000000C0 28 01 00 00 00 9E 42 00 00 00 00 00 9E 42 00 00 (...B.....B..
000000D0 37 44 01 01 00 01 28 01 00 00 3C 00 3F 00 00 00 7D....(...<?...
000000E0 00 3C 00 3F 00 00 0D 44 02 02 00 01 28 01 00 F8 .<?...D....(...
000000F0 3C 95 93 00 00 00 F8 3C 95 93 00 00 11 44 01 01 <.....<.....D..
```

4.5. BOSCH MP7.0

Find, desolder and read out 24C02 serial EEPROM (marked as B58283 or 24C02) on opposite side of printed circuit board. Modify file like in example below to clear immobilizer code.

MP7.0_Coded:

00000000	1B 00 4E 55 B1 AA 00 27 55 72 AA 8D 50 14 05 41	..NU...'Ur..P..A
00000010	FA BE 50 14 05 41 FA BE 55 00 00 55 FF AA 00 27	..P..A..U..U..'
00000020	55 72 AA 8D 50 14 05 41 FA BE 50 14 05 41 FA BE	Ur..P..A..P..A..
00000030	55 00 00 55 FF AA 36 0F 63 5A 9C A5 50 14 05 41	U..U..6.cZ..P..A
00000040	FA BE 50 14 05 41 FA BE AA 03 FF 56 00 A9 FF FF	..P..A...V....
00000050	FF FF FF FF FF FF FF FF FF FF 5A A5 0F F0 F0 0F	.....Z.....
00000060	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
00000070	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
00000080	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
00000090	FF FF FF FF FF FF FF FF FF FF FF FF FF FF 01 01	.....
000000A0	54 54 AB AB FF FF FF FF FF FF FF FF FF FF FF FF	TT.....
000000B0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000000C0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000000D0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000000E0	FE FE AB AB 54 54 FF FF FF FF FF FF FF FF FF FF	....TT.....
000000F0	FF FF DA DA 8F 8F 70 70 FF FF FF FF FF FF FF FF	.....pp.....

MP7.0_Cleared:

00000000	1B 00 4E 55 B1 00 00 00 00 00 00 00 00 00 00	..NU.....
00000010	00 00 00 00 00 00 00 00 AA 00 FF 55 00 AA 00 00	.....U.....
00000020	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	.....
00000030	AA 00 FF 55 00 AA 00 00 00 00 00 00 00 00 00	..U.....
00000040	00 00 00 00 00 00 00 00 AA 00 FF 56 00 A9 FF FF	.....V....
00000050	FF FF FF FF FF FF FF FF FF FF 5A A5 0F F0 F0 0F	.....Z.....
00000060	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
00000070	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
00000080	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
00000090	FF FF FF FF FF FF FF FF FF FF FF FF FF FF 01 01	.....
000000A0	54 54 AB AB FF FF FF FF FF FF FF FF FF FF FF FF	TT.....
000000B0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000000C0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000000D0	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	.....
000000E0	FE FE AB AB 54 54 FF FF FF FF FF FF FF FF FF FF	....TT.....
000000F0	FF FF DA DA 8F 8F 70 70 FF FF FF FF FF FF FF FF	.....pp.....

4.6. LUCAS *DCU3R*

Drill a square hole in the black plastic case of Lucas DCU3R ECU to reach out 25080 (or 95080) 8-pin serial EEPROM. Desolder it from board and read it.



Immobilizer code is repeated twice – at addresses 0002-0003 (inverted code at addresses 0004-0005) and 0082-0083 (inverted code at addresses 0084-0085). Replace existing immobilizer code at both places with 00 00 and inverted code with FF FF.

DCU3R_Coded:

```

00000000 | E4 FF 07 32 F8 CD 07 00 14 01 C5 A0 3A 5F 32 36 | ...2.....:_26
00000010 | 39 37 38 38 53 4D 02 46 00 00 00 0D 96 E0 03 80 | 9788SM.F.....
00000020 | 06 02 0F 40 23 A0 32 28 76 A0 76 76 68 68 A0 82 | ...@#.2(v.vvhh..
00000030 | 9B 02 DB 05 00 00 98 B8 00 00 00 00 00 00 6B 0C | .....k.
00000040 | 91 85 FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000050 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000060 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000070 | FF FF FF FF 00 18 01 A5 FE 5A FF FF 00 FF FF 00 | .....Z.....
00000080 | E4 FF 07 32 F8 CD 07 00 14 01 C5 A0 3A 5F 00 00 | ...2.....:_
00000090 | 00 00 00 00 00 00 00 00 00 00 00 00 FF FF 00 40 | .....@
000000A0 | FF BF FF FF 00 00 FF FF 5A 5A A5 A5 FF FF FF FF | .....ZZ.....
000000B0 | 00 5A FF A5 FF FF FF FF FF FF FF FF FF FF FF | .Z.....

```

Continued on next page

DCU3R_Cleared:

```

00000000 E4 FF 00 00 FF FF 07 00 14 01 C5 A0 3A 5F 32 36 .....:_26
00000010 39 37 38 38 53 4D 02 46 00 00 00 0D 96 E0 03 80 9788SM.F.....
00000020 06 02 0F 40 23 A0 32 28 76 A0 76 76 68 68 A0 82 ...@#.2(v.vvhh..
00000030 9B 02 DB 05 00 00 98 B8 00 00 00 00 00 00 6B 0C .....k.
00000040 91 85 FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000050 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000060 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000070 FF FF FF FF 00 18 01 A5 FE 5A FF FF 00 FF FF 00 .....Z.....
00000080 E4 FF 00 00 FF FF 07 00 14 01 C5 A0 3A 5F 00 00 .....:_..
00000090 00 00 00 00 00 00 00 00 00 00 00 00 00 00 FF FF 00 40 .....@
000000A0 FF BF FF FF 00 00 FF FF 5A 5A A5 A5 FF FF FF FF .....ZZ.....
000000B0 00 5A FF A5 FF FF FF FF FF FF FF FF FF FF FF FF .Z.....

```

4.7. MAGNETI MARELLI IAW 8R.30

Read internal EEPROM memory of MOTOROLA MC68HC11A1 microcontroller. Bridge MCU pins 1, 2 and 3. Pin 17 is /RESET, 20 – RXD, 21 – TXD, 26 - +5V. File size is 512 bytes. After clearing old code, car starts without immobilizer.

Immobilizer code is repeated three times at addresses 0020 (inverted code is in address 0021), 0080 (inverted code is in address 0081) and 0120 (inverted code is in address 0121). Replace immobilizer code value at all three places by 00 and their inverted codes by FF.

IAW 8R.30_Coded:

```

00000000 | 00 82 00 84 00 7F 00 7F 00 AE 14 FF FF FF 3D FA | .....=.
00000010 | 00 00 FF FF FF FF FF FF FF FF FF FF FF 55 B0 | .....U.
00000020 | B1 4E 00 FF FF FF FF FF FF FF FF FF FF FF A3 62 | .N.....b
00000030 | FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B1 | .....U.
00000040 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000050 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000060 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000070 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000080 | 00 82 00 84 00 7F 00 7F 00 AE 14 FF FF FF 3D FA | .....=.
00000090 | 00 00 FF FF FF FF FF FF FF FF FF FF FF FF 55 B0 | .....U.
000000A0 | B1 4E 00 FF FF FF FF FF FF FF FF FF FF FF A3 62 | .N.....b
000000B0 | FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B1 | .....U.
000000C0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000000D0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000000E0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000000F0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000100 | 00 82 00 84 00 7F 00 7F 00 AE 14 FF FF FF 3D FA | .....=.
00000110 | 00 00 FF FF FF FF FF FF FF FF FF FF FF FF 55 B0 | .....U.
00000120 | B1 4E 00 FF FF FF FF FF FF FF FF FF FF FF A3 62 | .N.....b
00000130 | FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B1 | .....U.
00000140 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000150 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000160 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000170 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
00000180 | 00 00 00 00 00 00 00 00 00 00 FF FF FF FF FF FF | .....
00000190 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000001A0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000001B0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000001C0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000001D0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000001E0 | FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF | .....
000001F0 | 50 96 00 52 00 35 4A 34 4D 48 34 33 33 35 07 AA | P..R.5J4MH4335..

```

Continued on next page

IAW 8R.30_Cleared:

```

00000000 00 82 00 84 00 7F 00 7F 00 AE 14 FF FF FF 3D FA .....=.
00000010 00 00 FF FF FF FF FF FF FF FF FF FF FF FF 55 B0 .....U.
00000020 00 FF 00 FF FF FF FF FF FF FF FF FF FF FF A3 62 .....b
00000030 FF FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B1 .....U.
00000040 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000050 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000060 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000070 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000080 00 82 00 84 00 7F 00 7F 00 AE 14 FF FF FF 3D FA .....=.
00000090 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B0 .....U.
000000A0 00 FF 00 FF FF FF FF FF FF FF FF FF FF FF A3 62 .....b
000000B0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B1 .....U.
000000C0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000000D0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000000E0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000000F0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000100 00 82 00 84 00 7F 00 7F 00 AE 14 FF FF FF 3D FA .....=.
00000110 00 00 FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B0 .....U.
00000120 00 FF 00 FF FF FF FF FF FF FF FF FF FF FF A3 62 .....b
00000130 FF FF FF FF FF FF FF FF FF FF FF FF FF FF 55 B1 .....U.
00000140 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000150 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000160 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000170 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
00000180 00 00 00 00 00 00 00 00 00 00 FF FF FF FF FF FF .....
00000190 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000001A0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000001B0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000001C0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000001D0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000001E0 FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
000001F0 50 96 00 52 00 35 4A 34 4D 48 34 33 33 35 07 AA P..R.5J4MH4335..

```