

Electrical Test Program – Preparation for Test

Preliminary work:

Diagnosis - Diagnostic Trouble Code (DTC) Memory 11

Preparation for Test

1. Ignition: **OFF**
2. Remove LH-SFI control module (N3/2 or N3/3).
3. After determining which LH-SFI control module (N3/2) and/or (N3/3) is indicating a malfunction, connect socket box with contact module 140 589 02 63 00 and contact box to respective LH-SFI control module (left, right or both one after another) according to connection diagram.
4. **Test steps 1.2 – 1.4, 2.2 – 2.6, 4, 5 and 35 only!**
Ignition: **OFF**
Remove base module (N16/1) and connect socket box with contact module 140 589 01 63 00 and contact box to base module (see DM, Chassis and Drivetrain, Volume 1, section 1, 22).



- When performing test and adjustment work, the engine rpm should only be raised using the accelerator pedal.
If the engine speed is raised via the control linkage in the engine compartment, the “limp-home” mode will become active and will be registered as a DTC in the EA/CC/ISC control module. The ASR MIL will also come on.
- If installing a LH-SFI control module from another vehicle, the control module’s self-adaptation feature must be reset to its mean value (see 11)

Wiring diagrams:

Electrical Troubleshooting Manual, Models 129, 140

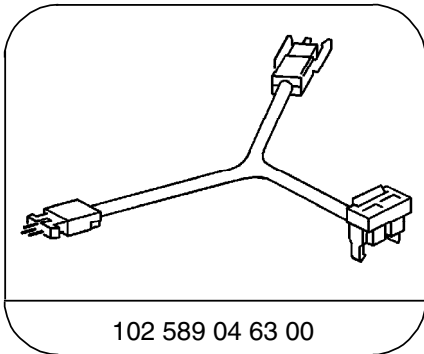
Note regarding “Test Connection” column:

The numbers indicated in parentheses, for example, ⇒ 1.0 (1.23) signify:

- 1= Connector 1 on wiring diagram,
- 23= Socket 23 on wiring diagram.

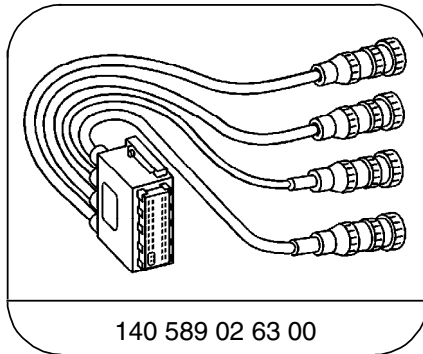
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Special Tools



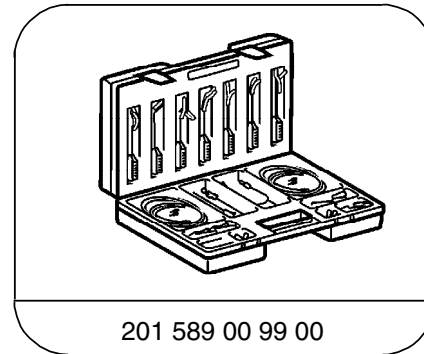
102 589 04 63 00

Test cable



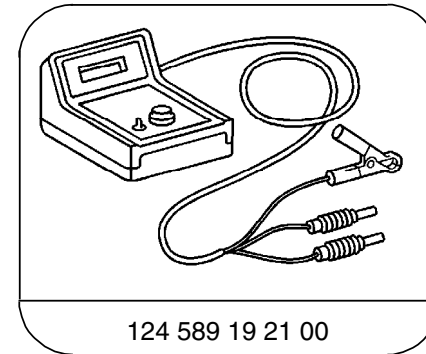
140 589 02 63 00

Contacting module 2



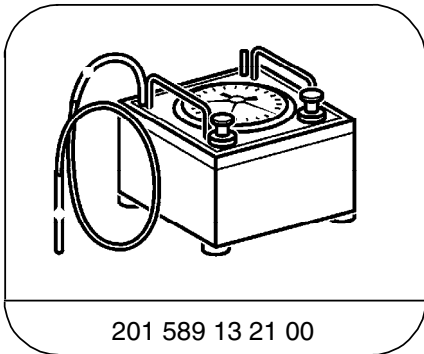
201 589 00 99 00

Electrical connecting set



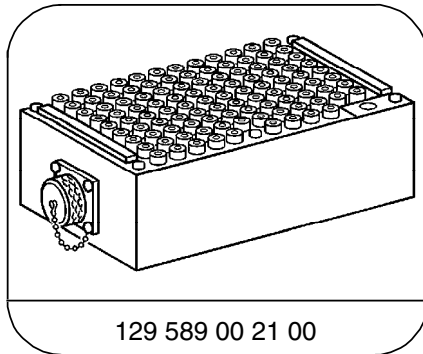
124 589 19 21 00

Pulse counter



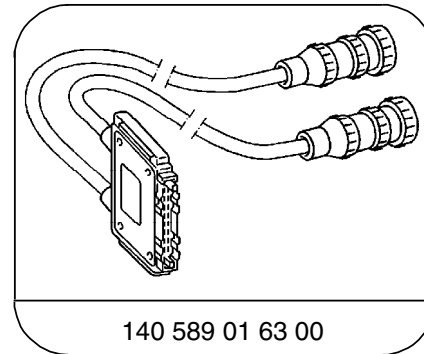
201 589 13 21 00

Tester



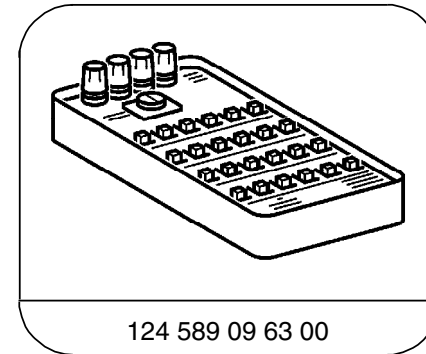
129 589 00 21 00

126-pin socket box



140 589 01 63 00

Contacting module 1

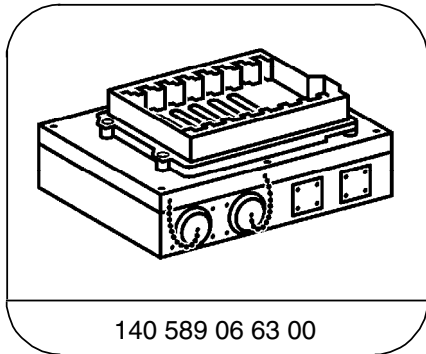


124 589 09 63 00

Ohm decade

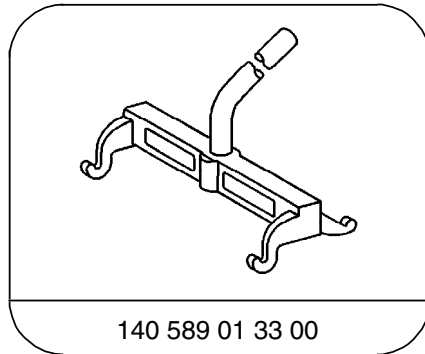
Electrical Test Program – Preparation for Test

Special Tools



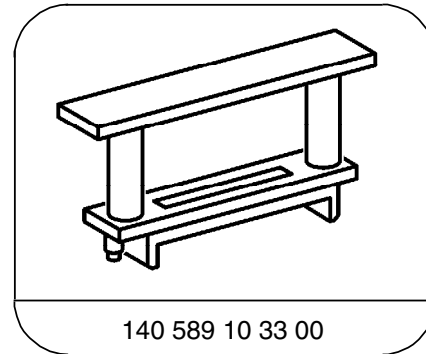
140 589 06 63 00

Contacting box



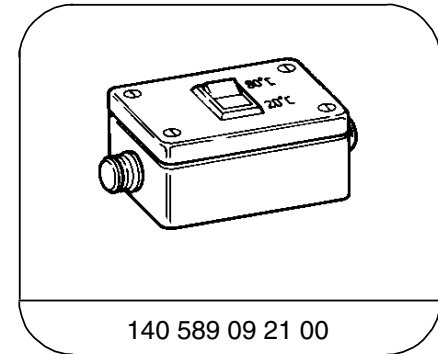
140 589 01 33 00

Mounting lever



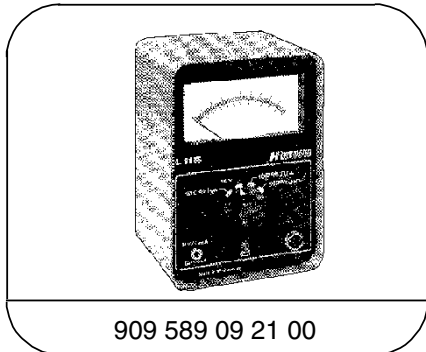
140 589 10 33 00

Spacer



140 589 09 21 00

Simulator



909 589 09 21 00

On-Off Ratio Tester

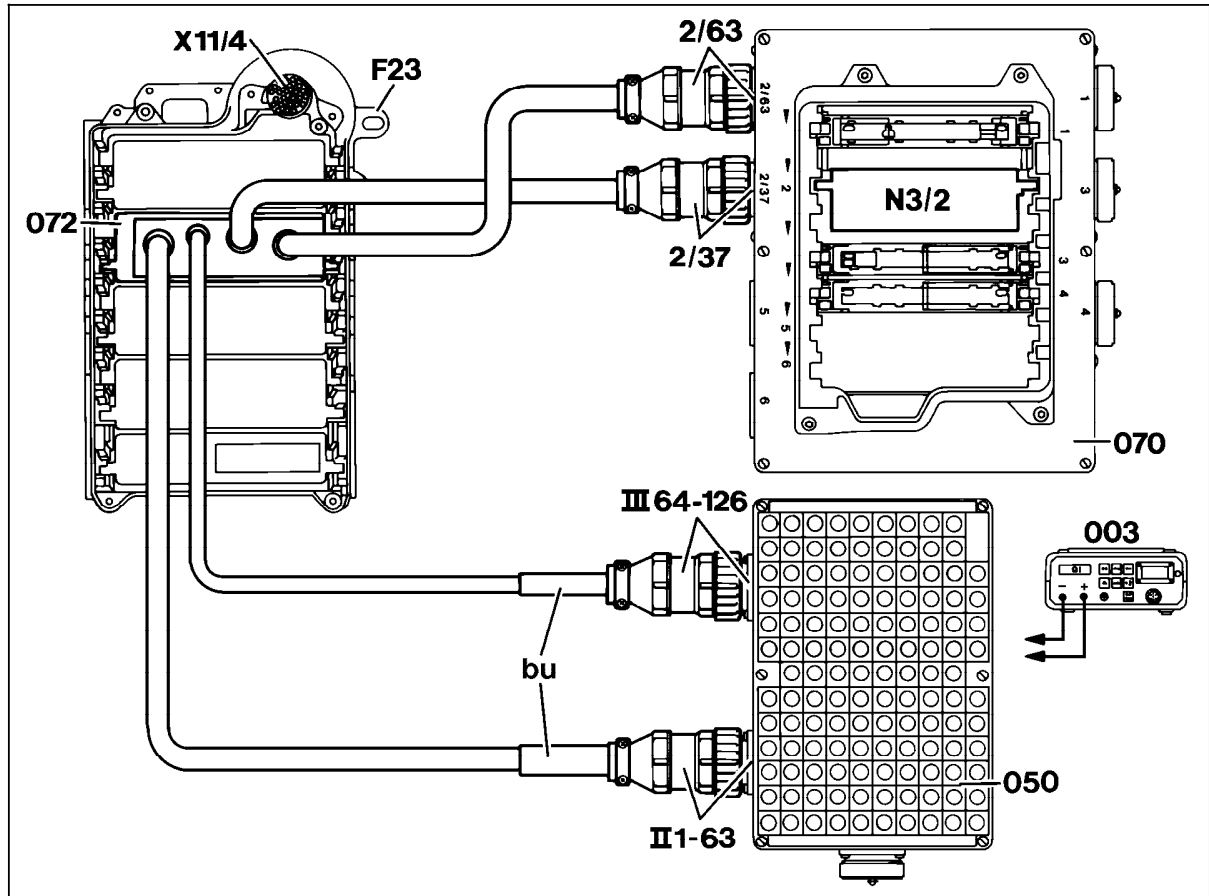
Conventional tools, test equipment

Description	Brand, model, etc.
Multimeter ¹⁾	Fluke models 23, 83, 85, 87
Engine analyzer ¹⁾	Bear DACE (Model 40-960) Sun MEA-1500MB

¹⁾ Available through the MBUSA Standard Equipment Program.

Electrical Test Program – Preparation for Test

Connection Diagram - Socket Box
Left LH-SFI Control Module (N3/2)
Model 129



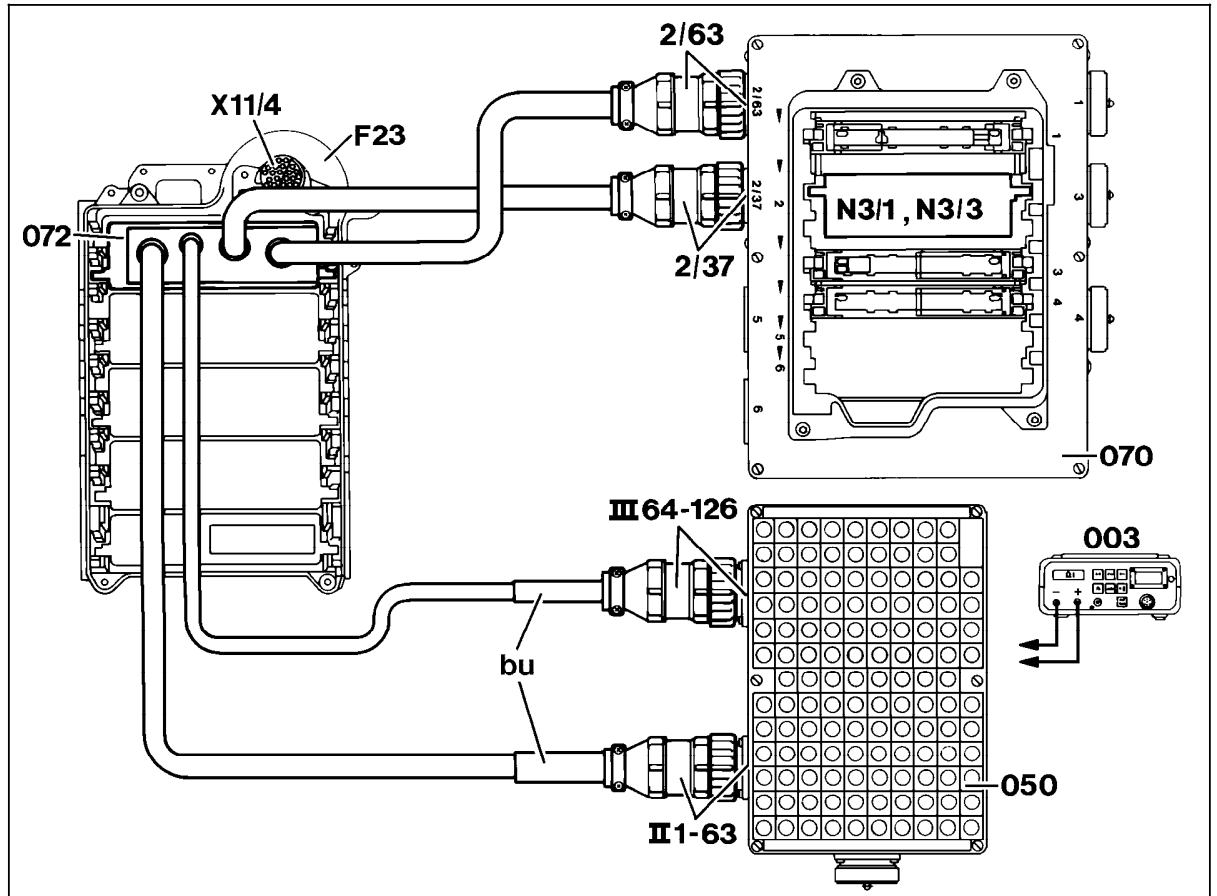
U07-5639-57

Figure 1

- 003 Multimeter
- 050 Socket box (126-pole)
- 070 Contact box
- 072 Contact module
- F23 Module box
- N3/2 Left LH-SFI control module
- X11/4 Data link connector (DTC readout)
- bu blue

Electrical Test Program – Preparation for Test

Connection Diagram - Socket Box
Right LH-SFI Control Module (N3/3)
Model 129



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Figure 2

- 003 Multimeter
- 050 Socket box (126-pole)
- 070 Contact box
- 072 Contact module
- F23 Module box
- N3/1 LH-SFI control module
- N3/3 Right LH-SFI control module
- X11/4 Data link connector (DTC readout)
- bu blue

Electrical Test Program – Preparation for Test

**Connection Diagram - Socket Box
Left LH-SFI Control Module (N3/2)
Model 140**

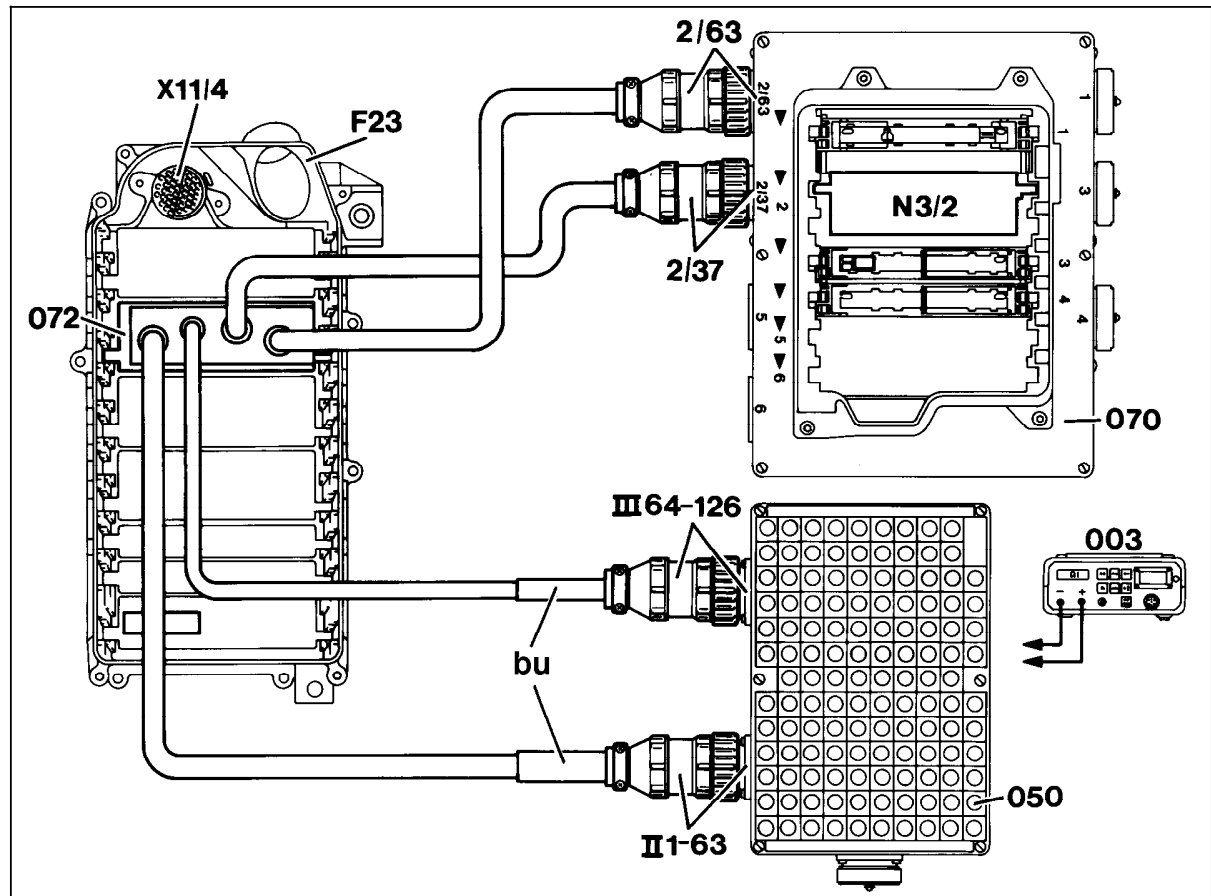


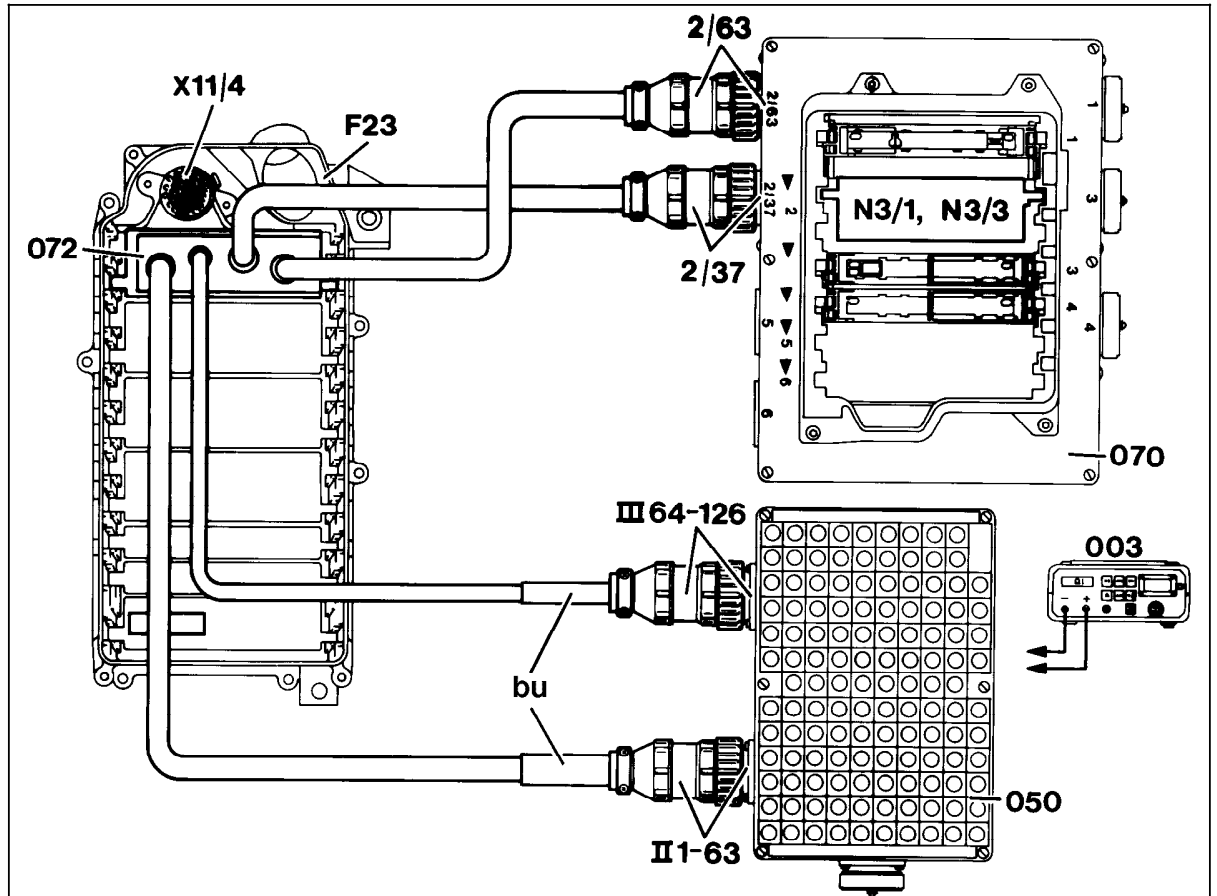
Figure 3

- 003 Multimeter
- 050 Socket box (126-pole)
- 070 Contact box
- 072 Contact module
- F23 Module box
- N3/2 Left LH-SFI control module
- X11/4 Data link connector (DTC readout)
- bu blue

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Electrical Test Program – Preparation for Test

Connection Diagram - Socket Box
Right LH-SFI Control Module (N3/3)
Model 140



U07-0728-57

Figure 4

- 003 Multimeter
- 050 Socket box (126-pole)
- 070 Contact box
- 072 Contact module
- F23 Module box
- N3/1 LH-SFI control module
- N3/3 Right LH-SFI control module
- X11/4 Data link connector (DTC readout)

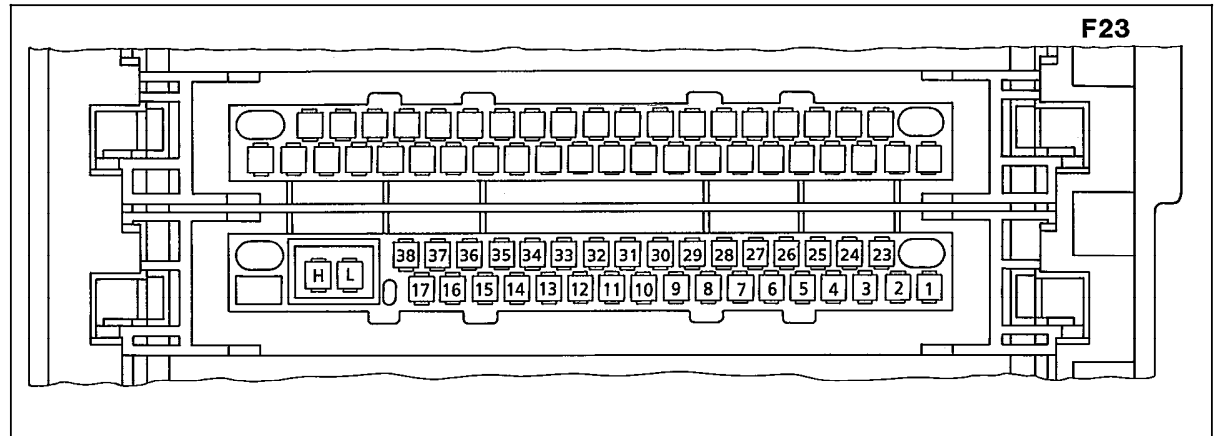
- bl blue

Electrical Test Program – Preparation for Test

Layout LH-SFI Control Module Connector “1” – Interior

Figure 5

- 1 Not used
- 2 Ground coding (left LH-SFI control module N3/2 only)
- 3 – 8 Not used
- 9 Fuel consumption gauge (right LH-SFI control module N3/3 only)
- 10 Not used
- 11 CTP (idle) recognition from EA/CC/ISC control module
- 12 Not used
- 13 Diagnostic wire
- 14 Diagnostic wire insulation
- 15 – 22 Not used
- 23 Ground (model 129: module box bracket - W27,
model 140: electronics output ground - W15)
- 24 Voltage supply, circuit 87
- 25 FP relay module
- 26 Voltage supply, circuit 30
- 27 Not used
- 28 TN-signal (rpm signal) output
- 29 Not used
- 30 Safety fuel shutoff from EA/CC/ISC control module
- 31 – 33 Not used
- 34 Starter signal, circuit 50
- 35 Ground (electronics - W15/1)
- 36 Voltage supply, circuit 87
- 37 Ground (model 129: module box bracket - W27,
model 140: electronics output ground - W15)
- 38 Not used
- L CAN (-)
Controller area network (LH-SFI, DI, EA/CC/ISC and
ABS/ASR control modules)
- H CAN (+)
Controller area network (LH-SFI, DI, EA/CC/ISC and
ABS/ASR control modules)



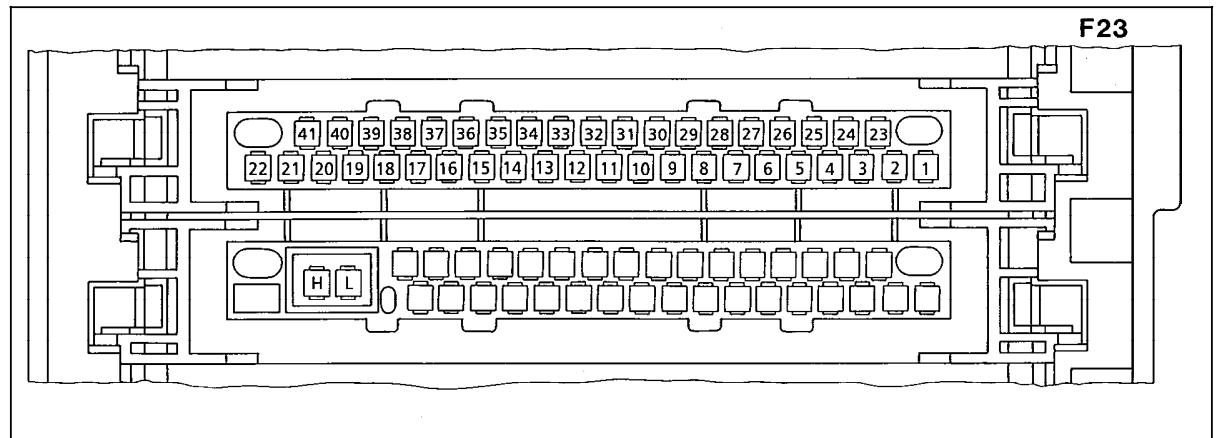
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Electrical Test Program – Preparation for Test

Layout LH-SFI Control Module Connector “2” – Engine Compartment

Figure 6

- | | |
|---------|---|
| 1 | Not used |
| 2 | Injector N3/2 (9), N3/3 (4) |
| 3 | Injector N3/2 (7), N3/3 (6) |
| 4 | Injector N3/2 (8), N3/3 (5) |
| 5 | TN-signal (rpm signal) (input) |
| 6 | CMP sensor signal |
| 7 | Not used |
| 8 | IAT sensor |
| 9 | O2S 1 (before TWC) heater |
| 10 – 12 | Not used |
| 13 | O2S 1 (before TWC) wire insulation |
| 14 | O2S 1 (before TWC) |
| 15 | O2S 1 (before TWC) ground |
| 16 | Sensor ground |
| 17 | Hot wire MAF sensor signal |
| 18 | ECT sensor, circuit 2 |
| 19 | AIR relay module (right LH-SFI control module N3/3 only) |
| 20 | Upshift delay control (right LH-SFI control module N3/3 only) |
| 21 – 22 | Not used |



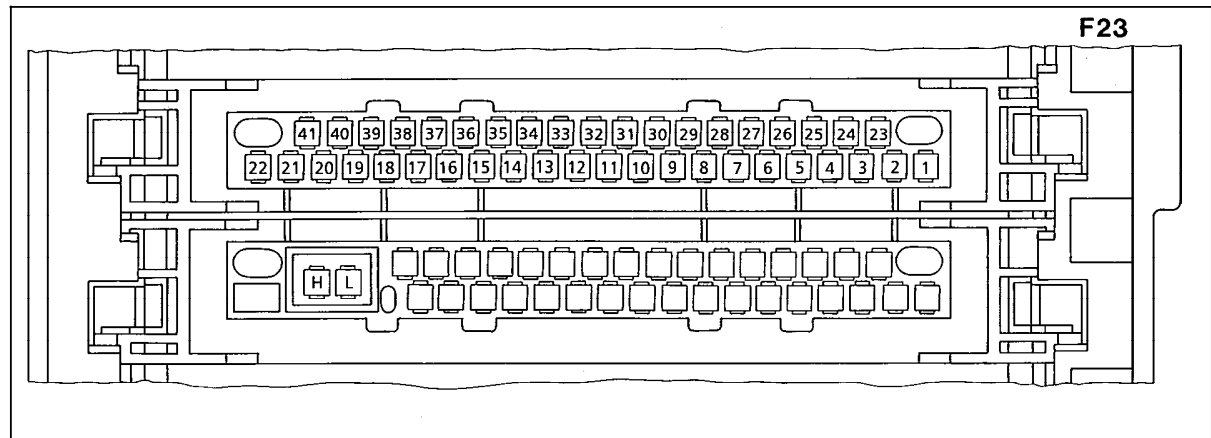
P07-5170-53

Electrical Test Program – Preparation for Test

Layout LH-SFI Control Module Connector “2” – Engine Compartment (continued)

Figure 7

- 23 Hot wire MAF sensor voltage supply
- 24 Not used
- 25 Injector N3/2 (11), N3/3 (2)
- 26 Injector N3/2 (10), N3/3 (3)
- 27 Injector N3/2 (12), N3/3 (1)
- 28 – 29 Not used
- 30 Coding (ground)
- 31 ECT sensor, circuit 1
- 32 – 33 Not used
- 34 Hot wire MAF sensor ground
- 35 Not used
- 36 On-off ratio measurement output
- 37 Burn-off signal for hot wire MAF sensor
- 38 Purge control valve
- 39 EGR switchover valve
- 40 Not used
- 41 Adjustable camshaft timing solenoid, N3/2 left,
N3/3 right



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