TRISCO®

Instruction Manual

for

PS-411-BENZ

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P/No. 244.878
V3.1

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ⓘNotes

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This instruction manual is to provide users the information how to operate this tool on test procedures properly. Trained technicians are recommended to operate this tool for both safety of the personnel and the efficient operation of the vehicles. The use of incorrect operation procedures and this tool may cause the risk of personal injury and render the vehicle unsafe.

SECTION 1
BENZ TESTABLE SYSTEM

1. BENZ Testable Systems On The Digital Type Systems

SYSTEM	Model Year	Read ECU Version	Read Codes	Erase Codes
ENGINE				
CFI(CIS-E)	1988-1992	●	●	●
H-SFI Right Bank	1991-1995	●	●	●
LH-SFI Left Bank	1991-1995	●	●	●
LH-SFI(119/120)	1991-1995	●	●	●
HFM-SFI	1991-1999	●	●	●
PMS/PEC	1993-1996	●	●	●
ME Right Bank	1996-2001	●	●	●
ME Left Bank	1996-2001	●	●	●
ME 1.0 Right Bank	1995-1999	●	●	●
ME 1.0 Left Bank	1995-1999	●	●	●
ME2.0(111/112/113 ENG)	1996-05/2000	●	●	●
ME 2.1(111/104 ENG)	1996-05/2000	●	●	●
ME 2.8(112/113 ENG)	06/2000-2002	●	●	●
EA/CC/ISC	1991-1996	●	●	●
BM	1991-1996	●	●	●
DM	1991-1996	●	●	●
CF	1991-1995		●	●
CDI 1,CDI 2		●	●	●
CHASSIS				
ETC(722.5)	1991-1995	●	●	●
ETC(722.6)	1996-2001	●	●	●
ABS	1991-2001	●	●	●
ASR	1993-1999	ECU Not Fit	●	●
ETS	1993-1999	●	●	●
ESP	1995-2001	●	●	●
BAS	1996-2001	●	●	●

SYSTEM	Model Year	Read ECU Version	Read Codes	Erase Codes
BODY				
SRS	1993-2001	●	●	●
ICM(KI)	1996-2001	●	●	●
ATA	1990-1995	●	●	●
IRCL	1990-1995	●	●	●
D2B		●	●	●
OCP	-2001	●	●	●
LCP	-2001	●	●	●
PTS	-2001	●	●	●
EIS	-2001	●	●	●
ESP	-2001	●	●	●
EA/CC/ISC	1991-1995	●	●	●
PSE	-2001	●	●	●
Oil Reset	1996-2000			
CLIMATE CONTROL				
Automatic AC	1991-2001	●	●	●
Tempmatic AC	1991-2001	●	●	●

2. BENZ Testable Systems On The Analog Type Systems (1987-1995)

SYSTEM	Model Year	Read Stored Codes	Erase Stored Code
ENGINE			
ELR	1989	●	●
EZL	1990-1993	●	●
EDS	1990-1993	●	●
CIS-E	1987-1992	●	●
BM	1992-1993	●	●
ESCM	1991-1995	●	●
DI	1991-1993	●	●
OP	1991-1993	●	●
EA/CC/ISC	1990-1995	●	●
CHASSIS			
ETC	1990-1993	●	●
4MATIC	1990-1993	●	●
ADS	1991-1993	●	●
ASD	1991-1993	●	●
ABS	1992-1995	●	●
ASR	1992-1995	●	●
ETS	1992-1995	●	●
SPS	1992-1995	●	●
PML	1992-1995	●	●

SYSTEM	Model Year	Read Stored Codes	Erase Stored Code
BODY			
RB	1990-1995	●	●
CST	1993-1995	●	●
RST	1990-1995	●	●
RCL	1990-1995	●	●
PSE	1992-1995	●	●
ATA	1990-1995	●	●
CF	1992-1995	●	●
SRS	1988-1995	●	●
EZL		●	●
CLIMATE CONTRAL			
AC	1988-1995	●	●

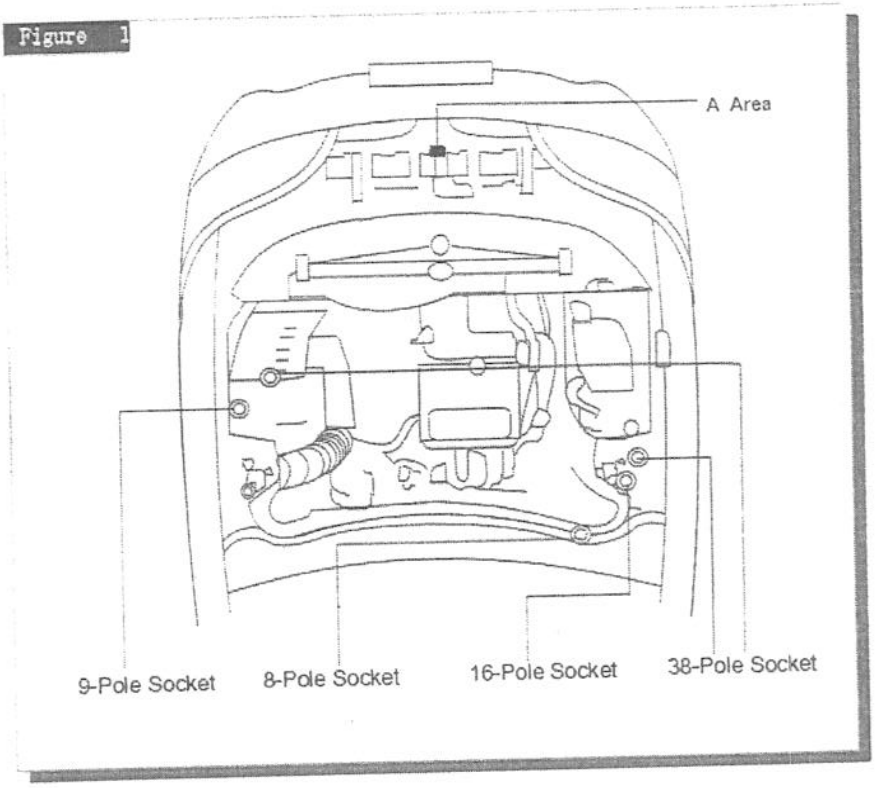
Table 3: Testable Systems for BENZ OBD-II Socket （ Data Stream Mode ）

System	Read Code	Erase Code	Read ECU Version
CDI1,CDI2	●	●	●
ENG（ ME1.0/2.X ）	●	●	●
ETC	●	●	●
ESP	●	●	●
SRS	●	●	●
ICM	●	●	●
AAC	●	●	●
PSE	●	●	●
OCP	●	●	●
LCP	●	●	●
D2B	●	●	●
PTS	●	●	●
EIS	●	●	●

SECTION 2
LOCATION AND CONNECTION FIGURE

2.1 Location Figure of Diagnostic Socket

Figure 1



Diagnostic Socket Location:

2.1.1 Models 201,126,124

Vehicle diagnostic socket is located in the engine compartment, near battery, in front of passenger side.

2.1.2 Models 202,129 and model 140 before 1996

Vehicle diagnostic socket is located in the engine compartment, ECU box, in front of passenger side.

2.1.3 Model 140 after 1996

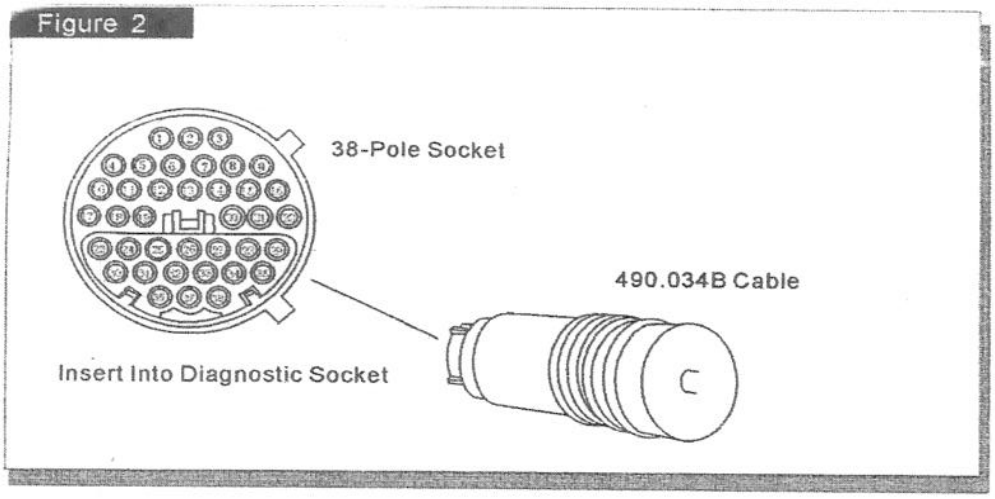
Vehicle diagnostic socket is located in the engine compartment, in front of passenger side.

2.1.4 Model 210

Vehicle diagnostic socket is located in the engine compartment, fuse box, in front of passenger side.

2.2 Connection Figure Of 38-pole Diagnostic Socket

Figure 2



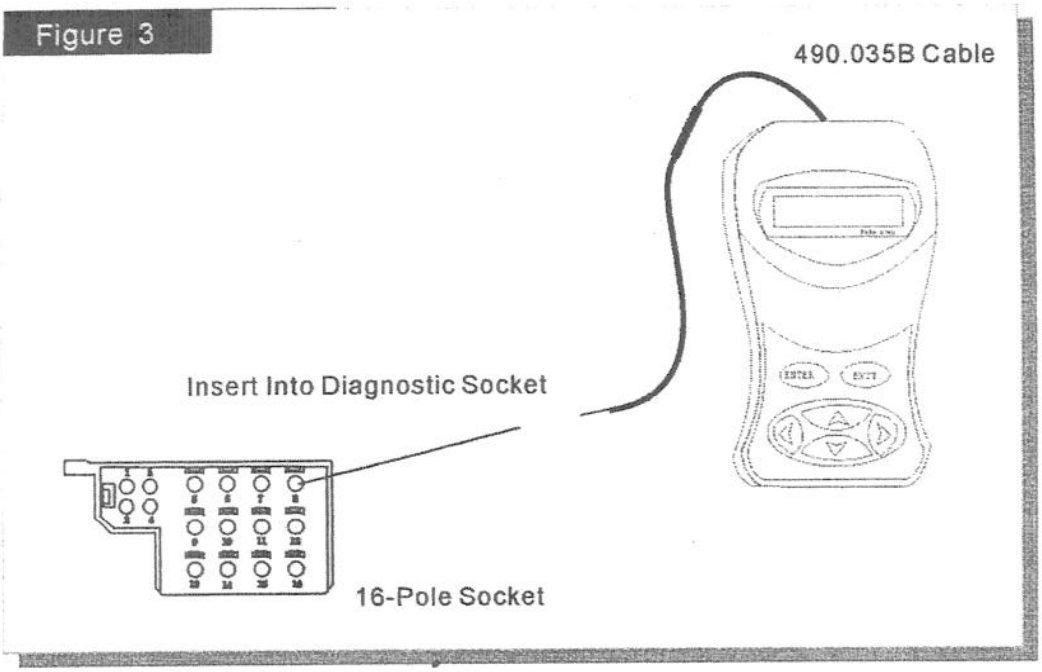
38-Pole Diagnostic Socket (Models 124.129.140.202.210)

Diagnostic Pole	Test System	Explanation
1	Ground	Circuit 31 (ground) W12,W15 (electronics ground)
2		Voltage. circuit 87 or15z
3		Voltage, terminal 30
4	EDS	Electronic diesel system
4	IFI	In-line fuel injection
4	DFI	Electronic distributor-type fuel injection (Diesel)
4	HFM —SFI	HFM sequential multiport fuel injection/ignition(hot-film engine management)
4	LH —SFI	LH sequential multiport fuel injection system, engines 104,119, engine 120 LH-SFI right
4	ME —SFI	Motor electronics with sequential multi-port fuel injection/ ignition system (ME-SFI), engine 119,engine 120 ME-SFI right
5	LH —SFI	LH Sequential multi-port fuel injection , left , engine 120
5	ME —SFI	Motor electronics with sequential multiport fuel injection /ignition system (ME-SFI) left, engine 120
6	ABS	Anti-lock brake system
6	ETS	Electronic traction support
6	ASR	Acceleration slip regulation
6	ESP	Electronic stability program
7	EA	Electronic accelerator
7	ISC	Idle Speed Control
7	CC	Cruise control/idle speed control
8	BM	Base module
8	BAS	Brake assist
9	ASD	Automatic locking differential, models 124,129,140

EZL
OP

Diagnostic Pole	Test System	Explanation
10	EATC	Electronic automatic transmission control (5-speed AT) (transmission 722.6)
10	ETC	Electronic transmission control (transmission 722.6)
11	ADS	Adaptive damping system
12	SPS	Speed-sensitive power steering
13		TD speed signal (time division) (DI) (diesel) models 202.210
13		TNA signal (gasoline) on LH-SFI
13		TN speed signal (DI/KSS) (gasoline) on HFM-SFI, ME-SFI
14		Lambda on/off ratio of LH-SFI engine 119, engine 120 LH-SFI, right
15		Lambda on/off ratio of LH-SFI left, engine 120
15	IC	Instrument cluster
16	HEAT	Automatic heater
16	(Tempmatic) A/C	Air conditioning (Tempmatic)
16	(Automatic) A/C	Air conditioning (Automatic)
17	DI	Distributor ignition, engines 104,119, engine 120, right.
17		TD Speed signal (time division) (DI) (diesel) model 140
17		TN Speed signal (DI/KSS) (gasoline) on LH-SFI/model 202 HFM-SFI
18	DI	Distributor ignition, engine 120, left
19	DM	Diagnostic module
20	PSE	Pneumatic system equipment, model 140 multi-function control module, model 210.
21	CF	Convenience feature, model 140
21	RST	Roadster soft top, model 129
22	RB	Roll bar, model 129
23	ATA	Anti-theft alarm
24-25		-
26	ASD	Automatic locking differential, model 202
27		-
28	PTS	Parktronic system, model 140
29		-
30	AB	Airbag/emergency tensioning retractor
31	RCL	Remote central locking
32		-
33	RD	Radio Audio 10, Audio 30, Audio 30 APS and COMAND with D2B
34	ICS	Information and communication system
35		-
36	STH	Stationary heater
36	HB	Heater booster
37-38		-

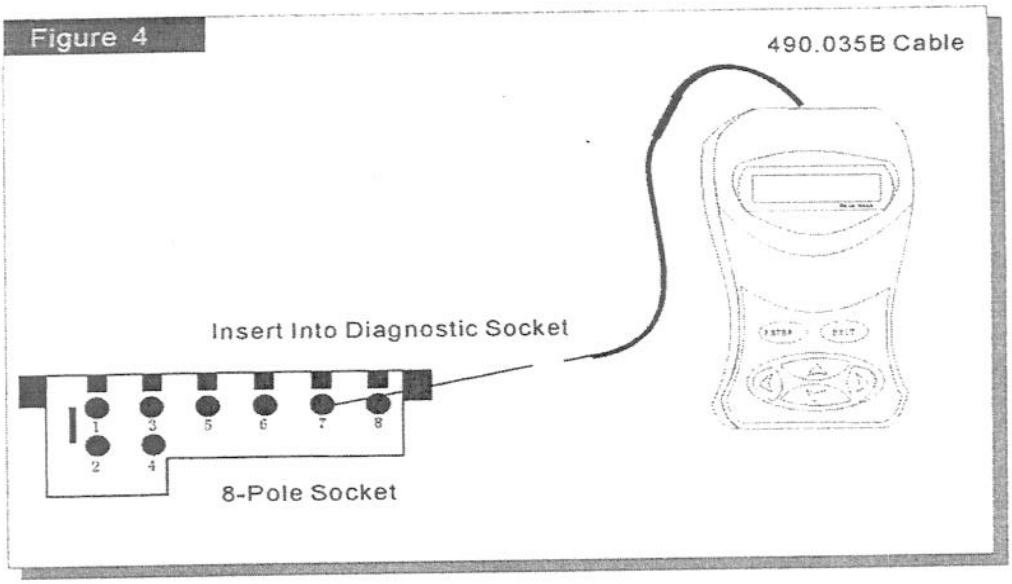
2.3 Connection Figure Of 16-Pole Diagnostic Socket



16-Pole Diagnostic Socket (Models 124,129)

Diagnostic Pole	Test System	Explanation
1	Ground	Ground
3	CIS-E	Continuous Fuel Injection System(CFI)
	DM	Diagnostic Module-LED (California only)
4	EDS	Electronic Diesel System
5	ASD	Automatic Locking Differential
	4MATIC	Automatic Engaged four Wheel Drive
6	SRS/AB	Supplemental Restraint System/Air Bag
7	A/C	Air Conditioning (Model 124)
	RB	Roll Bar (Model 129)
8	DI	Distributor Ignition
	HFM-SFI	HFM Sequential Multi-port Fuel Injection/Ignition System
	PMS (PEC)	Pressurized Engine Control
9	ADS	Adaptive Damping System
	RB	Roll Bor (Model 124)
10	RST	Roadster Soft Top (Model 129)
11	ATA	Anti-Theft Alarm System
12	IRCL	Infrared Remote Central Locking
13	ETC	Electronic Automatic Transmission Control
14	EA	Electronic Accelerator (Model 124)
	CC/ISC	Cruise Control/Idle Speed Control (Model 124)
	ESCM	Engine System Control Module (Model 129)
15		Not Used
16		Voltage, Ignition ON (Circuit 15)

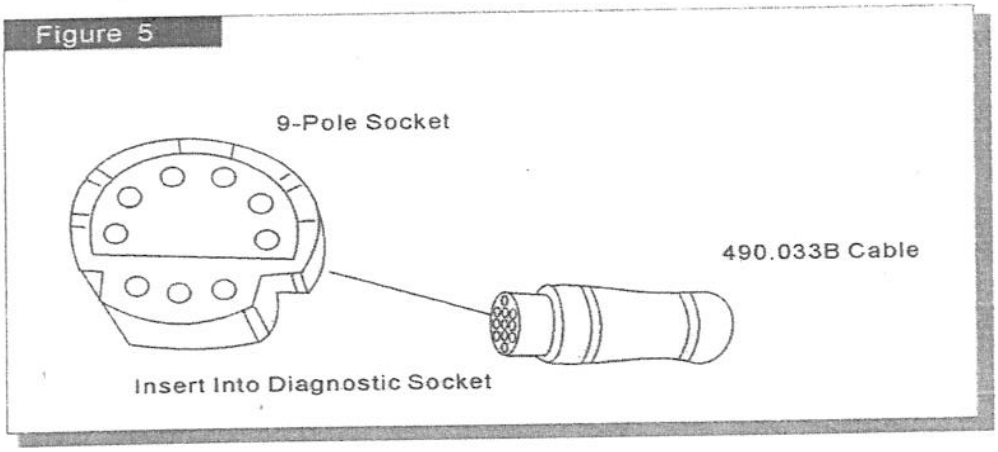
2.4 Connection Figure Of 8-Pole Diagnostic Socket



8-Pole Diagnostic socket (Model 201,124,126)

Diagnostic Pole	Test System	Explanation
1	Ground	Ground
2		Not Used
3	CIS-E	Continuous Fuel Injection System(CFI)
4	ELR	Diesel Engine Electronic Idle Speed Control System
	EDS	Electronic Diesel System
5	ASD	Automatic Locking Differential
	4MATIC	Automatic Engaged Four Wheel Drive (124 only)
6	SRS	Supplemental Restraint System
7	A/C	AIR Conditioning
8		NOT Used

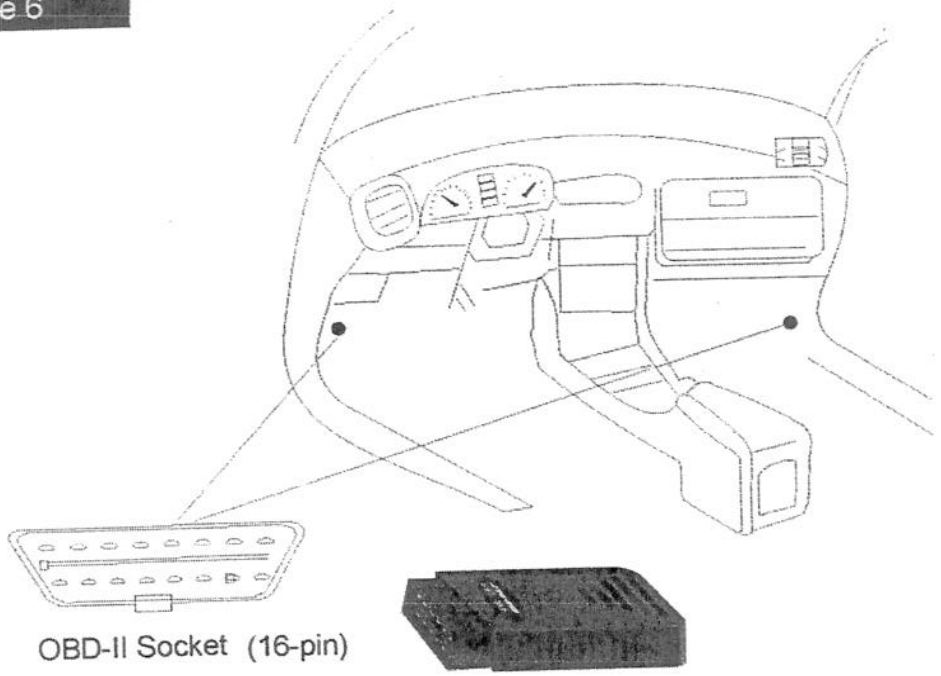
2.5 Connection Figure Of 9-Pole Diagnostic Socket



The 9-pole diagnostic socket comes with earlier model vehicles. It can display on-off ratio fault codes. Various on-off ratio meters are available.

2.6 Connection Figure of OBD-II-pole Diagnostic Socket.

Figure 6



OBD-II Socket (16-pin)

490.059B ADAPTOR CABLE

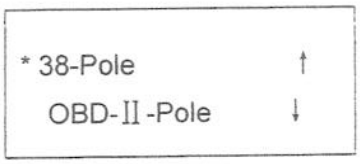
SECTION 3
TESTING STEPS FOR BENZ

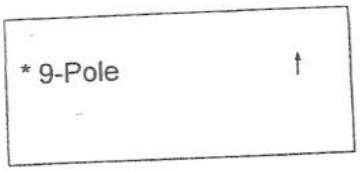
1. Insert BENZ software cartridge into the interface at the bottom of the Scanner. According to the diagnostic socket location figure, find out the socket. Select test cable in accordance with the shape of the diagnostic socket, attach one end of the test cable to the Scanner's adapter cable. Attach the other end of the cable to the vehicle's diagnostic socket.

2. If there is no power from the diagnostic socket, insert the power plug into the vehicle's cigarette lighter receptacle (The vehicle's cigarette lighter is located under the center of I/P, in front of the gear lever.), or clamp the two pliers power adapter to vehicle battery, red clip to positive(B+), black clip to negative(B-).

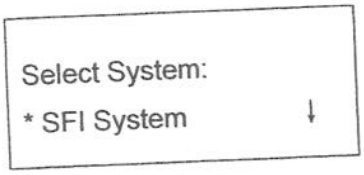
3. Turn ignition switch to ON position, but don't start engine. The Scanner's screen will auto-display:

4. Continue to press "→" key, the screen will sequentially display:

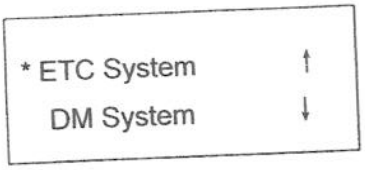


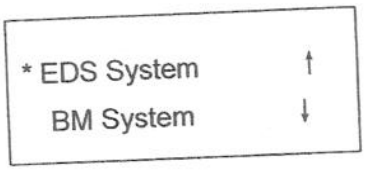


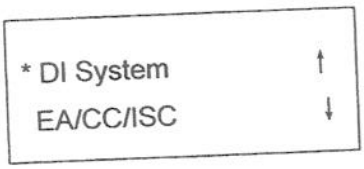
5.Accoding to the diagnostic socket figure, select 9-pole or 8/16-pole or 38-pole or OBD-II socket. For example: socket of the vehicle being tested is of 38-pole, at the screen display in step 4, the "*" symbol points at "38-pole", so press "Enter" key, the screen displays:

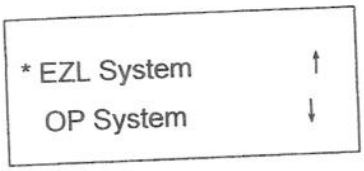


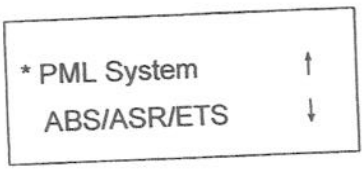
Continue to press " →" key, the screen will sequentially display:

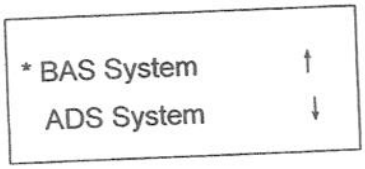


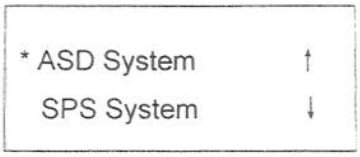








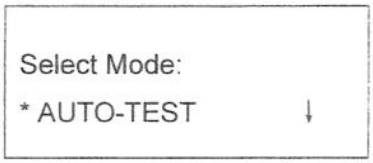




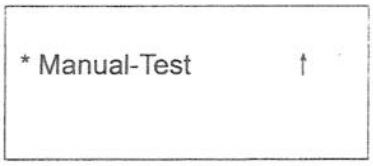
Press "←" key, the screen will return to the previous display.

Note: " ↑ 、 ↓ " symbols displayed at the right side of the screen mean that you can page the screen up or down by pressing "←" key or "→" key.

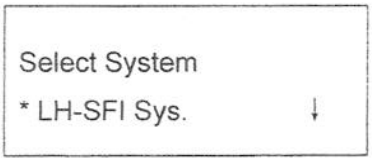
6. Press " ↑ 、 ↓ " key to move "*" symbol or press "←" key or "→" key to page screen up or down to select systems, when the "*" symbol is pointing at the system you want to test, press "ENTER" key, then the Scanner will display some test modes for you to select. Take SFI system as an example, at the first screen display in step 5, the " * " symbol is pointing at "SFI system", so press "ENTER" key, the screen displays:



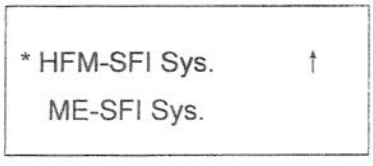
Press " → " key, the screen displays:



7. Press " ↑ 、 ↓ " key to move " * " symbol or press "←" key or "→" key to page screen up or down to select test mode, when the " * " symbol system points at the test mode you have selected, press "ENTER" key, then the Scanner will test the subsystem with the selected mode. Take manual-test mode as an example, at the second screen display in step 6, the " * " symbol is pointing at "Manual.-Test ", so press "ENTER" key, the screen displays :

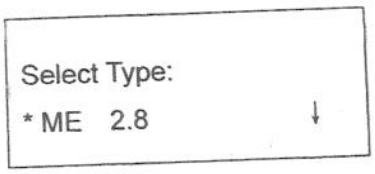


Press " → " key, the screen displays:

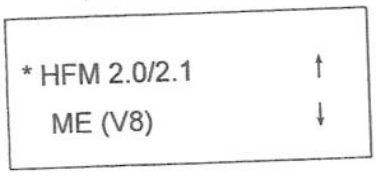


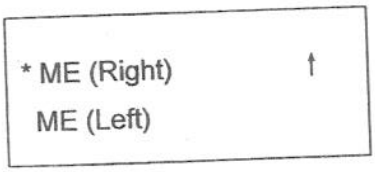
8. Press corresponding key to select engine type. For example, if the engine type is of ME, at the second screen display in step 7, press " ↓ " key to move the "*" symbol to point at " ME-SFI

Sys." , then press "ENTER" key, the screen displays:

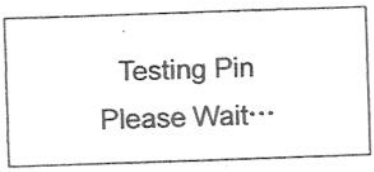


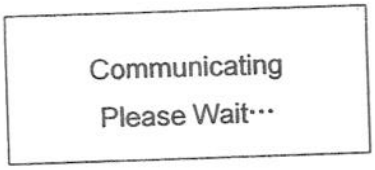
Continue to press "→" key, the screen will sequentially display:



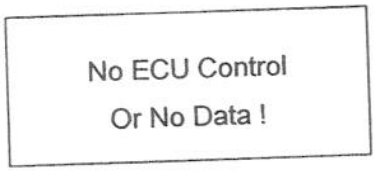


9. Press corresponding key to select ME type. For example, at the third screen display in step 8, press " ↓ " key to move the "*" symbol to point at "ME (Left)" , then press "ENTER" key to select "ME (Left)" , the screen displays:





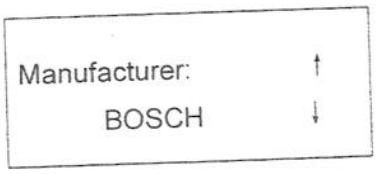
Soon afterwards, if the screen displays:

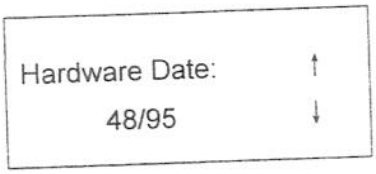


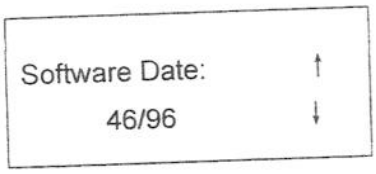
Please check whether the test cable/connector is attached correctly and ignition is turned to ON position, press any key to exit and perform communicating again. If the screen still displays the above words, which means the ECU or its circuit is fault or there is not this system on the vehicle, therefore this system can't be tested, please test other system.

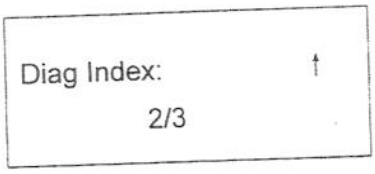
10. If communications parsed, the screen will display:

Continue to press " → " key, the screen will sequentially display:

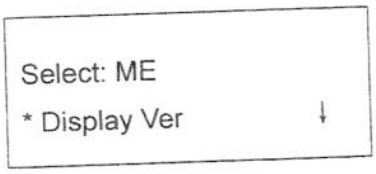




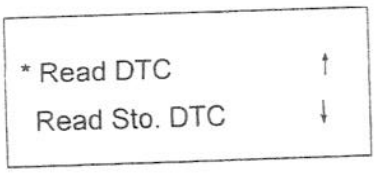


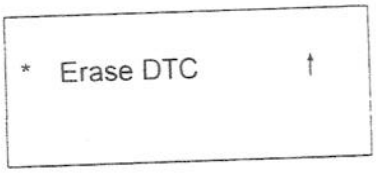


11.Press " EXIT " key, the screen will display functions you can perform:



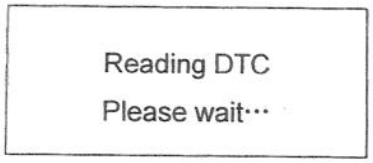
Continue to press " → " key, the screen will sequentially display:



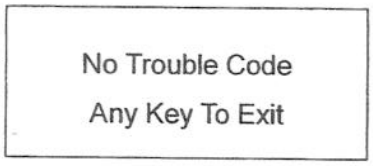


12. According to operations you want to perform, select corresponding keys to select. For example, at the second screen display in step 11, press" ENTER "key to select " Read DTC ", the

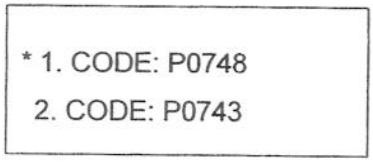
screen displays:



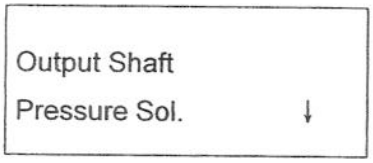
13. If the system is functioning normally, the screen will display:



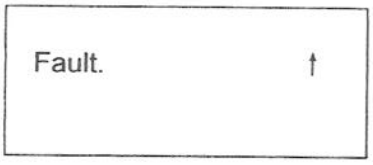
14. If the system fails, the screen will display trouble codes of the system, For example, the screen displays:



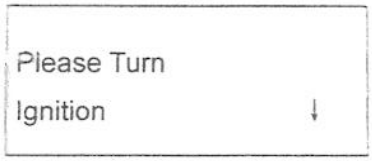
15. Press " ↑ 、 ↓ " key to move the "*" symbol to point at the code you want to read, you can read its contents after pressing "ENTER" key, For example, press "ENTER" key at the above screen display to read contents of code P0748, the screen will display:



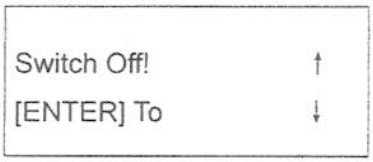
Press " → " key, the screen displays:

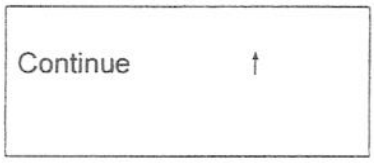


16. After reading contents of all fault codes, eliminate faults from vehicle according to information provided by the Scanner, when all faults have been eliminated, use the Scanner to erase fault codes, press "ENTER" key at the third screen display in step 11 to select "Erase DTC" , the screen displays:

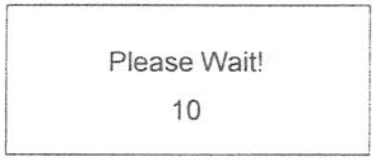


Continue to press "→" key, the screen displays:

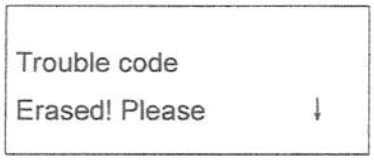




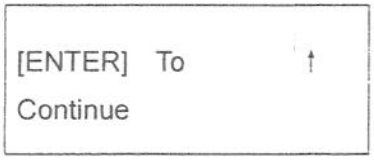
17. According to the screen's hints, turn ignition off, then press "ENTER" key, and the screen displays:



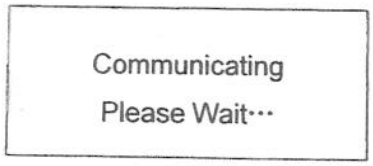
Wait for 10 seconds, the screen displays:



Continue to press "→" key, the screen will sequentially displays:

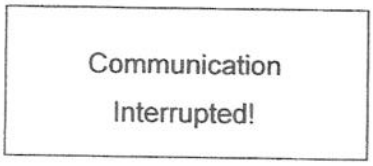


18. Turn ignition on, then press "ENTER" key, the screen displays:



If communications passed, the screen will return to the screen display in step 11.

19. During normal operations, if the screen suddenly display:



If indicates that you made the cable connector, diagnostic socket or adapter loose during operation, causing communications to be interrupted between the scanner and the vehicle module, check the connection between the connector, the plug and the diagnostic socket, press any key to exit and operate again.

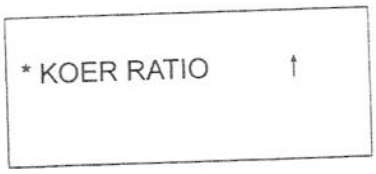
20. The above statements is an example for the Scanner to test SFI system (ME type) of BENZ vehicle with 38-pole diagnostic socket, testing steps for other models/systems are similar. As long as you operate correctly according to the screen display, you can get ideal test results,

APPENDIX: Test methods for BENZ vehicles with 8/16-pole,OBD-Ⅱ -pole, 9-pole diagnostic socket.

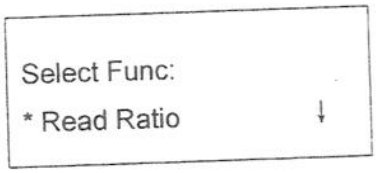
1. 9-pole diagnostic socket

1.1 If the diagnostic socket of the vehicle tested is of 9-pole, at the second screen display in step 4 of section 3, the "*" symbol is pointing at "9-pole", so press "Enter" key, the screen will display:

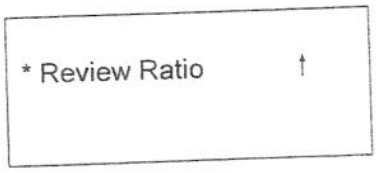
Press " → " key, the screen displays:



1.2 whether you select "KOEO Ratio " or " KOER Ratio", the screen will display:



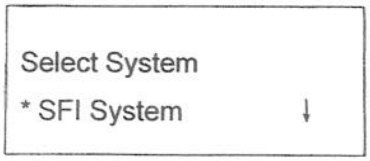
Press " → " key, the screen displays:



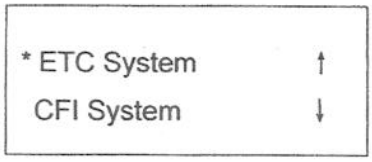
Note : For earlier vehicle with 9-pole diagnostic socket, only " Read Ratio "function can be selected. When testing KOEO percent, turn ignition switch on, but don't start engine. When testing KOER percent, it is necessary to start the engine for 3-5minutes, and keep it idling after the engine is preheated, then press corresponding numeric key to test.

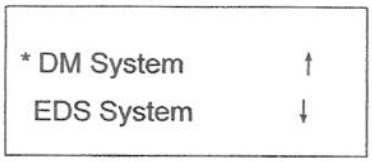
2. 8 /16-pole diagnostic socket

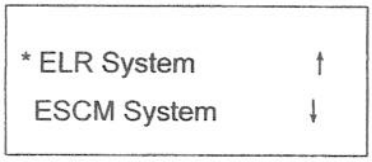
If the diagnostic socket of the vehicle tested is of 8/16-pole, at the first screen display in step 3 of section 3, the "*" symbol is pointing at "8/16-pole", so press "Enter" key, the screen displays:

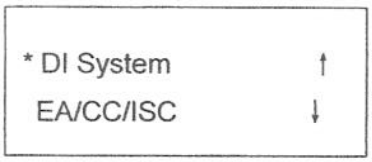


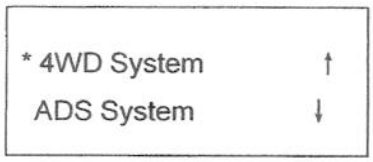
Continue to press "→" key, the screen displays:

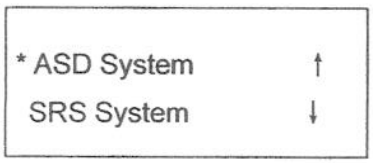


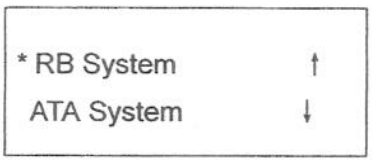


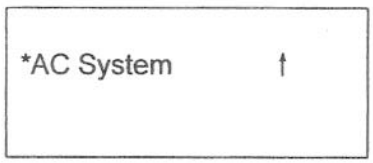








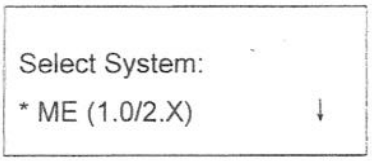




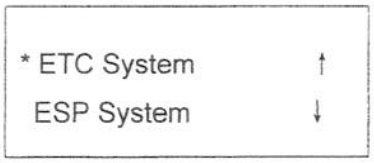
3 OBD-Ⅱ diagnostic socket

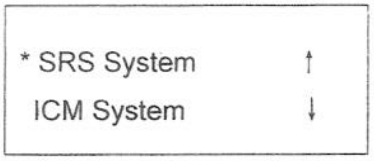
If the diagnostic socket of the vehicle test is of OBD-Ⅱ (16-pin), at the first screen display in

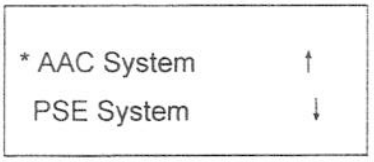
step 4, press " ↓ " key to move the " * " symbol to point at " OBD-II -pole " ,then press " ENTER " key, the screen displays:

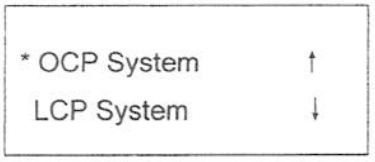


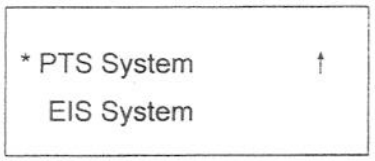
Continue to press " → " key, the screen will sequentially display:











The following operations are similar as 38-pole diagnostic socket.