



Motorcycle Diagnostic Scan Tool

MS5650

TECHNICAL PRESENTATION

Griffin Tools and Supply, LLC

Specializing in Undercar Products and Shop Supplies

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Summary

- Introduction
- What it does
- How it is made
- How it works
- How to connect it
- Which functions it performs
- F.A.Q.



Introduction

- **TECHNICAL EVOLUTION OF MOTORCYCLES**
- **ON BOARD ELECTRONIC CONTROL UNITS**
- **DIAGNOSTIC TOOLS**
- **A UNIVERSAL AFTERMARKET TOOL**



Technical Evolution of Motorcycles

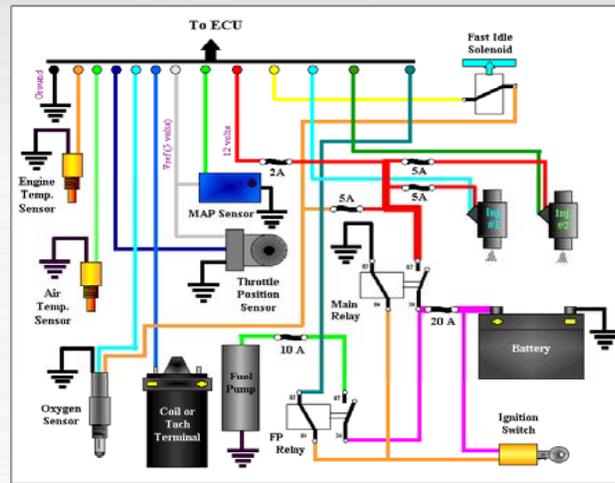
- **NEW GLOBAL EXHAUST EMISSIONS REGULATIONS**
- **CUSTOMER DEMANDS (COMFORT, SAFETY, PERFORMANCE)**



NEW ON-BOARD SYSTEMS

**ADOPTION SPEED
VARIES BY
MANUFACTURER**

On-board Electronic Control Units



**NEW SYSTEMS
MANAGING
INJECTION, ABS,
IMMOBILIZER, ECT.
THROUGH
ELECTRONIC
CONTROL UNITS**

- **CONTROL OF SENSORS AND ACTUATORS**
- **DETECTION OF FAULTS**
- **SERVICE INTERVALS AND BELT REPLACEMENT
MANAGING**
- **FAULT WARNING OR SERVICE LIGHTS TURNING
ON**

Diagnostic tools

- **DIAGNOSTIC TOOLS CONNECT TO THE ECU TO SUPPORT TECHNICIAN**
- **STANDARDS DO NOT EXIST: EVERY MANUFACTURER HAS THEIR OWN SPECIFIC DIAGNOSTIC TOOL OR INTERFACE**

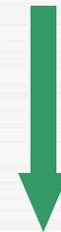


- **D. T. : HARLEY-DAVIDSON**
 - **GT-1 : BMW**
 - **HDS: HONDA**
 - **KDS: KAWASAKI**
 - **DDS: DUCATI**
 - **AXONE: APRILIA**
 - **...**
- **OEM SPECIFIC INTERFACES**
- **PERSONALIZED PROCEDURES**
- **MANUFACTURER SPECIFIC PROTOCOLS**



A universal aftermarket tool

- **THE MS5650 SCAN TOOL IS A UNIVERSAL SCAN TOOL COVERING MOST MAJOR MOTORCYCLE MANUFACTURERS' DIAGNOSTIC FUNCTIONS AND COMMUNICATION PROTOCOLS**



- **TECHNICAL ADVANTAGE:** A SINGLE TOOL FOR EVERY BRAND INSTEAD OF MANY FACTORY TOOLS (USUALLY AVAILABLE ONLY TO DEALERS)
- **ECONOMICAL:** A SINGLE UNIT PURCHASE
- **PRACTICAL:** A SINGLE USER INTERFACE AND STANDARDISED DIAGNOSTIC METHODS

What it does

- **FIXING AND TWEAKING**
- **COVERED SYSTEMS AND
COMMUNICATION PROTOCOLS**
- **COVERED MANUFACTURERS**
- **TOOL FEATURES**
- **FUNCTION TABLE**

Fixing and Tweaking

- **FIXING:** READING STORED FAULTS (CONDITION, DETAIL, POSSIBLE CAUSES) ERASING STORED FAULTS (RE-SET OF FAULT INDICATOR), LIVE DATA DISPLAY AND ANALYSIS, DIAGNOSTIC TESTS, SERVICE LIGHT RE-SET
- **TWEAKING:** INJECTION ADJUSTMENT (CO REGULATION), THROTTLE VALVE POSITION IDENTIFICATION, ALARM SENSITIVITY, PROGRAM NEW KEYS



Covered Systems and Communication Protocols

- **COVERED SYSTEMS:** IGNITION, INJECTION, IMMOBILIZER / ALARM, ABS, INSTRUMENT PANEL, SERVICE LIGHT RE-SET, RADIO, PARKING, TRANSMISSION, ECU, RDC.
DEVELOPMENT OF DIAGNOSTIC FUNCTIONS VARIES BY MANUFACTURER, BUT UNIVERSAL ADOPTION SOON.
- **COMMUNICATION PROTOCOLS:**
 - **KEYWORD 2000**
 - **ISO9141-2**
 - **SAE J1850 41.6 KBPS PWM**
 - **SAE J1850 10.4 KBPS VPW**
 - **CAN BUS**
 - **MANUFACTURER SPECIFIC PROTOCOLS**

Covered Manufacturers



- **COVERED MANUFACTURERS:** ADIVA, APRILIA, ARTIC CAT, BENELLI, BIMOTA, BMW, BRP/ CAN-AM, BUELL, CAGIVA, DAELIM, DERBI, DUCATI, GARELLI, GAS GAS, GIRERA, HARLEY-DAVIDSON, HONDA, HYOSUNG, KAWASAKI, KTM, KVN, KYMCO, LAVERDA, MALAGUTI, MONDIAL, MOTO GUZZI, MOTO MORINI, MV AGUSTA, MZ, PEUGEOT, PIAGGIO, POLARIS, SHERCO, SUZUKI, SYM, TRIUMPH, VESPA, VOXAN, YAMAHA

Tool Features

- **AUTOMATIC AND MANUAL RESEARCH**
- **COMPREHENSIVE DATABASE OF MOTORCYCLE MODELS AND SYSTEMS, INCLUDING CABLE TYPE AND CONNECTOR POSITION**
- **DISPLAY OF DATA FROM THE ECU**
- **READING OF STORED FAULTS**
- **LIVE DATA DISPLAY (RPM, BATTERY VOLTAGE, THROTTLE ANGLE, ETC.)**
- **DIAGNOSTIC PROCEDURES (INJECTORS, IGNITION, COILS, FUEL PUMP, ETC.)**
- **SERVICE LIGHT RE-SET**
- **KEY ENCODING**
- **UNLOCKING THE IMMOBILIZER**
- **INJECTION ADJUSTMENT (CO TRIMMER)**
- **ADJUSTMENT OF THE THROTTLE VALVE POSITION SENSOR (TPS)**
- **CONFIGURING OF THE IMMOBILIZER/ALARM**
- **RE-SETTING OF AUTOADAPTIVE PARAMETERS**
- **IDLING ADJUSTMENT**

Function Table

MOTORBIKE SCANNER 5650 - FUNCTION TABLE REL.07

	Adiva	Aprilia	Arctic Cat	Benelli	Bimota	BMW	BRP CAN-AM	Buell	Cagiva	Daelim	Derbi	Ducati	Garelli	Gas Gas	Gilera	Harley Davidson	Honda	Hyosung	Kawasaki	KTM	KVN Motor	Kymco	Laverda	Malaguti	Mondial	Moto Guzzi	Moto Morini	MV Augusta	MZ	Peugeot	Piaggio	Polaris	Sherco	Suzuki	SYM	Triumph	Vespa	Voxan	Yamaha					
IGNITION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39					
Ecu data																																												
Reading stored faults																																												
Erasing stored faults																																												
Parameters																																												
Diagnostic procedures																																												
TPS adjustment																																												
INJECTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39					
ECU data																																												
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Erasing stored faults																																												
Parameters																																												
Diagnostic procedures																																												
CO trimmer																																												
TPS adjustment																																												
Reset autoadaptive parameters																																												
Adaptive fuel value (AFV) reset																																												
Idling adjustment																																												
Idling reset																																												
Balance idling regulators																																												
Map enabling																																												
ECU initialization																																												
ECU reset																																												
Air bypass valve adjustment																																												
APC valve adjustment																																												
Knob self-learning																																												
Throttle self-learning																																												
Customer name change																																												
Lambda map reset																																												

Note: New Motorcycles and functions are added all the time. Be sure to contact Griffin Tools & Supply for the latest list of Motorcycles and functions.

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IMMOBILIZER / ALARM SYSTEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39					
ECU data																																												
Reading stored faults																																												
Erasing stored faults																																												
Parameters																																												
Diagnostic procedures																																												
Immobilizer / Alarm configuration																																												
Unlock immobilizer																																												
Key encoding																																												
Key erasing																																												
Remote programming																																												
ABS (Anti-Lock Braking System)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39					
ECU data																																												
Reading stored faults																																												
Erasing stored faults																																												
Parameters																																												
Diagnostic procedures																																												
ABS purge test																																												
ABS hydraulic unit test																																												
SERVICE / MAINTENANCE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39					
ECU data																																												
Parameters																																												
SERVICE reset																																												
OIL reset																																												
OIL CHECK reset																																												
OIL CHANGE reset																																												
BELT reset																																												
V.BELT reset																																												
V.BELT CHANGE reset																																												
V-MATIC reset																																												
Date on vehicle																																												
Date of next service																																												
Remaining distance before next service																																												
Re-set interval to next valve clearance check																																												
Brake pad wear light reset																																												

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DASHBOARD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Reading stored faults																																										
Erasing stored faults																																										
Parameters																																										
Diagnostic procedures																																										
Display mode																																										
Country set																																										
Trip counter reset																																										
Customer name change																																										
BODY COMPUTER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Reading stored faults																																										
Erasing stored faults																																										
Parameters																																										
Diagnostic procedures																																										
ESA pre-load adjustment																																										
ESA shock-absorber position																																										
INJECTION REGULATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Original value reset																																										
Regulation at idle																																										
Regulation at 10%																																										
Regulation at 25%																																										
Regulation at 50%																																										
Regulation at 75%																																										
Regulation at 100%																																										
FI adjustment																																										
IG adjustment																																										
RADIO / ENTERTAINMENT SYSTEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
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EPT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Reading stored faults																																										
Erasing stored faults																																										
Parameters																																										
Diagnostic procedures																																										
Reset autoadaptive parameters																																										
PARKING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Reading stored faults																																										
Erasing stored faults																																										
Parameters																																										
Diagnostic procedures																																										
Self-configuration																																										
Potentiometer reset																																										
Lock activation																																										
Lower limit reset																																										
TRANSMISSION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Reading stored faults																																										
Erasing stored faults																																										
Parameters																																										
Diagnostic procedures																																										
Potentiometer reset																																										
Belt replacement																																										
Entering transmission stroke category																																										
Default transmission stroke value																																										
EPS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Reading stored faults																																										
Erasing stored faults																																										
Parameters																																										
RDC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
ECU data																																										
Reading stored faults																																										
Erasing stored faults																																										
Parameters																																										

New function available (rel. 07)
 Available function
 Function not available

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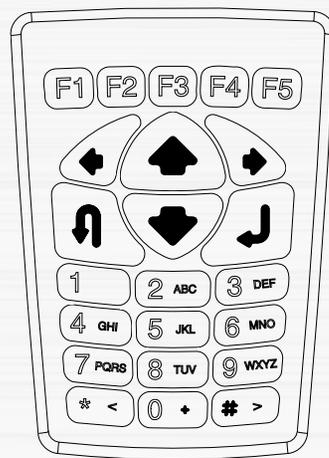
How it is Made

- **SCANNER PRESENTATION**
- **MS5650 CONFIGURATION**
- **ACCESSORIES**
- **HARDWARE FEATURES**
- **SOFTWARE FEATURES**

Scanner Presentation 1/3



Scanner Presentation 2/3



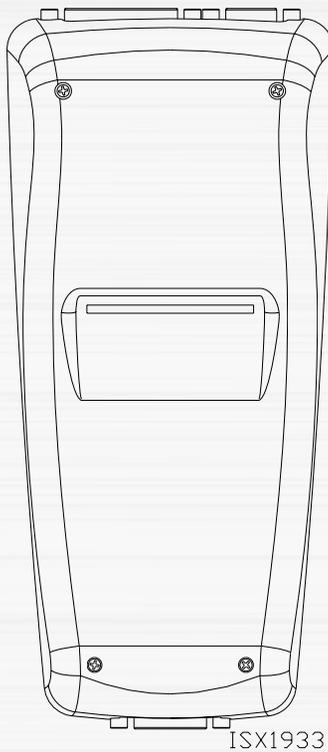
FUNCTION KEYS

CONTROL KEYS

ALPHANUMERIC KEYPAD

ISX1935

Scanner Presentation 3/3



**SMART CARD SLOT TO
ENABLE THE SOFTWARE**



MS5650 Configuration

- **SCANNER**
- **DATA ROUTER 5603**
- **UNIVERSAL CABLE**
- **MASTER CABLE**
- **BATTERY CABLE**
- **POWER SUPPLY CABLE**
- **OPERATING MANUALS**
- **HEAVY-DUTY CARRYING CASE**



MS5650 *Optional OEM Cables*

- **SL010490 - Aprilia/Sagem cable**
- **SL010478 - BMW cable**
- **SL010501 - BRP/CAN-AM cable**
- **SL010506 - Buell cable**
- **SL010508 - Ducati CAN 4-pin cable**
- **SL010480 - Harley-Davidson cable**
- **SL010462 - Honda 2-pin cable**
- **SL010461 - Honda 3-pin cable**
- **SL010460 - Honda 4-pin cable**
- **SL010458 - Kawasaki 4-pin cable**
- **SL010509 - Kawasaki 6-pin cable**
- **SL010510 - Kawasaki 6-pin cable MY2010**
- **SL010459 - Kawasaki 8-pin cable**
- **SL010502 - Kawasaki injection regulation cable**

MS5650 *Optional OEM Cables*

- **SL010489 - KTM cable**
- **SL010493 - Kymco cable**
- **SL010481 - OBDII cable (Triumph)**
- **SL010499 - Packard cable (Italian bikes)**
- **SL010516 - Polaris 8-pin cable MY2006**
- **SL010464 - Suzuki 4-pin cable**
- **SL010463 - Suzuki 6-pin cable**
- **SL010477 - Suzuki injection regulation cable**
- **SL010512 - SYM 3-pin cable**
- **SL010475 - Yamaha 3-pin cable**

Hardware Features

- **DIMENSIONS:** 8.85 x 4.13 x 2.75IN
- **WEIGHT:** 1.05LB (475G)
- **POWER SUPPLY:** 8-45V
- **POWER CONSUMPTION:** 3.2W @ 12V
- **SHELL:** ABS PALM UNIT
- **DISPLAY:** LCD GRAPHIC DISPLAY (128 x 64PIXLES)
- **KEYBOARD:** 23 KEYS ALPHANUMERIC
- **SERIAL INTERFACE:** RS232 (HOST CONNECTION FOR THE SOFTWARE DOWNLOADING)
- **PARALLEL INTERFACE:** CENTRONICS
- **DIAGNOSTIC INTERFACE:** DB15 MANUFACTURER (FOR CONNECTION TO DIAGNOSTIC CABLES AND DATA ROUTER)
- **INTERNAL MEMORY:** 12MB INTERNAL FLASH MEMORY, UPDATABLE VIA SERIAL USB INTERFACE



Software Features

- **LANGUAGES:** ENGLISH, ITALIAN, FRENCH, GERMAN, SPANISH, PORTUGUESE AND GREEK
- **UPDATE PROCEDURE:** UPDATEABLE VIA RS232/USB INTERFACE
- **UPDATE DISTRIBUTION:** INTERNET, EMAIL OR CD
- **UPDATES:** 1 PER YEAR

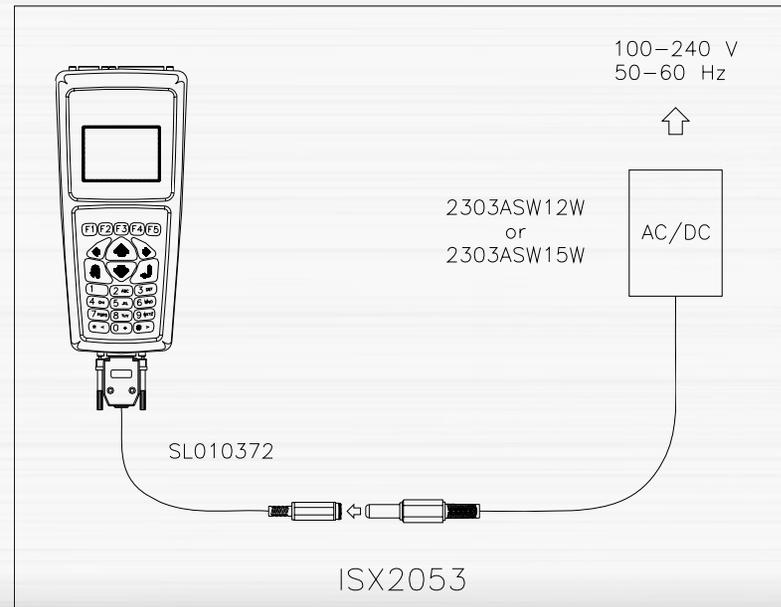


How it Works

- **START-UP AND MAIN MENU**
- **NAVIGATE THE MENUS**
- **SETUP MENU**
- **HELP FUNCTION**

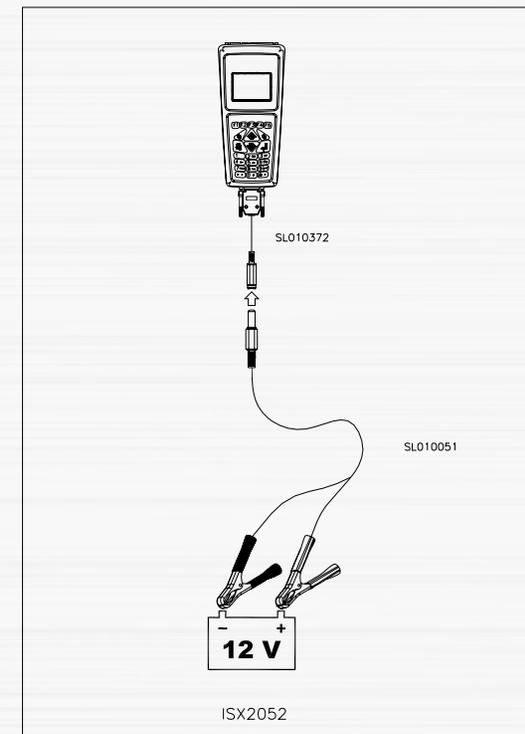
Start-up and Main Menu 1/3

- **CONNECT THE 15-POLE CONNECTOR OF THE CABLE SL010372 TO THE TOOL**
- **CONNECT THE **POWER SUPPLY 2303ASW12W** TO THE JACK HOLDER OF THE CABLE**
- **THE TOOL TURNS ON AUTOMATICALLY**



Start-up and Main Menu 2/3

- CONNECT THE 15-POLE CONNECTOR OF THE CABLE SL010372 TO THE TOOL
- CONNECT THE SL010051 CABLE (EQUIPPED WITH VCC CLIPS) TO THE CABLE JACK HOLDER
- CONNECT THE VCC CLIPS TO THE TERMINALS OF A 12V BATTERY
- THE TOOL TURNS ON AUTOMATICALLY



Start-up and Main Menu 3/3

- AFTER THE SCANNER CONNECTION TO THE POWER SUPPLY OR A BATTERY THE **STANDBY SCREEN** IS SHOWED
- THE **MAIN MENU** WILL APPEAR AFTER PRESSING ANY KEY ON THE SCANNER



Navigate the Menus

- ⏪ : RETURNS TO THE PREVIOUS SCREEN
- ⏩ : ACCESSES THE ITEM INDICATED BY THE SELECTION ARROW
- ⬆ : MOVES THE SELECTION ARROW UP 1 ITEM
- ⬇ : MOVES THE SELECTION ARROW DOWN 1 ITEM
- ⬅ : MOVES THE SELECTION ARROW UP 6 ITEMS (ONLY IF THE MENU HAS MORE THAN 6 ITEMS)
- ➡ : MOVES THE SELECTION ARROW DOWN 6 ITEMS (ONLY IF THE MENU HAS MORE THAN 6 ITEMS)

SELECTION
ARROW

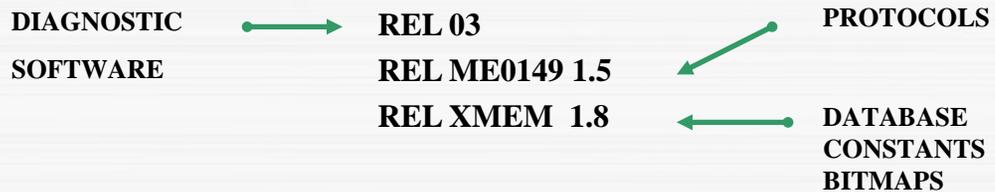
SELECTION
ARROW
DIRECTIONS



TOOLBAR

Setup Menu

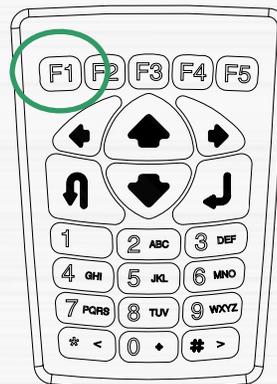
- **LANGUAGE SELECTION:** TO SELECT LANGUAGE
- **DISPLAY SW RELEASE:** TO VIEW SOFTWARE RELEASE



- **UPDATE ME0149:** OPTIMISATION OF ME0149 BOARD FUNCTIONALITY
- **SET TIME & DATE:** TO SET TIME AND DATE
- **DISPLAY BAR CODE:** TO VIEW INSTRUMENT BARCODE
- **MAIN MENU:** TO RETURN TO MAIN MENU

Help Function

- **HELP SCREENS CAN BE ACCESSED BY PUSHING THE F1 KEY AT ANY POINT IN THE SOFTWARE**
- **THE HELP SCREEN PROVIDES INFORMATION ON THE FUNCTIONS OF ACTIVE KEYS IN THE SCREEN WHERE THE HELP FUNCTION IS REQUESTED**
- **PUSH ANY KEY TO GO TO THE FOLLOWING HELP SCREEN (IF ANY) OR TO RETURN TO THE SCREEN WHERE HELP WAS REQUESTED**



How to connect it

- **IDENTIFYING THE CABLE AND DIAGNOSTIC PORT**
- **CONNECTION TO THE DIAGNOSTIC SOCKET**
- **SEARCH FUNCTIONS**
- **DIAGNOSTIC TYPOLOGIES**

Identifying the Cable and Diagnostic Port 1/4

- GO TO THE MANUFACTURER SECTION IN THE VEHICLES LIST
- SEARCH FOR YOUR MOTORCYCLE IN THE MODEL COLUMN
- VERIFY THE MODEL YEAR AND THE SYSTEMS COVERED BY THE SCANNER (SOME SYSTEMS ARE OPTIONAL AND MIGHT NOT HAVE BEEN INSTALLED ON SOME MOTORCYCLES)

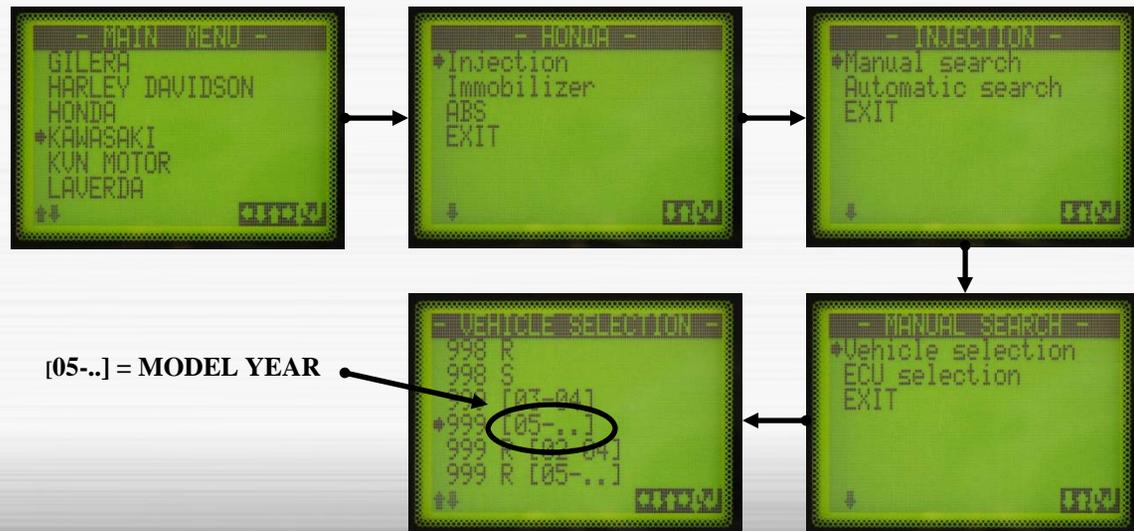
MODEL YEAR = 2001-2005

COVERED SYSTEMS

MODEL	DISPLACEMENT	YEAR	SYSTEM	CABLE
Atlantic 500	459cc	01-05	INJECTION	421+051
Atlantic 500	459cc	01-05	IMMOBILIZER	421+051
Atlantic 500 Sprint	459cc	05-..	INJECTION	421+051
Atlantic 500 Sprint	459cc	05-..	IMMOBILIZER	421+051
ETV 1000 Caponord	997cc	01-..	SERVICE	422+051
ETV 1000 Caponord Rally Raid	997cc	03-..	SERVICE	422+051
ETV 1000 Caponord ABS	997cc	04-..	SERVICE	422+051
RST 1000 Futura	997cc	01-04	SERVICE	422+051

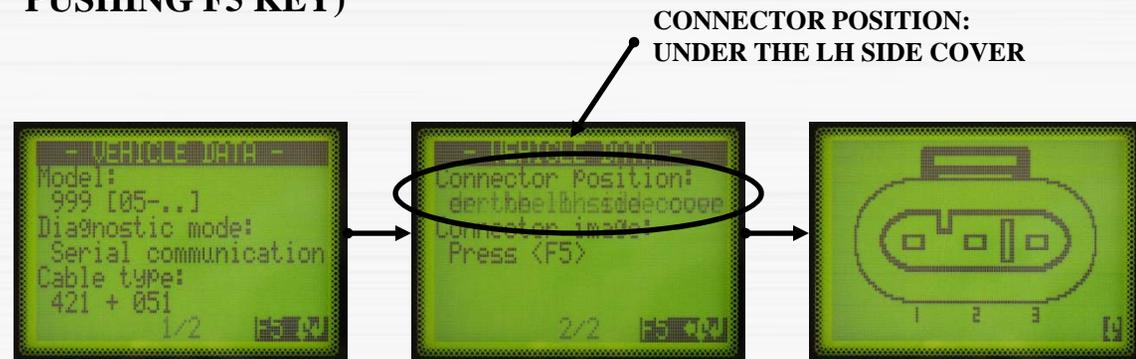
Identifying the Cable and Diagnostic Port 2/4

- **TURN THE SCANNER ON WITH THE POWER SUPPLY OR A BATTERY**
- **PRESS A KEY TO DISPLAY THE MAIN MENU**
- **SELECT THE MANUFACTURER (APRILIA, HONDA,..)**
- **SELECT THE SYSTEM (INJECTION, ABS,..)**
- **SELECT THE MANUAL SEARCH**
- **SELECT THE VEHICLE SELECTION**
- **SELECT THE MOTORCYCLE**



Identifying the Cable and Diagnostic Port 3/4

- **MODEL:** NAME OF THE SELECTED MOTORCYCLE
- **DIAGNOSTIC MODE:** TYPE OF DIAGNOSTICS SUPPORTED BY THE SYSTEM OF THE SELECTED MODEL (SERIAL COMMUNICATION, BLINKING CODES, DISPLAY CODES, MANUAL PROCEDURE)
- **CABLE TYPE:** REQUIRED DIAGNOSTIC CABLE
- **CONNECTOR POSITION:** INDICATION OF THE POSITION OF THE DIAGNOSTIC CONNECTOR
- **CONNECTOR IMAGE:** PICTURE OF THE CONNECTOR (BY PUSHING F5 KEY)



Identifying the Cable and Diagnostic Port 4/4

EXAMPLE: **DUCATI MOTORCYCLE**
PICTURE OF THE CONNECTOR



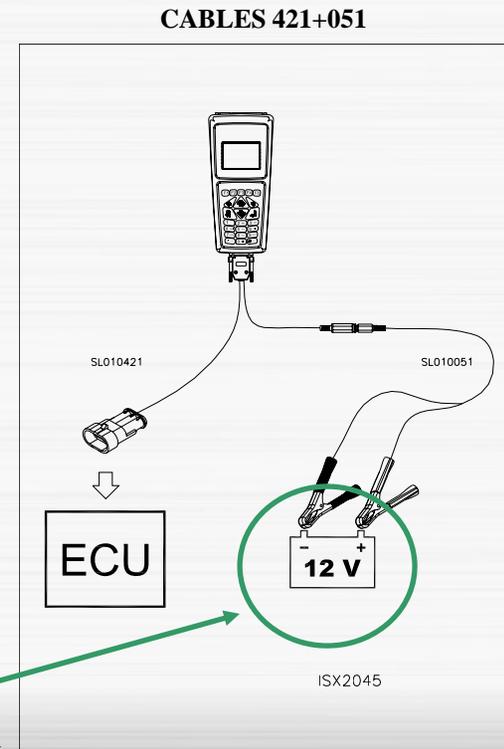
CONNECTOR POSITION:
UNDER THE LH SIDE COVER

Connecting to the Diagnostic Socket 1/4

MODEL	DISPLACEMENT	YEAR	SYSTEM	CABLE
Atlantic 500	459cc	01-05	INJECTION	421+051
Atlantic 500	459cc	01-05	IMMOBILIZER	421+051
Atlantic 500 Sprint	459cc	05-..	INJECTION	421+051
Atlantic 500 Sprint	459cc	05-..	IMMOBILIZER	421+051
ETV 1000 Caponord	997cc	01-..	SERVICE	422+051
ETV 1000 Caponord Rally Raid	997cc	03-..	SERVICE	422+051
ETV 1000 Caponord ABS	997cc	04-..	SERVICE	422+051
RST 1000 Futura	997cc	01-04	SERVICE	422+051

- IN THE COLUMN CABLE IDENTIFY THE **CABLE CONFIGURATION**
- GO TO THE **CABLE CONNECTION CHAPTER** IN THE VEHICLES LIST AND REFER TO THE SUITABLE HELPING PICTURE
- **CONNECT THE CABLES TO THE SCANNER** FOLLOWING TO THE HELPING PICTURE
- IF THE CABLE **SL010051** IS REQUIRED, CONNECT IT TO THE MOTORCYCLE BATTERY

ATTENTION !
MOTORCYCLE ON BOARD BATTERY

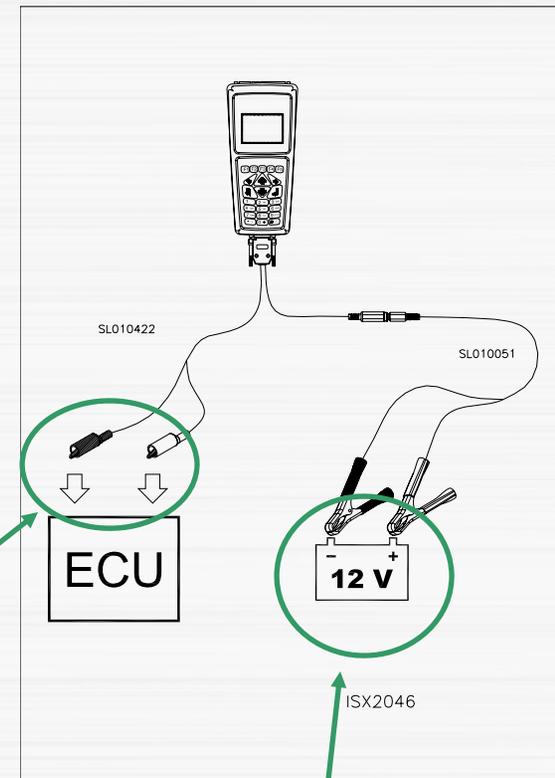


Connecting to the Diagnostic Socket 2/4

- **CABLES SL010421/SL010422**
- **WHEN USING SL010421 OR SL010422 CABLES CONNECT THE DIAGNOSTIC SOCKET ONLY WHEN THE SOFTWARE TELLS YOU TO DO SO**
- **NEVER CONNECT THE TWO CLIPS OF SL010422 CABLE TO THE BATTERY**

**ATTENTION !
DON'T CONNECT TO THE BATTERY**

CABLES 422+051

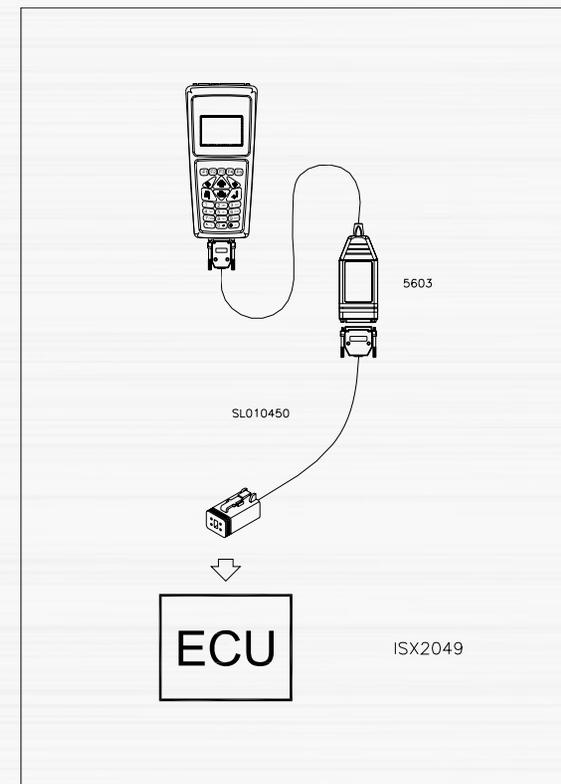


**ATTENTION !
MOTORCYCLE ON BOARD BATTERY**

Connecting to the Diagnostic Socket 3/4

- **CABLES SL010398/449/450 &**
- **DATA ROUTER 5603**
- **CONNECT THE 15-POLE FEMALE CONNECTOR ON THE 5603 DATA ROUTER TO THE TOOL**
- **CONNECT TO THE 25-POLE CONNECTOR ON THE 5603 DATA ROUTER TO THE DIAGNOSTIC CABLE (SL010398/449/450)**
- **CONNECT THE OTHER END OF THE CABLE TO THE VEHICLE DIAGNOSTIC SOCKET**

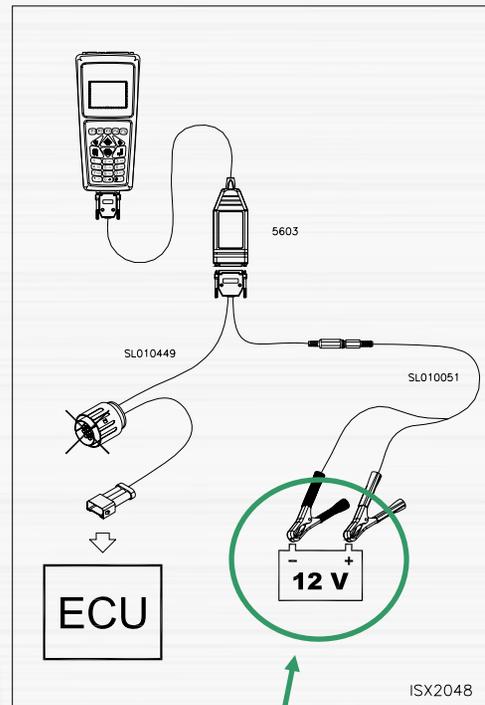
CABLES 450+R



Connecting to the Diagnostic Socket 4/4

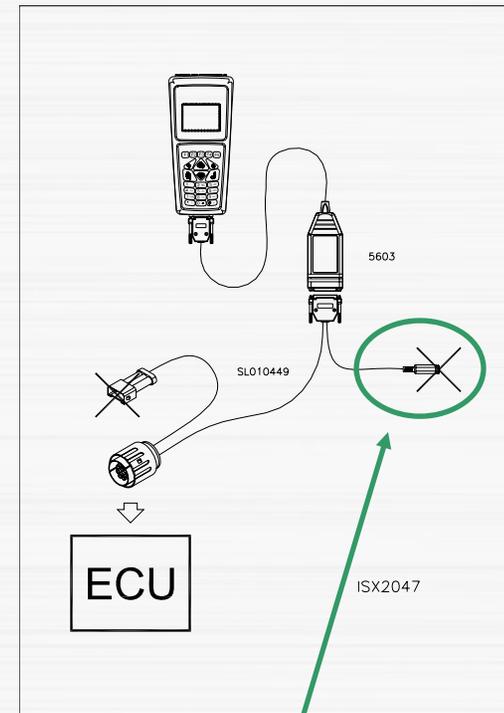
BMW CABLE SL010449

CABLES 449 + 051 + R



ATTENTION !
Motorcycle On board Battery

CABLES 449+R



ATTENTION !
DON'T CONNECT IT

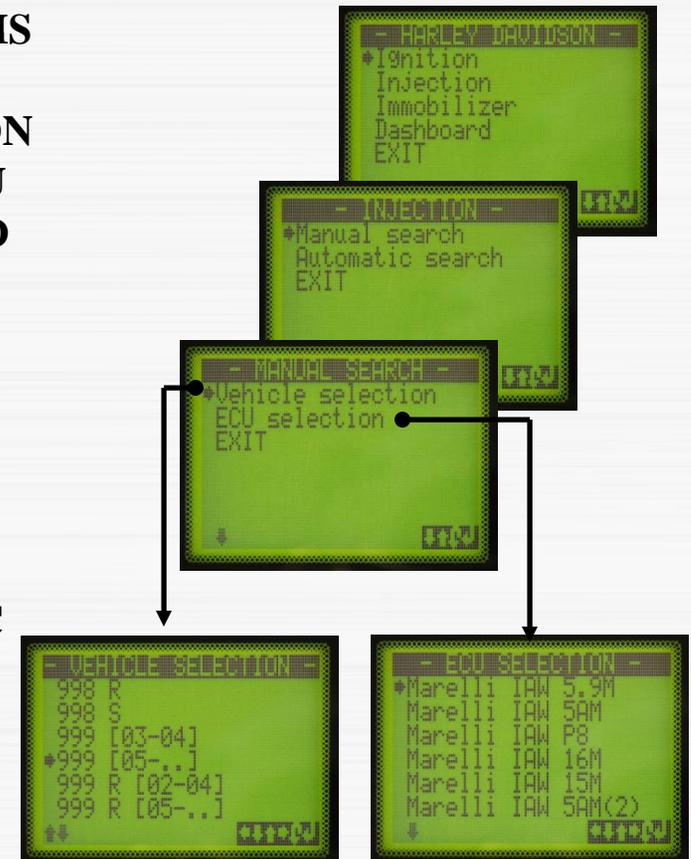
Search Functions 1/3

- ONLY IF THE MOTORCYCLE IS A **HARLEY-DAVIDSON** TURN THE KEY ON.
- PRESS A KEY TO DISPLAY THE **MAIN MENU**
- SELECT THE **MANUFACTURER** (APRILIA, HONDA,..)
- SELECT THE **SYSTEM** (INJECTION, ABS,..)
- SELECT THE **SEARCH FUNCTION**



Search Functions 2/3

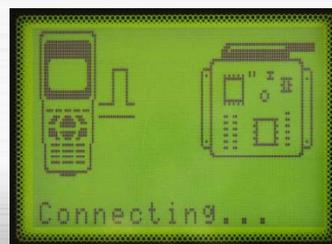
- **MANUAL SEARCH:**
SEARCHES FOR SYSTEMS USING MOTORCYCLE (DETAILED CONNECTION INSTRUCTIONS) OR ECU SELECTION (ADVANCED USERS)
- **AUTOMATIC SEARCH:**
SCANS ONLY FOR SYSTEMS EQUIPPED WITH SERIAL COMMUNICATION (FASTEST BUT GENERIC CONNECTION INSTRUCTIONS). THIS ENTRY COULD NOT BE PRESENT



Search Functions 3/3

- IN CASE OF MANUAL SEARCH **CONFIRM** THE SELECTED VEHICLE OR SYSTEM
- FOLLOW THE **SET-UP INSTRUCTIONS** (START FROM KEY OFF ...)
- IN CASE OF VEHICLE SELECTION AND UNIVERSAL CABLE SL010422, FOLLOW THE **CLIPS CONNECTION INSTRUCTIONS**
- WAIT FOR THE **CONNECTION PROCEDURE** AND THE CONFIRMING MESSAGE
- PRESS A KEY TO DISPLAY THE **ELECTRONIC CONTROL UNIT MENU**

CLIPS CONNECTION INSTRUCTIONS



Diagnostic Typologies

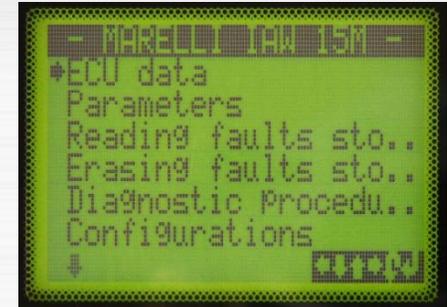
- **SERIAL COMMUNICATION:**
THE MOST ADVANCED ONE (ECU DATA, FAULT CODES, PARAMETERS, DIAGNOSTIC PROCEDURES, CONFIGURATIONS)
THE SCANNER COMMUNICATES WITH THE ECU AND DISPLAYS ALL INFORMATION'S AUTOMATICALLY
- **BLINKING CODES:**
GENERALLY LIMITED TO THE IDENTIFICATION OF FAULT CODES.
THE SCANNER ENABLES THE WARNING LIGHT BLINKS AND GIVES THE DESCRIPTION, AFTER THE MANUAL INPUT OF THE FAULT CODES
- **DISPLAY CODES:**
GENERALLY LIMITED TO THE IDENTIFICATION OF FAULT CODES.
THE SCANNER ENABLES THE DISPLAY OF THE CODES AND GIVES THE DESCRIPTION, AFTER THE MANUAL INPUT OF THE FAULT CODES.
- **MANUAL PROCEDURE:**
THE SCANNER WORKS LIKE AN ELECTRONIC BOOK, WITH THE DESCRIPTION OF THE PROCEDURE STEP BY STEP.

Which Functions it Performs

- **ELECTRONIC CONTROL UNIT MENU**
- **PARAMETERS**
- **READING STORED FAULTS**
- **ERASING STORED FAULTS**
- **DIAGNOSTIC PROCEDURES**
- **CONFIGURATIONS**
- **SPECIAL FUNCTIONS**

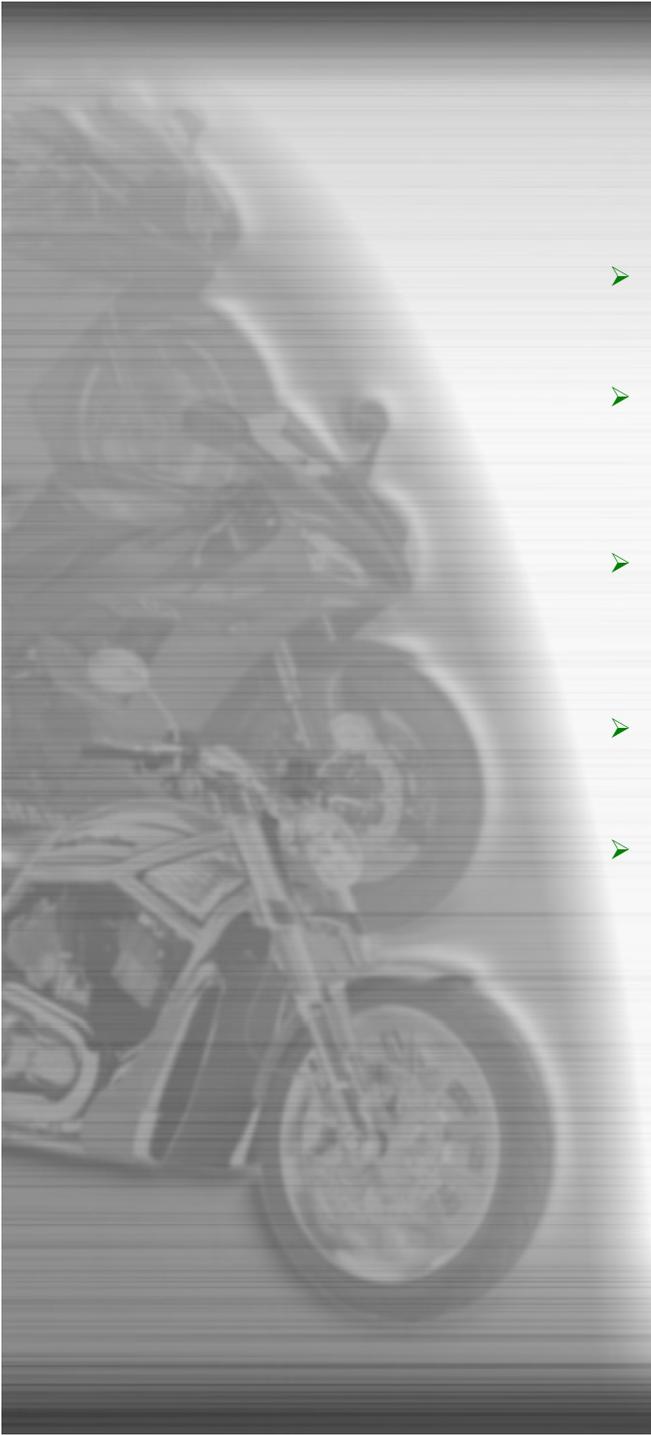
Electronic Control Unit Menu

- **ECU DATA:** to display the ECU data
- **PARAMETERS:** this menu displays the accessible parameters
- **READING FAULTS STORED:** indicate the number of errors, the errors code and relevant descriptions
- **ERASING FAULTS STORED:** resets all stored faults
- **DIAGNOSTIC PROCEDURES:** for temporary activation of some of the components controlled by the ECU
- **CONFIGURATION:** for permanent regulation of some of the components controlled by the ECU
- **EXIT:** to stop communication



Parameters

- BY SELECTING "PARAMETERS" FROM THE "ECU MENU ", THE LIST OF SUPPORTED PARAMETERS IS DISPLAYED
- USING THE KEY **↓** SELECT A LIST OF PARAMETERS (6 MAX. SIMULTANEOUSLY) AND CONFIRM THE SELECTION USING F5 KEY
- ONCE THE SELECTION HAS BEEN CONFIRMED, A **TABLE** IS DISPLAYED WITH THE DESCRIPTION AND VALUES, IN REAL TIME, OF THE PREVIOUSLY SELECTED PARAMETERS
- BY MEANS OF **THE ARROWS** (**↑** **↓** **←** **→**) THE CURSOR CAN BE MOVED TO SCROLL LONG TEXTS
- PUSH CONSECUTIVELY THE **F5 KEY** TO DISPLAY THE TABLES OF THE REMAINING PARAMETERS SUPPORTED BY THE ECU



- PARAMETERS -	
Engine rpm	1775RPM
Injection t..	8.70ms
Spark advance	8°
Throttle an..	2.6°
CO trimmer	2

PARAMETERS
TABLE

Reading Stored Faults

- BY SELECTING "READING FAULTS STORED" FROM THE "ECU MENU", **ERRORS SAVED** BY THE ECU CAN BE READ
- IF ERRORS ARE PRESENT, A SCREEN APPEARS INDICATING THE **NUMBER OF SAVED DTCS**
- PUSH **↓** TO DISPLAY **THE LIST** INCLUDING CODE AND DESCRIPTION OF FAULTS STORED
- SELECTING AN ITEM FROM THE DTC LIST BRINGS UP A SCREEN FOR **THE SPECIFIC FAULT**, WITH ADDITIONAL INFORMATION

DTC LIST



SPECIFIC FAULT



Erasing Stored Faults

- **SELECTING "ERASING FAULTS STORED" IN THE "ECU MENU" DELETES FAULTS STORED IN THE ECU**
- **BEFORE STARTING THE PROCEDURE, CONFIRM BY MEANS OF GO ON**
- **ONCE THE PROCEDURE HAS BEEN COMPLETED, THE STATUS OF THE DELETION OPERATION IS DISPLAYED**

Diagnostic Procedures

- SELECTING "DIAGNOSTIC PROCEDURES" IN THE "ECU MENU ", DISPLAYS **THE LIST OF TESTS** OF SOME COMPONENTS CONTROLLED BY THE ECU
- SELECTING ONE OF THE POSSIBLE ACTIVE DIAGNOSTIC PROCEDURES **STARTS** THE RELATIVE TEST
- PUSHING **↵** **INTERRUPTS** THE TEST BEFOREHAND
- WHEN THE DIAGNOSTIC PROCEDURE IS COMPLETE, **THE RESULT** OF THE TEST IS DISPLAYED

LIST OF TESTS



Configurations

- SELECTING "CONFIGURATIONS" IN THE "ECU MENU" DISPLAYS THE LIST OF POSSIBLE SETUP AND ADJUSTMENT OPERATIONS THAT CAN BE CARRIED OUT ON THE ECU
- SELECTING AN ITEM FROM THE LIST STARTS THE OPERATION CHOSEN
- FOR SOME DEDICATED SETUP OPERATIONS, CONFIRM USING GO ON
- WHEN THE SETUP OR ADJUSTMENT OPERATION IS COMPLETE THE RESULT OF THE OPERATION IS DISPLAYED

LIST



CONFIRM MESSAGE

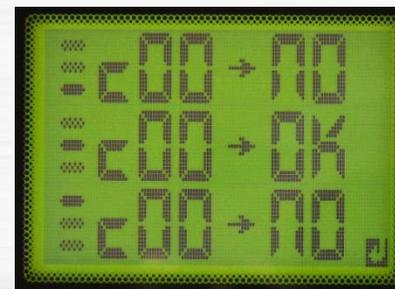


CONFIGURATION



Special Functions

- RE-SET THE SERVICE LIGHT
- KEY ENCODING



F.A.Q. 1/3

- **HOW CAN I KNOW WHICH DIAGNOSTIC CABLE I HAVE TO USE?**
 - **IDENTIFY THE CABLE CONFIGURATION ON THE CABLE COLUMN OF THE VEHICLE LIST AND REFER TO CHAPTER “CABLES CONNECTIONS” AT THE END OF THE SAME LIST**
- **HOW CAN I KNOW WHERE THE DIAGNOSTIC SOCKET IS?**
 - **TURN ON THE INSTRUMENT WITH THE POWER SUPPLY OR WITH AN AUXILIARY BATTERY AND SELECT THE BRAND, THE SYSTEM YOU WANT TO DIAGNOSE, THE MANUAL RESEARCH, THE VEHICLE, CONFIRM THE SELECTION AND REFER TO THE “CABLE POSITION” INDICATION**
- **HOW CAN I KNOW HOW THE DIAGNOSTIC SOCKET IS MADE?**
 - **TURN ON THE INSTRUMENT WITH THE POWER SUPPLY OR WITH A BATTERY AND SELECT THE BRAND, THE SYSTEM YOU WANT TO DIAGNOSE, THE MANUAL RESEARCH, THE VEHICLE, CONFIRM THE SELECTION AND PUSH F5 KEY TO VISUALISE THE SOCKET IMAGE**
- **WHEN DO I HAVE TO USE THE DATA ROUTER 5603?**
 - **WHEN THE CHARACTER “R” APPEARS TOGETHER WITH THE RELATED DIAGNOSTIC CABLE IN THE CABLE CONFIGURATION DESCRIBED IN THE CABLE COLUMN OF THE VEHICLE LIST**

F.A.Q. 2/3

- **THE TOOL DOESN'T TURN ON. WHY?**
 - **THE TOOL IS NOT CONNECTED TO THE MOTORCYCLE OR TO A POWER SUPPLY: CONNECT THE TOOL.**
 - **THE MOTORCYCLE BATTERY IS LOW: CHARGE THE BATTERY.**
 - **THE MOTORCYCLE IS A HARLEY-DAVIDSON ONE AND THE PANEL IS TURNED OFF: TURN ON THE PANEL.**
- **THE TOOL DOESN'T COMMUNICATE WITH THE ECU. WHY? 1/2**
 - **THE VEHICLE AND/OR THE SYSTEM YOU WANT TO DIAGNOSE ARE NOT INCLUDED IN THE VEHICLES LIST? DIAGNOSE ONLY THOSE VEHICLES AND SYSTEMS INCLUDED IN THE LIST.**
 - **THE DIAGNOSTIC CABLE IS NOT PROPERLY OR FIRMLY CONNECTED TO THE TOOL AND TO THE DIAGNOSTIC SOCKET: VERIFY CONNECTIONS REFERRING TO DIAGRAMS OF CHAPTER "CABLES CONNECTION" OF THE VEHICLES LIST.**
 - **THE PLIERS OF THE UNIVERSAL CABLE SL010422 ARE CONNECTED TO WRONG PINS OR THEY ARE PROPERLY (LOOSE ELECTRIC CONNECTION): VERIFY THE CONNECTION BY MEANS OF THE DISPLAYED WHICH PRECEDE THE COMMUNICATION WITH THE ECU.**
 - **THE BATTERY CABLE SL010051 IS CONNECTED TO AN AUXILIARY BATTERY: CONNECT THE CABLE TO THE VEHICLE BATTERY.**
 - **THE MOTORCYCLE BATTERY IS LOW: CHARGE THE BATTERY.**

F.A.Q. 3/3

- **THE TOOL DOESN'T COMMUNICATE WITH THE ECU. WHY? 2/2**
 - **THE PANEL IS TURNED OFF: TURN ON THE PANEL BEFORE YOU REALISE THE COMMUNICATION.**
 - **THE ALARM SYSTEM IS ACTIVATED: DEACTIVATE THE ALARM SYSTEM BEFORE YOU REALISE THE COMMUNICATION.**
 - **THE ENGINE STOP SWITCH PUT ON THE RIGHT HANDLEBAR IS IN STOP POSITION ~~✗~~ ? TURN THE SWITCH TO START POSITION ~~✗~~ ↻**
 - **THE VEHICLE IS A SCOOTER WHICH STAINS ON THE LATERAL STAND: PUT THE SCOOTER ON THE CENTRAL STAND AND REPEAT THE COMMUNICATION PROCEDURE.**
 - **THE VEHICLE ECU WAS MODIFIED AND IT ISN'T THE ORIGINAL ONE: DIAGNOSE ONLY SYSTEMS AND ECU EQUIPPED WITH ORIGINAL ECU.**
 - **YOU TRY TO REALISE THE COMMUNICATION WITH THE AUTOMATIC SEARCH FUNCTION ON A SYSTEM NOT EQUIPPED WITH SERIAL COMMUNICATION: REALISE THE COMMUNICATION WITH THE MANUAL SEARCH AND THE VEHICLE SELECTION.**
- **HOW DO I IDENTIFY THOSE SYSTEMS EQUIPPED WITH SERIAL COMMUNICATION?**
 - **TURN ON THE INSTRUMENT WITH THE POWER SUPPLY OR WITH A BATTERY AND SELECT THE BRAND, THE SYSTEM YOU WANT TO DIAGNOSE, THE MANUAL RESEARCH, THE VEHICLE, CONFIRM THE SELECTION AND REFER TO THE "DIAGNOSTIC TYPE" INDICATION**

For More Information, Please Contact:



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**If you have any questions please call
Bob Griffin @ (847) 651-3099 or visit our
website @ www.griffintoolsandsupply.com**

Thank You!