MSG equipment

EQUIPMENT FOR DIAGNOSTICS AND REPAIR OF AUTOMOTIVE UNITS

car service

CATALOGUE 2021-2022

Contents

MSG EQUIPMENT

MSG Equipment is a manufacturer of diagnostic equipment and special repair tools for automotive systems.

The first test bench was designed in 1998 to satisfy the needs of our own automotive repair shop. In 2005 we started series production of test benches and special repair tools for wholesale and retail customers. For more than two decades, we have been expanding our product range, upgrading design and functions, and improving the quality of our products. Our sales geography covers almost all the parts of the globe: former CIS countries, the Middle East, the USA, Canada, South America, Africa, and China.

We produce equipment and tools for diagnostics and repair of:
- Starters and Alternators
- EPS units
- HPS units
- Automotive air conditioners
- Shock absorbers
- Brake calipers
- Diesel particulate filters

Not long ago, we started exploring a new business area: **Tesla diagnostics with the LOKI tool.**

Diagnostic systems by **TM MSG Equipment** are used to detect faults and test automotive units after their rebuilding. Despite the wide range of functions, our test benches and testers are multipurpose and easy to use. Automotive repair specialists - worldwide - appreciate the operating capabilities and usability of our test benches.

Quality
Each component of equipment meets the internal quality control standards throughout all the production stages. MSG Equipment products are certified and have **CE, EAC, and UkrSEPRO marks.**
Training for automotive repair specialists
We introduced our unique training courses to let the automotive repair technicians upgrade their skills and learn to operate the latest equipment. Customers can choose any of the seven available programs. The training mode is optional: either offline at MSG Equipment Training Center or online.

Customer support
Customers who buy our equipment, the training courses, or the turnkey business are provided with a free technical support.

Diagnostics of starters and alternators

Test bench MS002 COM

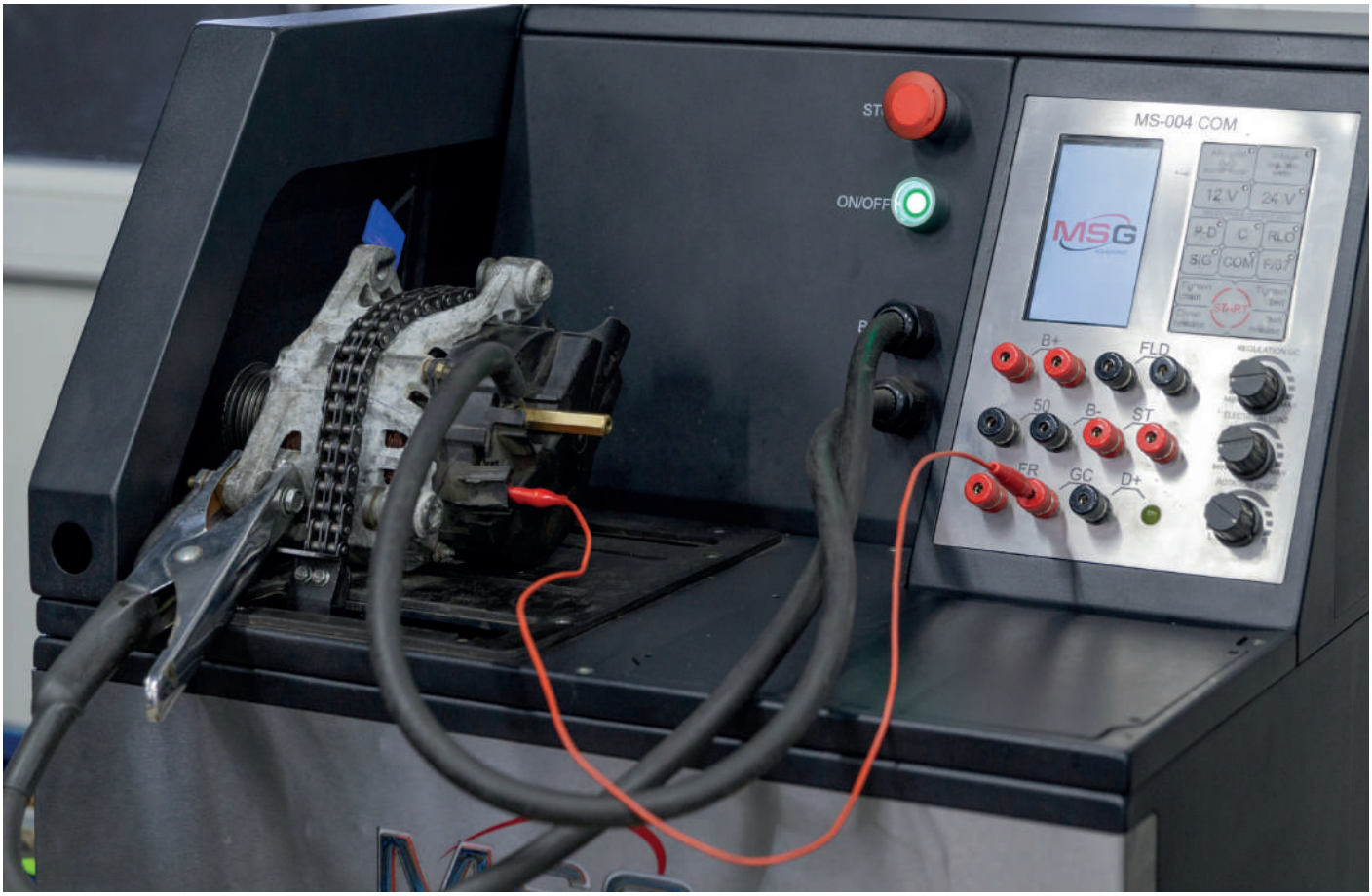
Test bench MS002 COM is a multifunctional diagnostic bench for quick and proper diagnostics of automotive alternators, voltage regulators, and starters. The high-power test bench diagnoses automotive units under different loads. The test bench simulates the real-time operation of the tested unit in a car, thus tracing up to 99% of all possible faults.

Test bench MS002 COM is designed to diagnose:

- 12V alternators under a load of up to 200A;
- 24V alternators under a load of up to 100A;
- starters with the power of up to 6kW (at no load);
- COM voltage regulators removed from alternators (with fault indication).

Technical characteristics	
Dimensions (L×W×H), mm	555×455×930
Weight, kg	96
Supply voltage, V	400
Supply type	Three-phase
Number of batteries	2 identical 12V batteries
Battery model (not included)	Battery capacity: from 45 to 60 Ahr
Automatic charging: Battery 1	Yes
Automatic charging: Battery 2	No
Rated voltage of tested units, V	12, 24
Alternator testing	
Load on tested alternator, A	0-200 for 12V; 0-100 for 24V
Drive power, kW	5.5
Load adjustment (0-100%)	Smooth
Drive speed, RPM	0-3000
Drive speed adjustment	Smooth
Transmission type (drive/alternator)	Belt
Drive type	• V-belt; • Poly-V-belt
Types of tested alternators	«COM» («LIN», «BSS»), «P-D», «RLO», «C», «SIG», «F/67»
Read parameters	• Stabilizing voltage; • Alternate current; • Direct current; • Drive speed; **For COM voltage regulators:** • Protocol; • Data exchange rate; • ID; • Type; • Faults
Voltage regulator testing	
Voltage regulator tested parameters	• Stabilizing voltage; • Rotor winding direct current; **For COM voltage regulators:** • Protocol; • Data exchange rate; • ID; • Type; • Faults
Types of tested voltage regulators	«COM» («LIN», «BSS»), «P-D», «RLO», «C», «SIG»
Short circuit protection	Yes
Short circuit sound alert	Yes
Starter testing	
Power of tested starters, kW	Up to 6
Measured parameters	• Voltage; • Alternate current; • Direct current

Test bench MS004 COM



Test bench MS004 COM is used to determine the technical condition of the following automotive units: alternators under different loads (100A for 12V, 50A for 24V), 12/24V starters with the power of up to 4kW, and voltage regulators of the latest models. Technical parameters of the test bench allow the detection of 99% of potential alternator problems. The test bench allows to also make a proof test of an electrical unit after its repair.

Advantages:

- desktop mounting;
- 230V single-phase power supply;
- convenient fixing mechanism to secure a tested unit and its drive on the bench without auxiliary tools;
- smooth adjustment of alternator speed and load current;
- diagnostics of all types of the latest voltage regulators;
- diagnostics of alternators with no integral voltage regulators;
- quick and accurate measurement of electric unit performance parameters;
- electronic self-protection against damage and improper connection of a tested unit;
- convenience and ease of use.

Technical characteristics	
Dimensions (L×W×H), mm	570×505×450
Weight, kg	62
Supply voltage, V	230 or 120
Supply frequency, Hz	50/60
Supply type	Single-phase supply line
Number of batteries	2 identical 12V batteries
Battery model (not included)	Capacity: from 45 to 60 AHr; Dimensions (L×W×H), mm: no more than 207×175×175
Automatic charging: Battery 1	Yes
Automatic charging: Battery 2	No
Rated voltage of tested units, V	12, 24
Alternator testing	
Load on tested alternator, A	0-100 for 12V 0-50 for 24V
Load adjustment (0-100%)	Smooth
Drive power, kW	2,2
Drive speed, RPM	0-3000
Drive speed adjustment	Smooth
Transmission type (drive/alternator)	Belt
Belt types	• V-belt; • Poly V-belt
Types of tested alternators	«COM» («LIN», «BSS»), «P-D», «RLO», «C», «SIG», «F/67»
Measured parameters	• Stabilizing voltage; • Alternate current; • Direct current; • Drive speeda **For COM voltage regulators:** • Protocol; • Data exchange rate; • ID; • Type; • Faults
Voltage regulator testing	
Tested parameters of voltage regulator	• Stabilizing voltage; • Rotor winding direct current **For COM voltage regulators:** • Protocol; • Data exchange rate; • ID; • Type; • Faults
Types of tested voltage regulators	«COM» («LIN», «BSS»), «P-D», «RLO», «C», «SIG»
Short circuit protection	Yes
Short circuit sound alert	Yes
Starter testing	
Power of tested starters, kW	Up to 4
Measured parameters	• Voltage; • Alternate current; • Direct current

Test bench MS005

Test bench MS005 is a multifunctional diagnostic bench for quick and proper diagnostics of automotive alternators and starters with a rated voltage of 12/24V, alternators equipped with the vacuum pumps and vehicle batteries.

Advantages:

- display of measured parameters in the form of oscillography charts;
- diagnostics of alternators in manual and automatic modes;
- diagnostics of alternators equipped with vacuum pumps;
- diagnostics of vehicle batteries;
- convenient fixing mechanism to secure tested units on the bench (no auxiliary tools required);
- automatic tightening of alternator drive belt;
- special diagnostic cables for connection to alternators (optional);
- thermal camera to monitor the temperature of a tested unit;
- alternator database;
- semiautomatic test report saving and printout option;
- 12’’ touch screen;
- free automatic software update.

Technical characteristics	
Dimensions (L×W×H), mm	655×900×1430
Weight, kg	130
Supply voltage, V	400
Drive power, kW	7.5
Number of batteries	2 identical 12V batteries
Automatic charging: Battery 1	Yes
Automatic charging: Battery 2	Yes
Rated voltage of tested units, V	12, 24
Alternator testing	
Load on tested alternator	300A for 12V; 150A for 24V
Load adjustment (0-100%)	Smooth
Drive speed, RPM	0-3000
Drive speed adjustment	Smooth
Transmission type (drive/alternator)	Belt
Belt types	• V-belt; • Poly V-belt
Types of tested alternators	«L/FR», «SIG», «RLO», «RVC», «C KOREA», «P-D», «COM» («LIN», «BSS»), «C JAPAN»
Displayed parameters	A vast number of measured parameters are displayed in the form of graph charts, diagrams, and numerical values
Starter testing	
Power of testing starters, kW	Up to 6
Measured parameters	Displayed parameters are: starting mode diagrams, voltage drop between terminals K30 and K45
Battery testing	
Types of tested batteries	All types of 12V lead-acid batteries
Additional information	
Display type	12’’ touch screen
Free software update	Yes
Alternator database	Yes
Test results saving	Yes
Test results printout	Yes
Connection to Internet	Wi-Fi (802.11 a/b/g/ac)
Connection of external devices	2 x USB 2.0

Test bench MS008

MS008 is a multi-purpose test bench for quick and proper diagnostics of the following automotive units:

• 12/24V (48V) alternators supplied with various connection terminals and control protocols under a load of up to 150A (12V mode);

• 12/24V voltage regulators under load separately from alternators;

• 12/24V starters of passenger cars and heavy trucks at idle.

Advantages:

• measured parameters are displayed in the form of oscillograph charts;

• alternators are tested in either manual or semi-automatic modes;

• results of a semi-automatic test can be saved and printed out;

• database of alternators;

• database of voltage regulators;

• convenient system of fixing an automotive unit on the test bench;

• alternator drive belt automatic tightening;

• special diagnostic cables for connection to alternators (optional);

• 7 inch touch screen;

• desk-top test bench, compact size;

• automatic software update - free of charge.

TECHNICAL CHARACTERISTICS		
Dimensions (L×W×H), mm	770×640×500	
Weight, kg	85	
Supply voltage, V	400	
Drive power, kW	4	
Number of batteries	Two identical 12V batteries	
Automatic battery charging	Yes	
Rated voltage of tested units, V	12, 24	
Alternator test		
Load on tested alternator	150A/12B; 100A/24B; 50A/48B	
Load adjustment (0-100%)	Smoothly	
Drive speed, RPM	0-3000	
Drive speed adjustment	Smoothly	
Transmission type (drive/alternator)	Belt	
Belt type	- V-belt - Poly-V-belt	
Types of tested alternator	12V	Lamp, SIG, RLO, RVC, C KOREA, P-D, C JAPAN COM (LIN, BSS)
	24V	Lamp, COM (LIN)
Displayed parameters	A large number of measured parameters are displayed in the form of graphs, diagrams, numerical values	
Voltage regulator test		
Engine rotation simulation, RPM	From 0 to 6000	
Load on voltage regulator simulation, %	From 0 to 100	
Types of tested voltage regulators	12V	Lamp, SIG, RLO, RVC, C KOREA, P-D, C JAPAN COM (LIN, BSS)
	24V	Lamp, COM (LIN)
Starter test		
Measured parameters	Staring characteristics of a starter and voltage drop between terminals K30 and K45 are displayed.	
Additional features		
Free software update	Yes	
Database of alternators	Yes	
Database of voltage regulators	Yes	
Test results saving	Yes	
Test results printout	Yes	
Internet connection	Wi-Fi (802.11 a/b/g/ac)	
Connection of external devices	2 x USB 2.0	

Test bench MS006

Test bench MS006 provides the diagnostics of the technical condition of 12/24V alternators with various connection terminals, alternators with a nominal voltage of 12V for Stop-Start (VALEO I-StARS) and 24V for “I-ELOOP” systems. Test bench technical parameters allow it to detect up to 99% of all potential alternator faults. The test bench operates in two modes: manual and automatic. Test report printout option is available.

Advantages:

- desktop mounting;
- 230V single-phase power supply;
- diagnostics of 12V and 24V alternators for “Stop-Start” and “I-ELOOP” systems respectively;
- diagnostics of alternators in automatic and manual modes;
- by-number database search for alternator information;
- smooth adjustment of alternator speed and load current;
- automatic test results printout;
- convenient fixing of a tested unit;
- free software update.

Technical characteristics		
Dimensions (L×W×H), mm	570×490×450	
Weight, kg	42	
Supply voltage, V	230	
Number of batteries	No	
Alternator testing		
Voltage of tested alternators, V	12, 24	
Drive power, kW	1.5	
Load, A	0-50 for 12V, 0-25 for 24V	
Load adjustment (0-100%)	Smooth	
Drive speed, RPM	0-3000	
Drive speed adjustment	Smooth	
Transmission type (drive/alternator)	Belt	
Belt types	•V-belt • Poly V-belt	
Types of tested alternators	12V	«L/FR», «SIG», «RLO», «RVC», «C KOREA», «P-D», «COM» («LIN», «BSS»), «C JAPAN», VALEO «I-StARS»
	24V	«L/FR», «COM (LIN)», «I-ELOOP»
Displayed parameters	• Voltage; • Alternate current; • Direct current; • Drive speed **For COM voltage regulators:** • Protocol; • Data exchange rate; • ID; • Voltage regulator types; • Faults	
Additional information		
Display type	7” Touch screen	
Automatic test mode	Yes	
Alternator database	Yes	
Test results printout	Yes	

Tester MS012 COM

Tester MS012 COM simulates the connection of a voltage regulator to a properly operating alternator to determine its performance and to select the regulator analogue for a specific alternator.

Technical characteristics		
Dimensions (L×W×H), mm	260×265×92	
Weight, kg	4,1	
Supply voltage, V	230 or 120	
Types of tested voltage regulators	12V	«L/FR», «SIG», «RLO», «RVC», «C KOREA», «P-D», «COM» («LIN», «BSS»), «C JAPAN»
	24V	«L/FR», «COM» («LIN», «BSS»)
Simulation of load on voltage regulator, %	From 0 to 100	
Software update	Yes	

Tester MS013 COM

Tester MS013 COM checks the efficiency of 12V alternators either in a vehicle or on the test bench that provides the driving and the load of the alternator. It can be also used for testing voltage regulators separately from alternators.

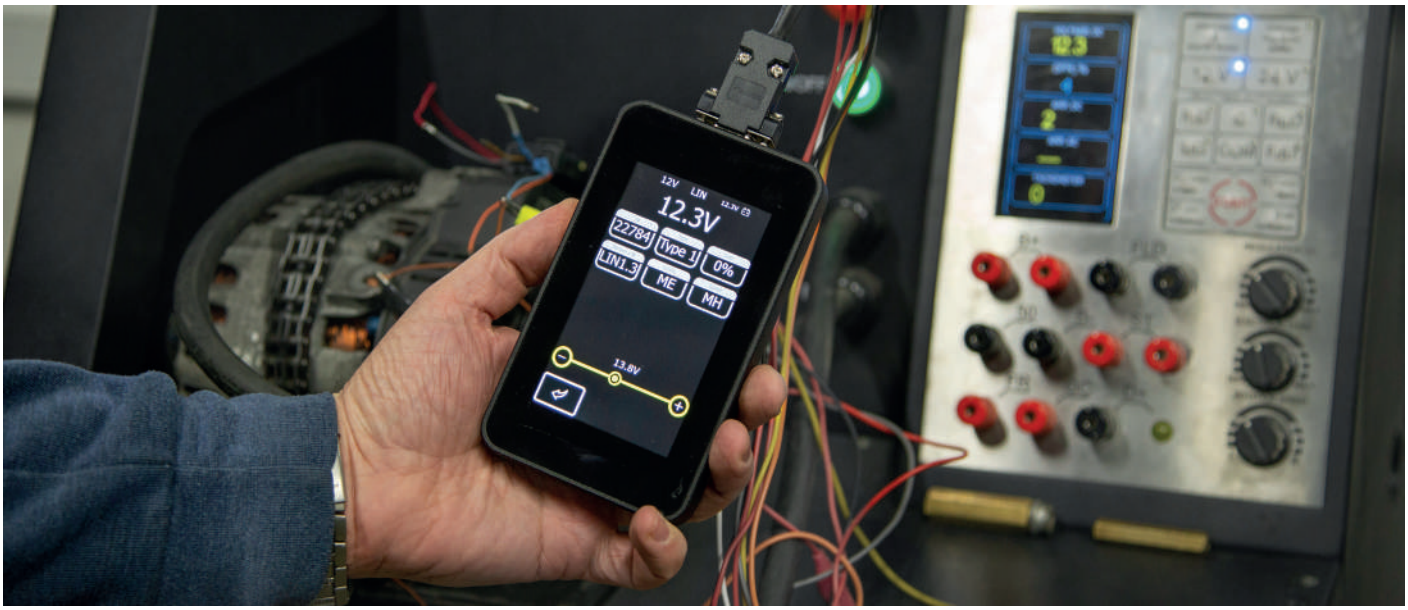
Technical characteristics	
Dimensions (L×W×H), mm	157×85×26
Weight, kg	0.7
Power supply	12V battery or 5V/2A AC/DC
Types of tested alternators/voltage regulators	«COM» («LIN», «BSS»), «P-D», «RLO», «C», «SIG», «D+»
PWM generator	Yes
Oscilloscope	Yes
Software update	Yes

Tester MS015 COM

Tester MS015 COM is a user-friendly device for express diagnostics of 12V automotive alternators with digital or PWM-controlled voltage regulators directly in a vehicle.

Technical characteristics	
Dimensions (L×W×H), mm	120×65×18
Weight, kg	0,15
Supply voltage, V	From 10 to 18 V
TFT-LCD, color touch screen	Screen size– 2,8’’ Screen resolution – 320×240 px
Nominal voltage of tested alternators, V	12
Types of tested alternators	«COM» («LIN», «BSS»), «SIG», «RLO», RVC» «C KOR.», «P-D», «C JAP.»
Software update	Yes

Tester MS016



Tester MS016 is a compact multifunctional device for express diagnostics of the following automotive units without removing them from vehicles: 12/24V alternators, 12V alternators for Stop-Start systems, and starters. The tester deterimines the performance of voltage regulators - separately from alternators, and it also reads and saves data transmitted via a vehicle LIN bus.

Technical characteristics		
Dimensions (L×W×H), mm	157×85×18	
Weight, kg	0,3	
Touch screen	IPS 4.3’’ Capacitive touch	
Types of tested alternators	12V	«Lamp», «SIG», «RLO», «RVC», «C KOREA», «P/D», «COM» («LIN», «BSS»), «C JAPAN», VALEO «I-StARS»
	24V	«Lamp», «COM» («LIN»), PWM (SCANIA)
Software update	Yes	

Tester MS031

Tester MS031 is designed for checking of the technical condition of starter solenoids and detection of open-circuit and short-circuit faults in solenoid coil.

Technical characteristics	
Dimensions (L×W×H), mm	260×250×90
Weight, kg	4
Supply voltage, V	230
Supply frequency. Hz	50/60
Power consumption, W	700
Voltage of tested solenoids, V	12/24
Tested parameters	• Pull-in current; • Hold-in current; • Voltage drop across power contacts
Software update	Yes

MS0311

MS0311 is deigned for a joint usage with the tester MS031 to fix a starter solenoid for the diagnostics convenience. It can be used for all solenoid types regardles of their sizes and manufacturer.

Tester MS014

Tester MS014 combines two features: it tests both stator windings and automotive alternator diode bridges. No additional measuring tools are required, as well as unsoldering of individual semiconductors of a diode bridge.

Technical characteristics	
Dimensions (L×W×H), mm	290×320×120
Weight, kg	2,6
Supply voltage, V	100/120/230
Supply frequency. Hz	50/60
Supply type	Single-phase
Power consumption, W, max	40

Tester MS021

Tester MS021 ensures accurate testing of the technical condition of alternator diode bridge and a single diode. The tester identifies the type and performance characteristics of a tested diode, reports on the defect type and identify the diode degradation.

Technical characteristics	
Dimensions (L×W×H), mm	219×214×80
Weight, kg	2
Supply voltage, V	230/110
Supply frequency, Hz	50/60
Supply type	Single-phase
Power consumption, W, max	40
Current load during diode testing, A	0,9
Voltage across device probes (AC), V	30

Diagnostics of steering systems

Test bench MS502M

Test bench MS502M is used for diagnostics of hydraulic power steering racks. The bench simulates a real-time operation of an automotive unit, thus allowing easy detection of faults and their nature.

Advantages:

- diagnostics of all power steering rack types;
- convenient fixing mechanism;
- possibility to adjust a maximum power fluid pressure generated in a steering rack.

Technical characteristics	
Dimensions (L×W×H), mm	1700×1300×750
Weight, kg	110
Supply voltage, V	380
Drive power, kW	1,5
Drive speed, RPM	1500
Tank volume, l	22
Maximum generated flow, l/min	5.9
Power fluid	ATF DEXRON II
Pressure adjustment range, bar	0-140
Flowmeter, l/min	0-18

Test bench MS603N

Test bench MS603N is designed to flush power steering system when changing the power fluid. It ensures a complete draining of the used system power fluid that has lost its performance characteristics and contains mechanical impurities appeared during a vehicle operation. The bench diagnoses HPS racks and pumps directly in a vehicle; steering racks can optionally be tested being dismantled from a vehicle.

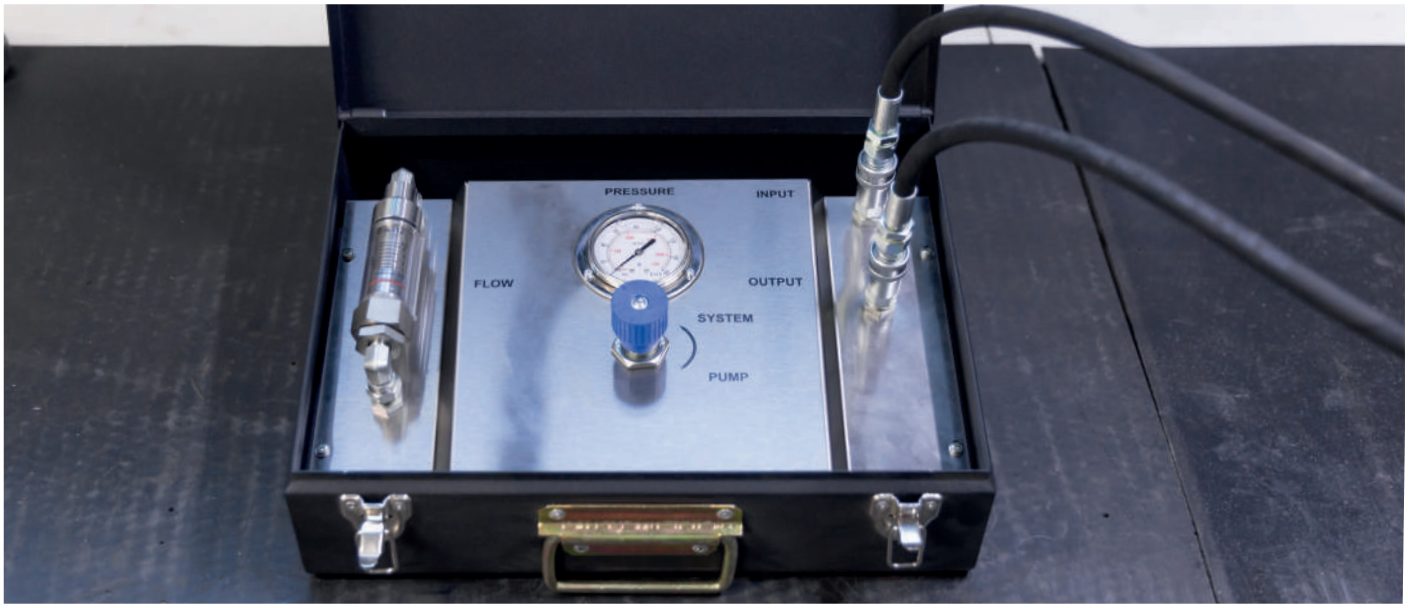
Technical characteristics	
Dimensions (L×W×H), mm	600×610×1180
Weight, kg	83
Supply voltage, V	220
Power of electric motor, kW	2,2
Flowmeter, l/min	from 0 to 18
Manometer, bar	form 0 to 160
Pure fluid tank volume, l	18
Impure fluid tank volume, l	18
Power fluid	ATF DEXRON III
Fluid level sensor	Yes
Pressure in the system, bar	140
Fluid flow, l/min	5,6

Test bench MS604

Test bench MS604 checks the performance of mechanically driven single- and double-circuit pumps and their output parameters.

Technical characteristics	
Dimensions (L×W×H), mm	1100×750×1700
Weight, kg	188
Supply voltage, V	400
Supply type	Three-phase
Drive power, kW	5.5
Drive speed adjustment, RPM	from 0 to 1500
Drive rotation direction	Yes
Measured flow, l/min	from 0 to 19
Measured fluid pressure, bar	from 0 to 250
Measured fluid temperature, °C	from 0 to 100
Power fluid	ATF DEXRON III
Tank volume, l	22
Steering rack load simulation	Yes

Tester MS611



Tester MS611 is designed for a checking of hydraulic power system elements – steering racks and pumps without their dismantling from a vehicle. The tester determines the technical condition of the units and the necessity of their dismantling from the vehicle for the further repair.

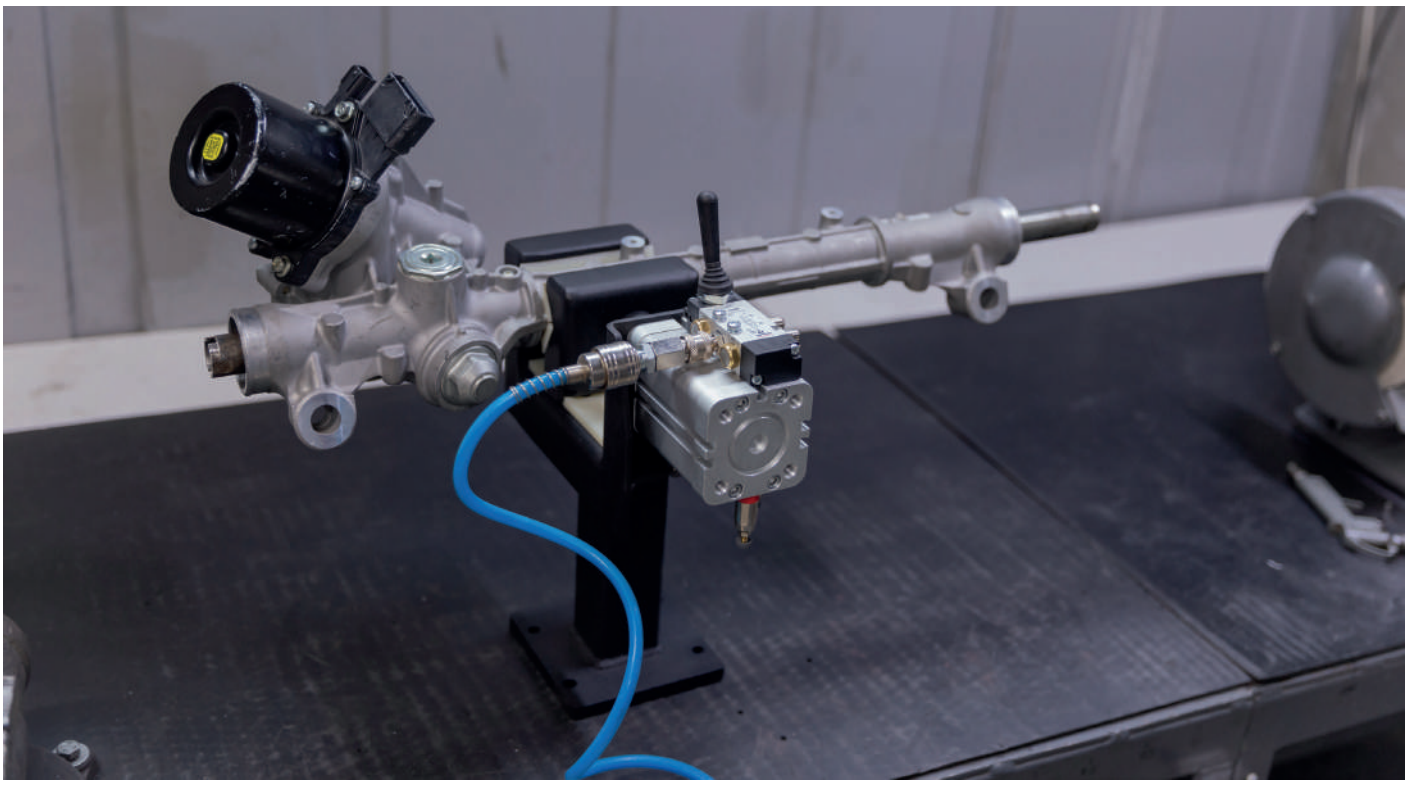
Technical characteristics	
Dimensions (L×W×H), mm	400×310×165
Weight, kg	11
Power fluid	ATF
Manometer, bar	from 0 to 160
Flowmeter, l/min	from 2 to 10

Tester MS610

Tester MS610 diagnoses power steering systems in different operating modes (under load and at no load) by measuring the pressure generated by a vehicle HPS pump.

Technical characteristics	
Dimensions (L×W×H), mm	180×80×300
Weight, kg	1.5
Power fluid	ATF
Manometer, bar	0-250

MS522



Pneumatic vise MS522 is used to secure cylindrical objects with a diameter of 35 to 85 mm and a clamping force of up to 1400 Newtons. A pneumatic distributor ensures control of the device.

MS521

The mechanism provides an accurate and complete test of the technical condition of HPS/EPS racks and detects the faults that can be traced only when there is a resistance to the steering rack movement.

Technical characteristics	
Dimensions (L×W×H), mm	1400×350×300
Weight, kg	63,5
Air operating pressure, bar	from 2 to 10
Maximum clamping force, N	2473

Controller MS561

Controller MS561 tests EPS and EHPS units (steering racks, columns, and pumps) utilizing CAN and FlexRay communication protocols. Automotive units are tested separately from a vehicle electrical system. Controller MS561 supplies power to a tested unit dismantled from a vehicle and provides special program codes required for its start. Diagnostics of automotive units directly in a car requires their previous disconnection from the in-vehicle electrical system. Special cables connect the tested units to the controller.

*The list of cables is provided additionally

Technical characteristics	
Dimensions (L×W×H), mm	355×255×93
Weight, kg	6
Supply voltage, V	230/120
Supply type	Single-phase
Supply frequency, Hz	50/60
Power consumption, W	2000
Output current, A	Up to 100A (90A for 120V)
Simulated signals	K30, K15, K61, PWM, CAN
Adjustable parameters	• vehicle speed; • steering wheel rotation speed;
Types of protection	• Short circuit; • Overload; • Overheat; • Overvoltage
Test modes	Manual/automatic
Connection to PC	USB/Bluetooth
Software update	Yes

MS700

MS700 - Storage system for EPS diagnostic cables is used to:

- sort out diagnostic cables;
- find the necessary cable quickly;
- keep a workplace of a specialist in order;
- protect cables from entangling and mechanical damage.

MS700 is recommended for the technical process that requires the usage of more than 10 cables.

Technical characteristics	
Dimensions (L×W×H), mm	912×444×287
Weight, kg	19

MS570

Table MS570 is a ready-to-use workplace for an electronics technician. The table is customized for a usage with controller MS561 - a diagnostic system for EPS repair. It has two built-in laboratory power modules and a space for an oscilloscope and a soldering station. The table is equipped with a mounting mechanism for a monitor of any size. The need for bright localized lighting is typical for all the operations involving electronics repair. The table is equipped with the LED fixture which output is 60W LED and illumination - 750 lx, which meets the requirements for high-precision operations.

Standard package:

- 60W LED fixture;
- 8 sockets for connection of external equipment;
- 2 in-built power modules;
- monitor mount;
- tabletop.

An oscilloscope, soldering station, monitor display, and basic tool set for assembly operations can be additionally included in the equipment package.

Technical characteristics	
Dimensions (L×W×H), mm	2000×830×1530
Weight, kg	90
Tabletop height, mm	780
Supply voltage, V	230
Maximum power consumption, W	500
Output voltage range of laboratory power module, V	from 0 to 32
Output current range of laboratory power module, A	form 0 to 5
Setting increment of laboratory power module output voltage, V	0,01
Setting increment of laboratory power module output current, A	0,001

MS550

Adapter MS550 is designed for a joint usage with controller MS561 to test electric power steering racks without control units (mainly in Japanese vehicles). The adapter is an accessory tool for diagnostics of both electric (electric motor, electric motor position sensor, torque sensor) and mechanical parts of a steering rack with controller MS56. It can be also used for a torque sensor calibration.

Technical characteristics	
Dimensions (L×W×H), mm	140x145x35
Weight, kg	0,5
Supply voltage, V	Supply voltage and consumption current are set by MS561
Overload protection	Yes
Functionality	**Diagnostics of steering rack parts:** • brush motor; • brushless motor; • all types of torque sensors; • all types of electric motor crankshaft position sensors

Diagnostics of automotive air conditioning system

Test bench MS111

Test bench MS111 provide the diagnostics of automotive climate system compressors operating with refrigerants R134a or R1234yf, post-maintenance unit run, pre-sale testing of new analogue compressors, and test report generation.

Advantages:

• diagnostics of all types of automotive AC compressors with a belt drive and supply voltage of 12V and 24V;
• utilized refrigerants: R134a or R1234yf;
• two diagnostic modes: manual and automatic;
• diagnostics of electromagnetic clutches and valves separately from compressors;
• possibility of compressor post-maintenance test run;
• possibility of pre-sale testing of new analogue compressors;
• simple and user-friendly interface to control the test bench throughout the diagnostic process via a 10.4” touch screen;
• free automatic software update;
• test results storage and printout;
• variety of protection systems that eliminate the bench failure or misuse.

Technical characteristics	
Dimensions (L×W×H), mm	900×570×1280
Weight, kg	183
Supply voltage, V	400
Supply type	Three-phase
Drive power, kW	5.5
Drive speed, RPM	from 0 to 3000
Drive speed adjustment	Smooth/graduate
Utilized refrigerant	R134a, R1234yf
Refrigerant filtration	Yes (1 μm^2)
Refrigerant amount in the system, g	R134a – 1100 R1234yf – 1050
Test bench filling	External filling station
Unit pipeline vacuum	Yes
Unit refrigerant pumping	Yes
Compressor drive type	Belt, V-belt, poly V belt
Display parameters	HP, bar; LP, bar; Unit t, °C; Epr t, °C; PWM, %.
Type of filling fittings	Automotive HP and LP
Oil amount in the system, g	200
Utilized oil	PAG46yf
Data printout	Yes
Connection to Internet	Ethernet , Wi-Fi (802.11 a/b/g/ac)

Test bench MS112

Test bench MS112 diagnoses electric AC compressors with a supply voltage of 140-400 VDC. The test bench checks the electric part of a compressor and its performance assessment. Nitrogen is used as a working gas for testing.

Advantages:

• Automatic diagnostic mode;
• Pre-sale test of new compressors;
• User-friendly and intuitive menu to control the bench function;
• Free automatic firmware update;

TECHNICAL CHARACTERISTICS	
Supply voltage, VAC	230
Supply type	Single-phase
Supply frequency, Hz	50/60
Power, kW	3
Dimensions (L×W×H), mm	740×600×550
Weight, kg	40
Working substance	Compressed nitrogen (external source required)
Nitrogen source pressure	6 Bar (≈ 85 psi)
Nitrogen consumption	100L per one test
Nitrogen recovery	No. Waste gas is discharged into the atmosphere
Nitrogen connect coupling	DN 7.2mm plug
Tested units	2-pin high voltage connection, with built-in inverters
Tested units supply voltage, VDC	100-400
Firmware update	By USB type-c external flash drive
Data printout	In development (not yet available)
Network connection	Ethernet

Pneumatic flushing station MS101P

Pneumatic flushing station MS101P is used for automotive climate system service and repair. The device ensures a proper washing of AC pipelines and other elements with a pulsating flow of flushing fluid. After flushing, the remaining fluid is drained from the system with the usage of pre-connected nitrogen.

Technical characteristics	
Dimensions (L×W×H), mm	300×350×700
Weight, kg	27
Filter element	Polypropylene
Air operating pressure, bar	2-7
Size of filter element, mm (inch)	127 (5”)
Tank volume, l	15
Length of hoses, m	2.5
Maximum nitrogen pressure, bar	10
Flushing fluid	R141B or isopropyl alcohol

Tester MS121

Tester MS121 is a compact device that combines two functions: testing of electromagnetic clutches and control valves of automotive climate system compressors.

Advantages:

- easy and simple to use;
- automatic selection of electric polarity for connection of a tested unit;
- simultaneous valve and clutch testing;
- possibility to control a compressor electromagnetic valve;
- diagnostics without dismantling from a car.

Technical characteristics	
Dimensions (L×W×H), mm	157×85×26
Weight, kg	0.5
Supply voltage, v	12-15
Voltage of tested electromagnetic clutches, V	12
Automatic selection of electromagnetic clutch polarity	Yes
Accuracy of current measurement, A	0.1
Short circuit protection	Yes
Supply type	Battery, constant power source - 12-15V
Types of tested electromagnetic clutches	• With diode; • Without diode
Voltmeter accuracy, V	0,1
Measured parameters of electromagnetic clutches	• Current consumption; • Open circuit; • Short circuit
Automatic selection of electromagnetic valve polarity	Yes
Types of tested electromagnetic valves	• PWM duty cycle; • Current consumption; • Open circuit, • Short circuit

Diagnostics of shock absorbers

Test bench MS1000+

Test bench MS1000+ is used to check the technical condition of shock absorbers of all light motor vehicle types, determine whether they need the repair, test the repaired shock absorbers, and check whether the performance parameters of the shock absorbers meet technical requirements.

Advantages:

• diagnostics of light motor vehicle shock absorbers with different types of mounting mechanisms and at various vibrational frequencies;
• possibility to set the shock absorber stroke;
• two diagnostic modes: automatic and manual;
• possibility to compare test results;
• possibility to save and print test results;
• user-friendly interface;
• operator safety;
• free automatic software update.

Technical characteristics		
Dimensions (L×W×H), mm		970×480×2500
Weight, kg		350
Supply voltage, V		400
Supply type		Three-phase
Drive power, kW		3.7
Test bench clamp control		Pneumatic
Power pressure of test bench pneumatic system, bar		6
Test modes		Manual/automatic
Shock absorber testing		
Tested shock absorber size	Maximum, mm	780
	Minimum, mm	250
Height adjustment		Manual
Shock absorber stroke, mm		Adjustable in the range from 50 to 150
Shock absorber stroke setting		Manual
Bound/rebound available load, kg		1000
frequency Shock absorber	Maximum, min^{-1}	180
	Minimum, min^{-1}	10
Travel speed of shock-absorber piston (at 50 mm stroke)	Maximum, m/sec	0,477
	Minimum, m/sec	0,026
Shock absorber temperature measurement		Yes
Additional features		
Data printout		Yes
Software update		Yes
Connection to Internet		Wi-Fi (802.11 a/b/g/ac)

MS200

Shock absorber illing system MS200 is a special tool for shock absorber repair and maintenance. The unit is designed to be mounted on the top of a technician's repair workbench. It is used for the filling of shock absorbers with the power pressure up to 120 bar with gas.

Advantages:

- simplicity of design and operation;
- safe fixing of a unit during filling;
- filing shock absorbers with power pressure of up to 120 bar.
- possibility to service both mono-tube and twin-tube shock absorbers.

Technical characteristics	
Dimensions (L×W×H), mm	250×350×400
Weight, kg	35

Adapter MS203

MS203 is used together with test bench MS1000+ for the controlling the electric valves of electronically controlled shock absorbers that enables their complete diagnostics.The adapter is controlled through the special test bench menu.

Diagnostics of brake calipers

Test bench MS300

Test bench MS300 for diagnostics and repair of brake calipers is used to check their efficiency and sealing performance. The bench enables the testing of the electromechanical drive of the electric parking brakes.

Advantages:

- two-in-one: a mechanic's workplace and a diagnostic workbench;
- diagnostics of brake calipers of different types and configurations;
- parking brake performance test;
- long service life.

Technical characteristics	
Dimensions (L×W×H), mm	1520×810×1480
Weight, kg	120
Supply voltage, V*	400
Supply type*	Three-phase
Power, kW	0,55
Power fluid	DOT4
Power fluid volume, l	4
Power pressure of test bench hydraulic system, bar	140 (limited by test bench settings)
Maximum generated pressure, bar	250
Supply voltage of electromechanical parking brake, V	12

* The test bench can be modified to fit any supply voltage

Particulate filter flushing

Test bench MS900

MS900 is a cleaning machine for particulate filters (PF) of light motor vehicles, heavy-duty trucks, and buses. The machine efficiently removes contaminants from particulate filters of various configurations. Reuse of water reduces the flushing costs. The test bench size is remarkably small with respect to the tasks it performs – it occupies a floor space of less than two square meters.

Advantages:

• maximum automation of PF flushing process: the constant presence of the operator is not required during the flushing.

• MS900 is electronically controlled through the touch screen with multilingual interface;

• adjustable PF flushing modes for light motor vehicles and trucks;

• stand-alone water purification system (does not require constant supply of pure water);

• possibility of DPF diagnostic/flushing results printout;

• free software update.

Technical characteristics	
Dimensions (L×W×H), mm	2200×900×2110
Weight, kg	650
Supply voltage, V	400
Supply frequency, Hz	50
Supply type	Three-phase
Power consumption, kW	10
Dimensions of operating space, mm (L/D/H)	1750×800×1030
Load capacity of operation space, kg	Yes
Pneumatic system air pressure, bar	from 6 to 8
Number of water tanks, pcs	2
Total water volume, l	300
Number of water filters, pcs	3
Filter element	Polypropylene
Size of filter element, mm (inch)	508 (20”)
Recommended micron rating, um	from 10 to 50
DPF flushing	
Types of flushed filters	DPF (DPF + SCR)
	FAP (FAP + SCR)
	GPF
Дополнительно	
Data printout	Yes
Connection to Internet	Ethernet , Wi-Fi (802.11 a/b/g/ac)
Software update	Yes

Diagnostics of electric vehicles

LOKI

Multifunctional diagnostic tool for Tesla

LOKI provides a wide range of service functions for diagnostics, repair, and maintenance of Tesla: Model S, Model X, Model 3.

Technical characteristics	
Net weight, kg LOKI + cables included in the equipment set	0,42
Gross weight, kg packed weight	1,3

Functionality of LOKI

- diagnostics of Tesla: Model S, Model X, Model 3;
- owner-initiated software update installation on MX\MS\M3 (AP2\2.5\3.0);
- navigation installation and set up including MS (tegra/intel), MX (tegra/intel), M3, Model Y;
- software update: version 2021.4.11 is available;
- change of Model S/X Tegra configurations: complete change - before 2020.48, partial change - before 2021.4.11;
- change of Model S/X Intel configurations: complete change - before 2020.48, partial change - before 2021.4.11;
- partial change of Model 3 configurations: before 2021.4.11 (Security Configuration is provided optionally);
- complete change of M3 configurations: available for all software versions (no soldering required);
- alert codes reading and decoding;
- service alert codes clearing;
- reading DTC from ECUs and their subsequent decoding;
- clearing DTC from ECUs;
- reading data from ECUs;
- enabling Valet Mode and reading a pre-set PIN-code (before 2021.4.12);
- disabling PIN to Drive and reading a pre-set PIN-code (before 2021.4.12);
- enabling Factory/ /Developer Mode;
- resetting all vehicle systems to service mode;
- linking electronic control modules to a vehicle (VIN learn);
- ECU setting, adaptation, and calibration of (door handles, charging ports, etc.);
- calibration of seats on MX;
- calibration of steering column on MX;
- calibration of radar AP2.5\3.0 on MS\MX\M3;
- clearing alert codes from BMS;
- clearing crush codes from TAS, SRS;
- key fob pairing on Model 3;
- autopilot program update;
- radar calibration to autopilot 2.0, 2.5, 3 on S/X/3;
- work with BMS (battery);
- work with CAN modules.

Functionality of Secured Configuration (for M3 only)

- enabling Autopilot (all versions);
- activation of Performance of Security Configuration (Long Range Dual Motor, the last digits of engine PN are 980);
- side blinkers and headlights reconfiguration: converting THE USA→EUROPE;
- activation of Premium Connectivity (Spotify, YouTube, etc.);
- activation of Supercharge.

Secured Configuration – is the add-on software product extending the device functionality. For operation you need the following: LOKI, a special cable, and software.

LC001-CS

Cable CAN for connection of Tesla Model S pre-facelift (<2015) to LOKI.

LC002-LS

Cable LAN for connection of Tesla Model S pre-facelift (<2015), Tesla Model S facelift, and Model X to LOKI.

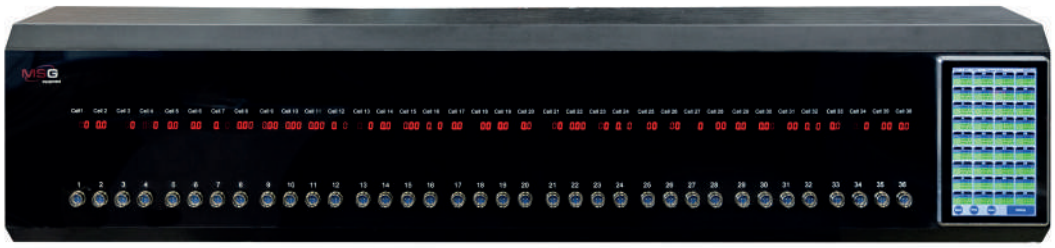
LC003-CX

Cable CAN for connection of Tesla Model S facelift, Model X to LOKI

LC004-L3

Cable LAN for connection of Tesla Model 3 to LOKI

Tester MS800



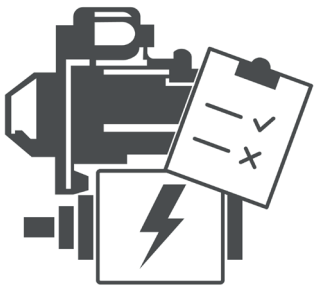
Tester MS800 is designed to diagnose high-voltage nickel-metal hydride batteries (Ni-Mh, NiMh) in hybrid vehicles: Toyota, Lexus, Honda, and others. Tester MS800 measures the battery capacity and tests up to 36 modules. MS800 can operate in automatic mode and has protection from a reverse polarity, short-circuit fault, overheating problems.

TECHNICAL CHARACTERISTICS	
Dimensions (L×W×H), mm	1430×300×220
Weight, kg	25
Supply voltage, V	230
Supply type	Single-phase
Supply frequency, Hz	50/60
Power consumption, W	2500
Charge rate, A	Up to 4,5
Discharge rate, A	Up to 6
Voltage in a channel, max, V	20
Test modes	Manual/Automatic
Connection to PC	USB
Software update	Yes

Training courses

We offer the advanced training courses on repair and rebuilding of:

- Starters and alternators
- EPS units
- HPS units
- Air conditioning systems
- Brake systems
- Shock absorbers
- Electric vehicles



Training course on diagnostics of starters and alternators

Repair of starters and alternators rates as a high-demand market service for two reasons: first, the repair of these units is cost-efficient for the customers, and on the other hand, the failures of these units caused by vehicle irregular inspection and maintenance are rather often.

Graduating the training course, you will learn to determine the technical condition of vehicle electric and start systems using the latest diagnostic equipment and upgrade your skills in servicing automotive starters and alternators.

Training course on diagnostics and repair of electric power steering systems

Today, we are facing the increased demand for repair of EPS and EPHS systems. The majority of modern vehicles, including all-electric ones, are equipped with electric power steering, and the number of such cars is steadily growing. Exploring a new area in diagnostics and repair of EPS/EHPS units will open promising opportunities for your business.

Training course on diagnostics and repair of hydraulic power steering systems

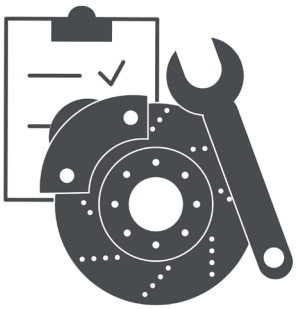
The training course studies potential faults of hydraulic power steering systems, their causes, and troubleshooting techniques. The course program includes both theory and practice. During practice, the trainees perform disassembly and assembly of automotive units, as well as repair procedures that may include faulty components replacement.

Training course on diagnostics and repair of automotive air conditioning systems

Diagnostics and repair of AC compressors is one of the most complex and high-demand services offered by repair shops. Our training course will make you familiar with the design and function of compressors used in AC systems of present-day vehicles. You will learn how each element of the system operates and what refrigerants and oils are used. You will study the symptoms of potential failures and troubleshooting techniques. Our specialists will answer all your questions.

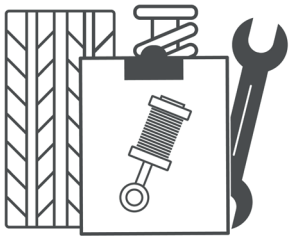
Training course on diagnostics and repair of brake calipers

The course is dedicated to the main failures of automotive brake systems, their diagnostics, and repair. You will study brake system faults, their causes, and troubleshooting methods. The training program includes both theory and practice. During practice, you will learn to disassemble, repair, and assemble automotive units replacing faulty components.



Training course on diagnostics and repair of shock absorbers

The course on diagnostics of shock absorbers studies potential failures and their causes, fault detection, and troubleshooting. The course is divided into two parts: theory and practice. Practical sessions include disassembly, repair, and assembly of shock absorbers. We teach how to replace faulty and worn-out elements of the systems in a quick and safe manner.



Training course on Tesla diagnostics

A training course on Tesla diagnostics and servicing is a fair opportunity to start exploring a new business area on the automotive repair market. The course program is authored and put into effect by a team of qualified professionals: engineers, developers, course instructors, and technicians specialized in the repair of electric vehicles.

We have all the necessary training resources to make learning as easy and efficient as possible. Upon completion of the courses, you will be able to perform the quality repair of Tesla using state-of-the-art equipment – diagnostic tool LOKI. The theory goes hand-in-hand with practice: whatever you learn, you immediately put it into practice.

Online training

You already know that now our training courses are available for you wherever you are – any place where you have access to the Internet will do great. It does not matter anymore whether you can come to our Training Center or not, you can take an individual training course up to one week long and study comfortably at your own place. For better results, we will provide you with training videos and supporting information.

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