

Training course in maintenance and repair of starters and alternators with the aid of the equipment and special tools by MSG Equipment

## Your instructor: **Rinat Kuliyeu**

Rinat is the head and one of the instructors of the MSG Equipment training center. He knows everything about our equipment manufacture. Rinat is responsible for technical support, which is provided to all our foreign customers. He is a very helpful and responsible person, and it's always a pleasure to communicate with him. Up to date, Rinat instructed more than 100 groups of foreign clients and held 35 classes in 2019, which was more than 840 hours of training.



# DAY 1-2

## Theory

10:00 – 12:00

## Lunch

12:00 – 13:00

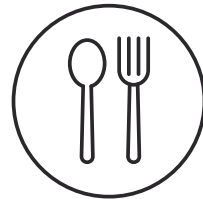
## Practice

13:00 – 17:00

The training course lasts 3-4 days, from 10 am to 5 pm.

Issues to discuss:

- Classification, construction and functioning of alternators and starters;
- Maintenance: most common failures and recovery techniques.



Practical session:

- Diagnostics and repair of 2-3 alternators and 2-3 starters with MS002 COM and MS004 COM test benches\*.

Training resources:

- Different alternators and starters: Bosch, Valeo, Magneti Marelli, Lucas, Nippon Dense, Mitsubishi, Hitachi, Delco Remy.



# DAY 3

Usually, by this day our visitors have dozens of questions, and we spare time to deal with them.

**\* Note!** If you have a list of car units you'd like to explore, please provide it in advance.

## **In the course of training we provide the following benefits:**

- Individual selection of components;
- Training guides in soft and hard copy;
- Free topic-based consultation with our equipment developers;
- Consultations on equipment diagnostics and repair;
- Conducted tour of the corporate territory and production sites;
- Presentation of other equipment and special repair tools of different types;
- Technical support in the equipment operation and maintenance;
- A list of recommended additional equipment for launching business;
- Assistance in selecting spare parts and materials necessary for units repair.

**Kharkiv**  
founded in 1654



Kharkiv is the second-largest city in Ukraine. A lovely town of about 1.7 million people, a major cultural, scientific, educational, transport and industrial centre of the country.

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# EXTRA INFO

## Diagnostic equipment and repair tools used in the course of training:

- Set of tools (TOPTUL);
- Set of pullers for locking rings;
- Set of pullers (MS0204);
- Contact welder (Figel MS022);
- Current clamp (UT 203);
- Test bench for starters and alternators (MS004/MS002);
- Test bench for voltage regulators (MS012 COM);
- Test bench for diode bridges (MS014);
- Adapter for digital voltage regulators (MS013 COM);
- Installers.

# EXTRA INFO

## The list of vehicle units used in the course of training:

### Starters

- 0001109203 R /2.1 kW z9/ BMW E65 760, RR Phantom;
- CS1192 R /0.8 Kw z8/ Brava, Punto2, Lancia Y 1.2;
- CS1260 R /1.1kW z11/ Citroen Berlingo, Fiat Scudo, Peugeot 406, 306, Expert 1.4 - 1.6 HDI;
- CS965 R /1.4 kW/ Fiat Croma 2.0i 87-96 years;
- JS1080 R /1.2 kW z13/ Toyota RAV -00 year Carina, Picnic 2.0 16V.

### Alternators

- CA1247IR R (95A) BMW E36 1.8TDS;
- CA1654IR R (90A) BMW 3 (E46) 316i, 318i 01 year;
- CA1780IR R (90A) Ford Fusion, Fiesta 03 year, 1.25 – 1.4 – 1.6 16V
- CA851IR R (65A) Fiat Panda, Seicento, Cinquecento 1.1;
- CA909IR R (45A) Fiat Fiorino 86-94 years 1.1-1.3 JA1539IR R (85A) Kia
- Carnival 2,9TD 99-01 years;
- JA1893IR R (70A) Toyota Yaris 1.4D 01 year.



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