



Training Plan

Jaltest Authorized Service 2012

For Professionals in Commercial Vehicles



Drive with **us**
conduce con nosotros

cojali
GROUP



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Training, *the BEST PATH*

"Give me a lever, and I shall move the world"

"Give me information, and I will create a lever for you capable of moving the world"

The first quote was written by Archimedes, the second one by COJALI. These are the principles we work with everyday in our group of companies. Always seeking new information, continuously improving.

For this reason, when any of us want to make progress, besides a great amount of effort, we must add knowledge.

COJALI, one of the few companies that promotes this knowledge as a source of progress, has chosen the path of training.

This path has been chosen by more than 3800 people from 30 different countries.

What about You? Have you chosen your Path?





Bet on *TECHNOLOGY*





Training Plan STRUCTURE

Level 1

	C0101 · Main systems with electronic control	6
	C0201 · Electricity and basic electronics	7
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C0101

MAIN SYSTEMS WITH ELECTRONIC CONTROL

Description

Theoretical-practical course.

The goal of this course is to acquire the necessary knowledge of the main systems with electronic control for the correct interpretation of the diagnosis in commercial vehicles.

Diagnosis is performed in the different systems with electronic control described theoretically.

Objective

The main purpose is to qualify the technician so he can deal with failures, performing diagnosis in the main systems of commercial vehicles such as:

- *Injection*
- *Gearbox*
- *Maintenance*
- *Retarder*
- *Brakes*
- *Suspension*

Duration_16 Hours





C0201

ELECTRICITY AND BASIC ELECTRONICS

Description

Theoretical-practical course.

Study of the basic concepts of electricity, such as: tension, direct current, alternating current, resistance, power, short circuits, open circuits, square signals...

The hands on will be conducted on electronic diagnosis boards, where the different electronic components will be checked, and electronic circuits will be designed, based on the practices proposed in the course.

Objective

Handling of the multimeter by dealing with real failures caused on test benches.

Ability to differentiate between the main units of measurement and electrical parameters.

Duration_16 Hours





C0301

BASIC PNEUMATICS APPLIED TO COMMERCIAL VEHICLES

Description

Theoretical-practical course.

Study of compressed air generation systems, brake systems and air suspension systems.

With the help of a test bench, the following will be verified: wiring diagrams, pressure graphs and air brake and suspension valves (both for trucks or trailers) such as: trailer control, quadruple protection, parking brake, pressure relief, pressure regulator, relay valve, ALB Pneumatics, ALB-Mechanics, 3/2-way, height control...

Objective

Learn the basics of the compressed air generation system.

Analyse the basics of the brake system, learn its components and the function they perform within the system.

Analyse the basics of the air suspension system, learn its components and the function they perform within the system. Introduction to the electronically controlled ABS pneumatic systems.

Duration_16 Hours





C0401

ELECTRONIC DIESEL CONTROL SYSTEM

Description

Theoretical-practical course.

Study of the Electronic Diesel Control (EDC) systems such as: Unit Injector System (UIS), Unit Pump System (UPS) and Common-Rail (CR).

The hands on will be conducted on engines and on components of injection and commercial vehicles such as: valves adjustment and injectors precharging, synchronization and phasing between the flywheel and the distribution, diagnosis of EDC in vehicles and solving of caused breakdowns.

Objective

Differentiate the main EDC systems, their components and the function they perform within the system.

Learn the sensing of the EDC system and the operation of the control unit. Interpret the diagnosis and verify the errors.

Duration_16 Hours





C0501

ZF AS - TRONIC

Description

Theoretical-practical course.

Training course where you can study the main Gearboxes with electronic control equipped by the seven major European brands of commercial vehicles.

Study of a ZF As-Tronic gearbox.

A ZF AS-TRONIC gearbox is disassembled and reassembled in order to identify, in a practical way, each of the sensors and the main electronic and mechanical components.

The potential of Jaltest in ZF AS-TRONIC is analysed in a practical way. (Diagnosis, actuation of solenoid valves and signal measuring).

Objective

Learn the operation of the ZF AS-Tronic gearboxes and its main breakdowns.

Learn how to assemble and reassemble the gearbox by using the appropriate tools.

Learn the meaning of the values measured with Jaltest in diagnosis.

Duration_16 Hours





C0102

ADVANCED DIAGNOSIS

Description

Theoretical-practical course.

The diagnosis knowledge in commercial vehicles is broaden.

Analysis of failures causing an incorrect development within the procedure of the maintenance system.

Study of the main communication protocols in a theoretical and practical way, in order to acquire the necessary skills to perform diagnosis individually in electronic control units without the need of a truck or trailer.

Objective

Learn and be able to perform maintenance services with electronic control with a diagnosis tool or any other way that may proceed.

Learn and be able to perform diagnosis from any point of the commercial vehicle.

Note

The course description and its objectives indicate that it is advisable to have a basic knowledge on Diagnosis and Electricity in order to achieve such goals in an optimal way.

Duration_16 Hours





C0202

ELECTRICAL SYSTEMS AND SENSORING IN COMMERCIAL VEHICLES

Description

Theoretical-practical course.

Interpretation and checking of wiring diagrams, sensors and electronic components from different brands of commercial vehicles with the help of the appropriate documentation and material.

Verification of sensors such as pressure sensors, height sensors, brake signal transmitters, fan clutches with electronic control (coil and hall sensor) by interpreting the graphs and with the help of a multimeter and an oscilloscope

Objective

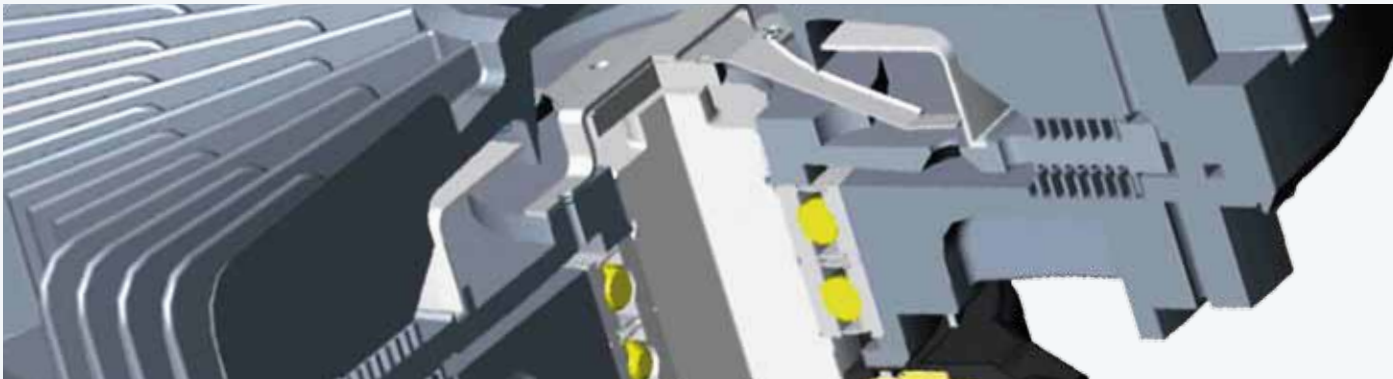
Operate the multimeter in an advanced way

Analyse electrical signals both theoretically and practically with the help of an oscilloscope

Note

The course description and its objectives indicate that it is advisable to have a basic knowledge on Diagnosis and Electricity in order to achieve such goals in an optimal way.

Duration_16 Hours





C0302

EBS SYSTEMS FOR TRUCKS

New content



Description

Theoretical-practical course.

This course brings together electricity and pneumatics, therefore, a brief review of said concepts will be carried out.

Detailed analysis of the operation of each of the electronically controlled valves and complete interpretation of electro-pneumatic diagrams in brake systems of the main manufacturers.

Objective

Learn to relate electricity, pneumatics and diagnosis collectively in

order to be able to deal with as many errors as possible.

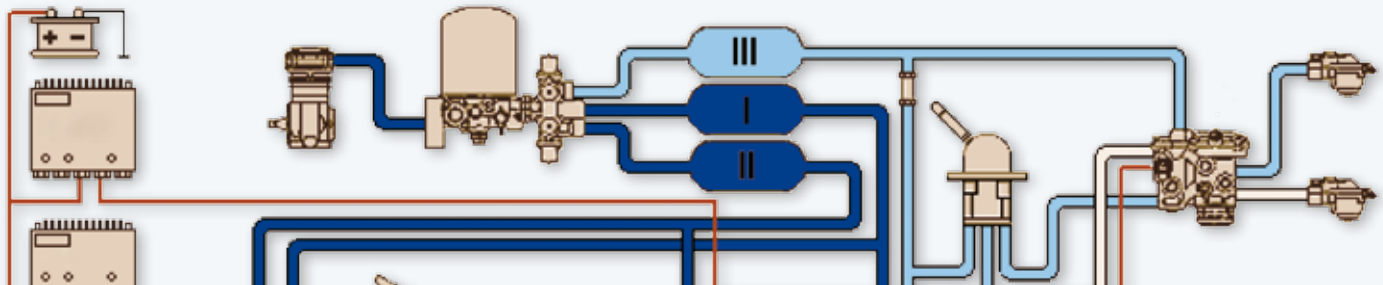
Learn to differentiate between systems with and without electronic control. Learn the operation of the electronic control of the braking based on the load.

Learn the operation of the electronically controlled brake systems.

Note

The course description and its objectives indicate that it is advisable to have a basic knowledge on Diagnosis and Electricity in order to achieve such goals in an optimal way.

Duration_16 Hours





C0402

ADBLUE SYSTEMS

New Course



Description

Theoretical-practical course.

Description of the components that make up the exhaust gases treatment system and study of the operation of the system as a whole.

Study of the AdBlue system on the main brands of commercial vehicles.
Interpretation and verification of diagnosis and errors on this system.

Objective

Learn the operation of the main valves, components and sensors of EDC and AdBlue.

Verify the actuation and measuring possibilities on EDC and AdBlue systems with Jaltest.

Learn the operation of the EDC unit and how it is related to the AdBlue system.

Interpret and verify diagnosis and errors on this system.

Duration_16 Hours





C0502

I - SHIFT / OPTIDRIVER 2

Description

Theoretical-practical course.

Training course where you can study the main Gearboxes with electronic control equipped by the seven major European brands of commercial vehicles, especially I-SHIFT.

Study of an I-Shift gearbox. An I-SHIFT Gearbox is disassembled and reassembled, that way, it is possible to identify, in a practical way, each and every one of the sensors and the main electronic and mechanical components.

The gearbox is calibrated in a practical way

The potential of Jaltest in I-SHIFT is analysed in a practical way

(Actuation of solenoid valves, signal measuring, parameters setting and calibration).

Objective

Learn the operation of the I-Shift gearboxes and its main breakdowns.

Learn how to assemble and reassemble the gearbox by using the appropriate tools.

Learn the meaning of clutch wearing value.

Learn the meaning of the values measured with Jaltest regarding a clutch disc wearing.

Duration_16 Hours





C0103

EXPERT DIAGNOSIS ON EDC FROM IVECO

New Content



Description

Theoretical-practical course.

Analysis of the actuations and measurements developed by Jaltest in EDC systems from Iveco.

Objective

Lear to interpret the active diagnosis developed in Jaltest in EDC systems from Iveco.

Note

The course description and its objectives indicate that it is advisable to have a basic knowledge on Diagnosis, Injection and Electricity in order to achieve such goals in an optimal way.

Duration_16 Hours





C0203

ELECTRICITY APPLIED TO CAN LINES

Description

Theoretical-practical course.

Study of the main CAN electronic structures on every commercial vehicle and semi-trailers.

Interpretation of diagnosis errors caused by CAN lines.

Study of CAN protocols.

Visualization and interpretation of the CAN lines by means of an oscilloscope.

Practical expert analysis of signals with an oscilloscope.

Objective

Expert handling of multimeter and oscilloscope.

Learn to check a CAN lines installation in a practical way verifying failures on vehicles.

Duration_16 Hours





C0303
ECAS

New Course



Description

Theoretical-practical course.

Study of the operation of the electronically controlled air suspension (ECAS) valves.

It relate electricity, pneumatics and diagnosis collectively in order to be able to deal with as many errors as possible within this field.

Objective

Learn to interpret electro-pneumatic diagrams in Wabco's suspension.

Note

The course description and its objectives indicate that it is advisable to have a basic knowledge on Pneumatics and Electricity in order to achieve such goals in an optimal way.

Duration_16 Hours





C0403

COMMON - RAIL SYSTEM

New Course



Description

Theoretical-practical course.

Detailed study of the Common - Rail system and its components, of both the low and high pressure parts.

Components of low pressure part:

- *Fuel tank with pre-filter.*
- *Pre-pump.*
- *Fuel filter.*
- *Low pressure fuel pipes.*

Components of high pressure part:

- *High pressure pump with pressure relief valve.*
- *High pressure fuel pipes.*
- *Rail as high pressure accumulator with Rail pressure sensor, pressure relief valve and flow limiter-*
- *Injectors.*
- *Fuel return pipes.*

Study of the Common-Rail injection system, fuel diagrams and system components of Common - Rail system of the 7 major European truck brands.

DAF: ECS-DC3 & DC4 / IVECO: EDC7 & EDC7 UC31

MAN: EDC 7 / MERCEDES-BENZ: MCM / RENAULT: dCi

SCANIA: EMS XPI / VOLVO: EMS

Duration_16 Hours





C0404

PERFORMANCE AND ANALYSIS OF TURBOCOMPRESSORS

New Course



Description

Theoretical-practical course.

Study of the boost systems of internal combustion engines and the relation between the turbo and the EDC system.

Description of the assembly and performance of turbos in the main European brands.

Practical training in different vehicles, analysing and measuring the parameters of the turbocompressor through diagnosis.

Objective

Learn the performance of the different types of turbocompressors as well as the components for its control:

- Wastegate valve
- VGT

Diagnosis of turbocompressors' errors in the main European brands using Jaltest.

Duration_16 Hours





C1002 · EBS TRAILER

TRAILER EBS SYSTEMS

New Course



Description

Theoretical-practical course.

Description of the systems from the different manufactures installed in towed vehicles such as:

- Trailer EBS C,D and E
- Trailer EBS TEBS4 and GEN 2
- Trailer EBS Haldex EB+ and GEN 2

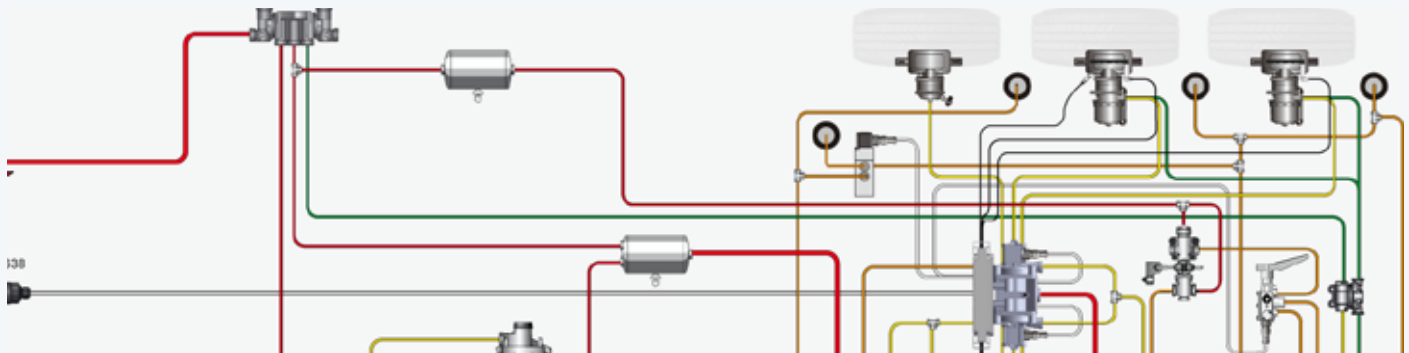
Individual study of the valves and sensors forming the systems previously mentioned, such as:

- EBS modulator
- EBS relay modulator
- Relay emergency valve
- Lift axle valve
- Load pressure sensor

Objective

Train the technician to learn the trailer EBS systems manufactured by Wabco, Knorr and Haldex

Duration_16 Hours





Seminars STRUCTURE

DIAGNOSIS

S0101 · Frequent errors 1. Iveco / Mercedes-Benz / Volvo.	23
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ENGINE MANAGEMENT

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S0402 · AdBlue Systems. Mercedes-Benz and Scania EEC3. 	30
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S0101

FREQUENT ERRORS 1 - IVECO / MERCEDES-BENZ / VOLVO

Description

Theoretical-practical course.

In this technical seminar, the most frequent failures caused in: Iveco, Mercedes and Volvo are described.

The errors are related to the different systems with electronic control such as:

- *EDC*
- *Suspension*
- *Brakes*
- *Gearbox*

Objective

Explain the most frequent errors in order to be able to solve them in the shortest possible time.

Duration_8 Hours





S0102

FREQUENT ERRORS 2 - DAF / MAN / RENAULT / SCANIA

Description

Theoretical-practical course.

In this technical seminar, the most frequent failures caused in: DAF, MAN, Renault and Scania are described.

The errors are related to the different systems with electronic control such as:

- *EDC*
- *Suspension*
- *Brakes*
- *Gearbox*

Objective

Explain the most frequent errors in order to be able to solve them in the shortest possible time.

Duration_8 Hours





S0103

FREQUENT ERRORS 3 - IVECO / MERCEDES-BENZ / SCANIA / VOLVO / RENAULT

Description

Theoretical-practical course.

In this technical seminar, the most frequent failures caused in: Iveco, Mercedes-Benz, Scania, Volvo and Renault are described.

The errors are related to the different systems with electronic control such as:

- *EDC*
- *Suspension*
- *Brakes*
- *Gearbox*

Objective

Explain the most frequent errors in order to be able to solve them in the shortest possible time.

Duration_8 Hours





S0104

ELECTRONIC ADVANCES IN COMMERCIAL VEHICLES

New Seminar



Description

Theoretical-practical course.

Study of intelligent air dryers such as:

- Volvo air dryer
- APM
- APS
- ECAM

Steps to follow and parameter setting on the EBS module replacement in different trailer systems such as: EBS C/D/E; EB+/-2; TEBS Gen2

Objective

Train the technician to learn about electronic dryers and parameters setting in EBS Trailers.

Duration_8 Hours





S0105

ADVANCED DIAGNOSIS IN COMMERCIAL VEHICLES

New Seminar



Description

Theoretical-practical course.

Explanation of the different calibration and parameter setting processes in trucks such as:

- height sensors
- gearboxes
- clutch calibration
- Comfort-Shift calibration on MAN TG
- injectors/unitary pumps calibration
- reset of EBS brake systems
- maintenance reset in Renault
- parameter setting of electronically controlled air dryers

Objective

Train the technician to learn the processes of calibration and parameter setting of different truck systems.

Duration_8 Hours





S0106

EXPERT MODE

New Content



Description

Theoretical-practical course.

In this seminar, the special functions performed by Jaltest in "Expert Mode" are explained.

The Jaltest special functions are those in which any parameter of the ECU is modified.

With this option, the user can access expert diagnosis functions in the different systems.

Objective

Learn, in a technical way, all the functions performed by Jaltest in expert mode.

Duration_8 Hours

IS, Gear control
IM, Rear module
HPS, Hydro-pneumatic module
HZR, Heating regulation
INS, Instrumentation

CEDES BENZ [Actros II (WDB930.0 - 934.3)] [BS, Brake system]





S0401

ADBLUE SYSTEM - DENOXTRONIC 1 AND 2

New Content



Description

Theoretical-practical course.

Description of the components that make up the exhaust gases treatment system such as:

- AdBlue tank.
- Combined sensor of the filling and temperature level of AdBlue in the tank.
- AdBlue tank heater valve.
- Temperature sensor of exhaust gases.
- Dispenser.
- AdBlue injector.
- AdBlue pump module.
- Compressed air regulation unit.
- Nox sensor.

Study of the operation of the system as a whole:

- Functional diagram.
- Electropneumatic and hydraulic diagram.
- Operation diagram.
- Electro-pneumatic diagram of the air supply unit.



Objective

Train the technician to learn about the Denoxtronic systems 1 and 2.

Duration_8 Hour



S0402

ADBLUE SYSTEMS - MERCEDES-BENZ AND SCANIA EEC3

New Content



Description

Theoretical-practical course.

Description of the components that make up the exhaust gases treatment system such as:

- AdBlue tank.
- Combined sensor of the filling and temperature level of AdBlue in the tank.
- AdBlue tank heater valve.
- Temperature sensor of exhaust gases.
- Dispenser.
- AdBlue injector.
- AdBlue pump module.
- Compressed air regulation unit.
- Nox sensor.

Study of the operation of the system as a whole:

- Electrical signals of the system
- Connections diagram
- Operation diagram.



Objective

Train the technician to learn the BlueTec and EEC3 systems.

Duration_8 Hour



S0403

TURBOS

New Seminar



Description

Theoretical-practical course.

Study of the boost systems of internal combustion engines and the relationship between the turbo and the EDC system.

Description of the assembly and performance of turbos in the major European brands.

Analysis and measurements of the turbocompressor's parameters by means of simulated diagnosis.

Objective

Learn the performance of the different types of turbocompressors as well as the components for its control:

- Wastegate valve
- VGT

Correctly diagnose the errors on turbocompressors of the main European brands.

Duration_8 Hour





TRAINING SCHEDULE 2012

January						
LU	MA	MI	JU	VI	SA	DO
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
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30	31					

February						
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March						
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April						
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30						

May						
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28	29	30	31			

June						
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July						
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23	24	25	26	27	28	29
30	31					

August						
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27	28	29	30	31		

September						
LU	MA	MI	JU	VI	SA	DO
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October						
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29	30	31				

November						
LU	MA	MI	JU	VI	SA	DO
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12	13	14	15	16	17	18
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26	27	28	29	30		

December						
LU	MA	MI	JU	VI	SA	DO
					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						

e-LEARNING

 *ANY PLACE, TRAINING TO ITS FULL EXTENT*





SP_12.2.3



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