FUEL CONSUMPTION REPORT. TEST PERFORMED IN A BUS WITH ECO-CAR DEVICE INSTALLED

DESARROLLO AUTOMOVILIDAD, S.L.
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PART 0

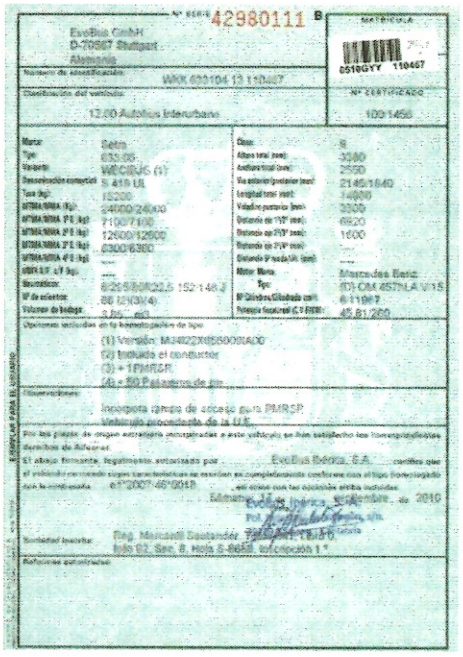
HISTORY

On behalf of PROFIT FOR WORK, and the passenger transport company ALSA, a fuel consumption evaluation test is designed and performed. This test aims to compare the fuel consumption performance of a vehicle with and without a fuel consumption reduction device, named Eco-car. The vehicle in which the device is installed is property of the transport company ALSA, PROFIT FOR WORK supplies the Eco-car device, and AUTOMOVILIDAD designs and perform the tests

NOTE: AUTOMOVILIDAD does not have any kind of commercial nor technical relationship with neither PROFIT FOR WORK nor ALSA, that can influence its impartiality in the development of the tests, or in the corresponding test report.

TESTED VEHICLE

This test is performed in a 3 axle vehicle, category M3 Class III (bus) vehicle, manufactured by SETRA, with type 633 05, European type approval number e1*2007/46*0018, VIN number WTK63310413110467, and registered in Spain with number 0510GYY. Vehicle is powered by a 6 cylinder diesel engine manufactured by Mercedes Benz, with 260 kW of power that fulfills the European Level of **Emissions Euro 5**. The vehicle has an automatic transmission.



STAFF PRESENT AT TIME OF TESTING

Tests were attended by the staff from the following companies: ALSA, as solicitor and owner of the tested vehicle, PROFIT FOR WORK, as solicitor and manufacturer of the Eco-car device, and AUTOMOVILIDAD, as the independent party performing the tests.

TESTING DATES:

First test was performed in the vehicle without the Eco-car device installed, on the morning of May 30th of 2012.

Second test was performed in the same vehicle, with the Eco-car device installed, on the morning of June 8th, 2012.

TESTING GROUND:

The comparative consumption test was performed on a mixed route, combining a lengthy period on a closed test track, located in the INTA facilities in Torrejón de Ardoz, Madrid, with a small route on open roads from INTA to the ALSA facilities, also in Torrejón de Ardoz, Madrid. The route was repeated exactly during both tests.

TEST ROUTE:

Testing begins at the heavy vehicle weight scale of INTA, located just outside the test tracks outer limits. From here, the vehicle takes a small tour to the handling track inside the test track facilities.

On the test track, a series of laps are performed in stable conditions, without traffic and stabilized lap times. This lap is 1.850 m in length, and, after each lap, the vehicle is brought to a halt and started again, simulating a passenger stop. This cycle has a duration of exactly 3h and 25 minutes and is 115 km.

After the cycle is completed, the vehicle immediately returns to the ALSA facilities in Torrejón de Ardoz, Madrid, covering 7,9 km, where the test is finished. There, the consumed fuel is measured by completely refilling of the fuel tanks, and measuring the added fuel.

MEASURING METHOD:

A simple and reliable method is chosen for measuring the consumed fuel in the test. Prior to starting, at the INTA weight scale, both fuel tanks of the vehicle are filled to the rim. Then, the vehicle is weighed. After completion of the test, including the 2km way to the track, 115km test track cycle and the 7,9km of the return to ALSA facilities, the vehicle is refueled completely in various cycles, to ensure all air escapes from tanks and maximum fuel capacity is obtained. Fuel density is considered constant, and, with all fuel coming from the same fuel station and refueling point, measuring the liters used is deemed enough.

FUEL USED:

Fuel used in the test is **Diesel Type e+10**, supplied by Repsol, and coming from the same fuel station in the ALSA facilities in Torrejón de Ardoz, Madrid.

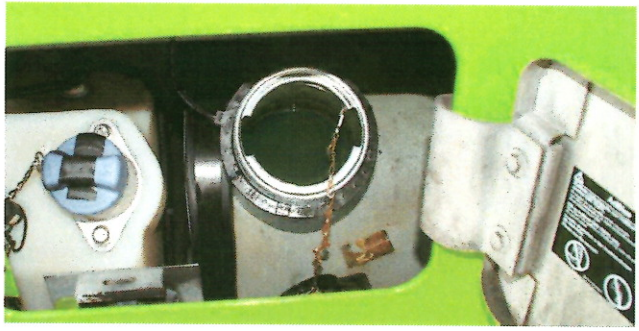
PART 1

TEST PROCEDURE DAY 1: TEST WITHOUT ECO-CAR DEVICE

The day starts with a preliminary verification of the vehicle condition and suitability for the test. Tyre pressures and tyre depth, absence of faulty symbols in the vehicle dashboard are verified, and the vehicle is presented in un-laden condition, without any added weight.

After verification, the vehicle is completely refueled in various cycles, ensuring all air is evacuated from the tanks and the fuel capacity is maximized, and the tanks are filled to the rim. Vehicle is therefore weighed axle per axle in the INTA weight scale. The obtained values are recorded so they can be compared to those from Day 2.

Total value is 15.285 kg, which is comparable to the values presented for un-laden condition from the vehicle´s technical file.



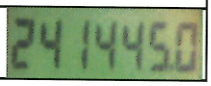
TEST RESULTS DAY 1 (May 30th 2012)

VEHICLE AXLE	1	2	3	TOTAL
WEIGHT (kg)	4.470	7.140	3.675	15.285

METEOROLOGY: Dry, sunny and stable conditions.

HOUR	TEMPERATURE	HUMIDITY	WIND SPEED
11:20h	26,5º	22%	0,9m/s
14:40h	34,4º	15%	1,2m/s

DATA

CONTROL POINT	DRIVER	HOUR	INDICATED KM VEHICLE TACHOMETER	
INTA weight scale	Raúl Martín (ALSA)	11:08h	241.320,1	
Start of handling track cycle	Ángel Vilches (Automovilidad)	11:20h	241.322,1	
End handling track cycle	Ángel Vilches (Automovilidad)	14:45h	241.437,1	
ALSA facilities	Raúl Martín (ALSA)	15:01h	241.445,0	

ROUTE	TIME USED	DISTANCE COVERED
Scale-Handling track	12 min	2 km
Drive test in handling track	3h 25 min	115 km
Handling test-ALSA facilities	16 min	7,9 km
TOTALS	3h 53 min	124,9 km

FUEL CONSUMPTION:

After completion of the test and on arrival at the ALSA facilities, final refueling takes place. 3 refueling cycles are performed, on both filler pipes, with a slight vehicle movement to ensure air escapes from the fuel tanks and maximum capacity is obtained. The total fuel added, that sums up to the total consumption during the test, is listed below:

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Total volume added during for refueling was: 52,72 liters

SUMMARY OF RESULTS

DISTANCE	TIME	LITERS	Liters /km	Km/lit	Liters/min
124,9 km	3h, 53 min (233 min)	52,72	0,4220	2,3691	0,2262

INSTALLATION OF ECO-CAR DEVICE

3 Eco-car devices, in serial layout, are installed in the fuel feed circuit, between the outboard pipe from fuel tank and the fuel filter. This installation is done by technical personnel from ALSA, under supervision from Eco-car´s manufacturer staff. Both ALSA and PROFIT FOR WORK staff assist with the installation.

Between May 30 th and June 8 th, Eco-car equipped bus does interurban ALSA regular service. During this period, no incidents nor failures are reported, and the bus was not serviced nor mechanically altered.

On June 8th, the installation of the Eco-car devices was checked to ensure the installation was still in place and working properly.

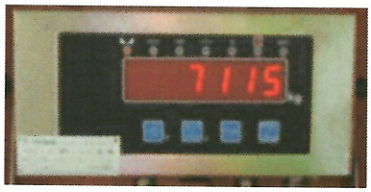
PART 2

TEST PROCEDURE DAY 2 TEST WITH ECO-CAR DEVICE

Same test procedure, as applied on Day 1 is performed, starting with a preliminary vehicle revision and checking tyres and absence of faulty signals. Vehicle is presented in the same un-laden condition as Day 1.

Before filling up the tanks with fuel, the vehicle is weighed. Then, in various cycles, fuel is slowly added to the tanks, using both pipes, to ensure maximum capacity is obtained. The vehicle is weighed again axle per axle, with a final weight of 15.265kg.

TEST RESULTS DAY 2 (June 08th 2012)



VEHICLE AXLE	1	2	3	TOTAL
WEIGHT (kg)	4.455	7.115	3.695	15.265

METEOROLOGY: Dry, cloudy conditions.

HOUR	TEMPERATURE	HUMIDITY	WIND SPEED
09:30h	24,9º	30%	3,6m/s
12:40h	29,5º	27%	3m/s

DATA

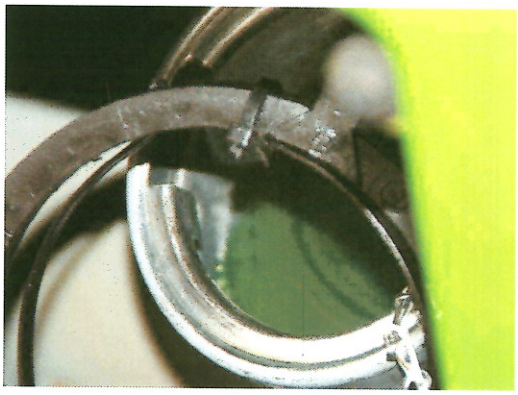
CONTROL POINT	DRIVER	HOUR	INDICATED KM VEHICLE TACHOMETER	
INTA weight scale	Raúl Martín (ALSA)	9:10h	244.544,9	
Start of handling track cycle	Ángel Vilches (Automovilidad)	9:27h (*)	244.546,9	
End handling track cycle	Ángel Vilches (Automovilidad)	12:50h	244.662,2	
ALSA facilities	Raúl Martín (ALSA)	13:04h	244.670,1	

(*) Small period for awaiting track clearance, with engine stopped.

ROUTE	TIME USED	DISTANCE COVERED
Scale-Handling track	12 min	2 km
Drive test on handling track	3h 23min	115,2 km
Handling test-ALSA facilities	15 min	7,9 km
TOTALS	**3h 50 min**	**125,1km**

FUEL CONSUMPTION:

After completion of the test on arrival to ALSA facilities, final refueling does take place. 5 refueling cycles are done, on both filler pipes, with a slight vehicle movement to ensure air escapes from the fuel tanks and maximum capacity is obtained. Total fuel added, that sums up to the total consumption used during the test, is listed below:



Total volume added during for refueling was: 46,75 liters .

SUMMARY OF RESULTS

DISTANCE	TIME	LITERS	Liters /km	Km/lit	Liters/min
125,1 km	3h, 50 min (230 min)	46,75	0,3737	2,6759	0,2032

PART 3

COMPARISION SUMMARY BETWEEN BOTH TESTS

May 30 th: Test without Eco-car device installed

June 8 th: Test with Eco-car device installed

METEOROLOGY

TEMPERATURE DURING DRIVING CYCLE IN HANDLING TRACK

DATE	ECO-CAR	Start of test	End of test
30th May	***Not installed***	26,5º	34,4º
8th June	***Installed***	24,9º	29,5º

HUMIDITY DURING DRIVING CYCLE IN HANDLING TRACK

DATE	ECO-CAR	Start of test	End of test
30th May	***Not installed***	22%	15%
8th June	***Installed***	30%	27%

WIND SPEED DURING DRIVING CYCLE IN HANDLING TRACK

DATE	ECO-CAR	Start of test	End of test
30th May	***Not installed***	0,9m/s	1,2m/s
8th June	***Installed***	3,6m/s	3m/s

TOTAL TIME

DATE	ECO-CAR	TIME (h)	TIME (min)
30th May	***Not installed***	**3h 53 min**	**233 min**
8th June	***Installed***	**3h 50 min**	**230 min**

DISTANCE COVERED DURING TESTS

DATE	ECO-CAR	DISTANCE COVERED
30th May	***Not installed***	**124,9km**
8th June	***Installed***	**125,1km**

AVERAGE SPEED DURING TESTS

DATE	ECO-CAR	AVERAGE SPEED (km/h)	AVERAGE SPEED (km/min)
30th May	***Not installed***	**32,16 km/h**	**0,536 km/min**
8th June	***Installed***	**32,58 km/h**	**0,543 km/min**

ATISAE

FUEL CONSUMPTION REPORT
VI-12-004 12 2012, June 8 th

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FUEL CONSUMPTION DURING TESTS

DATE	ECO-CAR	LITERS	Liters /km	Km/liter	Liters/min
30th May	***Not installed***	**52,72 liters**	**0,4220**	**2,3691**	**0,2262**
8th June	***Installed***	**46,75 liters**	**0,3737**	**2,6759**	**0,2032**

Differences noticed between the vehicle with Eco-car device installed and the same vehicle without the Eco-car device installed, in the dates and conditions as reflected in this report, are:

CONCEPT	WITHOUT ECO-CAR	WITH ECO-CAR	DIFFERENCE IN LITERS	DIFFERENCE %
FUEL CONSUMED DURING TEST	***52,72 liters***	**46,75 liters**	**- 5,97 liters**	**- 11,3 %**

Pinto,June 12th 2012

AUTOMOVILIDAD

Javier Chicharro Rodríguez

Responsable Asistencia Técnica Automovilidad


Empresas que han colaborado en los ensayos de:
Eco%-car®
Ensayos realizados en las pistas de:
INTA
Empresa responsable de los ensayos:
AUTOMOVILIDAD
Grupo ATISAE
Empresa propietaria del vehículo donde se ha realizado el ensayo:
ALSA
Distribuidor Universal de Eco-car:
PROFIT
FOR WORK
AUTOMOVILIDAD
La forma más ecológica de ahorrar
NUESTRO COMPROMISO -CO2

Equipo humano participante en los ensayos de:

Eco-car®

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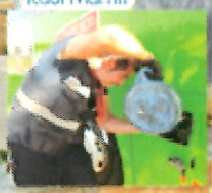
Javier Chicharro

Ángel Vilchés

Raúl Martín



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ALSA
Jorge Fernández
Raúl Martín

ANEXO: LA EMPRESA AUTOMOVILIDAD

AUTOMOVILIDAD GRUPO ATISAE

ATISAE GROUP

- ATISAE, founded in 1964.
- International expansion in South America. Offices in Argentina, Chile and Portugal.

- 47 regional offices in Spain. 2.000 employees
- International expansion in South America. Offices in Argentina, Chile and Portugal.
- 45 % owned by TÜV SÜD

AUTOMOVILIDAD GRUPO ATISAE

AUTOMOVILIDAD

ATISAE Automotive

ATISAE Automotive

PTI s	ATISAE Consultores	AUTOMOVILIDAD
▪ 17 PTI Stations	▪ Customer Management ▪ Technical Training ▪ Automomotive Consulting	▪ CarLab ▪ Technical Assistance

AUTOMOVILIDAD GRUPO ATISAE

Product Definition

AUTOMOVILIDAD Business Units:

1. Official Laboratory – **CarLab**:
   - Vehicle **Modifications** - Major changes
   - **Historic** Vehicles
   - Technical **Reports**

2. Technical Assistance:
   - **Homologation**, Certification and **Conformity** of Market/ Production.
   - **Commercial Vehicles** and **Transport**
   - **Engineering** support, **R&D** projects.

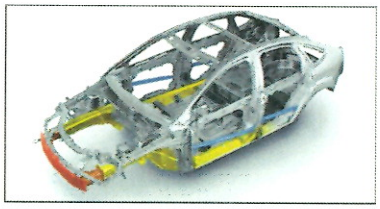
AUTOMOVILIDAD

AUTOMOVILIDAD GRUPO ATISAE

Product Definition – CarLab BU

1.- Vehicle **Modifications:**

- **Official laboratory** recognized by the **Ministry of Industry** to perform reports on vehicle modifications and major changes.
- Operations at **national level**.
- Regulated by Royal Decree 866/2010



AUTOMOVILIDAD GRUPO ATISAE

Product Definition - CarLab BU

2.- **Historic** Vehicles:

- **Official laboratory** recognized by the following **Communities**: Madrid, Cantabria, Pais Vasco, La Rioja, Castilla y León, Valencia, Castilla la Mancha, Extremadura and Baleares (**9 out of 17**).
- Framework regulated by Royal Decree, but **authorization** depends on each **Community**.
- **Technical Reports** to determine that the vehicle is suitable for special **historic vehicles plates** (age of at least 25, cultural value, restored according to original conditions .....)

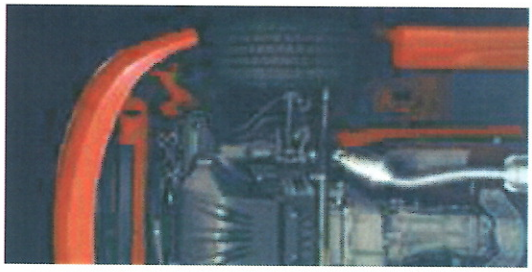
AUTOMOVILIDAD GRUPO ATISAE

AUTOMOVILIDAD

Product Definition – CarLab BU

3.- Technical **Reports**:

- **Support** to private customers, administrations and vehicle manufacturers during **litigations**.
- Complaints from customers: Technical reports to determine the possible cause of **failures or accidents**.

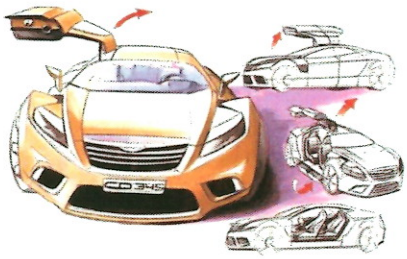


AUTOMOVILIDAD GRUPO ATISAE

Product Definition – Tech Assistance BU

1.- Homologation, Certification and Conformity of Market/ Production:

- Support to vehicle manufacturers/ importers in **Spain** and **Portugal**. Coordination with Official Homologation Labs (INTA, IDIADA, TÜV SÜD ...) to perform official **tests**: technical compliance with **UE** Directives, **UN** Regulations, local requirements, etc. Vehicle modification reports.
- Preparation of homologation and **national technical documents.**
- **Conformity plans**: correlation between production, market and homologation.



AUTOMOVILIDAD GRUPO ATISAE

AUTOMOVILIDAD

Homologation, Regulation and Conformity

• National and international **experience** in vehicle and component **homologation**, regulation and **certification** programs - **Safety** and **Environment**

- ✓ **European** Whole Vehicle Type Approval (WVTA)
- ✓ **National** Type Approval (NTA)
- ✓ **System** approvals (UE, ONU)

• Development of **conformity** plans: control of conformity with the type **approved.**

AUTOMOVILIDAD GRUPO ATISAE

Homologation, Regulation and Conformity

- **Homologation data analysis to perform**:
  - ✓ **Fichas Reducidas**: Local document containing a summary of the vehicle technical characteristics. Submitted to authorities to be filed and distributed to Official Periodical Inspection Centres.
  - ✓ **Tarjetas ITV**: Local document containing technical data for registration purposes. Type/ Variant/ Version analysis to be marketed. Technical data - CO2 assignment.
  - ✓ Files to be sent to authorities (DGT, IDAE, ….)
  - ✓ **Regulatory update**: local regulations follow up (RD2028/1986, RD 850/2010 ….) end of life exemptions, periodical technical inspection procedures, end of life vehicles.

AUTOMOVILIDAD GRUPO ATISAE

Certification – Major Changes

AUTOMOVILIDAD

- Technical reports on **major changes**: manufacturer technical limitations and regulations to be followed.
- **"Fichas reducidas"** preparation for imported vehicles.
- **Certificates of Conformity (CoC)**.

- **Process:**
  - ✓ Applications submitted by dealers.
  - ✓ Analysis of info received (technical study, workshop certificate, additional documents).
  - ✓ Final report and signature (Official Lab or vehicle manufacturer).

AUTOMOVILIDAD GRUPO ATISAE

Standardisation, Technical support

- Support to other company areas on homologation, regulation and major changes.
- Technical assistance to dealer network.
- Technological advice: Fuel cells, bio fuels, electric vehicles .....

- Standardisation:
  - ✓ AENOR, ISO working groups for vehicle standards development.
  - ✓ Development of standards on alternative fuels: E85, CNG.

ISO International Organization for Standardization

AENOR

AUTOMOVILIDAD

AUTOMOVILIDAD GRUPO ATISAE

Product Definition – Tech Assistance BU

2.- Commercial Vehicles and Transport

- **Driving courses** for truck and bus drivers. **INTA tests tracks** and driving simulators:
  - Efficient driving.
  - Defensive driving.
  - Mandatory training for professional drivers

- **Fleet Management** Services

AUTOMOVILIDAD GRUPO ATISAE

Product Definition – Tech Assistance BU

3.- Engineering support, R&D projects

- Standardization: Participation in **AENOR** and **ISO Subcommittees** for vehicle standardization.
- New Technologies: **Alternative fuels** development (E85, LPG, CNG ...), **Electric** and Hybrid Vehicles, Hydrogen and **Fuel Cells**.
- **Recycling**.