

# **DRA** **POL** **NEWS**

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Quarterly Newsletter no 3(80) July - August - September 2018 r.

## **DTCO<sup>®</sup> 4.0** **Tachograph of the Future**



**From  
15 June 2019**

**THE MAIN TOPIC:**  
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## FROM THE EDITOR

### Ladies and Gentlemen! Dear Readers!

After quite a peaceful holiday season we started an intensive period of trade fair, symposia and conferences. September brought us three important trade fair events, including MSPO in Kielce, where we were present as exhibitors for the 10th time.

During that period we also managed to carry out several important projects, both in automotive and avionics department. We are proud of avionics modernization in ZLIN 242L aircraft for Grupa Akrobacyjna Żelazny (aerobatics group) or Cessna 152 aircraft for Polski Aeroklub (Polish Aero Club)

Also our common project with Autosan company turned out to be very successful. The first result of our fruitful cooperation is an electric bus, in which Moki instrument cluster has been replaced by a modern 12" MVP display on a Plug and Play basis.

We wish you pleasant reading!

Alicja Drabczyńska



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**DRABPOL**  
NEWS

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# TM4 is now a Part of Dana Inc.

At the end of June 2018, Dana Incorporated and Hydro-Québec announced a joint-venture partnership, as a result of which our partner - TM4, a subsidiary of Hydro-Québec, became a technology provider for Dana in terms of electric motors, power inverters and control systems. Under this agreement, Dana became a majority shareholder of TM4.

DANA is a world leader in the field of highly engineered solutions for improving the efficiency, performance and sustainability of powered vehicles and machinery.

Founded in 1904, the company employs approximately 30,000 people in 33 countries on six continents. The company's headquarters is in Mamee, Ohio. Dana is on the Drucker Institute list of the 250 most effectively managed companies.

Thanks to established cooperation, TM4, designing and manufacturing motors, inverters and control Systems for electric vehicles, offers a complementary portfolio for Dana electric gear boxes and thermal management technologies for traditional batteries, motors and inverters. The transaction establishes Dana as the only supplier with a full portfolio of solutions offering engineering and manufacturing capabilities for electric propulsion systems to each of its end markets.

The result of the contract is also a new logo that we present here.

tm4



## Review of Trainings – 3<sup>rd</sup> Quarter 2018

### 11-12 - 13 July

Series of trainings on ContiPressureCheck system for TORUS Jeleń i Nowakowski Sp. Jawna. Trainings took place at client's branch offices in Kielce (11th July), Kraków (12th July) and Strzegom (13th July).

### 8-9-10 August

In our headquarters in Warsaw we conducted trainings on „Installations of Digital Tachographs” (8-9 August) and „KIPAS 2.0” (10th August) for F.U. SASPOL Mieczysław Sas.

### 5-6-7 September

The next round of „Installations of Digital Tachographs” and „KIPAS 2.0” trainings for F.U. SASPOL Mieczysław Sas. The training took place in our headquarters in Warsaw.

### 12th September

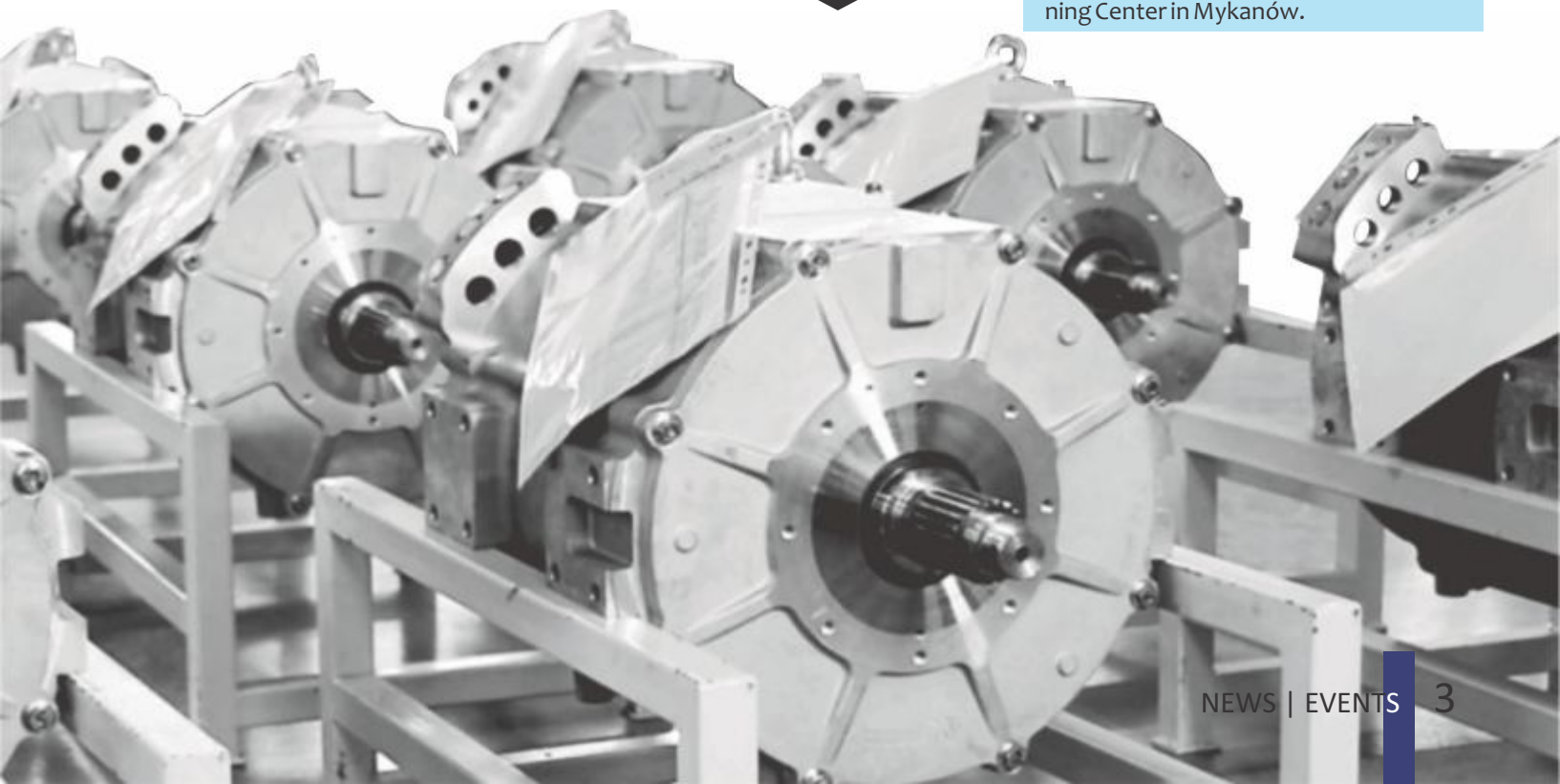
Training on ContiPressureCheck system for TEKOM Technologia Sp. z o.o. and PNEUMATIKA Mobile Tire Service, carried out at the customer's premises.

### 25th September

At ZNTK Mińsk Mazowiecki we conducted a training on Konvekta air conditioning units.

### 26th September

Digital Tachograph Training for Dąbrowskie Wodociągi Sp. z o.o. (Dąbrowa Górnicza water supply company). The training was conducted in our Training Center in Mykanów.



## 26th International Defence Industry Exhibition MSPO

4-7 September 2018



# 10 YEARS at MSPO

This year we took part in MSPO Kielce for the 10th time. Our offer for the army has been increasing over the past years and new solutions were also present this year.

For aviation sector, we presented our standard offer in the field of avionics, which is dedicated to helicopters, military aircrafts or unmanned aerial vehicles.

This year, our partners – Honeywell and L3 company – decided to present their comprehensive product offer. While our company is responsible for a particular group of products of these manufacturers, Honeywell and L3 decided to exhibit on their own stands. It should be noticed here that thanks to cooperation with Honeywell company we are a dea-



Stands of our partners – L3 and Honeywell at MSPO.



ler of Honeywell Defence &Space products, and due to cooperation with L-3 company we are responsible for Wescam surveillance system.

Of course, there were also mutual visits and meetings with Clients.

## NEW PRODUCTS FOR LAND FORCES

For the first time, at our stand we presented 6T lithium-ion batteries for armored vehicles produced by Denchi Power – a company with whom we have been cooperating for several years. We promoted new solutions jointly with the representatives of Denchi Power.

The engine has been designed to provide an outstanding power source for manufacturers and users of armoured military vehicle, in comparison to power available from commonly used lead-acid batteries.

At the same time, new batteries have the same shape and dimensions as lead-acid batteries, manufactured according to NATO 6T standard. It should be noticed that one Li-Io 6T battery (capacity 85Ah, output voltage 25,2 V, weight 25 kg) can replace two acid-copper batteries, each of them in 6T standard with the capacity of 100 Ah, output voltage of 12,74V, weighing 40 kg (together 80 kg). 6T battery is equipped with a built-in charger and the latest and cutting-edge lit-ion high power cells with high capacity, which ensure starting, lightning and ignition for armoured vehicles, providing a silent watch capability (operation of electronic devices and tank tower with the exclusive powering from batteries).

Thanks to built-in heater, the Li-Io 6T battery provides power, even under the most extreme conditions, power for main engine start in all vehicles starting from Main Battle Tank (MBT) to light armoured vehicles.



*A trade fair premiere of DENCHI Power 6T lithium-ion batteries for armored vehicles.*

Fully managed electronics of a built-in charger can be adapted to a wide range of input voltage. This feature ensures that lithium cells are charged in adjustable temperature and voltage ranges, which maximizes the safety of charging and lifespan of the cell.

## UNUSUAL VEHICLES WITH DENCHI BATTERIES

At our stand we presented also other Denchi batteries, like small Lithium BB2590 SMBus battery for powering electronic equipment of a single soldier or powering self-propelled robots for different military and police applications.

We are happy that BB-2590 SMBus engines with appropriate charges were applied in two solutions, which were presented during this MSPO trade fair. The first of them is the Polish mobile robot Balsa for special applications, from Fenix series, constructed by Warsaw PIAP. The other one is a propriety biomimetic

underwater robot that was based on and resembles the carp. The robot is called "Cyber Fish" and has been constructed by engineers from the Cracow University of Technology for the Polish Naval Academy. This solution enables underwater reconnaissance before divers enter the action, as well as monitoring of water status for pollution or conducting underwater life research.



„Balsa” Light Reconnaissance Robot constructed by Warsaw PIAP with lithium-ion BB2590 SMBus Denchi battery.



BB-2590 SMBus battery was used in a propriety biomimetic underwater robot called "Cyber Fish", which has been constructed by engineers from the Cracow University of Technology for the Polish Naval Academy.

Our offer for military vehicles, at our stand, has been completed by Lead-acid batteries from HAWKER/ARMA-SAFE family, produced by EnerSys.

## NEW MILITARY VEHICLES WITH OUR SOLUTIONS

At this year's MSPO there were lots of premiers connected with fighting vehicles of domestic producers. We are pleased to inform that many of them were equipped with our solutions.

At the stand of AMZ Kutno the main focus was directed towards new, armored amphibious vehicle - BÓBR 3. It has been equipped with the KIBES 32 on-board electronics system and a 7-inch MVF Continental display. The second vehicle with our solutions was the multi-purpose armored personnel carrier TUR, where the KIBES 32 system and the FlexCluster multi-purpose display were used.



New, armored amphibious vehicle - BÓBR 3 with the KIBES 32 on-board electronics system and Continental's 7-inch MVF display.





The FlexCluster dashboard could also be seen in the latest HONKER model and modernized STAR 266 M2 vehicle. Both of them were presented at the stand of AUTOBOX company.

An exposition at the stand of Concept company from Bielsko-Biała, a manufacturer of the military off-road vehicles, was also worth of note.

The company has presented, among others, a new version of the light high mobility vehicle LPU Wirus4-SOF. We had the pleasure to participate in this military project. For the above mentioned Wirus we prepared software dedicated to Flex Cluster dashboard, which presents information from the vehicle's CAN bus identically, as the

original vehicle board (in the range agreed with the Customer) and additional information from devices that did not appear in the original vehicle version. The board also sends to the CAN bus information which are expected by other vehicle components (mileage, hour). What was important in this project, our software makes it possible to view errors of the engine (DTC codes). In addition, the dashboard is waterproof and resistant to weather conditions, which the Client also wanted.



*Light high mobility vehicle LPU Wirus4-SOF with FlexCluster.*

At our stand, visitors could see solutions which were chosen by Clients and could get familiar with operation of these systems. Many of our guests were interested in the multi-purpose Continental MultiViu Professional display, which, thanks to the software developed by our engineers, adapts to

customers' different needs and requirements.

Our offer, both for the aviation and land market, was complemented by HR Smith antennas – which became a fixed part of our exposition.

**Nice accents crowning this year's trade fair were official congratulations and a diploma from the Kielce Trade Fair Management on the occasion of the 35th anniversary of our activity on the market.**

# A visit in Serbia



After a series of trainings which we conducted for the Serbian BSS company and employees of the Faculty of Electrical Engineering from the Belgrade University (we wrote more about this in no. 2.18) at our headquarters in Mykanów, we carried out the first installations of these solutions.



## Nikola Radulović – Commercial Direktor (BSS)

**//** Borbeni Slozeni Sistemi d.o.o. is a producer of complex combat systems. Over the past ten years more than a hundred development projects have been opened. Approximately fifty percent entered in the full rate serial production and the remaining projects are in different phases of development.

On the other hand, Borbeni Slozeni Sistemi d.o.o. has managed to manufacture NORA 155 mm self-propelled howitzer, LAZAR combat vehicle, armored multi-purpose combat vehicle, with 4x4 drive – Milosh in the production facility located in Velika Plana. Beside the production, BSS has also been active in the field of foreign trade in armaments and defense equipment.

About cooperation with Drabpol: for the last ten years Borbeni Slozeni Sistemi d.o.o. has been cooperating with a large number of co-workers/suppliers, both on the domestic and foreign markets. Drabpol turned out to be not only a supplier of a high quality equipment, but also as a consultant for all the equipment it delivers.

What I especially want to point out is the young professional team, that is always ready to answer on the highest level to all tasks and questions.

Especially, I must accentuate two guys, one of them is Michal Sitek, very smart and expert in his job, and the other is Krzysztof Drabczyński – a very professional manager.

I really believe that in the future our two companies will still work together on mutual satisfaction **//**.

In order to support our client in the first configuration of the system, we went to BSS headquarters in New Belgrade. It is worth noting that the Serbian company Borbeni Složeni Sistemi is a producer of special vehicles for military purposes. In the frames of established cooperation, BSS vehicles will be equipped with vehicle electronics including our proprietary solution for the driver's workplace - FAPSafety+. Our Development and Support Department will customize the solution in accordance with individual needs of the customer, as well as the character of vehicle use.



Meeting of authorized tachograph stations, Ukraine  
20<sup>th</sup> August

# JOINT ACTIVITIES



In August, the Ukrainian partner of our Tachograph, Telematics and Vehicle Electronics Department - Metalland company – organized a conference for its partner service stations from all over Ukraine. Our representatives were also invited to participate in this event.

The leading subjects of the conference were connected with digital tachographs rel. 3.0 and 4.0, as well as with VDO WorkshopTab diagnostic tool and its relations with the most comprehensive multi-brand WabcoWurth diagnostics, which is considered to be the widest on the market.

Our representatives have conducted a training for the conference participants in this area.

The participants were representatives of the best tachograph stations, that joined the Drabpol-Continental network of authorized service stations in

Ukraine, under the aegis of Metalland. Moreover, the meeting was joined by representatives of the importers of heavy goods vehicles, as well as inspection services agents.

The conference was the first such a big meeting of tachograph stations in Ukraine. We can objectively say that the level of services provided by Ukrainian authorized stations does not differ from the level known from the European Union countries.

„Impact Mobility rEvolution 2018” Conference in Katowice  
12-13 September

# DEBATE ON ELECTROMOBILITY

At the invitation of IGKM (Chamber of Commerce Urban Transport) we went to Katowice to take part in the Impact Mobility Revolution conference, which was dedicated to innovative technologies in the field of electromobility.

impact | mobility'18  
rEvolution

IGKM was a substantive partner of the Katowice conference, which was attended by representatives of governmental entities, research centers, universities and the business community. Bus manufacturers were represented by companies such as Volvo Bus & Coach and Ursus Bus.

As from the start of cooperation with TM4 company, a producer of electric motors, our company has been taking part in various projects connected with electromobility and zero-emission transport. During the conference our representatives were taking part in numerous discussions and workshops. It was emphasized that electromobility, a technology of tomorrow, brings many economic and social benefits. This includes development of industry and technology, new services, increased energy security, or a significant improvement in air quality. The conference addressed a number of issues related to vehicles of different kinds: combined and autonomous, electric and hydrogen-powered, and other issues connected with sustainable urban mobility and natural environment.



*President of URSUS S.A. Mr. Karol Zarajczyk gave a speech on electric and electric-hydrogen buses, and widely understood e-mobility, which met with great interest.*

The main objective of the meeting in Katowice was to encourage the invited communities to cooperate with each other, exchange views and to indicate the sources of government support for such initiatives. To a large extent, these goals have been achieved.

## Technical-workshop conference organized by Solaris Bus & Coach

12-14 September

# SOLARISPOSIUM BALTICA

Similar to the previous year, the Great Masurian Lakes District hosted participants of the "Solarisposium" – a technical workshop conference organized by the Solaris Bus & Coach. Our company has traditionally participated in this annual event.

Solaris customers from Lithuania, Latvia and Estonia (including representatives of big public transport companies) came to Mrągowo (last year it was Mikołajki).

Every year, the conference takes place with the participation of numerous

partners of the manufacturer from Bolesław. This year, one of them was Konvekta company with its stand, at which we were present.

Together with our German partner, we promoted air conditioning units from the Ultra Light and KL47T family.

The Ultra Light series involves air conditioning units for public transport buses dedicated to passengers, with possibility of connecting the evaporator in the Frontbox (which means air-conditioner for the driver). A roof compact air conditioner KL47T was specially designed for





Solaris buses, thus its promotion at year's annual conference was fully justified.

The KL47T air conditioners (for passengers and with the Frontbox connection for the driver) have been installed on Solaris nU12 city buses, which, under the contract won by Solaris, went to the capital of Lithuania - Vilnius.

Konvekt representatives presented the latest solutions for the bus market at the stand and during a special speech, which received great interest from the participants of the conference.

## IV Family picnic

23 September



# ENVIRONMENT FRIENDLY TRANSPORT

At the invitation of Ostrołęka Transit Company (MZK Ostrołęka), once again, we attended the next edition of family picnic that was organized in the frames of European Mobility Week.

The main goal of this European campaign is to provide citizens of large cities with information concerning „green” types of transportation like cycling, walking or public transport.

Traditionally, our company has supported this project by promotion of ergonomics and safety in public buses. During the picnic we were presenting solutions dedicated to drivers, fleet managers as well as passengers – alcohol interlocks, tire pressure and temperature monitoring system and a wide range of USB chargers. All solutions presented by us at our stand have been successfully used for many years in many public transport buses all over Poland.



At our outdoor stand, we were pleased to welcome the President of the Management Board of MZK Ostrołęka (Ostrołęka transit company), Mr. Ryszard Chrostowski (first from the right) and Ms. Edyta Korytkowska - Director of Human Resources and Administration of MZK Ostrołęka.



## Our visit at IAA Commercial Vehicles in Hannover 20-27 September

# What's new at IAA?

We are present at the IAA event in Hannover every 2 years. Traditionally, we support our partners at their stands in meetings and talks with our clients, both from Poland and abroad.



IAA trade fair is always a premier place for new products of our partner. And it was the same this year.

Continental's Tachograph Department presented a brand new, the first in history, intelligent digital tachograph - DTCO 4.0. The new infrastructure of

driver's time management over the Europe, including Poland, will be based on this tachograph. Additionally, Continental presented an auxiliary equipment for the diagnostic tool dedicated to DTCO 4.0 - WorkshopTab, which will also be necessary for operating tachographs in service stations.



Department of Vehicle Electronics presented the latest driver's workplace – mFAP - in combination with a new KIBES 5 and Mux-5.

Products from KIBES5 family (ZR5-A / MUX5-B), that is the successor of KIBES32 series, will be produced from October 2018.

One of the biggest hits of this year's IAA event were photovoltaic cells - created only within 5 months in cooperation

*The focal point of the stand was the newest mFAP driver's workplace with a new KIBES 5 and Mux-5.*





For the first time, we were present at the stand of DANA company, which over three months ago became the owner of our partner – TM4 – an engine manufacturer (for more information see page 3). DANA produces, among others, drive axles and this time it has presented two new axles, equipped with traction motors and TM4 inverters. Visitors could also see a new TM4 engine from Motive series, which is dedicated to passenger cars and a new bidirectional charger inverter - BCI20 – which will soon be available on the European market.

with the IAM department. They provide power supply for semi-trailers and tractors.

The above mentioned IAM department, which provides solutions dedicated to aftermarket, has also demonstrated a new series of radios, with VDO logo. New radios are dedicated to special vehicles, buses, coaches and lorries. It is a return to the roots. Radios under the

Continental brand, with different functionality, still remain in the company's offer.

Also a new Continental radar system attracted great interest of the visitors. It was presented in a unique way – through incorporating VR technology.

The system supports a driver at every stage of a journey - both passively, by providing up-to-date information, and actively, through automatic response to road hazards.

Continental's stand was traditionally one of the most occupied places gathering Clients from all over the world.





## LATESTS NEWS - 3rd Quarter 2018

▶ This summer the fleet of MPK Kraków (Kraków transit company) was extended with new buses, which were equipped with our solutions. In July, thirty-eight Solaris buses (18 m) were equipped with CPC systems (38 items) and USB chargers (190 items); in August, Mercedes Citaro buses gained CPC systems (86 items) and USB chargers (344 items); in September, in Volvo buses there were installed twelve CPC systems and sixty USB ports.

▶ Four Solaris buses with our FAP + driver's workplace and eight USB chargers went to do MPK Gniezno (Gniezno transit company).

▶ Eight MAN buses in MZK Tarnów (Tarnów transit company) were equipped with USB chargers (18 items).

▶ Fifteen USB chargers have been installed in five MAN buses in MPK Jelenia Góra (Jelenia Góra transit company).

▶ Mercedes buses, which belong to GAI in Gdańsk (Gdańsk trolleybus and bus communication company), have been equipped with twelve USB chargers.

▶ Solaris trolleybuses with ninety-eight USB chargers reinforced the fleet of Przedsiębiorstwo Komunikacji Trolejbusowej Sp. z o.o. w Gdyni (Trolleybus communication company in Gdynia).

▶ MPK in Lublin (Lublin transit company) has bought five URSUS buses equipped with our FAP + driver's workplaces and forty USB ports.

▶ Twelve USB chargers have been installed in Solaris buses for MZK Grudziądz (Grudziądz transit company).

▶ Twenty-five Solaris hybrid buses with FAP + driver's workplace and seventy-five USB chargers went to MPK Płock (Płock transit company).

▶ In thirteen MAN buses of Komunikacja Miejska Puławy (Puławy transit company) there have been installed thirteen CPC systems.

▶ Six Temsa buses for MZK Skierniewice (Skierniewice transit company) have been equipped with Alcolock V8 ignition interlock, CPC system and twenty-four USB chargers.



### Innovative HVAC systems for electric buses

At this year's IAA event in Hannover, Konvekta focused on electromobility – by presenting the in series manufactured **Konvekta CO<sub>2</sub> Heat Pump** for the first time. The system, which is manufactured exclusively in series, enables ecological and economical vehicle thermal management. The classical air conditioning of the interior of the bus consists of the area of the driver and the passengers.

In electromobility, there are additional challenges arising for thermal management since even auxiliary units have to be air conditioned. An electric bus produces no waste heat on its own, which could be used for heating up the passenger compartment, and hence, for example, convector heaters or even under-seat heaters have to be 100% supplied by the thermal management system.

Energy required for this purpose can be recovered either from fossil fuel, by additional electric components or – as the most efficient solution – from a CO<sub>2</sub> Heat Pump.

The system based on a heat pump, operated with the refrigerant CO<sub>2</sub> is the most environment friendly and effective option. It can both heat as well as cool and thus provide air conditioning for city buses in Central Europe for the entire year.

### KL46SE for electric buses

Another novelties at Konvekta's stand were KL46SE and KL46TE compact units – lightweight roof-mounted units with electric compressors for trolleybuses, as well as for battery and hybrid buses.

These air conditioning units have a high cooling power of 22 kW and ensure comfortable conditions, even at temperatures up to 45°C The KL46SE variant is specially developed for regions with extreme environmental and weather conditions and has a resistant copper condenser. The KL46TE is fitted with a micro-channel heat exchanger.

### TAURUS line

At the IAA event there was also a premiere of TAURUS. This new series is specially developed for applications in hot regions with outdoor temperatures up to 55°C.

Which characterizes TAURUS line is the robust construction and cooling power of 43 kW.





## International Trade Fair for Transport Technology, Berlin

18-21 September



# A VISIT AT INNOTRANS

Every two years we attend INNOTRANS trade fair in Berlin. This year, we were present at the stands of our partners – Konvekta and Enersys – where we jointly promoted the offer dedicated to the rail vehicles.



Konvekta has presented a new HVAC 6708 air conditioning unit with heat pump with natural refrigerant CO<sub>2</sub> (R744) as a working fluid. The unit has a sturdy and persistent aluminum chassis and is dedicated to passenger's compartment in electric railcars and trams.

A new concept of air conditioning with CO<sub>2</sub> heating pump aroused great interest at this year's trade fair. CO<sub>2</sub> refrigerant is currently the most environment friendly solution. Traditionally, Konvekta air conditioning units have been installed on vehicles of our Polish clients who were present at Innotrans in Berlin.

Newag company from Nowy Sącz, specializing in production and modernization of railway fleet, has presented Dragon E6ACTa locomotive equipped with HVAC 3405 air



## LATESTS NEWS

- ▶ ITS Michalczewski fleet has been equipped with twenty-eight Autosan buses with FAP+ driver's workplaces and fifty-six USB chargers.
- ▶ Thirty-seven Solaris buses for MPK Poznań (*Poznań transport company*) have been equipped with USB ports (111 items).
- ▶ Fleet of MZK Zielona Góra (*Zielona Góra transit company*) has been extended with electric URSUS bus with our FAP + driver's workplace and four USB chargers.
- ▶ MAN buses for MZK Puławy (*Puławy transit company*) have been equipped with 13 CPC systems.
- ▶ Ninety-eight USB chargers have been installed in fourteen MAN buses for MZK Nowy Sącz (*Nowy Sącz transit company*).
- ▶ Three hybrid Volvo buses with nine USB chargers went to MZK Jelenia Góra (*Jelenia Góra transit company*).
- ▶ Eleven URSUS electric buses bought by MZK Zielona Góra (*Zielona Góra transit company*) have been equipped with FAP+ driver's workplace, CPC system and forty-four USB chargers.
- ▶ Four CPC kits with fleet management system (FM) and eight USB ports went to four Solaris hybrid buses for MPK Legnica (*Legnica transit company*).
- ▶ Thirty-eight USB chargers have been installed in twelve MAN buses in MPK Jelenia Góra (*Jelenia Góra transit company*).
- ▶ Twelve MAN hybrid buses, which belong to Kaliskie Linie Autobusowe (*Kalisz transit company*) have been equipped with USB ports (55 items).
- ▶ Four Solaris buses in MPK Gniezno (*Gniezno transit company*) have been equipped with eight USB chargers.
- ▶ Five CPC systems and twenty USB ports have been installed in five Solaris buses in MZK Oświęcim (*Oświęcim transit company*).

conditioning unit and HZ 422 heating, which provide comfort in the motor-man's space.

The stand of Solaris Bus & Coach was a stage to the premiere of the new Trollino 12 trolleybus ordered by the city hall of Gdynia and equipped with UL500EM air conditioning system. The

same model of air conditioning unit has been also applied in another vehicle presented by Solaris – electric Urbino 12, ordered by the operator from Frankfurt am Main.



We also visited our second partner – EnerSys company, that was presenting a wide range of batteries dedicated to trams, trains and locomotives.

All presented ZemaRail, Evo Rail and Perfect Rail batteries are maintenance-free, have compact design and combine high efficiency with energy density. Which deserves attention is Zema Rail series with TPPL technology characterized by using 99,9% of lead plates and technology of highly compressed AGM separators. This provides enormous starting power and cyclic properties up to 400 cycles for 80% of battery depth of discharge.

## Drabpol – Autosan common project – first results

# AUTOSAN electric bus with a new cluster



In the previous DN we informed about our common project with Autosan company. Our Design and Support Department together with the constructors from Autosan created „a kit combining hardware and software”, which allows to replace the standard FAP+/Moki cluster with a modern MultiViu Professional display, on a Plug and Play basis. We are pleased to inform our Readers that the first result of cooperation is Autosan electric bus.

The first step in this project was to install our original FAP with MVP display next to the existing driver's workplace (FAP with Moki cluster). During road tests we were making comparisons of MOKI cluster indications with those provided by the new MVP. After the last improvements introduced into the application, a new FAP with 12-inch display had been installed on the bus replacing the FAP equipped with MOKI cluster that has been used in this vehicle for many years.

We developed an application that is based on ZI emulation software (this is Continental ready-made software, prepared in CAVTAN that our partner makes available, allows for its modification and extension)

Our original solution, which has been developed from scratch within 7 months, enables moving to a higher level of technical design without the necessity to rewrite the machine code for the bus service.

This new solution allows to replace a standard MOKI cluster with a new MultiViu Professional, on a Plug and Play basis.





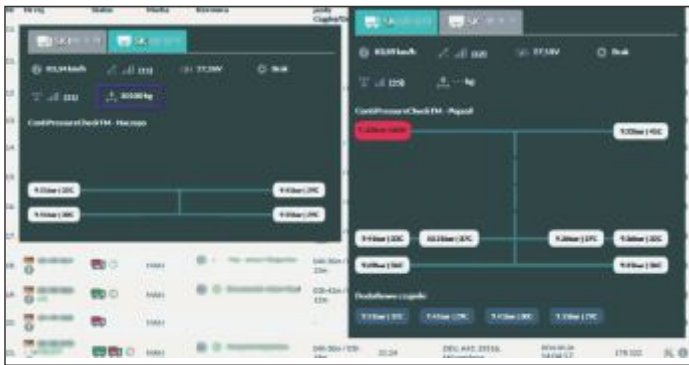
It is suitable for different types of buses and various powertrain options used by Autosan. All indications and parameters

The software enables full mapping of all Menus used by Autosan till now (in DEMUX), all standard Menus written according to ZI emulation, as well as our Proprietary Menu that has been designed especially for Autosan – including: tire pressure mask, vehicle charging mask, mask for pressure in breaking systems and service mask. We have created Proprietary Menu individually (in CAVTAN), and then these data are displayed on MVP screen of a bus – the Autosan electric bus in this case.

# NEXT TELEMATIC SYSTEMS for tire protection

Telematic systems are more and more often integrated with TPMS systems that are responsible for tire pressure and temperature monitoring. Such intersystem cooperation not only makes drivers responsible for caring about proper tire pressure, but also allows for the reconstruction of historical data in case of tire damages.

ATROM – tire pressure and temperature monitoring in tractor and trailer – alarm: „Low tire pressure”.



FrameLogic – tire pressure and temperature monitoring – alarm: „Very low pressure”.

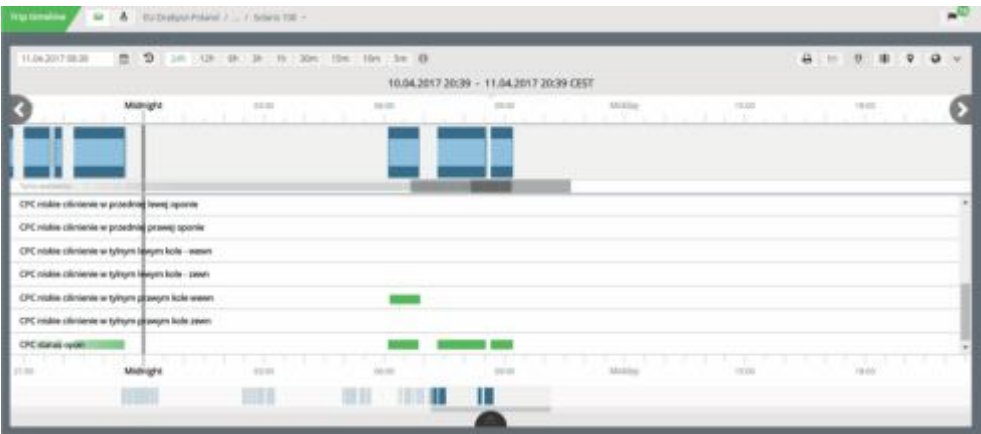
However, due to our own TPMS Telematics solution, which we described in the previous DN, ContiPressureCheck integration with most of vehicle management systems is also possible. Such integration does not require telematic companies to develop special application cooperating with CAN bus.

Alerts informing about very low tire pressure or too high tire temperature, which are sent by ContiPressureCheck central control unit, reach Telematic systems as analogue signals and are visualized as unwanted events.

This way ContiPressureCheck system cooperates with applications offered by INELO POLSKA Sp. z o.o. (GBox) or TRIMBLE.

ContiPressureCheck is integrated directly via CAN bus with telematic systems of 12 companies. These are:

1. ASTRATA (Driver Link),
2. ATECH S. C. ANDRZEJ BURDA JOACHIM DYDZIK,
3. ATROM Sp. z o.o. S.k. (AUTOSATNET),
4. Daimler Fleetboard GmbH (Fleetboard),
5. DRABPOL Sp. J. / MIX TELEMATICS (Fleet Manager),
6. ELTE GPS Sp. z o.o.,
7. frameLOGIC Sp. z o.o.,
8. GEOTIC Sp. z o.o. (GPS Guardian),
9. LINKOR Sp. z o.o.,
10. R&G PLUS SP. z o.o.,
11. RUPTELA,
12. TEKOM TECHNOLOGIA Sp. z o.o. (Autolog).



FLEET MANAGER - Drabpol-Mix Telematics

# Our solutions in Temsa buses

## Comfort and safety in the new MZK Skierniewice buses



At the beginning of September on the streets of Skierniewice appeared 6 new buses of Turkish company Temsa. All vehicles are equipped with our systems, improving both the comfort and safety of the driver and passengers.

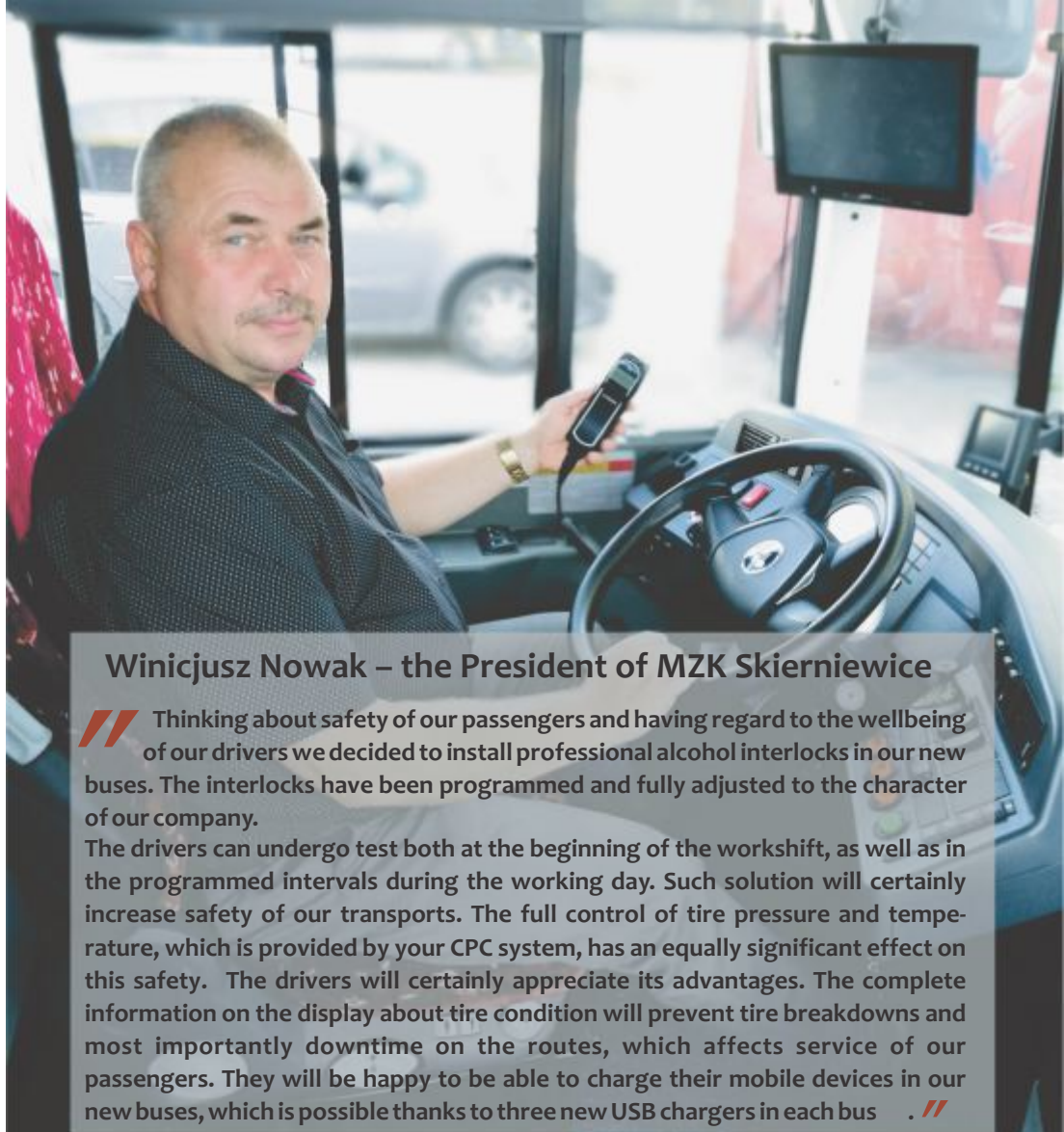


Temsa Avenue 12LF buses were delivered to the carrier by Peterbus company from Warsaw – a Polish dealer of such buses. All six vehicles are equipped with Alcolock V3 alcohol interlock, tire pressure and temperature monitoring system with display, and eighteen USB chargers (3 per vehicle).

The assembly has been carried out by one of our service technicians in Mykanów.

By the end of the year another four Temsa buses will join the MZK Skierniewice bus fleet. They will also have our solutions installed.

We would like to stress that MZK Skierniewice (Skierniewice transit company) is one of the few carriers, that decided to install alcohol interlocks in their buses. When it comes to CPC systems and USB chargers, we can find such solutions in hundreds of public transport buses in Poland.



### Winicjusz Nowak – the President of MZK Skierniewice

Thinking about safety of our passengers and having regard to the wellbeing of our drivers we decided to install professional alcohol interlocks in our new buses. The interlocks have been programmed and fully adjusted to the character of our company.

The drivers can undergo test both at the beginning of the workshift, as well as in the programmed intervals during the working day. Such solution will certainly increase safety of our transports. The full control of tire pressure and temperature, which is provided by your CPC system, has an equally significant effect on this safety. The drivers will certainly appreciate its advantages. The complete information on the display about tire condition will prevent tire breakdowns and most importantly downtime on the routes, which affects service of our passengers. They will be happy to be able to charge their mobile devices in our new buses, which is possible thanks to three new USB chargers in each bus.

## ProViu ASL 360 camera system in MAN TGN 18340 rescue and fire fighting vehicle of „MOTO-TRUCK”

# ANOTHER FIRE FIGHTING VEHICLE WITH PRO VIU SYSTEM



In the summer, our company installed ProViu ASL 360 system on a rescue and fire fighting vehicle manufactured by MOTO-TRUCK company from Kielce.

The Moto Truck company has been specializing in designing and building specialized vehicles for fire brigades for over 20 years. These are both light, medium and heavy vehicles.

Our system, together with the recorder, was installed on a medium rescue and fire fighting truck - MAN TGN 18340 - for a special customer's order. The vehicle

was dedicated to the volunteer fire brigade in Stara Miłosna (Ochotnicza Straż Pożarna w Starej Miłosnej).

Cameras together with the recorder provide the customer with registration of the travelled route with the image around the vehicle. The system also provides the fire brigade with evidence in the event it is accused of scratching / damaging another vehicle. Depending on the client's needs, independent camera views can be configured individually. The system enables synchronization with the direction indicator so that the camera is switched automatically to the right or left side of the vehicle or to the „Front” and „Rear” view.





In case of fire fighting vehicles this function is especially useful while driving through narrow streets to housing estates, maneuvering or parking the vehicle for the action.

Moreover, we have control over vehicle surroundings and increased visibility during rescue actions. This affects safety of firefighters and action participants / witnesses. In addition, the driver is now aware of the threats emerging around the vehicle and can react immediately. Also in ordinary activities such as snow removal or during any technical actions, such as maneuvers at a site of car accident, neutralization of dangerous substances, actions during floods, the full monitoring of vehicle surrounding is very useful.

Moto Truck is another manufacturer that has chosen to apply our solution. Previously, ProViu system was applied by other manufacturers of rescue and fire fighting vehicles like Wawrzaszek ISS and SZCZĘŚNIAK Pojazdy Specjalne.

### Jarosław Kaczor

Service Manager at MOTO-TRUCK

**“** We have been thinking about increasing safety standards in our fire engines for a long time. This is why we have decided to equip our vehicle with a camera system that enables observation of the vehicle surrounding. In the first place, this translates into safe driving on public roads. It also provides a wide field of vision during rescue actions, often conducted in narrow residential streets.

Apart from the driver's comfort while driving and maneuvering during rescue actions, one of the greatest benefits from using the system can be seen in the field of safety of both participants and witnesses of the action, because now the driver can see objects appearing around the vehicle on a display.

We hope that our vehicle equipped with the ProViu system will meet the expectations of the fire brigade in Stara Miłosna **”**.



## KM Głogów buses with FM Manager – Ribas and ContiPressureCheck.



# Perfect drive in KM Głogów

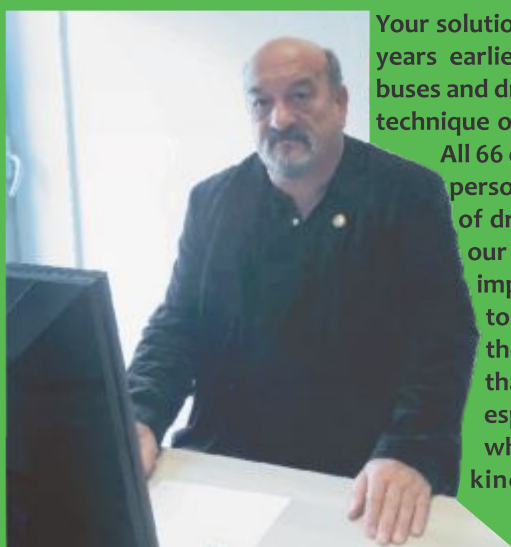


In 2011 KM Głogów bus fleet was joined by a new Solaris bus equipped with FM fleet management system and virtual driver's trainer – Ribas. Since then, 32 buses of the KM Głogów (out of 34 in total) has been equipped with this solution. In recent years, 15 buses were equipped with tire pressure and temperature measurement system - CPC.

The use of MixTelematics fleet management systems in Solaris and MAN buses aimed at reduction of fuel costs by constant vehicle control and supervision. Expanding the system with the RIBAS driver's trainer module influenced the process of driving techniques improvement.

RIBAS is like a trainer sitting next to the driver. It constantly monitors driver's way of driving, informing him each time about exceeding the vehicle speed thresholds set by the employer, engine speed, every sudden braking and acceleration, as well as too long idling. In such cases, the employer receives

### **Jerzy Bartosik, Senior Health and Safety Inspektor At MPK Głogów**



**“ I have been supervising vehicle and driver monitoring system (FM Manager + Ribas) in MPK Głogów for 4 years.**

Your solution was applied on our buses already in 2011, so a few years earlier, our company's authorities stated that constant buses and drivers monitoring has a positive effect on the drivers' technique of driving, bus operation and diesel oil consumption.

All 66 drivers are covered by the system and have their own personal access keys. An on-going analysis and disciplining of drivers significantly reduced diesel oil consumption in our buses. The driving technique of our drivers has also improved. Only a few of them happen on a monthly scale to reach "yellow" or "red" colour. Drivers, knowing that they are controlled, try to drive correctly. I must admit that I highly value our mutual cooperation. I would especially like to thank two men - Mr. Janusz Cieślak, who is always eager to advise, suggest or explain and a kind of "soul man" and Mr. Piotr Kaczmarek – a serviceman, very involved in his work and a person to whom nothing is impossible - a real role model.

On the occasion of your company's jubilee, for the company authorities and all employees, I would like to express my best wishes for further fruitful development ”.

a full list of data concerning time and place of these violations. Having such a report and a properly created incentive system at the same time, the average fuel consumption can be reduced by at least 5%, and an additional bonus is the reduction of accident rate by over 20%.

Thus, it is a device that benefits for both the employer and the employee, and undoubtedly also affects the passengers' satisfaction with a smooth driving. Similarly, equipping buses with a full tire pressure and temperature monitoring system translates into safe and stress-free driving.

ContiPressureCheck not only provides the exact values of pressure and temperature that are displayed on the driver's desktop, but it is also a valuable indicator of the efficiency of fuel and tire management in the fleet.

Data from CPC sensors are sent directly to FM fleet management system.

Thanks to this, a fleet manager in KM Głogów receives the complete information concerning the vehicles and in case of a tire breakdown he can immediately take appropriate steps in order to remove the fault and arrange a replacement bus.

We would like to say thank you to the KM Głogów Management for the cooperation, the trust and for choosing our solutions. We are happy that they bring tangible benefits to the drivers, fleet managers and passengers. Thank you for the very positive opinion about our employees. We are very happy about that.



## MPK Kraków buses with CPC and USB

# RECORD-BREAKING TRANSIT COMPANY



Four years ago, in September 2014, eight Solaris Urbino MetroStyle buses, equipped with tire pressure and temperature monitoring system (ContiPressureCheck) went to MZK Kraków. These vehicles were the first buses in Poland public transport equipped with CPC.

Over the next years, the transit company from Karków has regularly equipped its buses with our solutions. They were present in the next Solaris, Volvo or Mercedes buses, which joined MPK bus fleet in Kraków.

This year's contract between Evobus and MPK Kraków covers the supply of 86 Mercedes Benz Citaro buses (12- meter long). This summer, our service technicians installed 56 ContiPressureCheck systems in buses with traditional diesel drive and 30

systems in buses with hybrid drive. Information about the tire pressure and temperature is shown to the driver on the dashboard display. The Mercedes buses were also equipped with 344 USB chargers.



We would like to emphasize that MPK Kraków is a transit company with the largest number of USB chargers mounted in buses. So far, our company has delivered to the Kraków buses over 1,400 of these devices. Certainly, this translates into the satisfaction of the passengers who do not have to worry about discharged phones or other mobile devices during their journey.

## Air-conditioned bus for children's hospice in Tychy

# In the service of ill children

In September, Konvekta KL 3 Split air conditioning unit was installed on a small MAN TGe bus. This vehicle, which is now fully air-conditioned, will be used by the child patients of Świątlikowo in Tychy - a day care center for terminally ill children.

Installation of the KL 3 Split air conditioner was carried out by MAN Wolica service (near Warsaw).

Because of wheelchair access, the vehicle is designed to transport 8 people.

The KL 3 Split air conditioner, with a cooling capacity of 7,500 Watt and an air capacity of 1100 m<sup>3</sup> / h, in the basic version with manual control, ensures optimal cooling inside the vehicle. Installed version has no air-conditioning for a driver's workplace.



Toll Collect on German autobahns  
–a full range of service !

# 1200 OBU in 8 months

From the beginning of the year to the end of August, our service assembled and programmed up to 1200 pieces of OBU devices for automatic collection of road toll from trucks.

A new law in Germany, increasing the network of toll road sections to 40,000 and covering all federal roads with tool,

has entered into force on 1st July. Certainly it was one of the factors that influenced customers' interest in assembling these devices.

Apart from the assembly of the on-board equipment, either Continental (on some of them there is also Siemens VDO name) or the latest Bosch brands, we make OBU unit programming, which involves entering vehicle data into the Toll Collect base.

The database contains all information about faults and peripheral devices that cooperate with the given OBU unit. Our service is equipped with computers designed for programming and controlling the operation of the OBU unit. We also update the OBU software. In the scope of service works, we can replace the entire OBU unit, the power supply installation, antennas, antenna cables, auxiliary battery and damping element.

With a special reader, we check the electrical and antenna installations of the Toll Collect system. In addition, our service technicians in Mykanów carry out the warranty and post-warranty repairs.



**New! Mix 4000 - the latest line of Telematic devices**

**mX**

**TELEMATICS**  
MOBILE INFORMATION EXCHANGE

## A number of functions in one device

Our offer in the field of Telematic has been extended with a new solution that incorporates the latest market trends - Mix 4000 of Mix Telematics.

The new product will replace the FM Tracer that was withdrawn from the offer. For the first time, Mix Telematics has resigned from continuation of product nomenclature through the change of numeration assigned to the FM name (Fleet Manager).



The reason was that a new line of products is a completely new hardware platform that uses the newest technological developments in the field of such equipment.



Mix 4000 is a product with a number of new solutions. On the main board of the device there is a GSM modem, a GPS receiver, an accelerometer (acceleration sensors), Low Energy Bluetooth, I / O, 2 x CAN, 2 x RS232 ports, 4 x positive drives and 434/915 MHZ short range transceiver.

Integration of a short range RF link together with a long range GSM link provides the ability to communicate on 2 alternative channels (at different frequencies). The device can be used alternatively with GSM GPRS (2G) or HSPA (3G) modems; the GSM antenna is integrated (external antennas are not required). Device software (firmware) can be changed remotely via the GSM network.

If the GSM connection is lost (no coverage, network failure, etc.), Mix 4000 can store up to 20,000 messages. The GPS receiver is a high sensitivity receiver and the device is equipped with a built-in GPS antenna. In special cases, it is possible to use external antennas.

The device is fully compatible with Mix Event Engine and enables registration of any events, including those created for older types of devices. For example, it is possible to register the following events:

- over-speeding
- harsh breaking
- harsh acceleration
- impact detection
- low vehicle battery

Mix 4000 can be used in different vehicles and devices with rated voltage from 10.5 to 33 VDC. The set also includes a backup 3.2 V 1600 mAh LiFEPO4 battery that allows operation for over 24 hours in the absence of battery power from the vehicle.

### Mix 4000 communication ports enable direct connection of auxiliary devices such as:

- Ribas – eco driving trainer
- Mix Vison camera system that allows simultaneous observation of the driver and the view from the front of the vehicle
- Alcoloc – an alcohol interlock that prevents from starting the vehicle by a drunk person
- CPC - tire pressure and temperature monitoring system

The device can be used in a wide range of temperatures: from -20 to +55 C, and without backup battery it extends from -25 to +85° C. The 3-axis accelerometer, fixed on a plate, enables detection of vehicle movement and possible vehicle impacts in 3 axes.



Mix 4000 can identify the driver by means of a special driver's key ( blue driver key), as it was in older systems, or the driver can be identified via reading from driver card (in case of digital tachograph) or optionally via connection with ticket machines.

The device also has an integrated module that allows remote reading of a driver card or mass memory from a tachograph.

Mix 4000 has been equipped with two analogue inputs with 12-bit accuracy, as well as two frequency inputs with the possibility of recording frequencies above 20 KHz.

Mix 4000 is a completely new solution that enables fleet management and evaluation of driver's work and driving style. Thanks to this, the system ensures reduction of fuel costs and lowers the rate of accidents.

# DTCO<sup>®</sup> 4.0

## Tachograph of the Future



From June 15, 2019, newly registered or newly equipped vehicles over 3.5 metric tons that are used for commercial purposes must be fitted with a new-generation digital tachograph - DTCO<sup>®</sup> 4.0. The purpose of the new EU Regulation No. 165/2014 is to further improve road safety, guarantee competitiveness on the European domestic market and prevent the manipulation of digital tachographs.

The new DTCO<sup>®</sup> tachograph is a solution that entails a lot of new features. The most important of them are:

### DSRC INTERFACE WITH PRACTICAL ANTENNA

It must be possible for supervisory authorities to request encrypted information on the truck in operation by means of a DSRC antenna (dedicated short-range communication). However, personal driver data, such as driving and rest periods, is not transferred. In the event of an irregularity, vehicles can be stopped for an in-depth inspection.

DTCO<sup>®</sup> 4.0 features an innovative DSRC antenna installed on the windshield. Its function has been integrated in the tachograph. Unlike standard solutions available on the market, no changes to the vehicle's electrical or electronic systems are necessary here.

### AUTOMATIC POSITIONING WITH GNSS

The DTCO<sup>®</sup> 4.0 has a highly sensitive integrated GNSS module with access to satellite systems such as Galileo, GPS and GLONASS.

Thanks to the satellite-assisted positioning system, the vehicle location is







does not need any additional electronics or any adjustments to the vehicle CAN bus. You simply need a passive DSRC antenna to commission the smart tachograph.

Thanks to the combination of DTCO<sup>®</sup> Configuration App and DTCO<sup>®</sup> SmartLink, the DTCO<sup>®</sup> 4.0 can also be configured very easily – many settings can be configured without having to visit an auto repair workshop.

#### WHAT DATA DOES THE DTCO<sup>®</sup> 4.0 TRANSMIT WHEN A DRIVING TRUCK IS BEING TESTED?

The information that the DTCO<sup>®</sup> 4.0 transmits in encrypted form when a driving truck is tested has been defined by law. If suspicions arise, the vehicle can be stopped for a more in-depth in the test. A fine is not automatically imposed.

The following data recorded by the tachograph is transmitted:

- Most recent attempt at a safety violation
- Longest interruption of the power supply
- Sensor fault
- Data error, path and speed
- Data conflict in vehicle movement
- Driving without a valid card
- Insertion of cards while driving
- Time settings data
- Calibration data including the date of the two most recent calibrations
- The vehicle's official registration number
- Speed recorded by the tachograph

#### THE SMART TACHOGRAPH DTCO<sup>®</sup> 4.0

- Meets all requirements of the new EU decree from 2019 onward
- Fast and simple commissioning with “plug & play” capability
- Automatic positioning with GNSS
- Saves more time with inspections via DSRC remote communication
- Standardized ITS interface for fleet management systems
- Fewer visits at an auto repair workshop thanks to DTCO<sup>®</sup> Configuration App

recorded at the start and end of the working period and after three hours of active driving time

#### ITS DATA FOR FLEET MANAGEMENT SYSTEMS

More than 70 different additional data records can be transferred to fleet management systems such as VDO TIS-Web<sup>®</sup>, VDO FleetVisor or MiX Telematics by means of standardized ITS (intelligent transportation system) interface. Whenever drivers have given their consent their personal data to be passed on is also indicated in advance. This ensures transparency – not only for the inspection but also for data protection.

#### NEW KITAS 4.0 MOTION

VDO has developed the new KITAS 4.0 motion sensor for communication between the speed sensor and the digital tachograph.

Together with the DTCO<sup>®</sup> 4.0, it constitutes a system unit and meets the very restrictive legal regulations thanks to the new encryption system. In addition, the registration of the system with the VDO WorkshopTab 4.0 is very easy thanks to the QR code.

#### PLUG & PLAY - FAST AND SIMPLE COMMISSIONING

The DTCO<sup>®</sup> 4.0 has been designed as a “plug & play” device. Thus, it can be easily integrated in the vehicle technology – even the plug connections are identical to the previous models. Thanks to the integrated GNSS antenna and DSRC interface, the DTCO<sup>®</sup> 4.0



Drabpol is the best regional dealer of BendixKing avionics  
and one of the best distributors in the world

# Among the top five of **BendixKing** BendixKing dealers in the world!

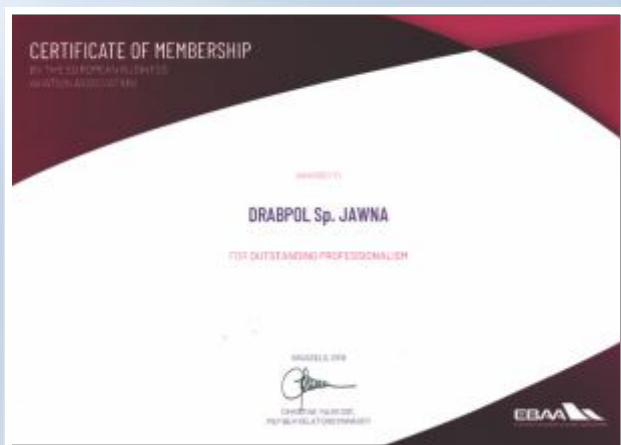
We are proud to announce that our company has been among the top five dealers of Bendix King brand - one of the leading avionics manufacturers in the world. At the same time, we received a title of the best regional dealer within Central and Eastern Europe, Russia and Turkey.

We offer a wide range of Bendix King products such as radios, transponders, displays and audio panels. There is no doubt that our success was influenced by the reliability of supplies of Bendix King Primus HF 1050 radio for the well-known Ukrainian company - Ukrainian Helicopters. It is one of the largest civilian operators of Mi-17 helicopters in the world. Ukrainian Helicopters, that we continuously cooperate with provides services to, among others, UN and other humanitarian organizations.



## EBAA Certificate

# For professional operation



We are pleased to inform that our company has been awarded by the European Business Aviation Association (EBAA) for professionalism in the aviation market.

For several years we have been a member of this most prestigious business aviation association. Established in 1977 in Brussels, EBAA represents over 715 member companies, commercial operators, producers, airports and other companies related to Business Aviation. The association actively works to improve aviation safety standards, participates in different projects, which are heading for regulation and improvement of aspects related to the air transport. Moreover, it supports its members with knowledge and experience.



European conference for users of WESCAM surveillance systems in Ascot

18-19 September

# all about **SURVEILLANCE SYSTEMS**



At the invitation of our business partner – L3 Wescam – we took part in a conference dedicated to Wescam surveillance systems.



This year's conference took place in an unusual place – in Ascot, England, on the territory of Royal Ascot Racecourse – one of the best known and prestigious races in the world.

The two-day meeting was divided into sections of thematic lectures



concerning new technological solutions introduced and planned to be introduced into Wescam surveillance systems, as well as applications and platforms, on which WESCAM installs its cameras for civilian, military and strictly military tasks of target tracking and missiles guidance.

Participants could get familiar with demonstration devices, such as MX-8, MX-10, MX-15 and MX-25 Electro Optical turrets and, at the same time, they could undergo practical trainings in the field of these systems.

The conference was primarily an opportunity to discuss and exchange experience with users of flying equipment, surveillance system operators, and specialists from WESCAM in the field of engineering and service of Electro Optical turrets.



## Thanks to cooperation with Poznań University of Technology we carried out modernization of ZLIN 242L aircraft of ŻELAZNY Aerobatic Group



# ZLIN

## aircraft of ŻELAZNY Aerobatic Group already modernized

After a major modernization project of four Socata TB 9 aircraft for the Aviation Training Center of Rzeszów University of Technology, we established cooperation with another Technical University and its pilots training unit – Aviation Training Center of the Poznań University of Technology. The cooperation resulted in the modernization of aerobatic ZLIN aircraft, used by the ŻELANY Aerobatic Group.

During this modernization, we used the ready-made Minor Change documentation approval for the Garmin equipment, which consisted of:

- GMA 342 Audio Panel
- NAV/COM/GPS GTN 650
- G5 Electronic Attitude Indicator
- G5 Electronic HSI with GAD 29B adapter and GMU 11 magnetometer

It is important to note that the modernization did not require reconstruction of the instrument panel, as the Garmin G5 navigation indicators were designed to be easily adapted to the mounting holes of the classic artificial horizon and the classic electric Directional Gyro, thus creating the so-called EFIS system or a small glasscockpit.



ZLIN 242L before modernization



ZLIN 242L after modernization



The lower G5 indicator, due to its HSI function (Horizontal Situation Indicator) required communication interface with the NAV / GPS receiver and magnetometer, i.e. GAD 29B adapter, which has the ability to convert ARINC 429 bus signals to the CAN bus (data bus used for a long time in electronics for the automotive industry).

The previous aircraft equipment included classic pilot devices, one GTR 225A Comm radio and Sigtronics SPA-400 intercom (two-seats), which was disassembled and replaced with GMA 342 audio management system with a built-in intercom and a marker receiver. Disassembled classic instruments were transferred to the instrument panel on the right side, because it was factory-prepared for this.

With the modernization, the plane received a certified GPS system with a touch screen, a navigation receiver with ILS system and multifunctional pilot indicators, which in addition to the basic tasks of the artificial horizon and



heading indicator, provide digital information on speed, flight altitude, vertical speed and display information about turns. The whole set, apart from the power supply from the on-board installation, is equipped with batteries that support all functions up to 6h in the event of a power failure.

In addition, the installation was made in a way that allows importing and displaying data from one indicator to another in case of failure of one of them.

With the modernization, the aircraft has received a certified GPS system with a touch screen, a navigation receiver with the ILS system and multifunctional pilot indicators - the entire Garmin avionics.

## The airplane fleet of Aeroklub Polski (Polish Aero Club) is already flying in line with European requirements

# Four CESSNA aircraft with new radios with 8.33 kHz channel separation



Thanks to a long-term cooperation and trust from the Board of Directors of Aeroklub Polski, four Cessna 152 aircraft, owned by the club, have been equipped with new radio devices with 8.33kHz channel separation that meet European regulations.

Each aircraft was equipped with Garmin GTR-225A (transmit power: 10 Watt) as well as, for the selected configurations, GMA 342 audio panel (with a four-place intercom) and a Trig TT31 transponder (Mode S and ADS-B Out). The new equipment completely covers the operational needs of aircraft, and new radio functions, such as the choice of frequency based on ICAO code of the airport or built-in intercom, and advanced options of automatic and manual

squench settings significantly reducing the pilot's involvement in avionics operation.

After discussions with aircraft users, we have received consistent message that new equipment has improved, among others, radio communication during air operations. Also, during a training, internal communication on the plane between the pilot and the student gained a new quality.



One of the aero club's aircrafts before modification – with original Cessna equipment – audio selector and RT 385 radio.



New equipment of Cessna 152 – above - GMA 342 audio panel and GTR 225A radio.

## We modify Honeywell and Rockwell Collins processors



## **an upgrade that is still up to date**

The topic related to the adaptation of TCAS II v. 7.0 anti-collision avoidance systems to version 7.1 was discussed in one of our articles last year.

We have moved from theory to practice. So far, we have been able to modify 5 such flying systems on various platforms (including Learjet and An-26) - four processors of Honeywell TPU 67A type and one Rockwell Collins TTR 921.

Each upgrade is carried out at the headquarters of the device manufacturer, but in close cooperation with our company (as a dealer) and that is why we are the first point of contact for any modification.

After upgrading the software to version 7.1, devices receive a new Part Number, but no modifications are required to the system components that work with the processor. The device returns after the change and can be installed on a "plug & play" basis.

There are cases – and such possibility is given by Rockwell Collins - where devices in version 7.0 can be exchanged for more modern systems, already containing version 7.1. Then the new system comes with a new mounting rail (due to the different

dimensions of the devices), which should be replaced on the plane. In rare cases, such process requires a slight modification of the electrical installation, but then all necessary instructions on how to perform it are included in a package with the new device.

We should remind here that EASA has already obliged (on 16 December 2011) aircraft owners to modify the TCAS II system to version 7.1 by 1 December, 2015 (EU Regulation No 1332/2011)

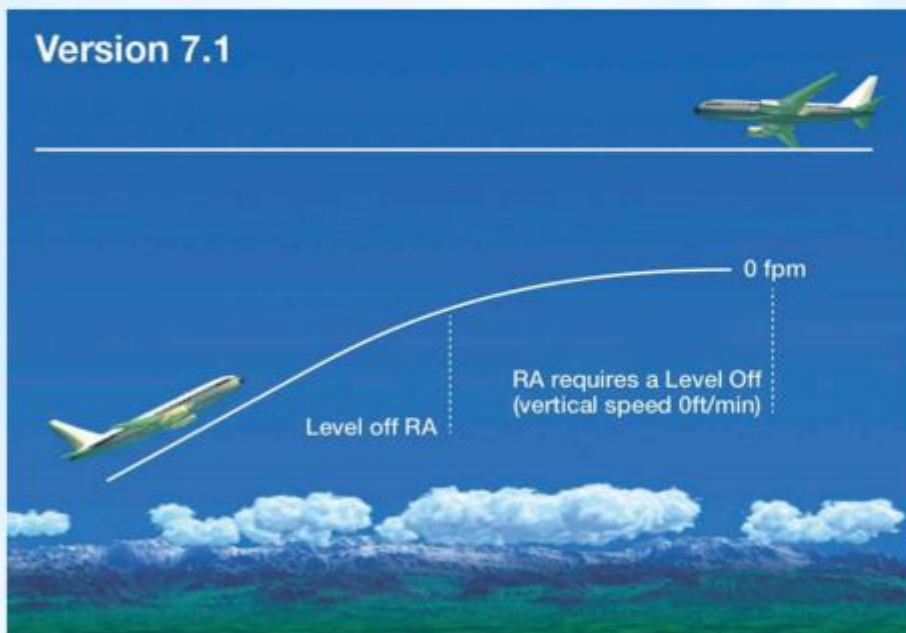
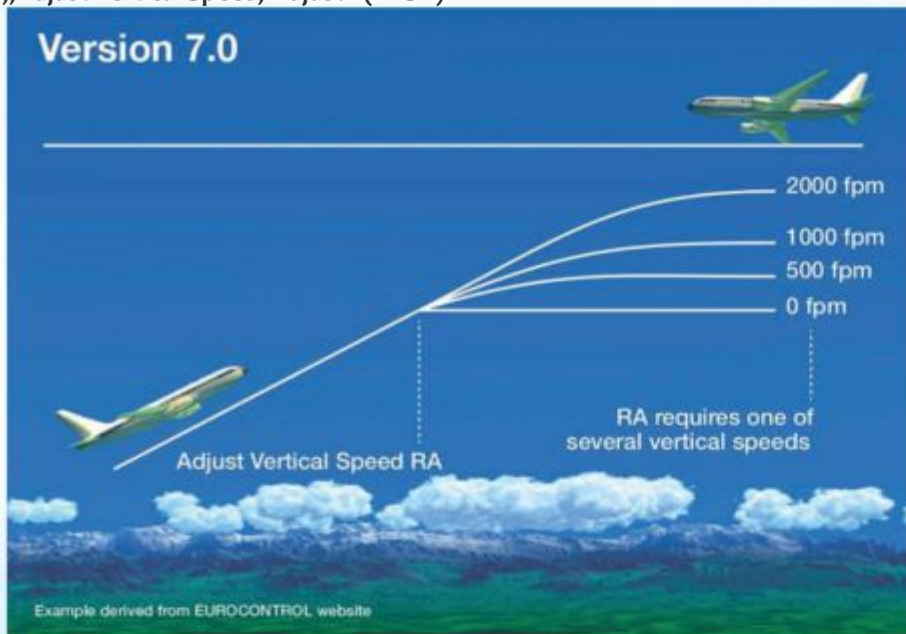
Our company offers such service for the following processors:

- **Honeywell:**  
TPA100, TPA81, TPU67A,
- **Rockwell Collins:**  
TT 920/921/4000.



The basic change in the software concerns commands of vertical speed adjustments RA (Resolution Advisory) and the new RA Reversals logic.

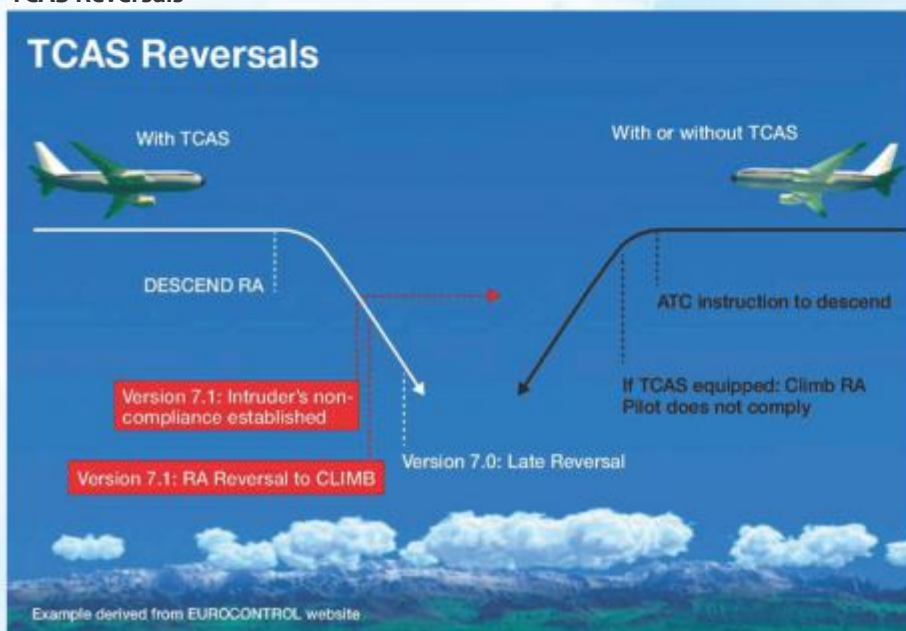
„Adjust Vertical Speed, Adjust” (AVSA)



The AVSA command has been identified as misleading and there are documented cases where pilots mistakenly responded to this command. Version 7.1 replaces four "Adjust Vertical Speed, Adjust" commands with one command, which is „Level Off, Level off”.



#### TCAS Reversals



TCAS Reversals were introduced in amendment 7.0 in order to adjust to the changing situation, where the original design became the wrong advisor in making decisions. This is particularly the case when one of the pilots decides not to follow the TCAS II instructions or is instructed by ATC to perform certain maneuvers.

Version 7.1 introduces improvements to the current Reversals logic, taking into account the described factor.

# UNIVERSAL AVIONICS – the latest news

## FlightSafety's New Dash 8 Simulator to Feature UA Flight Deck Upgrade

A new FlightSafety International (FSI) Dash 8 simulator will soon feature UA's EFI-890R Flight Deck. FSI expects the simulator to be available by the end of 2018 at their Toronto Learning Center.

The EFI-890R Flight Deck offers a cutting-edge replacement of the legacy Dash 8 OEM electromechanical and electronic flight and engine instrument systems with five EFI-890R Advanced Flight Displays. Four of the displays present the pilots with navigation and situational awareness, and the fifth (center unit) displays engine information. The system allows information switching between the displays, providing full redundancy.

UA, Field Aviation and FSI heard very clearly from the Dash 8 operator community that a full-motion simulator and corresponding training syllabus were required to properly support the fleets committed to operating Dash 8s with the advanced flight deck. The demand we are seeing for the advanced EFI-890R Flight Deck ties to the growing global need for qualified pilots.

This state-of-the-art tool and comprehensive training solution will address what operators have been telling us. UA's Authorized Dealer, Field Aviation, is performing the installation.



“ Our decision to install the EFI-890R Flight Deck solution into our simulator is a natural evolution of our professional Dash 8 pilot training offering.

At FlightSafety, we are committed to supporting the needs of our customers and to helping them operate at the highest level of safety”.

– said Tasneem Hashmi, FlightSafety International's Toronto Learning Center Manager.



## 3 Reasons to Upgrade Your FMS

Have you been affected by FMS Navigation Database software 601.X/701.X – 604.X/704.X? Upgrade today to gain back Middle East approaches and more. Here are three reasons why an upgrade may make sense for you now:

### 1. Load a Worldwide Navigation Database (or regional database of your choice).

A larger memory and faster processor of the SBAS-FMS allows operators to load worldwide database, providing greater coverage areas and access to more airports and runways.

### 2. Fly WAAS/SBAS approaches (there are thousands of them).

No operational approvals required. The SBAS-FMS qualifies as a dual sensor SBAS receiver for primary means navigation, meaning you can fly worldwide SBAS approaches: WAAS, EGNOS, MSAS and GAGAN right out of the gate.

### 3. Get trade-in credit for your old FMS.

That's right! Get up to \$16,000 (USD) credit towards your new FMS just by sending your old one back to UA.

### They wrote about us:

1. Aviation, "Avionics from Drabpol and a shortwave Honeywell Primus HF 1050", No. 8.2018
2. www.truck.van.pl, "TPMS\_Telematics - proprietary solution of DRABPOL company", 2018-09-10
3. www.ballast.pl, "New product: DRABPOL TPMS\_Telematics", 2018-09-08
4. www.infobus.pl, "Which motor for the electric bus? Drabpol: Synchronous ", 2018-09-07
5. www.infobus.pl, "Drabpol introduces TPMS\_Telematics", 2018-09-07
6. www.infobus.pl, "Drabpol: With VDO SingleViu indicators", 2018-09-11
7. "Na Osi" programme, "Drabpol-FAPSafety", episode 775
8. "Na Osi" programme, "Drabpol makes life easier for customers", episode 786
9. www.truckfocus.pl, "TPMS Telematics - a new tire protection project", 2018-09-12
10. www.truckfocus.pl, "VDO SingleViu Indicators in DRABPOL's offer", 2018-09-11
11. www.trucks.com.pl, "Drabpol: Konvekta TK3950 refrigeration unit", 2018-09-17
12. www. truck-van.pl, " TK3950 refrigeration unit in Drabpol's offer", 2018-09-14
13. www.infobus.pl, "USB chargers in buses – a standard have been a standard for 4 years", 2018-09-18



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