

POCLAIN MAG

#17

May 2021

**ENGAGE 2025
GET READY FOR POCLAIN 4.0**

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POCLAIN MAG

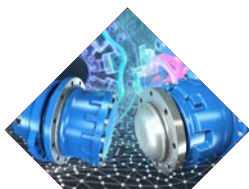
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May 2021



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“ You can count on Poclain to always be at your side for the differentiation of your machines with technologically advanced innovations and solutions. ”

EDITORIAL



FRÉDÉRIC MICHELLAND
CHIEF EXECUTIVE OFFICER

Like most actors of its business environment, Poclain is currently addressing the critical challenge of satisfying a very strong and consistent customer demand while fighting against the sanitary and economic impacts of the pandemic. This exceptional situation puts our operational workforce and our supply chain under stress.

First and foremost, our priority is being able to deliver our products and systems within the requested lead-times, in spite of the hazards of transportation and raw material availability. This edition of Poclain Mag details the initiatives implemented by our logistics, purchasing and manufacturing teams to overcome the day-to-day problems.

In the November 2020 issue of Poclain Mag, I announced the roll-out of our Shift-Up Engage 2025 strategy to become more industrial, technological and entrepreneurial. Several strategic programs have been launched to enhance and enlarge our products and systems offering over the mid-term with more added-value for you.

We actually see several trends at work in our business environment:

- A shift in the usage of the off-road machinery towards more autonomy, more onboard intelligence and more services;
- An increasing pressure on the environmental footprint of our transmissions for the mobility of these machines;
- Their partial or even complete electrification, with the example of hybrid electrohydraulic systems. Depending on the respective progress of these three major trends, there will be different answers and different ways forward. Some of the services in our portfolio of solutions are hereafter presented: connected engineering, machine monitoring and preventive maintenance.

Digitalization will, in any case, play a decisive role in the upcoming scenarios. You will see in this issue of Poclain Mag several examples of what Poclain is deploying: remote assistance thanks to augmented reality, fast-track exploration of new technologies with our FAB'LAB 58 and virtual classroom training modules on our Addidrive technology, in addition to the latest developments of our Electromobility Program. ▮



POCLAIN HYDRAULICS MOTOR PROGRAM

WHAT IS POCLAIN HYDRAULICS' MOTOR PROGRAM?

The Motor Program is vitally connected to all of our projects. More than that, our motors are the core of Poclain Hydraulics. The very base goal of our Motor Program is to define our future motor developments to ensure its longevity and continued differentiation. The program team aims to develop a stronger customer approach, incorporate digitalization, and increase operational excellence. Poclain Hydraulics wants to ensure we are developing motors that will fit the needs of our customers and the market in the long term and we believe that technological innovation is key to this. A full team of internal experts is in charge of this program, starting with a core group focused on engineering, design, marketing and dedicated resources from FAB'LAB 58. A larger network of internal and external experts in areas such as advanced engineering,

regulations, data crunching, testing and other key areas collaborate with the core team to share knowledge and accelerate innovation.

This program facilitates an active approach in developing solutions and meeting needs regarding market trends, the latest regulations, operational excellence, and services like lifecycle management, aftersales support, and co-design. The core team is in charge of exploring technological and energy transitions, anticipating their impact on the future uses of our motors and needs in the market such as electro-mobility, IoT, sustainable development, autonomous drives, and digitalization. The program touches not only current and future development of our motor solutions, but shares a link with all our other programs.



“The advent of the Motor Program means that you can expect more innovation to come with a strong focus on our core technology. The program’s goal is to anticipate market needs and respond to our customers’ future challenges.”



VINCENT LANGLOIS
cam-lobe motor
program manager
at Poclain Hydraulics

INNOVATIONS FOR TODAY’S MARKET: POCLAIN HYDRAULICS MOTORS

Oil-immersed, integrated brakes such as parking, dynamic or combined options make it possible for grape harvesters to climb even more challenging inclines, allow sprayers to meet new road regulations when using higher speeds to get from field to field, and give mining vehicles the stopping power needed for steep inclines while meeting the flammability requirements imposed on them. Currently available on Poclain Hydraulics’ full MHP range, you can expect to see these integrated braking solutions on more models soon.

Our MHP range continues to grow and integrate more functionalities for unprecedented performances on cam lobe motors, with the aim at serving ever-more demanding applications. Increased displacement ratios and optimized covers reduce pressure drops to meet the higher robustness specifications needed for complex applications. Large ports deliver the high flow necessary to meet speed requirements, and multiple discrete displacements allow up to three speed configurations.

The compact design with exceptional power and speed make it optimal for power transmission integration as well as tools and attachment applications such as HDD or vertical drilling including down the hole or case rotating. High-resolution sensors augment the accuracy of the motor, making it possible for the technology to meet the stringent safety and precision requirements for newer applications such as autonomous vehicles.

Regarding tracked applications, the MT07 fits like a glove: high bearing capacity, reinforced seals and symmetrical design aim to meet challenges such as high axial/radial loads, jobsite pollution and a need for high groundspeed.

MF motors are another example of innovation, this time for the on-road market. Paired with a heavy-duty pump, freewheeling valve and electronic controls, the MF motor is able to deliver an auxiliary hydraulic drive mode for on-road vehicles. ▀

WHAT ARE SOME APPLICATIONS THAT BENEFIT MOST FROM CAM LOBE RADIAL PISTON TECH?

Currently, if you consider Poclain Hydraulics’ core technology, anything that needs high power in a compact package would benefit from our cam lobe radial piston technology. Sprayers, grape harvesters, skid steers, mini loaders, head cutters, crushers, and shredders, the applications span a wide number of industries. OEMs need to meet evolving market constraints implying new specifications, tougher regulations and a need to streamline operations. This is what drives Poclain innovation as a whole and innovation concerning our motors, continuously improving to meet these needs with innovative integrated technology and services.

ELECTROHYDRAULIC TECHNOLOGY FOR ZERO EMISSION COMPACT E-MACHINES

Major countries in the world have adopted net-zero emission targets for the next decades through environmental regulations at a national and local level. These highly ambitious targets are generating a growing trend for zero emission machines and vehicles worldwide. Poclain Hydraulics made the decision to take part actively in this global trend. Since 2018, we have been developing a brand new power transmission solution based on electro-hydrostatic technology for compact agricultural, material handling and construction machines.

The development scope includes not only the propel function, but also the power distribution function to auxiliaries through an electrohydraulic system. Poclain installed and optimized the complete solution on our mobile test machine. Validated and fully functional for over a year now, the machine runs tests at our in-house test facility and functions as a zero-emission demonstration machine. Available for customer projects, our project engineers have already successfully electrified several machine prototypes and completed a wide range of field tests to confirm compliance with customer requirements.

Our offering is intended for small or compact two, three and four-wheel drive machines operating at a low voltage (48V to 96V), with an operational weight below 2.5 tons and a global power below 25 kW. These are typically wheel loaders, truck-mounted forklifts, site dumpers, tandem rollers and other machines with similar characteristics.



YOUR E-MACHINE PERFORMANCE EQUAL TO THAT OF A DIESEL VERSION

In line with the end-users' and machine owners' requirements, Poclain's system has been designed and sized to enable zero emission machines to reach the same level of ruggedness and performance as the equivalent diesel machines. The battery pack technology and capacity is defined in order to ensure it meets the intended mission profile.

The Poclain solution combines state-of-the-art electric, power electronic technologies, and time-proven, hydrostatic cam-lobe in-wheel technology. This enables OEMs to maintain the key advantages of reliable, robust and compact wheel motors.

All Poclain system electric and power electronics components can be integrated in a single compact compartment on the e-machine. This layout offers benefits such as increased electrical safety, a reduction of overall wiring lengths and facilitates soundproofing.



Mobile test e-wheel loader
equipped with the
Poclain Hydraulics
electrohydraulic solution

ZERO EMISSION COMPACT E-MACHINES

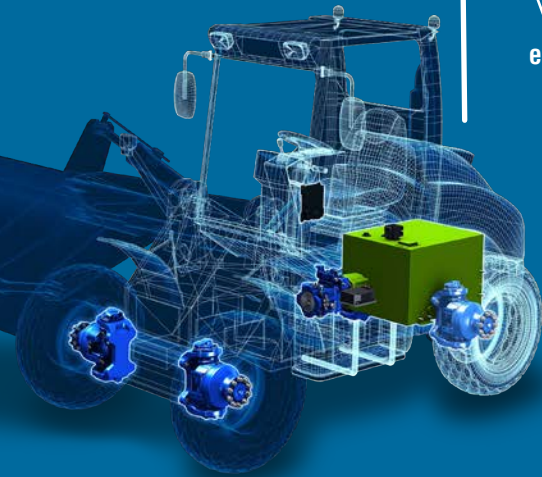


DC/AC
Inverter

Batteries

Hydraulic
pump

e-motor



A FLEXIBLE APPROACH TO MEET ALL YOUR REQUIREMENTS

Poclain components share a high degree of commonality between our diesel machine offering and the electrified version, enabling customers to simplify their supply chain and operations, and significantly reducing overall operational costs.

Developed as a highly flexible platform, the Poclain solution consists of pre-validated system architectures. For a new e-machine in development, once the architecture is defined, then only customer-specific customizations are necessary. This approach minimizes development workload and costs.

GET YOUR E-MACHINE TO MARKET QUICKLY

Thanks to Poclain technology's high flexibility and low weight, the dead weight of the new e-machine is similar to that of the equivalent diesel machine. A lower dead weight results in less stress on the wheel motors, the brakes and the tires.

For each customer project, we set up a professional team of experts to manage the project in compliance with its technical requirements and schedule. Our expertise in project management combined with our platform approach enable us to minimize the development time and offering a very fast time to market for our customers. ■

A COMPLETE RANGE OF ENGINEERING SERVICES TO SUPPORT YOUR ELECTRIFICATION

The Poclain offerings include a complete range of engineering services for a real turnkey approach to customers' electrification projects.

Poclain also offers connected engineering services for e-machine prototypes. CAN bus data collection and analysis enable remote prototype monitoring and validation during the first months of operation. The data collection allows for real-time visualization of the e-machine operating data and electro-hydraulic system performance validation, helping OEMs to capitalize on this valuable information.



[SEE ARTICLE ON PAGE 8](#)

**FOR ELECTRIFICATION PROJECT OR
INFORMATION REQUESTS, PLEASE GET
IN TOUCH WITH YOUR POCLAIN
HYDRAULICS SALES CONTACT.**



POCLAIN HYDRAULICS LAUNCHES CONNECTED SERVICES

Services are deeply rooted in Poclairn's culture. Their hydrostatic transmission offering is the most comprehensive on the market, as they continuously strive to customize the components to match the application. With the rise of smart off-road and fixed applications, Poclairn Hydraulics is launching a range of connected services that add intelligence to power for enhanced machine design and operation.

Centered around the transmission, Poclairn Hydraulics' connected services are threefold:

CONNECTED ENGINEERING

During the prototyping phase, the machine is fitted with Poclairn intelligence to precisely size and adjust the transmission components based on real-life usage.

MACHINE MONITORING

In the field, the user accesses real-time transmission performance data and can adjust settings to save energy and increase component lifetime. From the OEM's standpoint, duty-cycle monitoring throughout the machine's entire lifetime can give useful insight for next-generation machine design.

PREVENTIVE MAINTENANCE

The user is alerted the second a component indicator drifts out of normal range. The issue is addressed before the machine breaks down, in close collaboration with the OEM's local service team. The OEM can also build a proactive relationship with the user, advising on machine settings and operation.



Poclain Hydraulics' connected services consist of a controller, transmission sensors, a 4G connection to Poclain Hydraulics' secure IoT cloud, and a dashboard to read and analyze the data. It is compatible with the vehicle's engine and implement intelligence.

100 READINGS A SECOND WITH CONNECTED ENGINEERING

Carried out during prototyping, connected engineering enables us to accelerate development and market an application that perfectly matches the duty cycle. As it collects data for several weeks in the field at a rate of 100 Hertz (100 readings per second), it monitors the subtlest change in the driving mode and conditions.

At fixed intervals, the OEM receives a detailed report and recommendations from Poclain Hydraulics platform experts to fine-tune the transmission and the components it interacts with.

Several OEMs have already called on Poclain Hydraulics' connected engineering to commission zero-emission vehicles, vocational vehicles with wheel assist, and industrial applications.

Poclain Hydraulics' connected services target small and mid-sized OEMs who may not have the time and skills to develop their solutions in-house. It positions their machine among the most advanced on the market, providing higher uptime, lower energy consumption, and closer dealer support. It also helps them develop models that comply with the application duty cycle perfectly. ▀

**For more information,
please contact**

ANTHONY GALLAIS
services program
manager at Poclain



NEW IDEAS, AGILE METHODOLOGIES, CREATIVE PROCESSES, AND EXPERIMENTATION

FAB'LAB 58

THE INNOVATION ACCELERATOR

FAB'LAB 58 is a place for creativity and experimentation right at the heart of Poclain, in our Verberie, France facility. It serves internal and external project leaders by developing partnerships, researching and accelerating internal innovation for process and products, fostering client co-innovation, and tackling today's and tomorrow's technological challenges.

The goal of FAB'LAB 58 is to accelerate experimentation and development of innovative ideas at Poclain by providing a framework conducive to discovery and discussion around new technologies. Launched in September 2020 by Vincent Langlois, Strategic Innovation Program Manager, Polytechnique and HEC alumni, the FAB'LAB 58 follows in the footsteps of Poclain's innovative heritage, taking its name from the year 1958, when Claude Bataille designed the first Poclain Hydraulics motor.

Aligned with Poclain's goal to continuously deliver and provide quality to our customers, the FAB'LAB 58 was conceived as part of our move to become a more ambidextrous company and leverage our innovation, agility and speed. «As the world is moving faster and faster, the need for more structured and agile processes and ways of doing things are keys to success,» Vincent says, citing his broad experience in Germany, USA and China, working previously for Safran, Terex and Vinci.

That's why this multidisciplinary team with a core group of mechanical and design engineers is deploying new creative processes and innovative technologies aimed at realizing proof of concepts (POCs) over short runs with a test & learn approach.

«Choosing the right people for this team meant sourcing a group willing to challenge the status-quo, come up with these new processes, and implement these new ways of doing things,» Renaud Saboly points out. He took responsibility of the team as Innovation & Transformation Manager from the beginning and brings expertise from Poclain Hydraulics and previous experience at Engie, Total and EDF. «From concept manufacturing to just-in-time testing, both our internal Poclain teams and our network of external partners are able to benefit from FAB'LAB 58 with respect given to the confidentiality necessary for these exchanges,» Julien Viard, Innovative Methods & FAB'LAB 58 Manager, adds.

WANT TO COLLABORATE?

Please contact:

Renaud SABOLY (innovation transformation manager)
or

Julien VIARD (FAB'LAB 58 manager)

fablab58@poclain.com



THE FOUR MAJOR THEMES OF THE FAB'LAB 58 POCLAIN IN 2021 ARE:

FAB'LAB EMPOWERMENT

Eric Vives, Group Research & Technology Director and Polytechnique alumni, shares his knowledge and expertise for the development of the FAB'LAB 58 as a sponsor today. Eric comes from PSA, with experience in managing and implementing new working styles to create a positive environment for innovation.

He now mentors the team on management style and the engineering process, to add more agility a strong focus on transparency and FAB'LAB 58 team empowerment.

Poclain is at its heart made up of engineers, who up until now have mostly been used to a purely sequential project management style. FAB'LAB 58 allows both internal and external engineers the opportunity to step out of that style of work using their faster approach.

The speed brought by this type of focused work-group represents a welcome paradigm shift where individual engineers and other disciplines (both internal and external) can focus in on specific challenges and develop viable solutions for continuous process improvements or radical new product development, for example.

In the classical project style, engineers work to deliver each objective at 100% before proceeding to the next. The FAB'LAB 58's working style gives engineers and others an opportunity to work on multiple potential solutions in parallel rather than sequential order, using the focused core team and the fab-lab's wider network of resources. This helps accelerate projects in a flexible and secure environment by achieving viable results faster.

1. Accelerate innovation methodologies
2. Move quickly from idea to concept
3. Accelerate testing processes
4. Promote partnerships

ACCELERATING PROOF OF CONCEPTS

Since its inception a year ago, several POCs have been in the works, using creative think-tank sessions, the FAB-LAB's expertise and capacities for pure 3D printing as well as hybrid 3D printed plastic and metal parts. The team also contributed to work on Poclain's 3D Model Based Definition project. (*see page 12*). These capacities along with the team's privileged partnership with expert Poclain machinists allow them to deliver extra power for project leaders.

The FAB'LAB 58 is open to ideas and suggestions from our customers. The team investigates and researches R&D developments in academic, industrial and startups environments. FAB'LAB 58 is building an internal and external network to develop future electrohydraulic and hydrostatic transmissions with a focus on intrapreneurship, as well as industrial, academic research and start up partnerships for compatible technologies with our motors. The main objective is to speed up innovation for our customers. ■

INDUSTRY 4.0 UPDATE

3D MODEL-BASED R-EVOLUTION

Digital continuity plays a strong role in Digital Transformation, a strategic topic at Poclain. The international standard Step AP242, a focus in the aeronautic and automotive industries, is laying a new foundation in product lifecycle management (PLM). The end goal is to integrate consistent 3D model-Based Definition (MBD) at each step of the value chain. Poclain is studying and testing this data model as part of a long-term project to drive benefits from design to manufacturing and beyond.

3D design management is at the base of Poclain's PLM strategy. It will impact all our business lines. As an early adopter for an international mid-size company, Poclain launched the first POC (Proof of Concept) concerning this subject in 2018. The main objective of the 3D Model-Based Definition (MBD) project is to incorporate all the product definition information inside the 3D model, including tolerances.

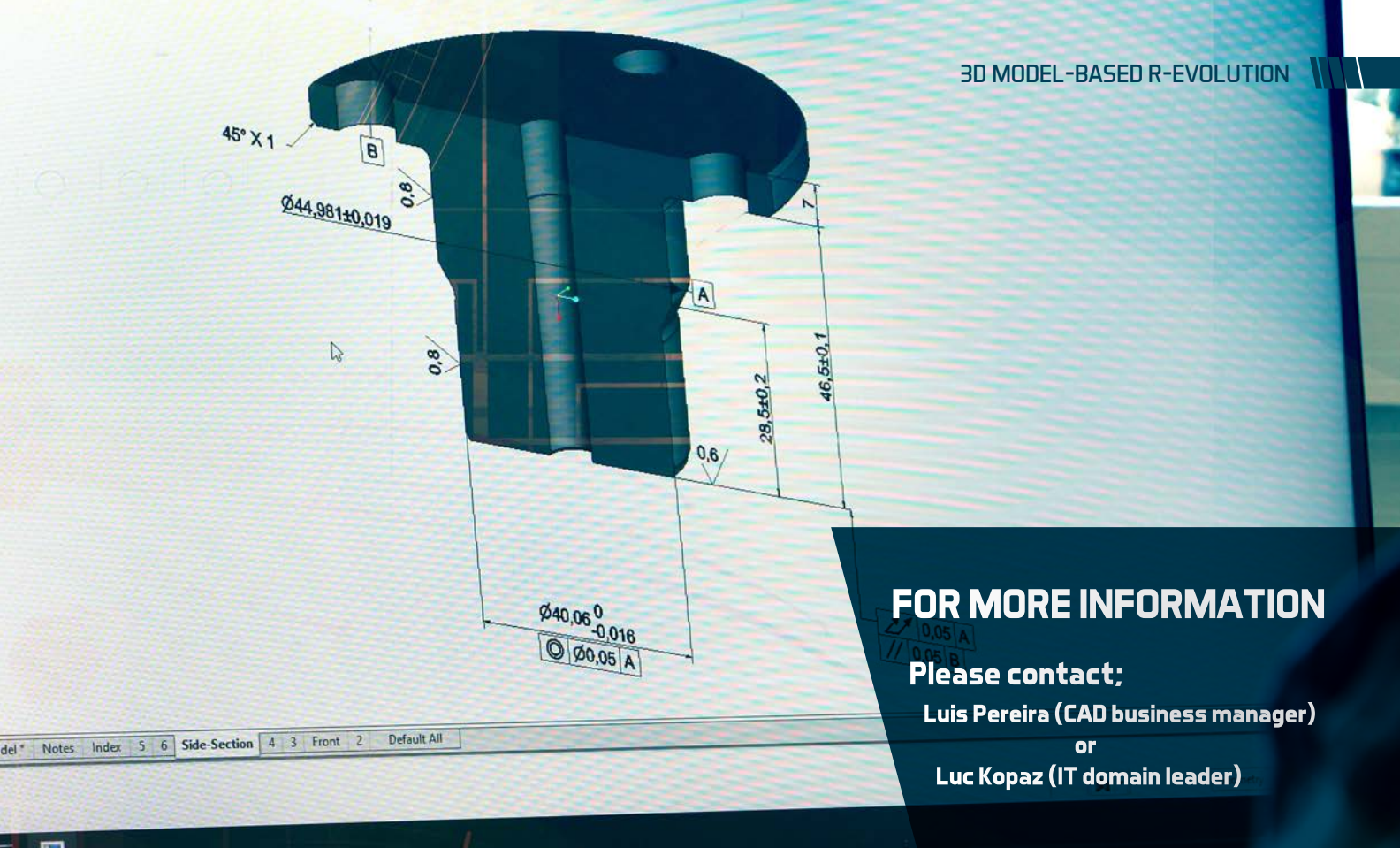
Poclain collaborated with the 4CAD company to implement a new software package including solutions that will allow for a direct bridge between CAD and CAM (computer-aided manufacturing), removing the need to use 2D drawings and avoiding manual re-working or annotating of dimensions at each step of the process. Another software package is being tested to ensure digital continuity between CAD model and quality control software using product manufacturing information stored in the 3D model. These technologies allow for better data integrity and reduce digital pollution.

TIME SAVED DURING THE PRODUCT LIFECYCLE

Moving to this new standard will mean fewer duplicated efforts and fewer errors, as it avoids recalculating and re-entering data at multiple points during the product lifecycle. The POC identified a potential of time saved on design, mockup, and quality.

Today, the CAD-CAM software is able to use this data. The next step is a test-case in manufacturing and quality control reporting on mockup team, which will soon go digital. Our industrial equipment is more and more connected and compliant with new industry 4.0 technologies. The end of 2D drawings in the factory means that the manufacturing and quality control workstations will be equipped with digital screens to display the 3D Model-Based files. It represents a disruptive change in how work is done.

The digital transformation around these product processes is a long-term evolution, requiring cooperation from a multidisciplinary team. The teams' profiles range from IT and



FOR MORE INFORMATION

Please contact:

Luis Pereira (CAD business manager)

or

Luc Kopaz (IT domain leader)

Identifying requirements and potential issues at each level will help to effectively implement a convergent standard allowing for end-to-end digital continuity. Training sessions for the POC group have been ongoing for several months. This project is challenging the team to continuously improve and grow their skills.

This initiative is in line with Poclain's goal to deliver innovative solutions in a shorter time-to-market while integrating the latest norms, streamlining both downstream and upstream collaboration and using wide range of tools.

DIGITAL THREAD

A revolution at the heart of the industry 4.0 transformation, the implementation of this standard will mean new opportunities for our stakeholders. It should be a strong accelerator in the manufacturing process.

Digital continuity allows us to be much more efficient at every stage of the value chain, but also to capitalize on and improve our product quality and performance thanks to the digital twin. For example, real data measured in the workshop can be automatically integrated as capability index during the tolerancing process.

Like going from the drawing board to 2D CAD software, or from 2D to 3D CAD, MBD is disruptive – not only for our R&D team, but for the entire value chain: manufacturing, quality, suppliers, etc. the 3D Model-Based r-evolution is a transformation in progress. ▀

design engineers, to machining operators, sourcing, quality engineers as well as research & quick prototyping support from FAB'LAB 58.

CHANGE MANAGEMENT AND MULTIDISCIPLINARY TEAM

The strong skills and the cooperation of this multidisciplinary team are enabling Poclain Hydraulics to identify, incorporate and fully analyze the implementation of this standard at all levels of the workflow.

BENJAMIN MARCHANDGroup digital manager
at Poclain

POCLAIN HYDRAULICS INTRODUCES AUGMENTED REALITY GLASSES ON THE SHOP FLOOR

In 2020, Poclain's first Group Digitalization Manager is appointed. Benjamin Marchand began working in Manufacturing Engineering in the French and U.S. plants, learning the operation's inner workings. Today, he and his team are responsible for deploying digital tools and processes groupwide, using a cross-department holistic approach. His latest achievement is the introduction of augmented reality glasses that enable rapid training and troubleshooting on the shop floor.

AUGMENTED REALITY BRIDGES THE GAP DURING LOCKDOWN

With the pandemic, all travel plans within Poclain have been suspended since March 2020. Yet travelling was warranted to start the new pump assembly line in Yorkville, U.S.A., and a team of pump experts and technicians from Gaggio, Italy, had been appointed to make the trip. COVID-19 forced them to come up with an alternative. They turned to the Hololens® augmented reality glasses. With them on, the Yorkville operators were able to show the machine interface to the experts in Italy, who followed along on their PCs and gave instructions via Microsoft Teams. On another occasion, when the Yorkville test bench required repairing, the technician used the glasses to work with the expert in Slovenia. He was able to fix the equipment within hours. The glasses lay holographic elements on top of the real world, such as an arrow or a 3D drawing. Their sensors and cameras follow the user's eye and hand movements.

On the other end, collaborators are able to hear and see as if they were in front of the machine.

THE GLASSES ARE AN ALL-ROUND SUCCESS

The feedback regarding the glasses is excellent. Knowledge sharing is instant and intuitive and saves the expert a week's travel to get to a plant on another continent. Time is reduced, and collaborative learning enhanced. So far, the group has ten pairs, all located in the manufacturing facilities.

«We are now exploring new fields for the augmented reality glasses,» says Benjamin Marchand. «One is for our customers. A Poclain Hydraulics field technician can commission a system and fine-tune the interaction between the components while the pump, motor, and electronics experts assist remotely. Our customers save time and get a more comprehensive report.»

The new service will be available this year. The glasses also come in handy for internal training, and the digital team working with Benjamin is creating modules for machine maintenance. Furthermore, in the field of innovation, engineers from remote locations can work together on a 3D simulation.

Poclain Hydraulics' digitalization process, which began two years ago, has become more relevant and urgent with the lockdown. The augmented reality glasses demonstrate how digital tools empower operators, facilitate cross-fertilization, and accelerate problem-solving. Practices are changing in depth, and the post-lockdown era will blend in-person and digital ones. ▀

2021 BRINGS POCLAIN'S LOGISTICS AND PROCUREMENT TO A NEW LEVEL

When the Evergiven container carrier blocked maritime traffic in the Suez Canal end of March 2021, the freight tension hit an all-time high. 2021 is a unique situation, where developed countries are increasing their spending, while a shortage in workforce and supplies grounds supply chains. As Q1 2021 ends,

Poclain Hydraulics teams are challenged daily to satisfy the soaring order book while strained suppliers and shop floors work with the limited resources at hand.

COVID-19 HITS POCLAIN IN WAVES

During the course of 2020, the pandemic wave hit Poclain's nine manufacturing facilities at different times. China came first, then Italy and France; then India followed in July-August. The second wave in the fall impacted the U.S. and Eastern Europe, where strict lockdown measures were enforced. Group-wide, absenteeism has risen to 35% due to the lockdown and sick leave. As for sales, uncertainty prevailed until August 2020; then orders started picking up. They've been on the rise ever since. 2020 saw the sales turnover drop by 16%. It is expected to surge at a record rate in 2021.

To meet the unprecedented demand, the levers used in the past are falling short. Hiring additional operators is slow due to a workforce shortage. As for increasing throughput, some production lines are already working 24/7, and suppliers, particularly in India and the Czech Republic, have extended their lead times to 2022.

Regarding increasing manufacturing capacities, heat treatment and milling machine manufacturers cannot deliver in the short term either.

WHICH FACTORS EXPLAIN 2021'S RECORD DEMAND?

Liquidities are at an all-time high, and Joe Biden, like other heads of state, has launched a massive infrastructure and manufacturing program. Rental companies are renewing their fleets and catching up on orders canceled in 2020. As for the Ag sector, the equipment market is at the peak of its cycle.

DIGITAL TOOLS AND COLLABORATIVE ACTION

Teams at Poclain Hydraulics are working closer than ever to streamline customer needs, including sales, manufacturing, and procurement.

Alternative shipping routes are taken when possible. «We're doing more than extinguish fires», explains Pascal Bartek, Supply Chain and I.T. Director.

«We have certified new suppliers and invested in new machines in our facilities. Backstage, our global ERP enables us to adjust production levels between locations and with our suppliers continuously. Other digital tools, such as our augmented reality glasses (see our article page 14), are enabling us to install or troubleshoot machines between locations within a few hours, something that could take a week in the past.»

2021 will be remembered as a year of opposing forces – a robust twelve-month order backlog versus a seized global supply chain. Backed by cutting-edge digital tools, Poclain Hydraulics' agile teams are committed to serving their customers in the best possible conditions. ▮

PASCAL BARTEK
group supply chain
and system information
director at Poclain



HUGUES DE ROUVILLE
group sourcing
director at Poclain





POCLAIN SHIFTS TO VIRTUAL TRAINING WITH RENAULT TRUCKS



LAURENT FRAGNAUD
Technical Competence
Development Manager



Besides the supply chain, Poclain Hydraulics' training program was also impacted by the lockdown. At the end of 2020, Renault Trucks had requested on-site service training for AddiDrive. The technicians had already received the entry-level training and needed to upskill on troubleshooting and handling service issues. Unable to travel, the Poclain Hydraulics Training Center (PHTC) designed a ten-hour training module and carried it out remotely, with their instructors in a virtual classroom.

"Virtual classrooms are truly compelling; they offer the live interaction of in-person training, without the constraints and cost of travel," says Daniel Froc, PHTC manager. *"For Renault Trucks, we designed five two-hour sessions that tackled all the pain points the trainees wanted to progress on. The goal was to give them the knowledge and tools to replicate the training internally later on."* The training was broken down into bite-size sessions mixing theory, quizzes, and Q&A at regular intervals to optimize retention.

PHTC's training at Renault Trucks initially started in 2017, focusing first on sales points and user benefits to educate the sales people on hydraulic traction control. Today, the priority has shifted to servicing and repair. *"Our technicians need to accurately troubleshoot, assess the repair time and provide high-quality repair"* explains Laurent Fragnaud, technical competence development manager at Renault Trucks, who defined the requirements for PHTC's training.

«The PHTC's virtual training was a real success – we are delighted with this new format,» adds Laurent. They intend to go one step further towards a blended experience, combining hands-on exercises on a real-life truck, virtual classroom sessions, videos and e-learning. The PHTC will likely reproduce the module with anglophone trainees in the coming months. Their achievement paves the way to developing a training catalog targeting all OEMs worldwide, either in-person or virtually. ■



THE POCLAIN HYDRAULICS TRAINING CATALOG IS ONLINE!

Learn and grow your technical expertise with Poclain Hydraulics Training Center. Classes are available in-person, on-site or via webinar. Read on to view the PHTC training catalog.



Poclain Hydraulics Training Center's (PHTC) technical courses help trainees acquire fundamental hydraulic knowledge, confidently define and select Poclain Hydraulics products & systems, and fine-tune a system.

Learn and grow your technical expertise with the Poclain Hydraulics Training Center. Classes are offered in-person at either your location or one of our PHTCs with many also available via webinar. The PHTC training catalogue gives you access to information on all available courses:

- course description
- training goals
- defined prerequisites
- teaching methods
- skills assessment



**Do you have a question or training need?
Contact Poclain Hydraulics Training Center**

PHTC_Contact@poclain.com

COMPACT UTILITY LOADERS

A COMPACT HYDROSTAT FOR KUBOTA'S SCL1000

Poclain Hydraulics hydrostats are helping Kubota's SCL1000 drive onto the compact utility loader scene. Compact utility loaders deliver big performance and power in a small versatile package. It's no wonder the demand for these machines continues to grow. To learn more about the project and share what Kubota is bringing to the table with the SCL1000, Poclain Hydraulics interviewed Tim Boulds, Kubota Tractor Corporation's construction product operations manager and Jason Carlson, LandPride, product design engineer.

WHAT ARE USERS AND DEALERS LOOKING FOR IN A COMPACT UTILITY LOADER?

Agility and versatility were at the top of the list when LandPride and Kubota consulted dealers and customers to understand the unique market needs for compact utility loaders. This research led Kubota to the development of their SCL1000, Kubota's new addition to the compact utility loader market.

«Kubota is always evaluating the needs of the market and our dealers. In our market research, we determined that there was opportunity for our dealers and Kubota to be successful with a product like a compact utility loader,» Tim shared.

Jason Carlson gave us some insight into the market needs they discovered, *«In designing the SCL1000, we knew our customers needed the ability to fit through a 36" gate to easily access backyards without tearing down a fence line. Also, other important features included low ground pressure with wide tracks in a narrow machine configuration.»*

THE CHALLENGE: SMALL SIZE, BIG SPEED

The compact size was not the only challenge the machine presented – speed is also very important in this application. *«Speed was also another must-have feature – the ability to go as fast as possible for maximum productivity. Kubota delivered on that with best-in-class 4.9 mph travel speed.»* Jason continued.

According to Jason, *«Customers also wanted to be able to operate the auxiliary hydraulics without having to remove their hand from the loader control joystick, and we have incorporated the proportional auxiliary control buttons into the joystick.»*

LandPride and Kubota challenged Poclain Hydraulics to deliver a hydrostat capable of meeting their performance demands with respect to ground drive specifications and fitting in the 36" wide chassis.

PM10 TANDEM HYDROSTAT

Poclain Hydraulics proposed a tandem PM10 closed-loop pump controlled by hydraulic pilots. To control this hydrostat, a small hydraulic pilot control valve is mounted up by the operator station. It is very easy to move – as the operator moves it, the valve sends hydraulic pressure to a cylinder inside the pump that moves the swashplate back and forth – allowing for easy direction changes.

The PM10 pump is a very compact hydrostat solution. According to Jason, this is how Poclain Hydraulics helped him meet one of his design challenges, *«In terms of design challenges, the 36" width requirement limited the compartment size available to hold the hydrostat. We needed a compact hydrostat that met our ground drive specifications. The PM10 was able to meet our performance demands and fit in the compartment.»*

The PM10 features an integrated flushing valve. It takes oil out of the loop and sends it to a cooler and filter to help keep the hydraulic system operating at the right temperature. The integrated flushing valve and tandem configuration option are two space-saving features Jason appreciated during the design process saying, *«They reduced the need for external plumbing work.»*



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For a high-performance system package, the PM10 pump can be paired with Poclain Hydraulics motors MS02 or MS05 and a gear pump for the attachment.



PM10 in tandem with integrated flushing valve



WHAT ARE CUSTOMERS SAYING?

Concerning initial feedback from customers, Jason shared, «Customers enjoy the drive experience on the Kubota SCL1000. They find the controls easy to learn and easy to operate. Operators become comfortable with the machine controls quickly due to its intuitive layout and are more productive quicker.»

POCLAIN HYDRAULICS EXPERTS

Sales and hydraulic expertise also came into play in this project. Jason shared «The biggest challenge we overcame thanks to Poclain Hydraulics was [...] an extremely tight development timeline.» Jason went on, «We needed to have a working prototype in less than a year, and we had

a start of production goal of less than three years. Poclain Hydraulics was able to get us up to speed very quickly, and they were able to meet our prototype availability needs.»

Jason shared that Poclain Hydraulics experts were «a wealth of knowledge and a good resource when I had any type of question related to the hydrostat. Their support and expertise were very beneficial with me being new to hydrostatic transmission design.»

He goes on to share, «With our very tight prototype and production timeline, Poclain Hydraulics was able to deliver, which distinguished them from the other hydrostat competitors.» When we asked about his plans regarding Poclain Hydraulics, he shared «Yes, I plan to consider using Poclain Hydraulics hydrostats and possibly motors in the future.» ▮

GREGOIRE'S GRAPE HARVESTERS

GL7 & GL8 SUCCESS STORY

Poclain Hydraulics and Grégoire's partnership is a vineyard success story that spans decades. At the heart of this story, Grégoire's self-propelled grape harvester range, the GL7.4 and the GL8.6, are a true convergence of technology and high-level performance.

Grégoire is one of the main actors in vineyard equipment worldwide. Created in 1946 and located in Cognac, France the OEM covers 35% of the international wine growing machine industry, or 350 grape harvesters delivered worldwide in 2020. On an upward trend since 2017, sales are expected to reach 700 units in 2021: 400 grape harvesters and 300 grape sprayers.

Two self-propelled grape harvesters are the core Grégoire's range. The GL7.4 and the GL8.6 models represent 30% of Grégoire's production. These machines are recognized as the most respectful of the fruit with an ARC system picking head and an EASYclean sorting system that guarantees a level of cleanliness of 99.8 %, with no leaves or stems in the hopper.

Grégoire's GL7.4 and GL8.6 models integrate a high level of expertise with hydrostatic transmission systems integrating upgrades such as the TWIN-LOCK™ anti-skid system and braking solutions to meet the challenges of both work in the vineyard and while roading.

«There is a real synergy between Grégoire and Poclain Hydraulics in the operation of the machines», Luis Martin de Sousa, Machine Embedded Electronic Manager at Grégoire, says.

Grégoire's GL7.4 and GL8.6 features match the increasingly demanding market requirements:

- High quality harvest requirements
- Maximized crop yields
- Spray flow and distribution efficiency
- Focus on harvest parameters
- Optimized fuel consumption
- Free the driver's attention to concentrate on work

The Poclain Hydraulics' TWIN-LOCK™ hydraulic anti-skid system guarantees productivity in the vineyard regardless of the ground slope or conditions. On slopes up to and over 40%, the system adapts the traction on the front wheels and transfers the excess traction to the rear axle to maximize gradeability. TWIN-LOCK™ helps prevent skidding and preserve soil integrity. It maintains a consistent harvesting speed between 3–5 km/h for maximum productivity. For the sprayer, the ideal consistent speed is between 6–10 km/h.

TWIN-LOCK™ ANTI-SKID BENEFITS

The compact motor size for the GL7.4 and GL8.6 is fully optimized and proportional to the wheel size. The GL7.4 is equipped with MHP20 TWIN-LOCK™ motors with parking brake for the rear wheels and MS05 two-speed high flow for the front wheels. The GL8.6 is equipped with MHP27 TWIN-LOCK™ motors with parking brake for the rear wheels and MS08 two-speed high flow for the front wheels. These new generations of wheel drive motors offer a standard 15% increase in power for better traction and a higher field capacity, thus optimizing crop quality during harvesting and homogeneous sprayer distribution.

TRANSMISSION MANAGEMENT AND SPEED REGULATION

The Poclain Hydraulics SmartDrive™ CT 300 Phases software matches, personalized to Grégoire's needs, and manages global transmission and speed regulation including precision braking of the machine on a slope and speed regulation in harvesting or spraying campaigns. The automatic engine rpm management will supply the necessary power depending on the activity variables: use of auxiliary tools, vehicle speed, and machine load. SmartDrive™ meets the needs and frees up the driver's attention.

This smart management program guarantees precise and controlled fuel consumption. «Since 2017, our self-propelled grape harvesters and sprayers allow for a fuel savings of 20% thanks to optimal management of the combustion engine torque and hydrostatic transmission motors. We have the lowest fuel consumption in the vineyard industry», Mathieu Tabardel, Global Product Manager, points out.

POCLAIN HYDRAULICS BREAKING SOLUTIONS FOR GREGOIRE'S GS4 AND GL8 RANGE

The evolution of the vineyard industry and the need for grape harvesters to travel on-road at speeds of up to 40 km/hour now requires the use of high-performance service brakes.

This is the case, for example, in Germany where vineyard plots can be far apart and road trips are long. Gregoire's 40 km/hour grape harvester, designed specifically for Germany is homologated only in this country.

The GS4 Gregoire range also go up to 30 km/h. Poclain Hydraulics' multi-disc oil-immersed brakes meet the braking needs at this speed. Fully integrated into the motors, they deliver an all-in-one solution that can reduce the machine's environmental impact. Thanks to the performance of this type of brake, Poclain Hydraulics motors are a highly sought-after solution for grape harvester transmissions, both for those ranging from 12 to 14 tonnes, as well as those from 10 to 12 tonnes.

In addition, the Poclain VB020 service brake valve and the VB200 accumulator charging valve also support these machines' braking needs.

GL8.6 in the field

The Poclain Hydraulics EcoDrive contributes to noise level reduction with engine speed management. This is particularly helpful when roading through residential areas or while carrying out long periods of work during early morning hours in areas where it is important to keep noise pollution to a minimum.

Gregoire is the only OEM worldwide to choose to maintain a four-wheel drive function both in the vineyard and on road. The advantages are numerous, starting with guaranteeing a better grip on-road. On-road/off-road four-wheel drive adds comfort and security for the driver while simplifying the system design. This optimizes oil flow to all four motors, and reduces oil overheating. This set of features makes the GL7.4 and GL8.6 very maneuverable and very easy to operate. Both machines are perfectly adapted to their environments for a high level of security and optimized yields. ▀



GL8.6 equipped with MHP and MS motors and VB brake valves.

WHO IS FIXING MY MOTOR?

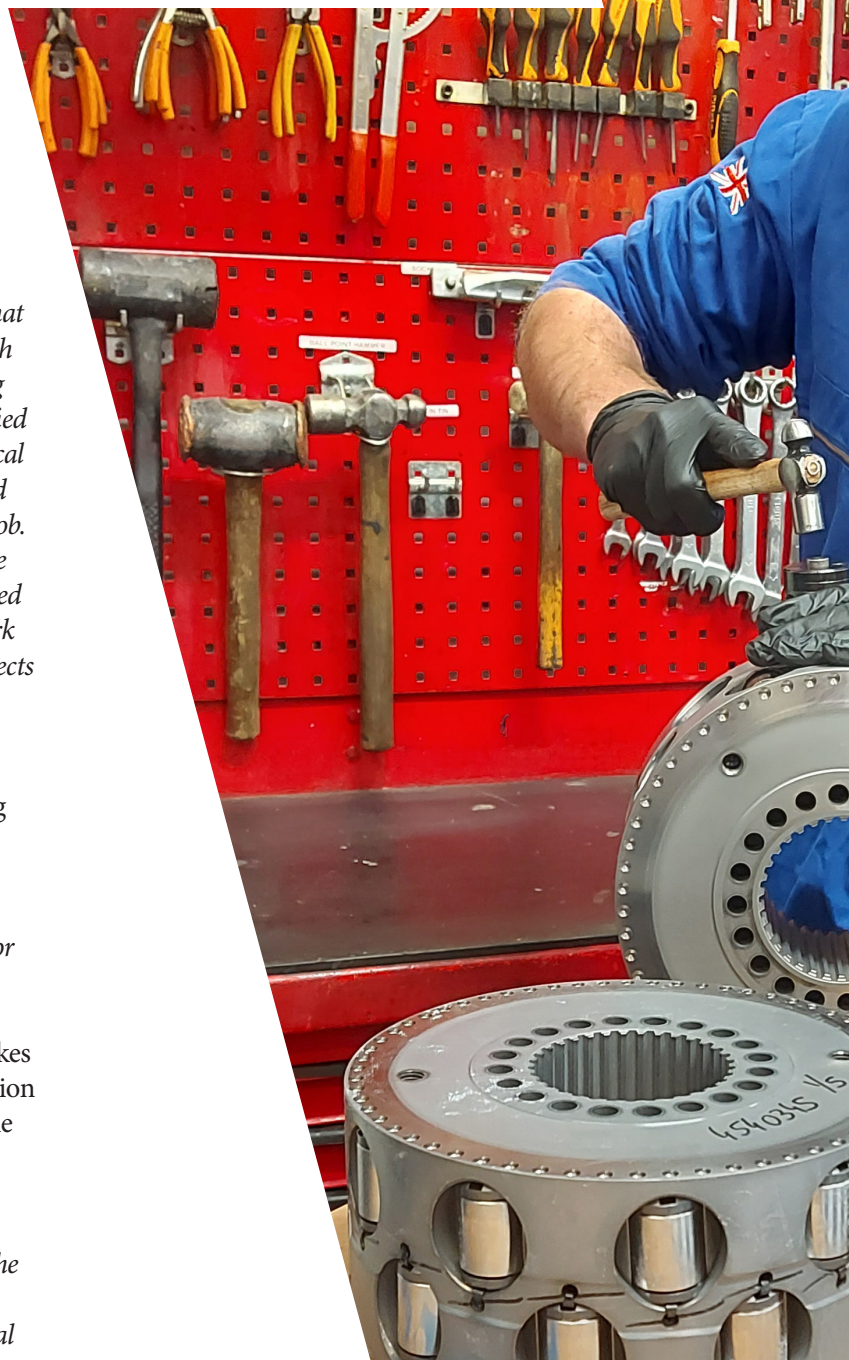
WESLEY, WORKSHOP EXPERT, UK

Wesley Taylor started with Poclain Hydraulics as an apprentice. When asked about his course of study leading up to his career at Poclain, Wesley shared: «A mechanical engineering course done as part of my GCSEs piqued my interests in the industry – helping me to decide that this is what I was looking for when I left school. I started with Poclain as part of an advanced apprenticeship program, training on-the-job for my current position managing our UK Certified Repair Center. My course of study consisted of hybrid practical and classroom learning. This allowed me to learn theory and apply it during my apprenticeship, getting me ready for the job. Most recently, I had the opportunity to mentor an apprentice from the same program in the shop. [The program] has helped him progress along quite nicely, which you can see in his work now. Doing this gives me the opportunity to relearn the subjects from a different perspective.»

We asked Wesley what a normal day is for him, and found out a normal day for Wesley is anything but. The one thing he's sure of when he gets his overalls on is that every day is different: «Inspections, creating and sending repair reports off to the customers and corresponding back with them on how they want to proceed. Then maybe doing some repairs or getting on the phone with customers – it's never the same.»

When repairing a motor, trust plays a big part. Wesley makes a point to talk with the customers to get as much information as possible – something that they might not be comfortable with if they didn't trust his expertise.

We asked Wesley how he goes about a repair: «Depending on what the customer says that they are experiencing with the motor, I have a pretty good idea of where to start. Once the motor is in the shop, the team takes it apart and does a visual inspection of everything. Usually this is enough to figure out what is wrong and give me the information needed to enter that into the RMA (Return Material Authorization) system. I then complete the inspection report with photos for the customer.»



Poclain Hydraulics UK Certified Repair Center is located in Oundle, Peterborough, Cambs and you can reach Wesley by phone at +44 1832 277404



TO FIND YOUR NEAREST
CERTIFIED REPAIR CENTER
GO TO OUR DEDICATED WEB PAGE



Since customer visits are such a big part of what Wesley does – we asked him to share a typical example: *«It's not so much repeat customers, but the local farmers down the road coming in to see if we can help them out. They are the ones that really want to understand what is going on with their motor. I demonstrate it for them, and they go away really happy and with a better understanding. They are the ones who tend to tell their friends, colleagues and others about the experience they have had, which helps grow our network of customers. Trust is a big thing, and our customers trust us enough to recommend us to their friends.»*

For fun, we asked Wesley about what he likes to do in his free time – and just like his days in the workshop, his answer was anything but typical: *«I haven't really got any hobbies or interests currently. I did have a lot of interest in the motor trade/cars that sort of thing. It's because recently, I bought a house. So a lot of my time is spent painting and repairing things there. It's interesting because, with the job I do, a lot of the tools that I learned to use and knowledge I gained can be applied to the repairs I am doing on the house. It's strange because, you wouldn't think so, but when you know how to use the tools correctly from working in the workshop, you can use that at home to repair other things. So, like for instance, a water pipe turns into a hydraulic hose in your mind. It's the same thing. It's still transferring fluid.»*

When we asked him if there was anything else he would like to share with our customers, Wesley said *«It's nice to put a name to a face – don't hesitate to phone or email».*

Trust and confidence play a big part in who you choose to repair your Poclain Hydraulics parts. Poclain Hydraulics internal certified repair centers meet our stringent guidelines for quality and reliability across the globe. Whether it is a motor or pump, you want to know that someone who understands your machine and your needs is handling your components correctly and efficiently. ■

According to Wesley – earning the customer's trust is the key to helping them. During our interview, Wesley gave us some insight into the challenges and rewards of having a customer-oriented position: *«Some customers are very keen on getting a lot of test reports back and meeting their standards on that is quite a challenge sometimes. I handle this by doing the reports for them – telling them about certain leakages at certain flow rates. I often make a point to explain it to the customer over the phone as well, or sometimes we will have customers come in to visualize what we are saying. Usually we are able to get to the end product that way. Some customers are really into it – they really want to know everything. Relationships with the customer is a big thing. Because once you have built up that relationship, you can trust them and they trust you. It's then easier to get the whole job complete, because we work together better. I spend a lot of time on customer relationships- emails, calls, and visits.»*

POCLAIN HYDRAULICS SALES SUBSIDIARIES IN THE WORLD

BRAZIL

POCLAIN HYDRAULICS CPSH LTDA
Rua Francisco Leitão,
469 Conj. 1508 - Pinheiros
CEP 05414-020 São Paulo
Tel. : +55 11 2615 8040

CHINA

POCLAIN HYDRAULICS T&CT (BEIJING)
CO, LTD
Room 606
Block A of Building one
Quanshitiandi Plaza
No. A50 Wangjing West Road
Chaoyang District
Beijing, Post code: 100102
Tel.: +86.10.64.38.66.18

POCLAIN HYDRAULICS (SHANGAI)
CO, LTD
Factory Building n° 11, Phase II Shuhui
Park N° 275
Qianpu Road, Songjiang District
Shanghai 201611
Tel: +86 21 37 00 34 15

CZECH REPUBLIC

POCLAIN HYDRAULICS SRO
Ksirova 186,
CZ 619 00 Brno - Horni Herspice
Tel. : +420 543 563 111

FINLAND

POCLAIN HYDRAULICS OY
Vernissakatu 6
01300 Vantaa

FRANCE

POCLAIN HYDRAULICS FRANCE SAS
Route de Compiègne
60410 Verberie
Tel. : 03 44 40 78 64
03 44 40 79 66

POCLAIN HYDRAULICS FRANCE LYON
58, avenue Chanoine Cartellier
Le Cleveland III
Z.A. Les Basses Barolles
69230 Saint Genis Laval
Tel : 04 78 56 67 44

GERMANY

POCLAIN HYDRAULICS GMBH
Werner-von-Siemens-Str. 35
64319 Pfungstadt
Tel. : +49 6157 / 9474-0

INDIA

POCLAIN HYDRAULICS PVT. LTD
3rd Floor, No 52, Agastya Arcade
80 Feet Road, Opposite MSR Hospital
Bengaluru 560 094
Tel. : +91 80 4110 4499
+91 80 23417444

ITALY

POCLAIN HYDRAULICS SRL
Via Remesina int, 190
41012 Carpi (Modena)
Tel. : +39 059 655 0528

JAPAN

POCLAIN HYDRAULICS KK
4-2, Miyoshi cho, Naka ku,
Yokohama, Kanagawa 231-0034
Tel. : +81-45-341-4420

POCLAIN HYDRAULICS KK
#709, in Toyo Building,
3-2-5, Hachiman-dori,
Chuo-ku, Kobe-shi, Hyogo-ken,
651-0085
Tel: +81 78 891 4446

KOREA

POCLAIN HYDRAULICS YH
#104-1010, 661, Gyeongin-ro
Guro-gu, Seoul, 08208
Tel.: +82 2 3439 7680

NETHERLANDS

POCLAIN HYDRAULICS BENELUX BV
Floriijnstraat 9
4879 AG Etten-Leur
Tel. : +31 76 502 1152

RUSSIAN FEDERATION

POCLAIN RUS, LLC
Novaya Basmannaya street, 28,
building 2, office 12
105066 Moscow
Tel. : +7 (495) 105 9301

SINGAPORE

POCLAIN HYDRAULICS PTE LTD
10 Anson Road
#35 - 10 International Plaza,
079903
Tel. : +65 6220 1705

SLOVENIA

POCLAIN HYDRAULICS DOO
Industrijska ulica 2
SI-4226 Ziri
Tel. : +386 (0)4 51 59 100

SOUTH AFRICA

PO Box 1272
Ballito, KZN
Tel. : +27 82 300 0584

SPAIN

POCLAIN HYDRAULICS SL
C/ Isaac Peral n°8-10, Local n°3
08960 - Sant Just Desvern (Barcelona)
Tel. : +34 934 095 454

SWEDEN

POCLAIN HYDRAULICS AB
Sjöängsvägen 10
19272 Sollentuna
Tel.: +46 8 590 88 050

UNITED KINGDOM

POCLAIN HYDRAULICS LTD
Nene Valley Business Park
Oundle, Peterborough, Cambs PE8 4HN
Tel. : +44 183 227 3773

USA

POCLAIN HYDRAULICS INC
1300 N. Grandview Parkway
PO BOX 801 WI
53177 Sturtevant
Tel. : +1.262.321.0676 5720/5721

More than 200 distributors worldwide

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www.poclain-hydraulics.com

