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AXIS

QUARTERLY NEWSLETTER FROM AUTOMATED SOLUTIONS AUSTRALIA

GEOGRAPHE TO THE RESCUE

ROBOT IN FOCUS iD SERIES

INDUSTRIAL ROBOTS BOOSTING MANUFACTURING GROWTH IN 2022

ASA

FROM THE **DIRECTOR'S DESK**

Welcome to our Autumn 2022 Edition of AXIS Newsletter.

It's great to see that our domestic and international borders are finally opening again, giving family and friends the opportunity to reunite, both here and abroad. COVID has presented some unique challenges, and it would be remiss of me not to acknowledge and commend our staff's commitment to wellbeing and delivering quality solutions to our customers during what has been some really trying times. Their commitment never waivers, and as I have said many times, our people are our greatest strength and what proudly differentiates us.

Automation technology presents an enormous opportunity and lasting benefits for the manufacturing sector and our national interests. In each edition of Axis, I challenge our editorial group to provide you with interesting and informative articles. This month, we feature one of ASA's innovative clients, Geographe Australia, whose story clearly highlights how fast-paced adoption of advanced robotics to meet new business opportunities is paramount to success in a rapidly evolving landscape. In moving with this theme, it's clear that in recent years, news headlines have been dominated by the coronavirus pandemic, which has wreaked havoc on world economies and ushered in a period of instability for the broader manufacturing sector. This has been exacerbated in recent months by the now very real Russian invasion of Ukraine. What was once a robust and predictable industry, finds itself needing to adapt to new challenges in a rapidly evolving world. With this in mind, we explore how automation, and specifically robotics, can aid in boosting manufacturing growth.

We move the technology spotlight onto the FANUC iD series, and we also interview Todd Gordon, our most recent winner of the Top Gun award, as we recognize our most important point of differentiation - our people.

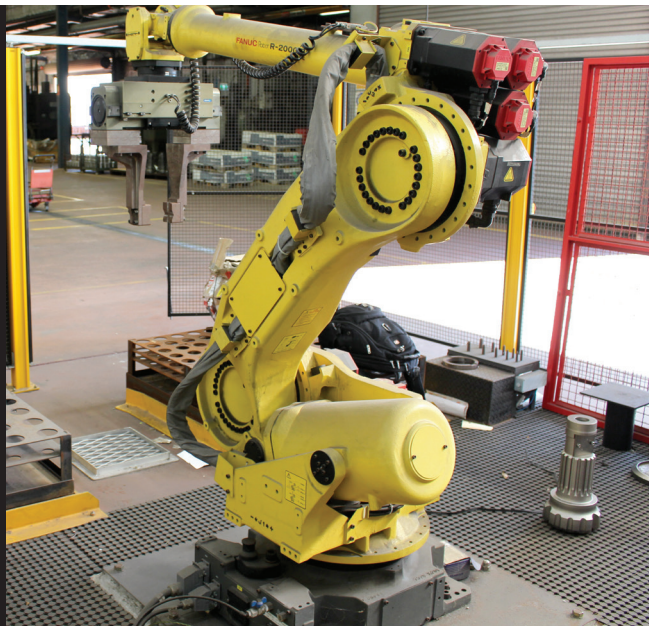
We trust you will enjoy this edition of Axis, which we will share across social media platforms. If you have not already, be sure to follow us on Facebook and LinkedIn for even more informative articles, plus the latest industry news. We always welcome your feedback as we strive to be your integrator of choice. On behalf of the team at ASA, we thank you for choosing to partner with us and look forward to keeping you updated on the latest advancements in automation, while servicing your needs, now and into the future.

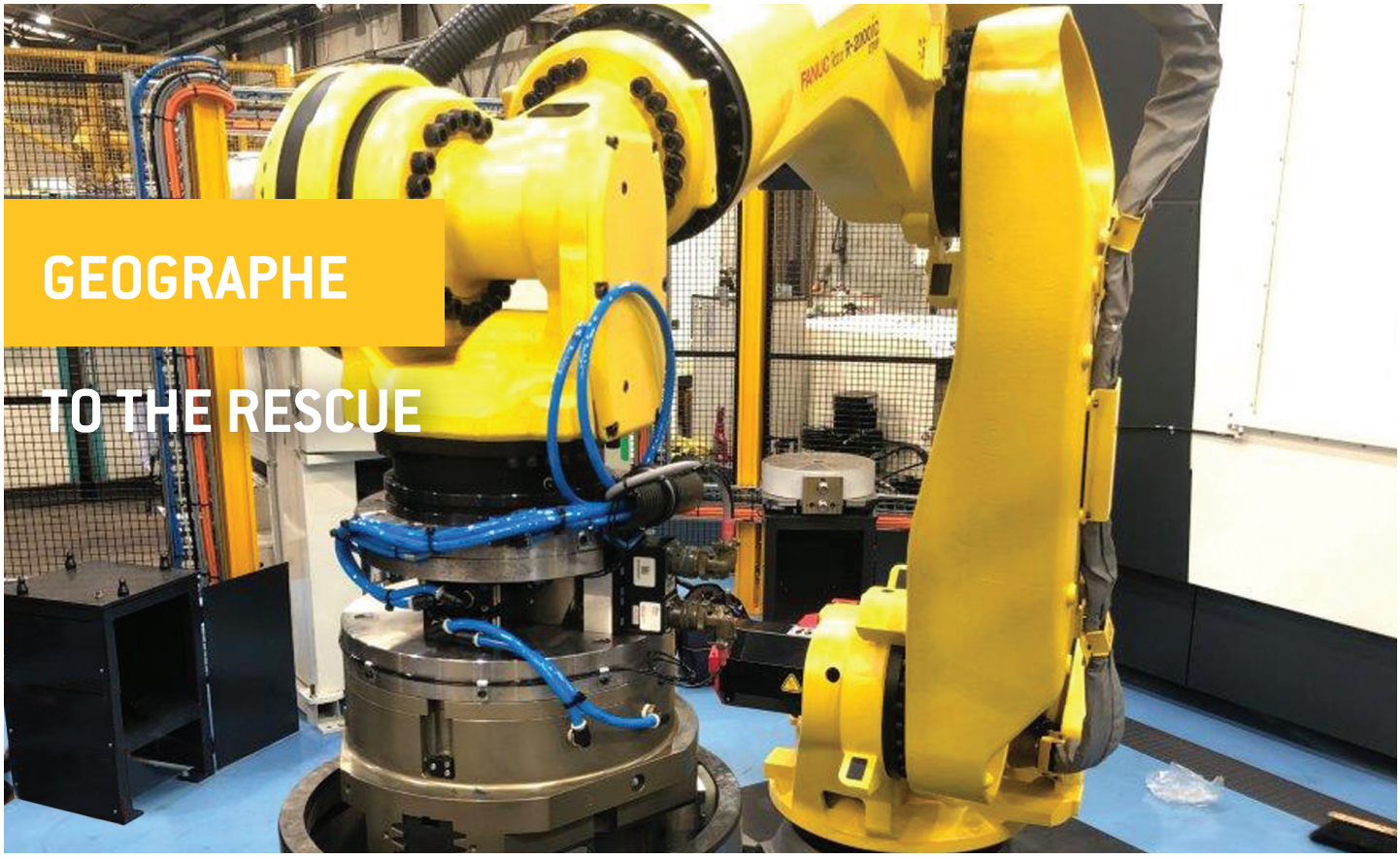
Pat Green, Director

ANNUAL **ROBOT SERVICING**

Has your Robot had it's Annual Service?
Call ASA on 1800 ROBOTS to book.

Just like a car needs regular servicing, the same applies to your robots. Your robots work hard for your business, sometimes operating 24 hours a day for long periods, so annual servicing of your robots will ensure your FANUC robots remain in optimal condition. Greasing, battery replacements, checking for excessive wear and measuring back lash ensure motion repeatability, as well as continuing to provide you with a great consistent outcome for your manufacturing processes. Annual servicing helps maintain a high level of Mean Time Between Failures (MTBF), as well as potentially forecasting issues that may be developing.





GEOGRAPHE TO THE RESCUE

A fully loaded live sheep transporter idles, stranded off the coast of Western Australia. The ship's main drive coupling has failed, and to continue its passage the vessel urgently requires a splined hydraulic coupling to be made and cut in a very short space of time. Unless the repair is made quickly, a costly decision to unload the sheep will need to be made.

Cue specialist parts manufacturer, Geographe, invited to assist with the rescue of the stranded live export ship at sea, characteristically rising to the custom manufacturing challenge to help save the day. The engineering team worked around the clock to complete the urgent work and the job was completed within 5 days without the need for costly unloading and reloading the ship.

This professionalism, prompt response, quality of the finished product, and exceptional service is well recognised and widely regarded by Geographe's diverse client base including in Mining, Oil & Gas, Naval, and Transport.

During the 50 years since Geographe began manufacturing replacements and repairing parts in a modest backyard workshop in Busselton, WA, the company has grown to the large-scale operation it is today with multiple offices, workshops and distribution partners across Australia. The highly skilled Geographe engineering team always strives to innovate, designing, manufacturing and repairing parts for heavy machinery and plant equipment, reducing downtime and operating costs for a broad range of clients.

Understanding that every minute of downtime costs its client's operations, and an unwavering commitment to delivering higher quality parts at a lower price than OEMs, Geographe has earned its reputation as a trusted industry leader in the resource and industrial sectors.

Geographe creates enhanced performance parts for excavators, trucks, loaders, dozers, underground drills, industrial gearboxes and more. That includes all the major OEM brands such as Caterpillar, Komatsu, Hitachi, Sandvik, Atlas Copco, and Liebherr.

Because Geographe takes great pride in refining and redesigning for increased asset utilization in many components they make, customers ultimately benefit with reduced operating costs and greater productivity across the equipment life cycle.

"Innovation is key to our success, backed by 50 years of experience finding solutions that benefit our clients and the greater industry," explains Sam Hyder, Geographe's CEO, who is 3rd generation family member driving the family business into the future toward a goal of saving clients $500M by 2025.

This ethos is matched by the mission of Automated Solutions Australia, striving to deliver tomorrow's solutions, today. The result, a perfect union has formed, with Automated Solutions Australia partnering with Benson Machines to provide Geographe significant efficiency benefits through an automated system designed to improve throughput.

Not surprisingly, in addition to a team of 140 plus highly skilled professionals, production at the South West manufacturing facility is aided by robotics.

"We required a highly flexible and responsive solution to quickly and efficiently unload and load parts from two pallet locations into a DMG Mori CVG9 vertical grinding machine.

To meet this requirement, Benson Machines, Australia's leading supplier of grinding machines, brought ASA and Dimac Tooling into the project to purpose build an automated cell to facilitate the grinding of a wide range of Geographe's parts.

Dimac Tooling supplied the work holding in the form of SAV magnetic chucks and zero point locators for the chucks within the

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grinder, the fixture nest and around the cell at the various work stations.

Benson Machines managed the automation project, but also manufactured the parts centralizing device, parts and magnet washing machine and standby stations.

ASA was tasked with bringing the various items together. The solution includes rapid setup software developed by ASA that allows the handling of new parts to be setup very quickly by inputting part dimensions into the cell controller.

ASA installed an automated manufacturing cell employing a Fanuc R2000iC/270F robot with a reach of 2655mm and payload of 270kg. The robot was fitted with Schunk's Vero pallet gripper attachment to allow it to attach one of 4 grippers and one of 8 magnetic chucks, enabling the robot to cycle parts weighing up to 150kg through the cell.

The centralizer is a 3 axis device which enables a bush to be centralized on a magnetic chuck within 10 micron whilst simultaneously testing ovality limitations of the part being centralized. ASA created the centralizer function by incorporating 3 additional axes to the Fanuc controller, setting them up as a separate motion group independent of the robot and programming the centralizer to measure the absolute position of the part on the magnet at various points to establish both placement offset and part concentricity and to nudge the part with micron accuracy to correct the placement offset.

"Innovation is key to our success, backed by 50 years of experience finding solutions that benefit our clients and the greater industry,"

Sam Hyder, Geographe CEO

The Fanuc R2000iC/270F robot has a payload of 270kg which means that it will handle the weight of the part, the pallet and the gripping device. This robot can handle a mass of 175kg combined gripper/workpiece at a COG of up to 400mm in Z and X from the mounting face of the robot.

ASA manufactured and supplied the overall cell controller for system. The cell controller incorporates an Allen Bradley Guardlogix safety PLC and Ignition SCADA HMI. The PLC and HMI has been programmed to provide a highly functional operator control station and diagnostic terminal for the cell.

The CVG9 grinder is part of Geographe's automation additions, and along with the FANUC robot, will play a pivotal role in supporting future customer growth alongside their recently installed heat treatment facility. The CVG9 will help sustain Geographe's industry leading DIFOT as production demand increases.

"Our talented operators have been fully trained up by Automated Solutions Australia and are currently working through grinding our current work in progress list of excavator bushes for Tier 1 miners across Australia, with great results!"

Geographe's efforts haven't gone unnoticed over the years, consistently receiving recognition through notable industry awards acknowledging business best practice, excellence in design, engineering and technology as well as being recognised for the distribution partnerships it has created.

Actively servicing over 100 mine sites across Australia, Geographe works with every Tier 1 miner in the ASX Top 100 and works with a further 300+ customers in Australia and internationally. The company is well on track to meet the long-term vision of saving contracted clients a total of $500M by 2025.

ROBOT IN FOCUS - iD SERIES

Fanuc's range of **M10iA** series robots and **M20iA** robots have recently been replaced by id series robots. As many of our customers know, the **iD** series robots were a very versatile robot and the **iD** series offers even more features. Today we delve into the migration from **iD** series to **iD** series and the differences and applications.

The new id series robots all have hollow wrists to allow for user cable routing and the motor has been moved from the side to the base of the robot. The J2 arm is now slim and curved to allow the robot to reach over obstacles. There are also mounting provisions available on J3.

M10iD/16s

The **M10iD/16s** combines all the best things from the two older model robots **M10iA/12s** and the **M10iA/10ms**. With its extra high strength, rigidity, these **iD** series robots are the perfect solution for high speed pick and place applications and material removal.

Other applications include ultrasonic welding, secondary food handling and machine tending.

M20iD/35

With 40% more payload than its closest competitor in the market at 35kg, the **M20iD/35** is a superior robot in its class. It also has the longest stroke in its class, more than 200mm more than its nearest competitor. This robot has sustained high speed motion and is used in regular factory environments. Applications for this robot would include bin picking, water jetting, loading/unloading and assembly.

Although Foundry pro configurations are not currently available on all id series robots yet, Fanuc hope to make this available in the near future. The IP on the axes goes from IP54 to IP 65 and the wrist axis remains at IP67. With epoxy paint, rust resistant fasteners, anti rust spray applied to all unpainted surfaces, this robot is ready to take on almost any job.

Whether you are a large or small manufacturer, if you think the M10iD/16s or M20iD/35 might be the right robot to automate your manufacturing process, we invite you to contact Automated Solutions Australiato explore our Fanuc range today on 1800 ROBOTS.

INDUSTRIAL ROBOTS **BOOSTING MANUFACTURING GROWTH IN 2022**

The 20's thus far have been dominated by the coronavirus pandemic, which has wreaked havoc on world economies and ushered in a period of instability for the broader manufacturing sector. This has been exacerbated in recent months by the now very real Russian invasion of Ukraine. What was once a robust and predictable industry, built around ideas of mass production and stable supply chains, suddenly finds itself struggling to adapt to new challenges in a rapidly evolving world.

The good news is that after suffering through the Global Financial Crisis over a decade ago, many manufacturers have pivoted towards increasing flexible ways of working - one built around robots and adaptive manufacturing. It is now abundantly clear that the old way of doing things isn't going to allow the broader manufacturing base to be successful in the 20's and beyond.

It should come as no surprise that the COVID pandemic exposed multiple manufacturing vulnerabilities and ushered in new challenges. In 2022, forward-thinking companies are focusing on overcoming these challenges with a more adaptive manufacturing philosophy. This approach to manufacturing is focused around five core elements – an increase in globalisation of markets, fluctuating manufacturing costs, shifting customer expectations, changing regulations, and of course market volatility.

Increased access to global markets has dramatically transformed the global economy over the last few decades, and this trend is only increasing. While this trend has been positive, it also presents unique challenges for manufacturing. Companies must be hyper-aware of both local and global market fluctuations and trends. In a world where the market can change seemingly overnight, the ability to quickly adapt and respond is paramount, and servicing customers can be an even bigger challenge, with a far greater number of suppliers for any given customer to access.

With increased access to global markets comes the associated volatility, adding more uncertainty than ever to the supply matrix. Manufacturers have to be more aware than ever of the costs associated with manufacturing, including labour, materials, and transportation. In recent years, transportation costs have spiked erratically, fueled by lower airline availability in a pandemic, port and shipping issues, and in more recent times, a significant increase in the price of fuel.

In an open market with no borders, often the result is an increase in pressure on manufacturers to reduce product prices. Manufacturers often find themselves needing to innovate, or in a downward spiraling race to the bottom to maintain workflow and contracts. Automation, in the form of robots, can often help adaptive companies make the best use of their capital equipment, by optimising available production hours, and allowing for capital costs including rent to be amortised over larger production volumes. Robots can help achieve these goals by without compromising on quality.

" The key to gaining a competitive edge in 2022 and beyond comes down to how quickly you can respond to rapidly shifting market pressures."

Another element significantly influencing manufacturing strategies is regulation. Regulations are constantly being updated to reflect the latest best practices, and yet in a global market, those same regulations can vary significantly, country to country. Consumers today are more environmentally conscious than ever before, creating a drive for businesses to utilise more sustainable manufacturing techniques. Sustainability is just one slice of the pie; labour and wider business regulations are also continually shifting. While there's no doubt that a more sustainable future is the way forward, some companies are finding that the integration of these regulations at a ground floor level can be challenging. Robotics presents an opportunity, where waste can be reduced at the point source of origin, by improving things such as transfer efficiency in painting operations, or optimising coolant used on a die, or additive versus subtractive manufacturing techniques. By reducing the amount of material used, the flow on effects of waste can be reduced. Whether that be paint overspray onto the surrounding area, or volatile organic carbons being exhausted into the atmosphere, a strategy of reducing waste at the point source of origin can be undertaken with automation in mind.

Market volatility is the other overriding factor in manufacturing strategy. The coronavirus pandemic applied significant pressure to supply chains and global trade as a whole. Additionally, consumers have had to rapidly change how they interact with businesses, largely switching to a digital-first model where there is a significant shift to buying online. As a result, consumer preferences have evolved far more quickly in the last few years than the preceding decade. In a volatile market, manufacturers who can adapt rapidly to these changes are more likely to thrive than their less adaptable counterparts.

Personalisation and hyper-personalisation are major trends in today's market. Companies have realised the power of taking a personalised approach to product design and marketing. Put simply, consumers are more likely to buy products that fit their specific wants and needs than something fit for the masses. However, this poses a problem for the manufacturing industry. Traditionally, manufacturing hasn't been considered flexible, customisable, and adaptable. Industrial robots excel at highly structured and repeatable tasks. However, correctly designed systems can incorporate a high degree of flexibility for small batch manufacturing. These systems are designed

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to utilise advanced and flexible software that can be quickly reprogrammed while minimising costly downtime. The robot should have the ability to switch to a new task without significant downtime – any length of time that the system needs to be shut down for the robot to be reprogrammed can't be considered adaptable. The robot should be able to self-adjust and correct for errors, without outside interference.

The key to gaining a competitive edge in 2022 and beyond comes down to how quickly you can respond to rapidly shifting market pressures. Depending on your current situation, there are several key fit for purpose elements that need to be considered, namely the ease at which you can program and reprogram the robot, and the adaptability of the robot to be repurposed. Human Machine Interface (HMI) technology has made it far simpler to program robots. Whether this be a brand specific CAD package that takes the surface topography of the part, and creates a path, or a HMI program that will run a Robotics Process Automation (RPA) script to create a path based on dimensional characteristics, the important characteristic is that it is easy and straightforward to program. If it is a complex process that requires a significant amount of downtime, and specialist skills and knowledge, its likely that the system won't be flexible and easy to use. Another consideration is the bottle necks caused by reprogramming – will this result in the manufacturing floor grinding to a halt, or can the bulk of the work be completed offline? Each of these factors can affect the adaptability and flexibility of the system.

In a competitive environment with increasing pressures from globalisation of markets, fluctuating manufacturing costs, shifting customer expectations, changing regulations, and market volatility, a flexible automation solution can help organisation's respond to these challenges. The key to success here is to be deliberate choice of robot cells that are designed with an inherent flexibility, which can be easily reprogrammed for new tasks. Global markets to continue to evolve at a rapid rate over the remainder of the 20's, as the only certainty is uncertainty. The challenge to manufacturers is to shore up their operations, and innovate before they evaporate.

MEET THE **ASA TEAM** - TODD GORDON

Todd, or Snags, as he is more affectionately known by his colleagues, is a Controls/Software Engineer with Automated Solutions Australia (ASA). Todd earned the nickname Snags at the ripe old age of 9 years old after an infamous country footy training session.

In true Aussie tradition, there was sausage sizzle bubbling away during the Thursday night training – a constant distraction for those trying to focus on killing it with 9 year old skills and crisp chatter. The junior team chatter turned to bragging rights for who could eat the most sausages in bread. Eleven sausages in bread with all the trimmings later, and the team's Ruckman out-ate his team mates and appropriately earned the title that has stuck. Legend has it that he's never tried to repeat the feat, but he does concede to liking portion sizes in America. Todd's country footy career came to an abrupt halt at 20 years old, after a questionable tackle in a game of backyard footy from fellow ASA employee Ben Illman whilst over-indulging in Australia Day festivities.

Todd's focus turned to an Electrical Engineering degree, following his childhood friend Ben Illman to Uni SA. The two had known each other from their childhood homes on the Yorke Peninsula, where they grew up in the same town. Having known each other since 7 or 8 years old, it was a natural progression for Todd to join Ben at ASA.

We took some time out of Todd's busy schedule to ask him a few questions about his time with ASA, and what he's enjoyed.

What has been your favorite robot to work with?

That's an easy question - the FANUC P-700, because of the versatility, and its adaptability to work in so many applications across paint. I do like Fanuc M-2000iA/1200 robot as well – its been used for sealer applications, to lift vehicles up and down, and is on display lifting a Corvette when you walk into FANUC America's office in Rochester Hills.

Most interesting project ?

Definitely an electric car project in the USA that I recently worked on. It was anything but standard, so it really presented a lot of challenges. I was working on paint zones and sealer zones, and had the opportunity to work with a lot of different people in the industry as they launched the new plant. Worked alongside competitors and suppliers, in delivering an outcome, made for a great challenge. I had the opportunity to work with a diverse group of people who had a lot of experience.

What's been your biggest challenge you've had to overcome on a project?

I get challenged almost every day at ASA. Learning sealer and paint controls concurrently, and learning the intricacies of both, was certainly a challenge, but one that you thoroughly enjoyed. Getting used to the work environment, and meeting the work expectations across so many different departments was certainly a challenge. The challenges are one of the things that I really love about this job.

What do you enjoy most about working at ASA? (Best part of your job?)

The opportunities to be challenged, and definitely the interactivity with the team. All the different people you get to work with, whether they be an ASA project team, or the Customer team, the opportunities to meet people are diverse. And being able to get to see the world while you're doing it! I loved seeing and hiking the Grand Canyon in between projects. Tombstone National Park and Sedona National Park were fantastic. I am looking forward to Canada and seeing Niagra Falls from the northern side will be very unique. I have seen it from the US side, so it will be great to tick off another natural wonder. I'm also looking forward to working with the fellow Australians on a Canadian project!

DELIVERING TOMORROW'S SOLUTIONS, TODAY

ASA is a privately owned, wholly Australian company specialising in the design, engineering and integration of flexible automation solutions for the Australian manufacturing sector.

Whether your application is pick and place, palletising, packaging, part transfer or assembly, the development of a robotic solution offers significant benefits in almost any industry that is operating at high levels of throughput.

- Achieve uninterrupted speed, saving valuable production time.
- Achieve maximum repeatability, reliability and accuracy
- Lower costs versus manual labour
- Eliminate health and safety risks related to repetitive, tiring or dangerous operations

Contact ASA for more information or visit our website automatedsolutions.com.au

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ASA

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