

## **Defense** *News* for Indy Operations

January 2017

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#### **PRODUCTION SYSTEM**

## Race 3: Driving for opportunity

What if you could get the materials you need, when you need them, to deliver on time to the customer each and every day?

That's the goal of our Production System Race 3. The processes being developed will reduce the time from order to delivery and eliminate waste using Lean principles surrounding receiving, storing, production and shipment. We will be creating a visual factory that uses shorter supply loops. These loops will teach us how to use the visual indicators, such as quality feedback and material demand, in evaluating our overall efficiency.

"Race 3 focuses on material control and movement. It's all about creating a Lean factory with visual signals that connect our work from the receiving dock to manufacturing cells to final assembly to the final customer shipment," said Molly Conn, Race 3 Program Lead.

Conn, along with Race 3 team members and leadership, will be working monthly in 2017 with our Sensei Rick Harris (pictured above with the microphone). He is the owner of Harris Lean Systems and widely known among U.S. manufacturing leaders for teaching his process improvement practices that were derived from the Toyota Production System.

"Race 1 and Race 2 set the stage for Race 3. We've evolved culture. We are an Operations team that works together to win each day. Now we're taking it a step forward by continuing R1 and R2, a cell-by-cell approach that evolves into R3 Value Streams," said Allan Swan, Vice President, Operations, U.S. Defense.

#### **Choosing the first Value Stream**

Before Harris visited our facilities in December, Swan and Production System Coaches researched the best option for the pilot R3 Value Stream. The team created a product matrix to examine processes and complexities involved in manufacturing and assembly. They reviewed high-level SQDCP results. The team also looked at sales per employee in Operations. Based on the data, the AE 2100 D3 came into focus to be the first Value Stream project.

The next step was to create a comprehensive Value Stream map that visually demonstrates each part (produced or supplied), how it moves,

#### Local News

#### LEADERSHIP MESSAGE

## Continuous cultural improvement



Our cover story in this month's newsletter shares the first steps our teams have taken to construct Race 3. Thank you to everyone for staying open-minded as we embark on this journey.

Rick Harris, author of *Making Materials Flow* and *Creating Continuous Flow*, will be coaching us through the next steps in our Lean journey. Race 3, which will build on Races 1 and 2, will connect our production cells with information flow to drive material flow through our Value Streams.

I have worked with Harris for a number of years. The principles he teaches aid manufacturing plants to improve their performance in all operational aspects, including quality, delivery and productivity. I have seen businesses grow by becoming more competitive when they implement Lean systems with Harris' guidance. The principles we will be implementing are consistent with and build on the Rolls-Royce Production System.

Harris will be here monthly through 2017. He will be on the shop floor with a microphone in hand. He'll be asking tough questions. If you know the answer, join the conversation. His questions and comments are aimed at helping us think differently, learn and improve. Your information and insights are important.

We must strive to improve our performance every day, and continue to build a culture that allows every single team member an opportunity to contribute to our success. I know the entire Operations team is up to the challenge!

#### **Kathy Miller**

Operations Director for Defense Aerospace

#### > CONTINUED FROM COVER

bottlenecks and other micro-level aspects. When Harris joined the team for the initial two-day session, the team presented the Value Stream detail. Using it as a guide, Harris walked the Plant 5 shop floor. Starting in receiving, he proceeded to Assembly and then moved into Manufacturing. His observations and questions were intuitive and centered on issues we know need to be improved, but go unnoticed because we walk past them daily.

#### Visual observations drive to-dos

"Harris' questions started at the dock with him asking how often fork trucks came by. And in Assembly he asked why we kit," Conn explained. "He also asked us about signage and empty subassembly squares. He's the real deal. Nothing went unnoticed, yet he has proven processes and ideas to help us fix things to win."

Each of the three work teams (see page 3 for team member details) had time with Harris to begin learning about his methods. "I will not tell the teams what to do," he said. "Instead, each team will have homework and make critical decisions from the data and information they collect. This is a learning process that we're in together."

Each team was given an approach and a to-do list that will be reviewed in January when Harris returns. Expect to see him on the shop floor each month throughout this year.

"This is an opportunity. Seize it," he said. "I want to go so fast that we're on the edge of out of control, but we're not out of control."



## Meet your Race 3 leadership team

The Race 3 team includes professionals with a variety of backgrounds and skill sets. This team is harnessing what we've learned and demonstrated in Race 1 and Race 2 to further our focus on material control and movement by Value Stream.



#### **Molly Conn** Program Lead

Conn joins Rolls-Royce and the Production System team with nearly 25 years of Lean and manufacturing experience. She led key Lean manufacturing and strategy projects for Chrysler in Kokomo. She also has worked for Hoerbiger Corporation of America and Crown Equipment Corporation focused on operations, manufacturing, maintenance, engineering and materials. She was awarded a 2013 Manufacturing Institute STEP Award and 2014 Women of the Year for South Florida's National Association of Professional Women. She was a 2016 Guiding Light nominee for Women & High Tech. Conn earned a BS and MA from Ball State University.

"We have to improve our efficiencies to be competitive. Race 3 brings us the processes to springboard into the next phase of our transformation. The commitment and course work behind Race 1 and Race 2 prepare us to embrace the opportunities Race 3 brings. It all works together. I say, 'Bring it!' There is nothing this team can't do."



## **Jason Jackson** *Plan for Every Part Database and Scheduling Team Leader*

Jackson has extensive experience in global Rolls-Royce operations and supply chain management, working as Buyer, Material Resource Planning Controller, Quality Engineer and Production Leader. He is a graduate of The Citadel and served in Afghanistan as a logistics officer and in Operation Enduring Freedom. Jackson is an adjunct professor at the Kelley School of Business at IUPUI.

"Ongoing continuous improvement efforts and building a strong collaboration between our management and workforce is important. Indiana is a *State that Works*. I believe anything we can do at Rolls-Royce to bring work into our Hoosier facilities and remain competitive is vital to our success and legacy. Race 3 is the next phase in our continuous improvement journey, and I'm proud to be leading a Race 3 work team."



**Jay Baker** *Manufacturing Team Leader* 

Baker has worked at Rolls-Royce for 15 years, in roles that include business improvement and continuous improvement. He earned a BS in Industrial Engineering from Purdue University and an MBA from Butler University. He is a Six Sigma Master Black Belt.

"Race 3 is going to drive us to become a more efficient business that consistently delivers to the customer. I also anticipate this to generate new business. As we work smarter, we'll realize an improved cost structure focused in and around manufacturing and our equipment available. We will develop standard work that allows us to consistently meet the load from shift to shift."



Mark Linville
Material Movement Leader

Linville has nearly 30 years of experience at Roll-Royce Indianapolis. He began his career as an Analytical Chemist and has worked in various roles that have taken him from the shop floor to logistics: Manufacturing Supervisor/Manager, ERP Super User, Purchasing Logistics Manager, Americas Head of Global Physical Logistics, and Planning and Control Executive for Global Defense. Linville was born and raised in South Bend and graduated from DePauw University in Greencastle.

"People in manufacturing have a natural drive and passion to be successful. With the Race 3 processes we will be provided, we'll get to the level of detail we need to make decisions that will drive our success and allow us to win each day."



#### Local News



The Manufacturing Systems team includes (from left to right) Deron Smith, Automation and Robotics Lead; Torrence Gibson, MES Super User; Derek Wright, Advanced Planning Lead; Matt Petgen, CAPP Super User; Terri Arnold, CAPP Super User; Mike Coulter, Manufacturing Systems Manager; Baye Wilson, MES Super User; Josh Simons, Manufacturing Execution and Intelligence Lead; and Deepak Ramakrishnan, Shop Floor Systems.

Not pictured: Dan Barlow, Chief of Manufacturing Systems; Craig Rollins, Simulation; and Les VanMeter, Virtual Factory Lead.

## Electronic tracking system taking shape

In early 2016, we launched a four-year, \$350 million Civil business change program called Product Process Data Integration (PPDI). The main aim was to simplify the way that business configured and assembled Engines using 15 key principles, and then transfer this approach to other business sectors, such as Defense. We recognized over 340 systems globally would be impacted by this change.

The first phase of the project is to retire legacy planning and execution systems. For Indianapolis this means deploying Computer-Aided Process Planning (CAPP) and Manufacturing Execution System (MES) tools in all Manufacturing and Assembly facilities by mid-2018. Not only will this simplify our work and provide more useful data for us to do our jobs, it will save nearly \$3 million per year in Indianapolis alone.

Leading this change in Defense is Dan Barlow, Chief of Manufacturing Systems, who is based in the U.K. Locally, Manufacturing Systems Manager Mike Coulter is on point. Both remain mindful of the critical timing of this new technology launch for Indianapolis.

"We are aware of the amount of change that is currently happening here and how the introduction of another project could be perceived and adopted," said Barlow. "But we also know that the physically improved facilities created through the Project Condor investment deserve a new brain, and that brain is an electronic execution system for engine parts."

#### Program benefits

The improvements will provide numerous benefits including:

- Allowing Operators to quickly see updated instructions.
- Provide data that our Operations team can use to identify bottlenecks in the process, thereby increasing capacity and giving better flow through our facilities.
- Removing the invisible cost (waste) of moving paperwork from one area to another.

"Instead of waiting for answers as paperwork is routed, the new technology/tools will quickly provide Operators with actionable data, such as where a specific part is in flow, enabling us to make adjustments as needed," said Barlow.

#### New tools of the trade and training

The future tools will be smart devices, such as computer tablets. Coulter indicated that internal customers (e.g., Manufacturing Engineers, key Operator users) will receive training to make this transition as smooth as possible. The key will be for people to speak up when they need help.

#### How you can get involved

The Manufacturing Systems team is developing a sample manufacturing cell in the new Rolls-Royce Development Center that will allow customers to try out the various technologies (i.e. sample monitors, docking stations, computer tablets, etc.) and to provide feedback. This sample cell is expected to be completed early this year.

Coulter said, "We're also seeking digital champions, or Operators from each business area who will step up to be trial or early users of CAPP and other new software. They will then serve as a first line of support to others."

#### Short-term pain for long-term gain

Barlow said he and his team are leaning into the project. "We continue to refine our plans as we learn new information. In the short-term, you can expect to see more changes in the deployment strategy. Regardless, he believes the benefits we will realize from this project will far outweigh any short-term pain from learning and adapting.

"It can be an exciting time if we all keep a curious mindset, ask for help when needed, and keep a long-term perspective. We will get there together!"  $\blacktriangleleft$ 

For general information about Manufacturing Systems, contact a team member or email INndyMESystems@rolls-royce.com.

To volunteer to be a new technology tester, contact **Mike Coulter**, (317) 840-1845.

## How does Manufacturing Systems help your work?

Manufacturing Systems improves how our work gets done. To do this, the team works closely with our IT function to execute its projects and minimize the complexity of IT. Manufacturing Systems is charged with:

Virtual Factory

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Understanding how things work using simulation to validate and optimize how we invest time and money.

Advanced Planning



Generating accurate, rich instructions efficiently for our operations.

Manufacturing Execution and Intelligence



Delivering instructions to team members and machine, and improving performance through insight.

Automation and Robotics



Harnessing the power of technology to complete tasks.

## Update: Rolls-Royce T56 Series 3.5 engine upgrade

The first U.S. Air Force C-130H aircraft to be fully equipped with our T56 Series 3.5 engine upgrade has completed its inaugural flight The T56 is demonstrating significant improvement in fuel efficiency, lower operating temperatures and improved highaltitude performance.

The C-130H aircraft flown by the Wyoming Air National Guard (ANG) completed its first flight with four T56 Series 3.5 engines at the 153rd Airlift Wing at Cheyenne, Wyo., Regional Airport.

Preliminary flight data showed fuel efficiency improved by approximately 12 percent and turbine temperatures were more than 100 degrees Celsius lower. Reduced turbine temperatures increase parts life and lower operating costs significantly.

The C-130H aircraft flown by the Wyoming Air National Guard (ANG) completed its first flight with four T56 Series 3.5 engines at the 153rd Airlift Wing at Cheyenne, WY, Regional Airport.

Phil Burkholder, President Defense North America, said, "We congratulate the U.S. Air Force and the Wyoming Air National Guard (ANG) for achieving this significant milestone—the first flight of a C-130H aircraft equipped with the Rolls-Royce T56 Series 3.5 engine upgrade. Rolls-Royce developed the upgrade to enhance mission capability. By achieving fuel efficiency improvements and lower operating temperatures, the Series 3.5 upgrade delivers as promised."

Lt. Gen. L. Scott Rice, ANG Director, also lauded the engine enhancements. "The Series 3.5 engine upgrade certainly increased the performance on time and fuel flow and altitude," he said. "It's a great improvement as well for the capability and reliability of the engine from a maintenance standpoint. It was really impressive."

The demonstration aircraft, assigned to the Wyoming ANG, will be used in an operational utility evaluation to inform the decision to push the Series 3.5 engines to the rest of the ANG's C-130H fleet.

The Series 3.5 technology can be added during regular overhauls and requires no changes to the aircraft or controls. The upgrade is already demonstrating success in Hurricane Hunter WP-3D aircraft of the U.S. National Oceanic and Atmospheric Administration. Used here, it has completed more than 3,000 engine flight hours of operation. And it continues demonstrating fuel savings and other performance benefits similar to that being seen now by the U.S. Air Force.

The Series 3.5 kit is certified and operating in C-130 and P-3 aircraft. To meet demand, our Indianapolis operations have enhanced production capability, and the kit is now available on the global market.

## Create your own lean machine ways to shape up in 2017 Tonfurfurfurfurfurfurfurfurfurf

If your New Year's resolution involves working on your personal "lean system" and you're ready to rock a new you, here are some simple tips for slimming down and taking charge of your fitness:

#### Forget the fads

Trendy diets might yield quick results, but the weight loss won't last. Start slow instead and choose routines you can stick with. Try cutting 500 calories more than you normally eat every day for a week, and you should drop one or two pounds a week



#### Skip salty, starchy foods

Cutting back on these foods help you reduce fluid retention. So you might see up to five pounds of fluid loss fairly quickly. No, it isn't fat loss, but feeling and looking less bloated is a good motivator to stay on track.



#### Watch your step

Invest in a activity tracker to keep up with your steps. You'll be surprised how many miles you log daily. And you'll likely find yourself trying to increase your personal best. It's recommended everyone get 150 minutes of moderate exercise weekly, which translates to 30 minutes of movement a day, five days a week. Three 10-minute walks a day work just as well. It doesn't matter how you do it; just move.

#### Water works

Drink at least eight ounces six times daily. If that's more than you're used to drinking, pace yourself. Drink a cup first thing in the morning before brushing your teeth, another one a half-hour before lunch, and one in the afternoon when you're tempted to grab a soft drink from the vending machine. Promise yourself at night that you'll drink one more cup tomorrow than you did today, until you reach your goal.

#### Soothe your sweet tooth

If you crave desserts, don't deprive yourself. But don't keep them in your home. Remove the temptation and ease to please. If chocolate chip cookies or peanut butter pie are calling you, get one serving and make it more of an outing (and hassle) to satisfy your hankering. A trip to a dessert counter is OK every once in a while. Just don't leave with a take-out sack.

#### Rethink the sink

Eating while standing over the kitchen sink, by the counter or in front of the fridge is far from fine dining—or positive weight management. Graze no more. When you eat, do so only on a plate and seated at a table. (And not on a couch while watching TV.) Sitting at a table makes you mindful of what and how much food you're consuming.



#### *Put down the fork*

Research suggests that when you begin eating, it takes your brain about 20 minutes to register you're no longer hungry. So set your fork down between every few bites to intentionally slow down. This will help you listen to your body when it tells you you're full, preventing you from overeating.



#### Spiff up skimpy salads

We've all heard how piling a plate of leafy greens with salad dressing, cheese and bacon bits defeats a salad's virtuous purpose. Still, nutritionists say it is beneficial to add two tablespoons of low-fat dressing and about three ounces of chicken, tuna or hard-boiled egg. The protein of the meat and small amount of fat from the dressing will keep you feeling full longer.

These are only a handful of ideas to help get you started. In next month's Defense News for Indy Operations, we'll give you the skinny on how you can step up to better health on one of the new Plant 5 indoor walking paths. ◀ Sources: The Centers for Disease Control and Prevention, WebMD, Weight Watchers

## Check it out— benefits and your gym membership. Your gym membership fees might be covered, or at least discounted, through one of our employee fitness reimbursement programs. Call for details on the specific savings available. Salaried employees: Benefits Service Center (317) 230-7777 Hourly employees: Tuition assistance (317) 230-6178 Defense News | January 2017

#### Personal Profile



## **Tony Lee**

## Prioritizing, streamlining and solving problems

After more than 20 years and at least 10 different roles within Rolls-Royce, Tony Lee knows where to go to get things done. "I get dozens of calls each day for our department, plus other general questions," he said. "People seem to use me as a resource for all kinds of information."

Lee started working in Heat Treat 21 years ago, and since then he has gained experience in areas including Special Processes, Supply Chain Management and Maintenance. He currently serves as Production Leader for the Machine Shop and Central Crib, as well as Project Manager for Manufacturing Services. We recently asked Lee to tell us more about his work here at Rolls-Royce and his roles outside the plant when he is off the clock.

#### "When tasks are set before me, I know how to go about them and what I need to do."

— Tony Lee, Production Leader for the Machine Shop and Central Crib

### What's a typical shift here look like for you?

I do a wide range of things. One big thing is to help manage and prioritize Machine Shop requests. Requests come from internal customers, and then we prioritize them according to urgency. We see everything—fabricating lifting devices, engine carts, tables whatever production needs to enhance equipment or keep it running. I also support the Machine Tool and Manufacturing guys who might need something made quickly to get a piece of equipment back on line. And I do some special projects. For example, I'm now working to streamline Central Crib to get the area ready for post-Condor, and was invited to work with the Race 3 Manufacturing work team.

### What do you like most about your job?

This job suits me for a few reasons. I'm a task-oriented person. When tasks are set before me, I know how to go about them and what I need to do. Also, with this role, I'm not nailed down to one specific thing. It's a variety. Plus, I love a challenge, and the timeframes for this job are definitely challenging.

### As we kick off the New Year, do you have any resolutions?

I guess my goal is to continue on my current health path and not deviate from it. I've been on a serious health kick for the last two years and have lost more than 65 pounds. I'm a 23-year diabetic, and while I haven't had a lot of complications, as I've gotten older, I've made up my mind to take better care of myself so I can keep up with my grandkids.

## What's your best advice for people trying to get healthy?

Drink water. I've learned to drink half of my body weight in ounces of water each day. It helps to maintain weight, flush your system and ward off all sorts of illness. I also try to stay away from bad, high-carb foods.

### Can you tell a bit about your family?

I have a great family. I've been married to my beautiful wife for 34 years, and we have five children (two girls and three boys). I also have five grandchildren (one deceased).

### What is something coworkers might not know about you?

I love music, church and sports. I sing and my kids are musical as well. We sing and are very active in our church, which my father founded 55 years ago. He's still pastor there, and I'm now chairman of the deacon board.

I also love sports and have been especially into golf lately. I play in the Rolls-Royce annual golf outing almost every year. It's a lot of fun.

#### What's next for you?

I have to keep moving and learning. I'm always looking for the next thing. Right now I'm contemplating going for my doctorate in global leadership. At age 75, my mother went to college and achieved her bachelor's degree in religious studies. She's definitely been a source of inspiration for me.



Tony Lee enjoys family time with his wife of 34 years and their children and grandchildren.

### **Indy**Anniversaries

#### **January**

#### 30 Years

Patrick Sweeney

#### 25 Years

Clayton Cooley Aaron Gick Darryl Kunkel James Rardin Karl Schmutte

#### 20 Years

Chrysanthi Adams Michael Elliott Richard Freeman Pamela Hyde Christopher Powell PJ Steffen Michael Stinson Todd Taylor Jason Wood John Yount

#### 10 Years

Andrew Burian Christopher Deaton Darrell Goodwin Zechariah Green Paul Jones Sara Karaffa J. Brice McPherson Roy Mills Chirag Patel Robert Ress Debbora Slagle Xuekun Sun

#### **5 Years**

Amy Betzold Alex Buschkoetter Jean-Luc Cattet Todd Dunn Mark Goscinsky Dylan Hartman Daniel Hassan Robert Janesheski Richard Keller Sara Knoll Andrew McClatchev Dan Phelps Jas'Minique Potter Andrew Ritchey Thomas Rothrock Craig Rudzinski Logan Schafer Benjamin Schroeder Odlanier Silva

Robert Somaduroff Matthew Spartz Jeremiah Ubelhor Joshua Ware Anthony Welch David Whiteley Paul Witzke

## Rolls-Royce Heritage Trust Museum to reopen this month!

On Jan. 24, the Rolls-Royce Heritage Trust
Allison Branch will reopen at its new
location on the first floor of the
Rolls-Royce Meridian Center
(450 S. Meridian St.). Employees will be
able to visit and escort guests through
the museum from 8 a.m. to 4 p.m.
Monday through Friday. When visiting,
please remember to bring your
Rolls-Royce badge. Hours for the general
public will be announced soon.

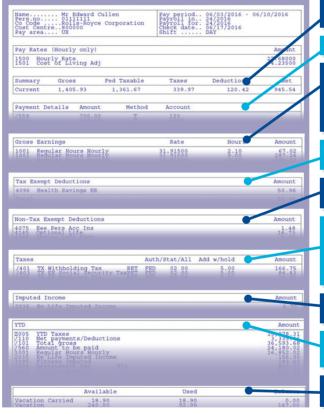




# View your pay stub electronically on Workday!

Through Workday, you can easily check your pay information before it hits your bank account. You can download the Workday app from Google Play for Android or the App Store for iOS (Apple devices) to get direct access to your information anytime, anywhere. You can use either a company-provided device or your own. To access your account information, you must already have an established Workday user ID, which is the same as your employee ID, and a password.

For more details or password support, contact the Shared Services Center at (317) 230-7777 or Jamie Atwell at (317) 230-8302.



Here you'll find the totals for gross, taxable wages, deductions, taxes and net pay.

These are your direct deposit allocations.

Your payroll earnings are in this section.

"RET" indicates earnings calculated from a prior pay
period. A rate will be shown only if the line is
calculated by an hourly amount. Salaried employees
will not see a rate here for their base pay.

Pre-tax deductions are shown here. These are subtracted from your gross income before taxes are calculated.

This section shows the deductions taken after the taxes are calculated.

Here are the taxes that are calculated and submitted to the authorities on your behalf. The section between the authority and the amount shows your W-4 status. (01= Single, 02= Married, along with the allowances claimed and any voluntary extra amount.)

Imputed income that's considered taxable earnings, but isn't added to your net pay, is noted here.

Your year-to-date amounts for all earnings, deductions, imputed income and taxes processed are in this section.

You'll find your PTO/vacation balances and other accountable time-off quota here.



## **Rolls-Royce**

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