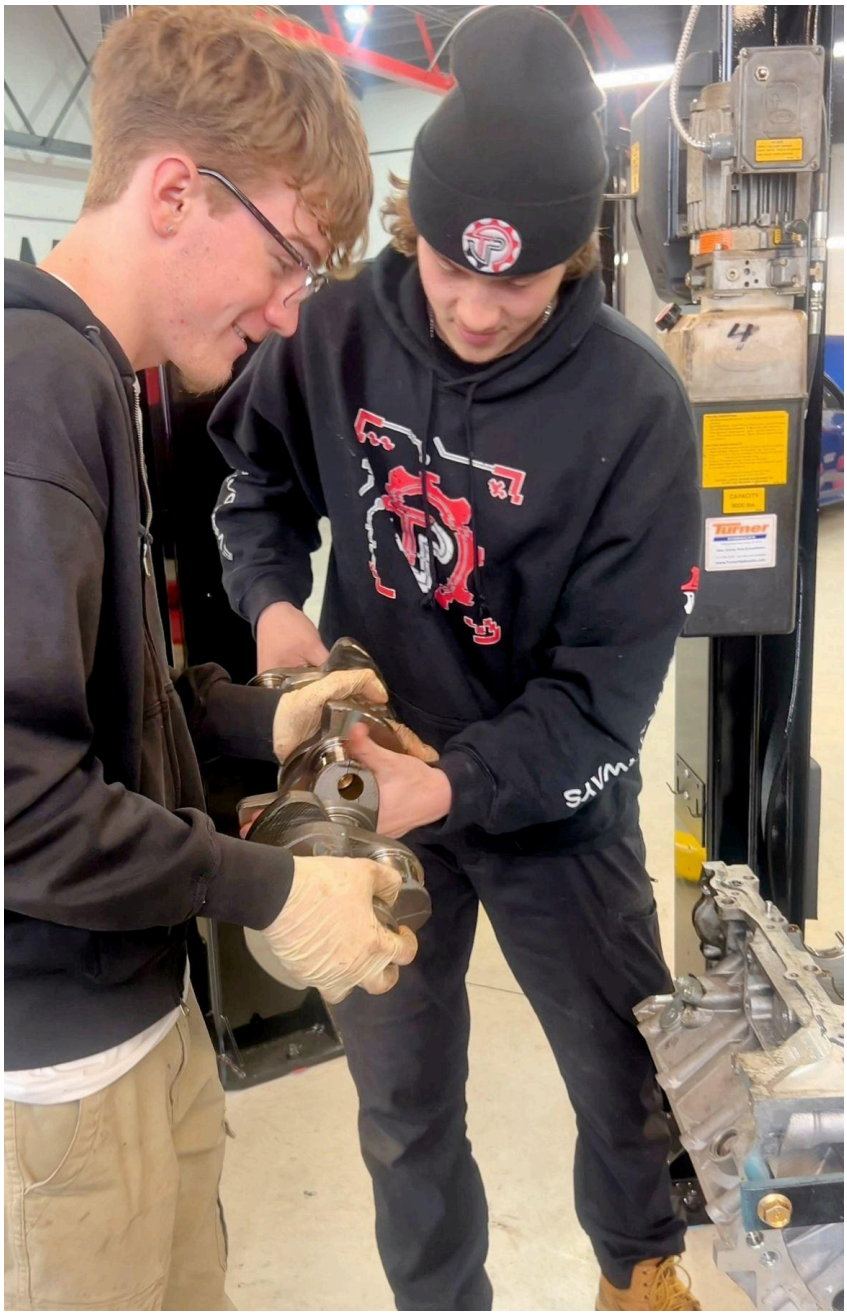
TECH PATHWAYS

Under the Hood Journal

November 2025

Inside the Engine: Where Precision Matters



Our pre-apprentices are kicking off Unit 2: Engine Repair, starting with the fundamentals of how an internal combustion engine actually works. From the four-stroke cycle to mechanical and ignition timing, students are getting an up-close look at how every moving part plays its role in creating power.

The real eye-opener comes when they tear down an engine and see the incredibly tight tolerances inside. A crankshaft, for example, operates with roughly **.002 inches** of clearance. Only about twice the thickness of a human hair. Too much space and the engine loses oil pressure. Too little space, friction builds, creating heat, destroying the Engine fast. Seeing this level of precision firsthand helps students understand just how careful and detail-minded a great technician must be.

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Keeping Their Eyes on the Bullseye

Our pre-apprentices have officially wrapped up Unit 1 with one of the most meaningful projects of the year: creating a visual "bullseye" reminder of the championship they're chasing. Throughout this unit, students learned how to build a Championship Statement, set goals, and map out small, strategic daily action steps or "drops of gold" that move them forward over time.

To bring this to life, each student designed a personalized board filled with images, words, and goal/action plans that reflect who they want to become and why their work matters. These visuals turn abstract ideas into something they can see, touch, and commit to every day. These documents will be laminated, so the students can place them in a spot they'll encounter often — a toolbox lid, a bedroom wall, a locker — so their purpose stays in front of them, not behind them.

In a fast-paced shop environment, it's easy to lose sight of the big picture. These bullseye boards give our students a clear target and a reminder that championships are built through small investments made consistently in the right direction.

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What Our Current Apprentices Are Up To

There is no job too BIG or too small for our Apprentices, as evidenced by Levi in this photo! Levi is replacing the transmission in this F-150, a daunting task to some but not for our students. Of course he can still lean on his Mentor Technician for help along the way but, all in all, Levi is getting this incredible experience all within his first year as an Apprentice!

Leaders are Readers

When a Pre-Apprentice makes the transition to Apprentice, their time in the classroom isn't necessarily over- specifically their time in the Everyday Champions program. This month, the Apprentices chose a book to collectively read: Training Camp, by Jon Gordon, that they can come together and discuss over the next couple months. Training Camp shows how the best performers, whether in business or sports, all share the same qualities which helped them get to the top of their game. What a great read for young employees starting their careers!

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Exciting Upcoming Dates

- **At-Home Study Days:** November 24 & 25; December 23
- **Christmas Fun Day:** December 22
- **Tech Pathways Closed:** November 26-28; December 1; December 24-31; January 1-2

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For any questions or further information, please contact us at futureofauto@hanoverautoteam.com.

We look forward to another fantastic year of learning and growth together!