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Up next on ATE-TV, setting your sights on a career as a laser systems technician.

Laser systems involve many components, including optical, electrical, computer and cooling elements. Trouble-shooting these systems requires knowledge and experience in all of these areas. Technicians must understand how laser systems work in order to troubleshoot and maintain them.

When you mention lasers and then you see a laser pointer people get disappointed. When you mention lasers and I show you what I work with, people get very excited. You're taking light and you're focusing it and calumniating it so that it's all hitting at the same time.

My name is Michael Milisen. I work for TRUMPF, and we build lasers. My position here is a technical troubleshooter, and what I do is basically when the process doesn't go right, they call me in to figure out why. And the troubleshooting process with these lasers is very complicated, so it makes sense to have one person specialize in just fixing them.

Right now I'm checking out the cooling circuit. At some point during the day I get a phone call, and when I get that phone call that means I have to go fix something. That can mean anything from the plug is in the wrong position to bad wiring to bad optics, bad lasing medium. There are many things that can go wrong in this complicated process, and they've picked me to be the one to fix it.

And it looks like we're in spec here.

Everything is looking great; yeah, this is fantastic.

What TRUMPF does is we take the lasers that we make in this building, and we put them onto a machine that has motion units and controls, computers, a lot of exciting technology and integrates the laser into this machine so you can put a piece of sheet metal up to half an inch thick, five-eighths inch thick, depending on the metal, and cut through it like butter.

What we have here is our pump unit. We have an array of diodes in the back. These all get calumniated in a light mixer and sent into the cavity right here. Within the cavity we have a series of mirrors that actually bounce the pump light onto the end to the tipof the disk which is right here. It's about the size of a dime but thinner. The pump light is absorbed into the disk and then the disk from within it due to the doping agents, will emit laser light, and the laser actually resonates right here, it comes out, hits these two mirrors to the beam exit.

We have a lot of theories around how light behaves and what happens with it, but there's still also a lot of mystery surrounding it, and that's very interesting to me.

All right, what I'm going to do here is actually I'm going to install the test lens.

I've worked for TRUMPF for two and a half years. Three weeks after I graduated from college was my start date.

Invisible wave lengths can be captured with a lot of cameras these days, so what we have is a basic web cam on our laser, and this web cam actually with the proper filtering, will pick up the pump light and it will pick up the laser light and it will actually give us different shades for each and we can actually align the laser onto the disk using these spot pictures.

It brings a lot of ease to the job and it takes a lot of guesswork out of aligning the laser. If I know what to do from experience, I fix it. If I need help, I can call up my supervisors or I can also go to the development teams in R&D and get answers from the scientists that actually built the laser and designed it.

So we're cleaning up the basic lab, pointing at this and then we're looking at this fluctuation and the startup peaks.

Do you think it looks good?

That's what we're taking.

We're taking the laser.

I never know what's going to happen when I come in, but I know it's going to be different than the last day.

I love it.

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Thanks for watching.