



Congratulations!

Are you about to put your boots on and make a field study? This pdf file is just an extract from the book “Smart Operator, the guide to High Performance Remote Controls”. If you wish to learn more about the whole process, order the book.



Checklist: What to look for and what to ask during a field study.

- ✓ How does the operator wear the remote? (You can most probably see that).
- ✓ Ask if it is comfortable.
- ✓ As the day goes by try to see how it is handled on the body, does he/she try to get it out of the way?
- ✓ Maybe you brought a few spare belts/hooks/harnesses, let them try these if they have something that does not work. Leave it with them as a thank you if you can.

What are the operational phases?

We could call them chapters. For instance, the drill rig might have very distinct operating steps like:

1. Moving the drill
2. Lifting pipes into place
3. Loading the drill
4. Moving the drill in very small increments
5. Collaring
6. Mantle the hole (TIG weld the mantle tubes)
7. Wet-drilling and adding tubes on the way
8. When the right depth is reached, it is time...
9. To lift all the rods, unscrew them and stow them in a cassette

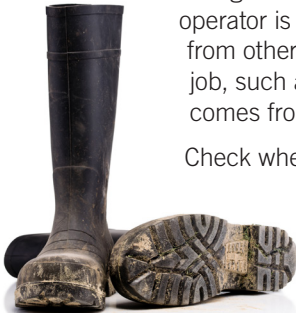
If you are a system integrator you have a great opportunity to make improvements with autonomous or semi-autonomous operations along the way.

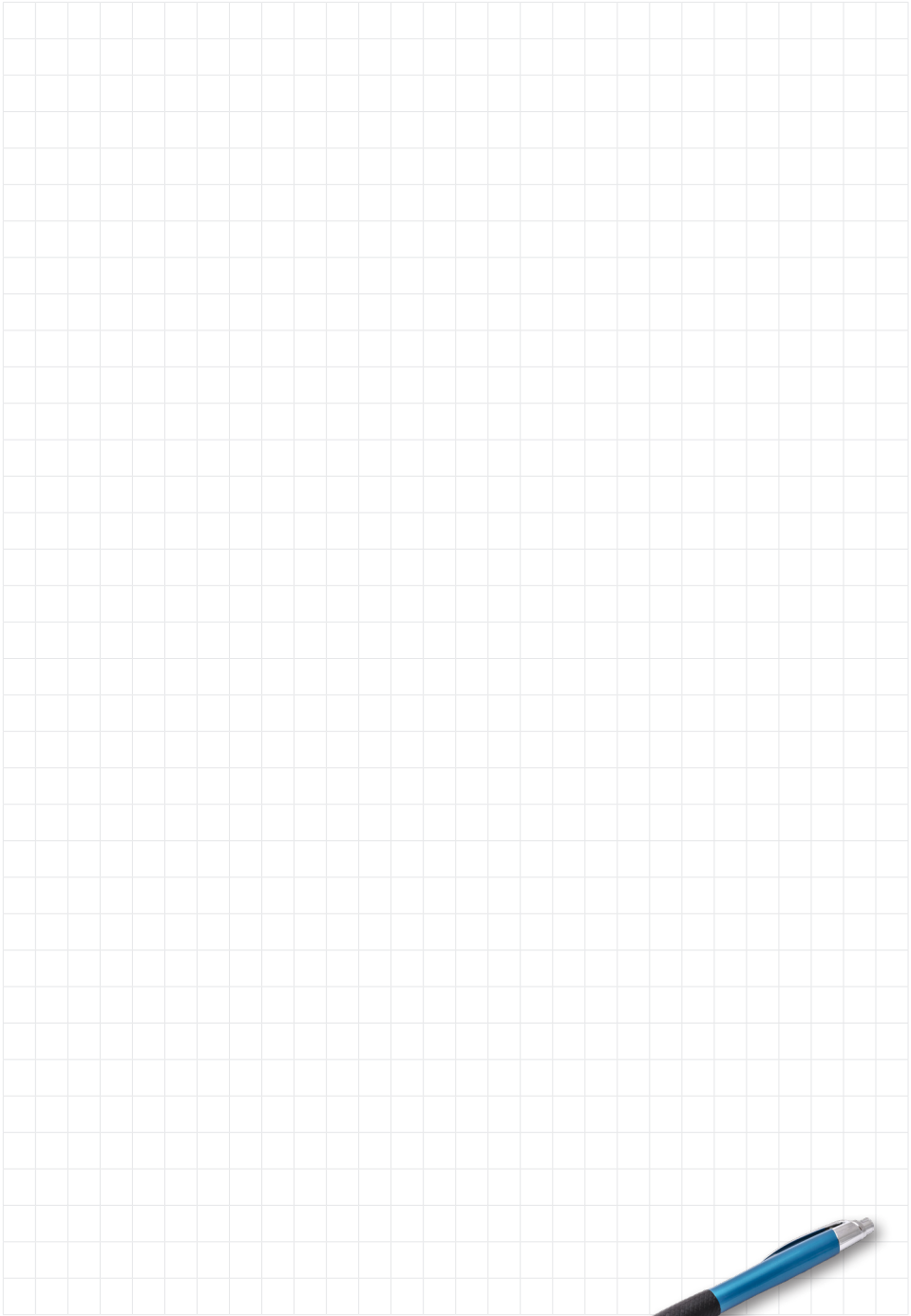
Check the information flow the operator is experiencing.

You might think it is all about the screen or LED lights, but the operator is getting feedback from sound, machine vibrations or from other sources like people, lights etc. If we look at another job, such as a concrete pump operator, the feedback mostly comes from stressed workers and various bosses.

Check where the operator is looking for information. For instance, does an operation demand visual control while the operator needs data from the screen?

Watch the operator's eye movements.





Check the ergonomics

- ✓ Are there movements that are almost acrobatic?
- ✓ Is one hand enough for the remote when something has to be pulled, pushed, or lifted?
- ✓ Do they have to switch hands for something that could have been done with one hand?
- ✓ Ask if you can stand nearby and watch the remote so you can see how the hands are handling the controls.

When there is a break, take the opportunity to check what you have seen.

- ✓ “I noticed you had to watch the guy with the hose as he was getting in your way ...”
- ✓ “Is it hard to see what’s going on when you lift the ...”
- ✓ “You really had to be accurate to get in there!”

What to ask for.

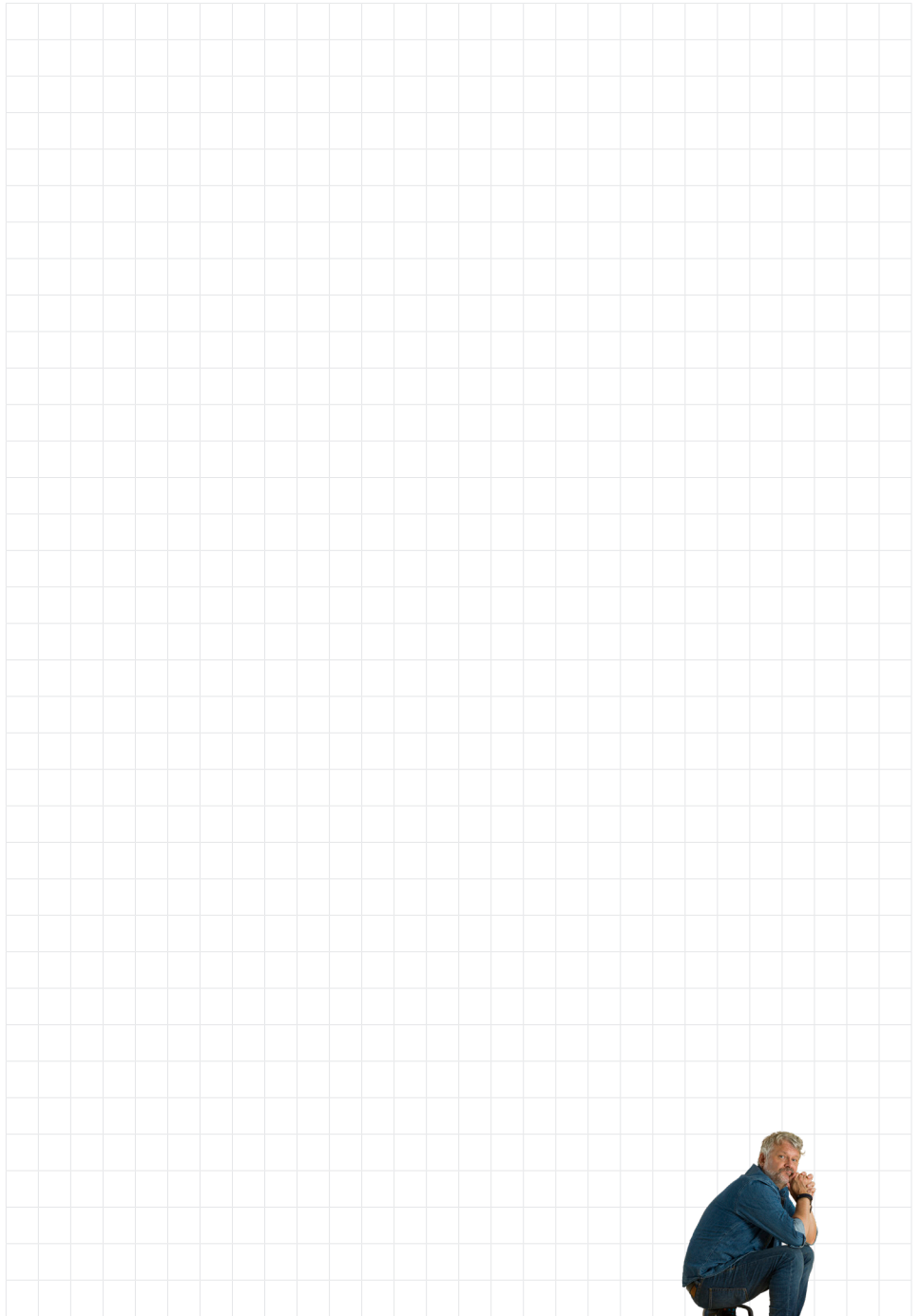
Before we start to investigate the questions, we need to understand that most people cannot tell you what they are missing because what they see is what they think is the reality. Your observations are far more important because you can see the person and the process from the outside. You don’t need to be a genius for that, just have a critical and curious state of mind.

When I followed a guy with a remote, he suddenly took a garage door opener out of his pocket and started to adjust the movement of the concrete drum. He had an industrial remote but it lacked this function, and he needed to get into the truck to change the rotation speed. So, he came up with his own solution, not only that, he was also importing 200 more for his fellow operators! That would most probably not have been an answer to any of my questions, but I could follow up and ask why he had this solution. And again, I did not criticize him for what I saw and what he told me.




Here is another operator driving a concrete truck that you can follow (1:48)





Open-ended questions
to ask when suitable.





You can often learn more by asking the operator to show you how he/she experiences the remote and the process offsite, if possible.

To give an example, I was shadowing another concrete truck operator for a whole day, and as he was working the remote-controlled feeder, he tried to express his frustration with the design of the remote. I made sure to express my eagerness to know more, but felt that there were too many stress factors to follow up on site. After he washed the truck at the end of the day I just asked humbly if he had any time to demonstrate exactly what he thought was wrong with the controls. He was very enthusiastic about this suggestion and parked on an empty spot where he could get the feeder out, and started to explain what he felt made it a bad controller. Some of the opinions expressed had more to do with the speed and power of the hydraulic system, but no way I was going to interrupt, because if I had done that we would have missed the points that were relevant.

Make sure you listen to the answers and follow up; the worst interviewer is the one who just follows a script. If you find all these things hard to start with, do a round of interviews at your office. The answers might surprise you.

Open-ended questions

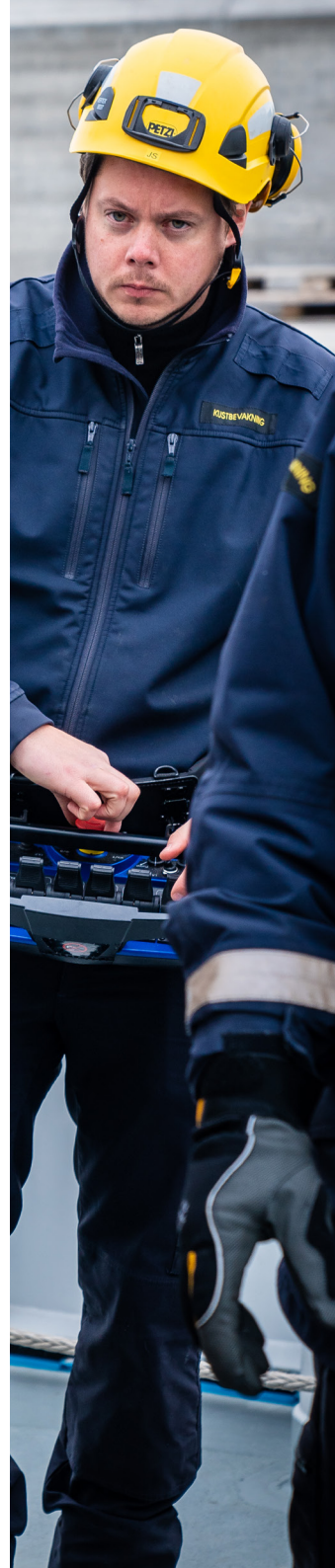
- ☑ What did he/she do before this job (they might have experience of using another remote for instance; if so, compare)
- ☑ What I see/saw today, is this a typical day? Are there extremes?
- ☑ What do you think of the job?
Working environment?
Friendship/Culture?
- ☑ What are the good and bad aspects of the job (overall)?
- ☑ If you were the boss, what is the first thing you would change?
- ☑ How are the results of the job measured?
- ☑ What do you think of the equipment, the machinery as a whole? The work flow. Could it be improved?
- ☑ Is there anything that makes you hesitant or nervous?
In other words, do you feel confident?
If not, can you describe why?
If yes, was it always this way or has anything changed?
- ☑ Let's talk about the remote (if they have one, if not, you have to ask "what if...?").
- ☑ If we were to start over, what would you say?

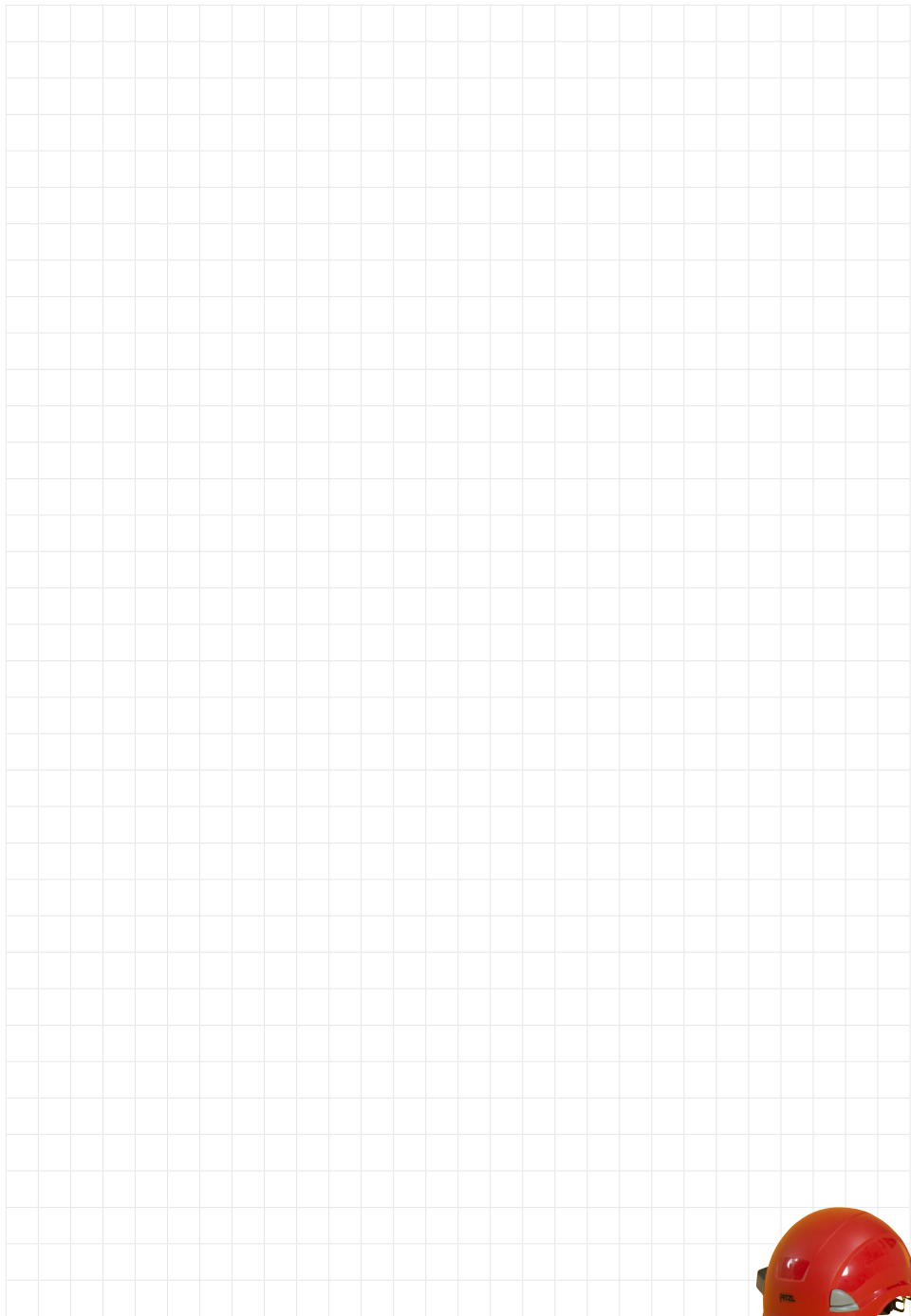
If they want to change something make sure to ask why.

Again, do not expect smart answers to the questions, because humans with a normal level of self-confidence believe they are not so smart if they need a steep learning curve; they rarely blame the equipment.

So, another question that might work is:

- ☑ How long did it take you to learn the remote?
- ☑ Were there any details that took longer?
- ☑ Why?
- ☑ Who taught you the job?
- ☑ How did that go?





If there is a screen that provides information, make sure to find out what they look for and what they do not care about. What information would they like to have? Do they understand the figures?

For instance if the pressure is shown as 98 bar on the screen, ask the operator if he/she knows what a bar is and what the operating limit is. You will find out later that there is so much to be improved on the information side, usually much more than the layout of the joysticks and switches.

When you look at the symbols and labels, has anybody used Dymo tape to provide clarification on the remote? Or has anybody used a permanent marker to write something on the remote? Do not forget to look at the machinery itself or inside cabins. Any post-it notes, or other handwritten remarks made for the operator? These are all clues that tell you something is missing.

Remember this when you move on to the chapter about symbols and labels.

As you leave the operator, thank her/him, and make sure you have their email so you can follow up. Ask if you can get back to them. You will be surprised how often you will get back to that person as you fight for your design in the project. Be prepared to pay the company that hires him/her for a workshop session you might want to hold in your office. The operators are your crown witnesses.

