

Professional discussion (Distinction)

Transcript and apprentice guidance

Below is an example from an end-point assessment (EPA) professional discussion. The example shows *distinction* answers to the questions asked by the independent end-point assessor (IEPA) so that you can see the level of detail needed to meet the *distinction* assessment criteria.

Before starting the discussion, the IEPA confirms the apprentice's identity and goes over the following.

- The criteria to be covered
- The fact the discussion is to be recorded/written down
- The maximum time the discussion will take (60–65 minutes – 20 minutes on behaviours and 40 minutes on the showcase portfolio)
- That the IEPA will introduce themselves
- That the IEPA will ask the apprentice to introduce themselves by stating their name and that they agreed to the discussion being recorded
- That supporting evidence can be referred to during the discussion by both parties, eg the showcase portfolio

The IEPA also ensures that they and the apprentice have a drink available and that they are not interrupted during the discussion.

Remember, the information contained in your showcase portfolio will *not* be judged by the IEPA, but it will be used to help guide you during the professional discussion. This will help the IEPA to identify your understanding of the knowledge, skills and behaviours that you have developed throughout your apprenticeship.

You can use examples from your showcase portfolio to provide evidence during your discussion, supporting your answers and using examples from your workplace. This might include:

- projects or work-based vehicle jobs
- observation evidence
- reflective accounts
- witness testimony.

Your showcase portfolio evidence must clearly be marked on the uploaded evidence folders, such as:

- behaviours in accordance with the assessment plan
- records of annual reviews
- service or inspection with a fault
- engine systems
- chassis systems
- transmission systems
- electrical systems.

Question	Response
Part 1 Behaviours section	
IEPA question	Overview of apprentice's answers
<p>IEPA: Can you give me an overview of your job role please?</p>	<p>Apprentice: I am an apprentice light vehicle technician and I work on anything that I can, to be honest. I really enjoy my job; it's so diverse. No two days are the same. That is why I enjoy going into work so much; I love learning.</p>
<p>IEPA: Thanks. Could you explain what sort of jobs you get involved in at work?</p>	<p>Apprentice: Mainly servicing and just kind of the day-to-day stuff. But I do get involved a lot in gearbox rebuilds, cam belts and electrical diagnosis. The complex jobs are the best. The more that you do the more you learn, and experience is vital to be a good diagnostic technician.</p>
<p>IEPA: Can you talk me through the people you deal with daily, how you communicate with them, and how they help you achieve your daily target?</p>	<p>Apprentice: I deal with a lot of my fellow technicians and my workshop controller, who provides me with the jobs that I'm carrying out. Sometimes, I need to speak to the service advisors. This is usually if I require more information, or my workshop controller is not present. Occasionally, I speak to my manager as they tend to walk around a lot and just see how things are going, so I communicate with them as well. I always speak to everyone politely and with respect, whoever they might be: colleague, manager or customer.</p>

<p>IEPA: Do you have a target that you must meet each day?</p> <p>IEPA: Do you have any people that you work with that may affect your bonus or your productivity?</p>	<p>Apprentice: Yes, so we have an efficiency, productivity target. Our manager likes us to be 100% efficient so that is usually what we aim for. I like to prove that I am efficient and when I complete my apprenticeship and I gain even more experience my efficiency will increase too. This will then allow me to earn a bonus.</p> <p>Apprentice: There's a couple of the guys who are very chatty and they just want to have a laugh, so they'll often try and talk to me. But I cannot talk while I work or if I'm too busy and I want to get the job done, so I can talk to them on my break. I like to be focused on getting the task done to the highest standard.</p>
<p>IEPA: Can you give me an instance of how you've routinely worked with others to achieve a target?</p>	<p>Apprentice: So, one instance is when I ask my colleagues if they can help me get the gearbox down when I do gearbox rebuilds. We have a subframe jack, but we don't really have a transmission jack, so what I tend to do is use maybe one or two other technicians to give me a hand getting the gearbox out safely. We'll work as a team to get the gearbox down. It's the quickest and safest method. It works well for everyone.</p>
<p>IEPA: Could you give me an example of when things have not gone as planned and the actions you've taken to resolve this?</p> <p>IEPA: Why is it important to make sure the customer is always informed?</p>	<p>Apprentice: I had a condenser to remove, and I had to remove the radiator to get to it. I was given about an hour and a half to do the job, but it was a really terrible job and even my manager said that nobody wants to do it. I was about an hour into the job and I could see that I wasn't going to get it done. I went to my workshop controller and said that I've been given an hour and a half for this job but I won't get it done in the time that's been provided; it is going to take me a little bit longer. I did this because if there is a customer who's hoping to get it back, you need to let them know there is a delay as soon as possible.</p> <p>Apprentice: Because if they've agreed a time to collect the vehicle and it's going to be a little bit later than that, the customer is going to be a bit angry if they have to come to the garage to pick up that car and it's not ready yet. It is always best to keep the customer informed to give them the best customer experience. That way they will keep coming back to you.</p>

<p>IEPA: What action would you take if a job or task was too difficult for you?</p>	<p>Apprentice: If a task is too difficult for me, I will always try my best. I will always look at different ways that I could do things that might not be stated in the workshop manual. If all of that fails, then I'll speak to my mentor and ask for their advice and opinion. They'll then come over and give me a hand or show me the best way to tackle the job. I remember that for next time, so a good memory is really important.</p>
<p>IEPA: Can you describe the qualities you need when dealing with customers?</p>	<p>Apprentice: You need to be very polite and professional because you're representing the brand. You need to have good body language – so you can't stand there with your arms folded – and you need to make good eye contact. You need to be very clear with the customer so that they can understand what you're talking about. Often, I find it's better not to talk in technical terms, it's better to simplify things to make it easier for them to understand.</p>
<p>IEPA: Can you give me an example of a new idea you have had implemented in the workplace?</p>	<p>Apprentice: I think recycling and protecting the environment is really important. I have said to my manager that we should try to separate cardboard, plastics, tins and things so that we can recycle them. We do also have a separate oil filter bin. Now, every technician has been starting to recycle and act in a similar way.</p>
<p>IEPA: Can you give me an example of how you improve your knowledge and understanding?</p> <p>IEPA: Where do you see yourself in two years' time?</p> <p>IEPA: Do you know what you've got to do to become a master technician?</p>	<p>Apprentice: I asked my technical trainer for revision and everything they thought would be useful to my knowledge and progression. They lent me information and files that helped boost my learning. I've done a lot of revision outside of the college and also within my company. I've given my workshop controller a list of jobs that I would like to do. So, if they ever get a really difficult diagnosis job in that they would usually give to the master technician I would be given a chance to undertake it.</p> <p>Apprentice: In two years' time, I want to be a master technician. I don't know if that would happen – my manager says it's going to be more like five years – but two years would be good if I could do that.</p> <p>Apprentice: I know I need to do a lot of specialist courses. I know I need to do my hybrid electric vehicle course, hopefully after my apprenticeship, and then go into the different courses that I need to do.</p>

<p>IEPA: Why do you think it's important that you need to do a hybrid course?</p>	<p>Apprentice: Because all the vehicles are moving that way, so we have a lot more hybrid and fully electric vehicles coming into the garage. You need to ensure you are correctly qualified to work on any areas of a vehicle. Health and safety is vital in this industry.</p>
<p>IEPA: What good qualities should an apprentice have?</p>	<p>Apprentice: Apprentices should be willing to learn because I don't think you ever stop learning as a technician. There's always something new; something changes so you need to have that hunger and that drive to understand everything. You also need to be polite and respectful. You need to have the motivation to do any and every job because there's a lot of technicians out there who will not want to do the boring or difficult jobs. You need to be willing to do everything and anything. It's an exciting industry and you have got to be enthusiastic.</p>
<p>Part 2 Technical section</p>	
<p>IEPA question</p>	<p>Overview of apprentice's answers</p>
<p>IEPA: We're now going to move on to your showcase portfolio; your job cards. The first job card we'll look at is your ABS braking one. Can you just talk me through the job please?</p>	<p>Apprentice: The ABS brake task was basically the light being displayed on the dash. With our diagnostic machine you can conduct specific tests to narrow down and isolate the fault. There was the option to operate the electronic handbrake remotely. Our scanner displays if the circuit is open and closed. When you apply the handbrake it should be closed, or when you disengage the handbrake it should be open. You can then do a brake light activation function test, so within the scan tool it's not just the data display, you can do function tests where you can control actuators to do certain things. The ABS test will check the wheel speed signal, so checking the hall effect of the sensors. The ABS control module activation checks, which effectively turns the ABS modulator on as though the ABS had sensed a wheel was about to lock up. The brake fluid warning light function, which is another actuator test to get the brake warning light to display on the dash; even though there is no fault there, you can still get the light to come up. All of these will lead you to the fault and allow you to fix it quickly and efficiently.</p>

IEPA: Can you explain the benefit of having ABS braking on a vehicle?

Apprentice: Definitely. It reduces your stopping distance in the way that if you were to slam your foot on the brakes, and you didn't have ABS, the car would just lock up the wheels and skid so you'd have quite a long braking distance. The other thing is that if the wheel is locked you can't control the car either (steer). With ABS, it kind of pulses the brakes, so it doesn't lock the wheels up and you don't end up skidding, so overall you have a shorter stopping distance, and you can maintain control of the car.

IEPA: Can you explain the different types of ABS sensors?

Apprentice: There's the hall effect which usually has four wires and generates a DC voltage and a digital square wave, 5 volts. Then there is an inductive type of sensor, usually two wires. These tend to be the more common type. They produce an AC voltage, an analogue or sine wave. This has to go through a microprocessor to be converted into a digital signal so the ECU can read it.

IEPA: Okay, so just tell me in more detail about an inductive sensor.

Apprentice: The inductive sensor reads the speed of the wheel going round. It will have a permanent magnet. As the wheel turns, the ABS ring passes by the sensor and kind of turns it on and off, and that tells you how fast the wheel is going round. These are the same as a crank sensor, but it'll have like a tooth cut out so it can tell you at what position of the engine it's at. The wave pattern would be up and down. It would be quite smooth; it wouldn't be square and it alters as the wheel speed changes.

IEPA: Can you talk me through testing a sensor?

Apprentice: There are different ways you can test the sensor. You can put an oscilloscope on it and watch the wave form or pattern. You could also test through a diagnostic scan tool in the data display. It gives you the voltage that is getting through if it's a hall and if you spin the wheel it will also give you a voltage reading out; that's if it's working correctly.

IEPA: Can you name the components in the ABS braking system?

Apprentice: You have the ABS pump and then you have your brake lines and you have your ABS control module, which is usually attached to the ABS pump. You have your wheel speed sensors and then your brakes.

IEPA: Can you tell me what other components work with a wheel speed sensor?

Apprentice: The wheel speed sensor can work with multiple systems, traction control, stability programs and even park assist systems. They all communicate via CAN data.

IEPA: Let's talk about the turbo task that you did. What were the symptoms that the customer brought it in for?

IEPA: How did you go about diagnosing?

IEPA: Can you tell me how you diagnosed the turbocharger and came to the conclusion that the bypass was faulty?

Apprentice: The customer's symptoms were: EML light on the dash, the vehicle goes a little bit shaky and there is a fume smell in the cabin.

Apprentice: I checked the customer's complaint and verified it. I confirmed there was an EML light on the dash. The vehicle did feel a little bit shaky, but I couldn't smell any fumes at the time. I don't know if it needed a bit of a longer road test for that, but I believed I had enough information to go forward with my checks. I plugged in the diagnostic reader and checked for fault codes to see if any were logged and there was a fault logged P2261 for the turbocharger bypass valve.

I always have a system in place when it comes to diagnosing issues. I check our database to see if there are any common faults known for this particular vehicle or engine type. It tells you if there are any known faults and if there is an easy fix or if it's a common issue. If I find nothing on there, then I will go on to the diagnostic scanner and put in the fault code and it gives you a checking procedure. But before starting the checking procedure, you have to do a strategy-based diagnosis so you just check simple things, give it a quick visual inspection and see if there's anything obvious. If it's an electrical issue, check the fuses and the wires. I always check the simple things first. Start at the beginning; that way you don't miss anything.

Apprentice: Absolutely. I followed the checking procedure first. It told me to check all the vacuums and pipes, just to make sure that they were okay. There's a special tool which you can use. You just plug it into the pipes and you put in a false vacuum just to make sure that it holds the vacuum, so this will tell you if there are any leaks or anything. It's called a 'mityvac'. You can also operate the wastegate with the vacuum tool just to make sure that that's all working correctly.

<p>IEPA: And that tool does what?</p>	<p>Apprentice: It checks the vacuum integrity. So, for example, I disconnected the bypass solenoid valve vacuum supply hose at the intake manifold and attached the mityvac. With the engine idling, it tells me that there is a vacuum present of 58kPa, which is within specification. It also gives all the specifications in the checking procedure. Then you can apply vacuum as well. I disconnected the vacuum hose at the turbo vacuum reservoir and connected the mityvac and applied 34kPa in vacuum. Then you hold it for 10 seconds just to make sure that it has not got any leaks or anything.</p>
<p>IEPA: What else is good practice when we're replacing a turbo?</p> <p>IEPA: Why do you feel it's important to use a torque wrench when tightening bolts?</p>	<p>Apprentice: You should always change the oil and filter. We always change the oil feed and return pipe too. This is because if the turbo has gone wrong, sometimes you can get broken-down bits of bearings or turbine fins making their way into the oil. These could cause damage to the engine, so it's always best to replace the oil filter and change the oil.</p> <p>Apprentice: Because the manufacturer specifies certain torques for different bolts and things and they're there for a reason to make sure you don't overtighten all the bolts or leave them too loose. If you were to overtighten, you can strip the threads or snap them. If you were to leave it too loose, then with the engine vibration, it could come on down and cause damage, or worse.</p>
<p>IEPA: Can you tell me the difference between fixed and variable turbo types?</p>	<p>Apprentice: Fixed vane means that the vanes don't move, so it can only go at a certain speed proportional to flow through it whereas the variable vanes can move, so the ECU can control the vanes. It moves them into a certain position so that they can adjust the speed of the turbo, ie faster with a lower input from the airflow.</p>
<p>IEPA: We'll move on to your air conditioning task. Can you explain what PPE you wore and why?</p> <p>IEPA: Why is it important to wear the correct clothes?</p>	<p>Apprentice: Yes, so with any air conditioning, you have to wear specific rubber gloves 'fluoroelastomer' that are provided with the air con machine and also safety goggles, and obviously your overalls and your work boots.</p> <p>Apprentice: Because with the air con gas and oil, you're not supposed to get it on your skin so you have to wear the correct gloves. If you're just wearing rubber gloves, they can split and then you'd get the gas on your skin and it could hurt you.</p>

IEPA: Could you just talk me through the job please?

Apprentice: Yes. The air con was not working; not blowing cold air. It had a re-gas previously but it was still not working; that was the customer's complaint. I confirmed that the air con wasn't working and I carried out a visual inspection just to make sure there were no obvious faults. I checked the system pressure with the air conditioning machine. Obviously once I was wearing the correct PPE. I applied the air con machine high pressure and low pressure pipes onto it and checked the system pressure. The system did have some pressure. So, I carried out a dye inspection just to see if there were any obvious leaks. The air conditioning machine gives you the option to inject UV dye. It's usually best practice to inject the dye so that if a problem occurs later down the line, you can see it with the UV light and the special yellow goggles. I could see the dye coming out of a taped-off section of pipe on the high pressure line. So, I suspected a leak. I also listened for the compressor clutch engaging when turning on the air con within the vehicle but I couldn't hear the compressor engaging. So, as I knew that the pipe was leaking or suspected the pipe was leaking from the dye, I evacuated all of the remaining gas and replaced the pipe, recharged the system and retested. But I also wrote down on my job card that it may have compressor issues as it had been run with low gas and oil.

IEPA: How did you measure the air conditioning temperature?

Apprentice: There's a little digital thermometer with a little metal pipe that comes off that you just slide into the air vents and then put the air con on with the vehicle running. It will come up with the temperature displayed on the gauge. A good system will maintain 5°C.

IEPA: Why is it important to put in the correct refrigerant amount?

Apprentice: Because otherwise you could damage the system. Not enough and it might not lubricate the compressor correctly, as the oil is mixed in with the gas when you recharge the system. Too much and it could over pressure and hurt someone.

IEPA: How would you know the amount that you're supposed to put in?

Apprentice: There's usually a sticker underneath the bonnet of the vehicle, which tells you the refrigerant amount and also type. But sometimes, if it's not in there, it will either be in your manufacturer's guide or you can look it up on a computer system we use.

IEPA: What precautions do you take when dealing with refrigerant, or re-gassing when you have a leak?

Apprentice: It's always best to check first because the gas being released into the atmosphere is highly unfriendly to the environment and it's also bad for your health; you're not allowed to breathe it in. You should always check for a leak first before re-gassing. You don't want any gas to escape. It is possible that you or your company will be fined or prosecuted if you are proven to have let gas escape.

Assessment analysis

The apprentice has displayed excellent behaviours in all the required criteria and would be awarded a *distinction* for this professional discussion. They have shown the IEPA how they have developed and embraced the industry. They have also demonstrated an active interest and understanding of their company structure.

The apprentice understands how the automotive industry operates and how they contribute to its overall results. They demonstrated a commercial awareness of how the business works and have actively taken a role in its improvement. They understand other roles within the industry and have suggested ways of improving efficiency, while considering the environmental impact and safety of their colleagues.

They carry out all the jobs given to them to the best of their ability and are constantly willing to assist, wherever they can, in helping others.

They have displayed an advanced understanding in delivering customer service by showing empathy for a situation, not embarrassing the customer, and behaving in a professional manner. They realise the importance of customer satisfaction.

The apprentice is clearly focused on their own personal development within their company and personally. They record their jobs and check in with their mentor, discussing their strengths and weakness.

The apprentice has shown a high level of competency, allowing them to reach the *distinction* criteria for part 2 of the discussion regarding the tasks. They followed a laid down procedure and displayed an extended understanding of the systems.

For the diagnosing and repairing of the fault, the apprentice clearly showed extended knowledge of using the diagnostic equipment. In addition, they had regard for other people's safety and their own. The apprentice followed a logical fault-finding process, using a range of diagnostic tools. They explained the reason for the diagnostic path used. All documentation was completed to the company's procedures. To achieve this distinction, the apprentice has displayed extensive knowledge of the equipment and the associated operating vehicle systems.