

Technical English 2

Course Book



PEARSON
Longman

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1 Teamwork

Start here 1 Discuss these questions with a partner.

- How many mechanics work in a pit-stop crew in a big race?
a) about 4 b) about 10 c) about 20
- What jobs do they do? List the most important jobs.

Reading 2 Read this interview with the head of a pit-stop crew. Check your answers to 1.

Making every second count

How do mechanics service a car so quickly in the middle of a car race? Will Peters is chief mechanic and crew leader of a pit-stop crew. Here he explains his work.

I'm the crew leader, and I have twenty mechanics in my crew. It's dangerous work, so we wear fire suits and safety helmets. I have five teams: *wheel-gun*, *wheel-on*, *wheel-off*, *wheel-jack* and *fuel*.

Every second is important in the middle of a race, so everyone moves quickly and works together as a team.

– 30 secs

I give the order: 'Get ready!' The four *wheel-on* mechanics bring out the new wheels. The tyres are still covered in warm blankets. The team leader adjusts the air pressure in the tyres.

– 10 secs

The car enters the pit lane, and slows down. The driver presses a button in his cockpit. This opens the fuel flap.

– 3 secs

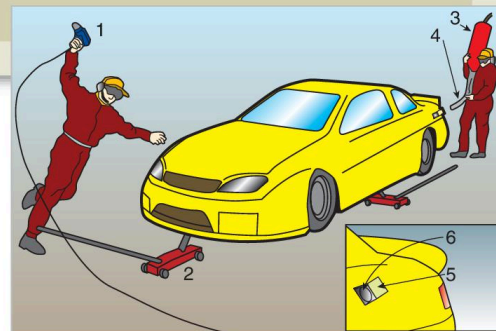
The car approaches the garage. I signal to the driver: STOP. The driver slows down and drives towards the crew. The *wheel-gun* team leader signals with his hand, and the driver stops the car next to the wheel guns.

00:00 secs	The four <i>wheel-gun</i> mechanics run to the car. They loosen the nuts with their wheel guns. Then they move back quickly.
00:01 secs	The two <i>wheel-jack</i> team members run to the car, and place the jacks under the front and rear of the car. They raise the car off the ground and move back quickly.
00:01.5 secs	Then three members of the <i>fuel</i> team move forward. One carries the fuel nozzle, and the other two carry the fuel hose. (It weighs 40 kg!). The front fuel mechanic pushes the nozzle into the fuel socket on the car. They then switch on the fuel pump.
00:02 secs	The <i>wheel-off</i> mechanics move forward. They take the old wheels off and take them away quickly.
00:02.5 secs	Now the <i>wheel-on</i> guys move forward. They take the warm blankets off the new wheels, put the new wheels on the car, and move back quickly. On the other side of the car, another mechanic puts his arm into the cockpit and cleans the driver's visor.
00:03 secs	The <i>wheel-gun</i> guys move forward and tighten the nuts. Then they raise a hand to signal that everything is OK.
00:04 secs	The <i>wheel-jack</i> people lower the car to the ground and take the jacks away. Now everyone is waiting. The <i>fuel</i> guys are still pumping fuel into the car. They hold the fuel nozzle and hose in place until all the fuel is in the car.
00:05.5 secs	I signal to the driver: SELECT FIRST GEAR. He pushes the gear lever into first gear, and waits.
00:06.5 secs	The fuel pump switches off, and the fuel guys pull out the fuel nozzle. Another <i>fuel</i> team member cleans spilled fuel off the car, and moves back quickly. Immediately, I signal to the driver: GO.
00:07 secs	The car moves to the end of the pit lane. The driver presses the button to close the fuel flap.
00:10 secs	The car speeds up and leaves the pit lane. It's in the race again.

3 Label the parts.

flap hose jack nozzle socket
wheel gun

4 Complete this checklist of instructions for each team.



TEAM 1: WHEEL-JACK

- _____.
- Raise the car off the ground.
- WAIT
- _____.
- Take _____.

TEAM 2: WHEEL-GUN

- Loosen the wheel nuts on the old wheels.
- WAIT.
- Tighten the wheel nuts on the new wheels.
- _____.

TEAM 3: WHEEL-OFF

- Take the old wheels off.
- _____.


TEAM 4: WHEEL-ON

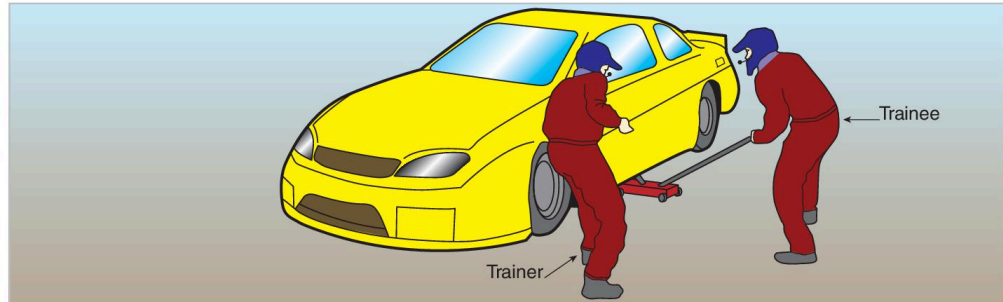
- Bring out the new wheels.
- Adjust _____.
- WAIT.
- Take the covers _____.
- _____.

TEAM 5: FUEL

- Push _____.
- Pump _____.
- _____.
- _____.

2 Training

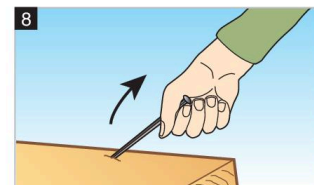
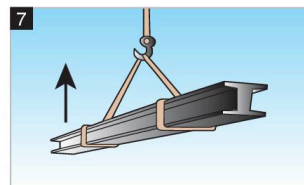
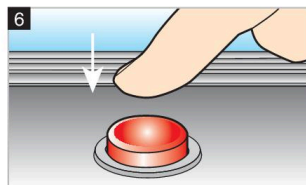
- Start here** 1  02 You are a trainee pit-stop mechanic. A trainer is giving you instructions. Listen and write numbers 1–10 to show the correct order of instructions.




Tighten the wheel nuts.	Adjust the air pressure in the tyre.	
Raise the car with the jack.	Bring the new wheel out.	
Loosen the wheel nuts.	Put the new wheel on.	
Take the old wheel off.	Put the jack under the car.	
Take the old wheel away.	Lower the car and take the jack away.	

- Vocabulary** 2 Match the pictures with the verbs in the box.

lift up pick up pull out push in put down put on take away take off



Language	Imperative	Present continuous	Present perfect
	Take the tyres off.	I'm taking the tyres off now.	I've taken the tyres off.
	Take off the tyres.	I'm taking off the tyres now.	I've taken off the tyres.
	Take them off.	I'm taking them off.	I've taken them off.
	Not: Take off them.	Not: I'm taking off them.	Not: I've taken off them.

- 3  03 Listen and respond to these instructions quickly. Confirm (a) what you are doing and then (b) what you have done.

Example: I (You hear) Bring out the new tyres. (You say) Right. I'm bringing them out now. OK, I've brought them out.

Speaking 4 Work in pairs. Make dialogues between a supervisor (S) and a trainee (T) from the checklists.

1	<ul style="list-style-type: none"> • put new tyres on • tighten wheel nuts • adjust air pressure 	<i>done</i> <i>in progress</i> <i>not yet done</i>	4	<ul style="list-style-type: none"> • switch off electricity • test all circuits • find any faults 	<i>done</i> <i>in progress</i> <i>not yet done</i>
2	<ul style="list-style-type: none"> • take cover off • repair computer • take out damaged chip 	<i>done</i> <i>in progress</i> <i>not yet done</i>	5	<ul style="list-style-type: none"> • strip off old paint • plaster holes in wall • buy new paint 	<i>done</i> <i>in progress</i> <i>not yet done</i>
3	<ul style="list-style-type: none"> • replace burnt wire • switch on power • check other wires 	<i>done</i> <i>in progress</i> <i>not yet done</i>	6	<ul style="list-style-type: none"> • take apart telephone • put it together again • test it 	<i>done</i> <i>in progress</i> <i>not yet done</i>

Phrases to gain more time:
Hang on. Just a minute.
One minute. Nearly finished.
Almost done.

S: How are you getting on?

T: I've put the new tyres on. I'm still tightening the wheel nuts. It's almost done.

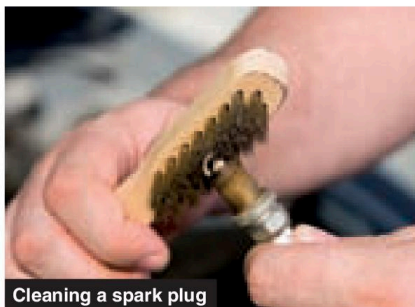
S: OK, good. Have you adjusted the air pressure yet?

T: No, I haven't done that yet. I'll do it next.

Language *yet* is used with present perfect questions and negatives to emphasise the period of time up to now.

Has Bill finished that job yet? The speaker wanted or expected Bill to finish the job before now. *John hasn't cleaned the car yet.* The speaker wanted or expected John to clean the car before now.

Task 5 Work in small groups. Choose one of these car jobs. With your group, make a set of instructions for doing the job.



6 Turn to page 111. Find useful instructions from the list. Revise your own set of instructions. Rewrite them if necessary, and make them short and simple.

7 Roleplay this situation with someone from another group with a different job.

Student A. You're the manager of a garage. You're showing a new trainee how to do the job. Tell the trainee how to do the job, but don't look at your set of instructions. Give instructions, and check how the trainee is getting on.

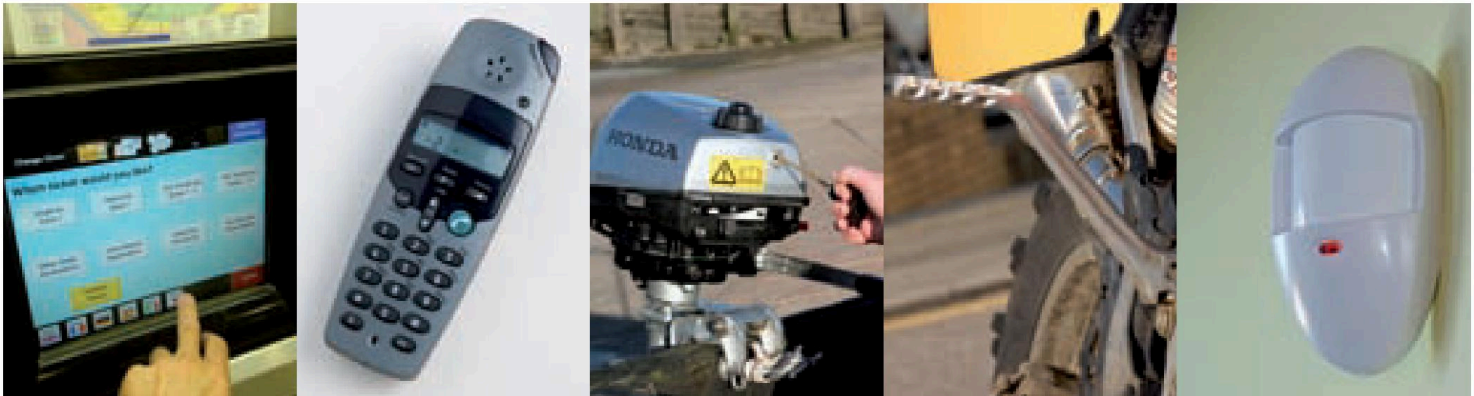
First of all, loosen the wheel nuts. Have you done that yet? Good. Right. Now lift up the car with the jack. OK? Well done.

Student B. You're a new trainee in the garage. Follow the manager's instructions. Mime the actions if you can. Tell the manager how you're getting on.

Hang on. Just a minute. No, not yet. I'm still loosening the wheel nuts. It's almost done. OK, I've finished. I've taken it off. What do I do next?

3 Method

Start here 1 How do you start or activate these devices?



2 Complete the sentences.

break kick pick up press pull switch on touch

- 1 The passenger activates the ticket machine by *touching* the screen.
- 2 You switch on the phone by _____ the handset and _____ the green button.
- 3 The user starts the outboard motor by _____ the handle of the cord.
- 4 The rider starts the engine by _____ the battery and _____ the lever downwards.
- 5 The burglar activates the alarm by _____ the laser beam.

Speaking 3 Make questions and answers.

A: *How does the passenger activate the ticket machine?*

B: *He activates it / He does it by touching the screen.*

Language	Method	
	You start the outboard motor	by pulling
The burglar activated the alarm	by breaking	a laser beam.

4 Work in pairs. Match the devices with the methods.

Device

- 1 accelerator on motorbike
- 2 voice-operated computer
- 3 solar battery
- 4 emergency stop in train
- 5 shop door alarm
- 6 car engine

How to start/activate it

- a) put it under an electric lamp
- b) step on a sensor in the door mat
- c) rotate the handle
- d) insert the key and turn it
- e) pull the lever
- f) speak to it

Speaking 5 Make questions and answers.

A: *How do you activate the accelerator on a motorbike?*

B: *By rotating the handle. (or You activate it by rotating the handle.)*

- Writing 6** Write sentences explaining how to activate or start the devices in 4.
you, the user, the customer, the driver, the passenger
- 1 *You activate / The user activates the accelerator on a motorbike by rotating the handle.*
- Reading 7** What can this robot do? How does it work? Discuss with your partner.
- 8** Read this magazine article. Write the names of the devices in the chart.

MURATA BOY

weighs less than 5 kg and is only 508 mm tall, but it can do something that no other robot can do. It can ride a bike. How does it do this? By means of sensors and wireless technology. One sensor is located in the robot's body. This sensor keeps the robot upright and prevents it from falling sideways. The robot can look ahead using a small camera in its head. The camera helps the robot to ride in a straight line. Another sensor is located in its chest. This sensor prevents it from hitting a wall or other object. The robot can receive instructions from an external computer by means of a wireless receiver in the box on its back. The computer makes it follow the correct road. Finally, if the road is not flat, another sensor (in the frame of the bike) can feel the movement of the wheel. The sensor allows the robot to ride over bumps in the road.



Murata Manufacturing Co Ltd

Murata Boy can do these things	device	location
(1) It can stay in a vertical position on the bike	sensor	body
(2) It can receive instructions from an outside computer		
(3) It can detect changes in the surface of the road		
(4) It can look straight ahead and move straight forward		
(5) It can detect walls and move away from them		

Language

The robot can look ahead

by
using
by using
by means of

a camera in its head.

- Speaking 9** Supply the questions for this interview with the inventor of the robot.
- 1 A: *What* _____?
B: It can ride a bicycle.
- 2 A: *How* _____?
B: It works by means of sensors and wireless technology.
- 3 A: _____?
B: By means of a sensor in the frame of the bike.
- 4 A: _____?
B: By a sensor in its chest.
- 5 A: _____?
B: By using a camera.