Maintenance and troubleshooting in a factory

Work your way along the PWP and thus revise prepositions.

Evaluation :

Use VB + Prepositions about images from your factory / workshop.

Johan hasn't turned up.
We're very short-staffed.
Tommi can stand in for an hour.

What's wrong with the photocopier?
Have you checked the fuse?
The toner has run out.

The gears have seized up.
You'll have to dismantle the unit.

I've been having problems getting onto the Internet.
Why don't you call the Help Desk?

The system keeps crashing.
You'll need to reboot your machine.
When did you last take a backup?

The server might be down.
I might have the wrong version.
You'll have to upgrade.



Someone has reported a fault ...

Note the expression to *report a fault.*

When was it serviced?

service is a noun and a verb. Note the following expressions:
It is serviced regularly.
We carry out regular services.

It's usually very reliable.

The opposite is *unreliable.*
Other expressions:
We rarely have any problems with it.
It generally runs very smoothly.

... a minor fault.

minor means small/unimportant
the opposite is *major* or a *serious fault.*

I'll have a look at it.

Note the preposition *at.* We can also say *I'll check it.*

... each head lasts about 5 000 copies or so.

or so means *approximately.*
Other ways of commenting on how long something lasts:
We get about 50 000 print runs out of it.
We can use it approximately 150 times.
We expect around 200 hours' running time.

This model's designed for heavy use.

The opposite of *heavy use* is *light use*
It is only designed for light use.

... complex machines ...

A *complex machine* has many parts.
The opposite is *simple* or *basic.*

I'd like to go over the list of job

go over means *look at and di*
We can also say *go through:*
I'd like to go through the new
with you.

... at midday on Wednesday ...

Note the use of prepositions
at with time, *on* for days
at 2:30 p.m/at 18:30
on Thursday/on Saturday
in the morning/afternoon/ever
in January/February

We might need to extend the sh

extend means *make longer.*
shut is a common expressio
production shutdown.

... by about six hours.

Note this use of *by:*
I need to extend the meeting
We've increased production b

We've got a full order book ...

If talking about production c
also say:
We're fully booked.

... speed things up.

This means *do something fas*
is *slow things down.*

British/American diffe

British	Ame
... has reported a	... ha

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... complex machines ...

A *complex machine* has many parts.
The opposite is *simple* or *basic.*

... once a fortnight ...

A *fortnight* is a period of two weeks.
We could also say:
once every two weeks.
every other week.

... assembly line.

An *assembly line* is a production line where products are put together from different parts.

I'd like to go over the list of jobs ...

go over means *look at and discuss.*
We can also say *go through*:
I'd like to go through the new procedures with you.

... at midday on Wednesday ...

Note the use of prepositions:
at with time, *on* for days
at 2:30 p.m/at 18:30
on Thursday/on Saturday
in the morning/afternoon/evening
in January/February

We might need to extend the shut ...

extend means *make longer.*
shut is a common expression for a production shutdown.

... by about six hours.

Note this use of *by*:
I need to extend the meeting by one hour.
We've increased production by twenty per cent.

We've got a full order book ...

If talking about production capacity, we can also say:
We're fully booked.

... speed things up.

This means *do something faster.* The opposite is *slow things down.*

British/American differences

British	American
... has reported a fault.	*... has reported a problem.* (*Problem* is also used in British English.)
a fortnight	*two weeks, fourteen days* (also used in British English)

Preventive maintenance

Ⓐ: **There have been too many unplanned shutdowns** over the past few months. We'll have to make a few changes to the way we operate. **We need to reduce our downtime.**

Ⓑ: I agree, but **the maintenance team is fully stretched** dealing with problems. We don't have time to carry out any preventive maintenance.

Ⓐ: **We need to establish routine maintenance procedures.** It costs us too much in lost production if we wait until something breaks down before we fix it.

Discussing frequency

Ⓐ: How often do you service the pump?

Ⓑ: We take very good care of this particular pump. **It's a crucial part of our process.** We clean it and **flush it through** at the end of every shift. We check the high pressure seals, **recalibrate the gauges** and lubricate all moving parts weekly. We replace the gaskets every month.

Ⓐ: How do you decide how often these things need to be done?

Ⓑ: Well, from experience **we can predict the lifespan** of different components. **We try to replace components before they fail or wear out.** This prevents the equipment from breaking down. It also saves us a lot of trouble!

Regular services

Ⓐ: This is our main service area. We do all the routine services here and have two full-time mechanics.

Ⓑ: **How often do you service the vans?**

Ⓐ: They're serviced regularly. We give them **a basic service every 10 000 km or so** and a main service once a year, or every 100 000 km.

Ⓑ: I see. What does the service involve?

Ⓐ: Well, the same as for private vehicles really, but we do it more often because **they get a lot of wear and tear.**

Ⓑ: Can you carry out major repairs here?

Ⓐ: Yes, we've got all the necessary equipment. We can **give the engines a major overhaul.** If there's a serious problem, **we strip down the engine and find the faulty component.** Would you like to look around?

Non-urgent repairs

Ⓐ: What do you do if you find something that isn't on your list?

Ⓑ: It depends what it is. **Once we have disconnected the unit,** we do as many jobs as we can. If there is something that isn't broken but might cause a problem before the next service then of course we repair it or replace that part. But if it's not urgent, **we make a note in the service record** to carry out that repair next time.

Notes

There have been too many unplanned shutdowns ...

Note the use of the prefix *un* to mean *not*.
Other examples:
Our vans run on unleaded petrol
We need to unblock the pipe.

We need to reduce our downtime.

Downtime is when the production line is shut because of a problem.

... the maintenance team is fully stretched ...

Fully stretched means *working at full capacity* and unable to do any more work.

We need to establish routine maintenance procedures.

Note the use of *establish*.
We could also say *set up*.
They are going to set up a preventive maintenance schedule.

It's a crucial part of our process.

crucial means *essential, vital.*

... flush it through ...

flush means to pass a lot of water or liquid through a pipe, usually to clean it.

... recalibrate the gauges ...

Note the use of the prefix *re* to mean *again*.
Other examples:
I've reset the levels.
We're ready to re-assemble the unit.
We can re-use it. Don't throw it out.

... we can predict the lifespan ...

lifespan is how long a component or piece of equipment will work.

We try to replace components before they fail or wear out.

If a component or machine *fails,* it breaks down. The noun is *failure.*
Our communication system has failed.
There's been a power failure.

How often do you service the vans?

This is the most common way of asking about frequency. Note how to reply:
The filters are changed monthly.
We test the system on a regular basis.
We carry out a full diagnostic test twice a month.

... a basic service every 10 000 km or so ...

Note the use of *every*:
We replace the bulbs every month.
It has to be changed every 100 hours.

... they get a lot of wear and tear.

wear and tear is damage which happens when something is used a lot.

... give the engines a major overhaul.

An overhaul is a detailed service.

... we strip down the engine and find the faulty component.

strip down means *dismantle* or *take apart.*
Another example:
We'll need to strip down the assembly line to replace the faulty part.

Once we have disconnected the unit, ...

disconnect means *undo the connection.* Other examples with *dis*:
Make sure the gears are disengaged.
Disengaged means not in position.
Something has dislodged the bearing.
Dislodged means moved it from its position.

... we make a note in the service record ...

We could also say:
Write it down in the service log.

British/American differences

British	American
petrol	*gas(oline)*

1 Choose the correct verb *make* or *do*.

EXAMPLE: We . . . do . . . . . the routine services on-site.

a We've got a lot of work to . . . . . before the end of the month.

b I think we need to . . . . . a few changes to our document management procedures.

c Does that engine always . . . . . a strange noise?

d Will you have enough time to . . . . . all the jobs on your list?

e Could you . . . . . a note to order a replacement unit?

2 Match an expression in column A with one in column B.

A	B
often	annually
every two weeks	weekly
hardly ever	frequently
once a year	once a day
every week	rarely
on a daily basis	fortnightly

3 Match the two parts of the sentences.

1	We need to carry out	a	the component fails.
2	How often	b	regular backups.
3	I phoned the engineer to	c	some more time to complete all the repairs.
4	We don't wait until	d	some routine maintenance tasks.
5	It's important to take	e	do you do a diagnostic test?
6	We might need	f	report a fault.

4 Complete the sentences with a preposition.

a It's not designed . . . . . heavy use.

b It's a very durable system. . . . . normal operating conditions it will last many years.

c Do you know what's wrong . . . . . it?

d Can you look . . . . . this pump? I don't think it's working properly.

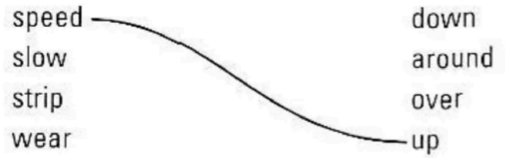
e We're going to shut the line . . . . . midday.

f The unit will be replaced . . . . . January.

g It's a crucial part . . . . . our process.

h The electrician will be here . . . . . Tuesday.

5 Match the two parts of the verbs and put them in the correct sentences. You might need to change the verb form.



speed	down
slow	around
strip	over
wear	up
look	through
go	up
set	down
flush	down

EXAMPLE: We need to finish this job by Friday. We'd better . speed up. . . . .

a First . . . . . the engine and then clean all the parts.

b We need to replace the roller brushes; they've . . . . . .

c Would you like me to . . . . . the job list with you?

d Don't forget to . . . . . the pipes . . . . . with clean water.

e The safety inspector is going to . . . . . the site.

f We're going to . . . . . a new system for reporting faults.

g We need to . . . . . the rotor. It's turning too fast.

6 Complete the sentences using the words from the box below.

~~smoothly~~	moving	often	
capacity	dismantle	essential	

EXAMPLE: The engine has been running very . . smoothly . . . . since its last service.

a This is an . . . . . part of our manufacturing process.

b Remember to lubricate all . . . . . parts.

c We can't accept any more orders for next month. We're already working at full . . . . . .

d How . . . . . do you check the machine settings?

e I'm not sure how to . . . . . this section of the machine. I'll need to check the maintenance manual.

7 Choose the correct prefix – *un, re* or *dis*.

EXAMPLE: Once the liquid has cooled, we ...re... heat it to forty degrees.

a Sorry about the delay. We had an ..... expected problem.

b Don't forget to ..... calibrate the sensors before you switch the power on.

c Who left this door ..... locked?

d There's a mistake in the maintenance schedule. Could you ..... print it, please?

e Something has ..... lodged the sensor.

f You must ..... connect the electricity supply before opening the casing.

g Most cars now run on ..... leaded petrol.

h We need to ..... order these parts.

i Remember to ..... engage the gears before starting the engine.

8 Match the material with the problem. Use a dictionary if necessary.

1	The rubber ring	a	has broken down.
2	The brushes	b	has corroded.
3	The canvas belt	c	have worn down.
4	The component	d	has perished.
5	The metal casing	e	has rotted.
6	The engine	f	has failed.

9 Using as many of the verbs as possible, make a list of the tasks done during maintenance.

recalibrate	drain	check	top up	lubricate	
clean	dismantle	replace	service		

EXAMPLE:

a clean drain check service dismantle a pump

b ..... a filter

c ..... the bearings

d ..... a seal

e ..... the fluid levels

f ..... the sensors

Someone has reported a fault.

This model's designed for heavy use.
It's usually very reliable.

I'd like to go over the list of jobs.
We might need to extend the shut.

We need to reduce our downtime.
There have been too many unplanned shutdowns.
We need to establish routine maintenance procedures.

It's a crucial part of our process.
We try to replace components before they fail or wear out.

When was it serviced?
How often do you service the vans?
We can give the engines a major overhaul.
We strip down the engine and replace the faulty component.



Dialogues 1

A minor fault

Ⓐ: Hi. **Someone has reported a fault** on one of your copiers.
Ⓑ: That's right. I'm glad you're here. It hasn't been working properly for the last few days.
Ⓐ: **When was it serviced?**
Ⓑ: Just a couple of weeks ago. **It's usually very reliable.**
Ⓐ: What's actually wrong with it?
Ⓑ: Well, it's making a strange noise when we try to change paper trays.
Ⓐ: I'm sure it's nothing serious, probably just **a minor fault. I'll have a look at it.**

Light or heavy use?

Ⓐ: I've just got a new printer. How often do I need to replace the print heads?
Ⓑ: Well, under normal conditions **each head lasts about 5 000 copies or so.** It depends on the user, but about once a month is average.
Ⓐ: So if I don't print out very much, it could last a lot longer?
Ⓑ: That's right. It could last six months or more. **This model's designed for heavy use.** Don't worry – you'll get an error message telling you when to change the head.

Common problems

Ⓐ: What sort of problems do you have with these machines?
Ⓑ: They're quite **complex machines** and they have a lot of different components. We need to check the metal casing regularly for any signs of corrosion. We also check the brushes **once a fortnight** to make sure they aren't worn down. It's important to make sure everything is properly aligned and we adjust it if necessary. There is a canvas belt at the end of the **assembly line.** If it gets wet, it might rot so we check that regularly too.

Jobs to do

Ⓐ: Hi, Xavier. **I'd like to go over the list of jobs** for next week's maintenance shut.
Ⓑ: Sure. We've got a lot to do in a short time. We're planning to shut the line **at midday on Wednesday** and start up again at 6 pm the following day. **We might need to extend the shut by about six hours.**
Ⓐ: Our production people won't be happy about that. **We've got a full order book** at the moment. Is there any way you could **speed things up?**
Ⓑ: Not really. We need to dismantle the conveyor belt and replace the rollers.

- ☐ Present perfect
- ☐ Have+ PP
- ☐ Bilan
- ☐ The toner has ruined out.
  Have you checked ?
  Johan hasn't turned up.

Dialogues 1

A personnel problem

Ⓐ: **Johan hasn't turned up** and Stefan is ill. Do we have anyone **on stand-by?**
Ⓑ: I'm afraid not, **we're very short-staffed** at the moment. Can you ask the shift supervisor to ask one of his team to do some overtime? Perhaps **Tommi can stand in for an hour** or two until we find a replacement.

An electrical problem

Ⓐ: What's wrong?
Ⓑ: There's no power.
Ⓐ: **Have you checked the fuse box?**
Ⓑ: Yes, **the fuse had blown** and I've changed it but now the motor keeps cutting out.
Ⓐ: There might be a loose connection somewhere that's making the safety switch trip. **Check the settings on the trip-switch.** If you can't fix it yourself, call in an electrician.

A problem in the office

Ⓐ: **What's wrong with the photocopier?**
Ⓑ: **The toner has run out** and there's none in the stationery cupboard.
Ⓐ: I need to make six copies of this report for the Board Meeting tomorrow. Ring Office Supplies and ask if they have any in stock. If they can't deliver this afternoon, I'll go and collect it.

Mechanical problem 1

Ⓐ: What's happened? Is there a problem?
Ⓑ: I think **the gears have seized up.**
Ⓐ: **You'll have to dismantle the unit** and lubricate the bearings. Do it as quickly as you can but make sure you top up the oil before you start the motor up again.

Mechanical problem 2

Ⓐ: Why have you stopped production?
Ⓑ: We've had a few problems. One of the bolts has worked loose and a blade has snapped off.
Ⓐ: OK. Make sure the power is switched off then tighten up all the bolts on the unit and replace the broken blade. Why is there oil all over the floor?
Ⓑ: **I think the valve is faulty. I couldn't regulate the pressure** and **the seal burst.** I tried opening the emergency valve but it was jammed.
Ⓐ: Clean up the mess first, then fit a new seal and check the valve.

Notes

Johan hasn't turned up ...

This means he hasn't arrived. We could also say:
He hasn't come in today.
He's off sick.

... on stand-by.

If someone is not actually working but is ready to work, we say they are *on stand-by.* We can also say *on call.*
I won't be able to relax properly this weekend. I'm on call.

... we're very short-staffed ...

short-staffed means *we don't have enough staff.*
We could also say:
We're short of staff.
We're short of resources.
Note: **NOT** *short-resourced.*

... Tommi can stand in for an hour ...

Stand in for means *temporarily replace* (a colleague).
Can you stand in for me when I go on holiday?

Have you checked the fuse box?

We can also say:
Have you inspected/examined/looked at ...

... the fuse had blown ...

When a fuse breaks we say it *blows.* Note also:
It has fused.

Check the settings on the trip-switch.

A *trip-switch* is a mechanical switch which turns something on or off. It is often a *safety device.*
When a *safety cut-out* **trips**, it shuts down the power.
The safety cut-out has tripped.
The switch has tripped.

What's wrong with the photocopier?

Other ways of asking what the problem is:
What's the matter with it?
What's happened to it?

The toner has run out ...

We use *run out* to say there is none left.
The new building isn't finished yet because the company has run out of money.

... the gears have seized up.

When moving machine parts get *stuck* and can't move we say they *seize up.* We can also say that something is/has *jammed.*
I can't move this lever. It's jammed.

You'll have to dismantle the unit ...

You'll have to + infinitive is a useful way of telling someone what to do when troubleshooting:
You'll have to ask for help.
You'll have to call in a specialist.
Dismantle means to take something apart so that it is in several pieces.
The opposite is to *assemble.*

I think the valve is faulty.

faulty means *not working properly.*

I couldn't regulate the pressure ...

regulate means *control.*
This valve regulates the flow of water.

... the seal burst.

If a seal *tears,* we say it *bursts.*

British/American differences

British	American
When a safety cut-out trips.	*When a circuit breaker trips.*

Dialogues 2

A computer virus

Ⓐ: I think I've got a virus on my computer. **Do you know how to get rid of it?** I haven't had one before.
Ⓑ: I'm afraid not. **Why don't you call the Help Desk?** Someone there will be able to help you.
Ⓐ: Have you got the number? I'll call them right now.

The wrong software

Ⓐ: I can't open this email attachment our Paris office has sent me.
Ⓑ: Are you sure you're using the right program?
Ⓐ: Well, yes it's definitely the same program but **I might have the wrong version.** Their system is newer than ours.
Ⓑ: That's why you can't open it. **You'll have to upgrade** before you can read the file.

The screen is frozen

Ⓐ: Can you help me? The program is not responding and I don't know what to do.
Ⓑ: Look at the icon in the bottom corner of your screen. Is it flashing?
Ⓐ: No. It isn't.
Ⓑ: OK. Try closing down all the files you're not using at the moment.
Ⓐ: But I can't move the cursor at all. **My screen is frozen.** What should I do?
Ⓑ: **Have you tried pressing the Escape key?**
Ⓐ: Yes, but nothing's happened.
Ⓑ: OK, **you'll need to reboot your machine.** Press Control, Alt and Delete at the same time.
Ⓐ I've never done that before. Will I lose all my files?
Ⓑ You might lose the file you were working on, but don't worry, the help desk can restore it. **When did you last take a backup?**

Internet problems

Ⓐ: **I've been having problems getting onto the Internet.**
Ⓑ: Have you checked your connection settings?
Ⓐ: Yes, they're fine. I suppose **the server might be down** again.
Ⓑ: Yes, there have been a few problems recently. Why don't you call the IT department?

Memory problems

Ⓐ: **The system keeps crashing** when I try to access the personnel database.
Ⓑ: I think the file is too big. You'll need to expand your memory. First, close down all the files you have open, and then …

Notes

Do you know how to get rid of it?

In computing *get rid of* means *delete*. We can also say:
How do I delete it?
Can you tell me how to delete it?

Why don't you call the Help Desk?

There are many different ways of giving advice:
You should save your work regularly.
I think you should ask an expert.

... I might have the wrong version.

Some other ways of saying what you think is *wrong*:
I suppose the server might be down.
You could have a virus on your system.
The program could be faulty.
I think there's a malfunction.

You'll have to upgrade ...

If you *upgrade* a computer program or system, you get a better, more up-to-date one.

My screen is frozen.

In computing *frozen* means *locked, unable to move.*

Have you tried pressing the Escape key?

This is another useful way of giving advice. Note the use of *try + -ing.*
Try holding down the Control key.
Have you tried saving it in a lower version?

... you'll need to reboot your machine.

You'll need to means the same as *you'll have to.*
reboot means *start your computer up again.*
Another useful expression is *a boot disk.* This means a *start-up disk.*
Have you made a boot disk?

When did you last take a backup?

We can also say *make a backup* (noun) or just *back up* (verb).
You should back up your files at the end of each week.

I've been having problems getting onto the Internet.

We can also say *accessing the Internet.*
Note the use of prepositions in the following examples:
What's the password to get into the system?
I can't get onto/into the network.
How do you get into the file/database?
Which folder is the report in?
It's on the hard disk/a floppy/CD ROM.
The information is in a file on my hard drive.

... the server might be down ...

We use *down* to describe a computer-controlled system which is *not in operation.*

The system keeps crashing ...

If something happens frequently, we say it *keeps happening.* Note the *-ing* form after *keep*:
Why do I keep getting this error message?
The printer keeps jamming.

British/American differences

British	American
When did you last take a backup?	*When did you last run a backup?*

Practice

1 Complete the sentences with prepositions.

a I can't get ..... the Internet.

b I've got a virus ..... my computer.

c I've been having problems getting ..... the personnel database.

d The file is ..... the Accounts Folder ..... the C drive.

e What's wrong ..... my computer?

f I'll have to reorder some new ink cartridges. We're ..... of stock at the moment.

2 The following expressions appear in the dialogues or notes. Match each verb with its preposition and complete each sentence with one of the alternatives.

switch	up
seize	out
call	up
clean	up
tighten	up
top	off
turn	out
cut	up
run	in

EXAMPLE: Can you pass me that spanner? I need to ..tighten.up.. this bolt.

a Did you remember to ..... the lubricating fluid after we repaired the leak?

b We've ..... of raw materials.

c One of our workers didn't ..... yesterday.

d This workshop is very dirty. ..... it ..... immediately!

e Don't forget to ..... the power before you remove the safety guard.

f I hope the motor doesn't ..... again.

g If you don't lubricate the mechanism regularly, it might ..... .

h I think we need to ..... an electrician.

3 Match the two parts of the sentences.

1	My computer keeps	a	rebooting the system.
2	Have you checked the	b	to replace the bearings.
3	It might	c	the toner cartridge.
4	You need	d	phone an engineer?
5	Why don't you	e	pressure?
6	I think you	f	crashing.
7	You'll have to replace	g	should check the filters.
8	Try	h	be broken.

4 Use your dictionary and complete the sentences with the most suitable word from the box.

lubricated	tripped	~~blown~~	snapped	leak	loose	
crashed	expand	fault	jammed	cursor	restore	

EXAMPLE: The fuse has ....blown.....

a I think you should ..... the memory.

b My computer has .....

c The gearing mechanism has ..... again.

d Can you help me ..... the data?

e The safety switch has .....

f The blade has ..... off.

g My mouse isn't working, I can't move the .....

h There has been an oil .....

i The bolt has worked .....

j I think there is a ..... in the program.

k Have you ..... all the moving parts?

5 Complete the sentences with the correct form of the verbs in brackets.

EXAMPLE: Why don't you ..phone..... (phone) the supplier?

a You'll need to ..... (drain) the system completely.

b Try ..... (adjust) the release valve.

c I think you should ..... (switch off) the power.

d You'll have to ..... (upgrade) your software.

e Have you tried ..... (replace) the bearings?

f Quick, ... (close) the valve!

g The power keeps ..... (cut out).

6 Write down a response to the following problems. Refer to the dialogues.

EXAMPLE: I can't open this attachment.

Are you sure you're using the right program?

a What's wrong with the photocopier?

.....

b The file is too big.

.....

c I can't move the cursor.

.....

d There's no power.

.....

e Do you know how to get rid of a virus?

.....

f The gears have seized up.

.....

1/ Find pictures of your factory on the web and write 10 sentences using VB prep.

- [ ] 2/ Play SPEECH using VB Prep sentences
- [ ] 3/ Eval !