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TYRES GUIDE

GET A GRIP ON YOUR TYRES

Increase the lifespan of your tyres through good maintenance

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LET'S GET STARTED

Tyres are the biggest replacement cost for your machine across its entire operational lifespan. Which is why it's worth taking care of them. **A well-maintained tyre will serve you better for longer.** And this will not only save you money in the long run, it will also **reduce your fuel consumption, increase workplace safety and ensure the productivity of your machine is optimised.** What does tyre maintenance involve? Find out with this guide. You'll discover tips, tricks and easy-to-follow instructions.

TABLE OF CONTENTS

GET TO KNOW WHICH TYPES OF TYRES EXIST

There are several types of tyres. Each has its own benefits. Each is suited to different work environments. And most of the time, your machine will have been designed with a specific tyre type in mind.

PNEUMATIC TYRES

A pneumatic tyre is a rubber tyre filled with air. The tread on pneumatic tyres is what makes contact with the ground. The tread is reinforced with steel belting or other materials.

The air pressure inside pneumatic tyres provides resistance against forces that push against the tyre. It also gives the tyre a **cushioning effect**. This lowers the impact of bumps on the driving surface. Generally, pneumatic tyres are **more comfortable**. They're suitable for use on flat or smooth surfaces such as in **workshops and warehouses**. They're also suitable for use on uneven terrain such as **construction sites**, but pneumatic tyres are **vulnerable to punctures** from debris, nails and sharp objects.

Pneumatic tyres have a wide range of tyre profiles. Each of these is suited to a specific application.

SOLID TYRES

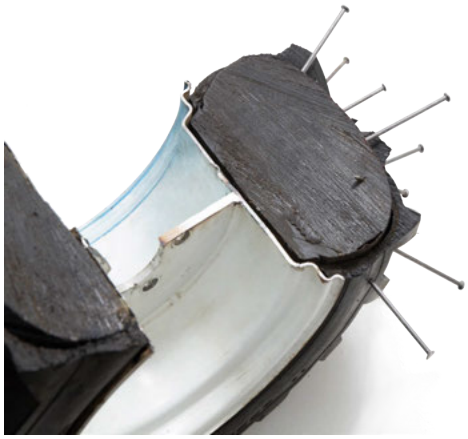
A solid tyre is not filled with air. Instead, it is typically constructed with two or three layers of rubber. Each layer uses a different rubber compound. They are very **durable** tyres, **impervious to punctures and deflation**. As they're **puncture-proof**, solid tyres are perfect for machines being driven in environments where there is sharp debris.

There is a downside. A solid tyre is less comfortable than a pneumatic tyre. If you're driving around a lot on uneven terrain, you may actually prefer pneumatic tyres.

PRESS-ON TYRES

Press-on tyres are quite similar to solid tyres. Like solid tyres, they aren't filled with air. Instead, they are made of a **single layer of solid rubber that is moulded to a steel rim**. Machines are built for use with either solid tyres or press-on tyres, but not both.

Press-on tyres are available in both smooth and traction tread patterns. These tyres are also **puncture-proof** which makes them suitable for environments where there is sharp debris.



Foam-filled tyres

Foam-filled tyres are created by filling pneumatic tyres with foam. The foam is injected as a chemical mixture that hardens. It effectively makes the tyre **puncture-proof**. Plus, **the weight and density of the foam serves as an extra counterweight**. This **increases the stability and safety of machines** that work at higher altitudes.

We do not recommend using a Mobile Elevating Work Platform (MEWP) without anti-puncture tyres. Imagine you're working at a height of 10 metres. You drive over a rock – or any other sharp object – and puncture your tyre. The situation is doomed to end poorly, even with the fall protection equipment. Make sure your MEWPs and other aerial work platforms are always equipped with anti-puncture tyres.

Non-marking tyres

The majority of industrial tyres are black. This is because carbon black is added to the natural rubber mix when these tyres are made. The carbon black makes the rubber more wear resistant by absorbing heat and protecting tyres from UV radiation. It also leaves those **black marks** on the floors. You know the ones. They're like dirty footprints your machine leaves behind.

Let's say you drive around on warehouse floors and, for hygiene reasons, you can't have those black marks on the floors. A non-marking tyre is exactly what you need. You'll notice these tyres are usually white, although you'll also find yellow and even grey versions in our range. Why aren't they black? When non-marking tyres are being made, there is **no carbon black added to the rubber mixture**. It means your floors will remain clean, but unfortunately, without the carbon black, your tyres will have **a shorter lifespan**.

Non-marking tyres are typically made for forklifts used in **food processing and convention centres**. However, they're also popular in **warehouses that just want to keep things clean**.

OPTIMISE THE LIFESPAN OF YOUR TYRES WITH A LITTLE MAINTENANCE

You might think that the maintenance of your machines and their vital parts would be fairly standard and straightforward. This may be the reason maintenance is not always performed as thoroughly as it needs to be. Tyres are the largest replacement cost you'll have over the entire operational lifespan of your machine: one more reason why it's so important for you to properly maintain your tyres. It will extend the life of your tyres, save you money and reduce downtime. Small jobs make a big difference.

1 MAINTAIN CORRECT TYRE PRESSURE

Just like your car, it is very important that your **pneumatic tyres** are inflated to the correct pressure to save energy and prevent damage.

Pneumatic tyres lose air pressure after continuous driving. Check your tyre pressure on a monthly basis and make sure you refill your tyres to the correct pressure. With underinflated tyres, you run a greater risk that your machine will topple over. Overinflation makes your tyres stiff. It decreases resistance to hits and bumps.

Tip: Be prepared and make sure you also check the pressure of your spare tyres.

2 INSPECT TREADS REGULARLY

Get to know the tread of your machines. This will help you identify excessive wear. You can use your **pneumatic tyres** until the tread pattern has worn away. Wearing beyond the tread pattern represents a safety hazard, with your tyres becoming more susceptible to punctures, leaks and blowouts.

Solid tyres also have a tread pattern. However, they are not completely worn out when the tread pattern is completely gone. Using a tyre cutter, it's possible to etch a new pattern into the tyre tread. You can keep repeating this process until you reach the '60-J' line, at which point, your solid tyres are completely worn out.

3 DRIVE SAFE

Good driving behaviour is essential if you wish to prevent the wear and tear of your tyres. Taking turns too quickly, accelerating hard and braking abruptly are also known to cause damage. As well as saving money by wearing out your tyres more slowly, you'll lower your rolling resistance, saving you energy and fuel.

4 KEEP YOUR TYRES AWAY FROM DAMAGING SOURCES

Avoid parking your machines anywhere they will receive prolonged exposure to direct sunlight. Sunlight will make your tyres wear out much quicker. We also advise avoiding contact with grease, petrol, volatile solvents or other substances that will cause the rubber to deteriorate.

AVOID DOWNTIME BY REPLACING YOUR TYRES AT THE RIGHT MOMENT

Machines with worn out tyres **cannot work safely or efficiently**. If you keep working with them, you risk **damaging your machines**. But if you stop to arrange tyre replacements, your **productivity drops to zero**. By knowing in advance when your tyres are due for replacement, you're able to minimise the downtime and have your machines working at ultimate efficiency for longer. Find out which signs show your tyres are due for replacement.

4 REASONS WHY YOU SHOULD REPLACE A WORN-OUT TYRE

- Your tyres no longer offer you the grip you need.
- You increase the risk of your machine toppling over when you work with worn-out tyres, especially if your machine is carrying a heavy load.
- Worn-out tyres result in excessive vibrations.
  They are known to lead to back complaints for machine drivers.
- A worn-out pneumatic tyre is prone to blowouts at high speeds. This is extremely dangerous.

WHEN SHOULD YOU REPLACE YOUR TYRES?

It's difficult to define lifespans for tyres. There are many different factors influencing wear and tear, including:

- Tyre quality;
- How you are using your tyres and the environment you're using them in;
- Driver behaviour;
- Surface conditions;
- Ambient temperature;
- Inflation pressure;
- Tyre contact with oil or other chemicals.

PNEUMATIC TYRES

Pneumatic tyres are designed with a certain tread pattern, just like car tyres. **Replace them when the tread pattern is no longer visible.**

Do you drive your machine indoors? It's possible to use tyres without tread, but only if the floor remains dry.

What if you drive your machine both inside and outside? We advise a tyre with a highly detailed profile and pattern. This will give you a better grip on wet and uneven surfaces.

Solid tyres

Solid tyres are often replaced prematurely. The depth of the profile is not a very good indicator of the remaining service span of the tyre. The profile may be completely worn away, but the tyre could still be perfectly capable of serving you.

Use a tyre cutter to cut a new profile in the tyre tread.

How do you know when your solid tyre is due to be replaced?

It's possible to wear undamaged solid tyres down to the **60-J line**. This 60-J line, also known as the safety line, is **indicated on the sidewall of your solid tyres**. It indicates the transition between **the wear surface and the softer core of the tyre**. The safety line is often a few centimetres deeper than the start of the tyre tread pattern. Once you reach the 60-J line, you are no longer able to cut new grooves into the tyre surface. It's time to replace your tyre.

Press-on tyres

Press-on tyres should be replaced when **30% of the tyre's original tread rubber has worn away**. Using a tyre just 10% further than this will increase the **transmission of shocks and vibrations by 250%**. This exposes the forklift and the operator to damage and injury.

How do you know when you've reached the 30% mark? The outer rubber will have reached the tyre brand name or logo. There are other indications that show your tyres are due for replacement. You may notice the rubber separating from the metal band in the tyre. If you're able to insert a screwdriver or knife into the separation, it's time to replace the tyre.

Foam-filled tyres

Foam-filled tyres are mostly used for Mobile Elevated Work Platforms (MEWPs) due to the excellent stability they offer. They are most often **compared to solid tyres**. However, it's **not possible to etch new profiles into foam-filled tyres**.

Foam-filled tyres are subject to safety inspections where they are checked and approved or rejected for further use. However, there are times when you are unable to wait for external inspections to know whether your tyres are suitable for use. Perform a personal check of your tyres:

- Do you notice any large chunks of material missing from your tyres?
- Does it feel bumpy when you drive your MEWP?
- And are there noticeable differences in the height on different sides of your MEWP?

If you've answered yes to any of these questions, or if you doubt your tyres are fit for the job, we advise replacing them immediately.

SAVE TIME AND LEARN HOW TO REPLACE YOUR TYRES YOURSELF

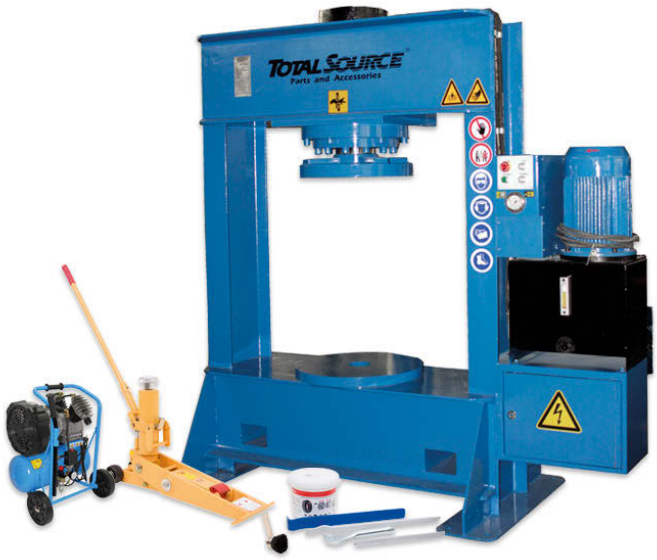
Replacing tyres is a relatively easy job if you have the right tools and know what you're doing. Fortunately, TVH has the right tools and the right knowledge.

Tyre replacement requires:

1. Personal protective equipment (PPE)

- Eye protection
- Helmet
- Gloves
- Ear protection

2. Proper specialised equipment and tools



- A forklift jack
- Hand and power tools
- Air compressor for pneumatic tyres
- Tyre press for solid and press-on tyres

Pneumatic tyres

1. When removing wheels, your machine should be parked on **level ground in a safe working area**.
2. Jack your machine at the designed jacking points. Secure it with an axle support device. **Never rely solely on your jack**.
3. Make sure your tyre is **fully deflated** before removing any wheel nuts.
4. Remove the wheel nuts and use a suitable lifting device to remove the wheel.
5. Place your new wheel in a **tyre safety cage** and inflate it to the recommended inflation pressure.
6. Once inflated and before removing it from the safety cage, inspect your tyre for defects. Afterwards, fully deflate the tyre and remove from the tyre safety cage. If any defects were found, contact your technician to either reject the tyre or solve the problems.
7. Place the new wheel on your machine using a suitable lifting device. Tighten the wheel nuts in the correct sequence and following the recommended torque setting.
8. Inflate your tyre as recommended. **Perform a final inspection** before removing the axle support device and jack.
9. Give your machine a test run. Tighten the wheel nuts as necessary.
10. If your test was successful, your machine is ready to return to service.

Solid, press-on and foam-filled tyres

1. When removing wheels, the machine should be parked on **level ground in a safe working area**.
2. Jack at the designed jacking points. Secure it with an axle support device. **Never rely solely on your jack**.
3. Remove the wheel nuts and use a suitable lifting device to remove the wheel.
4. Place your new wheel on the machine by using a suitable lifting device. Tighten the wheel nuts in the correct sequence and following the recommended torque setting.
5. Give your machine a test run. Tighten the wheel nuts as necessary.
6. If your test was successful, your machine is ready to return to service.

Did you know that TVH offers tyres fitted to the rim?
This makes the replacement progress a lot quicker.
The less downtime of your machines, the better.

REF 48959491 • 04-2022 • LV

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