



# Ship spares: Five top tips to help keep your operations compliant

If you own or operate a ship, these 5 top tips will help you comply with regulations, avoid fines and reduce the risk of lost business and reputational damage.

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7 min

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Engine systems

If you own or operate a ship, you must make sure that the engines comply with emission regulations after maintenance or repair. Engines that don't comply can put you at risk of fines, lost business and reputational damage. Here are five top tips to help avoid these painful and potentially expensive problems.

It might surprise you to learn that choosing the right spare parts can do much more than keep your ship running smoothly and safely. Spare parts also have a big impact on emissions and can give you a compliance headache.

# How the right spare parts can help you avoid a compliance headache

You might think that choosing genuine, emission-compliant spares is enough to keep your engine safe and compliant. In fact, it's just the start. Here are five top tips that will help you:

1. [Choose emission-compliant spare parts](#)
2. [Maintain good documentation practices](#)
3. [Check and replace your components on time](#)
4. [Make sure you have the right parts at the right time](#)
5. [Stay up to date with regulations and technology.](#)

As if that wasn't enough, there's also a handy bonus tip related to your engine. Read on to find out more!

## Tip 1: Choose emission-compliant spare parts

Choosing genuine original equipment manufacturer (OEM) parts will help you to eliminate the risk of non-compliance. But how do you know if your emission-critical spares are genuine and therefore compliant?

The best way is to only use the NOx-critical components that are listed in the engine's technical file. The technical file includes a list of all the engine components and settings that can influence your engine's NOx emissions.

These components include the:

- injection nozzle
- injection pump
- camshaft

- cylinder head
- piston
- connecting rod
- charge air cooler
- turbocharger

If your ship is IMO Tier III certified, certain components such as the selective catalytic reduction (SCR) elements are also classed as NOx-critical components as they are considered part of the engine.

Emission-critical components are identified by a unique IMO ID number. This ID number is marked in the NOx technical file and stamped on the spare part itself. Some OEMs, including Wärtsilä, also stamp their company logo on new emission-critical spare parts.

You can easily check if a spare part is compliant by comparing the ID number in the NOx technical file with the number stamped on the part. If the numbers don't match, then the part is not emission compliant.

This information can also be used by port state authorities and classification society surveyors as part of statutory periodical surveys. For example, they can use this information to verify that the parts you are using comply with statutory regulations. In addition to spare parts, engines must have a type approval certificate and an individual product certificate to demonstrate that they have been designed and tested in compliance to classification societies rules.

By purchasing OEM spare parts and carrying out maintenance according to the defined maintenance schedule, you will follow the classification and certification process that ensures your engine continues to comply with the relevant environmental regulations. If you choose to purchase non-OEM parts that are impacted by the MARPOL Annex VI regulations on air pollution prevention, you will need to demonstrate that the parts and your engine continue to meet the emission compliance standards.

The best way to stay safe and compliant is to always follow the requirements set out in the NOx technical file. This file clearly states what can and cannot be done.

Here is a handy checklist regarding compliance:

- Your ship's engines need to comply with International Maritime Organization (IMO) MARPOL Annex VI.
- Compliance is verified by the engine's NOx technical file, which applies to all diesel engines above 130 kilowatts.

- If your ship sails under a European Union member state flag you also have to comply with the Marine Equipment Directive 2014/90/EU, which applies to components like non-metallic hoses and expansion joints.

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To learn more about why using OEM parts is a good idea, download the white paper: [Why genuine spare parts are the best choice for your vessel – 5+1 great reasons](#)

## Tip 2: Maintain good documentation practices

If you lose track of your replacement parts, your risk of non-compliance grows. This can happen if, for example, you have a high turnover of staff. Maintaining and following good documentation practices is the best way forward.

Every time you replace an emission-critical part you should record these changes in the engine logbook and have your chief engineer sign off the changes. The logbook is an official document that must be available to port state authorities and classification society surveyors when requested. You also need to do this if you change the engine settings – see the bonus tip at the end of this article about why this is not recommended!

The NOx technical file is also helpful because you can refer to it when buying emission-critical spare parts to ensure that the parts are compliant. However, you should be careful because [not all parts labelled as OEM parts are necessarily genuine](#).

Switching from a paper to a digital engine logbook will help you keep an accurate record of which components have been changed and when. Digital records also make it faster and easier for you to share the information between different parties.

## Tip 3: Check and replace your components on time

Because you are responsible for ensuring that your engine is emission compliant after maintenance or repair, you must also make sure that you check and replace components such as Selective Catalytic Reduction (SCR) elements on time. If you do not do this you run the risk that the elements will stop working correctly. If this happens, your engine may not be compliant.

In practice, this means you must compare the values from the SCR emissions control system with the values in the NOx technical file, usually twice a year. If the values are within the limits defined in the technical file, you're good to go.

In addition to SCR elements, the NOx measurement device must be maintained regularly to comply with emission regulations.

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## Tip 4: Make sure you have the right parts at the right time

If your ship fails an inspection, without proper preparation and planning you might not have enough time to find the approved emission-compliance parts listed in the NOx technical file. This would put your engine at risk of non-compliance. In the worst case, your ship might not be able to sail until you fit approved parts.

But predicting what spares you will need and when can be difficult. That is why being prepared is important, especially when the availability of spares for maintenance work is one of the biggest challenges you face. What makes it even trickier is that delivery times can vary a lot depending on the spare. For example, the delivery time for catalytic elements can be as long as six to seven months because they are not off-the-shelf items.

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To avoid this problem many ship owners and operators maintain an inventory of critical spares and a so-called watch-alert system. Critical spares are the parts you know, based on past experience, will be needed at short notice.

Another useful tip is to keep a so-called swing set onboard your ship, including one set of fuel injection valves, for example. You can then replace the valves with the new ones you have in stock and service the old ones ready for next time.

Managing and monitoring your spare parts inventory methodically helps to ensure compliance. When you always have compliant spare parts in stock, you minimise the risk of using non-compliant parts, which may cost you more money in the long run.

[A lifecycle agreement with your OEM](#) is another way to minimise the risk. Some OEMs, such as Wärtsilä offers priority access to spare parts for its agreement customers.

When ordering parts it's also worth remembering that you need to pay attention to the whole lifecycle of the spare parts you use. Buying a part is just the beginning; when you replace worn or broken parts you also need to make sure these parts are either recycled or properly disposed of.

## Tip 5: Stay up to date with regulations and technology

Keeping up with regulatory changes is one of the biggest challenges you face when it comes to compliance. And it is highly likely that regulations on CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>x</sub> will become even more strict than they are today.

There is a simple way to address this challenge: make sure you proactively follow updates provided by regulatory authorities and your engine manufacturer. These updates and their implications for your ships should be shared with everyone in your organisation – from management to ship crews. This will ensure that everyone understands why regulations need to be followed and how to comply with them.

In addition to keeping up with regulations, you also need to stay up to date with new technologies. Regulations will also be extended to cover emissions such as methane slip, for example – which requires new technological innovations. On top of regulatory and technological changes, there is an increasing shift towards digital documentation and certification, which will help you better manage your fleet's compliance. However, to take advantage of these digital tools you will need new skills and new ways of working, and you won't be able to acquire these overnight.

# Bonus tip: Stick to the engine settings given by the manufacturer

If your ship has an electronically controlled engine, it is usually possible to change the engine settings. But that doesn't mean you should. For example, if you change the engine settings to try to optimise fuel consumption in the short-term, you run the risk of your engine not being compliant with emission regulations.

## Conclusion

Genuine, high-quality OEM spare parts play a critical role in keeping your operations safe and compliant. They are thoroughly checked and tested to comply with internationally recognised quality standards and regulations. And they are not necessarily more expensive than non-OEM spare parts.

While non-OEM spare parts may seem a cost-effective solution at first, using them can lead to expensive repairs, costly downtime and revenue loss in the long run. Added together, these costs far exceed the price of OEM spare parts.

Using original spare parts can also lead to fuel savings that more than compensate for any extra costs. According to a report by the World Shipping Council, fuel can account for 50–60% of your vessel's operating costs. [A cost-efficient service agreement](#) with your original engine manufacturer can also offer considerable savings and reduce the overall lifecycle cost of your equipment.

If you want more evidence to prove why genuine OEM spare parts are the best choice for your vessel, download this white paper: [Why genuine spare parts are the best choice for your vessel – 5+1 great reasons](#).

This article about ship spares and their effect on compliance first appeared as one of Wärtsilä's Insights stories.

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