



Council on Safe Transportation of Hazardous Articles

What Constitutes an Engine in 2017, and Is Mine Regulated?

When the UN adopted provisions for Engines in the 19th Revised Edition of the Model Regulations, the intent was to clarify how to ship large pieces of equipment with very large fuel tanks. Unfortunately, a very common product that has been shipped as non-regulated for years has gotten trapped into the definition. The result is confusion among shippers and carriers as to whether their “engine” is regulated or not. Similar confusion arose when vehicles were re-introduced into the IMDG Code with the 34th Amendment. Therefore, it may be valuable to understand where the provisions originated, and why the exceptions read the way they do.

Two separate issues led to the resulting language we currently have for ENGINES in the Model and modal regulations. Changes to the UN Special Provision 363 that applied to UN3363 DANGEROUS GOODS IN APPARATUS/EQUIPMENT in previous UN editions had raised many questions as to when a material was eligible for identification as UN3363, how much fuel/dangerous good could be contained in the apparatus/equipment, and what hazard communication was necessary. The opinion for many at the UN Subcommittee was that SP363 was complicated and unusable. Therefore, the special provision needed to be re-written.

At the same time, some felt the confusion created when vehicles were included in the IMDG Code would be extremely damaging if the concept were extended to engines that had little or no residual fuel. Therefore, some industry representatives requested a clean special provision that fully excepted such engines from regulation.

The UN decided to take both items together. They intended to re-write SP363 for large generators, air compressors or other equipment with fuel tanks containing 500 L, 1000 L, or even more than 1500 L in capacity, but also provide a clear exception for engines that have no fuel tank attached and only contain residual fuel. But given the limited nature of UN3363 and the fact that the hazard class was identified as “Miscellaneous”, providing clear hazard communication for such large fuel tanks was challenging.

The compromise solution was the introduction of three new entries for the UN Model Regulations, UN3528 ENGINES, INTERNAL COMBUSTION, FLAMMABLE LIQUID POWERED, Class 3, UN 3529 ENGINES, INTERNAL COMBUSTION FLAMMABLE GAS POWERED, Division 2.1, and UN3530 ENGINES, INTERNAL COMBUSTION, Class 9. The proper entry depends on the fuel used to power the engine. And against each entry, the special provision SP363 was listed.

What is Special Provision 363?

Of critical importance to understand these new provisions is that if a piece of equipment was regulated in 2016, it remains regulated in 2017. But the reverse is true as well. If an engine was not regulated in 2016, it is not regulated in 2017.

UN Special Provision 363 starts in paragraph (a) by explaining the types of materials which could be included under the Engine entries. But paragraph (b) states that engines “which are

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empty of liquid or gaseous fuels and which do not contain other dangerous goods, are not subject to these Regulations.” Further, two notes were added to explain that engines may be considered empty if the engine has been drained of fuel and the engine cannot be operated due to lack of fuel, and that fuel lines, fuel filters and injectors ***need not be cleaned, drained or purged*** to be considered empty. Thus, an engine that is not attached to a fuel tank, and has been bench tested but not drained...is not regulated for transport. And even if a fuel tank is attached, if the tank does not contain enough fuel to start or run the engine, it is also not regulated.

What about other dangerous goods? Some engines may contain other fluids, batteries, explosive squibs, etc. that present different risks. The UN considered this issue as well and felt that the entry “ENGINES, INTERNAL COMBUSTION” wouldn’t fully describe such devices. Therefore, if engines contain other dangerous goods, the entry would be better described as UN3363 DANGEROUS GOODS IN APPARATUS/MACHINERY or UN3166 VEHICLES, FLAMMABLE LIQUID/GAS POWERED.

So what is regulated?

The rest of Special Provision 363 explains that if the tank contains enough fuel to run the engine (or machinery), then there are requirements for hazard communication based on the amount of fuel in the tank. The more fuel, the more hazard communication requirements. But there are no hazard communication requirements for engines that are considered “empty” of fuel.

Remember, the entries were created to address very large engines (that are not vehicles) that may have significant quantities of flammable liquid or flammable gas as a fuel contained in fuel tanks attached to the engines. For smaller fuel tanks attached to engines, labeling is acceptable. For larger fuel tanks, placarding and documentation is necessary.

What about the modal regulations?

Having an exception in the UN Model Regulations is fine. But what about the legal documents used to actually prepare and ship the material? The IMDG Code for sea? 49 CFR? the ICAO TI for air?

By sea, the International Maritime Organization (IMO) adopted the UN Special Provision 363 in total; meaning the exception noted above regarding engines that do not contain fuel or engines that were deemed “empty” of fuel are not regulated under the IMDG Code. Fuel may remain in the engine as long as the engine itself cannot be started with the amount of fuel contained within.

By ground, 49 CFR adopted the same provisions in HM-215N. 49 CFR, Part 173, §173.220 (a)(1) already included the description of empty engines that align with the new UN SP 363. Therefore, no specific requirements were necessary.

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The air mode is where things are different. By air, engines that contained residual fuel have been classified as a regulated dangerous good for years. However, previously they would have been covered under the Class 9 Miscellaneous entry. Now, the shipper must identify the hazard class of the fuel used to power the engine. ICAO/IATA Special Provision A70 explains the only exception for engines containing fuel is when all fuel has been drained from the system and all vapors have been purged. If any residual fuel remains in the fuel lines, etc., the appropriate entry for the fuel type applies.

Are engines subject to the 25/75 kg rule by air?

In the United States, 49 CFR, Part 175, § 175.75 limits the quantity of dangerous goods loaded in any one inaccessible cargo compartment to 25 kg (75 kg for gases). There are exceptions, and in the HM-215N Harmonization Rule, PHMSA clarified UN3528 and UN3529 are not subject to these limitations. Thus, even if your engine is regulated by air, it will not be subject to the compartment limitations in Part 175.

Are more changes coming?

There do not appear to be any changes on the horizon for UN3363, UN3528, UN3529, or UN3530. The changes to UN SP363 appear to have addressed the confusion on large quantities of fuel in machinery/apparatus, and the exception identified for engines with residual fuel but no fuel tanks, or minimal fuel in fuel tanks provides the relief sought by industry. It may take a few years for shippers and carriers to be comfortable with the new provisions, but the current version of SP363 seems to be here to stay.

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