

May 25, 2022

Japan Land Engine Manufacturers Association
Revision of Phase 3 Voluntary Emission Regulations for Small Non-Road Spark Ignition Engines

The Japan Land Engine Manufacturers Association (hereinafter, LEMA) implements voluntary exhaust gas regulations to reduce hydrocarbons (HC), nitrogen oxides (NO_x), and carbon monoxide (CO) in the emissions of small non-road spark ignition engines (hereinafter, SI engines) with an output of less than 19 kW that are manufactured by member companies and sold for use in the Japanese domestic market.

These voluntary exhaust gas regulations apply to SI engines installed in tillers, generators, chain saws, brush cutters, etc., and the Phase 1 regulations were implemented in January 2003, the Phase 2 regulations in January 2008, and the Phase 3 regulations in January 2014 in stages by category (for portable and non-portable equipment) and class, with the Phase 3 regulations being applied to all categories since 2016.

The voluntary emission control regulations in Japan were introduced with a view to future global mutual certification and with the desire for regulations to become a global standard, on the premise of harmonization with the EPA (U.S. Environmental Protection Agency hereinafter abbreviated) regulations, which have been progressing internationally, and have been harmonized with European regulations as well. Member companies of LEMA are actively working to reduce emissions from SI engines in response to European and U.S. regulations and voluntary regulations, and have now revised LEMA voluntary regulations in order to respond to the globalization of the domestic market and achieve further results.

1) Background of the revision of voluntary emission regulations

Since its inception, LEMA voluntary exhaust gas regulations have been applied to engines manufactured by member engine manufacturers, however due to recent globalization, many engines manufactured by non-member foreign manufacturers are now being sold in the domestic consumer market.

In response to this situation, and from the standpoint of environmental conservation, we have revised the Voluntary regulations to expand the scope of applicable businesses so that businesses using engines manufactured by foreign manufacturers can also participate in the voluntary regulations and make efforts to reduce emissions.

2) Scope of application and detail of revision

The engines subject to this voluntary emission regulation are now defined as "new SI engines

with output of less than 19 kW manufactured by member companies at their domestic plants in Japan or overseas plants or or supplied by non-member companies and sold for use in Japan." and engines supplied by non-member companies are also included in the scope. In addition to the existing "engine manufacturers", the regulations now also apply to "engine dealers," "engine equipment manufacturers," and "engine equipment dealers" who are members of the association.

3) Targets and detail of Phase 3 voluntary emission regulations

(1) The target engines are the SI engines with an output of less than 19 kW as mentioned above (excluding engines for emergency, emergency use and racing engines etc.), and engines supplied by non-member companies will also be added to the list.

Regulatory emissions are HC+ NO_x and CO.

(2) Phase 3 Voluntary Emission Limits

There will be no changes in emission limits. The emission limits and their implementation dates are as follows:

	Engine Class	Displacement (cc)	Phase 3 voluntary emission limits (g/kW-hr)		Applied from
			HC+NO _x	CO	
Non-handheld engines (NHM)	I	Less than 225	10.0	610	January 1, 2016
	II	At or above 225	8.0	610	January 1, 2015
Handheld engines (HH)	III	Less than 20	50	805	January 1, 2014
	IV	At or above 20 and less than 50	50	805	
	V	At or above 50	72	603	
Regulation method			In-use regulations (Note 1)		

Note 1: In-use regulations refer to the requirement that voluntary emission limits must be met within a predetermined cumulative operating time.

4) Operation of Phase 3 voluntary emission regulations

Member companies shall notify LEMA in advance of the specifications and emission values of the engines that they intend to sell for use in Japan. In addition, the member companies shall calculate the actual emission values of the subject engines manufactured, and supplied by non-member companies during the relevant year (January to December) and report them to LEMA.

Based on the performance reports submitted by each member company, the total emission volume is calculated and the average emissions volume per engine is calculated and compiled for publication by LEMA. This will maintain the results and transparency of voluntary regulation.

5)Implementation

This revision of the voluntary emission regulations will take effect on May 25, 2022.