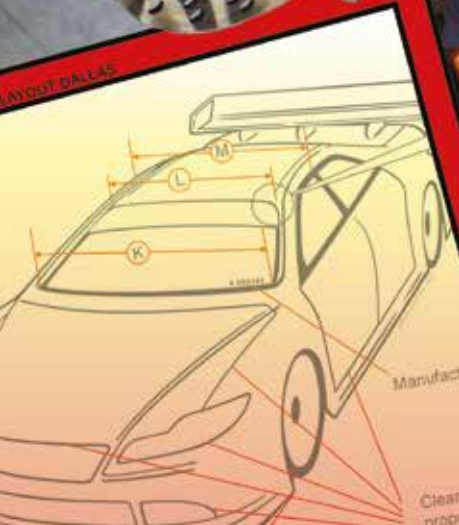




# HANDBOOK 2017

EUROPEAN FEDERATION OF RADIO OPERATED MODEL AUTOMOBILES



## APPENDIX 8

# HOMOLOGATION OF MUFFLERS

### 1. GENERAL

Each motor must be equipped with an exhaust system and an inlet silencer to reduce the amount of noise generated by the car. The noise level is a combination of RPM, motor design and performance, muffler, manifold, gearing and body. The better the combination, the more performance and more RPM. Since EFRA can only check 2 of these items (muffler and INS box) there is no way to control the noise in a good way on a track without extra measurements. The only solution is measurement on the track by means of a so called "Noise Trap. For the future we will talk about registration of mufflers and no longer about homologation, simply to avoid interpretations as that a homologated muffler is always OK. The legal noise level within the European Community is 83 dB's, without the need for extra personal protection. EFRA's definition of a noise level is always final.

For 1/8th IC track races only EFRA registered mufflers with a minimum of 3-chambers are allowed on EFRA sanctioned events. The EFRA registration number must be engraved on the sidewall of the muffler.

For 1/8th Off Road, only EFRA registered with a minimum of 3-chamber mufflers are allowed. The EFRA registration number must be engraved on the sidewall of the muffler. For 1/10th IC track, only EFRA registered 2-chamber mufflers list are allowed on EFRA sanctioned events. The EFRA registration number must be engraved on the sidewall of the muffler. The sections will use a so called "noise trap" to check noise level on the events. Depending on the track layout the noise trap will be installed and used to take out cars that make too much noise. The final noise limit for an event must be set prior to timed practice.

All mufflers on the 2013 list that are still sold and manufactured must be registered again before March 1st 2014 to be able to be used for the 2014 season. The registration period will be limited to 2 years and needs to be renewed after that period. Mufflers that were allowed in 2013, EFRA 2103 till 2109 do not need registration for 2014, including the RCE mufflers with the double wall and rear muffler outlet. WHY REGISTRATION. Registration is needed to be sure mufflers are made according to specific dimensions. Registration is needed to make sure there is a product available in the shops Registration is needed to avoid self made mufflers used at club level. Registration is needed to control the design and weight which are part of the noise production.

### 2. REGISTRATION FEE

will be: see General Rules 3.5.7. > 120 euro (60 euro for Assoc. Members).

### 3. REGISTRATION NUMBER:

Every accepted muffler is issued with an EFRA registration number which must be indelibly pressed or milled on the sidewall.

### 4. TECHNICAL DETAILS

A very important factor in the control of the noise level of a muffler is the design of the mandatory 2nd and 3rd chamber and the total length of the outlet pipe. The outlet pipe for 1/8th scale may have a maximum of 8.00mm diameter. For 1/10th the maximum is 5.20 mm

### 5. TOLERANCES

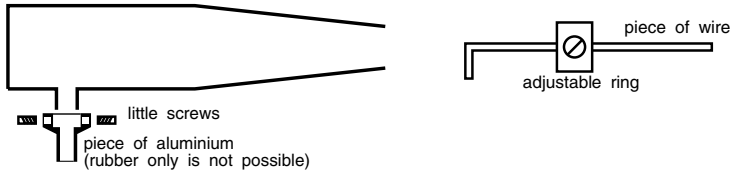
Recognizing that the component parts of a muffler are joined together, it is quite clear, that there may be some slight differences in total measurements. This will

not lead to dramatic noise level variation, but one important point must be mentioned: The 2nd cone must be in line with the outlet pipe, if this is a feature of the original design. The outlet pipe may have a minus-tolerance of 2 mm. To check the total length of the outlet pipe use a tool similar to that shown below.

**6. PRACTICAL TIP**

Some drivers cut the outlet pipe, because they fear damage during the race. Of course this is not allowed. To help in such a case, here is a tip:

**7. EFRA REGISTERED MUFFLERS**



Updated lists of mufflers which are registered each years will be found on the EFRA-website.

**8. INS box dimensions.**

The performance of the INS box is based on its form and measurements. Therefore it is strictly forbidden to change anything on its internal dimensions. The INS box for 1:8 and 1:10 are the same, only the foam filter has another dimension to fit the carburetor. A list of the approved INS-Box will be published on the EFRA webpage.

## **APPENDIX 9**

### **PROCEDURE FOR BODY-APPROVAL (1/8 TRACK, 1/10 TRACK, ELECTRIC TRACK & LARGE SCALE)**

1. Any manufacturer, who wishes to submit a bodyshell for homologation must first contact the EFRA Treasurer who will invoice them the required amount and forward to them, together with the invoice, the EFRA Bodyshell Homologation Form. Sanction Fee will be set at the EFRA Annual General Meeting.
- 1.a Bodies for 1:10th, 1:8 class and Electric Track.  
Anyone who wishes to have a body tested and homologated must submit 2 samples before January 31th to the body homologation officer.  
Bodies will be checked and verified between December 1st and February 28th and will be put on the EFRA webpage for publication on March 1st.  
After publication no other bodies will be added to the list before the end of the running year.
2. All manufacturers must submit the following to the EFRA Homologation Officer (DO NOT SEND BODY SHELL TO THE TREASURER):
  - a) The completed EFRA Homologation Form
  - b) Pictures of original 1/1 car body from two of the following elevations.
    - top
    - front end
    - rear end
    - side
  - c) Any other information that may be necessary  
e.g. Race results for real car races  
Manufacturers data for production cars
  - d) TWO examples of the model body from the final tool with all character lines and other elements present. This will be retained for referral. All wings custom designed for the body must be included.
  - e) For Large Scale models it is only necessary to send 1 (one) example of the body shell. Drawings and photographs will be retained by the Homologation Officer as proof of the homologation. Bodyshell must be clearly marked (stamped or engraved) with the homologation number.
  - f) All Bodies currently on the EFRA approved list will remain legal for five years or earlier removed.
3. Upon receipt of the above items, the Manufacturer will receive a confirmation from the Homologation Officer with the date of receipt. If any of the above items are missing, or photographs or other data are considered by the Homologation Officer to be of insufficient quality, homologation will be refused. The reason for refusal will be given.
4. Within one month of confirmation of receipt, subject to confirmation from the EFRA Treasurer that the sanction fee has been paid, the Homologation Officer will either:-
  - a) Approve the body, when the model body is an acceptable representation of the original.OR
  - b) Refuse homologation, when the differences from the original are too great. If the body shell is refuse the reason for refusal will be stated.Each homologated body will have an unique EFRA number, even if the same

type of bodyshell is already approved for a different manufacturer. The EFRA number must be set in an area immediately adjacent to the cockpit, preferably in front of the windscreen. Body homologation number must be visible at time of technical inspection. Therefore manufacturers must place the number in an area of the body which will not be cut out. (Bonnet in front of the driver, front spoiler, windscreen)

All shells with separate customised wings must have the homologation number moulded into all parts of the wing as well as the body. The wing must be submitted for homologation at the same time as the body for which it is intended to be used. The wing may only be used with the shell with which it was homologated.

5. The homologation period lasts for five years, after which the body may be resubmitted, provided it still satisfies all regulations concerning the individual body class and is still in use.
6. The manufacturer may, if he wishes send a preliminary example of the model body to the Homologation Officer for interim advice. The body need not be taken from the final tool but all character lines and other details must either be moulded on or marked on the body in pen. Photographs etc. must be enclosed as in the full homologation procedure. The Homologation Officer will give a non-prejudicial opinion on whether the body would be homologated in finished form. If he decides that the body would not be approved, he may, if he wishes, give specific reasons. A fee to cover expenses will be charged for this service. Fee to be set at the EFRA Annual General Meeting.
7. Once approved, the tool must not be modified in any way. Should the tool be modified, the EFRA number must be filled in and an example of the modified body submitted to the Homologation Officer for full re-submission.
8. All information and examples of bodies sent to the Homologation Officer will be retained during the homologation period of five years. All examples of large scale bodies sent to the Homologation officer will be sent back to the manufacturer with the homologation number engraved in. The manufacturer has to retain the example body during the homologation period of five years. If the Homologation Officer suspects that a body has been modified post-homologation he may anonymously purchase an example of the body for checking. If he finds that the body has been modified it will be immediately removed from the approved lists.
9. After 5 years a body will disappear from the list unless the manufacturer asks for a license for another period of 5 years. The fee for an extra period is 40% of the normal homologation fee.
10. EFRA Homologation Officer:  
See List on page 8 in the address section
11. Special Homologation rules for 1:8 scale.  
The body must be a replica from an original race car.  
Cars must have raced in either Sports Can Am classes, Proto-type, Group-C, Le Mans, American Le Mans or GT1/GT2 classes.  
Bodies must be a 1:8 scale in character reproduction of vehicles that exist or have existed in the last five years. There will be an allowance of tolerance in all dimensions.  
Once homologated by the homologation officer the name of the body can be changed to a name or production reference from the manufacturer. This name or reference will be used at the EFRA body list.

The rear of the body after the rear axle is free and does not have to be within the measurements of the original.

Overall dimensions of the car:

Wheel base: 270.00-330.00 mm, overall width max 267.00 mm

Overall width of the body max.: 267.00 mm, measured on top of the wing and on top of the sides and the lower front side.

The lower sides between the two front and rear wheel arches will not be taken into account for technical inspection as long as they are not wider as 277 mm.

The following differences from the original are allowed;

Side dams on the model after the rear axle may not be higher than 40 mm.

Side dams from the front axle till the rear axle may have the following dimensions;

From front axle over the first 150 mm, not higher than 8 mm and not more than 20 mm over the next 100 mm.

Behind the driver the body may be adapted to suit fuel tank. Driver may be moved slightly to the front or to the left or right to avoid conflicts with tank.

Driver may not be cut because of fuel tank opening.

All bodies will have the EFRA number engraved into the body at such a place that it is visible all the time.

For minor changes the body will get an extension on the number, for instance, EFRA2004001 will be EFRA2004001A after the changes. After a second change it will be EFRA2004001B.

All changes must be submitted to the homologation officer and need to be accepted by EFRA and will be charged with 40% of the original homologation fee.

Different bodies with the same number are not possible.

Bodies must be presented to the homologation officer latest end of January and will be published on a list on March 1st the latest.

## 12. **Body lists**

Lists of the approved bodies will be published on the EFRA webpage.