



Evolution® High-Performance Muffler

(.46-.60 NX) INSTRUCTIONS

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, Inc. For up-to-date product literature, visit www.horizonhobby.com and click on the support tab for this product.

MEANING OF SPECIAL LANGUAGE

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a small or null possibility of injury.

WARNING: Procedures, which if not properly followed, create the likely probability of physical property damage AND may lead to a dangerous condition or cause death or serious injury to the user, OR procedures, which if not followed, create the high probability of superficial injury.

⚠ WARNING: Read and follow all instructions and precautions before use. Failure to do so could result in product malfunction, damage and injury.

⚠ WARNING: Do not touch this product while in use. It can become extremely hot which could lead to burns.

NOTICE: Only use this product with parts specified in the product literature

This is a sophisticated hobby product and NOT a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not attempt disassembly, use with incompatible components or augment product in any way without the approval of Horizon Hobby, Inc. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

INTRODUCTION

Thank you for buying an Evolution High-Performance Muffler. This muffler has been developed and tested for use with our small case Evolution 60NX, 52NX and 46NX engines. This muffler will fit on other engines with the same mounting dimensions.

We'd like to hear your comments on the results you get from this Evolution Muffler.

INSTALLATION

The Evolution Muffler comes with two screws (these screws are available as replacement part EVOM101).

1. Remove the existing muffler and screws from the engine.
2. Apply sealant (hi-temp RTV) on the face of the muffler port. The face of the exhaust port may be rough, so a seal may be needed. A paper gasket is not recommended, because paper tends to compress then loosen. Because of the nature of the product, a small leak is acceptable.
3. Put the Evolution Muffler screws in the engine exhaust mounting holes and apply a small amount of thread sealant to the screws. (We recommend PAAPT42 (blue) so you can remove the muffler when you want).
4. Tighten the screws into the Evolution Muffler using a T-handle instead of an L-handle wrench. Take care to tighten both screws evenly to prevent distorting the engine case.
5. Connect the muffler pressure fitting to the fuel tank using medium-size silicone tubing. Make sure the tubing is not bent and does not form a kink, so air flows freely. Connect the tank to the carburetor using the largest tubing that fits and seals. Filters may be used, but only when clean with no leaks (we recommend the HAN143 Pro Fuel Filter).
6. Engine carburetor, low-speed and high-speed needles may need adjustment after installation of this muffler. Refer to your engine manual for instructions.

Note: Due to increased rpm produced from the muffler, we recommend using the glow plug HAN3011.

7. The Evolution Muffler is longer than stock mufflers. This muffler is tuned and cannot be shortened.
- Exhaust deflectors or extensions may be installed if needed on your aircraft.
 - The propeller may need to be changed so the engine reaches its tuning rpm. The tuning rpm with this Evolution Muffler is 15,000–17,000 rpm. Refer to the guidelines below to select a propeller for your engine.

APC PROPELLER	STOCK MUFLER RPM	EVOLUTION MUFLER RPM	RECOMMENDATION
10 x 6	15,300	16,800	YES
10 x 7	14,600	16,300	YES
10 x 8	13,600	15,500	YES
11 x 6	13,600	15,500	YES
12 1/4 x 3.75W	13,100	15,000	YES
10 x 9	12,900	14,900	NO
11 x 7	13,000	14,800	NO
11 x 8	11,800	11,800	NO
12 x 6	12,500	12,500	NO

⚠ CAUTION: Propellers that do not turn a maximum of 15,000 rpm on the ground are not recommended. An oversize propeller causes a tuned system to overheat much faster than a non-tuned system. When a propeller is used that is too large for the engine to reach its tuning rpm with this Evolution Muffler, the engine will run hotter and possibly slower than with a stock muffler. Use a higher rpm propeller to prevent engine overheating.

Repair: Only Horizon Hobby Service Center may repair this muffler.

WARRANTY AND REPAIR POLICY

Warranty Period

Exclusive Warranty- Horizon Hobby, Inc., (Horizon) warranties that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

Limited Warranty

Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

Damage Limits

HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

WARRANTY SERVICES

Questions, Assistance, and Repairs

Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a Product Support representative.

Inspection or Repairs

If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. A Service Repair Request is available at www.horizonhobby.com on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

Warranty Inspection and Repairs

To receive warranty service, you must include your original sales receipt verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

Non-Warranty Repairs

Should your repair not be covered by warranty the repair will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. Please note: non-warranty repair is only available on electronics and model engines.

Country of Purchase	Horizon Hobby	Address	Phone Number/Email
United States	Horizon Service Center (Electronics and engines)	4105 Fieldstone Rd Champaign, Illinois 61822 USA	877-504-0233 productsupport@horizonhobby.com
	Horizon Product Support (All other products)	4105 Fieldstone Rd Champaign, Illinois 61822 USA	877-504-0233 productsupport@horizonhobby.com
United Kingdom	Horizon Hobby Limited	Units 1-4 Ployters Rd Staple Tye Harlow, Essex CM18 7NS United Kingdom	+44 (0) 1279 641 097 sales@horizonhobby.co.uk
Germany	Horizon Technischer Service	Hamburger Str. 10 25335 Elmshorn Germany	+49 4121 46199 66 service@horizonhobby.de
France	Horizon Hobby SAS	14 Rue Gustave Eiffel Zone d'Activité du Réveil Matin 91230 Montgeron	+33 (0) 1 60 47 44 70