



12VDC Model Engine Starter

Limited Warranty

Sullivan Products will, at our option, repair or replace this Starter if defective in materials or workmanship for a period of two years from date of purchase. Proof of purchase date may be required.

For service under this warranty, the starter must be shipped prepaid and insured to Sullivan Products, P.O. Box 5166, 1 North Haven Street, Baltimore, Maryland 21224.

For defects caused by accident, neglect, misuse or abuse, or for starters outside the two year warranty period, the starter can be returned to Sullivan Products at the above address for a repair quote. You can also call 410-732-3500 for pricing on replacement parts.

Caution: This starter is designed for intermittent use only. Continuous operation can overheat and damage the motor, and will void the warranty. Rubber inserts and attachments are not covered by this warranty.

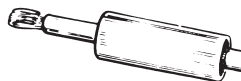
Warning: Non-Sullivan starter attachments and adapters can cause irreversible damage to the shaft, including thread shearing. Damage from Non-Sullivan components will void the warranty.

Starter Instructions

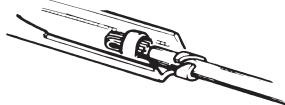
1. Attach the battery clips as shown on the reverse (proper attachment is important for minimized resistance) or, if you plan to use a power panel, attach Sullivan S645 Heavy Duty Banana Plugs. **Note:** This starter draws substantial current, and the wiring must be of adequate size and condition for safe and proper operation. *All wiring extensions should be 10 AWG or larger, and all connections should be soldered. Many power panels have inadequate wiring.*
2. S600/S601 Hi-Tork Models: The front hand guard can be turned for left handed starting by removing the two acorn nuts on the front hand guard, turning the hand guard 30 degrees to the other holes, and replacing the nuts.
3. Use a 12V battery (the larger the better) or use a Sullivan PowerPacs to power the starter. Due to the large current draw, gel cells and small sealed lead acid batteries will limit the starter's output. Wet cell motorcycle batteries, automobile batteries or NiCad packs (PowerPac) are best for full output. If in doubt about your battery, try the starter on your car battery as a comparison.
4. If starting an engine using a spinner or bare prop, reverse the rubber insert if needed for best fit. A variety of dedicated inserts are available to fit specific spinners, prop nuts or bare props.
5. **Safety:** This starter will spin at high RPM. If any parts come loose or break they can cause **personal injury**. *Always wear safety glasses when starting any engine, and always wear hand protection when in the vicinity of the engine!* Never stand directly in the path of a propeller or flywheel, and do not use the starter if any attachment or insert is loose or out of balance.
6. Prime engine if needed. Hold starter firmly against spinner or prop, or if belt starting, hold belt under tension. Press the strip switch with fingers. Release when engine starts. Note: Do not allow starter to overheat -- it can damage the windings. Do not operate the starter for more than 15 seconds, and allow 1 minute to cool between starts.

Battery Clip Attachment Instructions

1. Touch the bared Starter wires to the battery to determine rotation. Most normal engines run counterclockwise as viewed from the front. The starter will reverse rotation if the leads are reversed.

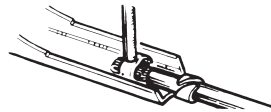


2. Remove a sleeve from each clip and slide the red sleeve onto the wire that should be attached to + for proper direction; slide the black sleeve onto the other wire. Fold the bare wires back as shown.



3. Insert the folded wires under the bridge in the battery clip. Squeeze the strain relief around the insulation.

Incorrectly assembled battery clips can significantly reduce starter output or overheat joints!



4. Use a punch or nail to flatten the bridge onto the folded wire.



5. Solder the joint together with rosin core solder, or good electrical flux and solder (do not use acid flux). Slide the sleeves back over the battery clip ends.

If using Banana Plugs (Sullivan S645) be sure to solder those as well to ensure good electrical continuity.

Replacement parts

Most repair parts are available from Sullivan. You can purchase replacement parts by visiting www.sullivanproducts.com (there are images of most of the parts and ordering instructions) or by calling the office at 410-732-3500.

Your dealer will have replacement rubber inserts and other accessories, such as S640 PowerPacs, S645 Heavy Duty Banana Plugs, S612 and S613 Helicopter Extensions and other accessories. You can see these products on our web site, and they are readily available at retailers worldwide.

If you have any questions about the operation of our starters or would like a product catalog, feel free to ask. Thank you for choosing Sullivan!

www.sullivanproducts.com

Sullivan Products, 1 North Haven Street, Baltimore, MD 21224