



MOTOR APPROVAL PROCEDURE

Revised: Mar 2007

- 1) The Motor Committee will be comprised of the ROAR President, ROAR Technical Director, and ROAR Competition Director. The ROAR Technical Director will be responsible for confirming minimum quantities and commercial availability. Documentation showing proof of availability for the specific motor should be forwarded to the Technical Director. The minimum quantities required by ROAR for availability are: 5,000 pieces for stock, and 2,000 pieces for modified. One (1) sample motor must be submitted to the ROAR Technical Director for archive purposes. The sample motor should be sent to:

David Lee (ROAR Technical Director)
6339 Muirfield Way
Indianapolis, IN 46237
Phone: 317-859-0596 email: leeda@tqci.net

Five (5) motors must be submitted by the manufacturer/importer to the motor lab for inspection. The motor lab will inspect the motors per ROAR instructions and issue a certificate of pass/fail to the manufacturer/importer and the ROAR Technical Director. The manufacturer/importer will pay the cost of inspection directly to the motor lab.

- 2) A processing fee of \$ 70.00 per motor (total of \$ 350.00) must be submitted along with the (5) motors and a copy of the Motor Specification Form to RHI Services at the following address:

- ◆ RHI Services
2921 Harlee Drive
Farmers Branch, TX 75234-5007 Phone: (972)-620-0407
Attention: Mr. Robert Ingersoll e-mail: rhis1@tx.rr.com
Checks should be made payable to Robert Ingersoll

- 3) The lab will be instructed to pass the motor only if all five (5) samples pass every aspect of the inspection.
- 4) If a motor is not passed by the motor lab on the initial submittal, the manufacturer/importer may work with the lab to obtain a passing certificate by submitting five (5) additional samples. Certain standards, (e.g., stock motors 27 turns, wire size, etc.) must always be met. All five of the samples submitted the second time must pass technical parameters. As with the original motors submitted, the manufacturer/importer will pay the cost of inspection for these additional motors directly to the motor lab.
- 5) Upon receipt of the certificate from the motor lab and confirmation of minimum quantities and commercial availability, ROAR will publish the results, either passing or failing, in REV-UP and/ or the ROAR newsletter and the ROAR website. At the time that the information appears in print, the motor — if passed — will be allowed at ROAR sanctioned events.
- 6) An Advisory Panel may be formed to evaluate current standards and to formulate new technical standards. The Advisory Panel will be chaired by the ROAR Technical Director. Four (4) manufacturer/importer/members at large appointed by the ROAR Executive Committee, in addition to the ROAR Technical Director, will make up the panel.



Motor Specification Form (Modified and Non-Rebuildable Stock)

Motor Name / Manufacturer: _____

Motor Type: _____ Case Number: _____ PASSES (Circle One)

- Maximum case diameter 36.02mm Measured at which point affords the maximum dimension Actual measurement: _____ YES NO
- Maximum case length; 53.0mm Measured from mounting face of the motor, to the furthest most point of the endbell, not including soldering tabs, shaft, or lead wire. Actual measurement: _____ YES NO
- Magnets Ceramic, Neodymium or Ferrite only. Cobalt and other rare earth magnets are specifically prohibited. YES NO
- Limited to three (3) pole armature only. Number of poles _____ YES NO
- Maximum armature stack length 22.6mm Actual measurement: _____ YES NO
- Maximum stack diameter: 23.2mm Actual measurement: _____ YES NO
- S Stock motor wind: 27 turns min Actual number of turns: _____ YES NO
- S Motor wire size 22AWG (.67mm max.) Actual size: _____ YES NO
- S Stock motor wire wrap: "Mabuchi" cross wrap YES NO
- S Stock motors use bushings only. Bearings not allowed. YES NO
- S Established timing locking method YES NO
- S Commutator slot aligned with armature segment center (2 degree tolerance allowed) YES NO
- Magnets centered at mounting holes. YES NO
- S 2 Magnets only (1 North & 1 South) YES NO
- S 0 degree Center location indicated on can YES NO
- S Overall timing does not exceed 24 degrees. Actual measurement _____ YES NO
- Identifying feature molded into endbell and stamped on can YES NO
- S ROAR "XX" stamped on mounting face. ("XX" is year submitted or approved) YES NO
- S Wire length per pole: min 64 in. Actual measurement _____ YES NO
- S Motor mounting holes on one inch centers. YES NO
- Shaft size: .125 inch diameter YES NO

Signature of Reviewer: _____ Date: _____

Printed Name of Reviewer: _____



Rebuildable Stock Motor Specification Form

Motor Name / Manufacturer: _____

Motor Type: _____ Case Number: _____

PASSES (Circle One)

Maximum case diameter 36.02mm (excluding label) measured at which point affords the maximum dimension Actual measurement: _____ YES NO

Maximum case length; 53.0mm. Measured from mounting face of the motor can to the furthest-most point of the endbell, not including soldering tabs, shaft, or lead wire. Actual measurement: _____ YES NO

XXXX "27" stamped on mounting face of motor can. ("XXXX" is the manufacturer's name or abbreviation) YES NO

Motor can includes inspection holes/slots that allow the label on the armature to be viewed when motor is assembled YES NO

Endbell and can marked with manufacturer's name YES NO

Motor must use bushings only. Bearings not allowed. YES NO

Holes in can and endbell for bushings not to be smaller than .210" _____ YES NO

Armature includes a permanently affixed tag mounted between two of the poles measuring a minimum of .500". Label must be printed with manufacturer's name and "27" (e.g. "EPIC 27, "YOK 27, etc.). YES NO

Shaft length minimum of 2.775" with .385" extending beyond the end of the commutator. Measured length: _____, Extended beyond comm. _____ YES NO

Shaft size: .125" diameter YES NO

Commutator end of shaft must be tapered a minimum of .060" from end YES NO

Limited to three (3) pole armature only. Number of poles _____ YES NO

Maximum armature stack length 22.6mm Actual measurement: _____ YES NO

Maximum armature stack diameter: 23.2mm Actual measurement: _____ YES NO

Stock motor wind: 27 turns min Actual number of turns: _____ YES NO

Stock motor wire wrap: "Mabuchi" cross wrap YES NO

Motor wire size 22AWG – round only! (.67mm max.) Actual size: _____ YES NO

Wire length per pole: min 64 in Actual measurement _____ YES NO

Commutator slot aligned with armature segment center (2° tolerance allowed) and locked in place YES NO

Endbell and can "lock" at 24-degrees of timing when assembled YES NO

Timing mark on endbell to designate 24-degree timing when assembled. YES NO

Overall timing does not exceed 24 degrees. Actual measurement _____ YES NO

Magnets centered between mounting holes in can. YES NO

Magnets Ceramic, Neodymium or Ferrite only. Cobalt and other rare earth magnets are specifically prohibited. YES NO

Two magnets only (1 North & 1 South) YES NO

Signature of Reviewer: _____ Date: _____

Printed Name of Reviewer: _____



Rebuildable “Super Stock” 19T Motor Specification Form

Motor Name / Manufacturer: _____

Motor Type: _____ Case Number: _____

PASSES (Circle One)

Maximum case diameter 36.02mm (excluding label) measured at which point affords the maximum dimension Actual measurement: _____ **YES NO**

Maximum case length 53.0mm. Measured from mounting face of the motor can to the furthest-most point of the endbell, not including soldering tabs, shaft, or lead wire. Actual measurement: _____ **YES NO**

XXXX “19” stamped on mounting face of motor can. (“XXXX” is the manufacturer’s name or abbreviation) **YES NO**

Motor can includes inspection holes/slots that allow the label on the armature to be viewed when motor is assembled. Holes/slots may be no closer than .220 from either end of can. **YES NO**

Endbell and can marked with manufacturer’s name **YES NO**

Armature includes a permanently affixed tag mounted between two of the poles measuring a minimum of .500”. Label must be printed with manufacturer’s name and “19” (e.g. “EPIC 19, “YOK 19, etc.). **YES NO**

Shaft length minimum of 2.775” with .385” extending beyond the end of the commutator. Measured length: _____, Extended beyond comm. _____ **YES NO**

Shaft size: .125” diameter **YES NO**

Commutator end of shaft must have a step .060” minimum from end **YES NO**

Limited to three (3) pole armature only. Number of poles _____ **YES NO**

Armature stacks are continuous full length **YES NO**

Crowns of armature stacks are symmetrical with constant radius **YES NO**

Armature stack length 22.6mm max 19.0mm min Actual measurement: _____ **YES NO**

Maximum armature stack diameter: 23.2mm. Actual measurement: _____ **YES NO**

Motor wind: 19 turns min. Actual number of turns: _____ **YES NO**

Motor wire size 19AWG – round only! (.914mm max.) Actual size: _____ **YES NO**

Wire length per pole: 1170mm min Actual measurement _____ **YES NO**

Commutator slot aligned with armature segment center (2° tolerance allowed) and locked in place **YES NO**

Endbell and can “lock” at 24-degrees of timing when assembled **YES NO**

Timing mark on endbell to designate 24-degree timing when assembled. **YES NO**

Overall timing does not exceed 24 degrees. Actual measurement_____ **YES NO**

Magnets centered between mounting holes in can. **YES NO**

Magnets Ceramic, Neodymium, or Ferrite only. Cobalt and other rare earth magnets are specifically prohibited. **YES NO**

Two magnets(1 North & 1 South) or split magnet design (1 split set North and 1 split set South). If Split magnet design is used, they must be the same length and centered 90 deg from the 0 deg mark on the can. **YES NO**

Brush configuration is laydown, standup, or square design used in other approved motors. **YES NO**

Commutator tabs are compression welded **YES NO**

Signature of Reviewer: _____ Date: _____

Printed Name of Reviewer: _____