

Motor Rules

Approved Motors for use in IRRA[®] Racing

JK Falcon 7, part number JK30207
Topline Falcon 7, part number ATCD302



- 65 turns (nominal) of 30 AWG wire (nominal)
- Stack length - 0.375"
- Arm timing - 15 degrees nominal
- Diameter - 0.513"
- Magnets - neodymium
- Internal brushes and springs
- Oilite bushings
- Factory ID sticker must remain in place

TSR D3, part number TD301



- 65 turns (nominal) of 30 AWG wire (nominal)
- Stack length - 0.375"
- Arm timing - 3 degrees nominal
- Diameter - 0.513"
- Magnets - neodymium
- Internal brushes and springs
- Oilite bushings
- Factory ID sticker must remain in place

JK Retro Hawk FK, part number JKHR



- 65 turns (nominal) of 30 AWG wire (nominal)
- Stack length - 0.390"
- Arm timing - 15 degrees nominal, commutator tied
- Diameter - 0.513"
- Magnets - neodymium
- Internal brushes and springs
- Oilite bushings
- Laser-marked '7R 7R 7R 7R 7R' (with two long shafts or one long/one short shaft) or 'R R R R R R R' (with one long/one short shaft) **ONLY**.

Professor Motor, part number PMTRHR



- 65 turns (nominal) of 30 AWG wire (nominal)
- Stack length - 0.390"
- Arm timing - 15 degrees nominal
- Diameter - 0.513"
- Magnets - neodymium
- Internal brushes and springs
- Oilite bushings
- Laser-marked 'PMTRHR PMTRHR'

Note: armature dimensions exclude any coatings, if present.

Notes:

- 1) Both the specified winds and wire sizes are nominal figures, with allowances for production variances to be permitted.
- 2) A protested motor armature will be deemed legal if the sum of wire winds counted on all three poles is no less than 193 winds and if no single pole has less than 63 winds. In other words, a variance of -2 total wires winds from the nominal total winds spec will be permitted. For example, an FK armature with wire wind counts of 65, 64, 64 on the three poles would be deemed legal, as would an armature with wire wind counts of 65, 65, 63. An armature with wind counts of 65, 64, 63 would not be legal.
- 3) The specified AWG wire sizes on all motors are nominal values and minor allowances from the exact

AWG specification will be permitted at the discretion of the IRRA[®] Board of Directors.

If a manufacturer releases a new or modified version of a previously-approved IRRA[®] motor without informing the IRRA[®] of such changes, the IRRA[®] Board, at its discretion, may remove that motor from the list of motors approved for use in IRRA[®] competition. IRRA[®] also reserves the right to add new motors or to remove any previously-approved motor from the motor list.

Any motors with changed specifications submitted for IRRA[®] approval must carry a new part number. The IRRA[®] reserves the right to ask manufacturers for unique tags and/or can markings for identification purposes on motors submitted for inclusion in the IRRA[®] approved motors list.

IRRA[®] Motor Rules

- 1) All motors must remain unmodified and as produced by the manufacturer.
- 2) Motor cans must remain unmodified and as produced by the manufacturer. Factory external motor can dimensions may not be changed by crushing or other methods. Grinding where the can is soldered to the motor bracket is permitted.
- 3) Factory armature timing must remain unmodified.
- 4) Endbells may not be removed and reinstalled.
- 5) External clip-on motor heatsinks and commutator arm-shaft mounted coolers are allowed.
- 6) The armature shaft on the endbell side of long-shaft JK Hawk Retro motors **may not** be cut or shortened.

Motor Protest Procedure

Any competitor racing in the same class/race as another competitor may protest another racer's motor. The protest **must** be filed with the official in charge of event **before the completion of the race in which the suspect motor is being raced/used.**

The fee for protesting another racer's motor is **\$40.**

The protest fee must be paid in cash immediately after the race finishes.

At the conclusion of the race, the protested motor will be removed from the car by the Race Director or in front of the Race Director. Once the motor is out of the car the Race Director or his designee will mark the motor, which will be impounded to be sent in for teardown and verification. The impounded motor will be sent to the IRRA[®] Motor Chair or his designee for verification.

The race results will stand, to be amended later if the protested motor is found to be illegal and out of spec.

The IRRA[®] BoD will be notified of the results of the motor inspection and verification process and will release an official statement of the findings within ten days. Said statement may include notification that the racer using the illegal motor was found in violation and subject to the provisions of the Exclusion Clause of the IRRA[®] rules.

If the protested motor is found to be illegal and out of spec, the protester will get his protest fee returned in full.

If a protested motor is found to be legal and in spec, the motor's owner will receive the \$40 protest fee.

Note that the Race Host, Race Director, and/or Tech Inspector have the right to protest a competitor's motor at any time during the contested class, without payment of any fee.